THE UNIVERSITY OF CHICAGO
THE LAW SCHOOL
Abrams Environmental
Law Clinic

July 26, 2024

Via E-Filing

Ms. Lisa Felice
Executive Secretary
Michigan Public Service Commission
7109 West Saginaw Highway
Lansing, MI 48917

RE: MPSC Case No. U-21534

Dear Ms. Felice:

Please find enclosed the Direct Testimony of Justin Schott on Behalf of Soulardarity and We Want Green, Too and Accompanying Exhibits DAO-101 to DAO-107 (Part 1 of 5), along with proof of service for electronic filing in the above-referenced matter. Please do not hesitate to contact me with any questions or comments.

Sincerely,

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xc: Parties to Case No. U-21534

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of **DTE ELECTRIC COMPANY** for authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority	)))))	Case No. U-21534 ALJ Sally Wallace

DIRECT TESTIMONY OF JUSTIN SCHOTT

ON BEHALF OF

SOULARDARITY AND WE WANT GREEN, TOO

(DETROIT AREA ADVOCACY ORGANIZATIONS)

July 26, 2024

I. INTRODUCTION AND SUMMARY

Q: Please state your name, occupation, and business address.

A: My name is Justin Schott. I serve as Director of the Energy Equity Project (EEP) and Lecturer of Energy Justice, both through the University of Michigan's School for Environment and Sustainability. As a lecturer, I teach a graduate-level class to forty students each fall semester. My business address is 440 Church St., Ann Arbor, MI 48109.

Q: On whose behalf are you submitting testimony?

A: I am submitting testimony on behalf of Soulardarity and We Want Green, Too (collectively, the Detroit Area Advocacy Organizations or DAAO).

Q: Please summarize your educational background.

A: I have an M.S. in Resource Policy and Behavior from the University of Michigan (2006) and a B.S. in Natural Resources from Cornell University (2002).

Q: Please summarize your professional experience.

A: I have served in my current role as Director of the Energy Equity Project since February 2021. My primary accomplishment has been convening a team of researchers, community advocates, regulators, and utilities to develop and implement a standardized framework for measuring and advancing equity in the energy system. The framework evaluates 148 potential metrics; considers demographic, historical, procedural, and distributional aspects of equity; and blends quantitative metrics with qualitative approaches. In leading the development of the framework, I organized ten stakeholder-specific listening sessions from

May 2021 to February 2022 that engaged more than 400 energy equity leaders across the country. I recruited forty-five co-authors and advisors to serve on and support four workgroups for fifteen months of intensive work reviewing listening session input and 148 proposed metrics and best practices, developing guiding principles, and writing chapters representing each of the four pillars of energy justice. In all, I coordinated a highly collaborative and participatory effort that was the result of more than 3,000 hours of commitment from participants and workgroup members.

I have presented this work in over forty settings, including roundtables, panels, advisory boards, public utility commission (PUC) proceedings, university classes, and energy and climate conferences since May 2021. I have also been quoted by more than a dozen public media sources, published opinion pieces, and submitted work to multiple academic journals (as detailed in my CV).[1] Over the course of this work, I have become intimately familiar with the scope of equity measurement and best practices to advance equity in both regulatory and utility spaces. In recognition of the success of the Energy Equity Project and my professional expertise, I received an appointment as a lecturer at the School for Environment and Sustainability in 2022. I teach an interdisciplinary graduate-level course on energy justice to forty to forty-five students each fall semester.

Previously I served as Executive Director of EcoWorks, a Detroit nonprofit, from June 2015 to November 2020. I was responsible for overseeing all aspects of financial management, development, communications, public relations, staff recruitment, administrative operations, and risk management. I managed a team of thirty staff members with an annual budget of $2.8 million. I also led research efforts to explore connections

[1] Ex. DAO-101, Justin Schott CV & Summary of Qualifications.

between weatherization, health, and affordability, in partnership with Dr. Tony Reames, the University of Michigan's Urban Energy Justice Lab, and other University of Michigan faculty and institutes. From 2019 to 2020, I was an intervenor in DTE Energy's Energy Waste Reduction biannual plans and successfully made the case to increase the budget for single-family and multi-family low-income programs by $10 million. My testimony drew on the research conducted in partnership with Dr. Reames.

Q: Have you testified before the Michigan Public Service Commission previously?

A: Yes, I provided testimony to the Michigan Public Service Commission (MPSC, or the Commission) regarding DTE Gas's and DTE Electric's 2019 Energy Waste Reduction Reconciliation in MPSC Case Nos. U-20429 (Gas) and U-20373 (Electric). I also provided testimony in DTE Gas's current rate case, MPSC Case No. U-21291.

Q: Have you testified or provided comments in regulatory proceedings in other states?

A: Yes, I provided testimony to the Kansas Corporation Commission regarding Evergy's filing in the Kansas Energy Efficiency Investment Act docket (2022), and to the Illinois Commerce Commission for gas rate cases brought by Ameren and People's Gas (2023). I also served as a witness in an Integrated Resource Plan proposed by Dominion Energy in Virginia (ongoing).

Q: Are you sponsoring any exhibits or workpapers in your testimony?

A: Yes, I am sponsoring the following exhibits and workpapers:

DAO-101. Justin Schott CV & Summary of Qualifications

DAO-102. SHALANDA BAKER, SUBIN DEVAR & SHIVA PRAKASH, INITIATIVE FOR ENERGY JUST., THE ENERGY JUSTICE WORKBOOK (2019)

DAO-103. Diana Hernández, *Understanding "Energy Insecurity" and Why It Matters to Health*, SOC. SCI. & MED., no. 167, 2016

DAO-104. *In 2020, 27% of U.S. Households Had Difficulty Meeting Their Energy Needs*, U.S. ENERGY INFO. ADMIN. (Apr. 11, 2022)

DAO-105. *Workgroups*, MICH. PUB. SERV. COMM'N

DAO-106. MICH. PUB. SERV. COMM'N, REQUEST FOR QUOTES: EQUITY AND ENVIRONMENTAL JUSTICE TECHNICAL ASSISTANCE (2024)

DAO-107. ENERGY EQUITY PROJECT, SCH. FOR ENV'T & SUSTAINABILITY, UNIV. OF MICH., ENERGY EQUITY PROJECT REPORT (2022)

DAO-108. *Low-Income Self-Sufficiency Plan*, DTE (last accessed Apr. 30, 2024)

DAO-109. *Billing: Frequently Asked Questions*, DTE (last accessed May 4, 2024)

DAO-110. JS Workpaper 1, Michigan Energy Burdens

DAO-111. We the People Michigan with Soulardarity & MEJC, *Utility Redlining: Inequitable Electric Distribution in the DTE Service Area*, (2022)

DAO-112. Sheri McWhirter, *DTE, Consumers Win $231M in Approvals Despite Reliability Woes*, MLIVE (Mar. 4, 2024), https://perma.cc/4G2E-K7ED

DAO-113. Sarah Alvarez & Emily Hopkins, *She Didn't Know She Still Owed Money to Her Utility. Then 25% of Her Paycheck Was Gone*, PROPUBLICA (Aug. 19, 2022)

DAO-114. Dominic J. Bednar & Tony G. Reames, *Recognition of and Response to Energy Poverty in the United* States, NATURE ENERGY, no. 5, June 2020

DAO-115. Janjala Chirakija, Seema Jayachandran & Pinchuan Ong, *Inexpensive Heating Reduces Winter Mortality* (Nat'l Bureau of Econ. Rsch., Working Paper No. 25681, 2019)

DAO-116. Michelle Graff, David M. Konisky, Sanya Carley & Trevor Memmott, *Climate Change and Energy Insecurity: A Growing Need for Policy Intervention*, 15 ENV'T JUST, no. 2, 2022

DAO-117. Sonal Jessel, Samantha Sawyer & Diana Hernández, *Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature*, 7 FRONTIERS IN PUB. HEALTH, Dec. 2019

DAO-118. Adam Zuvanich, *Hurricane Beryl caused at least 20 Houston-area deaths, with half power outage*-related, Houston Public Media (Jul. 18, 2024)

DAO-119. Brian Stone, Jr. et al., *How Blackouts during Heat Waves Amplify Mortality and Morbidity Risk*, 57 ENVIRON. SCI. TECHNOL. 8245 (2023)

DAO-120. Jeremiah Bohr & Anna C. McCreery, *Do Energy Burdens contribute to Economic Poverty in the United States? A Panel Analysis*, 99 SOC. FORCES, no. 1, Sept. 2020

DAO-121. Gopal K. Singh & Hyunjung Lee, *Marked Disparities in Life Expectancy by Education, Poverty Level, Occupation, and Housing Tenure in the United States*, INT'L J. OF MATERNAL & CHILD HEALTH & AIDS, no. 10, 2021

DAO-122. JS Working Paper 2

DAO-123. ARIEL DREHOBL & LAUREN ROSS, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., LIFTING THE HIGH ENERGY BURDEN IN AMERICA'S LARGEST CITIES:

How Energy Efficiency Can Improve Low Income and Underserved Communities (2016)

DAO-124. Marilyn A. Brown, Anmol Soni, Melissa V. Lapsa & Katie Southworth, Oak Ridge Nat'l Lab'y, Low-Income Energy Affordability: Conclusions from a Literature Review (2020)

DAO-125. Sanya Carley, David Konisky & Trevor Memmott, Energy Just. Lab, Ind. Univ., Household Energy Insecurity Survey, Winter 2021–2022 (2022)

DAO-126. Trevor Memmott, Sanya Carley, Michelle Graff & David M. Konisky, *Sociodemographic Disparities in Energy Insecurity Among Low-Income Households Before and During the COVID-19 Pandemic*, 6 *Nature Energy*, no. 2

DAO-127. Ill. Com. Comm'n Docket Nos. 23-0068 & 23-0069, Colton Direct Testimony (May 9, 2023)

DAO-128. Rahul Agrawal Bejarano CV & Summary of Qualifications.

DAO-129. *Quick Facts: Michigan*, U.S. Census Bureau (last accessed May 5, 2024), https://perma.cc/DFN9-WKP5

DAO-130. JS Workpaper 3

DAO-131. JS Workpaper 4

DAO-132. Shuchen Cong, Destenie Nock, Yueming Lucy Qiu & Bo Xing, *Unveiling Hidden Energy Poverty Using the Energy Equality Gap*, 13 Nature Commc'ns, 2022

DAO-133. *Introduction*, Home Energy Affordability Gap (last accessed May 5, 2024)

DAO-134. REVISED QUARTERLY REPORT FOR 1ST, 2ND, AND 3RD QUARTERS OF 2023, DTE (2023)

DAO-135. DTE's Response to FLO's First Discovery Request, FLODG-1.3

DAO-136. Sarah Alvarez, *Lights Out: Profitable Utility Company Shut Off Electricity to Homes Hundreds of Thousands of Times*, PROPUBLICA (Mar. 18, 2022)

DAO-137. Impact of Behavior Programs (Allcott 2009)

DAO-138. Impact of Weatherization Programs (Tonn et al, 2018)

DAO-139. JS Workpaper 5 - Customer Late Fees

DAO-140. Attachment to DTE's Response to DAAO's First Discovery Request, DAAODE 1.1-1.5

DAO-141. *FACT SHEET: Biden Administration Deploys American Rescue Plan Funds to Protect Americans from Rising Home Heating Costs; Calls on Utility Companies to Prevent Shut Offs This Winter*, WHITE HOUSE (Nov. 18, 2021)

DAO-142. JS Workpaper 6 - disconnections (Shutoffs)

DAO-143. JS Workpaper 7 - Affordable Protection Plan enrollments

DAO-144. U-21291 DTE's Response to FLO's First Discovery Request, FLODG-1.9

DAO-145. DTE's Response to DAAO's First Discovery Request, DAAODE-1.36

DAO-146. DTE's Response to DAAO's First Discovery Request, DAAODE-1.28

DAO-147. Kaiser Family Foundation, Population Up to 200% FPL (American Community Survey) (last viewed July 9, 2024)

DAO-148. Excerpt from Ill. Com. Comm'n No. 23-0067, Order (Nov. 16, 2023)

DAO-149. NAT'L ENERGY ASSISTANCE DIRECTORS' ASS'N, SUMMARY OF STATE UTILITY SHUT-OFF MORATORIUMS (2021)

DAO-150. *Low-Income Energy Policy Board*, MICH. PUB. SERV. COMM'N (last accessed May 6, 2024)

DAO-151. AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE GOALS (2022)

DAO-152. AFFORDABILITY, ALIGNMENT, AND ASSISTANCE SUBCOMMITTEE, MICH. PUB. SERV. COMM'N, PRESENTATION (Oct. 3, 2023)

DAO-153. AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE KICK-OFF (2021)

DAO-154. AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE 11-10-2022 MEETING (2022)

DAO-155. AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE 9-9-2021 MEETING (2021)

DAO-156. *Credits, Collections, and Arrearages Reports Monthly Dashboard*, ILL. COM. COMM'N (last accessed May 6, 2024)

DAO-157. ACEVES GUZMAN, DECISION ADOPTING INTERIM RULES TO REDUCE RESIDENTIAL CUSTOMER DISCONNECTIONS FOR CALIFORNIA-JURISDICTIONAL ENERGY UTILITIES (2018)

DAO-158. Phase I Decision Adopting Rules and Policy Changes to Reduce Residential Customer Disconnections for the Larger California-jurisdictional Energy Utilities, Decision 20-06-003 (June 11, 2020)

DAO-159. MATTHEW DESMOND, POVERTY, BY AMERICA

DAO-160. *Winter and Covid-19 Shut-Off Moratoriums*, NATL ASS'N OF ENERGY ASSISTANCE DIRECTORS (Mar. 15, 2021)

DAO-161. L.A. DEP'T OF WATER & POWER, MOTION TO DISCONTINUE SHUT-OFFS AS AN ACCOUNT MANAGEMENT COLLECTION TOOL FOR CUSTOMERS ENROLLED IN LADWP EZ-SAVE AND LIFELINE DISCOUNT PROGRAMS (2022)

DAO-162. SANYA CARLEY AND DAVID KONISKY, UTILITY DISCONNECTIONS DASHBOARD (2023)

DAO-163. *Low-Income Programs*, DTE (last accessed May 4, 2024)

Q: What is the purpose of your testimony?

A: My testimony has several purposes. I discuss the purpose of each section of my testimony below:

Part I: Provide my professional background and qualifications.

Part II: Introduce an energy equity framework that the Commission can use to evaluate the merits of DTE Electric's proposed rate increase. Using a robust energy equity framework to make decisions in rate cases and other PUC dockets has become a national best practice. I present the four pillars of energy equity—recognition, procedural, distributive, restorative—and recommend actions the MPSC can take to address concerns in each pillar.

Part III: Analyze the extent of energy insecurity among DTE Electric's low-income customers and the harms they experience as a result of DTE Electric's excessive shutoff rates, aggressive collections practices, and insufficient efforts to promote energy affordability. I quantify disparities in energy burdens by race and income among DTE Electric's customers and present

negative trends in customers' energy security and enrollments in affordable payment plans.

Part IV: Assess DTE Electric's approach and performance regarding energy insecurity experienced by its customers. I find that, despite multiple directives from the MPSC and the availability of cost-neutral opportunities to provide financial relief, DTE Electric has adopted a punitive approach to its customers who struggle to afford their energy bills.

Part V: Assess the MPSC's response to energy insecurity and unaffordability through previous dockets (especially MPSC Case No. U-20757, the "COVID-19 docket"), workgroup reports and minutes, and other public statements.

Part VI: Recommend structural affordability and energy security solutions that the MPSC can require from DTE Electric. The energy assistance programs DTE Electric offers serve a small fraction of eligible customers and have not reduced the incidence of shutoffs or customer debt. To the contrary, DTE Electric's efforts have demonstrated that without intervention, its low-income customers will continue to face serious financial and health consequences from the endemic of rising and unaffordable electric bills. My testimony includes seven recommendations that the MPSC should adopt to protect low-moderate income (LMI) customers and ensure lasting affordability.

II. AN EQUITY FRAMEWORK FOR PUBLIC SERVICE COMMISSION EVALUATION AND DECISION-MAKING

Q: Please define energy equity and related concepts.

A: In the last decade, the field of energy equity, also referred to as energy justice, has emerged as a particular subset of environmental justice. While environmental justice has traditionally focused on disproportionate exposure to pollution, "an energy just world involves [the] equitable sharing of benefits and burdens involved in the production and consumption of energy services. It is also one that is fair in how it treats people and communities in energy decision-making."[2]

The Initiative for Energy Justice, which was co-founded by Shalanda Baker, currently Director of the U.S. Department of Energy's (DOE) Office of Community Impact and Diversity, states four goals of energy justice:[3]

1. Advance **energy democracy**, defined as "the notion that communities should have a say and agency in shaping and participating in their energy future;"[4]
2. Alleviate **energy insecurity**, which entails the inability to meet basic household energy needs or compromising on other basic needs in order to access energy;[5]
3. Reduce **energy burden**, or the percentage of household income spent on energy;[6] and
4. Alleviate **energy poverty**, "a lack of access to basic life-sustaining energy."[7]

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[2] Ex. DAO-102, SHALANDA BAKER ET AL., INITIATIVE FOR ENERGY JUST., THE ENERGY JUSTICE WORKBOOK (2019), at 13 (citations omitted).
[3] *Id*. at 10.
[4] *Id*.
[5] *Id.* at 14; *see* Ex. DAO-103, Diana Hernández, *Understanding "Energy Insecurity" and Why It Matters to Health*, SOC. SCI. & MED., no. 167, (2016), at 1-2 ("Energy insecurity is defined here as 'an inability to adequately meet basic household energy needs.").
[6] Ex. DAO-102 at 10, 13.
[7] *Id*. at 10, 14.

The U.S. Energy Information Administration (EIA) surveys multiple aspects of energy insecurity, including, foregoing other basic needs, receiving shutoff notices, and keeping the home at an uncomfortable or unsafe temperature.[8] EIA surveys have shown that energy insecurity is widespread throughout the country, with "34 million U.S. households (27% of all U.S. households) report[ing] difficulty paying energy bills or report[ing] that they had kept their home at an unsafe temperature because of energy cost concerns" in 2020.[9]

Q: Please explain your use of the term "shutoff" instead of "disconnection."

A: Both "shutoff" and "disconnection" refer to the same action by DTE Electric of physically removing a customer's access to energy. Choice of language is a powerful way to shift perspectives. A disconnection, the term used by DTE Electric and the Commission in some contexts, may connote an event that does less harm than a shutoff and is an act that is less personal and preventable. A shutoff, by contrast, and to many with lived experience, speaks more directly to the experience of people who are harmed and of the intentional act of depriving customers of a basic human right. The term disconnection serves to sanitize this extremely harmful practice, in much the same way that the passive phrase, "the officer's weapon was discharged resulting in a fatality," is different from the phrase, "the officer shot and killed the person." The use of more technical-sounding, impersonal jargon is one of the ways in which utilities attempt to minimize the apparent harm of their actions; the term shutoff paints a more accurate

[8] Ex. DAO-104, *In 2020, 27% of U.S. Households Had Difficulty Meeting Their Energy Needs*, U.S. ENERGY INFO. ADMIN. (Apr. 11, 2022), https://perma.cc/2TUB-ZWSN.
[9] *Id.*

picture that reflects the experience of impacted households. To its credit, the MPSC predominantly uses the term shutoff; I use this term exclusively in testimony except in direct quotes or referencing program names.

Q: Why are you introducing concepts of energy equity into your analysis of DTE Electric's rate case?

A: The Commission has consistently expressed concern about households that face unaffordable energy bills and myriad forms of energy insecurity. The Commission oversees three different bodies to address these concerns: the Energy Waste Reduction Low-Income (EWR-LI) workgroup, the Energy Affordability and Accessibility Collaborative (EAAC), and the Low-Income Energy Policy Board (LIEPB), which serves as an umbrella for these efforts.[10] The Commission and these three groups have each sought greater coordination among efforts to advance energy affordability and security, but to date, there has not been an overarching strategy to guide these efforts.

DTE Electric does not have a coherent approach to addressing energy affordability, and it appears it has no intentions of adopting one. The Company has not evaluated how its proposed rate increase would impact already excessive energy burdens of its low-income customers, has not aligned its Percentage of Income Payment Plan (PIPP) pilot with achieving a 6% energy burden, and fails to identify hundreds of thousands of customers who are income-eligible but not participating in any of DTE's assistance programs.

[10] *See* Ex. DAO-105, *Workgroups*, MICH. PUB. SERV. COMM'N (last accessed May 5, 2024), https://www.michigan.gov/mpsc/commission/workgroups.

Both the Company and the Commission have basically been responding to accelerating unaffordability and energy insecurity crises without an operating manual. To its credit, the MPSC recently recognized the need for a cohesive energy framework and approach by issuing a Request for Quotes for Equity and Environmental Justice Technical Assistance to "establish a framework that MPSC Staff and the Commission can apply broadly across all divisions of the MPSC and the Commission Office when assessing utility filings within its legal framework."[11]

A. Overview of the Framework to Measure and Advance Energy Equity

Q: What is the Framework to Measure and Advance Energy Equity, and how does it apply to this docket and the work of the MPSC?

A: The Framework to Measure and Advance Energy Equity ("the Framework" or "the EEP Framework"), delineated in Exhibit DAO-107, is a compendium of research and an assessment of 148 potential energy equity metrics and best practices.[12] The Framework was equitably developed by forty-five co-authors and advisors and the input of more than 400 stakeholders. The Framework was released in September 2022, has been applied by PUCs in Colorado, Illinois, and Oregon, and is under consideration in Virginia. It is designed to be applied by utilities, regulators, practitioners, and community organizations and has sector-specific guidance for each type of stakeholder.[13] The Framework identifies concrete action steps—both quantitative and qualitative—to advance each of the four

[11] Ex. DAO-106, MICH. PUB. SERV. COMM'N, REQUEST FOR QUOTES: *EQUITY AND ENVIRONMENTAL JUSTICE TECHNICAL ASSISTANCE* (2024), at 1.
[12] Ex. DAO-107, ENERGY EQUITY PROJECT, SCH. FOR ENV'T & SUSTAINABILITY, UNIV. OF MICH., ENERGY EQUITY PROJECT REPORT (2022), at 9.
[13] *Id*. at 10.

dimensions of energy equity. The Framework adopts the "Four Pillars of Energy Justice": Recognition, Procedural, Distributive, and Restorative.[14]

B. Recognition Justice Concerns

Q: Please define recognition justice.

A: EEP adopted the definition of Lee and Byrne: "Recognition justice emphasizes the need to understand different types of vulnerability and specific needs associated with energy services among social groups (especially marginalized communities)."[15] Recognition justice requires identifying populations that have gone unnoticed and may face cumulative impacts from multiple burdens and historically compounding impacts over time.

Q: What concerns do you have in the proposed case from a recognition perspective?

A: Recognition justice requires a deep understanding of different communities—their histories, identities, housing, and energy consumption patterns.

First, I am concerned about the mostly uniform treatment of all low-income electric customers as if they were one class. A low-income customer is generally defined as any customer with a household income below 200% (or in some cases, below 150%) of the Federal Poverty Level (FPL).[16] Binary income thresholds determine eligibility for a variety of DTE Electric's energy assistance programs. Household income also comprises half of

[14] *Id*. at 177.
[15] *Id*. at 32 (citing Joohee Lee & John Byrne, *Expanding the Conceptual and Analytical Basis of Energy Justice: Beyond the Three-Tenet Framework*, 7 FRONT. ENERGY RES. 99 (2019)).
[16] *Id*. at 93, 109.

the energy burden equation, as energy burden is calculated as the annual cost of energy divided by annual gross income.[17]

Second, even among low-income customers, there is marked variation in energy insecurity and energy burdens. If two households each have a total energy bill of $3,000 annually but incomes of $15,000 per year and $30,000 per year, respectively, the household earning $15,000 per year has an energy burden twice as high (20% vs. 10%) as the $30,000 household. There is almost no formal consideration by DTE Electric or the MPSC of these differences, however. DTE Electric's Low-Income Self-Sufficiency Plan (LSP) is one exception that further segments customers with incomes below 150% of FPL, although the Company does not publish the fixed monthly rates that correspond to different income bands on its LSP website nor in its direct testimony.[18]

C. Procedural Equity Concerns

Q: Please define procedural equity.

A: According to the EEP Framework, "[p]rocedural measures focus on pathways to implement equitable processes, and program access focuses on expanding accessibility for communities to engage meaningfully."[19] Procedural equity is about the ability of impacted communities to access and influence decision-making to secure positive outcomes for themselves.

[17] *Id*. at 109.
[18] *See generally* Sparks Direct Testimony at 8–9; Ex. DAO-108, *Low-Income Self-Sufficiency Plan*, DTE (last accessed Apr. 30, 2024), at 1–2.
[19] Ex. DAO-107 at 66.

Q: What concerns do you have in this case from a procedural perspective?

A: First, procedural equity is concerned with program access. Access to DTE Electric's assistance programs is limited by multiple factors:

1. The number of available slots DTE Electric's assistance programs is severely limited.[20] DTE does not actively invite or enroll LMI customers to participate in programs such as LSP, LIA, shutoff protection, or Energy Waste Reduction (EWR) programs for low-income households.[21] It would not be difficult for the Company to automatically enroll eligible customers into the LIA credit or LSP, who say, already receive assistance through the Low-Income Home Energy Assistance Program (LIHEAP) or Michigan Energy Assistance Program (MEAP). As far as I can tell, DTE Electric does not make any attempt to do this.

   Information about these programs is very difficult to access and seems intentionally opaque. For instance, DTE Electric does not the define the specific bill reductions of LSP on its website.[22] This uncertainty is likely to reduce customer interest in a program that DTE Electric appears to tout as its flagship for achieving self-sufficiency.

[20] The 2023 combined enrollment of low-income residential customers in the Company's assistance programs was 131,397 customers. DAAO Witness Kinkhabwala shows that about 340,000 DTE Electric Customers are below 150% of Federal Poverty Level (FPL). *See* Kinkhabwala Direct at 10. Additional program enrollment details used in the above calculations: Low-Income Self-Sufficiency Program (LSP; 23,750 enrollees (Sparks Direct at 11)), Residential Income Assistance (RIA) Credit (75,522 enrollees (Sparks Direct at 16)), and Low-Income Assistance (LIA) Credit (32,125 enrollees, Sparks Direct at 17).

[21] *See* Non -Confidential Direct Testimony of Sergio Cira-Reyes, MPSC Case No. U-21291 at 4 TR 1181-84.

[22] *See* Ex. DAO-109, *Billing: Frequently Asked Questions*, DTE (last accessed May 4, 2024), https://www.dteenergy.com/us/en/residential/billing-and-payments/energy-assistance/low-income-self-sufficiency-plan.html
While LSP does have multiple tiers of benefits based on income, it would not be difficult for the Company to present this information transparently. During my time at EcoWorks when LSP was started, this information was publicly available to customers who we referred to LSP.

2. For many years, multiple DTE Energy representatives have participated in bodies such as the EAAC, EWR-LI workgroup, LIEPB, Coalition to Keep Michigan Warm, and National Energy and Utility Affordability Coalition (NEUAC). Despite the clear awareness DTE Electric has had for many years, it has not made learning about or applying for its assistance programs easy. In fact, in its testimony, DTE Electric does not reference any efforts to work directly with impacted community members to improve the design of existing programs. Instead, DTE Electric appears to conduct meetings only to the meet the minimum standard required by settlement agreements and Commission orders.[23]

3. There are procedural concerns with the MPSC's approach to affordability and energy insecurity, too. EAAC reports, for instance, note a lack of participation by households of color with lived experience of energy insecurity.[24] The reports note the difficulty in recruiting organizations and households to participate, but these findings fail to recognize the reality for many LMI households and households of color: there is no compensation for people's time or expenses, and there appears to be little prospect of swaying the priorities, strategies, or decision-making of these bodies. MPSC Staff requested that the Commission order the groups to pursue relationships in frontline

[23] *See In re Response to COVID-19,* MPSC Case No. U-20757, DTE Comments on Interim Staff Report (June 12, 2023) [hereinafter DTE Comments on Interim Staff Report], at 2–3. For example, DTE calls EWR outreach to RIA customers "unworkable" and "unlikely to be effective," *id.* at 2, and states that it already has advertisement of low-income programs in place, *id.* at 3.

[24] *See In re Response to COVID-19*, MPSC Case No. U-20757, Energy, Affordability, and Accessibility Collaborative, Interim Progress Report (Dec. 17, 2021), at 11 [hereafter December 2021 EEAC Interim Report] ("Staff acknowledges that while the EAAC provided enhanced collaboration across the government, advocacy, human services and utility sectors, representation from high burden, historically marginalized communities was missing. In addition, the group lacked racial and ethnic diversity.")

communities,[25] but had earlier reported difficulty actually doing so.[26] Regardless of the underlying causes for these problems or respectable efforts on the part of MPSC Staff, households that are most harmed by DTE Electric's collections and shutoff practices are not represented in decision-making and have little voice in shaping the programs and credits to be more inclusive and effective for achieving affordability.

Not surprisingly, when frontline community organizations and impacted customers have little to no say in proceedings and their interests are not represented, assistance programs continue to be implemented in a way that does not actually address the roots of the problem nor reduce shutoffs or energy burdens.

D. Distributive Equity Concerns

Q: Please define distributive equity.

A: The EEP Framework's "Distributive Equity" chapter begins: "Broadly speaking, distributional equity refers to how the benefits and harms of the energy system are distributed, and is closely aligned with the notion of 'justice as fairness' . . . . Low-income communities and Black, Indigenous, and People of Color (BIPOC) communities are much more likely to face exposure to environmental harms (e.g.[,] toxic pollution, presence of polluting facilities . . .) and less likely to have access to environmental 'goods' like green space and parks."[27]

[25] *See In re Response to COVID-19*, MPSC Case No. U-20757, Energy, Affordability, and Accessibility Collaborative, Interim Progress Report (Mar. 17, 2023) [hereafter March 2023 EEAC Interim Report] at 72.
[26] *See* December 2021 EEAC Interim Report at 11.
[27] Ex. DAO-107 at 102 (citations omitted).

Q: What concerns do you have in the proposed case from a distributive perspective?

A: My first concern is overarching: DTE Electric resists the use of appropriate metrics that would reveal and could help mitigate distributive inequities. A critical feature of distributive equity is that is determined by *outcomes,* such as energy burdens and shutoffs, as opposed to outputs, which include program enrollments and the dollar value of bill credits. With a concern for disparities in outcomes, the underlying causes and motives that result in these disparities are only important to the extent they must be rectified. Whether a disparity in energy burdens based on race or income exists because of callous indifference or despite genuine concern and efforts to provide resources to struggling customers, the result for those customers is the same. In other words, from a distributive equity perspective, it is ultimately the magnitude of the disparity that is concerning more than the source of it.

Using more precise data, such as the prevalence of shutoffs by census tract, to identify disparities is necessary to remedy these disparities and is not intended to evaluate the Company's underlying intentions. DTE Electric, however, takes a defensive stance toward collaborating to illuminate distributive inequities, which is the first step needed to address them. For instance, in a response to Staff reporting recommendations in MPSC Case No. U-20757, DTE Gas and DTE Electric responded: "DTE appreciates the inclusion of its concern that geographical data may make it appear that certain areas are being targeted. DTE does not consider geographical data when disconnecting service or collecting arrearages from a customer."[28] It is essential to realize that disparities can occur

[28] DTE Comments on Interim Staff Report at 4.

without an underlying intention to inflict them. At this point, they require investigation and actions to reverse the inequity.

My second distributive equity concern is the dramatic variation in how energy burdens are distributed among DTE customers. More than 99% of Michigan households earning above state median income (about 400% of FPL) have inexpensive energy burdens of 3% of their income or less.[29] By contrast, 44% of Michigan households below 100% of FPL have energy burdens above 20%,[30] which we consider "catastrophic." Using income alone in this case, we demonstrate a sevenfold disparity in energy burdens. While energy burdens above 15% and even 20% are common among low-income households, the idea that a household could owe more than 1 out of every 5 dollars of gross income to an energy utility is hard to fathom; introducing terms that reflect these dire situations has generally been avoided. As discussed below, disaggregation by race, occupancy status, and age of housing would likely exacerbate these distributive inequities even further. Testimony by DAAO witness Kinkhabwala uses distributive equity data to illuminate these disparities in greater detail.

I am also deeply concerned about significant distributive inequities across ratepayer classes that I do not believe can be explained solely by cost of service (COS) principles. I show that DTE has existing and proposed rates that place a heavy revenue burden on residential customers, including low-income customers, while offering significantly lower rates for uses like greenhouse lighting, space and water heating for commercial retail, metal

[29] Ex. DAO-110, JS Workpaper 1, Michigan Energy Burdens. Other than the 6% standard for an affordable energy burden, there is no standard nomenclature for describing energy burdens at different thresholds. EEP has adopted the following scale: 0-3%, "Inexpensive"; 3-6% "Affordable"; 6-9% "Moderately Unaffordable"; 9-12% "High"; 12-15%, "Severe"; 15-18% "Extreme"; >18% "Catastrophic."

[30] *Id*.

melting, and other highly specific customer types and purposes.[31] COS principles alone do not explain these disparities. A degree of the rate designs is arbitrary and subjective; these decisions result in unaffordable rates for millions of households and a cascade of impacts including long-term poverty, foregoing other basic needs, and frequent shutoffs.

Finally, there are cumulative impacts from the distributive inequities resulting from the actions of DTE Electric. For instance, the same customers who have lived with substandard grid infrastructure and thus a disproportionately high frequency and severity of outages are also more likely to suffer from unaffordable energy burdens and shutoffs. In other words, these customers face two forms of excessive risk because DTE fails to ensure affordable and reliable access to electricity for all of its customers, not just a select few that live where the majority of residents are White.[32] Whether from an outage or involuntary shutoff, the impacts of being without electricity also disproportionately harm customers with high rates of asthma and other respiratory illnesses and in areas where many households lack health insurance. These vulnerabilities intersect—*customers who face the greatest consequences from not having electricity are most likely to lose access*. This is the result of both investment decisions and neglect, willful resistance to transparent reporting, and assistance programs that fall short of providing meaningful relief. The cumulative impacts experienced disproportionately by LMI and BIPOC households are by design.

[31] *See* Exhibit A-16, Schedule F2 at 1-4.

[32] *See generally* DAO-111, We the People Michigan with Soulardarity & MEJC, *Utility Redlining: Inequitable Electric Distribution in the DTE Service Area*, (2022).

E. Restorative Justice Concerns

Q: Please define restorative justice.

A: Restorative justice emphasizes concern for future generations and the need to ensure that the structures and conditions that initially enabled harm or disparate impacts to occur are mitigated so that further harm is prevented.

Q: What concerns do you have in the proposed case from a restorative perspective?

A: My restorative justice concerns are epitomized in comments by MPSC Chairman Dan Scripps: "When meeting financial metrics counts for 16 times as much as meeting reliability metrics, something is clearly out of whack."[33] While concerns with DTE Electric's performance and steady rate increases are widely known, the Company does not face consequences for providing service that is neither reliable nor affordable. As DAAO Witness Jackson Koeppel states, DTE Electric continues to operate from the profit maximizing principle without structures to curb its behavior and restore protections and affordability to its customers.

Currently, the Consumer Billing Rules are the primary source of protection for LMI customers.[34] These rules, however, do not change DTE Electric's responsibility to generate profits for its investors. There are neither rules nor financial penalties if a utility like DTE Electric causes disproportionate harms to communities of color or LMI households through aggressive shutoff and collections practices or dismal electric reliability performance. DTE Electric customers remain subject to repeated surprises like DTE Energy's decision to sell

[33] Ex. DAO-112, Sheri McWhirter, *DTE, Consumers Win $231M in Approvals Despite Reliability Woes*, MLIVE (Mar. 4, 2024), https://perma.cc/4G2E-K7ED, at 3.
[34] *See generally* MCL §§ 460.101–460.169.

customer debt for pennies on the dollar.[35] These actions perpetuate and exacerbate the harms that LMI communities have faced for decades and impede efforts to mitigate those harms in future generations.

F. Summary of Highest Equity Priorities Identified by EEP

Q: From an energy equity perspective, what should be the primary considerations for the MPSC when assessing requests for rate increases?

A: There is broad consensus that energy should be affordable to all residents regardless of income, occupancy status, housing stock, heating fuel, or other demographics (e.g., household size, race, age, disability, or medical condition).[36] Over the course of ten EEP listening sessions in 2021, reducing or eliminating shutoffs was the overwhelming priority raised by more than 400 people representing an array of sectors, including utilities, regulators, grassroots organizations, and nonprofit practitioners.[37] Other distributive equity priorities included reducing the maximum energy burden faced by any customers, reducing disparities in energy burdens, and reducing high energy burdens among BIPOC households.[38]

Shutoffs should be reserved for exceptionally rare circumstances such as utility theft, rather than being used as a response to the structural conditions that result in a large share of households simply being too poor to afford the costs of reasonable energy usage. Creating robust affordability programs and ensuring these programs reach all eligible

[35] Ex. DAO-113, Sarah Alvarez & Emily Hopkins, *She Didn't Know She Still Owed Money to Her Utility. Then 25% of Her Paycheck Was Gone*, PROPUBLICA (Aug. 19, 2022), https://perma.cc/56K5-83UH, at 2.
[36] *See* Ex. DAO-107 at 29.
[37] *See id*. at178,185–86.
[38] *See id*. at 171, 185–86.

households should be prioritized. Affordability programs, designed and scaled appropriately, can mitigate the underlying roots of unaffordable energy costs and a cycle of collection activities and shutoffs.

III. ENERGY INSECURITY AMONG DTE ELECTRIC'S LOW-INCOME HOUSEHOLDS

Q: Please describe this section of your testimony.

A: In this Part, I summarize the extensive research on the topics of shutoffs and energy insecurity and how these impact low-income and BIPOC households. I provide a national overview as well as more specific details of energy insecurity among DTE Electric's residential customers.

Q: What are the connections between energy insecurity, poverty, and health?

A: Bednar and Reames, leading energy justice scholars, concluded: "Failing to acknowledge the risk or potential harm that may occur with living in sub-standard housing, or lack of household energy, should be regarded as a threat to national well-being and potential to rival other nations and spur economic growth."[39]

The implications of energy insecurity are stark. Shutoffs, which stem from the combination of unaffordable gas and electric bills, can result in an array of health problems.[40] These health problems include heat illness, cognitive and psychological impacts, respiratory impacts resulting from the loss of proper ventilation and from fumes

[39] Ex. DAO-114, Dominic J. Bednar & Tony G. Reames, *Recognition of and Response to Energy Poverty in the United* States, NATURE ENERGY, no. 5, June 2020, at 6–7.

[40] *See* Ex. DAO-115, Janjala Chirakija, Seema Jayachandran & Pinchuan Ong, *Inexpensive Heating Reduces Winter Mortality* (Nat'l Bureau of Econ. Rsch., Working Paper No. 25681, 2019), at 3–4.

that may be caused by heating with an oven or an improperly ventilated generator, and those that arise from the inability to refrigerate medicine or use medical equipment that requires electricity.[41] Indirect health issues arise from lack of access to hot water for proper hygiene.[42] Energy insecurity also adversely impacts health by worsening asthma, chronic stress, mental health, and heart conditions.[43] Energy insecurity, and shutoffs in particular, shorten life spans. For example, Hurricane Beryl, which made landfall in Texas on July 8, 2024, has resulted in at least 6 deaths from heat stroke when customers lost access to power for prolonged periods.[44] Another study simulated deaths in Detroit from a simultaneous heat wave and power outage scenario, predicting a 787% increase in mortality rate when power is out by 2085.[45] Whether one's lack of power is caused by a grid outage or a DTE shutoff, the consequences, which can be fatal, are the same.

Energy insecurity also significantly increases the risk that households will slide into and remain in poverty, which increases mortality risks. An energy burden above 10% increases a household's likelihood of falling into and persist in poverty by 50–100%.[46] Statistically, once a household falls into poverty, the life expectancies of the household's members are significantly reduced. Men and women living below 200% of FPL at age

[41] *See* Ex. DAO-116, Michelle Graff, David M. Konisky, Sanya Carley & Trevor Memmott, *Climate Change and Energy Insecurity: A Growing Need for Policy Intervention*, 15 ENV'T JUST, no. 2, 2022, at 1-2; Ex. DAO-103 at 6, 8.

[42] *See* Ex. DAO-117, Sonal Jessel, Samantha Sawyer & Diana Hernández, *Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature*, 7 FRONTIERS IN PUB. HEALTH, Dec. 2019, at 1, 5, 6, 11.

[43] *See id*. at 11; Ex. DAO-103 at 6.

[44] Ex. DAO-118, Adam Zuvanich, *Hurricane Beryl caused at least 20 Houston-area deaths, with half power outage*-related, HOUSTON PUBLIC MEDIA (Jul. 18, 2024) at 2-3, https://www.houstonpublicmedia.org/articles/news/hurricane/2024/07/18/494068/hurricane-beryl-deaths-houston-at-least-20-half-power-outage-related/.

[45] Ex. DAO-119, Brian Stone, Jr. et al., *How Blackouts during Heat Waves Amplify Mortality and Morbidity Risk*, 57 ENVIRON. SCI. TECHNOL. 8245 (2023) at 6-7.

[46] *See* Ex. DAO-120, Jeremiah Bohr & Anna C. McCreery, *Do Energy Burdens contribute to Economic Poverty in the United States? A Panel Analysis*, 99 SOC. FORCES, no. 1, Sept. 2020, at 1.

eighteen can expect their lives to be more than ten years shorter than people living at more than 400% of FPL.[47]

Q: What is the scope of the impacts from energy insecurity, nationally and in Michigan?

A: In the United States, 27.2% of households experience some form of energy insecurity.[48] The Pulse Survey, conducted biweekly by the U.S. Census since the start of COVID-19, includes three questions about energy insecurity. As the report for February 6 to March 4, 2024 finds, 33.2% of Michigan households reported some frequency of foregoing other basic needs (including 49.0% of Hispanic and 46.7% of Black households), 19.9% reported keeping the home at an unsafe or uncomfortable temperature, and 25.8% reported being unable to pay the energy bill in full.[49]

Energy insecurity is *highly variable* by population. Multiple studies have confirmed that energy insecurity impacts LMI, Black, and Hispanic households, and households with children, especially under six years old, disproportionately.[50]

This trend can be seen in Michigan as well. Consider that energy insecurity is experienced more by:

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[47] *See* Ex. DAO-121, Gopal K. Singh & Hyunjung Lee, *Marked Disparities in Life Expectancy by Education, Poverty Level, Occupation, and Housing Tenure in the United States*, INT'L J. OF MATERNAL & CHILD HEALTH & AIDS, no. 10, 2021, at 1, 3–6.

[48] Ex. DAO-104 at 1.

[49] These figures are located in column C of Ex. DAO-122, JS Working Paper 2.

[50] *See*, *e.g.*, Ex. DAO-123, ARIEL DREHOBL & LAUREN ROSS, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., LIFTING THE HIGH ENERGY BURDEN IN AMERICA'S LARGEST CITIES: HOW ENERGY EFFICIENCY CAN IMPROVE LOW INCOME AND UNDERSERVED COMMUNITIES (2016), at 19; Ex. DAO-124, MARILYN A. BROWN, ET AL., OAK RIDGE NAT'L LAB'Y, LOW-INCOME ENERGY AFFORDABILITY: CONCLUSIONS FROM A LITERATURE REVIEW (2020), at 23; Ex. DAO-125, SANYA CARLEY, ET AL., ENERGY JUST. LAB, IND. UNIV., HOUSEHOLD ENERGY INSECURITY SURVEY, WINTER 2021–2022 (2022), at 4; *see also* Ex. DAO-126, Trevor Memmott, et al., *Sociodemographic Disparities in Energy Insecurity Among Low-Income Households Before and During the COVID-19 Pandemic*, 6 NATURE ENERGY, no. 2, 2021, at 1.

- Women (36.8%) than men (29.4%);
- Black (46.7%), Hispanic (49.0%), biracial, non-Asian, and nonwhite descent (53.0%) than whites (25.3%);
- Young people ages eighteen to twenty-four (60.3%) than people over sixty-five (15.6%);
- People with less education (e.g., without high school diplomas, 55.5%) than people with bachelor's degrees (19.0%);
- Households with children (40.0%) than without (29.9%); and
- People with a disability (46.0%) than without (30.5%).[51]

In other words, while energy insecurity is on average a concern for one-third of Michiganders, households of marginalized groups face rates of energy insecurity between 50 and 350% higher than their better-off counterparts.

This data is also largely reflective of DTE Electric customers. DTE Electric's territory spans about half the population of the state and includes a mix of rural, urban, and suburban communities. While not a perfect reflection of Michigan's demographics and experiences of energy insecurity, I believe the Pulse Survey data accurately reflects the same trends in disparities experienced by DTE Electric customers.

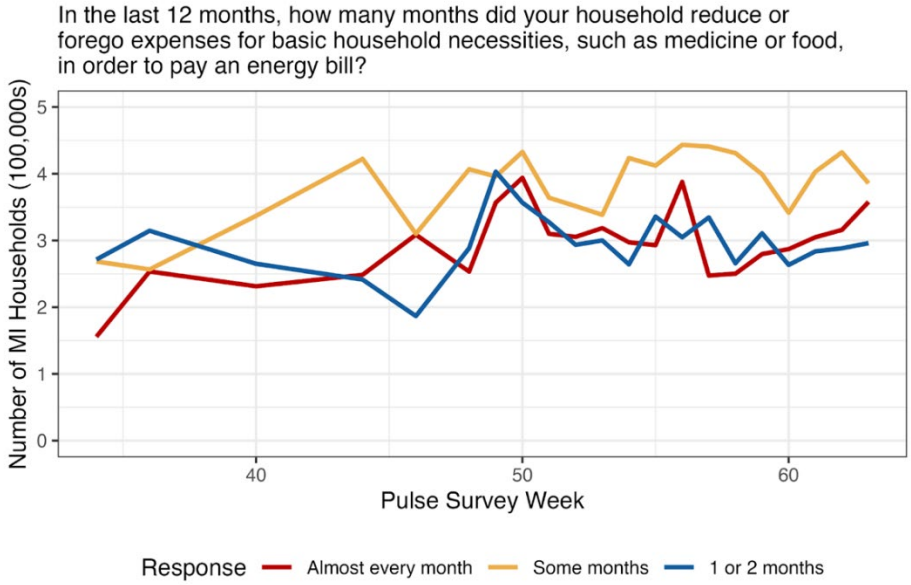
[51] Ex. DAO-126 at 2-3.

Q: How does energy insecurity among DTE Electric customers now compare to 2020, during the start of the pandemic?

A: In 2020, there was widespread acceptance of COVID-19 as an "unanticipated emergency" and the authority of the Commission for "active participation" in addressing the crisis.[52] But the fact is that even though the pandemic has subsided, the conditions of energy insecurity that made COVID-19 more perilous persist.

Energy insecurity in Michigan, as measured by the Pulse Survey (Figures 2–4), has increased slightly since mid-2021, when the surveys began. Each of these factors increases the likelihood of a shutoff. While shutoffs may have been *even more harmful* during the height of the pandemic, my testimony concludes that the consequences of shutoffs during "normal" times can be dire.

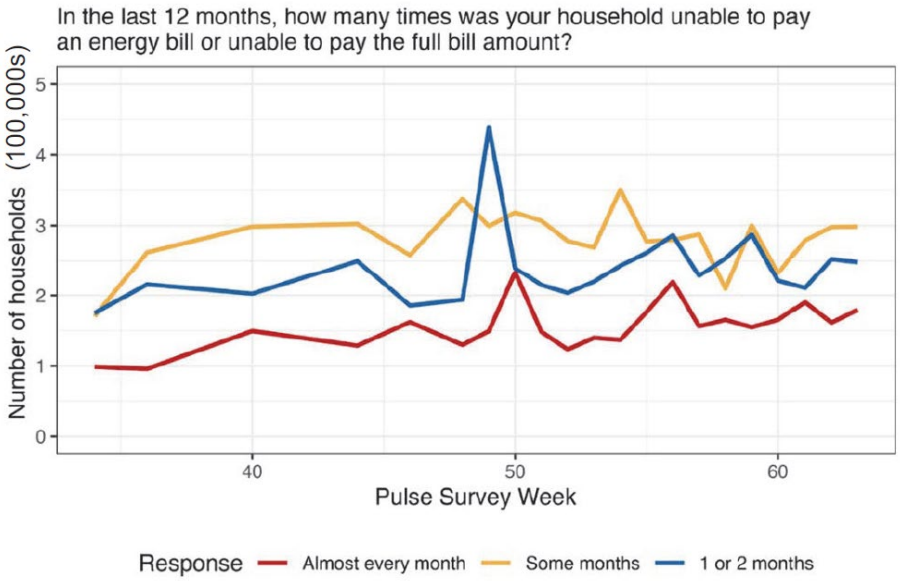
Figure 1: Michigan households foregoing basic needs, July 2021–Oct. 2023.[53]



[52] *In re Response to COVID-19*, MPSC Case No. U-20757, Order (Apr. 15, 2020), at 3 [hereinafter Apr. 15, 2020 U-20757 Order].

[53] This figure is based on data from the Pulse Survey (available at https://www.census.gov/programs-surveys/household-pulse-survey/datasets.html); the code used to analyze the data and generate these

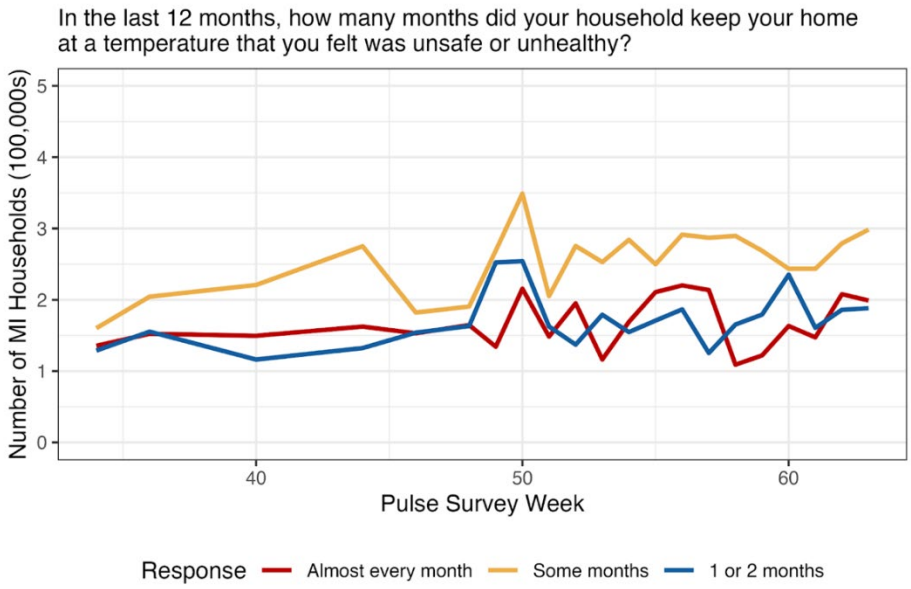
Figure 2: Michigan households unable to pay the bill, July 2021–Oct. 2023.[54]



results is contained in pulse_survey_results.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

[54] This figure is based on data from the Pulse Survey (available at https://www.census.gov/programs-surveys/household-pulse-survey/datasets.html); the code used to analyze the data and generate these results is contained in pulse_survey_results.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

Figure 3: Michigan households keeping homes at unsafe temperatures, July 2021–Oct. 2023.[55]



Q: How do you determine if a household cannot reasonably afford to pay its energy bill?

A: An array of energy affordability advocates have established that spending no more than 6% of household income on energy is affordable.[56] This 6% energy burden threshold was established by considering that households should spend no more than 30% of their incomes on all costs of housing and that energy should comprise no more than one-fifth of total housing costs.[57] For electricity, a 3% burden is considered affordable.[58]

[55] This figure is based on data from the Pulse Survey (available at https://www.census.gov/programs-surveys/household-pulse-survey/datasets.html); the code used to analyze the data and generate these results is contained in pulse_survey_results.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

[56] Ex. DAO-124 at 22.

[57] *Id*. at 20.

[58] Gas and electric costs in MI are close enough to equivalent that an even split for affordability purposes makes sense. *See also* Ex. DAO-127, Ill. Com. Comm'n Docket Nos. 23-0068 & 23-0069, Colton Direct Testimony (May 9, 2023), at 17–18.

Q: How do DTE Electric's customers experience energy injustice?

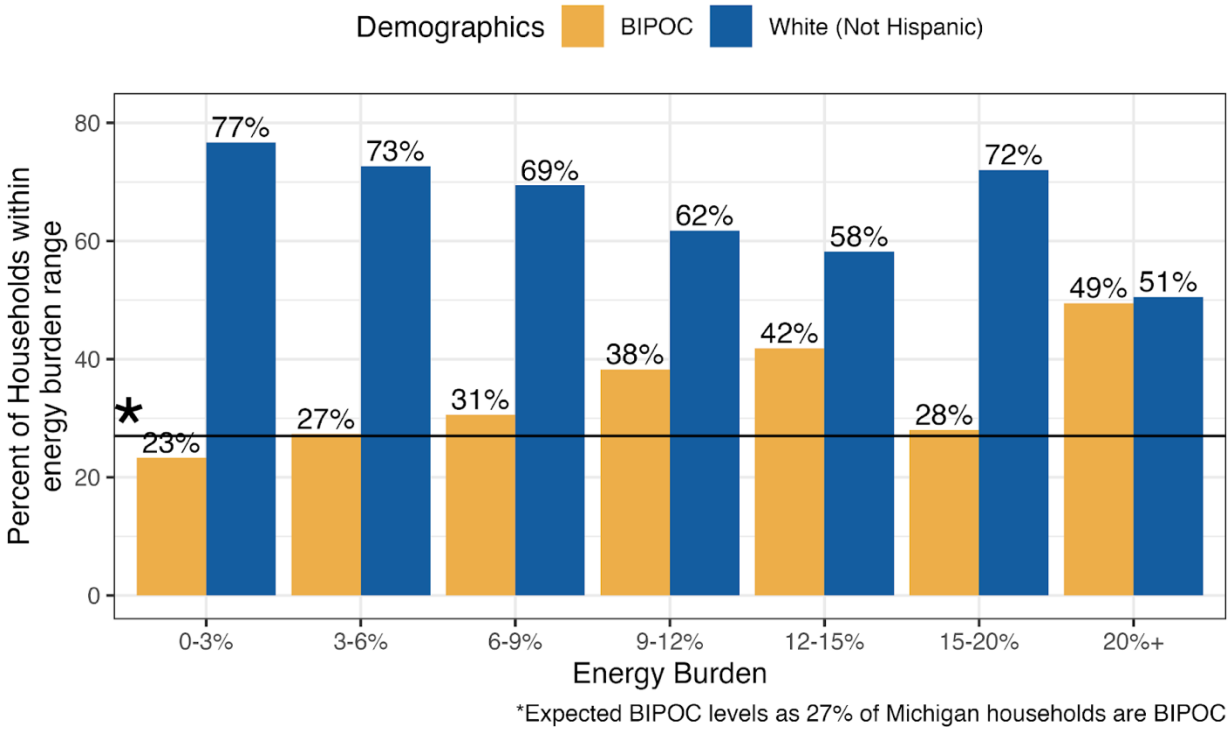
A: Energy injustice is a national problem, with about one-third of Americans experiencing some form of energy insecurity.[59] Unfortunately, DTE Electric's reporting on indicators of energy insecurity and energy injustice is limited, so in some cases, I present statewide data as the best available source.

Here, I highlight two aspects of energy injustice: (1) energy insecurity and (2) shutoffs. These are not the only forms of energy injustice DTE Electric customers face. The proximity to fossil fuel infrastructure, lack of access to incentives and rebates for energy efficiency and clean energy, disproportionate rates of power outages, and limited access to clean energy jobs and business contracts are additional concerns for which data is less readily available.

In Michigan, affordable energy burdens that cost less than 6% of income are disproportionately distributed among white households. My colleague Rahul Agrawal Bejarano, Lead Data Scientist at Energy Equity Project,[60] analyzed DOE energy burden data by census tract. The results show that BIPOC households, which comprise 26% of the Michigan population,[61] represent a disproportionate share of energy burdens above 6%, as shown below.

[59] *See* Ex. DAO-122 at 1. From the data, 71.8 million (34.3%) households report reducing or foregoing basic necessities at least one or two months out of 209.3 million households reporting.
[60] Ex. DAO-128, Rahul Agrawal Bejarano CV & Summary of Qualifications.
[61] Ex. DAO-129, *Quick Facts: Michigan*, U.S. CENSUS BUREAU (last accessed May 5, 2024), https://perma.cc/DFN9-WKP5, at 1. The percentage of those who are white Alone, and not Hispanic or Latino, is 74.0%.

Figure 4: Distribution of energy burdens distribution by race and income.[62]



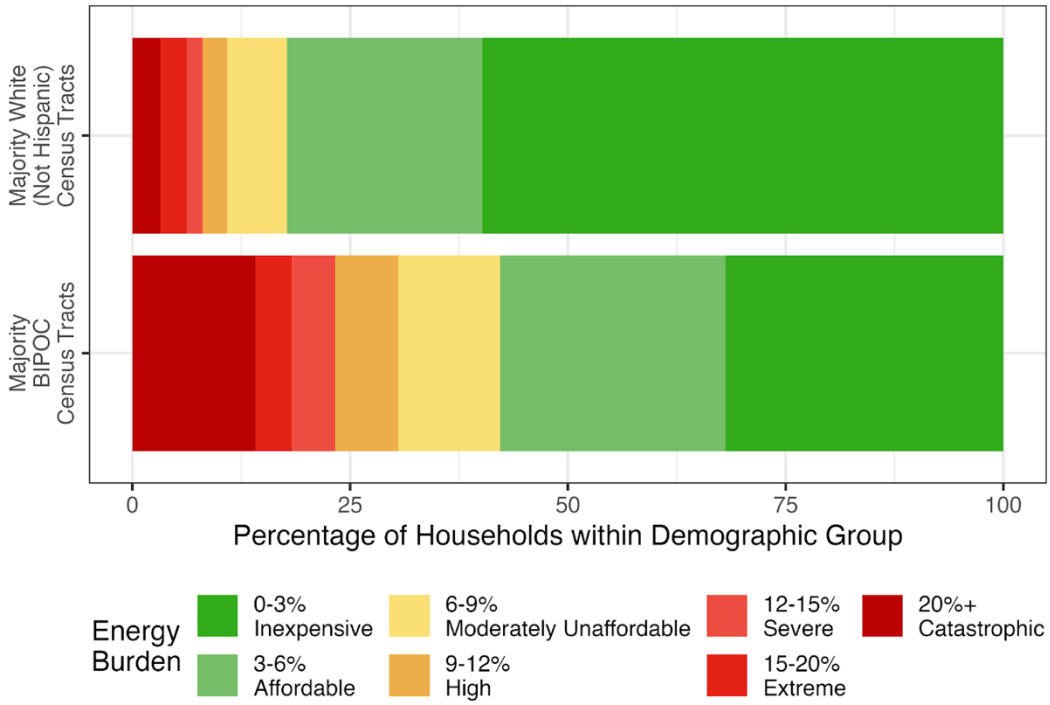
Furthermore, households in majority BIPOC census tracts are 2.4 times more likely to have an energy burden that exceeds 6% and 2.9 times more likely to have an energy burden greater than 12%.[63] For 23% of households in majority BIPOC census tracts, energy burdens exceed 12% to 20% of income, which we categorize as "severe" to "catastrophic."[64]

[62] This figure is based on energy burden data available from the U.S. Department of Energy Low-income Energy Affordability Data (https://www.energy.gov/scep/slsc/lead-tool); Michigan census tract information from the U.S. Census Bureau (https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2010&layergroup=Census+Tracts); and DTE service territory data (https://atlas.eia.gov/datasets/f4cd55044b924fed9bc8b64022966097/explore?filters=eyJOQU1FIjpbIkRURSBFTEVDVFJJQyBDT01QQU5ZIl19&location=42.911225%2C-81.880048%2C6.78). The code used to analyze the data and generate these results is contained in Doe_lead_profiles_fpl.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

[63] Ex. DAO-130, JS Workpaper 3.

[64] Ex. DAO-130, JS Workpaper 3.

Figure 5: Energy burden distribution among majority BIPOC vs. white census tracts in Michigan.[65]



Consequently, in census tracts with incomes below 150% of FPL and extreme energy burdens above 20%, the median Black population is 92%.[66] Ninety percent (163 out of 181) of these tracts are located in Wayne County, which is within DTE's electric-gas combination service territory.[67]

[65] This figure is based on energy burden data available from the U.S. Department of Energy Low-income Energy Affordability Data (https://www.energy.gov/scep/slsc/lead-tool); Michigan census tract information from the U.S. Census Bureau (https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2010&layergroup=Census+Tracts); and DTE service territory data (https://atlas.eia.gov/datasets/f4cd55044b924fed9bc8b64022966097/explore?filters=eyJOQU1FIjpbIkRURSBFTEVDVFJJQyBDT01QQU5ZIl19&location=42.911225%2C-81.880048%2C6.78). The code used to analyze the data and generate these results is contained in Doe_lead_profiles_fpl.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

[66] I calculated the median Black population based on the values in the rightmost column of Figure 7.

[67] Ex. DAO-131, JS Workpaper 4 (data from Climate and Economic Justice Screening Tool, noted in rows 4–5). I filtered for Michigan census tracts with energy burdens above 20%. In rows 934–38, I did a count showing 163 out of 181 of these high energy burden tracts are in DTE territory.

Figure 6: Percent Black population among the most energy burdened, low-income census tracts.[68]

Location	Energy Burden (% income)	Avg. Annual Energy Cost ($)	Household Income	Black/ African American (% pop.)
Census Tract 5112, Wayne County	49	$3,536	$7,221	93
Census Tract 5382, Wayne County	45	$3,869	$8,589	94
Census Tract 5301, Wayne County	42	$2,900	$6,931	99
Census Tract 5231, Wayne County	39	$3,009	$7,651	18
Census Tract 5313, Wayne County	39	$3,000	$7,622	94
Census Tract 1527, Oakland County	38	$2,658	$7,036	3
Census Tract 9854, Wayne County	36	$3,174	$8,764	0
Census Tract 5451, Wayne County	35	$2,793	$7,996	97
Census Tract 5452, Wayne County	35	$3,524	$10,192	100
Census Tract 5002, Wayne County	32	$3,491	$10,818	99
Census Tract 5071, Wayne County	32	$3,137	$9,934	96
Census Tract 5190, Wayne County	31	$2,910	$9,438	90
Census Tract 5265, Wayne County	30	$2,896	$9,738	81
Census Tract 5393, Wayne County	30	$3,537	$11,758	100
Census Tract 5113, Wayne County	29	$3,709	$12,639	39
Census Tract 5333, Wayne County	29	$3,109	$10,810	91
Census Tract 5391, Wayne County	29	$3,591	$12,206	98
Census Tract 5406, Wayne County	29	$2,752	$9,399	78
Census Tract 5074, Wayne County	28	$3,152	$11,401	97
Census Tract 5303, Wayne County	28	$3,990	$14,065	97

We also identified severe disparities in energy burdens on the basis of income. Our data indicates that 59% of DTE residential customers[69] earning less than 30% of Area Median Income[70] (AMI) have extreme energy burdens of 15% or more.[71] Of note, many

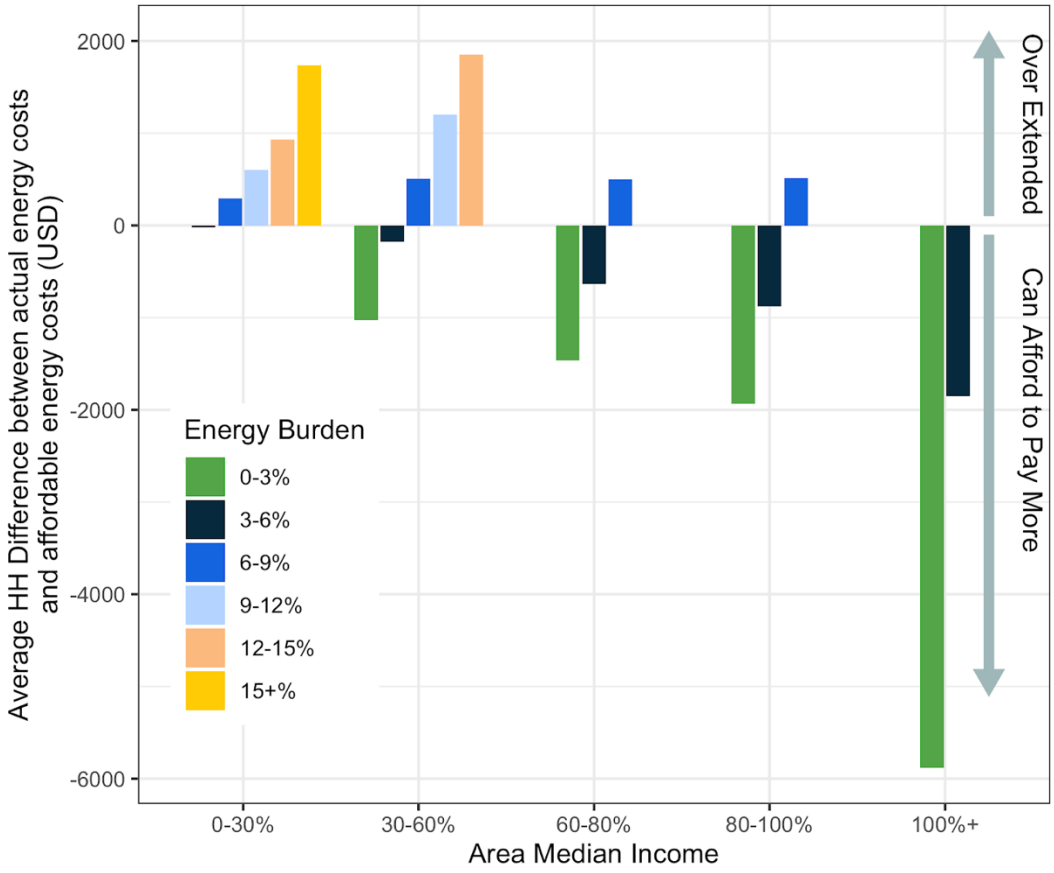
[68] *See* Ex. DAO-131.
[69] This is inclusive of both DTE Gas and DTE Electric customers; we did not have data for DTE Electric customers alone to conduct the analysis.
[70] This is close to 100% of FPL, depending on household size.
[71] *See* Figure 8 below.

of these households are likely already using less energy than they need.[72] Moreover, 45% of Michigan households earning less than $25,000 keep their home at an unsafe or uncomfortable temperature, and 35% of households earning $25,000–$34,999 also do so.[73]

Another metric commonly used to assess affordability is the Home Energy Affordability Gap (HEAG),[74] which represents the cost above an affordable 6% energy burden that a household pays. For example, if a household earning $20,000 can afford a 6% energy burden of $1,200, then if this household faced an annual bill of $3,000, it would have a HEAG of $1,800. Michigan households below 30% of AMI with energy burdens above 15% face HEAGs that are nearly $2,000 more than they can afford annually, as shown in Figure 8 below. Witness Kinkhabwala discusses the HEAG in more detail in his testimony.

[72] Ex. DAO-132, Shuchen Cong, et al.*Unveiling Hidden Energy Poverty Using the Energy Equality Gap*, 13 NATURE COMMC'NS, 2022, at 1, 2.
[73] Ex. DAO-130, JS Working Paper 3.
[74] Ex. DAO-133, *Introduction*, HOME ENERGY AFFORDABILITY GAP (last accessed May 5, 2024), https://perma.cc/5GX4-BDWX, at 1.

Figure 7: Michigan home energy affordability gap by income.[75]

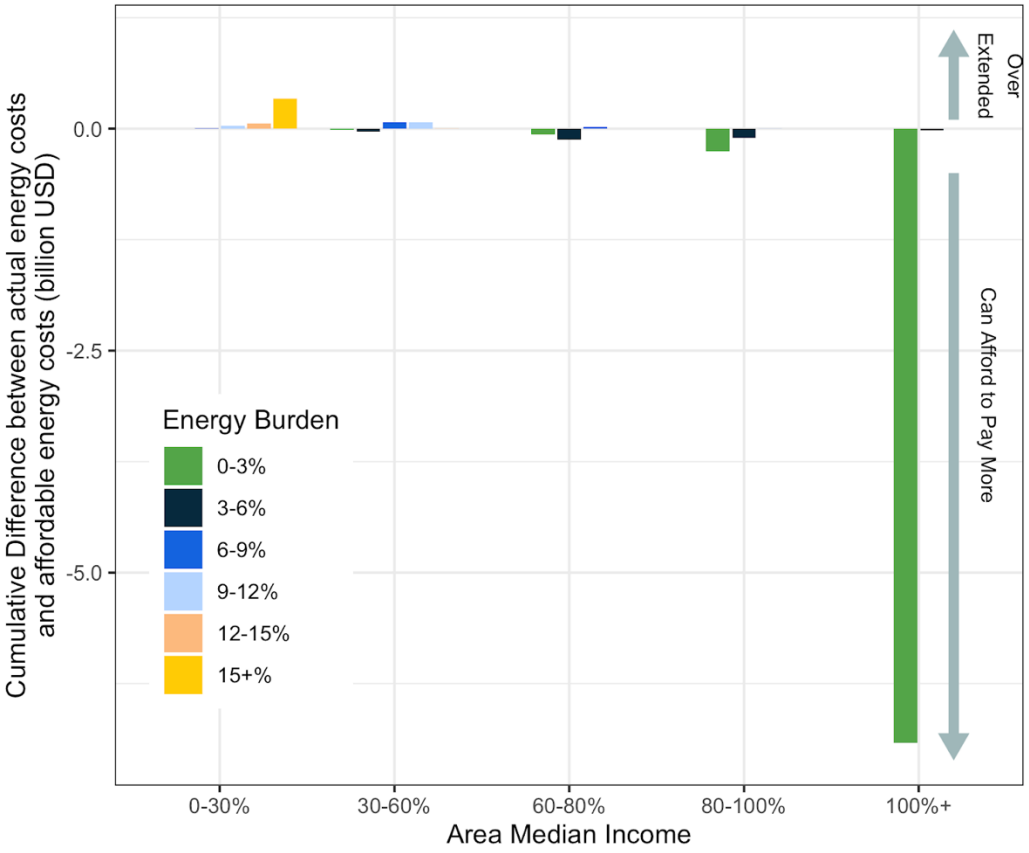


Households that have affordable energy burdens have negative HEAGs—they can afford to spend more than they actually do on energy. Figure 8 shows that households above 100% AMI and with energy burdens below 3% could afford to spend $5,800 more per year than they currently do on energy and still have an affordable energy burden of less than 6%.

[75] This figure is based on energy burden data available from the U.S. Department of Energy Low-income Energy Affordability Data (https://www.energy.gov/scep/slsc/lead-tool); Michigan census tract information from the U.S. Census Bureau (https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2010&layergroup=Census+Tracts); and DTE service territory data (https://atlas.eia.gov/datasets/f4cd55044b924fed9bc8b64022966097/explore?filters=eyJOQU1FIjpbIkRURSBFTEVDVFJJQyBDT01QQU5ZIl19&location=42.911225%2C-81.880048%2C6.78). The code used to analyze the data and generate these results is contained in Doe_lead_profiles_ami.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

Collectively, as shown in Figure 9, there is a $6.9 billion net surplus of what Michigan households above 100% AMI can afford to pay to achieve a 6% energy burden. It would take just 8.7% of this surplus to eliminate the combined $601 million home energy affordability gap experienced by all customers with energy burdens above 6%.

Figure 8: Collective surplus and deficit of home energy affordability gaps.[76]



[76] This figure is based on energy burden data available from the U.S. Department of Energy Low-income Energy Affordability Data (https://www.energy.gov/scep/slsc/lead-tool); Michigan census tract information from the U.S. Census Bureau (https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2010&layergroup=Census+Tracts); and DTE service territory data (https://atlas.eia.gov/datasets/f4cd55044b924fed9bc8b64022966097/explore?filters=eyJOQU1FIjpbIkRURSBFTEVDVFJJQyBDT01QQU5ZIl19&location=42.911225%2C-81.880048%2C6.78). The code used to analyze the data and generate these results is contained in Doe_lead_profiles_ami.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

In sum, the distributive inequities of energy burdens by race and class can be easily rectified through a modest reallocation of costs among low-income vs. non-low-income customers. I return to this point in my recommendations to MPSC in Part VI.

Q: What is the relationship between energy burdens and shutoffs?

A: Shutoffs are the result of unaffordable energy burdens. When they cannot pay their energy bills, many households make the painful decision to forego other basic needs and to under consume energy—keeping their homes at unreasonably cold or hot temperatures that harm their physical and mental health.[77] Because of the patterns of shuffling between which essential needs a household can afford and how much discomfort it can tolerate, it is important to note that, by the time DTE Gas or DTE Electric shuts off service, a household has likely already endured a series of struggles.

Q: Please explain how DTE Electric reports shutoffs and any challenges you encountered with its reports.

A: DTE Electric reports shutoffs on both a quarterly and monthly basis in response to two orders from MPSC Case Nos. U-20757[78] and U-18120.[79] The number of shutoffs initiated by DTE was not immediately clear to me due to confusing nuances in the reporting measures and practices of each report. Prior to the order in MPSC Case No. U-20757, DTE reported shutoffs on a quarterly basis.[80] Beginning with MPSC Case No. U-20757, DTE

[77] Ex. DAO-107 at 1, 6.
[78] *See generally* U-20757 Order (Apr. 15, 2020).
[79] *See generally In re Billing of Residential & Nonresidential Customers*, MPSC Case No. U-18120, Order (Apr. 28, 2017).
[80] *See generally, e.g.*, Ex. DAO-134, DTE, REVISED QUARTERLY REPORT FOR 1ST, 2ND, AND 3RD QUARTERS OF 2023(2023) (providing a sample quarterly report submitted by DTE).

began to report on arrearages, enrollments in affordable payment plans, reconnections, and shutoffs on a monthly basis.[81] The shutoff reports, however, actually reflect the "[t]otal number of residential premises that were disconnected from 11/1/2019 to the last day of the reporting month that have not been restored as of [the last day of the reporting period]. It is not the number of any residential disconnects for any given month."[82] Importantly, what is presented on the MPSC Utility Customer Database, per Figure 10 below, as the number of monthly shutoffs is actually the net number of customers who lost service and have not had service restored. This visual makes it appear that monthly shutoffs never exceeded 10,000, but this is not the case. As shown below in Figure 11, when analyzing the Quarterly Reports, Mr. Agrawal Bejarano found that DTE shut off customers more than 20,000 times in many months, and 717,121 times between 2020 and 2023, even accounting for the brief voluntary pause from March–June 2020.

[81] *In re Response to COVID-19*, MPSC Case No. U-20757, MPSC Order (July 23, 2020), at 3.
[82] Ex. DAO-135, DTE's Response to FLO's First Discovery Request, FLODG-1.3, at 2

Figure 9: DTE monthly shutoffs as presented on the MPSC website.[83]

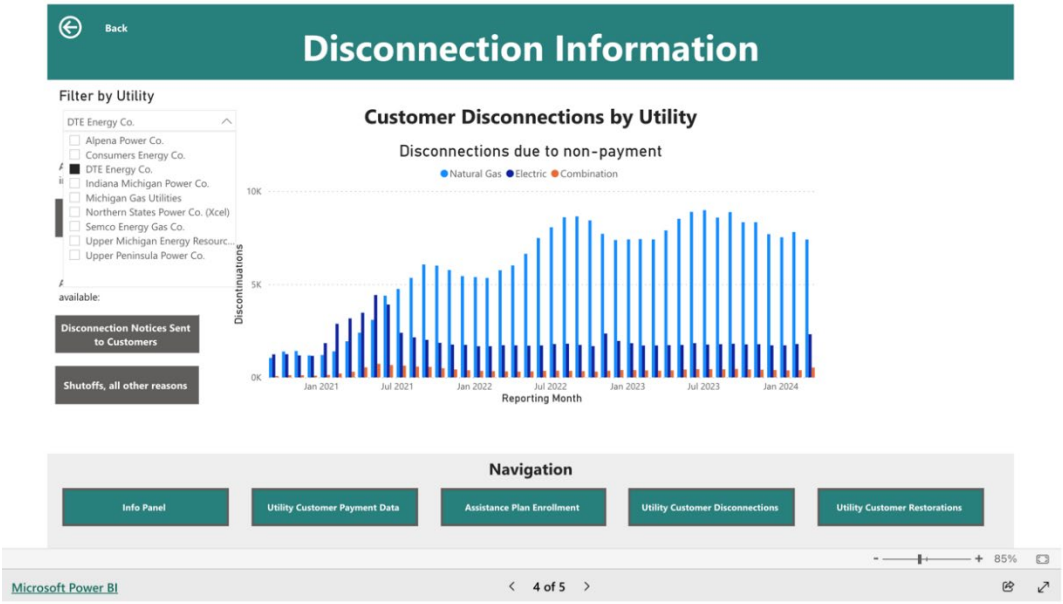
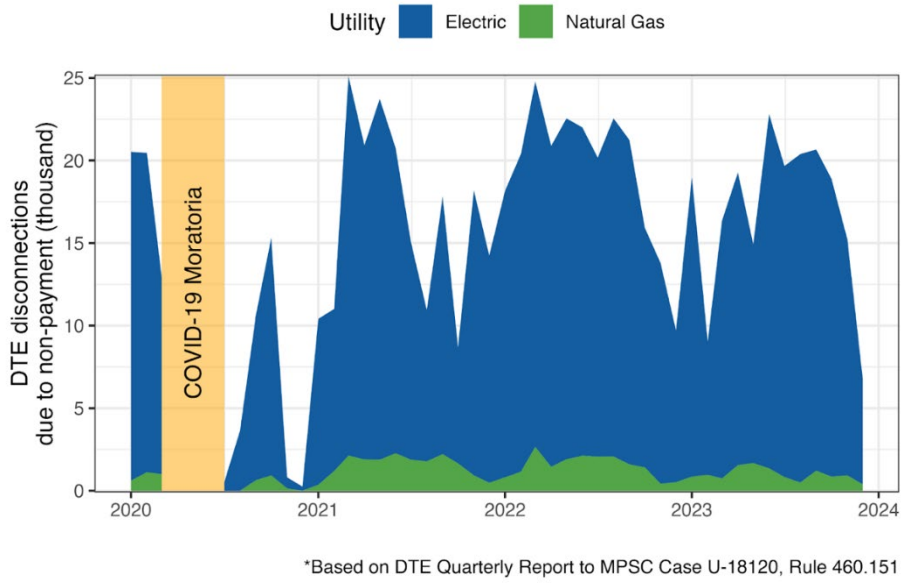


Figure 10: Actual monthly shutoffs by DTE, 2020–2023.[84]



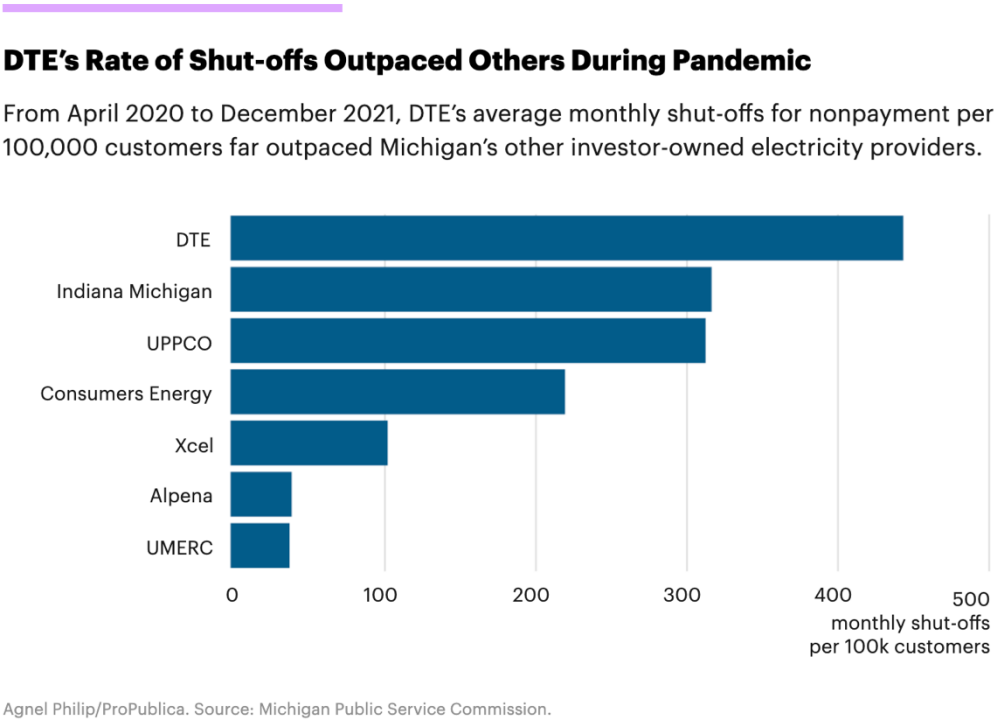
[83] *Disconnection Information: Customer Disconnections by Utility*, MICH. PUB. SERV. COMM'N (last accessed Apr.16, 2024), https://www.michigan.gov/mpsc/regulatory/reports/other/utility-customer-data.

[84] This figure is based on DTE Quarterly Reports submitted to the docket in MPSC Case No. U-18120 (https://mi-psc.my.site.com/s/global-search/U-18120%20%20DTE%20Quarterly); the code used to analyze the data and generate these results is contained in dte_quarterly_results.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

Q: What is the magnitude and trend of shutoffs conducted by DTE?

A: As I noted above, DTE Energy shut off customers more than 717,000 times from 2020 to 2023. DTE's shutoffs, both the rate and total number, far exceed even the practices of its investor-owned peers. For example, Figure 12 below shows that DTE Electric shut off customers at twice the rate of Consumers Energy.

Figure 11: DTE Electric shutoff rates vs. peer utilities.[85]



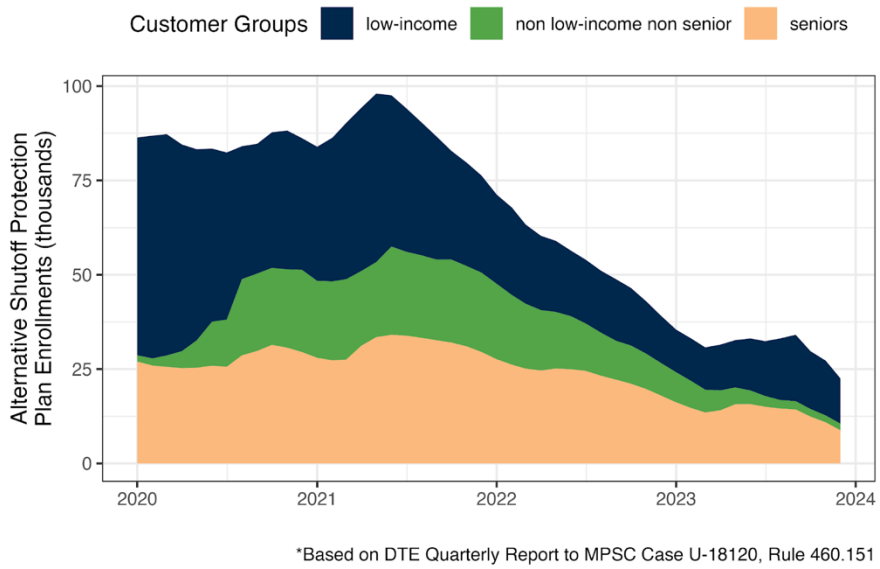
DTE's shutoff totals and rates have remained fairly steady through this period as a whole, with notable seasonal spikes seen in Figure 10 above.

[85] Ex. DAO-136, Sarah Alvarez, *Lights Out: Profitable Utility Company Shut Off Electricity to Homes Hundreds of Thousands of Times*, PROPUBLICA (Mar. 18, 2022), https://www.propublica.org/article/lights-out-profitable-utility-company-shut-off-electricity-to-homes-hundreds-of-thousands-of-times, at 2.

Q: How do shutoffs correspond to enrollment in affordable payment plans?

A: Enrollment in DTE Energy's affordable payment plans has declined precipitously, dropping 63% between 2020 and 2023, according to Figure 13 below. The reason for this decline is not clear.

Figure 12: Declining enrollment in shutoff protection plans, 2020–2023.[86]



IV. ASSESSING DTE'S APPROACH TO ENERGY AFFORDABILITY AND SECURITY

Q: Do you have any concerns about how DTE Electric assigns the responsibility for its energy affordability programs?

A: Yes. The Director of Revenue Management and Protection, a position held by Witness Jason Sparks, is responsible for programs that may be at odds with each other. Managing

[86] This figure is based on DTE Quarterly Reports submitted to the docket in MPSC Case No. U-18120 (https://mi-psc.my.site.com/s/global-search/U-18120%20%20DTE%20Quarterly); the code used to analyze the data and generate these results is contained in dte_quarterly_results.Rmd at https://github.com/Energy-Equity-Project/DTE_analysis/tree/main.

collections and theft focuses on maximizing customer payments and penalizing noncompliance. However, the position held by Witness Sparks also oversees low-income programs, which, in theory, aim to provide holistic support for customers who cannot afford their bills.[87] By assigning both punitive and supportive approaches to the role in which Witness Sparks serves, DTE creates a position that inherently has a conflict of interest. DTE tasks the person in Witness Sparks's role with juggling these competing interests, which means the Company structurally cannot commit to address the needs of energy affordability fully.

Q: How does DTE describe affordability issues?

A: Witness Sparks mentions energy affordability in several different contexts. For example, Witness Sparks describes the energy affordability gap experienced by customers earning minimum wage.[88] Witness Sparks also considers a range of affordability definitions, including a living wage calculation from the Massachusetts Institute of Technology that is specific to the Detroit Metro Statistical Area, multiple thresholds of the Federal Poverty Level, and ALICE (Asset Limited, Income Constrained, Employed) households.[89] However, Witness Sparks's characterization of the number of households consistently unable to afford their DTE bills is misguided. He states that households earning less than 250% of FPL will be unable to afford their bills consistently, which is a reasonable assumption.[90] However, he references a figure of at least *1%* of Detroit customers being

[87] *See* Sparks Direct Testimony at 1–2.
[88] Sparks Direct Testimony at 11-12
[89] *Id.*
[90] *Id.*

unable to pay their bills.[91] However, data from the Pulse Survey and LEAD Tool shows that the number of customers unable to pay their bills in Detroit is likely much higher. In March 2024, 33.2% of Michigan residents reported foregoing basic needs to pay their energy bill for at least one or two months in the last year.[92] Thus, while DTE appears to have a general awareness of poverty and affordability metrics, it has not translated this knowledge into a cohesive understanding of energy insecurity among DTE customers.

Q: How would you characterize DTE's stated goals of its energy assistance programs?

A: Witness Sparks describes the goals in their direct testimony on pages 4-6. Most importantly, to claim the "foremost goal" of energy assistance programs is to "strive to prevent service interruptions"[93] while shutoffs have only *increased* in recent years is disingenuous. If the Company were in fact doing everything in its power to prevent shutoffs, both its energy assistance programs and its shutoff and collection practices would look very different, as discussed more in depth below. One must conclude that either DTE is not serious about this goal or it is dramatically failing to make progress and is incapable of fulfilling it. Neither rationale will be much comfort to the tens of thousands of customers experiencing shutoffs every year.

It is telling that the goal of Consumption Reduction does not mention EWR programs, weatherization, or solar, but instead focuses on "education, incentives, and

[91] *Id.*

[92] *See* Ex. DAO-122, Energy Insecurity in Michigan (U.S. Census Pulse Survey) (Mar. 4, 2024), at 7. This data comes from the February 6 - March 4, 2024, Cycle 2 survey. Analysis of the Michigan tab in the Excel file involved calculating the ratio of customers foregoing other basic necessities (almost every month, some months, or one or two months) to those never foregoing basic necessities to pay energy bills. Nonreporters were excluded from this calculation.

[93] Sparks Direct at 4, lines 18-21.

awareness campaigns."[94] Reducing energy consumption through behavior change has shown positive results in studies, but efficiency improvements to the home are far more important and yield more durable savings. [95]

DTE's goals also infer that residents have more control over their situations than they reasonably do. The Company seeks to help residents "curb wasteful energy practices[,]"[96] even though much of the burden lower-income households face is due to energy-inefficient housing.[97] Similarly, the goals seek to "promote responsible payment behaviors", "a habit of regular bill payments," "better financial management and energy-saving practices," and to "equip customers with the tools to afford the actual costs of their energy consumption over time."[98] These statements imply that customers are using energy wastefully. The root of the affordability problem, which DTE fails to acknowledge, is structural energy poverty. DTE has failed to keep energy costs affordable, charging LMI customers with the costs of grid improvements, energy efficiency programs, favorable rate structures and discounts that accrue in wealthy communities and generate very favorable shareholder returns. After decades of neglect and requiring LMI households to subsidize those who can already afford to participate in these programs, DTE is attempting to ascribe financial responsibility in the face of

[94] Sparks Direct at 5, lines 6-9.
[95] For instance, Allcott, in Ex. DAO-137, Hunt Allcott, Impact of Behavior Programs (2009), found energy savings from an O-Power behavioral intervention to be about 2%; these savings quickly disappeared when customers stopped receiving monthly reports. By contrast, evaluations of weatherization program savings have ranged from 7.5% to 23%, depending on the structure and fuel type. *See* Ex. DAO-138, Tonn et al., Impact of Weatherization Programs (2018), at 12.
[96] Sparks Direct at 5, lines 7-9.
[97] DAO-123 at 2.
[98] Sparks Direct at 5, lines 15-18.

another proposed rate increase. No amount of responsible energy usage and payment behaviors can alleviate a 20% energy burden.

Q: Does DTE take a systematic approach to addressing energy insecurity and unaffordability?

A: No. By "systematic approach" to addressing unaffordability, I mean programs that would enable the vast majority, if not all, LMI customers to achieve a steady energy burden below 6% of income. Initially, this would entail tracking and transparently reporting changes in customers' energy bills due to requested rate increases and comparing those to income—ideally at the household level or alternatively using robust and readily available census tract data from five-year estimates of the American Community Survey of the U.S. Census. A systematic approach would also involve more granular evaluation of shutoffs and how customer assistance program enrollments result in reduced energy bills and shutoffs.

While DTE lists seven goals of its energy assistance programs,[99] the Company does not define these goals clearly or connect them to measurable objectives. Witness Sparks describes the outputs of such programs (e.g., the number of enrollees in LSP), with little appreciation of the impact these programs have in fostering durable affordability and energy security. If DTE used a systematic approach, the Company would report meaningful progress by using metrics such as the reduction in the number of customers with severe or extreme energy burdens or the reduction in bills for households participating in EWR-LI programs.

[99] Sparks Direct Testimony at 11-12.

Q: What is the impact of late and reconnection fees on residential customers?

A: From 2021-23, DTE collected $48.2 million in late fees and $5.6 million in reconnection fees ($53.7 million total).[100] For low-income customers, late fees rose steeply from an average of $32.74 per customer per year in 2021 to $41.16 in 2023, and account for 3.2% of their total bill in 2023.[101]

Q: Does DTE effectively make customers aware of available credits or support their enrollment in energy assistance programs?

A: Not sufficiently. Despite DTE's assertion that it already consistently advertises its low-income programs on its website, the Company's website makes no mention of the LIA credit.[102] In addition, the Company provides information about the RIA credit only toward the bottom of a long list of programs, and the only link provided is to submit documents for eligibility verification. DTE provides no instructions on how to request enrollment. This is a significant barrier and poor design if the goal is to maximize the program's outreach, accessibility, and uptake.

Q: How would you characterize DTE's attitude toward its energy assistance programs?

A: In a word, I would characterize DTE's attitude as "resistant." In its response to the EAAC's Interim Report, DTE Energy used terms like "unworkable" on multiple occasions.[103] The

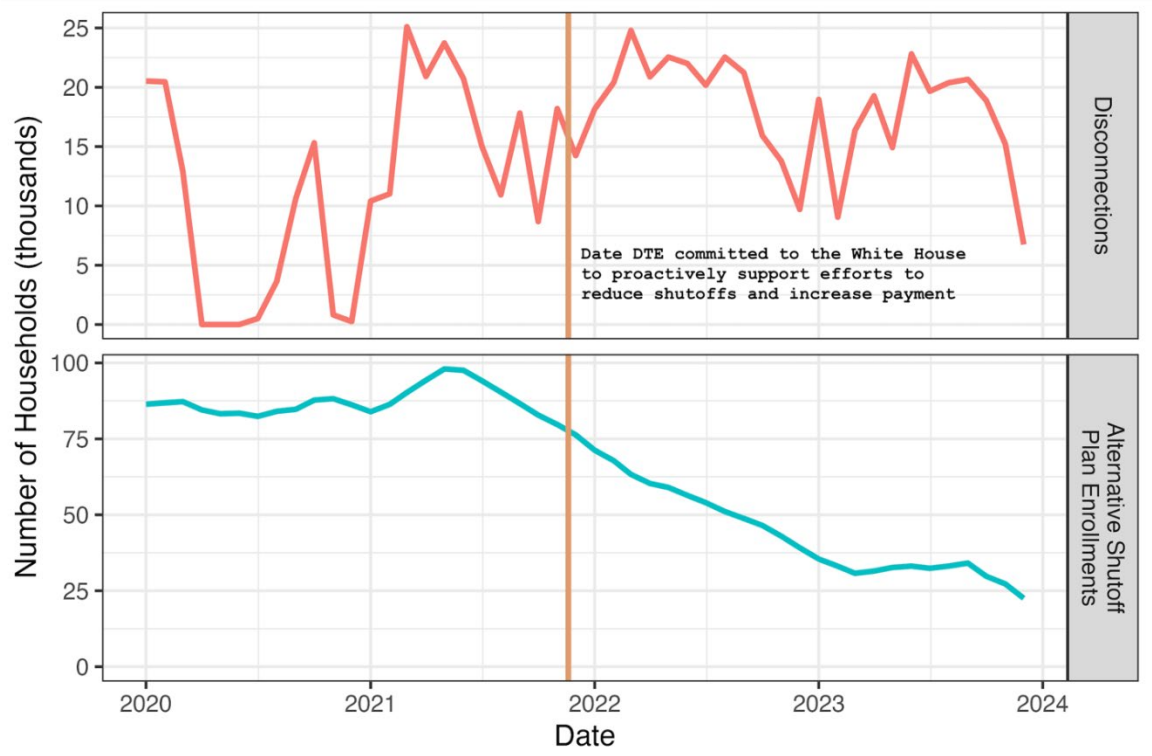
[100] Ex. DAO-139. JS Workpaper 5 - Customer Late Fees (adapted from data provided by Witness Sparks in Discovery Response DAAODE-1.1 - 1.5). 5 months of RIA credit x $8.50 = $42.50; see also Ex. DAO-140. Attachment to DTE's Response to DAAO's First Discovery Request, DAAODE 1.1-1.5.
[101] *Id.*
[102] On its website, there is not a simple link to apply, and the LIA Credit is not included in the list of fifteen programs with dropdowns at the bottom of the page). *See generally* Ex. DAO-163, *Low-Income Programs*, DTE (last accessed May 4, 2024).
[103] DTE Comments on Interim Staff Report at 2.

Company focused on why programs could not be expanded or why, in the Company's opinion, it is already doing enough and does not need to consider expanding or creating new programs.

DTE's practices run counter to its promises. DTE Energy was one of seven utilities that committed in November 2021 to the White House to take five steps to reduce shutoffs and the hardship of energy insecurity.[104] These steps included commitments to identify, directly screen and notify all potentially eligible recipients; to expedite assistance to vulnerable households; and to stop shutoffs to households in the process of applying for assistance.[105] Instead, DTE Energy oversaw an increase in the net number of unrestored customers while cutting enrollments in affordable payment plans by nearly two-thirds (as shown in Figure 14 below).

[104] Ex. DAO-141, *FACT SHEET: Biden Administration Deploys American Rescue Plan Funds to Protect Americans from Rising Home Heating Costs; Calls on Utility Companies to Prevent Shut Offs This Winter*, WHITE HOUSE (Nov. 18, 2021), https://perma.cc/F89D-3C2H, at 1.
[105] *Id*. at 1–2.

Figure 13: DTE worsens energy insecurity after commitment to White House.[106]



This example underscores the fact that DTE's commitments on paper to address the affordability crisis, whether to MPSC or the White House, can have little bearing on its subsequent actions.

Q: Has DTE opposed efforts to access data on shutoffs?

A: Yes. DTE Energy opposed data transparency in MPSC Case No. U-20757.[107] In public comments, DTE Energy noted that it had filed detailed comments on data reporting by zip code and census tract in MPSC Case No. U-20959 and argued that it would be duplicative to address such reporting in case U-20757.[108]

[106] Ex. DAO-142. JS Workpaper 6 - disconnections (Shutoffs); Ex. DAO-143. JS Workpaper 7 - Affordable Protection Plan enrollments.
[107] DTE Comments on Interim Staff Report at 4.
[108] *Id.*

Q: Is DTE taking any steps to address location-specific energy affordability struggles customers face?

A: DTE does not appear to be doing so. In response to a discovery request, DTE Gas stated that it "does not track arrears by zip code, census tract, census block group, or circuit."[109] I have seen no information suggesting that DTE Electric tracks this data either, and I believe DTE Electric's practices are most likely consistent with that of DTE Gas. Furthermore, DTE Electric has confirmed that it does not conduct any analysis to identify the affordability gap in developing its rate requests.[110]

For a service territory that covers half the state and serves 2 million residential customers, failing to identify pockets of severe and extreme energy burdens strikes me as negligent. It is common sense that the experiences of households in the Osborn neighborhood of Detroit are categorically different from those of a household in suburban Bloomfield Hills, Marquette or rural Sanilac County in Michigan's Thumb.

Failing to conduct location-specific energy affordability analysis would suggest that the Company applies a one-size-fits-all approach to its energy assistance programs. Throughout my testimony, I have detailed the results and impacts that stem from the distanced, non-data-driven approach DTE takes to program design.

[109] Ex. DAO-144, U-21291 DTE's Response to FLO's First Discovery Request, FLODG-1.9, at 1.
[110] Ex. DAO-145, DTE's Response to DAAO's First Discovery Request, DAAODE-1.36 at 1.

Q: What is your critique of DTE's approach to the Low-Income Self-Sufficiency Plan in this case and in general?

A: The LSP is a two-year program that freezes payments that are past due, eliminates future late charges, and provides a monthly arrears credit.[111] From 2015–2022, excepting the 2019–2020 COVID-19 program year, LSP enrolled an average of 32,533 customers but graduated just 3,816 annually.[112]

Conceptually, reducing arrearages over time is valuable, but it is still contingent upon an affordable bill and consistent bill payment by the customer. DTE has not demonstrated that the LSP terms result in an affordable energy burden (less than 6% of income). Evaluation of LSP and other assistance programs should be based first and foremost on affordability outcomes and their impact on shutoffs. If the goal of LSP is to ensure "sustained energy" access,[113] the program performs poorly. DTE shuts off a very significant portion of customers despite the assistance provided. Below I reproduce an inverted version of Witness Spark's Table 2 to show that an average of 16% of customers still suffer shutoffs.[114] There is no trend of annual improvement. Even Sparks admits a structural design flaw in the program: "After discontinuing the support of LSP, customers often encounter difficulties in maintaining consistent monthly payments, leading to potential crises."[115] Perhaps with modifications LSP could perform better, but it is clearly not a long-term solution in its current form.

[111] Sparks Direct Testimony at 8, lines 8–20.
[112] Sparks Direct Testimony at 11 tbl.3, averages determined by calculating the total enrollees and graduates by the number of years in the table.
[113] *See id.* at 8, lines 16-17 ("While participating in the plan, customers have the benefit of sustained energy.").
[114] *Id.* at 10 tbl.2.
[115] *Id.* at 12.

Figure 14: LSP failure rate.[116]

LSP Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Avg
% Shutoff	20%	19%	8%	12%	9%	11%	33%	15%	18%	19%	16%

DTE claims that its "experience has shown that applying the low-income credit first towards a long-term program yields the highest self-sufficiency and assists in preventing missed payments."[117] Sparks elaborates that the LIA credit is only offered to LSP customers to strategically pair these two forms of assistance.[118]

The data, however, shows that no amount of program pairings mitigate the extremely high shutoff rates that DTE executes on LSP participants. In fact, the data in Figure 19 shows the highest shutoff rates for customers who are concurrently enrolled in LSP, LIA, RIA, and shutoff protection. It is not clear whether DTE is unaware of or poorly interprets its own data or chooses to construct a narrative that is not grounded in this reality.

[116] This data was adapted from Sparks Direct Testimony at 10 tbl.2, LSP Success Rate 2013-2022.
[117] Sparks Direct Testimony at 18, lines 11-13.
[118] *Id.* at 18-19.

Figure 15: Shutoff rates for customers enrolled in multiple assistance programs.[119]

LSP Program Year	2018			2019			2020			2021			2022		
Shut-off rate	Combo	Elec only	Gas only	Combo	Elec only	Gas only	Combo	Elec only	Gas only	Combo	Elec only	Gas only	Combo	Elec only	Gas only
a. LSP & shutoff															
0-75	10%	11%	6%	11%	10%	5%	9%	10%	6%	12%	10%	7%	13%	11%	6%
76-110	8%	9%	4%	9%	6%	5%	7%	7%	9%	10%	8%	3%	10%	8%	2%
111-150	8%	7%	3%	9%	7%	2%	8%	9%	11%	10%	8%	8%	10%	10%	5%
b. LSP and LIA & shutoff															
0-75	10%	11%	5%	11%	10%	4%	9%	10%	6%	11%	9%	7%	13%	11%	6%
76-110	8%	9%	0%	9%	7%	5%	7%	7%	9%	10%	8%	2%	10%	8%	2%
111-150	8%	7%	2%	9%	7%	3%	8%	9%	12%	9%	7%	7%	10%	9%	4%
c. LSP and RIA & shutoff															
0-75	14%	0%	6%	12%	18%	4%	20%	21%	8%	22%	22%	14%	23%	21%	8%
76-110	13%	0%	6%	9%	13%	6%	17%	14%	14%	20%	16%	7%	17%	15%	4%
111-150	14%	0%	5%	10%	17%	2%	19%	17%	15%	20%	19%	11%	17%	20%	7%
d. LSP and HHC & shutoff															
0-75	10%	0%	4%	11%	0%	2%	8%	0%	4%	10%	0%	3%	12%	0%	3%
76-110	8%	0%	3%	10%	0%	0%	5%	0%	16%	7%	0%	0%	8%	25%	0%
111-150	7%		5%	9%		0%	6%	0%	15%	8%		6%	11%	0%	3%
e. LSP + HHC + LIA & shutoff															
0-75	10%	0%	9%	11%		1%	7%		4%	9%	0%	1%	11%		3%
76-110	8%		0%	10%		0%	5%		17%	7%	0%	0%	7%		0%
111-150	8%		11%	8%		0%	5%		17%	8%		6%	11%	0%	3%
f. LSP + HHC + RIA &shutoff															
0-75	11%		4%	12%	0%	3%	16%	0%	5%	19%	0%	7%	20%	0%	5%
76-110	9%		3%	10%	0%	0%	12%	0%	16%	15%	0%	0%	14%	25%	0%
111-150	8%		4%	10%		0%	13%	0%	22%	14%		13%	16%	0%	4%
g. LSP + LIA + RIA & shutoff															
0-75	14%	0%	7%	12%	19%	3%	20%	22%	8%	22%	23%	12%	22%	23%	8%
76-110	13%	0%	0%	9%	13%	6%	17%	12%	14%	20%	16%	7%	17%	16%	4%
111-150	14%	0%	0%	9%	17%	2%	18%	15%	16%	19%	20%	10%	16%	21%	6%
h. LSP + LIA + RIA + HHC &shutoff															
0-75	11%		13%	12%		2%	15%		5%	18%		2%	19%		4%
76-110	9%		0%	10%		0%	12%		17%	15%		0%	13%		0%
111-150	8%		0%	8%		0%	11%		25%	15%		17%	16%		4%

Q: What is your critique of DTE's approach to the Residential Income Assistance Credit (RIA) in this case and in general?

A: The RIA effectively waives the monthly customer charge of $8.50. However, DTE's own data shows that the majority of RIA enrollees still face high rates of and are unable to pay their bills on time. In 2023, late fees per low-income customer averaged $41.16, which would offset about five months of the RIA Credit value.[120]

Figure 20. RIA Credit Performance[121]

RIA CREDIT	Late Payment Percentage	Shutoff Notice Percentage	Shutoff Percentage
2020	N/A	N/A	N/A
2021	68.95	76.77	38.27
2022	78.83	86.29	46.26
2023	77.51	84.71	41.75

[119] Exhibit A-32 Schedule W1.

[120] *See* Ex. DAO-139, JS Workpaper 5 - Customer Late Fees (adapted from data provided by Witness Sparks in Discovery Response DAAODE-1.1 - 1.5). 5 months of RIA credit x $8.50 = $42.50; *see* also Ex. DAO-140. Attachment to DTE's Response to DAAO's First Discovery Request, DAAODE 1.1-1.5.

[121] Ex. DAO-146, DTE's Response to DAAO's First Discovery Request, DAAODE-1.28.

Importantly, DTE applies the practice of auto-enrollment to provide the RIA credit to customers who receive the Home Heating Credit (HHC) or State Emergency Relief (SER) provided by the State of Michigan.[122] DTE has existing capacity in its system to perform auto-enrollments but chooses to use this capacity sparingly.

Q: What is your critique of DTE's approach to the Payment Stability Plan (PSP) Pilot in this case and in general?

A: In 2022 and 2023, DTE adopted the PSP pilot, a Percentage of Income Payment Plan (PIPP), a step in the right direction.[123]

However, the Company needs to provide more assistance to more people more quickly through an improved PIPP. Presently, the Company used an unaffordable 10% energy burden as the target for combination customers (67% above the affordability threshold of a 6% burden) and 6% electric only burden (2x the affordability threshold of a 3% electric-only burden); these burdens need to be lowered to more like 6% in total or 3% for electric only.[124] Furthermore, the Company neither has concrete plans to expand the pilot to a certain number of customers nor does it have any firm timelines for when it will seek approval of an amended or replacement program.[125] Instead, the Company should seek an expanded number of participants promptly.

[122] Sparks Direct at 15, lines 13-16.
[123] Sparks Direct at 13, lines 16-17.
[124] *Id*. at 13.
[125] *Id*. at 14.

Q: Is DTE able to identify a wider number of customers who are eligible for its energy assistance programs?

A: Yes. Currently DTE classifies just 8% of its residential customers as LI[126] (earning less than 200% of FPL), more than 3.5 times less than the 29% of Michigan residents according to the 2022 Census data.[127] This indicates that 75% of income-eligible households are not currently participating in DTE's assistance programs.

DTE is at least in possession of the number of customers who receive bill payment assistance from LIHEAP and other human service agency programs.[128] At a minimum, that information should be sufficient to help determine most customers eligible for the Low-Income Assistance (LIA) credit.

If DTE is not reviewing the number of customers eligible for its programs, it should. DTE needs to demonstrate much better awareness of its customer base demographics. Income and age data from the U.S. Census is readily available and easily compiled by census tract. DTE should at least understand the approximate number of customers who are eligible for these beneficial assistance programs so that it can improve its marketing and increase enrollments. If DTE had any intention to reduce customer arrears, shutoffs, or

[126] *See* Ex. DAO-139, JS Workpaper 5 - Customer Late Fees (adapted from data provided by Witness Sparks in Discovery Response DAAODE-1.1 - 1.5); *see* also Ex. DAO-140. Attachment to DTE's Response to DAAO's First Discovery Request, DAAODE 1.1-1.5.

[127] Ex. DAO-147, Kaiser Family Foundation, Population Up to 200% FPL (American Community Survey) (last viewed July 9, 2024), https://www.kff.org/other/state-indicator/population-up-to-200-fpl.

[128] *See* Sparks Direct at 4, lines 5-10 ("For non-low-income customers, we provide energy assistance through a 25% match of the Low-Income Home Energy Assistance Program (LIHEAP) Support program administered by the Michigan Department of Health and Human Services (MDHHS) as well as Energy Waste Reduction (EWR) services.") This indicates DTE knows which customers receive LIHEAP through collaboration with MI Department of Health and Human Services (MDHHS).

to graduate people from LSP, identifying customers who could benefit seems like low-hanging fruit and an obvious starting point.

Q: Could you provide examples of what a systematic approach to energy affordability and security could look like for DTE?

A: Yes. As context, DTE's current baseline is 717,121 shutoffs between 2020 and 2023 (663,878 of which were from DTE Electric), with little change in the overall trend since ramping up shutoffs in mid-2020.[129] As discussed above, its energy assistance programs do not currently ensure uninterrupted access to energy.

Thus, a systemic approach to reducing these shutoffs could include:

1. Enacting an immediate moratorium on all shutoffs not related to theft or unauthorized use. The MPSC does not require DTE to initiate shutoffs. DTE has the existing authority to offer alternatives to customers, report any revenue reductions as uncollectable, and propose alternative approaches to the MPSC.
2. Defining measures of success, namely a reduction in shutoffs and a reduction in the number of customers with energy burdens above 6%. The Company should prioritize eliminating the highest energy burdens (i.e. above 20%) and then continuing to lower the maximum burdens among DTE customers until the universal 6% standard is achieved. Defining measures of success would also identify data needed to assess whether there are disparate outcomes by race, income, location, or participation in

[129] *See* Ex. DAO-142.Workpaper 6 contains all PDF reports provided by DTE Electric between 2020 and 2023, converted to .csv format. These reports include monthly shutoff totals (actual shutoffs, not net unrestored shutoffs) separately for gas and electric. The sum of column B yields 717,121 shutoffs during this period. Electric shutoffs were determined using the SUMIF function.

assistance and EWR programs that merit additional investments, engagement strategies, etc.

3. Proposing a comprehensive affordability strategy. The Company should use its position to accelerate the development of affordability rate structures, such as PIPPs and Low-Income Discount Credits that have been proven effective in other states such as Illinois.[130]
4. Creating a unified affordability program that reduces customer arrearages and enables customers to afford their bills, ideally a PIPP that ensures no customer spends more than 3% of income on electricity and no more than 6% of income on energy in total. Or, in the absence of a unified program or until one can be implemented, expanding existing bill assistance programs significantly and increasing the marketing of these programs substantially.
5. Creating systems that prioritize outreach, enrollment, and program evaluations to maximize the effectiveness of the above programs. Evaluation efforts should assess disparities in who participates and differences in outcomes by specific vulnerable populations and lead to the development of approaches to address those differences.

Q: Is this a reasonable expectation that DTE develops systematic approaches to affordability?

A: I believe it is. Witness Sparks acknowledges that reducing low-income customers' struggles to pay their bills is in the self-interest of the Company and is mutually

[130] *See* Ex. DAO-148, Excerpt from Ill. Com. Comm'n No. 23-0067, Order (Nov. 16, 2023), at 2–5.

beneficial.[131] DTE has extensive strategic planning expertise among its leadership. The Company uses data driven approaches to an array of business operations, EWR, and integrated resource planning. Providing affordable and reliable service to low-income customers is a core responsibility of DTE. This responsibility can only be fulfilled by developing alternatives to the current assistance programs. The record is clear that the current programs are failing too many customers, leaving them in financial crisis, compounding late fees, interest, and deposits, and subjecting them to the frequent threat and experience of shutoffs. The Company can do better, and the Commission should make it do so.

V. ASSESSING THE MPSC'S RESPONSE TO ENERGY INSECURITY, SHUTOFFS, AND THE AFFORDABILITY CRISIS

Q: Please summarize this section of your testimony.

A: In this Part, I consider the MPSC's response to affordability challenges and shutoffs, what it has and has not done to regulate DTE and ensure energy is accessible to all customers.

Q: Has the MPSC been sufficiently prioritizing affordability?

A: I do not believe so. Like dozens of other PUCs, the MPSC's mandate requires that it judge utilities' requests according to multiple criteria. These criteria include safety, reliability, affordability, and "just and reasonable" rates for both the customer and the utility. Understandably, there can be no compromises around safety, which is the bedrock of a

[131] Sparks Direct Testimony at 6, lines 17–18. ("This integrated approach can yield sustainable solutions that benefit both the Company and its low-income customers.")

centralized energy transmission and distribution system, and, generally, safety is well-regulated.

Unfortunately, energy affordability has long been considered more of a luxury than an imperative. There is widespread evidence from both Commission rulings and DTE energy assistance programs that the Commission does not view ensuring true affordability as critical. In the Commission's COVID-19 order in MPSC Case No. U-20757, for instance, despite affirming its authority to take swift actions to protect customers, the Commission's shutoff moratorium was voluntary.[132] DTE complied for just over three months and resumed shutoffs shortly after.[133] Commissions in other states maintained shutoff protections for significantly longer.[134]

Q: Please summarize the MPSC's recent efforts to address shutoffs and unaffordability.

A: Since the start of COVID-19, the MPSC has tasked three different bodies (Energy Affordability and Accessibility Collaborative, Energy Waste Reduction Low-Income Workgroup, and the Low-Income Energy Policy Board) with studying the issues and proposing solutions.[135] These bodies are led by MPSC staff and are comprised primarily of energy affordability advocates and practitioners as well as utility representatives.

[132] Apr. 15. 2020 U-20757 Order at 9–10.
[133] *See* Ex. DAO-136 at 1.
[134] *See* Ex. DAO-149, NAT'L ENERGY ASSISTANCE DIRECTORS' ASS'N, SUMMARY OF STATE UTILITY SHUT-OFF MORATORIUMS (2021), at 1–2.
[135] *See* Ex. DAO-105, at 1–3; Ex. DAO-150, *Low-Income Energy Policy Board*, MICH. PUB. SERV. COMM'N (last accessed May 6, 2024), https://www.michigan.gov/mpsc/commission/workgroups/low-income-energy-policy-board, at 2.

The Commission set timelines for the EAAC, in particular, to report on its work.[136] The EAAC submitted interim reports on its work in December 2021[137] and March 2023.[138] Stakeholders, including regulated utilities, were given time to respond with comments.[139]

The Commission responded to the Staff interim reports and stakeholder comments in proceeding orders, leading to the efforts I describe below.

Q: What progress was made toward energy security through these proceedings?

A: Some of the work completed by the EAAC was important and constructive. For instance, the EAAC initiated monthly reporting requirements for shutoffs notices, arrearages, reconnections, and the net number of customers without service.[140] Another positive outcome was the Commission's adoption of a definition of energy affordability. The Commission defined energy affordability as "[t]he extent to which a household has the resources to meet their home energy needs for heating, cooling and other uses in a healthy, sustainable and energy efficient manner without compromising a household's ability to meet other basic needs."[141]

[136] *See In re Response to COVID-19*, MPSC Case No. U-20757, Order (Dec. 21, 2023) [hereinafter Dec. 21, 2023 U-20757 Order], at 44; *In re Response to COVID-19*, MPSC Case No. U-20757, Order (Feb. 18, 2021) [hereinafter Feb. 18, 2021 U-20757 Order], at 16; *In re Response to COVID-19*, MPSC Case No. U-20757, Order (Feb. 10, 2022), at 14–15.
[137] *See generally In re Response to COVID-19*, U-20757, EEAC Interim Report (Dec. 17, 2021)(available at https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/0688y000001VqhIAAS).
[138] *See generally In re Response to COVID-19*, U-20757, EEAC Interim Report (Mar. 16, 2023) (available at https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/0688y000007DkxqAAC).
[139] *See, e.g.*, DTE Comments on Interim Status Report.
[140] Feb. 18, 2021 U-20757 Order at 21.
[141] Dec. 21, 2023 U-20757 Order at 36.

Q: From these efforts, did the EAAC make measurable progress on unaffordable energy burdens or shutoffs?

A: No. The EEAC has failed to make measurable progress on unaffordability and shutoffs.

First, the EAAC has focused extensively on process improvements, coordination, definitions, and outputs such as program enrollments, rather than outcomes like measurable reductions in energy burdens. It has not suggested quantitative approaches to measuring energy unaffordability or insecurity, and the Commission has not ordered it to do so. I have reviewed the content of the EAAC website, including reports, meeting notes, and presentations. It strikes me that the EAAC serves as a body that has worked primarily to establish definitions and principles. It has not explicitly communicated a priority to minimize or eliminate shutoffs. The Affordability, Alignment and Accessibility (AAA) subcommittee of the EEAC, for instance, largely does not discuss shutoffs, as I explain further below.

Q: How would you characterize the EAAC's concern for preventing shutoffs?

A: Serious discussion of how to reduce or prevent shutoffs and ensure households' continuous access to heat and electricity is largely absent from the materials of the EAAC. The goals and guiding principles of EAAC's AAA subcommittee, illustrated in Figure 22 and Figure 23 below, do reference items such as "promot[ing] energy affordability" and "[t]reating customers with dignity, enabling them to live comfortably, and not penalizing customers for an inability to pay their bills." However, it appears that the AAA Subcommittee has not undertaken any serious discussion of how to reduce or prevent shutoffs—as with the EAAC more broadly.

Figure 16: "Shared Goals" of the AAA subcommittee.[142]

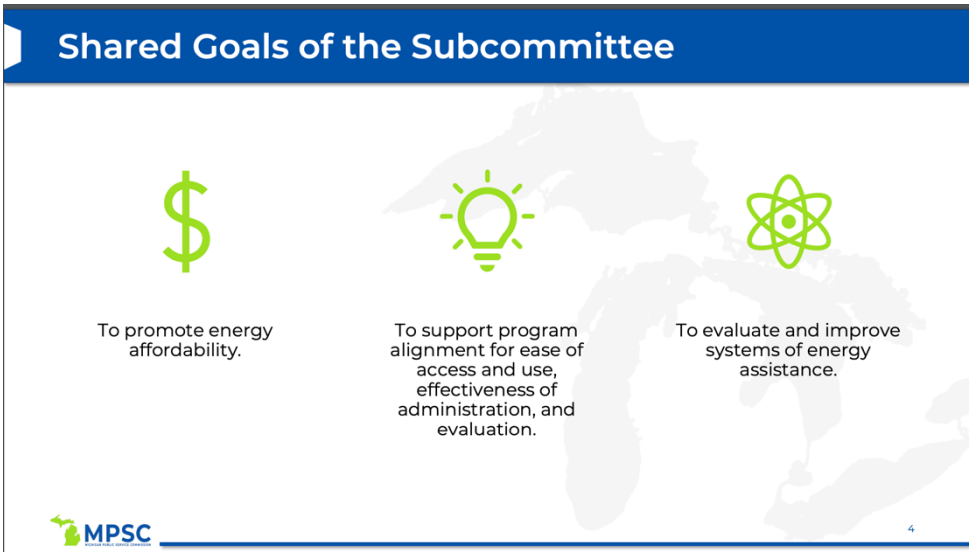
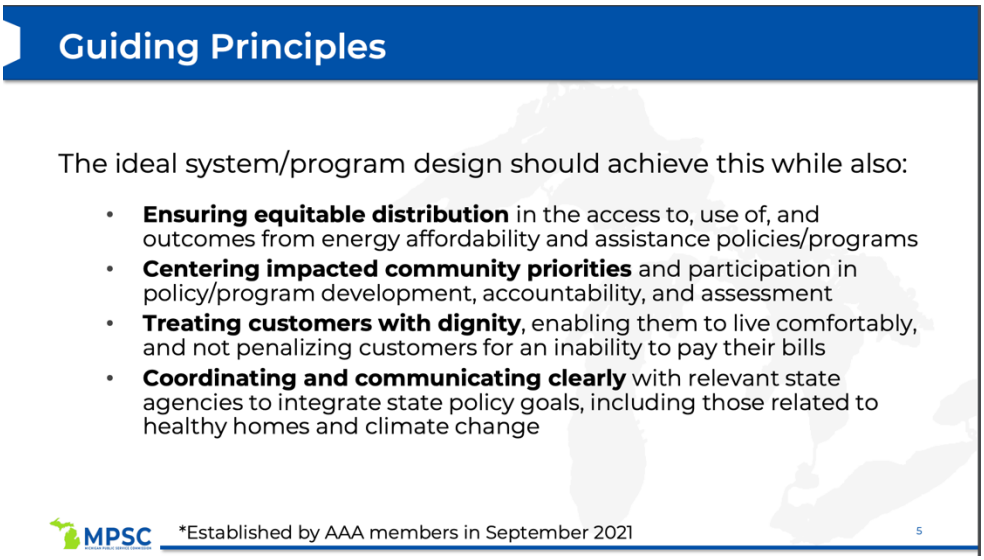


Figure 17: "Guiding Principles" of the AAA subcommittee.[143]

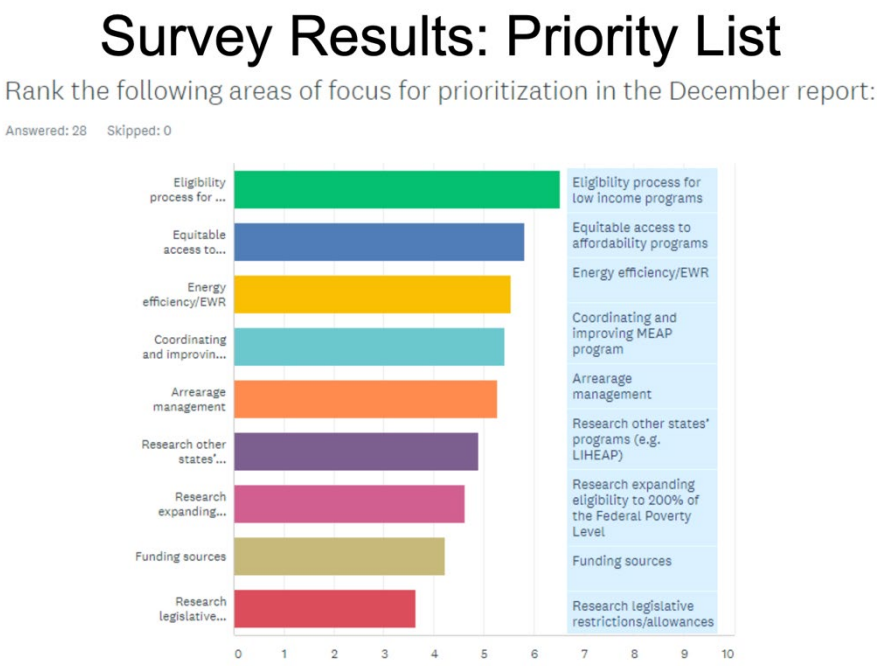


[142] *See* Ex. DAO-152, AFFORDABILITY, ALIGNMENT, AND ASSISTANCE SUBCOMMITTEE, MICH. PUB. SERV. COMM'N, PRESENTATION (Oct. 3, 2023), at 4.
[143] *Id*. at 5.

After reviewing meeting minutes, the detailed AAA subcommittee goals,[144] and the reports to Staff, it is clear that minimizing shutoffs and achieving an affordable (6% or less) energy burden have not been EAAC priorities and have garnered a fraction of the attention given to other issues and priorities. The AAA subcommittee was tasked with "analyzing collections processes and disconnections."[145] Actually working on this goal, however, was not a priority for any of the subcommittee members, as indicated by survey results from its November 10, 2022, meeting.[146] This may be because the subcommittee, like the EAAC as a whole, in my understanding, is comprised primarily of MPSC staff and professional staff at utilities and other organizations instead of residents with lived experience. Furthermore, as shown in Figure 24 below, the AAA subcommittee's kickoff did not even list addressing shutoffs—by far one of the greatest threats to life and generational poverty—as an option for members to prioritize. After identifying shutoff analysis as a potential task, the topic is almost entirely absent from future meeting presentations. Instead, the committee is focused on issues like the "customer journey" to secure assistance, a landscape analysis of programs, and internal structure, charge, and processes.[147] Each of these has value, but they are not oriented toward reducing the number of households with high energy burdens. Not surprisingly, the evidence presented by Staff and the responses from stakeholders have not seriously considered pathways to universal affordability and reducing shutoffs to a mechanism of last resort.

[144] *See generally* Ex. DAO-151, AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE GOALS (2022).
[145] Ex. DAO-153, AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE KICK-OFF (2021), at 4.
[146] Ex. DAO-154, AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE 11-10-2022 MEETING (2022), at 7.
[147] *Id.* at 4.

Figure 18: No option for AAA subcommittee members to prioritize shutoffs.[148]



Q: What views has the Commission expressed about the urgency of what you present as a crisis of energy insecurity and unaffordability, which disproportionately harms BIPOC households?

A: Through its actions, the Commission has expressed that it believes that the energy insecurity and unaffordability crisis is not urgent. In its December 21, 2023 Order in MPSC Case No. U-20757, for instance, "[t]he Commission . . . agree[d] with the Staff that it is not appropriate to prematurely approve permanent PIPP programs." [149] Instead, in the same Order, the Commission committed to "[i]mplement[ing] a proceeding in 2024 to continue and expand its review of these pressing issues," citing Public Act 231 (2023) as an impetus

[148] Ex. DAO-155, AFFORDABILITY, ALIGNMENT, AND ACCESSIBILITY SUBCOMMITTEE 9-9-2021 MEETING (2021), at 9.
[149] U-20757 Dec. 21, 2023 Order at 5.

behind this commitment.[150] This language suggests that the Commission is not treating the crisis of energy insecurity and unaffordability with sufficient urgency, resulting in delays that cause real harm to people and communities.

Q: How has the MPSC addressed the data gaps you are facing in your data analysis?

A: To its credit, MPSC staff advised additional reporting by census tract and zip code, a recommendation approved in the Commission's December 21, 2023, Order, despite protests by DTE Electric that such reporting would be burdensome.[151] A timeline for such reporting, however, was not included in the Order.

I will note that the MPSC also removed the initial monthly reporting requirements in the Order described above, shifting to only quarterly reporting of shutoffs and collection metrics beginning in December 2024.[152] Quarterly reports are not sufficient, in my opinion, to observe trends such as spikes in shutoffs when other assistance programs run out of funds or during periods of extreme weather, such as heat waves. Monthly reporting by census tract, as IOUs in Illinois do,[153] is a national best practice

[150] *Id*. at 6.
[151] *Id*. at 25, 28.
[152] *Id*. at 22.
[153] *See generally* Ex. DAO-156, *Credits, Collections, and Arrearages Reports Monthly Dashboard*, ILL. COM. COMM'N (last accessed May 6, 2024), https://www.icc.illinois.gov/industry-reports/credit-collections-and-arrearages-reports/monthly-dashboard. This dashboard includes a drop-down menu to access data shared monthly.

Q: Do you agree with the Commission's approach and timelines for addressing the current crisis?

A: No. Unfortunately, the Commission has not moved quickly with actions that can provide immediate relief for low-income customers. Taking a patient, multiyear approach to creating a robust, state-specific PIPP would be reasonable *if* sufficient safeguards were available in the interim. But they are not. This means that thousands of customers who face severe and extreme energy burdens will forego other basic necessities, keep their homes at unsafe temperatures to conserve energy, and face the threat and the actuality of shutoffs.

I would support a longer PIPP development process if the Commission implemented an interim solution, such as a moratorium on shutoffs, an automatic expansion of LIA and RIA to all eligible customers, and an expansion of an approach that combines LSP with other efficiency and assistance programs for the most energy-burdened households.

As of now, the EAAC and LIEPB, among other bodies that have been tasked with addressing energy affordability concerns over the years, have not generated outcomes that result in measurable reductions for customers with energy burdens above 6%. There may be good reasons for limited progress, such as the capacity of volunteer boards, the composition and expertise of its members, the desire to be inclusive, questions about authority and timelines, the competing interests introduced by utility representatives, or squeamishness to confront utilities about unforgiving shutoff and collections practices. But regardless of the reasons, these boards, which have now been working for more than two years, have produced only modest impacts. Regardless, so far, it is the Commission's position to continue to defer to these groups—that the EAAC and LIEPB should hold the

reins to create solutions for what could easily amount to an additional two years. That does not seem to reflect an honest assessment of the current situation. What has been the fate of customers who depend on utility regulation to have any hope of staving off the impacts of shutoffs and energy poverty?

In the absence of immediate action, waiting a significant amount of additional time before rolling out a PIPP plan is to know that the harms of energy poverty will continue to be allowed. Importantly, the Commission has already recognized in the U-20757 Order that rulings in contested dockets like rate cases are superior paths to assigning the task of identifying and designing solutions to workgroups like the EAAC.[154]

Q: How would you recommend the Commission consider this evidence about the limited effectiveness of the EAAC to measurably reduce energy burdens or shutoffs?

A: I am not the first to make the point. The Michigan Energy Efficiency for All Network (MEEFA) made it in briefing, and the Commission supported this in its December 21, 2023, Order.[155] I am reiterating the shortcomings of the EAAC in the hopes that the Commission does not merely leave the affordability outcomes to another proceeding. The Commission has an opportunity and, I believe, a responsibility to consider these elements of affordability as part of the current rate increase proposed by DTE Electric and to implement interim solutions that provide relief while potential additional long-term solutions are developed through committee work and other dockets.

[154] Dec. 21, 2023 U-20757 Order at 6–7 ("MEEFA states that 'the Commission should also rule whenever possible on issues in contested dockets rather than referring them to workgroups' . . . The Commission agrees with this recommendation.").
[155] *Id*.

VI. RECOMMENDATIONS TO THE MPSC

Q: Please summarize this section of your testimony.

A: The MPSC has the authority to provide immediate relief to the most vulnerable customers and those with the lowest incomes. The MPSC has an existing blueprint for taking action to address critical customer concerns through its series of orders in the COVID-19 docket (MPSC Case No. U-20757). These actions would align closely with the Commission's mandate to ensure just and reasonable rates. Furthermore, given DAAO's concerns about the potential for racial discrimination and inconsistent customer treatment, suspending shutoffs would also allow the MPSC to further investigate these concerns and provide customer protections against potential statutory violations by DTE.

I recommend the Commission do everything in its power to mitigate the ongoing crises of unaffordability and shutoffs, the harms that result from these crises on customers' health and well-being, and the disproportionate impacts to BIPOC households and residents of Wayne County—Detroit, Hamtramck, and Highland Park specifically. These recommendations include:

1. Ordering an immediate pause on shutoffs until the Commission receives and analyzes census tract and zip code data from DTE for the metrics currently included in its quarterly reports;
2. Ordering an extended moratorium on shutoffs if disparities in customer treatment by race, income, location, or any other demographic variable are identified with census tract or zip code data;

3. Setting a limit on the maximum energy burden of 6% of income for all customers, and ordering DTE, Staff, the EAAC, and interested stakeholders to propose measurable pathways to achieve this goal;
4. Requiring DTE to integrate best practices regarding Percentage of Income Payment Plans (PIPPs) and similarly structured programs and accelerate the transition of its recent PSP pilot to a full program scoped to meet customer need; and
5. Improving data collection and reporting formats by requiring continued monthly reporting of shutoff and collections data, as opposed to quarterly reporting, and by including census tract data for all current metrics.

Q: What are your recommendations to the MPSC regarding shutoffs?

A: First, I recommend that the MPSC initiate an immediate pause on shutoffs as it collects further information through DTE's data reports and docket U-21570 initiated in response to PA 231.[156] Second, I recommend that the MPSC adopt an extended moratorium on shutoffs if the analysis of this forthcoming data identifies entrenched inequities, insufficient affordability programs, or a sustained risk to public health.

[156] MICH. PUB. ACTS 231§ 6aa: "(2) Not later than June 1, 2024, the commission shall open a proceeding to consider options to expand opportunities for public engagement in its decision-making processes and procedures with respect to all of the following:
(a) The accessibility and transparency of the commission's decision-making processes.
(b) Opportunities for participation in the commission's decision-making processes, especially by low-income residential customers, residential customers that experience high energy burdens, and individuals and communities impacted by commission decisions.
(c) The responsiveness of commission decisions to community needs and priorities.
(3) Not later than June 1, 2024, the commission shall open a proceeding to investigate opportunities for improving the process by which it reviews applications filed under section 6a."

Q: What is your rationale for an immediate pause on shutoffs?

A: I recommend MPSC issue a moratorium on shutoffs, with associated customer protections against late fees, additional deposits, and reconnection fees.

I have identified numerous distributive inequities throughout my testimony that indicate disparate outcomes for customers on the basis of race and income. In other words, DTE is causing immediate and disproportionate harm to BIPOC and LMI households. The public lacks sufficient data to further identify similar disparities that may exist on the basis of income. The MPSC has an obligation to ensure fair treatment by DTE for all customers. The only way I see to ensure fair treatment and guard against the worst impacts of severe and extreme energy burdens in the short term is to institute a pause until conclusions from further analysis, both quantitative and qualitative, can be reached.

This recommendation follows the model established by the California Public Utilities Commission (CPUC). The CPUC concluded:

> The Commission has implemented policies and procedures to reduce gas and electric utility service disconnections; however, the rate of customer disconnections continues to rise. Accordingly, the instant rulemaking has been instituted with the goal of developing policies and rules to reduce the statewide level of gas and electric service disconnections for nonpayment by residential customers. This decision adopts interim rules to take effect immediately on an emergency basis to provide rapid relief while we consider longer term solutions.[157]

Furthermore, the CPUC found "PG&E and SCE failed to show in opening comments that the interim rules will result in any incremental costs to them[,]"[158] suggesting that these rules to reduce shutoffs could have little impact on utility companies while providing benefits to LMI customers.

[157] Ex. DAO-157, ACEVES GUZMAN, DECISION ADOPTING INTERIM RULES TO REDUCE RESIDENTIAL CUSTOMER DISCONNECTIONS FOR CALIFORNIA-JURISDICTIONAL ENERGY UTILITIES (2018), at 3.
[158] *Id*. at 10.

Q: How and when would the second phase of your recommendations—an extended moratorium on shutoffs—be implemented?

A: I believe no customers should be deprived of access to energy, a basic human need, on the basis of race, income, where they live, or any other demographic variable over which they have little or no control. Simply being too poor should not sentence a household to the cycle of figuring out which basic needs to forego, letting their homes reach temperatures that are dangerously cool or hot to conserve energy, or paying hefty late fees, interest, and deposits to reconnect for an uncertain amount of time before the next cycle begins.

There is enough money in the customer base so that no one faces an energy burden above 6% or a shutoff. Achieving this robust level of distributive and restorative equity will require exploring all options to reduce customer bills, maximize assistance, leverage new sources to enhance energy efficiency and beneficial electrification, restructuring regressive customer charges, and ensuring that all customer classes pay their fair share to ensure universal access to affordable energy.

The CPUC is a good model. Following its docket to investigate and analyze the issue deeply and to allow robust stakeholder participation, the CPUC made a number of its interim rules permanent. Notably, the CPUC determined "it is reasonable to impose restrictions prohibiting disconnections of residential utility service until the utility has offered to enroll the residential customer all applicable benefit programs administered by the utility."[159]

[159] Ex. DAO-158, Phase I Decision Adopting Rules and Policy Changes to Reduce Residential Customer Disconnections for the Larger California-jurisdictional Energy Utilities, Decision 20-06-003 (June 11, 2020), at 1.

An extended moratorium need not result in increasing customer debt or a financial burden to other customers or the Company. DTE has assistance programs in place that are directionally sound—if EWR-LI programs and affordability offerings, especially the PSP pilot, were calibrated to achieve a maximum 6% energy burden, households would make consistent payments on a bill they could reasonably afford. Expanding these programs would have very modest costs to other ratepayers, who, when above median income, are more likely to have sufficient means to return a share of the benefits of energy efficiency programs they have received over time. There would be savings to the rate base from reduced uncollectibles and the large collections infrastructure DTE operates (the cost of which is unknown). A moratorium on shutoffs would motivate improvements and efficiency within the current patchwork of low-income credits and programs.

It is in the interests of all parties to work toward agreement on the most robust shutoff protections as early as possible. The alternative, to knowingly allow shutoffs from the basic necessity of energy which we all use every day to survive, is cruel. In assessing why Americans have collectively failed to eliminate extensive poverty despite our overflowing collective wealth, scholar, MacArthur genius, Pulitzer Prize-winning author of *Evicted* Matthew Desmond suggests:

> We like it [poverty]. It's the rudest explanation, I know, which is probably why we cloak it behind all sorts of justifications and quick evasions….If this is our design, our social contract, then we should at least own up to it. We should at least stand up and profess, *Yes, this is the kind of nation we want.* What we cannot do is look the American poor in the face and say, *We'd love to help you, but we just afford to,* because that is a lie.[160]

[160] DAO-159. MATTHEW DESMOND, POVERTY, BY AMERICA 101–02 (2023).

Q: What precedents are there for shutoff moratoria?

A: The MPSC has direct experience when it turned to a shutoff moratorium, albeit voluntary, to protect public health during the start of the pandemic. The Commission laid out the rationale for that moratorium in its April 2020 Order in MPSC Case No. U-20757.[161] DTE abided by the voluntary request for about three months.[162] Furthermore, forty states enacted some form of a moratorium during the COVID-19 pandemic, and the majority of states continued their moratoria a year or longer, well into 2021.[163] The Los Angeles Department of Water and Power, the largest municipal utility in the country, voted unanimously in November 2022 to approve a permanent moratorium on shutoffs.[164]

The MPSC has other elements of a moratorium already in place, such as winter protection for seniors and low-income customers on a budget billing plan and for customers with documented medical conditions.[165]

Q: Could you recommend ways that DTE could use whatever resources it has to more effectively target households in the most burdened communities?

A: Yes. Below is an example of how, using census tract data, DTE could propose an equitable distribution of benefits based on the percentiles for energy burden, federal indicators of

[161] Apr. 15, 2020 U-20757 Order.
[162] Ex. DAO-136 at 1.
[163] Ex. DAO-160, *Winter and Covid-19 Shut-Off Moratoriums*, NATL ASS'N OF ENERGY ASSISTANCE DIRECTORS (Mar. 15, 2021), https://neada.org/wintercovid19moratoriums/.
[164] Ex. DAO-161, L.A. DEP'T OF WATER & POWER, MOTION TO DISCONTINUE SHUT-OFFS AS AN ACCOUNT MANAGEMENT COLLECTION TOOL FOR CUSTOMERS ENROLLED IN LADWP EZ-SAVE AND LIFELINE DISCOUNT PROGRAMS (2022), at 1.
[165] *See* MCL § 460.9r; *see also* Ex. DAO-162, SANYA CARLEY AND DAVID KONISKY, UTILITY DISCONNECTIONS DASHBOARD (2023), at 1.

disadvantaged census tracts used for Justice40,[166] and the percentage of households below either 100% or 200% of FPL. In Figure 25 below, I have provided a matrix providing an example of how benefits could be maximized to protect vulnerable households such that the greatest share goes to the most vulnerable customers. In this example, I segment census tract vulnerability based on percentile buckets in these four categories (e.g., the second to fifth percentile is one bucket), and suggest specific program allotments that could align with vulnerability levels. I present this example to show that a robust, quantitative approach to achieving distributive equity is feasible and straightforward.

Figure 19: Sample approach to equitable distribution of program benefits based on census tract vulnerabilities.

Census Tract Variable	Top 2%	Benefits	2-5%	Benefits	5-10%	Benefits	10-25%	Benefits
Energy burden	21.5%	Automatic enrollment for the entire census tract	15.4%	Opt out based on MDHHS enrollments; reserve 15% of remaining slots (5x)	12.7%	Enrollment qualifies for 3 years; reserve 15% of remaining slots (3x)	8.2%	Priority outreach; reserve 30% remaining slots (2x)
# CEJST thresholds	10.2		10.2		8.4		3.8	
HH below 200% FPL	61.1%		60.8%		52.8%		43.1%	
HH below 100% FPL	39.5%		35.6%		28.6%		20.3%	

Q: Your third recommendation is to limit energy bills to 6% of income. How would this work?

A: Requiring a comprehensive affordability program, such as a PIPP, is an essential complement to a pause or moratorium on shutoffs. Indeed, the Commission has already

[166] Justice40 is an initiative created by President Joe Biden's Executive Order 14008 that requires federal agencies to ensure that 40% of the benefits of covered programs be distributed to "disadvantaged" census tracts. The White House's Council on Environmental Quality (CEQ) created the Climate and Economic Justice Screening Tool (CEJST) to define disadvantaged tracts. CEJST establishes thresholds for twenty-nine indicators; exceeding any threshold qualifies a tract as disadvantaged. The number of thresholds exceeded is a good measure of a community's exposure to environmental injustices. For more information, see https://www.whitehouse.gov/environmentaljustice/justice40/ (Justice 40) and https://screeningtool.geoplatform.gov/en/methodology#3/33.47/-97.5.

approved a number of pilot programs that limit payments to a percent of income. For example, in 2022, the MPSC approved a pilot by Consumers Energy that sets a fixed monthly payment for gas and electricity that is set to 6% of income.[167] The MPSC has also approved DTE's PSP pilot, but unfortunately, as discussed above, this program sets the combined gas and electric burden at 10% of income, which is not affordable.

Most importantly, the PIPP must be extended to all customers with energy burdens that exceed 6% of income and any DTE Electric-only customers with electric burdens above 3% of income. These energy burdens are most concentrated among households with incomes below 60% of AMI,[168] but a number of households with incomes between 60% and 100% AMI also have unaffordable energy burdens. DTE could include a billing insert that indicates income eligibility for each customer and the actions required to enroll in the PIPP based on the last twelve billing months.

Q: Is there precedent for a PUC to establish an affordability mechanism as part of a utility rate case?

A: Yes. The Illinois Commerce Commission reviewed a series of proposals for a low-income discount credit (LIDC) in five gas rate cases in 2023. Ultimately, the Commission adopted a five-tiered LIDC that applies to the entire customer bill.[169] The tiers were calibrated so that every household has an affordable gas energy burden of not more than 3% of income.[170] This new structure that was created by an ICC order was not contingent upon

[167] *In re Consumers Energy*, MPSC Case No. U-21021, Order (Feb. 10, 2022).
[168] *See supra* fig.8.
[169] *See* Ex. DAO-148 at 4.
[170] *Id*. at 6.

any other elements of the rate cases. This same design would be equally applicable and effective in an electric context.

Q: What would be a reasonable timeline for the MPSC to research affordability structures for DTE Electric customers in this rate case?

A: Fortunately, the MPSC has already done significant work to convene stakeholders around affordability, through the LIEPB, which coordinates the work of the EAAC and EWR-LI.[171] The members of these bodies have considerable experience, community relationships, and technical expertise to submit considerations and recommendations on affordability structures within ninety to 120 days. The MPSC might take another sixty days to review, summarize, and provide Staff input on the proposals received from the LIEPB, the EAAC, the EWR-LI, and other interested parties. A Commission order could reasonably be expected within nine months of initiating the proceeding. Utilities might have another 180 days to implement the program.

Q: Please summarize your recommendations regarding data collection and reporting.

A: I recommend that the MPSC reinstate the monthly reporting requirements that it initially repealed in MPSC Case No. U-20757.[172] Monthly reporting is critical to track trends and differentiate seasonal energy burdens that spike after periods of extreme weather.

Second, I recommend that the MPSC set a firm timeline for DTE to begin these reports by census tract and zip code. Assuming DTE already has this data available, the Company could produce reports within thirty to sixty days.

[171] *See* Ex. DAO-150, Low-Income Energy Policy Board.
[172] Dec. 21, 2023 U-20757 Order.

Third, I recommend that the MPSC require DTE to provide all reports in publicly accessible and analyzable format, namely .csv or .xslx. In many cases, DTE provides only PDFs which cannot easily be converted. These files require extensive cleaning, which materially burdens intervenors and introduces further opportunities for error.

Q: Please summarize your recommendations regarding the reduction of nonessential spending.

A: The investments in additional low-income programs such as PIPP can be offset by disallowing spending not compatible with affordability and public health. While not the focus of my testimony, I support the recommendations of my colleague DAAO Witness Jackson Koeppel to restrict DTE spending on aggressive and unnecessary capital expenses that only serve to increase shareholder profits at the expense of ratepayers.

Q: Does this conclude your written Direct Testimony?

A: Yes.

Justin Schott

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https://www.linkedin.com/in/justinschott/
https://bit.ly/Justin_Schott_Resume

Summary:

My work centers energy, environmental, and climate justice by blending deep and authentic community partnerships, applied quantitative research, policy analysis and advocacy, and education. My greatest aspiration is to partner with frontline communities to develop approaches that combat both racial and social injustices and ecological crises. I believe in the wisdom and solutions of Black, Brown and Indigenous communities, youth, and environmental justice communities. I see my task as illuminating and elevating this wisdom and ensuring they have the resources to bring their own visions of energy, environmental, and climate justice to life. Ultimately, I believe change will require repairing our relationships, remedying past injustices, and combining data and lived experiences to advocate for restructuring our energy systems. Perhaps most importantly, none of this can happen without the internal work each of us must do to heal, to grow, to be rooted in community, and to sustain our own action in the face of the climate crisis.

Work history (position details in professional resume)

University of Michigan, School for Environment and Sustainability — Ann Arbor, MI
Director, *Energy Equity Project* February 2021-present
Lecturer, *Energy Justice, Fall 2022*

EcoWorks — Detroit, MI
Project Manager, Detroit Climate Strategy, November 2020 – May 2021
Executive Director, June 2015 – November 2020
Founder & Program Director, Youth Energy Squad, September 20010 – June 2015

Voices for Earth Justice — Southfield, MI
Founder & Program Director, Youth Energy Squad, October 2008 – September 2010

Ecos Consulting — Detroit, MI
Launch Manager & Field Director, *Home Energy Consultation Program,* March – September, 2009

National Wildlife Federation — Ann Arbor, MI
Campus Field Coordinator, Campus Ecology Program, April 2007 – October 2008

Northwest Youth Corps, The OutDoor School — Eugene, OR
Field Science & Conservation Projects Team Leader, August 2002 – June 2004

Education

University of Michigan, M.S., Resource Policy & Behavior, 2006 — Ann Arbor, MI

Cornell University, B.S., Natural Resources, 2002 — Ithaca, NY

Professional Interests

Environmental justice, energy policy, equity research and metrics, utility regulation, community organizing and engagement, city and institutional climate planning, youth leadership development, K-12 and higher ed

Honors and Awards

Organizational:

UL Education Innovation Award, 2019

Longterm Community Partner Award, 2016 – Southeast Michigan Stewardship Coalition

Best Managed Nonprofit – Crain's Detroit Business 2013

Governor's Service Award, 2012 – Youth Volunteer of the Year (Deonte Lucas)

Spirit of Detroit Award, 2011 – For co-organizing the first ever Detroit Green Youth Summit

President Obama Meeting, 2011 – YES student only high schooler in oval office meeting

Detroit Free Press Inaugural Green Leader Award, 2010

Individual:

Semi-finalist – J.M.K. Innovation Prize, 2019

Bank of America Emerging Leader, National Neighborhood Builders Program, 2013

TogetherGreen Conservation Fellow, 2011

Research

Working Papers

Schott, J. and Whyte, K. Setting Justice40 in Motion: The Hourglass Problem of Infrastructure Justice. Under review.

Schott, J., Whyte, K., Agrawal-Bejarano, R., and Dickson, T. Energy Equity Project: Developing a national framework that unites qualitative and quantitative equity measurement in climate and clean energy initiatives. Under review.

Academic Publications

Energy Equity Project (Schott, J. (ed), 2022. "Energy Equity Framework: Combining data and qualitative approaches to ensure equity in the energy transition." University of Michigan, School for Environment and Sustainability.

Gronlund, C. J., Ketenci, K. C., Reames, T. G., Larson, P. S., Schott, J., Rowe, Z., ... & O'Neill, M. S. (2022). Indoor apparent temperature, cognition, and daytime sleepiness among low-income adults in a temperate climate. *Indoor air*, *32*(1), e12972.

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Ziegler, T. B., Coombe, C. M., Rowe, Z. E., Clark, S. J., Gronlund, C. J., Lee, M., ... & O'Neill, M. S. (2019). Shifting from "community-placed" to "community-based" research to advance health equity: A case study of the Heatwaves, Housing, and Health: Increasing Climate Resiliency in Detroit (HHH) partnership. *International Journal of Environmental Research and Public Health*, *16*(18), 3310.

Cardoza, J. E., Gronlund, C., Rowe, Z., Schott, J., Lee, M., Clark, S., ... & O'neill, M. (2018, September). Air Conditioning and Heat-Related Illness in Detroit, Michigan, USA: A Community-Based Participatory Epidemiologic Analysis. In *ISEE Conference Abstracts* (Vol. 2018, No. 1).

Eagan, D. J., Keniry, J., & Schott, J. (2008). Higher education in a warming world. *Reston: National Wildlife Federation*.

Eagan, D. J., Calhoun, T., Schott, J., & Dayananda, P. (2008). Guide to climate action planning: Pathways to a low-carbon campus. *National Wildlife Federation, Reston, VA*.

Presentations

Energy Equity Project (February 2021 – present)

- American Public Health Association Environment Committee - panelist
- Climate Adaptation Forum (Massachusetts) – Justice40 panel
- Colorado Public Utilities Commission - Public meeting on community engagement
- Connecticut Public Utilities Commission – energy equity workshop
- Energy Equity in the South - energy equity panel
- Energy justice roundtable (with National Association of State Energy Offices and National Governor's Association)
- Greenhills School (Ann Arbor) – energy justice workshops for middle & high school students
- Green & Healthy Homes Institute – energy equity training and continuing education
- Hawaii Energy Hui – energy equity presentation
- Illinois Stakeholder Advisory Group – quarterly meeting and metrics development process
- Kansas Corporation Commission – Equity considerations – utility energy efficiency plan
- Michigan Energy Innovation Business Council – panel facilitator
- MI Energy Waste Reduction Low-Income Workgroup – panelist
- Michigan Healthy Climate Conference – affordability workshop
- MI Low-Income Energy Policy Board – affordability workshop
- Michigan Public Service Commission, MI Power Grid – energy equity presentation
- Michigan Energy Office – equity metrics for Justice40 alignment
- Midwest Building Decarbonization Equity Summit – panelist
- Midwest Energy Efficiency Alliance – energy equity workshop
- National Association of Regulatory Utility Commissioners (NARUC) – equity roundtable
- National Association of State Energy Offices – equity committee workshop
- National Association of State Utility Consumer Advocates (NASUCA) – energy equity presentation
- National Environmental Justice Conference – workshop
- National Community Action Partnership – conference workshop
- National Home Performance Conference – panelist
- New York Federal Reserve Equity Roundtable – panelist
- Oak Ridge National Lab – equity guidance
- Paris Reinforce Conference – equity advisor and panelist
- RE-AMP – equity panel
- Rocky Mountain Institute – equity considerations for utility dashboards, guest speaker
- Tufts University Cities Spring Symposium – co-presentation
- U.S. EPA – equity considerations for Portfolio Manager

- Vote Solar – equity presentation
- World Resources Institute – equity considerations for electric school bus initiative

Examples of Prior Presentations (2007-2020)

- Association for the Advancement of Sustainability in Higher Education (AASHE)
- Autonomous Vehicles Initiative (Knight Foundation)
- Community forum (with high school students) – Southeast Michigan Stewardship Coalition
- Detroit Public Schools Community District – Go Green Challenge
- Detroit Sustainability Forum
- Great Lakes Bioneers Detroit
- MI Place-Based Education Conference (with high school students)
- Powershift (national youth climate conference)
- U.S. Green Building Council Green Schools Conference
- U.S. Sustainability Directors National Conference (keynote panelist)
- *5*0+ meetings to individual community groups, businesses, non-profits, K-12 schools, colleges

Academic Guest lectures

University of Michigan

EAS 501 – Energy justice and screening tools (Winter 2023)

Talks on Science – Roots of Energy Justice (Winter 2023)

Ross Energy Club (Fall 2021, 2022)

SEAS Environmental Justice (Fall 2021) – Energy justice and equity

Michigan Energy Week (Fall 2021)

Organizational Studies / Program in the Environment (Fall 2018) – Leadership and Environmental Stewardship

Graham Institute for Sustainability (Winter 2017) – Careers in Sustainability and Environmental Justice

Graham Institute for Sustainability (Fall 2016) – Origins of Flint Water Crisis

Semester in Detroit (Spring 2016) – Youth-led Sustainability Projects

Other Universities

Colorado School of Mines (Winter 2022)

Columbia University (Winter 2022)

Tufts University (Winter 2022)

Pomona College (Winter 2018)

Advising

Masters Projects

U of M Dow Fellows (Academic advisor) – Energy Equity Researchers Collaborative (2022)

U of M – SEAS (Academic advisor) – Detroit Resilience Hub Framework (2021-2022)

U of M Dow Fellows (Project Client) – Building the Foundation for a Residential Affordability Program in Detroit and Highland Park (2020)

U of M - SEAS (Project Client) –Roadmap to Water Security (2017-2018)

Student Interns

Since 2010, 20+ undergraduate and masters students from U of M (Semester in Detroit, UROP, Urban Energy Justice Lab, SEAS, Doris Duke Conservation Fellowship)

Professional Fellows

Detroit Revitalization Fellows – Susan Dundon (2015-17), Deb Houghtaling (2017)

Challenge Detroit – Shaina Davidson (2015-16), Miranda Day (2016-17)

Grants

Secured and managed more than $15M in grants and contracts from 100+ government, foundation, and corporate sources; 2008 – present

Energy Equity Project

- Google Environmental Justice Data Fund $250,000
- Joyce Foundation, $200,000
- Crown Family Foundation, $201,000
- Energy Foundation, $150,000
- Colorado Public Utilities Commission, $23,500
- Private donations - $19,000

Academic awards

- National Institutes of Health (community partner) – "Assessing the Neuropsychological Benefits of Weatherization Programs." 2021-2026, $3.0 million
- National Science Foundation Smart & Connected Communities Program (community partner) – "Reducing Barriers to Residential Energy Security through an Integrated Case-management, Data-driven, Community-based approach"; 2020-2024, $2.1 million
- National Oceanic and Atmospheric Administration (lead author and co-PI) – "Climate Resilience from the Youth Up", 2018-20, $500,000

EcoWorks – responsible for more than 100 grants and contracts, examples below (may represent multiple years of funding)

- AmeriCorps - $3.6 million
- DTE Energy and contractors - $3.2 million
- Wayne Metro Community Action Agency - $3.05 million
- Erb Family Foundation - $844,000
- Detroit Public Schools Community District - $750,000
- Chase - $500,000
- City of Detroit - $459,000
- United Way for Southeast Michigan - $300,000

Professional Service & Engagement

Anchor Committee Member, Tishman Center for Social and Environmental Justice, University of Michigan (2022 – present)

Planet Detroit, Board Member (2021 - present)

Commissioner, Michigan Bureau of Construction Codes (2020 –2022)

Member and chair, Coalition to Keep Michigan Warm (2015-2019)

Member, Detroit Environmental Agenda (2015-2019)

Steering committee member, Southeast Michigan Stewardship Coalition (2018-2020)

Board director, treasurer, and vice chair, Detroit Regional Chapter, U.S. Green Building Council (2013-2017)

Steering committee member, Michigan Student Sustainability Coalition (2008-20009)

Steering committee member, Energy Action Coalition (2007-2008)

Board director, Voices for Earth Justice (2006-2008)

In the Media

Utility Dive, "Equity framework online tool to help guide investments in line with Jsutice40, UM researchers say." October 27, 2022.

Utility Dive, "The energy system is 'inherently racist,' advocates say. How are utilities responding to calls for greater equity?" October 26, 2022.

Energy News, "Can energy justice be measured? A new research project aims to do just that." September 29, 2022.

Centered, "Michigan team unveils 'first-of-its-kind' energy equity framework and mapping tool." September 22, 2022.

Grist, "Unplugged: Why utilities are more likely to disconnect Black, Latino and Indigenous households." September 6, 2022.

Pecan Street, Guest Blog: "When it Comes to Energy and Equity, Metrics Aren't Enough." June, 2022.

Popular Science: "Energy Costs Hit Low-Income Americans the Hardest", Apr 11, 2022.

Outlier Media: "The Obscure Utility Tax Detroiters Pay Each Month to Fund the Police", Mar 24, 2022.

The Hill (Op-Ed): "Build Back Better Must Sharpen Focus on Environmental Justice", Nov 13, 2021

Detroit Free Press: "Detroiters Can Bring Down Energy Costs. But Getting Homes Weatherized Isn't Easy." Nov 25, 2021.

Outlier Media: "7 Low-Cost Ways to Winterize Your Detroit Home", Nov 3, 2021.

Energy News Network: "Detroit Says Its New Climate Strategy Will Empower Residents. Activists Have Questions." Nov 2, 2021

Al Jazeera; The Take Podcast: "Winter is Coming: How the Energy Crunch is Squeezing Everyone", Oct

27, 2021.

Planet Detroit: "Is Housing an Environmental Justice Issue? In Detroit, Yes." October 6, 2021.

Planet Detroit (Op-Ed): "Beyond Lip Service: It's Time to Measure Equity in Clean Energy Investments.", July 8, 2021.

Planet Detroit: "Why EcoWorks Executive Director Justin Schott is Resigning to End 25 Years of Straight White Male Leadership." June 5, 2020.

Bridge Magazine (Op-Ed): "Liberate Michigan? Here's Where We Can Start", May 10, 2020

Curbed Detroit: "The Multi-Year Journey to Make a Concrete Yamasaki Building Net-Zero Energy" Feb 12, 2020.

Wayne State University: "Detroit Water Stories", Apr 4, 2019

Last Revised February, 2023

initiative for energy justice

The Energy Justice Workbook

GUIDANCE ROOTED IN ENERGY JUSTICE.

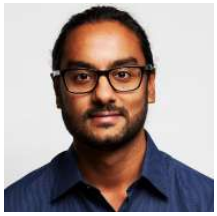
We designed this Workbook to address the question that frequently arises in the context of equity and energy policy: **What is energy justice?**

The Energy Justice Workbook

December 2019

Authors

Shalanda Baker
Northeastern University, Professor of Law, Public Policy and Urban Affairs



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initiative for energy justice

The Initiative for Energy Justice provides law and policy resources to advocates and policymakers to advance local and state shifts to equitable clean energy.

Our team formed the Initiative to address the persistent gap between grassroots communities at the frontlines of the climate justice fight and those sitting at relevant policymaking tables. We connect grassroots-led solutions with the best-available data, evidence, and scholarship. Through concrete technical policy tools and project models, we support frontline communities, justice-based organizations, and policymakers to foreground equity in a just transition to renewable energy.

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Executive Summary

The Case for an Energy Justice Workbook and an Energy Justice Scorecard

In recent years, advocates, academics, and policymakers have begun to navigate the transition away from fossil fuels to clean and renewable energy sources. As policies emerge within this transition, stakeholders have debated whether, and how, such policies can (or even should) include issues of equity and social justice. Marginalized communities, which include communities at the frontline of pollution and climate change ("frontline communities"), and those historically and presently disenfranchised by racial, economic, and social inequity, have emphasized the need for equity and justice in the creation of new energy policies. Similarly, some policymakers have expressed interest in equity-centered policy but lack detailed guidance on how to do so.

Despite a growing desire for equity-centered energy policy, a lack of consistent terminology concerning energy equity and energy justice hinders the ability of stakeholders to advance clear policy. This Workbook addresses this gap. The Workbook builds a bridge between theories and practices of energy justice, and develops an Energy Justice Scorecard that provides guideposts to advance equity-centered energy policy. The key audiences for this Workbook include community advocates and policymakers. The Workbook should serve as a guide for activists and advocates on the ground working for energy justice at the state level, and to assist policymakers seeking to understand how to incorporate energy justice into their emerging energy policy frameworks.

What is Energy Justice?

Energy justice cannot be separated from environmental justice and climate justice. The complex lived experiences of marginalized communities reveal an interconnectedness among environmental, climate, and energy justice that would seem to require that energy policy acknowledge the unique ways that environmental harms and climate-related harms affect frontline communities. As such, building on the environmental justice and climate change movements, legal and social science scholars have introduced the concept of "energy justice," which encompasses tenets of procedural, distributive, and recognition justice sought by advocates, academics, and policymakers.

Energy justice refers to the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on marginalized communities. Energy justice explicitly centers the concerns of frontline communities and aims to make energy more accessible, affordable, clean, and democratically managed for all communities. Those involved in the movement for the transition away from fossil fuels to renewable energy often frame energy justice, energy equity, and energy democracy as a part of a broader "just transition" to a low-carbon regenerative economy that will remedy the injustices of the fossil-fuel energy system and extractive economy across multiple sectors. This Workbook uses the term "energy justice" because it synthesizes and lift ups the traditions of justice-based scholarship, and draws on recent activist practice around energy equity and energy democracy.

Workbook Organization

The Workbook is broken up into three sections. Section 1 provides an overview and synthesis of energy justice, as discussed by frontline advocates, social scientists, and legal scholars. This section begins by defining and summarizing fundamental energy justice principles and terms in order to create understanding and

commonality among key players working to advance principles of energy justice. Section 1 goes on to analyze the principles and terms unique to practitioners, scholars, and policymakers independently.

The authors note that advocates tend to center the voices of frontline communities and attempt to remedy past harms faced by these communities due to the current energy system. Conversely, academic and legal scholars tend to focus on procedural and distributive justice. While the research shows commonality in their emphasis on procedural and distributive justice, the analytical frames differ in two regards: (1) the scope of energy justice and its connection to related "justice" concepts; and (2) the centering of traditionally excluded voices in energy policy. The Workbook combines these separate approaches to energy justice within a unified framework that draws on the practitioners' unique perspectives as well as the theoretical approaches of social scientists and legal scholars.

Section 2 introduces an Energy Justice Scorecard created by the Initiative for Energy Justice. The Scorecard is intended to help those engaging with the energy transition to determine if a policy incorporates energy justice principles, specifically procedural and distributive justice. The Scorecard offers five energy justice indicators: 1) **Process:** Have marginalized communities participated meaningfully in the policymaking process with sufficient support?; 2) **Restoration:** Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?; 3) **Decision-making:** Does the policy center the decision-making of marginalized communities?; 4) **Benefits:** Does the policy center economic, social, or health benefits for marginalized communities?; and 5) **Access:** Does the policy make energy more accessible and affordable to marginalized communities? The scorer then sums the value of each indicator (1 to 5 based on congruence to the principle) to determine the effectiveness of the policy as it relates to energy justice.

Applying the Energy Justice Scorecard: California and New York Case Studies

In order to demonstrate the applicability of the Scorecard to various policy initiatives, Section 3 uses the Scorecard to evaluate emerging community energy policies in both California and New York. Community energy (or community solar) refers to offsite structures that generate power shared by multiple electricity customers. Community energy policies that achieve energy justice strive to supply local communities with renewable energy in an integrated and equitable way, for example through community generated, owned, or managed energy systems.

The California Case Study

Section 3 begins with a focus on two community energy programs in California, the Enhanced Community Renewables (ECR) program and the Community Solar Green Tariff (CSGT). Both of these policies were projected to benefit customers otherwise excluded from other renewable energy programs. More specifically, ECR was intended to provide communities with the benefits of access to nearby offsite renewable energy, while CSGT was intended to provide alternatives to net energy metering and ensure the growth of distributed renewable energy among frontline communities.

ECR allows customers to contract directly with a developer and subscribe to a specific project for all or a portion of their energy needs. Customers receive a credit from the investor-owned utility (IOU) based on their subscription to project developed by a third-party. Unfortunately, ECR did not lead to any realized projects and receives only 7 out of 25 when applied to the Scorecard. The ECR program failed for three main reasons: (1) the conversation around the ECR was continually delayed, (2) the pricing structure was flawed, and (3) there were barriers in the process and mechanisms of participation leading to a lack of procedural and distributive justice. In the end, ECR failed to accomplish the goal of expanding access to renewable energy for Californians unable to benefit from onsite solar.

CSGT is projected to be fully implemented in 2020. CSGT will allow individuals to subscribe to solar energy associated with new installations within five miles of their community and will provide residential customers on the CSGT 100% renewable energy at a 20% discount. This encourages communities to find new methods for maximizing the use of rooftop space and other areas for solar production. The CSGT receives a 14 out of 25 when applied to the Scorecard.

The CSGT will allow for more energy access to low-income communities, but still scores low in benefits to frontline communities and access to decision-making by these communities.

Despite the relatively low scores of both the ECR and CSGT programs, the Scorecard gives future community solar policymakers the ability to foresee potential barriers and inequities, and create new solutions to avoid these barriers.

The New York Case Study

The authors also use the Energy Justice Scorecard to score New York's Community Distributed Generation (CDG) program, which ultimately receives a score of 14 out of 25. CDG was created as a part of Reforming the Energy Vision (REV), a regulatory reform platform that was created in response to Superstorm Sandy, an unprecedented storm that led to widespread power outages and revealed vulnerabilities in New York's energy system.

CDG is one of the many dockets created under REV. Like the ECR and CGST policies developed in California, CDG allows electricity customers to participate in an offsite energy generation project. While CDG provided an avenue for participation from frontline communities in the policymaking process, ultimate policy decisions about CDG design failed to reflect that participation. In particular, CDG failed to center economic, social, and health benefits for traditionally excluded populations.

Key Takeaways from Case Studies

The California and New York case studies share similarities in demonstrating three key takeaways of what is necessary for community energy policies that achieve energy justice: (1) community participation in policy development, (2) sound energy pricing and valuation structures, and (3) sustainable business models that balance both targeting priority customers and consumer protection. The case studies also point to three objectives required for equitable community solar: (1) project feasibility, (2) equitable participation, and (3) community control.

The use of the Scorecard in each case study helps to validate the root causes for the successes and failures of a given policy. This tool gives actors the ability to evaluate existing energy policies as well as inform their approach to proposed energy policy. This Workbook hopes to not only bridge the gaps among activists, academics, and policymakers, but also to provide an accessible tool to facilitate thoughtful conversations, creations, and applications of energy policies that encompass the field of study and practice of energy justice.

Introduction

Around the country, states have begun to act in the absence of clear federal guidance on climate. We are witnessing a sea change through a suite of policy actions, from ambitious renewable energy targets, to rooftop solar programs, community energy legislation, and market innovations such as community choice aggregation. In the face of this rapidly-evolving landscape, those disproportionately harmed by the fossil-fuel based energy system ("frontline communities") and more broadly, marginalized communities (including, but not limited to, environmental justice communities, indigenous communities, low-income and working-class communities, and communities of color)—seek to place equity and distributive justice at the heart of new policies addressing the transition away from fossil fuels to clean and renewable energy sources. As noted by industry observers and community activists alike, this energy transition offers an opportunity to reshape the socio-economic relationships created by energy policy choices. It creates an opening to center the concerns of frontline communities in the creation of energy policy. For example, the energy transition offers an opportunity for communities to own and control clean energy resources while reducing localized environmental and health impacts associated with the burning of fossil fuels.

Energy justice has emerged as both a field of study and practice to guide the energy transition, but the inconsistency surrounding definitions and use threatens the coherency of the field and the ability to advance clear policy guidance actually rooted in energy justice. Scholars in both social science and law have begun to grapple with the theoretical aspects of energy justice as well as its practical applications. In parallel, advocates have also begun to engage in a diversity of activities connected to energy justice and its corollaries, energy equity and energy democracy. Although scholars and practitioners frequently rely on energy justice and energy equity to animate parallel strands of study and practice, these two constituencies are not in active conversation and these parallel strands rarely, if ever, intersect. In light of the varied landscape, we choose to use the term, "energy justice" because we find it to be the most unifying terminology for this overarching concept that can synthesize and lift up both the traditions of justice-based scholarship, and recent activist practice around energy equity and energy democracy.

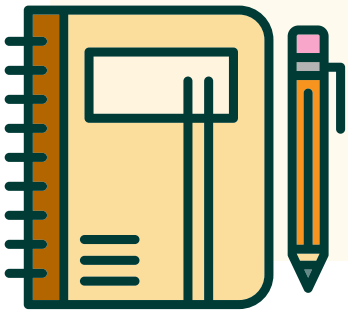
Taking advantage of the opportunity for structural transformation in our energy system requires that equity be placed at the center of emerging policy frameworks; however, community participants in policy debates concerning the energy transition often lack concrete details for energy policies that actually do place equity at the center. Similarly, policymakers lack theoretical grounding and practical frameworks to create and implement equity-centered energy policy. This Workbook addresses these gaps, and builds a bridge between theories and practices of energy justice to facilitate operationalizing energy justice through energy policy. The key audiences for this Workbook include community advocates and policy makers. The Workbook should serve as a guide for activists and advocates on the ground working for energy justice at the state level, and to assist policymakers seeking to understand how to incorporate energy justice into their emerging energy policy frameworks.

How to use this Workbook

The pages that follow provide a broad overview of "energy justice," synthesizing energy justice (and similar terms) as framed by practitioners in the field, as well as by scholars explicitly writing about energy justice.

The Workbook proceeds in four sections. Section 1 provides an overview and synthesis of energy justice, as discussed by frontline advocates, social scientists, and legal scholars. The section ends with a summary of the key energy justice principles that should animate transitional energy policy. Section 2 lays out an energy justice scorecard that may be used by advocates and policymakers to evaluate and design transitional energy policy. Section 3 uses the scorecard developed in Section 2 to evaluate emerging community energy policy in California and New York. We have also included a Glossary and Appendix for easy access to commonly used terms and the data we've relied on in our analysis.

The energy policy landscape is dynamic, and energy justice is context specific. However, basic principles of justice endure. We designed this Workbook to be highlighted, dog-eared, and referenced as the policy landscape evolves. The framework provided herein should be used to provide key benchmarks to guide energy policy discussions. We also designed this Workbook to address the question that frequently arises in the context of equity and energy policy: **What is energy justice?**



Section 1

Defining Energy Justice:
Connections to Environmental Justice, Climate Justice, and the Just Transition

Summary: **Energy justice** refers to the goal of achieving **equity** in both the **social** and **economic** participation in the energy system, while also **remediating** social, economic, and health **burdens** on those historically harmed by the energy system ("frontline communities"). Energy justice explicitly centers the concerns of marginalized communities and aims to make energy more accessible, affordable, clean, and democratically managed for all communities. The practitioner and academic approaches to energy justice emphasize these process-related and distributive justice concerns.

Energy justice connects to, and builds upon, the deep scholarly and grassroots traditions of the environmental justice and climate change movements.[1] Those involved in the movement for the transition away from fossil fuels to renewable energy often frame energy justice, energy equity, and energy democracy as a part of a broader "**just transition**" to a low-carbon regenerative economy that will remedy the injustices of the fossil-fuel energy system and extractive economy across multiple sectors.[2] Advocates engaged in just transition work, through the leadership of the Climate Justice Alliance and the support of Movement Generation, have adopted the following model to reflect their efforts.

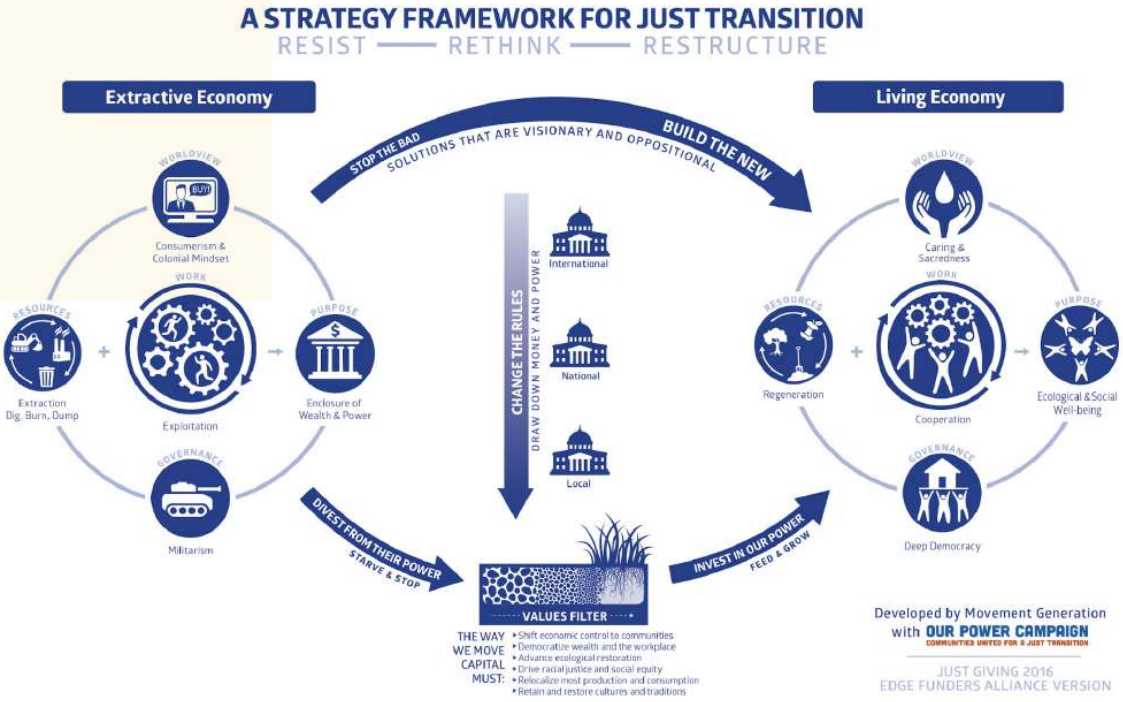


Diagram 1: Movement Generation Just Transition Framework [3]

Energy justice (also referred to as "energy equity") is integral to the just transition, as it addresses fairness and equity concerns within the current, extractive energy system, and incorporates aspects of "deep democracy," cooperation, and regeneration that feature in the just transition frame. Energy justice has several dimensions, itncluding:

- **energy burden**, which refers to the expense of energy expenditures relative to overall household income;[4]
- **energy insecurity**, which refers to the hardships households face when meeting basic household needs;
- **energy poverty**, which refers to a lack of access to energy itself;[5] and
- **energy democracy**, the notion that communities should have a say and agency in shaping their energy future.[6]

Issues of racial, economic, and social justice are not new aspects of political discourse in the United States; however, their nexus with issues of energy and the environment is a relatively recent phenomenon. Furthermore, the focus on "equity" within the energy justice frame indicates that policy approaches should work to level the playing field for those long disadvantaged under the existing energy system, rather than simply provide for "equal" opportunities for all under the new system.

Diagram 2 illustrates the framing of energy justice within the broader movement for a just transition, as well as how the component parts of energy justice fit together.

What is the origin of energy justice?

Energy justice closely connects to terms familiar to both practitioners and scholars in the field: **environmental justice** and **climate justice**. Environmental justice emerged in the early 1980's as both an activist practice and field of scholarship in the wake of damning evidence that communities of color often faced disproportionate environmental burdens, and that the suite of recently passed environmental laws did little to protect such communities from environmental harm.[7] Eventually, in response to a mounting body of evidence produced by activists[8] and academics alike,[9] in 1994, President Bill Clinton issued Executive Order 12898 directing federal agencies, to "the greatest extent practicable and permitted by law . . . make achieving environmental

justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. . . ."[10] Although some scholars have questioned the efficacy of the environmental justice movement, as well as its utility as a policy tool,[11] others have noted the importance of relying on the environmental justice movement to inform the current transition away from fossil fuels.[12] In any case, environmental justice spawned the climate justice movement, which addresses the acute climate change issues facing communities of color and working class communities.

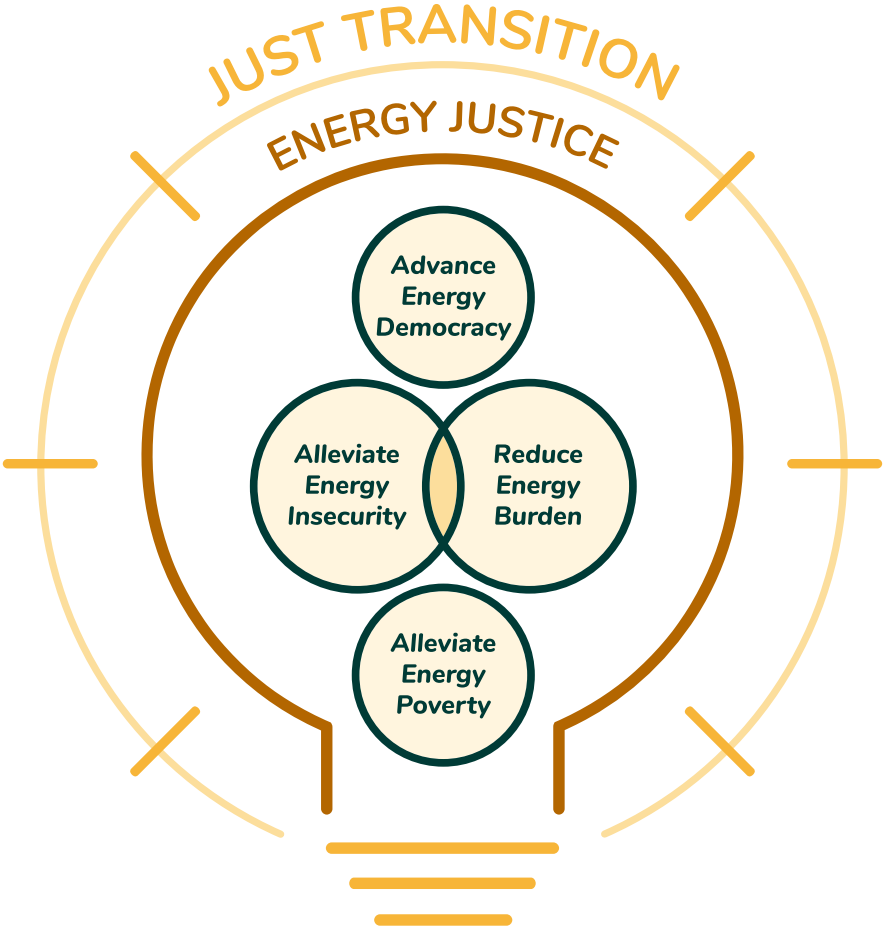


Diagram 2: The Goals of Energy Justice

While environmental justice might be seen as more of a domestic, United States-centric, movement focused on local concerns,[13] climate justice is decidedly global in scope. The movement emerged in the late 1990's and 2000's in light of the recognition that climate change would disproportionately affect those in the Global South, who did very little to contribute to creating the problem of climate change in the first instance.[14] Around the world, those with the least ability to respond to the impacts of climate change—the poor and people of color, including island nations and indigenous peoples—would bear the brunt of its effects. In the United States, climate justice advocates broadly recognize that the poor and people of color in this country will suffer the deepest impacts of climate change, given legacies of legalized segregation, redlining, and disinvestment that have left communities of color and the poor on land and in economic circumstances that make them the most vulnerable to climate change impacts. Moreover, such communities lack the economic resources to easily "bounce back" from climate change related events.[15]

High water marks of the climate justice movement include:

- **2010:** The creation of the People's Agreement in Cochabamba, Bolivia in 2010, where participants called for the creation of an International and Climate Environmental Justice Tribunal with the legal capacity to "prevent, judge, and penalize States, industries and people that by commission or omission contaminate and provoke climate change."[16] The People's Agreement was the product of the People's Conference on Climate Change and the Rights of Mother Earth after the disastrous 2009 United Nations meeting in Copenhagen to address climate change;

- **2014:** The People's Climate March organized by activist groups, where 400,000 people gathered in New York City to center "the leadership of Indigenous communities, communities of color, and working-class white communities" in the climate movement;[17] and

- **2019:** In the summer of 2019, a coalition of environmental justice organizations and national organizations aligned to create an "Equitable and Just National Climate Platform" which set forth a "bold national climate policy agenda" to advance "economic, racial, climate, and environmental justice."[18] The Platform calls for a commitment to limit global warming to 1.5 degrees Celsius through the mobilization of community, government, science and research, and industry resources "toward the development of just, equitable, and sustainable long-term comprehensive solutions" that "acknowledge and repair the legacy of environmental harms on communities inflicted by fossil fuel and other industrial pollution."[19] The Platform further argues for new leadership to "advance solutions in ways that meaningfully involve and value the voices and positions of [environmental justice communities]."[20]

Both environmental justice and climate justice weave together the requirements of procedural and substantive (or distributive) justice. In the case of environmental justice, key principles of the movement include fair distribution of the burdens of development, and involvement in all aspects of "the development, implementation and enforcement of environmental laws, regulations and policies."[21] Climate justice proponents, on the other hand, argue for policies that address the disproportionate burdens that will be borne by vulnerable communities due to climate change, even going so far as to argue for distributive justice in the form of reparations.[22] Further, as noted by the Climate Justice Alliance, *actual* climate justice requires that voices of communities of color, indigenous peoples, and the working-class be placed at the forefront of discussions concerning climate.[23]

Energy justice emerges from this rich history. As Eleanor Stein elegantly summarizes, the general view of scholars is that an energy just world involves equitable sharing of benefits and burdens involved in the production and consumption of energy services.[24] It is also one that is fair in how it treats people and communities in energy decision-making.[25] Further, key concerns of the field are:

- issues of access,
- distribution of harms,
- fairness of energy decision-making to ensure that decisions do not infringe on human rights and civil liberties, and
- informed participation.[26]

Sections 1.1 and 1.2 provide an in-depth review of the conceptual underpinnings of energy justice theory and practice. **Diagram 3** illustrates the environmental justice, climate justice, and energy justice movements, as well as the primary claims within each. As the diagram reflects, the movements and analytical frameworks are rooted in similar ideologies and goals. Moreover, they run on parallel and overlapping paths.

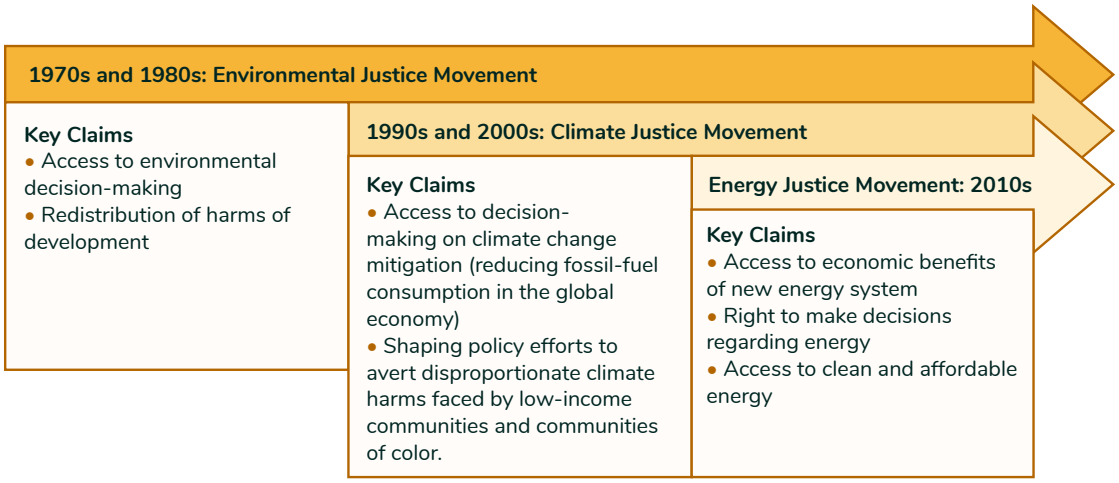


Diagram 3: Movements for Environmental Justice, Climate Justice, and Energy Justice

The following Section discusses how "energy justice" and the range of terms associated with it are used in practice as well as in academic circles (mainly social scientists and legal scholars). Before that discussion, however, we offer a synopsis of terms used in this section and the sections that follow:

Frequently Used Terms	Definition
Climate Justice	Remediation of the impacts of climate change on poor people and people of color, and compensation for harms suffered by such communities due to climate change.[27]
Energy Burden	Amount of overall household income spent to cover energy costs.[28]
Energy Democracy	The notion that communities should have a say and agency in shaping and participating in their energy future.[29]

Frequently Used Terms	Definition
Energy Insecurity	"The inability to meet basic household energy needs"[30] due to the high cost of energy.
Energy Justice (and Energy Equity)	The goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those historically harmed by the energy system.
Energy Poverty	A lack of access to basic, life-sustaining energy.
Environmental Justice	Recognition and remediation of the disproportionately high and adverse human health or environmental effects on communities of color and low-income communities.[31]
Just Transition	A transition away from the fossil-fuel economy to a new economy that provides "dignified, productive, and ecologically sustainable livelihoods; democratic governance; and ecological resilience."[32]

Section 1.1 - Energy Justice In Practice

In *Framing Energy Justice: Perspectives from Activism and Advocacy*, Sara Fuller and Darren McCauley interrogate energy justice in the context of activist and advocacy movements, seeking to illuminate for the scholarly community the ways that energy justice is defined by those on the ground and the communities that experience the direct impacts of the energy system from "cradle to grave." The authors observed "energy justice on the ground," and found no consistent, "single energy justice frame." Instead, they found "the existence of multiple and diverse mobilizations around energy justice[,]" and localized expressions of justice. Rather than attempt to explain practitioner and advocate approaches to energy justice using tools designed by scholars, this Workbook acknowledges the unique perspectives and understandings of energy justice as defined by those engaged in the work on the ground. This expertise, grounded in the lived experiences of advocates, provides an invaluable perspective to inform equity-centered energy policy.

Our Approach

Summary: We reviewed the public-facing statements of practitioners and advocates engaged in advocacy work around energy policy. We also met with frontline leaders and organizations engaged in energy policy efforts. With a few notable exceptions,[33] practitioners and advocates tend to rely less on "**energy justice**" and more on terms like "**energy equity**" and "**energy democracy**" in their work. Although the terminology differs, the usage commonly focuses on frontline-led approaches to energy policy that center the economic, social, and health concerns of marginalized communities.

Our Survey of the Field

Energy justice mirrors the distributive and procedural justice demands of the environmental justice and climate justice movements, and encompasses several goals including:

- Transitioning the power and control over the means of energy production into the hands of the community,
- Ensuring fair and equitable distribution of the benefits and burdens of energy production activities, and
- Centering the concerns of marginalized communities.

To gain an understanding of existing community-based approaches to and understandings of energy justice, we relied mainly on a review of advocacy statements concerning "energy justice." Our own experiences working with frontline organizations around the country also informed our understandings of energy justice practice. Our approach to understanding what was happening in the field began with a simple, internet-based search to cast a wide net for activist groups using the terms "energy justice," "energy democracy," or "energy equity" in their mission statements. The search was then narrowed to groups that specifically defined these terms in a way that creates a framework for their mission. Additional sources were found by looking at sources cited in academic papers about community activism and energy justice frameworks. Another key search method was working from a list of known organizations based on past association with the authors of this Workbook, which helped to fill in gaps in regional representation.

Originally, our search included only those organizations that specifically used the term "energy justice" in their work. However, many advocacy groups favor the phrase "energy democracy" when talking about issues pertaining to developing energy transition frameworks with a social and environmental justice focus. We then expanded the search to include this terminology, as well as the phrase "just transition," which is also used to describe the transition away from an extractive economy to a regenerative one. The use of these terms – energy justice, energy democracy, and just transition – provides much the same frame for advocacy groups as the phrase "energy justice" provides for academic investigations. The resulting list, further discussed in Appendix B, represents a nation-wide survey of U.S. organizations.

Our own experience in the field mirrors what we found in the written material. As a whole, practitioners and advocates at nonprofit organizations we work with don't use the term "energy justice" in common practice, but show general receptivity toward it. This includes individuals we know in different regions around the country, including the South, Northeast, Midwest, and West. Some advocates occasionally use the term energy justice themselves, and others are part of alliances that have member organizations within their alliance that use the term. Some colleagues use the term "energy justice" interchangeably with a "just energy system," while others use "just energy" but not "energy justice."

Many of our partners use the term "energy equity" in a way that is either entirely or substantially interchangeable with how we define energy justice in this Workbook. Some practitioners use the term equity when talking about energy, though not necessarily "energy equity" as a phrase. For example, some use specific phrases such as "equitable deep decarbonization" and "equitable energy system."

Despite the work of organizations clearly falling under the umbrella of "energy justice," this term is almost never used in their mission statements or writing. Generally, the word "justice" is used only to incorporate a social, racial, or environmental justice approach to the energy transition framework, rather than to aid in the development of a new framework specifically for the just energy transition. Therefore, while activist groups are clearly contributing to the dialogue on what achieving energy justice looks like, they are currently not working with the vocabulary utilized within the academic community. This disconnect threatens the efficacy of scholarship to reach practitioners, and could lead to broader confusion concerning the meaning of energy justice among policymakers.

> *"The disconnect between practice and academia could lead to broader confusion concerning the meaning of energy justice among policymakers."*

Prevalence of "Energy Democracy"

With respect to our analysis of practitioner approaches, the term most often used to describe the missions of organizations engaged in equity-based energy policy work is "energy democracy." Based on our research, it seems that "energy democracy" is especially favored among groups in the U.S. advocating for a community-empowerment component to energy transition activities. The use of the term "democracy" within the U.S. context could serve two strategic purposes within the movement.

First, energy democracy might portray the importance that involvement from the community plays in these groups' vision for just energy systems. It is clear that these organizations feel that justice in energy generation, distribution, and transition activities will be achieved only if the decision-making power and control over the systems lies in the hands of the community affected by that system.[34] A way of accomplishing that goal is by putting that system under democratic control and allowing for social and economic participation in that system. Further, as emphasized by Denise Fairchild and Al Weinrub in *Energy Democracy*, "deep democracy," meaning, centering the engagement of poor people, people of color, and groups traditionally marginalized within energy transition policy discussions, goes further than mere economic and social participation in the energy system.[35] Under the Fairchild and Weinrub analysis, energy democracy requires not only basic participation in the design of the new energy system, but a deeper structural transformation of the social and economic structures underpinning the energy system.[36]

The second purpose of using "energy democracy" could relate to the long, and frequently problematic, history of the term "democracy" in the American context. Democracy is a core value in American political and social systems, and linking this concept, which evokes feelings of patriotism and equity, to the energy transition movement is likely to yield more positive outcomes than linking the movement to "social justice" or "racial justice", which can evoke a more negative, or polarized, response. The use of patriotic phrasing could therefore be strategically important in policy advocacy efforts, where public and political support is crucial.[37]

Groups using the term "energy democracy" tend to include the following concepts of community empowerment in their work.

- **Community Ownership:** the community owning and controlling the sources of energy production;
- **Community Decision-making:** community having a democratic say in the means of energy production and distribution; and
- **Power Decentralization:** Empowerment of those closest to the means of production, geographically, socially and economically.

These concepts indicate a desire to redistribute economic and political power away from centralized energy producers to smaller subsections of society. Advocates press for meaningful community involvement to eradicate many of the inequalities and injustices that currently plague the energy system, such as the disproportionate ecological, economic, and social harms that currently affect low-income communities and communities of color.[38]

A significant number of nonprofit professionals we work with also use the term energy democracy. Most appear to view energy democracy as meaning something at least slightly distinct from energy justice or energy equity. Some view energy democracy as a component within a larger frame of energy equity. More specifically, some view energy democracy as focusing on ownership of distributed generation, while energy equity considers the entire energy system, including utility-scale generation and transportation energy. Others consider energy democracy as describing the tangible objectives within the broader, intersectional vision of energy equity.

While energy democracy appears to be the most commonly used term among those working at the intersection of equity and energy, many use energy equity to mean something slightly broader in scope than energy democracy: using energy policy to actually center the concerns of those harmed by the existing energy system. Some advocates either use or resonate with energy justice as perhaps a more holistic and compelling frame.

In the advocacy sphere, advocates place less emphasis on a uniformity of terminology describing the work than scholars of energy justice and, appropriately, more emphasis on the outcomes associated with the work. What is echoed among all of the groups we reviewed is a desire for upheaval in the current energy system, a shift towards more democratically controlled systems, and a new emphasis on social inclusiveness and equity.

"What is echoed among all of the groups we reviewed is a desire for upheaval in the current energy system, a shift towards more democratically controlled systems, and a new emphasis on social inclusiveness and equity."

Advocates are also concerned about the impacts of the energy system and focus on the following key concepts:

- **Equitable Distribution of Benefits and Harms:** Equitable distribution of both the benefits and harms of the energy system, which again relates to alleviating the pressure that currently disproportionately affects low-income communities and communities of color;
- **Economic Benefits:** Some groups believe allowing frontline communities to economically benefit from the new energy system could remedy many of the social issues currently being experienced by such communities[39] and lead to social and political empowerment through job creation and local control of economic resources. Moreover, improving energy efficiency can lower the overall cost of living.
- **Decreasing Pollution:** Other distributive concerns include limiting pollution to decrease negative health impacts.
- **Centering Frontline Voices and Control:** Another method of ensuring this equity is by putting the power in the hands of the people most affected by the decisions.[40] The idea is that these groups will be most motivated to responsibly manage the benefits and risks of energy production and distribution.

These distributive and procedural justice frames are echoed throughout the social science and legal literature as well.

Section 1.2 - Usage of Energy Justice in Social Science and Law

In general, practitioner and advocate approaches to energy justice make explicit references to centering the voices of low-income communities and communities of color, as well as recognizing the important role of equity to remediate prior harms experienced by communities within the existing energy system. Academics approaching energy justice have tended to take a more measured approach. In general, scholars of energy justice have hewed more closely to procedural and distributive justice concerns; until recently, the predominant discussions of energy justice have not included an analysis of the historical harms faced by certain communities.

As with the practitioner approaches to energy justice, within both the social science and legal literatures, a range of terms have emerged under the broader umbrella of energy justice:

- energy justice,
- energy democracy,
- energy poverty.
- clean energy justice,
- energy insecurity,
- energy equity,
- energy burden, and

Social scientists favor energy justice, energy democracy, and energy insecurity. Legal scholars have a much less well-defined approach to the energy justice, and have used a range of terms including all of the foregoing terms as well as clean energy equity, energy poverty, and energy burden.

On the whole, policymakers and advocates seeking key takeaways for an “applied” policy approach to energy justice rooted in robust scholarship will find the literature rather thin and somewhat unhelpful. Much of the literature of the past several years has focused on questions of definitions, rather than application within a policy context. The legal literature provides a bit of an exception to this, as legal scholars tend to focus on key policy areas such as net energy metering, community solar, and regimes designed to meet state renewable portfolio standards; however, the legal literature lacks a consistent framework or analytical approach to apply energy justice across the various areas of energy policymaking. This Workbook aims to close these gaps by synthesizing the literature and various theoretical approaches to energy justice. The Workbook then combines

these approaches to fit within a workable frame that draws on the practitioner framework, social science framework, and legal frameworks available at the time of publication. This section provides a synthesis of the three approaches to energy justice: practitioner, social science scholars, and legal scholars. We provide a comprehensive overview of the social science and legal literature in Appendix A.

The following chart summarizes the terminology and usages across areas of practice and research.

Term	Practitioner	Social Sciences	Law
Energy Justice	Infrequently used	Used	Infrequently used
Energy Equity	Used	Not used	Infrequently used
Clean Energy Justice	Not used	Not used	Infrequently used
Energy Democracy	Used	Used	Used
Energy Burden	Used	Used	Infrequently used
Energy Insecurity	Infrequently used	Infrequently used	Used
Energy Poverty	Infrequently used	Not used	Infrequently used
Energy Deep Decarbonization	Infrequently used	Not used	Not used
Equitable Energy System	Infrequently used	Not used	Not used

Our research reveals that there are substantial overlaps among the three analytical frames: advocacy, social science, and law. Despite some overlap in terminology, however, the more complex question is how the diverse usages of these terms are used by each group, and whether these usages are contradictory. The following discussion addresses this question.

Section 1.3 - Unpacking the Approaches to Energy Justice: A Synthesis

Each analytical frame—advocacy, social science, and law—emphasizes **procedural justice** and **distributive justice**:

- **Procedural justice** concerns who is at the decision-making table, and whether, once at the table, everyone's voice is heard.
- **Distributive justice** is outcome focused, and speaks to whether all equally share in the benefits and burdens of the energy system.

Despite these similarities and shared understandings, the analytical frames differ in two key ways: (1) the scope of energy justice and its connection to related "justice" concepts and (2) the centering of traditionally excluded voices in energy policy. Each difference is addressed below.

What is the scope of energy justice and how does energy justice connect to related "justice" concepts?

Each analytical frame raises questions regarding the scope of the energy justice umbrella. For example, given the focus on the **procedural** and **distributive** justice dimensions among energy justice, environmental justice, and climate justice, how do the terms and approaches connect? Does energy justice simply build on environmental justice and climate justice principles, and therefore stand apart as a distinct approach to designing energy policy? Or, does an energy justice approach to energy policy explicitly incorporate the principles of each framework? Further, regarding the scope of energy justice, how do the concepts of energy poverty, energy democracy, and energy insecurity factor into an energy justice policy framework? And finally, is "just transition" a broader conceptual frame that incorporates energy justice, or does it stand alone as an analytical frame?

Synthesis:

Energy justice cannot be separated from environmental justice and climate justice. The complex lived experiences of marginalized communities reveal an interconnectedness among environmental, climate, and energy justice that would seem to require that energy policy acknowledge the unique ways that environmental harms and climate-related harms affect frontline communities. For example, the Environmental Protection Agency has identified low-income communities of color residing in the L.A. basin as among the most impacted environmental justice communities in the country; they house hazardous waste clean-up sites (Superfund sites) in disproportionate numbers.[41] Such communities also face disproportionate risks to climate-related events, given that, for a number of reasons, community members lack the mobility in the face of climate-related weather events. Further, in addition to the well documented energy burden faced by such communities, power outages uniquely burden such communities given that they are unable to "bounce back" as quickly from events that damage food and medicine supplies. Energy justice requires an exploration of these multiple layers of burden faced by frontline communities in the approach to energy policy design.

Frontline communities rely on the "just transition" framework to illustrate how to transition away from the current, fossil fuel driven economy to a new, regenerative one that honors workers, "redresses past harms, and creat[es] new relationships of power for the future through reparations."[42] Further, as the Climate Justice Alliance notes, this broader framing ties directly to the unique histories of the environmental justice and climate justice movements.[43] Just transition "represent[s] a host of strategies to transition whole communities to build thriving economies that provide dignified, productive and ecologically sustainable livelihoods; democratic governance and ecological resilience."[44] From a policymaking standpoint, therefore, energy justice, as a mechanism to help facilitate the transition away from fossil fuels, must be considered within a broader holistic frame that acknowledges, at the very least, the rights of workers to access jobs in the new energy economy.[45] **Diagram 4** below illustrates the interconnectedness among these "justice-related" concepts within a synthesized frame.

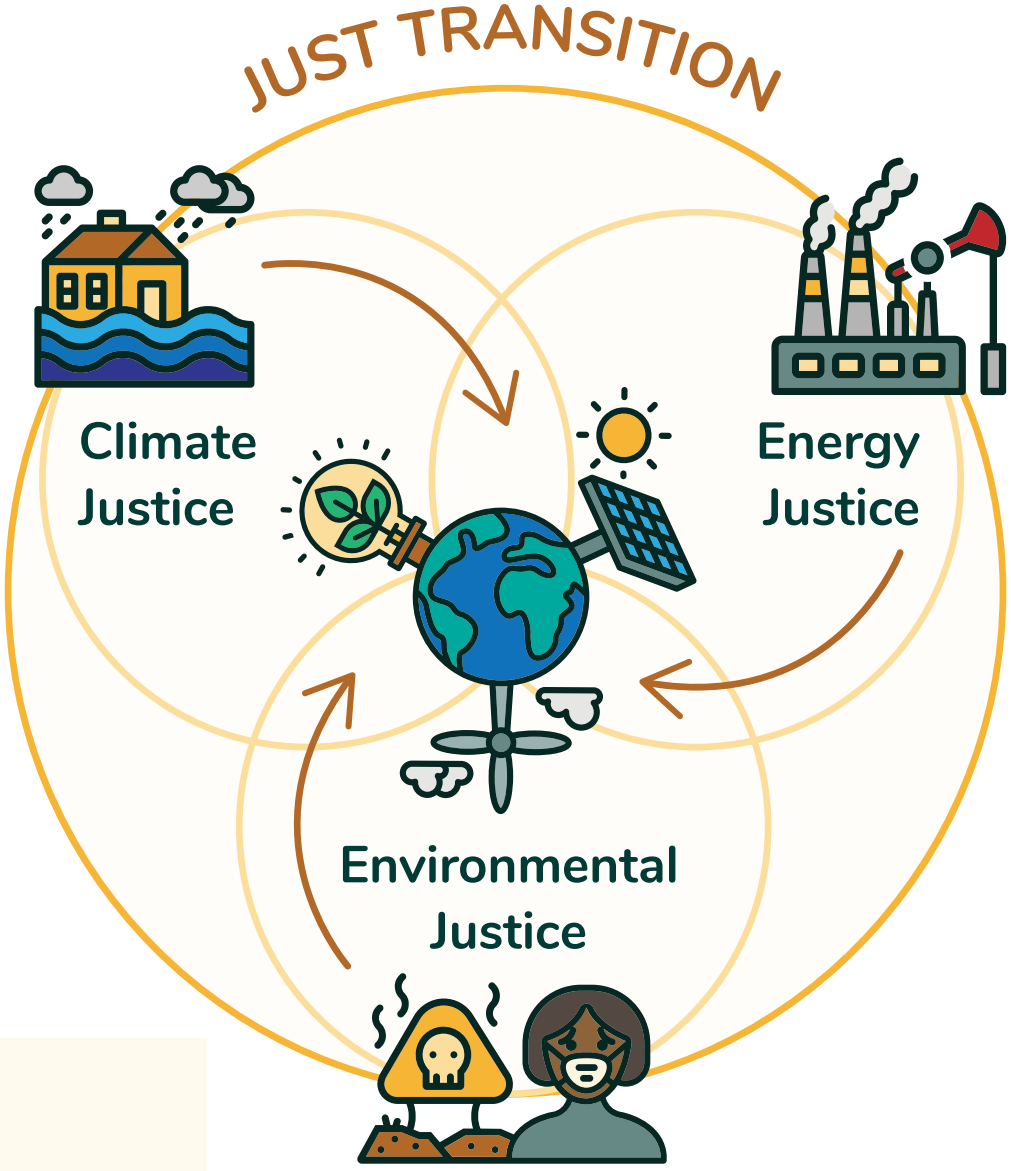


Diagram 4: Connections among Environmental Justice, Climate Justice, and Energy Justice

Whose voices should be centered in an energy justice approach to energy policy?

The second key difference among the analytical frames is the emphasis on whose voices are centered in approaches to energy justice. The social science literature has evolved to include the idea of restorative justice within its analytical frame, which would seem to suggest that an energy justice-based approach to energy policy would require the acknowledgement of prior harms to low-income communities and communities of color. Legal scholars have generally avoided the deeper equity analysis, and focus instead on equitable access (for the energy poor), energy burdens, and fairness (as an approach to distributed energy generation). The practitioner framing of energy justice unequivocally centers the voices of those who have been the most harmed by the current energy system, and also takes an equity-driven approach.

Synthesis:

A synthesized perspective of energy justice requires not only that traditionally excluded voices become a central part of the energy policy conversation, but that they are first in line to receive the benefits of policies adopted to facilitate the energy transition. This approach draws heavily on the activist orientation to energy justice and also incorporates both the "recognition" and "restorative" justice angles of the social science literature. It is also consistent with a "fairness" based approach to law and policy.

Section 1.4 - Approaching Energy Policymaking

As the foregoing discussion illustrates, the procedural justice and distributive justice principles that animate both the energy justice literature and field of practice draw heavily on movement-centered approaches to environmental justice and climate justice, as well as the epistemic traditions of environmental and climate justice scholarship. Further, the movement and principles associated with energy justice are situated squarely within a broader "just transition" frame. Finally, the voices and concerns of traditionally burdened groups are centered in thinking through policymaking approaches.

This synthesis gives rise to additional questions for stakeholders engaging in energy justice policymaking: **How should stakeholders approach energy justice, and what types of outcomes should energy justice produce?**

Procedural justice requires that traditionally excluded groups, frontline communities, and those otherwise marginalized due to the energy system work with policymakers to co-create and co-design a fair process for inclusion in energy decision-making. This requires an analysis of the process *used* to create new energy policy as well as the procedural justice dimensions *reflected in* the policy.

The distributive justice dimensions are much more difficult to discern, and ultimately require stakeholders to evaluate policy efficacy along racial and socio-economic dimensions. Energy policies should therefore be empirically evaluated regularly for efficacy along such equity dimensions.

In sum, when evaluating policies through an energy justice lens, policymakers, communities, and academics should ask:

(1) Process: *Have marginalized communities participated meaningfully in the policymaking process with sufficient support?* Factors for consideration include, but are not limited to, the following:

- Convenience of the meeting for frontline attendees, including location (e.g., proximity to public transportation) and time (e.g., outside of customary work hours, with multiple opportunities to participate);
- Communication of meeting time and location to frontline leaders and community groups;
- Provision of relevant and clear information to sufficiently evaluate the proposed policy and program;
- Financial support to frontline advocates to defray the cost of participation in process (e.g., payment to assist with intervention in a regulatory proceeding); and
- Childcare support during meeting.

(2) Restoration: *Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?*

(3) Decision-making: *Does the policy center the decision-making of marginalized communities?*

- A key consideration here includes an evaluation of whether the policy allows for ownership and control of energy assets by communities at the frontline of pollution and climate change, working class people, indigenous communities, and those historically disenfranchised by racial and social inequity.

(4) Benefits: *Does the policy center economic, social, or health benefits for marginalized communities?*

- A factor to consider is whether the policy considers benefits and harms in other non-energy areas (e.g., gentrification and displacement), including for future generations.

(5) Access: *Does the policy make energy more accessible and affordable to marginalized communities?*

The Energy Justice Scorecard provided in the next Section operationalizes this energy justice framework into a tool that can be used to evaluate existing energy policies as well as inform the approach to a proposed energy policy. The Scorecard presented reflects a number of qualitative indicators; however, advocates can further develop the indicators to reflect more context-specific qualitative and quantitative metrics.

Section 2

Energy Justice Scorecard

How to use the Energy Justice Scorecard

You can use this Scorecard to evaluate existing or proposed energy policy. The Question in the left column should be used to evaluate how the policy scores on an energy justice indicator. The Score will range from 1 to 5 and should be indicated in the second column.

- A score of 1 means that the policy does not meet the requirements laid out in the question.
- A score of 2 means that the policy only partially meets the requirements laid out in the question.
- A score of 3 on the indicator means the policy somewhat meets the requirement.
- A score of 4 means that the policy mostly meets the requirement.
- A score of 5 means that the policy fully meets the requirement of the energy justice indicator.

The Explanation in the third column should be used to discuss why you scored the Question the way you did. This column will help to refine the tool for your own use and the use of other advocates and policymakers.

The Reference column should be the reference to the particular policy, process, conversation, web site or other source that provided the basis for the Score.

At the end, add up the Score. The Score out of 25 will give you, policymakers, and advocates a general sense for how the policy scores in comparison to a "perfect," energy just policy. The Score is meant to catalyze action toward deeper considerations of justice within a particular policy area. As with many scales, this one is imperfect; however, it should provide a workable basis for advancing energy justice in the realm of energy policy. Further, it should offer an opening for discussion on how to advance energy justice in a particular policy area.

Energy Justice Scorecard

Scoring Key: 1 (No), 2 (A little bit), 3 (Somewhat), 4 (Mostly), 5 (Yes)

Question	Score	Explanation	Reference
(1) Process: Have marginalized communities participated meaningfully in the policymaking process with sufficient support?	5 4 3 2 1		
(2) Restoration: Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?	5 4 3 2 1		
(3) Decision-making: Does the policy center the decision-making of marginalized communities?	5 4 3 2 1		
(4) Benefits: Does the policy center economic, social, or health benefits for marginalized communities?	5 4 3 2 1		
(5) Access: Does the policy make energy more accessible and affordable to marginalized communities?	5 4 3 2 1		
Total Score	___ / 25		

Section 3

Case Studies of California and New York Community Energy Programs

Transitioning local and state jurisdictions to renewable energy generation requires considering and developing a range of strategies, such as renewable portfolio standards to drive utility scale renewables and net energy metering programs to promote rooftop solar. To apply the energy justice framework and Scorecard presented above in this vast field, it's helpful to narrow in and start by analyzing one strategy for accelerating the deployment of renewables. Below we first assess an area within energy policy ripe for centering equity: community renewable energy, that is, cooperatively generating renewable energy such as solar. In particular, we look at community energy programs adopted in California and New York, where two of the Workbook's authors worked. Evaluating these policies through an energy justice lens offers insight into both the framework of analysis (the Scorecard), the policies themselves, and how other energy policies may similarly be analyzed under this approach.

Each case study:

(1) Describes the background for each state's community energy policies,
(2) Analyzes the procedural aspects – the process of how the policies came to be,
(3) Presents the final outcome of policies and program design, and
(4) Evaluates the policies based on the Energy Justice Scorecard.

What is Community Energy?

This Workbook uses the terms community renewable energy, community energy, and community solar somewhat interchangeably. Community energy and community solar have become umbrella terms applicable to many different versions of cooperatively generating renewable energy.

Community energy is short for community renewable energy and refers to the same general concept as community solar but applies to all forms of renewable energy. Other than specific aspects related to the underlying technology, the policy issues discussed here apply to both community solar and community energy. Community energy and community solar have become umbrella terms applicable to many different versions of cooperatively generating renewable energy. Typically they refer to structures of **offsite, but nearby, generation of electricity** that multiple electricity customers share.[46] However, community energy and community solar can also apply to onsite shared generation (such as solar on multifamily buildings like apartment complexes) or generation that has a community element of some sort, even if the electricity is not shared by multiple electricity customers (for example, multiple people collectively owning solar t generation on a third party's property, even if that third party is the only one consuming the electricity).[47]

The terms **shared renewables** or **shared solar** typically mean only those structures where the electricity is shared by multiple customers, and thus sometimes has a more specific meaning than community energy or community solar. Social justice and economic justice advocates define **community energy** as being **community-owned** or **community-controlled**.

The community energy case studies highlight three themes that are similar in both the California and New York context. Effectively designing community energy policies such that they achieve energy justice requires close attention in particular to

(1) Community participation in policy development and program design;
(2) Energy pricing and valuation structures that make projects viable and attractive to customers and developers; and
(3) Sustainable business models that enable community decision-making and control over customer-generated energy resources while balancing the need to target priority customers and provide consumer protection.

Section 3.1 - Case Study of Community Energy Programs in California

As in other states taking the climate crisis seriously, energy policymaking in California is robust, with a myriad of laws and regulations in different areas such as efficiency, generation, building codes, transportation, and more. To begin to understand and analyze whether California's efforts are achieving energy justice, it's useful to first explore community renewable energy policies, given their intention to benefit customers otherwise left out by other renewable energy programs. This section analyzes two community energy programs in California: the Enhanced Community Renewables (ECR) program and the Community Solar Green Tariff (CSGT). The section explores each program in depth and then examines them using the Energy Justice Scorecard.

The Enhanced Community Renewables program is California's general community solar program available to anyone in the state. It has failed to result in any constructed projects after opening for participation in 2016. The Community Solar Green Tariff program is a small targeted program meant to serve low-income and other disadvantaged communities. It was created in 2018 and is set to open for participation sometime in 2020. Using the Energy Justice Scorecard, we give the ECR program a score of 7 out of 25 points and the CSGT 14 out of 25. While the Enhanced Community Renewables program has failed to result in any projects, its regulatory history is important to understand so that similar mistakes are not replicated in other states. Therefore, it is discussed below in less detail and more for the sake of context. The Community Solar Green Tariff illuminates some solutions and advances in the realm of equitable community solar, but also demonstrates policy gaps that persist and limit the achievement of energy justice.

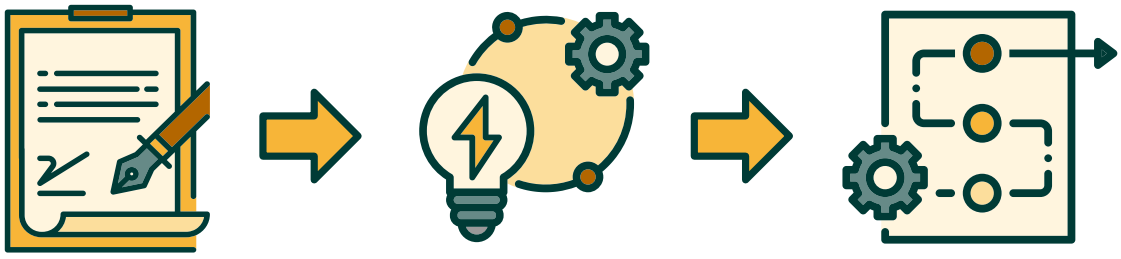
Background: Community Energy Programs In California

In 2013, California Governor Jerry Brown signed into law Senate Bill (SB) 43, creating the Green Tariff Shared Renewables (GTSR) program. This broader initiative included California's first attempt at providing all California communities with access to offsite shared renewable energy: the Enhanced Community Renewables program.[48] That same year, when reauthorizing the state's net energy metering (NEM) program for home and business owners with rooftop solar panels in Assembly Bill (AB) 327, the Legislature also directed the California Public Utilities Commission (CPUC), the state electricity regulatory authority, to develop specific alternatives to the standard net metering tariff to ensure the growth of renewable distributed generation "among residential customers in disadvantaged communities."[49] In response, the CPUC developed the Community Solar Green Tariff.

Community Energy Programs in California:

Program Name	Authorizing Statute (Year)	Purpose	Specific Statutory Language
1) Enhanced Community Renewables (ECR) Program – *a component of the Green Tariff Shared Renewables Program (GTSR)*	SB 43 (2013)	To provide communities with the benefits of access to nearby offsite renewable energy.	"A participating utility shall provide support for enhanced community renewables programs to facilitate development of eligible renewable energy resource projects located close to the source of demand."[50]
2) Community Solar Green Tariff – *a component of the reauthorized Net Energy Meeting (NEM) Program (or NEM 2.0)*	AB 327 (2013)	To provide alternatives to net energy metering and ensure the growth of distributed renewable energy among "disadvantaged communities."[51]	"ensures that customer-sited renewable distributed generation continues to grow sustainably and include specific alternatives designed for growth among residential customers in disadvantaged communities."[52]

As the diagram below illustrates, the community solar law, GTSR (SB 43), and the reauthorized NEM law, NEM 2.0 (AB 327), which were both passed in 2013, set in motion two CPUC proceedings to develop and implement the related programs and tariffs.



Step 1: State Legislature passes laws GTSR (SB 43) and NEM 2.0 (AB 327).

Step 2: California Public Utilities Commission opens policymaking proceedings to implement law.

Step 3: Utilities issue implementation letters and tariffs. Programs become operational.

Diagram 5: Policymaking Process for Community Energy Programs in California

One of this Workbook's authors, Subin DeVar, participated in both CPUC proceedings over the course of three years, from 2015 to 2018, on behalf of the Sustainable Economies Law Center, a nonprofit organization based in Oakland. In the first proceeding (to implement SB 43), the Law Center primarily filed its own initial comments on particular issues related to enabling equitable

community-based projects and then subsequently collaborated to submit joint comments with other organizations, including the California Environmental Justice Alliance (CEJA), Clean Coalition, and Greenlining Institute.[53] In the second proceeding (to implement AB 327), the Law Center was only involved in the portion of the proceeding that related to developing alternatives for disadvantaged communities and filed all comments during that stage jointly with CEJA, with a focus on proposing an equitable Virtual Net Energy Metering program.[54]

Statutes and regulatory proceedings such as these provide a rich source of insight into how well the state is achieving energy justice when actually implementing programs and creating the rules that determine who actually benefits from state programs. This section briefly describes both community solar policies and then analyzes them using the Energy Justice Scorecard. As the following discussion illustrates, even laws *designed* with equity issues in mind may face difficulty fully realizing the equity dimensions of the law once the law is implemented.

Section 3.1.1 - SB 43 Enhanced Community Renewables Program: A Flawed Start

Background

The Green Tariff Shared Renewables program established by SB 43 aims to "expand access" to the benefits of renewable energy in "a manner that facilitates a large, sustainable market for *offsite* electrical generation."[55] The legislature designed the GTSR program to expand access to the benefits of renewable energy to customers who cannot access the benefits of *onsite* generation, such as residential rooftop solar generation.[56] According to the law, the GTSR program is critical to expanding access to renewable energy benefits by allowing renters, homeowners with shaded rooftops, and individuals who cannot afford a solar system for their residence or business, to receive the "financial, health, environmental, and workforce benefits" of shared renewable energy facilities.[57]

SB 43 directed the state's three largest investor-owned utilities (IOUs), Pacific Gas & Electric (PG&E), San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE) to "file with the … [CPUC] an application requesting approval of a green tariff shared renewables program to implement a program that the utility determines is consistent with the legislative findings and statements of intent of Section 2831," the purposes summarized above.[58] The GTSR program permits "customers within the service territory of the utility to purchase electricity pursuant to the tariff approved by the commission"[59] from "renewable energy resources with a nameplate rated generating capacity not exceeding 20 megawatts."[60] In total, the state capped the program at 600 megawatts (MW) and a set a few specific reservations of program capacity for particular purposes.[61] The law requires that 100 MW of the statewide limitation be reserved for facilities (no larger than 1 MW) located in areas previously identified by the California Environmental Protection Agency as "the most impacted and disadvantaged communities".[62] Other specific targeting provisions include a requirement that, "[t]o the extent possible, a participating utility shall actively market the utility's green tariff shared renewables program to low-income and minority communities and customers."[63]

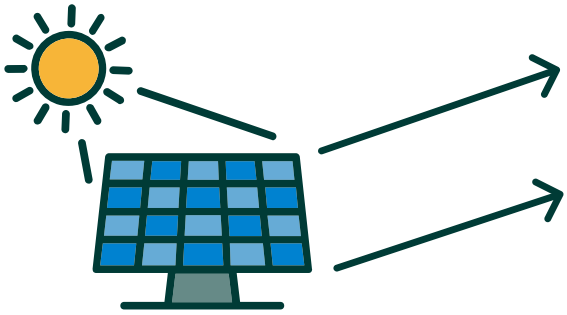
While SB 43 describes the GTSR program generally throughout its text, one provision prescribes:

> A participating utility shall provide support for enhanced community renewables programs to facilitate development of eligible renewable energy resource projects located close to the source of demand.[64]

This line is the only provision in SB 43 that specifies anything in particular for the Enhanced Community Renewables program. However, earlier on in the text the statute states: "To the extent possible, a participating utility shall seek to procure eligible renewable energy resources that are located in reasonable proximity to enrolled participants."[65] The latter statement seems to imply either that all participants of the GTSR program are enrolling to receive power from specific resources, or that perhaps they should have the ability to, given the requirement for the utilities to consider proximity to a certain extent. Given the direction to "provide support for enhanced

community renewables programs to facilitate … projects located close to the source of demand" it is logical to conclude that the Legislature envisioned that ECR programs would be the avenue where people could access electricity from specific community-based renewable energy projects located offsite but nearby.

Although the GTSR program generally purported to "expand access" to the benefits of renewable energy in one way – through access to the energy itself – the ECR program appeared aimed to expand access to both renewable energy and the full co-benefits of local, community-based clean energy development. The legislative findings and intent reflect this transformative vision for low- and moderate-income Californians to finally access these benefits.[66]



Benefits of renewable generation to beneficiaries

Financial, health, environmental, and workforce benefits for direct beneficiaries and for state of California

Intended Beneficiaries

Renters, homeowners, and other individuals or institutions who cannot access onsite renewable generation

Diagram 6: Intended Purpose of California Senate Bill 43

Regulatory Policymaking Process

In implementing SB 43, the CPUC interpreted the law as prescribing two programs, a Green Tariff (GT) program that met the general provisions of the statute, and an Enhanced Community Renewables program, that met certain remaining provisions. Therefore, the CPUC split the GTSR implementation proceeding into different phases. The first CPUC decision implemented the Green Tariff program, outlined some major features for the ECR program, and scoped out remaining issues.[67] The second decision largely completed implementation of the ECR program.[68]

On January 29, 2015, the CPUC began implementation of SB 43 by issuing Decision 15-01-051 ("GTSR Decision I"), which established the Green Tariff portion of the GTSR program.[69] The Green Tariff option allows customers to sign up for a higher-cost "green" rate and meet 50% or 100% of their energy needs from a pool of renewable projects procured by their IOU. The pool of projects is comprised of new renewable energy facilities of between 500 kilowatts (kW) and 20 MW in capacity. Essentially the Green Tariff is a "green option" for customers to select to get renewable energy directly from the utility, rather than from the utility's default portfolio of energy resources. However, the Green Tariff program does not allow the customer to select the specific energy generating facility their power is coming from. That option would be covered by the ECR program, to be implemented in a later phase of the proceeding.

The CPUC finalized the rules of the ECR program in 2016 ("GTSR Decision II"),[70] and the three IOUs subject to the program held the first auctions to procure ECR projects in August of that year.

Program Design of Enhanced Community Renewables

The ECR program allows customers to contract directly with a developer and subscribe to a specific project for all or a portion of the customer's energy needs. The ECR program is a hybrid of traditional rooftop solar programs, where the customer receives a bill credit from the IOU based on their subscription to an ECR project developed by a third-party developer. Projects must be developed with community involvement,[71] but by default, communities do not own or control the energy produced by the developer. The program does not technically prevent communities from

self-organizing and creating a community-based development entity in order to collectively own the ECR project. However, as described further below, in reality, the rules of the program make it both administratively difficult and expensive to self organize.

ECR projects involve three parties: 1) developers, 2) customers, and 3) utilities.

(1) **Developers** contract with utilities to be allowed to participate in the ECR program and to have the utility buy excess power from a project that isn't fully subscribed.
(2) **Customers** contract directly with a developer for a portion of a project's output. Customers pay developers directly for their subscription.
(3) **Utilities** credit customers based on their subscription to the project.

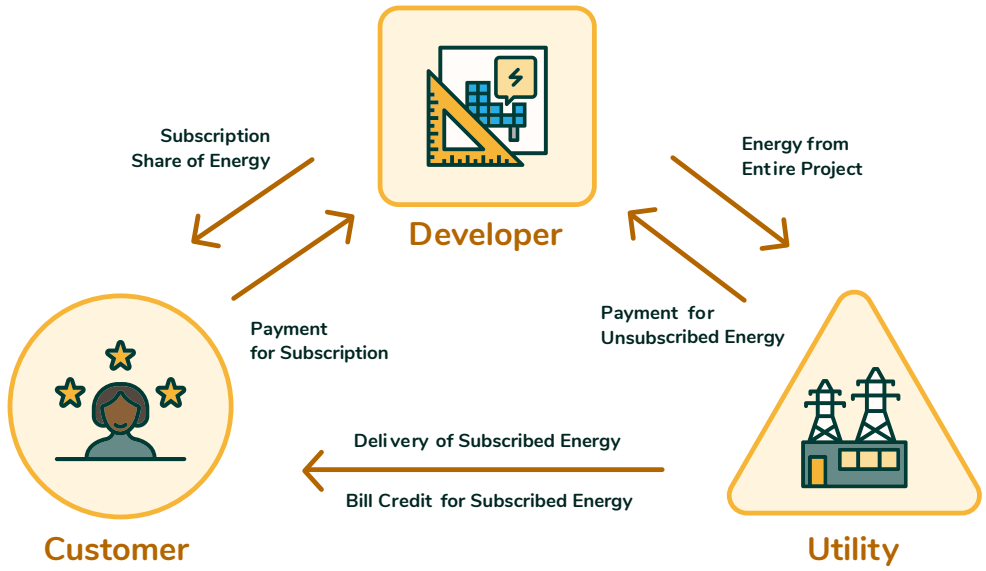


Diagram 7: California's Enhanced Community Renewables Program Design

According to GTSR Decision II, the IOUs set rates at which a customer will be credited for their enrollment in an ECR program, and then a customer and developer separately determine what rate the customer will pay the developer for the subscription. The rate that the IOUs credit customers is a key factor in whether ECR projects will make financial sense for developers and customers. Developers must obtain financing for the project and pay down the cost of the project through the subscription fees it charges customers. The amount of the credit customers receive from the utility will determine how much the customers are willing to pay developers.

Analysis

Pricing Mechanism

For traditional rooftop solar, the utility credits a customer for solar they generate at approximately the same rate as they would otherwise pay the utility – their "retail" rate. In California, the average price the utility charges a customer to deliver electricity, the "**retail**" rate, is approximately **19¢/kWh**.[72] Therefore, when customers generate solar energy, they are credited on their bill about 19¢/kWh. If the customer did not pay upfront for the full cost of installing the system to own it outright, they are likely paying the third-party installer of the system monthly payments for the solar energy being generated by the panels. Say, for example, that the customer is paying the developer 9¢/kWh; they would still save money overall, because the net of the +19¢/kWh credit on their bill, and -9¢/kWh paid to the developer, means they are paying 10¢/kWh less than they would otherwise pay to the utility if they did not have solar.

In the case of the ECR credit, however, GTSR Decision II set the rate a customer would get credited at around the "**wholesale**" rate for renewable electricity (e.g., the price that the utility would pay for electricity from renewable sources on the open market). Under PG&E's rates for its ECR program, the ECR credit for customers is roughly **6¢/kWh**.[73] In this scenario, if the customer is paying the ECR developer 9¢/kWh; they would be spending more money overall, because the net of the +6¢/kWh credit on their bill, and the -9¢/kWh paid to the developer means they are paying 3¢/kWh more in total than they would otherwise pay to the utility if they did not subscribe to the ECR solar project.

Since a developer is not likely to be able to cover its costs of development if it charges the customer less than 6¢/kWh, the developer would be forced to charge the ECR customer a **premium** to cover its costs. Not many customers are interested in paying more for their power, even if it is cleaner. In contrast, California's residential rooftop solar program (net energy metering) incentivizes participation on the part of developers and customers because the parties understand they are guaranteed a one-for-one cost exchange for energy produced and the energy used by the customer. However, the ECR program creates a disincentive for participation.

Indeed, the three years that have gone by since the program officially opened prove that result. No utility's ECR program has secured any customers. Only two of the three utilities have even made conditional commitments to procure projects – 2.4 MW by SDG&E and 1.66 MW by PG&E.[74] Those figures are a drop in the bucket of the 600MW allocated to the GTSR program overall.

Considerations of Equity

The implementation of the ECR program raises important equity concerns. First, the discussion of the ECR program was continually delayed — a common theme for equity-oriented deliberations at the CPUC. Second, the fundamental pricing structure of the ECR program was flawed, in spite of adequate evidence and warning that such an approach would lead to failure. Third, the commission created shockingly discriminatory barriers for all but the wealthiest individuals and corporations to participate, including a requirement for project developers to get a legal opinion from one of the richest 100 law firms declaring that the ECR project design does not violate state or federal securities laws.[75] After finally getting the process going, these latter two factors were nevertheless the two main reasons for the program's ineffectiveness.

Where and when did things go wrong? The pricing structure flaw began with a particularly problematic provision in the authorizing legislation regarding program costs. The statute included a "nonparticipant ratepayer indifference" requirement that costs of the GTSR program not impact customers who weren't participating.[76] Basically, the program was not supposed to cost ratepayers more money if they weren't signed up for it. This statutory language stems from an argument made frequently by investor-owned utilities; namely, that distributed solar energy harms non-participating utility customers by shifting grid maintenance costs not paid by solar customers to non-participants. The "non-impact" language inserted into SB 43 responded directly to this argument, and added an additional barrier to implementation of the law.

The CPUC could potentially have approached this legislative directive in such a way that still enabled projects to be built, but instead it took the most conservative position as advocated by the IOUs. For example, to ensure with absolute certainty that no costs were shifted from non-participating customers to participating customers, the CPUC priced the credit for solar generation near the cost of purchasing wholesale renewable energy. This narrow analysis of cost did not add any other "value" to the tariff, such as lack of reliance on the transmission grid by ECR projects. The CPUC also failed to identify any other possible sources of funding to add to the credit rate offered to customers, such as Cap-and-Trade Auction Proceeds.

Beyond the pricing structure, the CPUC further acquiesced to utility demands regarding implementation, creating numerous barriers in the process and mechanisms of participation. Two issues in particular stand out. First, as noted above, in one of the most shocking outcomes of the proceeding, the CPUC proposed requiring potential project developers to first get a legal opinion certifying that there were no risks of violating securities laws from one of the 100 top-grossing law firms in the country. The list of firms had nothing to do with securities law expertise, but instead was simply based on an annual magazine listing of the wealthiest firms.[77] This requirement added

significant costs to potential developers and erected a significant barrier to project development. Eventually, with advocacy led by the Sustainable Economies Law Center, this requirement was modestly eased, although the Sustainable Economies Law Center pressed for removing it entirely. Second, rather than create a program that anyone in the public could easily access if they wanted to build a project, the CPUC limited approval of new projects to an opaque biannual auction, rather than a transparent and rolling application.

In the end, the Enhanced Community Renewables program falls far short of its goals to provide all Californians – including renters, low- to moderate-income communities, and environmental justice communities – with access to the benefits of offsite renewable energy generation. The failure of the ECR program reflects a policy choice by California to not design a functional program to expand the benefits of solar ownership and self-generation to the renters, low-income homeowners, and others who were left out of the state's massive transition to distributed renewable energy.

Application of Energy Justice Scorecard Metrics to CA ECR Policy

As presented above, those evaluating policies through an energy justice lens can apply the Energy Justice Scorecard to crystalize and summarize the many considerations of energy equity. By reviewing whether policies are advancing energy justice, and using the Scorecard as a tool for dissecting where policies have succeeded and where they have failed, advocates and policymakers can more effectively direct future efforts. Below we use the framework of five guiding questions to evaluate California's Enhanced Community Renewables program adopted pursuant to SB 43. This application provides both an example of how the Scorecard can be used, as well as additional considerations for advocates and policymakers working on community solar programs. Many states may approach community solar similarly to how California did with the ECR program, so even though the program failed in California, it may succeed in serving as a guide of what not to do for others.

(1) Process: *Have marginalized communities participated meaningfully in the policymaking process with sufficient support?*

Score 2 - A little bit; more indirectly through a statewide advocacy group than directly. The California Environmental Justice Alliance (CEJA) participated in the policymaking proceeding at the CPUC. (Note: we have not analyzed who was involved in the original legislation, and so the focus on this analysis is the regulatory implementation.) CEJA is a statewide alliance. One representative of CEJA directly participated in the proceeding, and our understanding is that the representative received direction and feedback from a steering committee representing all of the member EJ organizations who are a part of CEJA. In turn, those EJ organizations themselves are member-based, rooted in low-income communities of color, and have channels for community input and feedback. It's uncertain, but seems unlikely that many, if any, community members directly engaged with the policymaking process.

There are also general strengths and weaknesses about the policymaking process at the CPUC that are worth noting. First, the CPUC offers Intervenor compensation for anyone's time spent engaged in the proceeding, if they demonstrate financial need. This is crucial for allowing EJ groups to participate meaningfully. Second, the CPUC doesn't take a very proactive role in publicizing its proceedings, and there are very specific rules of practice and procedure one has to follow. This means most community members likely would not know that the policymaking was even happening, and even if they did, might have difficulty navigating the process of filing comments, which isn't very user-friendly.

(2) Restoration: *Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?*

Score: 1 - A little bit theoretically, but not at all in practice. Key remedies in the realm of community solar sought by marginalized communities disproportionality burdened by pollution include: (1) financial access and benefits, (2) ease of participation, and (3) alleviation of health issues from sources of pollution.

Financial access and benefits: the ECR program offers no bill savings or discount to make participation financially accessible and presents no clear route for wealth-building or job benefits.

Ease of participation: it is hard to apply for projects due to biannual auctions rather than rolling applications and the costly barrier of the securities legal opinion requirement.

Health: there is no prioritization or value-adding incentive for projects that might offset load from natural gas peaking plants or mechanisms to drive local air quality co-benefits. Projects are not financially viable, so none have been constructed, and thus none of these concerns are being addressed.

(3) Decision-making: *Does the policy center the decision-making of marginalized communities?*

Score: 2 - Mostly no/a little bit. Participation barriers discussed above make it hard for traditionally excluded populations to be in the driver's seat of building grassroots-led projects through the ECR program. Furthermore, there is no incentive for community ownership and control. However, the policy does require applicants to demonstrate that there is a certain level of community interest in a project before it is approved. This could help prevent a project from moving forward if there isn't community buy-in. Still, that requirement represents a more passive approach to ensure a bare minimum of community interest. The policy does not proactively encourage any involvement (nevertheless decision-making) from community members of traditionally excluded population by any specific means.

(4) Benefits: *Does the policy center economic, social, or health benefits for marginalized communities?*

Score: 1 - No. The ECR policy in practice does not focus on economic, social, or health benefits for traditionally marginalized populations. The program's focus is only on energy access and even then it fails to achieve any expansion of access to renewable energy because the programs cost more than existing services. Legislatively, the authorizing statute did envision broader benefits, and theoretically, the ECR component could have gone beyond expanding access to energy alone by allowing communities to build projects that promote other economic, social, or health benefits. However, the implemented program does not explicitly focus on achieving any such benefits, nor does it promote them in practice.

(5) Access: *Does the policy make energy more accessible and affordable to marginalized communities?*

Score: 1 - No. The ECR program is both hard to navigate and costs more than standard electricity rates. Therefore, it fails to make energy more accessible or affordable.

Energy Justice Scorecard: California Enhanced Community Renewables Program

Scoring Key: 1 (No), 2 (A little bit), 3 (Somewhat), 4 (Mostly), 5 (Yes)

Question	Score	Explanation	Reference
(1) Process: Have marginalized communities participated meaningfully in the policymaking process with sufficient support?	5 4 3 (2) 1	A little bit; more indirectly through a statewide advocacy group than directly.	A record of all party comments can be found online. [78]
(2) Restoration: Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?	5 4 3 2 (1)	A little bit theoretically, but not at all in practice. The policy was supposed to create projects in environmental justice communities, but implementation failed.	
(3) Decision-making: Does the policy center the decision-making of marginalized communities?	5 4 3 (2) 1	Mostly not/a little bit. There is no incentive for community governance, but there are community interest requirements.	
(4) Benefits: Does the policy center economic, social, or health benefits for marginalized communities?	5 4 3 2 (1)	No. The policy does not focus on economic, social, or health benefits for traditionally marginalized populations.	
(5) Access: Does the policy make energy more accessible and affordable to marginalized communities?	5 4 3 2 (1)	No. The ECR program is both hard to navigate and costs more than standard electricity rates. Therefore it fails to make energy more accessible or affordable.	
Total Score	7 / 25		

Section 3.1.2 - AB 327 Community Solar Green Tariff: An Uncertain Step Forward

Background

In 2013, the California legislature reauthorized the state's net energy metering (NEM) program for rooftop solar by passing Assembly Bill (AB) 327. The law directed the California Public Utilities Commission (CPUC) to develop specific alternatives to the standard net metering tariff to ensure the growth of renewable distributed generation "among residential customers in disadvantaged communities."[79] The Community Solar Green Tariff (CSGT) was one of a suite of programs created by this statutory requirement.

Regulatory Policymaking Process

In 2017-2018, during the second half of the AB 327 implementation proceeding, the CPUC had another opportunity to revisit the issue of equity in its distributed generation policies. In addition to a different statutory directive, a few other things had also changed at the Commission since the implementation of SB 43. First, leadership had shifted, and a Commissioner much more concerned with energy equity, Commissioner Martha Guzman-Aceves, played a much more direct role in ensuring a more successful outcome in the AB 327 proceeding than the SB 43 proceeding. Second, by this point, the failure of the ECR program was already apparent, as well as the stark divergence between the ECR program and net metering-based programs – including Virtual Net Energy Metering (VNEM) programs – which were widely successful due to a strong pricing structure based on crediting customers for energy production at the same rate that they purchase energy. Third, the CPUC's Energy Division staff were much more engaged with proactively offering policy solutions (rather than simply being reactive to party proposals) and were also much more engaged in reviewing comments from all parties with a critical lens, not just accepting feedback at face value. In particular, as opposed to the SB 43 proceeding, the CPUC did not simply rubber stamp many of the arguments of the IOUs.

At the same time, a few other contextual differences were at play between the AB 327 and SB 43 proceedings. First, while AB 327 encouraged cost containment, the law didn't explicitly specify that the programs couldn't lead to rate increases for non-participants.[80] Second, the CPUC considered separate funding sources for the disadvantaged community programs, an effective solution for avoiding arguments of supposed "cost-shifting." Nevertheless, even though the stage was set for a better – more equitable – outcome in the AB 327 proceeding, as time went by, hopes for a robust and fair virtual net metering based community solar program for disadvantaged communities dwindled.[81] This resulted in part from parties advocating for divergent positions and in part from the Commission's decision-making process.

Proposals by Different Players in the Process

The CPUC requested proposals from parties to the proceeding for alternatives to net energy metering for disadvantaged communities and most of the proposals offered fell roughly into three approaches. First, green tariff-based proposals outlined programs that would give customers access to renewable energy, but no element of net energy metering or potential for community ownership of local resources. In addition, some parties recommended the expansion or extension of the Single-family Affordable Solar Housing "SASH" program, which provided incentives for net metering-based solar installations on single family affordable housing. Finally, there were two proposals for creating a virtual net energy metering (VNEM) based program to enable offsite community solar.

The first of two VNEM-based proposals was submitted by Vote Solar/Solar Energy Industries Association ("Solar Parties"). Their "DAC VNEM" proposal recommended expanding the existing VNEM program under the same retail rate compensation rules to allow any resident of a designated "Disadvantaged Community" or "DAC" census tract to subscribe to energy from any community solar project located in any other DAC census tract.[82]

Second, the California Environmental Justice Alliance/Sustainable Economies Law Center proposal for an "Equity VNEM" program aimed to promote smaller, local, community-owned renewable energy projects. The Equity VNEM proposal was offered as an add-on to the Solar Parties VNEM program, to address a few shortcomings of that model. Primarily, the industry proposal didn't encourage community-based projects (participants of a project could be from all over the IOU's service territory), projects didn't have a size limit, and there were no incentives for community ownership and control. These three issues were all tackled by the CEJA/SELC proposed add-on layer of Equity VNEM to prioritize projects that were close to customers, smaller, and collectively controlled.[83]

VNEM-based proposals ultimately led to the creation of the Community Solar Green Tariff. Proponents of VNEM argued that it was a necessary alternative to the standard NEM tariff, because NEM is fundamentally about self-generation, the economic benefit of bill credits tied to actual solar generation, and customer-based participation and demand. These characteristics of NEM could not be achieved simply by green tariff-based or SASH-based programs alone, the parties insisted. While the CPUC did not ultimately create a VNEM-based program as part of this proceeding, it created the CSGT program in an attempt to address some of the issues and goals raised.

CPUC Deliberations

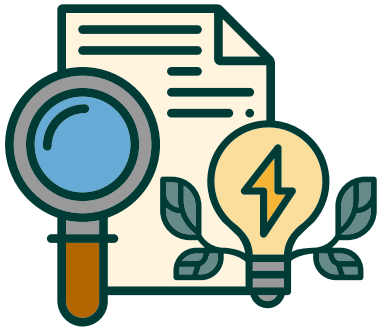
Initially, it appeared that the Commission would implement some form of VNEM, with modifications to make it more community-based, though not incentivizing community ownership. While the Administrative Law Judges assigned to the proceeding did not include any form of a VNEM program in their Proposed Decision, one of the five Commissioners who heads the CPUC, Commissioner Martha Guzman-Aceves, simultaneously issued an Alternate Proposed Decision (APD) on the same day that included a VNEM-based Community Solar program. However, the Solar Parties argued that the APD's Community Solar proposal would not work and requested modifications to the program. The IOUs also attacked the APD's VNEM proposal, but had no interest in the program being improved at all; they advocated that the CPUC pull the proposal entirely. Rather than fixing the issues raised against the VNEM Community Solar proposal, even this door that was slightly cracked open was subsequently shut.

Ultimately, the CPUC walked back the VNEM-based program and proposed a more modest tariff-based community solar program: the Community Solar Green Tariff. The Community Solar Green Tariff (CSGT) allows people to subscribe to solar energy associated with a new installation nearby them – within 5 miles. And it allows communities to find new methods for maximizing the use of rooftop space and other areas for solar production. It wasn't exactly what parties had asked for, but the equity-aligned parties still saw it as something better than nothing, and supported its adoption while arguing for improvements as well.

Program Design of Community Solar Green Tariff

The CSGT program aims "to allow primarily low-income customers in certain disadvantaged communities to benefit from the development of solar generation projects located in their own or nearby disadvantaged communities" to "provide benefits to the participating customers, benefits to their communities, and benefits to the environment."[84] CSGT is meant to fill a gap in clean energy programs, specifically to serve renters and low-income communities who do not reside in multi-family buildings, and provide them a way "to access green benefits from a local source at an affordable cost."[85] Furthermore, it strives to allow indirect community ownership and leverage unique community solar funding sources.[86]

CSGT is a community solar program based on a "green program" or "green tariff" model rather than virtual net energy metering.[87] Subscribing residential customers on the CSGT get 100% renewable energy at a 20% discount as compared to their otherwise applicable rate.[88] The program requires community involvement; CSGT projects must have a nonprofit or government "Local Sponsor." The Local Sponsor is eligible to receive the 20% bill discount.[89]



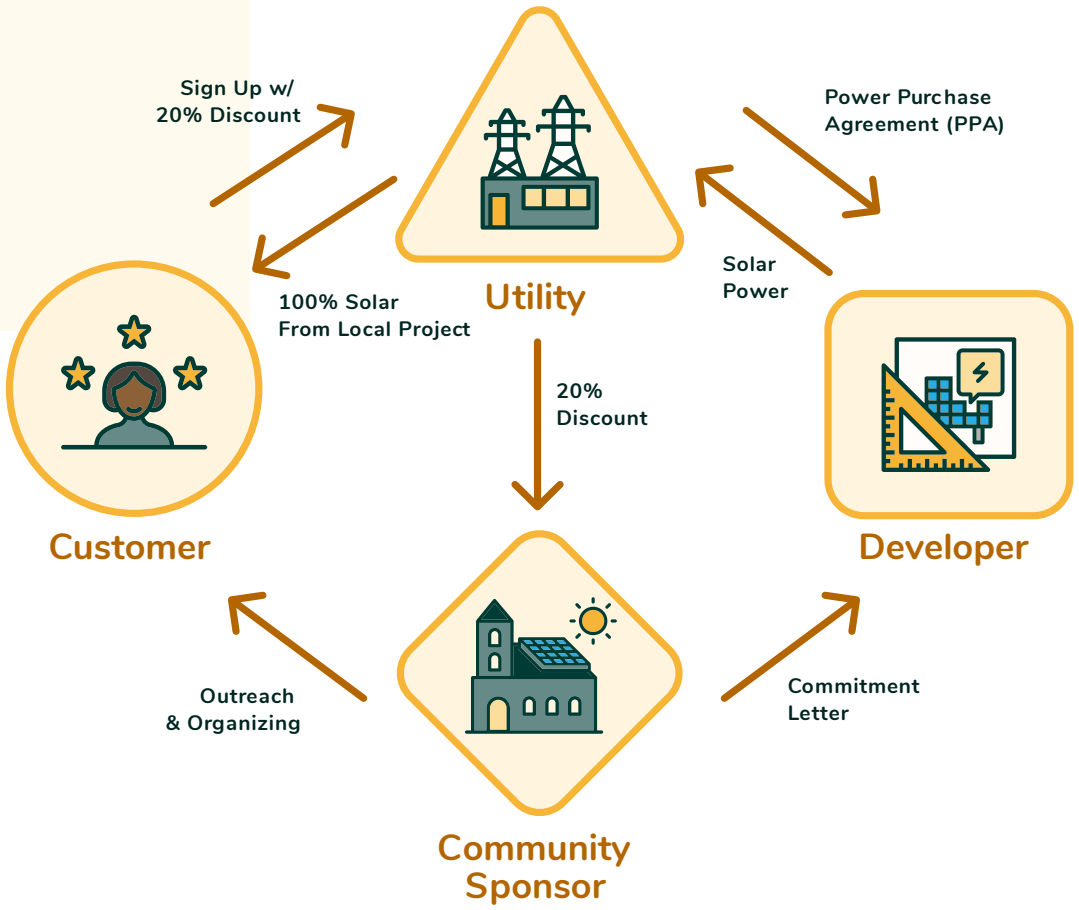


Diagram 8: California's Community Solar Green Tariff Program Design

Key Elements of Community Solar Green Tariff Program

- **Program Capacity:** The CSGT program is limited to 41 MW in total across all IOUs and community choice aggregators (another type of energy provider in California).[90] This represents an estimated 6,700 households.

- **Project Size:** The upper limit on project size is 3MW or 30% of the total capacity in that IOU's Community Solar Green Tariff program, whichever is larger.[91] The program explicitly does not set a lower limit on project size. (Unlike the 500kW minimum in the GTSR program.)

- **Definition of Disadvantaged Community ("DAC"):** One of the top 25 most vulnerable census tracts statewide as identified by CalEnviroScreen 3.0, as well as the "22 census tracts in the highest 5 percent of CalEnviroScreen's Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data."[92]

- **Location of Projects & Customers:** CSGT projects must be sited in a DAC and subscribers to a project must be in the same census tract where the project is located or in a DAC within 5 miles of the subscriber's DAC.[93]

- **Ownership:** CSGT is meant to allow a "sense" of indirect community ownership in projects as well as community involvement. The program does not incentive financial ownership, but indirect ownership is still technically feasible because there can be third party ownership, and participants can be part of an entity that owns the project.[94]

- **Low-Income Requirement:** 50% of customers must be low-income customers. For this program, the CPUC defines low-income customers as CARE-eligible and FERA-eligible customers.[95]

- **Bill Credit:** The CSGT program provides a flat guaranteed 20% discount on a customer's total bill – based on their "otherwise applicable residential tariff" before signing up for the CSGT program.[96]

- **Community Sponsorship:**
  - **Requirement:** In order to demonstrate community involvement, CSGT projects must have a "non-profit community-based organization or local government 'sponsoring' a project on behalf of residents." Sponsorship requires a letter of commitment from the organization, which must include elements such as a demonstration of community interest, estimates of size and subscriptions, a preliminary outreach plan, and community siting preferences.[97] Sponsors should also include job training and workforce development efforts.[98]
  - **Incentive:** The Local Sponsor is eligible to receive bill credits based on the CSGT (i.e., 20% discount) for up to 25% of the project's capacity, but not more than the Sponsor's energy needs.[99] This discount lasts for the life of the project.[100]

- **Procurement Process:** Projects are accepted through an auction-based process, in which the project is selected after a competitive solicitation. Once accepted, the IOU executes a Power Purchase Agreement (PPA) with the applicant solar project developer. The CSGT program does not require any direct relationship between the subscriber and the project developer.[101] IOUs must issue at least two RFOs per year for CSGT projects and prioritize four types of projects in particular, listed below.[102]
  - **Prioritizations:**
    - Projects located in top 5% most vulnerable communities (about 500 census tracts)[103]
    - Projects located in San Joaquin Valley pilot communities[104]
    - Projects that leverage other government funding or projects "that provide evidence of support or endorsements" from local or state climate programs or initiatives[105]
    - Projects that include job training and workforce development factors - "As part of their RFO process, utilities should prioritize job training and workforce development factors. Further, sponsors should ensure that their efforts include job training and workforce development efforts to benefit the local communities which would benefit from the projects"[106]
  - **Cost Containment:** "We will establish a cost cap similar to that in the Enhanced Community Renewables Environmental Justice program, which has a cap of 200% of the historical RAM clearing price." But for CSGT: "utilities should limit contract awards to Community Solar Green Tariff program projects whose bid price is at or below the higher of 200 percent of the maximum executed contract price in either the Renewable Auction Mechanism's as-available peaking category or the Green Tariff program."[107]

The following hypothetical example helps to demonstrate how a CSGT project might work. In this example, the Local Sponsor is a church. The Local Sponsor church will also be the host of the solar system, which will have a capacity size of 100kW and be located on the church's roof. The church will sign a commitment letter with a solar developer outlining efforts that will be conducted by the church, including outreach and community organizing. The solar developer will install or manage installation of the system and enter an agreement with the utility for the utility to purchase the power from the system. The utility will directly handle billing and customer service for enrolled customers. Those enrolled customers will get a 20% discount on their overall bill each month with no upfront costs.

Hypothetical Example of a Community Solar Green Tariff Project:

- **System size: 100kW capacity system**
  - The Local Sponsor is a church with a roof that can support a system with 100 kW capacity.
- **Sponsor subscription: 25kW capacity**
  - The church's historical/estimated usage (i.e., past 12 month kWh usage + any variation likely for future) equals an estimated need of a 25kW sized system at that location (based on solar radiation/system performance calculators).
  - So, the Sponsor subscribes to 25% of project capacity (25kW/100kW).
  - The church gets the 20% discount CSGT rate for usage up to 25% of the system's output. Any additional usage will be billed at the church's otherwise applicable rate.
- **Customer subscriptions: 75kW capacity in total**
  - The remaining 75 kW of capacity is apportioned to customers based on their actual historical/estimated usage (i.e., past 12 month kWh + any likely change)
  - Let's say the average for 25 residents is 3kW capacity need each, for a total of 75kW.
  - The customers get a 20% discount on every monthly bill, regardless of actual monthly usage.

Analysis

Pricing Mechanism

Because CSGT is not a VNEM-based program, the economics of developing projects is a bit more obscure, and ultimately it is not clear if projects will be constructed under this program. To build a project, a solar project developer must first secure a power purchase agreement (PPA) from the utility, which will then allow the developer to finance the project. To secure a PPA, the developer must submit a bid in a competitive, auction-based, solicitation. The bid is an offer to sell power from a proposed CSGT project at a specified price. As noted above, the utilities may not accept bids higher than a certain level, that is, bids more than twice the cost of the highest bid accepted in another renewable energy auction. By design, auction bids are confidential, so it is not known what exact price will win in a CSGT procurement auction, and thus how much a developer will get paid for power from a CSGT project. However, wholesale renewable energy contracts (for utility scale solar or wind) are typically in the range of 4 to 6 cents/kWh, so the CSGT bid cap might be around 8 to 12 cents/kWh. Even at that range, it's not clear if such revenue will be enough to cover construction, customer acquisition, and other costs to build a project. While it's a price range that has enabled community-scale solar installations, solar industry representatives have expressed concern that some CSGT program requirements, such as the geographic limitations and customer income qualification limitations, will make projects too costly to pencil out.

On the other hand, the economics of participation from a customer's standpoint is in some ways more clear for CSGT than a net metering-based program. With net metering programs, a customer receives credits on their electricity bill and pays the utility less per month, however

they either have to pay upfront to install their system or pay a solar company monthly payments in addition to their utility bill. Therefore, it can be a bit more challenging to calculate how much a customer might save overall.

Considerations of Equity

If projects can get built, CSGT will represent a significant step forward for equitable community solar in California. Even though the program is limited in its overall size to only be up to 41 MW, it would allow the development of local solar projects that customers could choose to receive their power from at a clear discount and with no upfront costs. It would allow customers in communities overburdened from pollution to access these benefits and would not only be limited to low-income customers. Nevertheless, it is a major issue of fairness and equity that the program size is so small, that customers do not have access to bill credits as valuable as net metering-based credits, and that the procurement pricing limitations leave so much doubt as to whether projects can get built at all.

Application of Energy Justice Scorecard Metrics to CA CSGT Policy

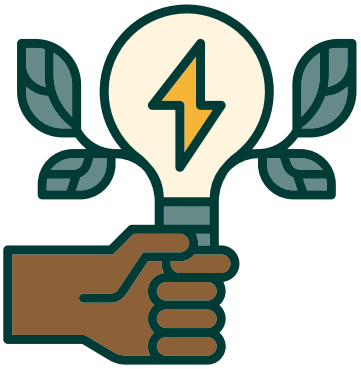
Below we evaluate the Community Solar Green Tariff adopted under AB 327 by applying the Energy Justice Scorecard. While we assessed the ECR program as having a score of 7, we give CSGT a 14 using the scorecard. The higher score and accompanying analysis demonstrates the progress that was made and that which is still needed. In particular, the CSGT program has made meaningful progress to ensure marginalized communities receive energy and non-energy benefits from the program, and slightly increases the economic feasibility of project development. CSGT has not yet been fully implemented, however, and questions will remain until it goes online and can be more thoroughly evaluated.

(1) Process: *Have marginalized communities participated meaningfully in the policymaking process with sufficient support?*

Score: 3 - Somewhat. The answer here for CSGT is mostly the same as for the ECR program, although there was slightly more community participation. Primarily, that participation came in the form of CEJA being a party to the proceeding and being actively involved. In addition, one of its member groups, APEN was also directly involved, so that increased the amount of participation. CEJA also received support from a legal clinic and partnered with the Sustainable Economies Law Center on some comments, which expanded its capacity to participate in the policymaking process. There were also more organizations that represent low-income communities involved in this proceeding, outside of CEJA member groups, including the Brightline Defense Project, which works to create sustainable environments and empower low-income communities, including the San Francisco's Bayview-Hunters Point community.

(2) Restoration: *Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the fossil-fuel based energy system?*

Score: 3 - Somewhat. CSGT was specifically designed to target barriers faced by disadvantaged communities in accessing the benefits of distributed renewable generation. The Commission was responsive in aiming to design a program that promoted local solar generation on community buildings in pollution-burdened communities. However, it does not go far enough to robustly address the concerns raised to significantly counter prior harms. *Financial access and benefits:* the program includes a flat 20% discount and potentially opens the door for community-based developers who could use the program as a means for wealth-building and job creation. But that's very tentative, and also the size of the program isn't very large, so it's not likely to drive a lot of projects, wealth, or jobs. *Ease of participation:* the program unfortunately still relies on a biannual auction, but doesn't have a securities legal opinion requirement. *Health:* CSGT doesn't explicitly target replacing emissions from local fossil fuel power plants but is focused on siting solar projects in pollution-burdened census tracts.



(3) Decision-making: *Does the policy center the decision-making of marginalized communities?*

Score: 2 - A little bit. The policy includes a requirement that projects have a community sponsor, who can also access the 20% bill savings, so that is an avenue to get more community participation and involve a community anchor institution. However, CSGT does not otherwise require, incentivize, or do anything proactively to encourage decision-making by the community. The commission declined to specifically promote community-ownership or control, but collective ownership is technically still possible because the program allows third party ownership of solar projects.

(4) Benefits: *Does the policy center economic, social, or health benefits for marginalized communities?*

Score: 2 - A little bit. As noted above, the program does include bill savings, potentially a route for local wealth-building and good jobs, and perhaps health benefits from local siting. However, the likelihood for benefits beyond the bill savings is quite tenuous. CSGT does not include any specific mechanisms or evaluation methods to ensure or reflect on the attainment of such benefits.

(5) Access: *Does the policy make energy more accessible and affordable to marginalized communities?*

Score: 4 - Yes, probably. Participants receive a 20% bill savings discount and that discount applies on top of other discounts from low-income assistance programs such as California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance Program (FERA). CSGT also requires that at least 50% of the capacity of each project is allocated to low-income residential customers. On the one hand, this may drive accessibility and affordability for working class families because they must be included, but on the other hand it may make it challenging to build projects and sign up enough customers. So there remains a major question of whether projects can and will be built, and if they cannot, then of course no one will see such benefits. Other factors that have also raised concerns from analysts about the economic viability of constructing projects include the geographic limit to the customer base for projects[108] and the utility procurement pricing method employed.[109]

Energy Justice Scorecard: California Community Solar Green Tariff Program

Scoring Key: 1 (No), 2 (A little bit), 3 (Somewhat), 4 (Mostly), 5 (Yes)

Question	Score	Explanation	Reference
(1) Process: Have marginalized communities participated meaningfully in the policymaking process with sufficient support?	5 4 (3) 2 1	Somewhat. Primarily, in the form of an alliance being a party to the proceeding and being actively involved, along with a few more orgs.	A record of all party comments can be found online. [110]
(2) Restoration: Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?	5 4 (3) 2 1	Somewhat. CSGT was specifically designed to target barriers faced by disadvantaged communities in accessing the benefits of distributed renewable generation.	
(3) Decision-making: Does the policy center the decision-making of marginalized communities?	5 4 3 (2) 1	A little bit. Does not incentivize community control, but requires a local sponsor to assist in community outreach.	
(4) Benefits: Does the policy center economic, social, or health benefits for marginalized communities?	5 4 3 (2) 1	A little bit. The program includes 20% electric bill savings, but benefits beyond that are uncertain.	
(5) Access: Does the policy make energy more accessible and affordable to marginalized communities?	5 (4) 3 2 1	Yes, probably. In addition to the bill discount there is a requirement that 50% of the capacity of each project is allocated to low-income residential customers.	
Total Score	14 / 25		

Section 3.2 - Case Study of Community Distributed Generation Program in New York

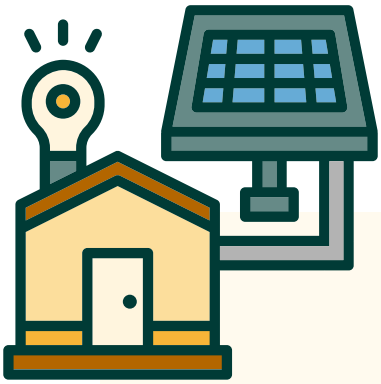
This section reviews New York's Community Distributed Generation ("CDG") program, which came out of Reforming the Energy Vision ("REV") – a broad overhaul of the electricity generation and distribution system in New York State. The CDG program allows multiple electricity customers to access energy and benefits from a single energy generation project. Using the Energy Justice Scorecard, we give the CDG program a score of 14 out of 25 points. While New York's CDG policy seeks to address energy-related burdens for low-income and environmental justice communities, it does not include environmental justice components in the value of solar or public health, economic, and other social benefits of a solar project.

Background

Key guiding principles for REV are (1) transitioning from centralized to distributed energy generation, (2) improving the reliability of transmission and distribution infrastructure, (3) phasing out of fossil fuel-based generation and expansion of renewable energy resources, (4) developing more resilient grid infrastructure and energy generation in the face of extreme weather and climate change impacts on weather patterns, (5) facilitating increased agency and individual choice on the part of the electricity consumer, and (6) improving and sustaining deep affordability of energy for consumers.[111]

REV grew out of both the acute shock of Superstorm Sandy as well as a recognition of more chronic and longstanding stresses on the energy system, energy generators, and energy consumers. Superstorm Sandy put in sharp relief the need for more resilient electricity infrastructure in the face of sweeping blackouts and power outages that lasted for weeks in some communities. The disparate impacts of extreme weather events like Superstorm Sandy on lower-income New Yorkers, the elderly and infirm, and public housing residents were also apparent as the communities that suffered the worst outcomes were those with limited access to the resources necessary to weather the storm and recover in its aftermath. Public housing developments in lower lying areas of New York City faced significant flooding and prolonged blackouts, coastal communities saw entire blocks ravaged, and critical infrastructure throughout New York City, including the transit system and a Con Edison facility, were seriously damaged. The failure of the electricity grid alone resulted in life threatening and in some cases fatal conditions. The Sandy post-mortem was replete with stories of residents requiring elevators for accessibility purposes stranded in their homes, those with serious health conditions unable to use critical medical equipment, lack of access to fresh food, cooking, medicines, and inability to climate control homes resulting in serious health concerns for families, young children, and the elderly. The calls for meaningful change that would result in better preparedness and resiliency, particularly for the most vulnerable populations, grew in large part out of these deeply troubling stories and the desire for communities to build power and agency to withstand the next storm. The widespread power outages and energy system vulnerabilities revealed by Superstorm Sandy spurred New York regulators to action, and in 2015, the state's energy regulators opened the Reforming the Energy Vision regulatory docket to advance the state's transition toward a cleaner, more nimble energy system.

Prior to Superstorm Sandy, New York's electricity generation system was far from optimized. Lack of access to affordable, reliable energy posed an ongoing and significant challenge for New York City's low-income residents. New York's electricity rates were 59 percent higher than the national average, and some low-income residents were paying up to 20 percent of their income towards utility costs, while higher-income residents often paid less than 5 percent. Low-income households were also more likely to experience power termination due to lack of bill payment, and additional penalties that only compounded their inability to pay. Due to increasing energy prices and volatility, New York utilities issued a record



number of shut-off notices to customers in 2015. These challenges were not merely academic but very real lived experiences: without utilities, residents cannot properly heat or cool their homes, which can be fatal for vulnerable populations such as the elderly and those living with chronic health challenges. In addition, routine daily activities, such as getting ready for work, completing schoolwork, preparing food, or even simple mobility through an apartment building can be nearly impossible without working utilities.

Regulatory Process

At its inception, REV had themes of inclusivity, access, and equity. New Yorkers would be able to access clean energy "regardless of their income or zip code," Richard Kauffman, the State's appointed leader on energy policy, stated in 2015. Affordability was also front and center, with the goal of alleviating utility burdens across the state a key driver of the proposed infrastructure improvements and need for more robust clean energy development. The recognition that the energy affordability crisis hit lower-income New Yorkers in much more profound ways than higher-income New Yorkers fueled the search for policies that would not only encourage more renewable energy throughout the state but also make it accessible to residents who traditionally could not tap into a renewable energy source due to economics or renter status.

The principles of access and affordability dovetailed with the other REV concept of customer choice, that electricity customers should have more agency to choose where their energy came from and how it was generated. This idea, coupled with REV's other core goal of increased renewable energy development, opened up new policy avenues that would allow for innovative models of energy generation and ownership. Advocates and policymakers recognized the more transformational possibility stemming out of this potential policy platform – that communities could directly participate in local, community-owned distributed clean energy generation. The possibility of customers moving beyond a status as "ratepayers," those that simply receive and pay a bill from a corporate utility, to energy generators and consumers (or "prosumers") would allow individuals and communities to create real value out of clean energy development and most importantly, keep that value and the accompanying benefits, within their own communities and households.

This vision ended up codified in New York's community distributed generation policy and its accompanying Public Service Commission proceedings and orders.[112] Community distributed generation ("CDG"), in the New York energy policy context, can refer to a wide range of energy generation systems in terms of scale, energy source, and technologies. However, the unifying principle underlying all CDG systems in New York state is that multiple individuals, households, and ratepayers may jointly participate in an energy generation project either as owners or subscribers and collectively partake of the benefits flowing from that project, whether it be the energy itself and/or the economic value from resale to the grid.

Relevant Proceedings within REV with Energy Justice Impacts

REV is an umbrella regulatory reform platform that ultimately contained within it a number of dockets at New York's Public Service Commission ("PSC") that facilitated the actual regulatory proceedings necessary to realize the articulated goals of REV as a policy. The proceedings within REV most relevant to energy justice considerations and impacts include:

- Community Distributed Generation/Shared Renewables/Community Solar
- Value of Distributed Energy Resources
- Uniform Business Practices for Distributed Energy Resources Providers
- Energy Storage
- Energy Efficiency
- Microgrids

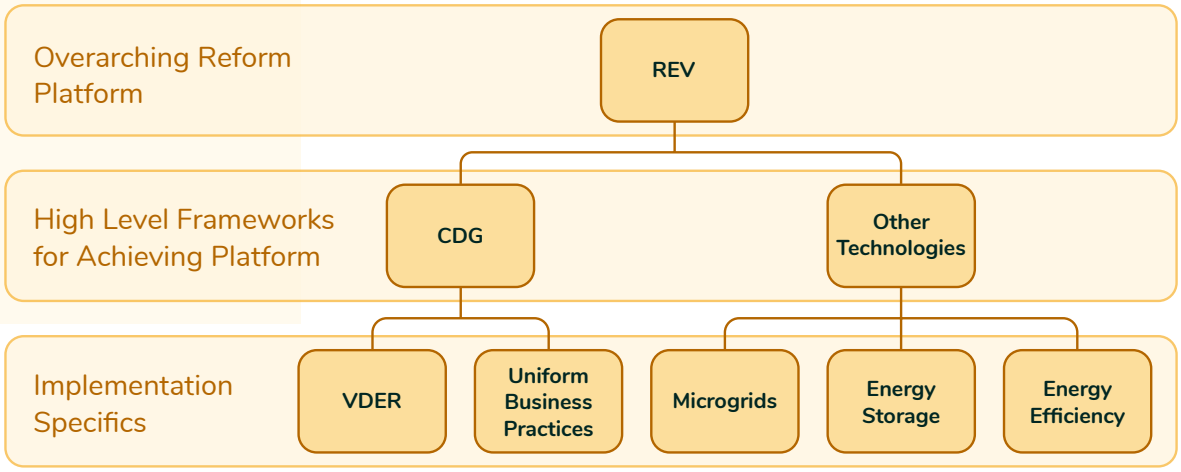


Diagram 9: Key Proceedings within Restoring the Energy Vision (REV)

Each of these proceedings were commenced at different times during multiple phases of REV starting in 2014 and continuing to date. A proceeding would typically involve some sort of kick-off that included preliminary information gathering and a stakeholder process where staff at the Department of Public Service ("DPS"), the agency that supports the PSC, would hold meetings and allow for filings on the docket to effectively scope the problem to be tackled in the particular proceeding. From there, each proceeding tended to take different forms depending on the nature of the types of stakeholder and expert input required and the timeline needed given the depth of a particular topic area. Often an iterative process, DPS would take preliminary input gathered through meetings, filings responsive to specific questions put forth by DPS, and other avenues of expert input, and issue a Staff Report that would detail recommendations as to how to proceed, typically including specific frameworks for a potential PSC order (the form that PSC official regulatory policy takes) addressing the matter at hand. Stakeholders would then have an opportunity to comment on the Staff Report, and these responses would be included in the record and accounted for in the PSC's ultimate decision on the form a policy should take in its final order on the topic.

Participants in the proceeding included the following categories of groups and representatives (not intended to be an exhaustive list):

- Utilities from across New York State
- Representatives of solar industry trade associations and individual renewable energy developers
- Environmental conservation-oriented NGOs
- Representatives from environmental justice organizations and coalitions
- Academic institutions and affiliates working in the energy and environmental field
- Policy think tanks working in the energy and environmental field
- Representatives from local, municipal, and county government
- Representatives from organizations advocating for low-income customers and communities
- Consumer advocates

Program Design of Community Distributed Generation

While REV included many regulatory proceedings, as described above, the PSC's Community Distributed Generation ("CDG") Order and its progeny formed the fundamental (and in many ways seismic) shift underpinning New York's policy reform to allow for increased access, equity, and justice in the energy space. New York's CDG policy, the regulatory framework that provides the basis for the more commonly referred to "community solar," allows for a separation between a project developer (or "sponsor" under the CDG Order), the owner of the property on which the project is located, and those that own the energy produced.

Under a typical net metering scheme, in contrast to CDG, these three roles are typically held by the same entity. For example, an individual may elect to install solar panels on a roof they own and subsequently use that generated solar energy to power their own home or sell it back to the utility grid to make profit. CDG allows for those that cannot generate or use renewable energy on property they own, or directly finance such a project, to nonetheless participate in a project that facilitates expanded renewable resources and earn economic value from those resources. For example, a CDG project sponsor may find a site, such as a parking lot or institutional roof, that could host a large photovoltaic system. The sponsor enters into a lease agreement with the owner of the site that allows the sponsor to conduct the necessary feasibility studies to build, access, and maintain the infrastructure. The sponsor can then enter into separate agreements with potential "subscribers" to the project – a subscriber may purchase an ownership interest in a set of panels that are part of the bigger project or may purchase a share in the legal entity that owns the project or may purchase a subscription to buy a certain amount of produced energy. By separating out these three roles, conceptually, CDG should dramatically expand access to renewable energy generation and its co-benefits.

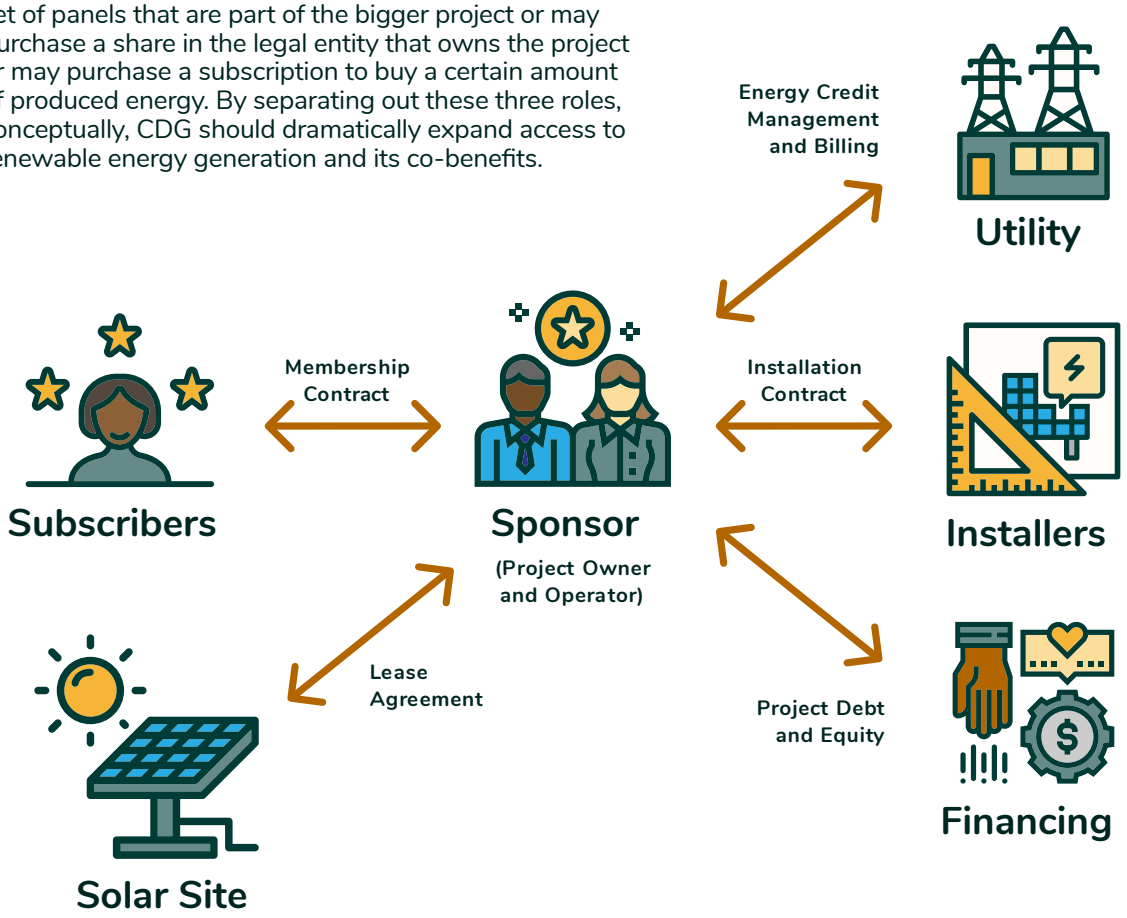


Diagram 10: New York's Community Distributed Generation Program Design

Given this expansion under the new CDG Order, utilities became concerned with the potential burdens on the grid due to an increased volume of distributed solar projects coming online. Grid interconnection queues under the new CDG Order ballooned as project sponsors sought to take advantage of the new opportunity afforded by the CDG model.[113] From a technical standpoint, utilities carefully monitor and control the interconnection of distributed energy generation (most commonly prior to the CDG Order, rooftop solar) to ensure that the grid can handle the input from such systems when energy is fed back into the grid and maintain reliability. Additionally, utilities must compensate individuals for any energy fed back onto the grid from their projects. Up until recently, the amount of compensation was calculated pursuant to Net Energy Metering ("NEM") – the retail value that a customer would pay for a kilowatt-hour of energy is the same value that customer would receive for feeding a kilowatt-hour of energy back into the grid.

Utilities in New York began to call for a shift from NEM to some other compensation scheme that would account for the cost burdens on the system due to a project's interconnection to the grid.[114] Essentially the utilities argued that NEM overestimated the total value of a unit of energy sold back to the utility and was too coarse of a metric to properly capture the value a utility should be paying for a unit of distributed energy from a project.[115] This call for reform to NEM is not being made only by utilities in New York State, but rather is part of a national trend by utilities seeking to change the compensation scheme for energy fed back onto the grid. Utilities argue generally that such reform is needed because the penetration of renewables onto the grid is increasing, thereby making compensation at NEM levels unrealistic as renewables continue to scale. Specifically, utilities cite to potential impacts to the costs other ratepayers using energy off the grid are paying if compensation for distributed energy to those generating it is too high. Debate on this issue rests in part on the threshold level of penetration of renewables on the grid (usually described as the percentage of total energy on the grid that is coming from distributed renewables) that would call for a change to NEM compensation. For example, research conducted by Berkeley Lab found that impacts on rates would remain at 5% or less if NEM compensation was used for distributed generation penetration levels that were less than 10%. Arguably then, a "NEM 2.0" would not be necessary until penetration levels reached 10%. For comparison, the national average as of that study was 0.4%.[116] While this is a national average, by definition some jurisdictions examined as part of the study had penetration levels higher than this.

In response to the call for NEM reform in New York State, the PSC opened the Value of Distributed Energy Resources ("VDER") proceeding, an effort to figure out what a replacement for NEM would look like.[117] This proceeding sought to establish a more refined calculation of the true costs and benefits of a unit of energy, in a particular location on the grid, at a particular time, being sold to the grid to determine how utilities should compensate generators for that particular unit of energy. Given the complexity of this calculation, the core element of the VDER scheme is a "value stack" which includes a number of layers of different types of value (e.g., a time of day factor, a locational factor, a wholesale price factor). As detailed below, the components of the value stack and the calculation of the amount of the costs and benefits became ground zero for how equity and justice considerations are accounted for within the REV framework as a whole.

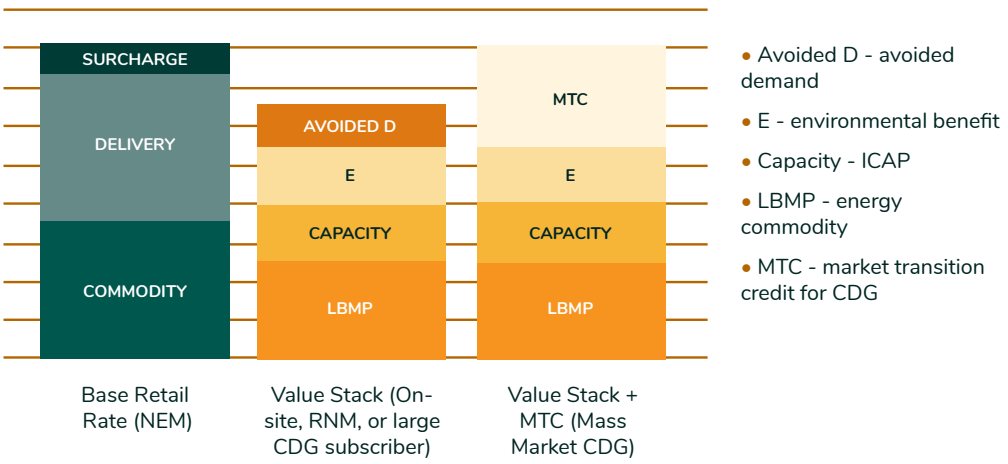


Diagram 11: Original VDER Value Stack Components -- Source: NYSERDA

The Value Stack includes components that vary with project characteristics including location on the grid (i.e., LBMP or location-based marginal pricing), which capture in part the relieved burdens on the grid due to the distributed resource, and the environmental characteristics of the project (i.e., "E" – the component available to CDG projects that utilize a renewable source of energy including solar, fuel cell, hydro, wind, tidal, and somewhat controversially in the environmental justice community, biomass). The Market Transition Credit (MTC) was designed purely as a market incentive mechanism to bolster the initial Value Stack level to an amount closer to what projects would get under NEM. It was intended to soften the blow of the transition from NEM to VDER and to be phased out over time as, theoretically, the CDG market took off and no longer required it.

Analysis

Considerations of Equity

New York has sought to address equity and access to clean energy for low-income New Yorkers in a number of dockets within REV, principally: (1) the CDG proceeding, (2) the VDER proceeding, and (3) the Low Income Affordability proceeding. At times, these three proceedings dovetailed and at times they ran in parallel, arguably addressing different aspects of securing clean and affordable energy for low-income New Yorkers but ultimately requiring reference back to one another given the interrelated nature of the issues each addressed.

When the Commission first issued the Community Distributed Generation (CDG) order in July 2015, it included a carve out for an initial phase that would prioritize the development of CDG projects that had at least 20% low- to moderate-income (LMI) subscribers in the Phase 1 of the CDG policy roll-out.[118] While this was a heartening indication of the possibility of prioritizing low-income inclusion in CDG at the outset, the lack of subsequent project support and guidance on workable low-income CDG models resulted in no CDG projects being built during this preliminary phase. The PSC, in its first CDG Order, was trying to balance project feasibility in a brand-new and largely unknown CDG market with prioritizing the REV goal of access and affordability for low-income customers. Unfortunately, the initial 20% carveout policy didn't ultimately strike the right balance.

In the hopes of addressing low-income participation in CDG with a more long-term strategy than the 20% carve out approach in the first phase of CDG implementation, DPS Staff commenced a Low-Income Collaborative process that brought stakeholders to the table to brainstorm and develop solutions to address low-income participation in the clean energy sector and CDG in particular.[119] The Collaborative culminated in the release of a report in August 2016 that reflected deep work and consensus-building by stakeholders.[120] DPS Staff elected to not take up any of the recommendations from that lengthy report and declared that there was effectively a market failure in the low-income sector requiring alternative utility ownership interventions. This conclusion was in many ways circular, as the Collaborative had been tasked to develop solutions precisely because the LMI sector wasn't properly addressed by current policies.

Pricing Mechanism

The VDER proceeding provides arguably the most robust example of the role of procedural justice in addressing low income and environmental justice issues. Stakeholders provided detailed and emphatic feedback to DPS through the various early stakeholder processes, technical conferences, and formal comment periods as to the likely impacts of VDER on low-income access to CDG and how those impacts could be mitigated. Additionally, many stakeholders articulated the need for CDG policy to properly account for environmental justice and that such considerations should be included in the VDER value stack mechanism itself. Specifically, advocates and experts called for the full valuation of all the benefits to communities and customers of expansion of DERs, not just costs to the grid as articulated by the utilities. A broad spectrum of benefits from renewable energy and CDG specifically were raised including project participation for underserved market segments, reduced energy burden on low-income utility customers, avoided social and public health costs, added grid resiliency, offsetting of current pollution, displacing the need for current and future polluting facilities, clean energy job creation, and meeting state and local climate targets.

When the final VDER order came out in March 2017, it included a directive to DPS staff to explore and address low-income participation in CDG. Low-income issues, and environmental justice considerations concurrently, were thus rolled into the VDER proceeding. However, the Phase 1 implementation of VDER did not include any mechanisms to support the participation of low-income customers in a CDG project. After a push on the part of advocates, DPS staff took up the issue during Phase 2 of VDER implementation. To that end, the VDER Phase 2 proceeding was broken up into three working groups to develop recommendations for staff around Value Stack, Rate Design, and Low to Moderate Income issues, respectively. Many advocates and stakeholders that had been calling for thoughtful process and substantive policies around low-income inclusion and environmental justice joined the LMI Working Group with the understanding that this was the appropriate venue to reiterate actionable recommendations and see meaningful movement.

On the contrary, it was clear from the outset of the LMI Working Group that the basic underlying assumption driving Staff's facilitation of this work was that CDG would not work for low-income customers in its current iteration and that environmental justice concerns were outside the scope of their work. Despite the formation of a broad ad hoc coalition of sixteen groups participating in the LMI Working Group—the "Aligned Parties"[121]—and the development of robust written recommendations in a proposal shared with key DPS Staff as well as filed on the docket that would fix CDG policies so that they could work for low-income households, DPS Staff indicated such issues were outside the scope of the proceeding.

The LMI Working Group functioned for approximately six months between June and December 2017 and culminated in a Staff Report on Low-Income CDG that put forth policy and programmatic recommendations that had largely not been discussed within the Working Group collaborative process.[122] The Staff Report further declined, for the most part, to make recommendations around the policy proposals that had been put forth by consensus by a majority of the participating parties. The opportunity to discuss programming related to low income customer participation in CDG seemed to be closed at this point, and the LMI Working Group was dismantled with no clear commitments to specifically take up any of the recommendations by the Aligned Parties or in the Low Income CDG Staff Report to once and for all meaningfully remedy a serious lack of access by low-income households to CDG projects.

With respect to environmental justice issues, the Low Income CDG Staff Report suggested that the VDER Phase 2 Value Stack Working Group take up the topic as it likely required a quantitative analysis of environmental justice values to be included in the VDER value stack calculation.[123] However, there was a great deal of confusion as to exactly what steps the Value Stack Working Group needed to take and whether EJ values would even be discussed at all in that venue. At the urging of stakeholders at a Value Stack Working Group meeting, Staff allowed the formation of a "subgroup" to further examine environmental justice considerations in VDER and CDG. However, this subgroup was not afforded necessary resources to properly undertake this work and was largely self-organized and facilitated by advocates and academic experts. Through the generosity of pro bono support from economists at NYU's Institute for Public Integrity, the group made some headway in what a valuation of avoided social and economic costs due to mitigated air pollution might look like within the VDER mechanism. Unfortunately, as this work was underway, participants in the subgroup were informed by Staff that there were no hard commitments on DPS' part to gather input on these issues and incorporate them into a recommendation and approach, despite the time and resources being put into the effort by advocates and experts. This also spurred further confusion as to what exactly the mandate had been by the PSC in its initial CDG order to meaningfully explore issues related to low-income customers in accessing the benefits of the CDG framework.

The subgroup presented findings to Staff at a July 11, 2018, Value Stack Working Group meeting. Subsequently, Staff issued some limited fixes and recommendations for adjustments of the VDER mechanism through an order that boosted the value stack for certain projects in certain areas, though this was not with an emphasis on environmental justice considerations, rather was intended to address the viability of the CDG market on the whole, particularly in challenging utility service territories.[124] While very necessary and welcome, these particular fixes did not get at the heart of incorporating the full scope of values from the transition to renewable energy resources for the state, low-income customers, and for environmental justice communities.

Separately from the CDG Order and VDER proceedings, the PSC also sought to study the broader dynamics of how low-income customers were served by utility programs, and commenced the Low-Income Affordability proceeding on a parallel track.[125] This docket, and resulting PSC order, primarily addressed bill assistance programs for low-income customers and did not touch substantially upon the larger structural issues regarding energy affordability facing low-income customers, including expansion of access to energy efficiency and clean energy options. The proceeding resulted in a Commission Order issued in May 2016 calling for a goal of reducing the energy burden for all low-income New Yorkers to 6% or below and articulated the need for future coordination between agencies and programs to achieve this goal.[126] The order also explicitly describes the potential for distributed energy resources (DER) to help bridge the affordability gap, which indicated that eliminating barriers to access to CDG projects and other DERs for low-income customers could and would be prioritized in Commission policy and state programming moving forward.[127]

Another related proceeding that ran in parallel to the CDG and VDER proceedings that addressed particularized concerns for low- and moderate-income customers was the Uniform Business Practices for DER proceeding. This proceeding essentially sought to establish the consumer protection measures in place for customers purchasing energy from DER projects (including as subscribers to CDG projects). Given that the CDG Order would now allow for the sale of new kinds of energy products to consumers, the PSC wanted to ensure that the market would not become plagued by predatory practices that had occurred in the past with new fangled energy services being offered to low-income customers.[128] The preliminary order that resulted from this proceeding laid out a number of requirements for DER/CDG providers including registration, mandatory customer agreement contract provisions, billing and payment processing, and customer information.

Takeaways from CDG/VDER Proceedings for Energy Justice Objectives

Procedural Considerations

- Policymakers should articulate clear avenues for influence and input by stakeholders and how that input will concretely be considered and incorporated. This allows those participating in the regulatory proceeding to formulate strategies to be most effective in informing, educating, and advocating for policies that address their concerns.

- Process for process' sake is not meaningful for stakeholders, particularly those newly at the table and most impacted by potential outcomes. Advocates and experts do not want to waste their time on a symbolic public process as they typically have to make difficult decisions as to allocation of staff and organizational time and resources.

- Participants in a regulatory proceeding may consider requesting more detailed information from policymakers regarding process and timeline for a particular issue and how input will be considered. This could serve two purposes: one, it may encourage policymakers to think through that question when they haven't previously considered it (and staff proceedings accordingly) and two, it may allow participants to pick and choose where they put time and resources.

Substantive Policy Considerations

- Policy and value judgments as to what gets "counted" in the value stack for the purposes of determining the value of distributed renewable energy generation need to be discussed honestly and openly. These values-based conversations are a reflection of deeper beliefs about priorities and problems in the energy sector that have to be addressed prior to technical research, analysis, and economic modeling.

- New York, and other states considering similar reforms, needs to better grapple with the idea of the "prosumer" and the move from a utility model that bifurcates generators and consumers to one where they may (and in some cases should) be the same entity. Recognize that this necessarily requires a change in the fundamental business model of investor-owned utility energy distribution, that there is a natural tension given the economic interests of investor-owned utilities and the desire of consumers to become prosumers, and address what new models may look like that address these potentially divergent interests.

- It is important to balance innovation in new models for distributed energy generation development and their accompanying increased access for new customers/generators with consumer protection considerations. Those seeking to access clean energy generation, whether through rooftop solar on their own homes or through a community solar subscription, deserve robust protections against predatory practices. Such consumer protection policies should be well tailored to address potential problems without creating conditions that effectively render such projects infeasible. This is a real challenge and an area where much more attention and nuance should be afforded by policymakers.

- Decisionmakers should regularly check back in with the guiding principles behind the opening of a particular proceeding and make sure that the proposed solutions map onto those goals at every step. It is easy to get lost in the weeds and end up with "solutions" to entirely different or non-existent problems.

- Participants in a regulatory proceeding should be prepared to not only provide input and recommendations related to the communities they seek to represent but also to counter anticipated arguments that may come up in opposition to such recommendations. Often, policymakers and more traditional participants have certain preconceived notions going into a proceeding on a particular issue – a more productive process may result if those assumptions can be addressed up front before development of new ideas and solutions.

Application of Energy Justice Scorecard Metrics to New York REV Case Study

Having provided a detailed background of the context in which REV came about as well as certain substantive policy mechanisms included within it that speak particularly well to energy justice principles, below we provide an application of the Energy Justice Scorecard to New York's CDG policy. The goal is to provide an illustrative example of the use of the Scorecard that may facilitate its use in other policy contexts in service of energy justice and energy democracy movements in other states.

(1) Process: *Have marginalized communities participated meaningfully in the policymaking process with sufficient support?*

Score: 4 - Mostly yes. In terms of process, frontline communities were able to participate in the CDG and VDER dockets at the Public Service Commission. This included participation in various stakeholder and working group meetings with the PSC, submission of written testimony to the docket, and more targeted meetings with relevant policymakers to discuss matters of concern to frontline communities in particular. Whether such participation would be considered meaningful by the representatives of frontline communities in the PSC proceeding is likely where the debate would lie. To the extent that meaningful participation connotes consideration of the input by relevant policymakers, participants representing frontline communities likely felt that certain recommendations were not given the same consideration by policymakers as those of more traditional participants in energy regulatory proceedings (i.e., utilities, large NGOs). That being said, some informal avenues, in addition to the more formalized input in the regulatory context that

tended to be dominated by traditional participants, were created for stakeholders to work with policymakers to develop strategies and solutions addressing issues in the energy justice realm.

(2) Restoration: *Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?*

Score: 3 - Somewhat. New York's CDG policy, in its current form, appears to be largely forward looking by seeking to address energy-related burdens for low-income and environmental justice communities in the future through CDG and other forms of renewable energy development in those communities and for those marginalized customers. Attempts at including an "environmental justice" component in the value stack as part of VDER that would allow for additional incentives for project development that serves communities that have been harmed in the past by the fossil fuel industry did not have much traction with policymakers, due to cited concerns related to implementation in a fair and effective manner.

(3) Decision-making: *Does the policy center the decision-making of marginalized communities?*

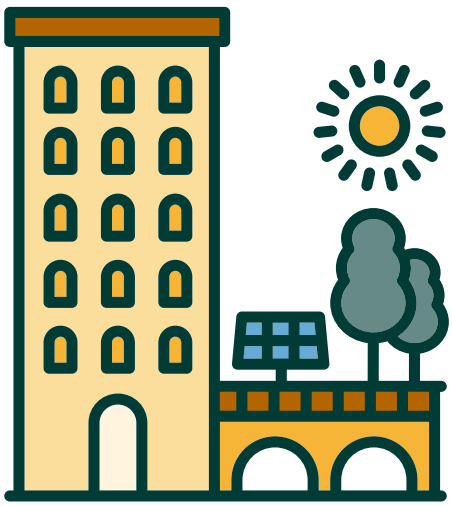
Score: 2 - A little bit. The concept of providing not just affordable, clean energy to traditionally excluded populations but also providing avenues for agency and meaningful decision-making related to the production of that energy did not have much traction with policymakers. Some attempts were made to develop a program that would allow for low-income subscribers to a project an avenue to eventually buy an ownership interest and thereby have some agency and decision-making power. This particular proposal did not end up being further developed and the program remained one that would facilitate low-income subscribers to a community solar project but did not provide ownership opportunities for those subscribers or facilitate capacity-building for more localized organizations to play a developer or sponsor role.

(4) Benefits: *Does the policy center economic, social, or health benefits for marginalized communities?*

Score: 2 - A little bit. Not currently, but may in the future. Despite rigorous attempts on the part of advocates and academics to quantify and include such a component in the value stack for VDER that would capture public health, economic, and other social benefits of the deployment of clean, affordable energy through a community solar project, the value stack currently does not include such a targeted component.

(5) Access: *Does the policy make energy more accessible and affordable to marginalized communities?*

Score: 3 - Somewhat. Theoretically yes, but unclear if so in practice. New York's CDG policy framework, in its current iteration, should allow for expanded access to renewable energy for those unable to install and benefit from renewable energy generation on property they own, as it allows for a bifurcation between owner/developer and recipient of the energy generation benefits. However, the most substantial barriers to access and affordability under the policy are (1) the lack of adequate monetary incentives that allow projects that serve low-income subscribers to pencil out and (2) lack of capacity building oriented programs and funding such that local organizations or organized groups of local residents may be able to play a sponsorship role in a project thereby increasing the benefits they receive as a result of the project (the economic benefits of asset ownership as compared to the more limited economic benefits of purchasing units of energy).



Energy Justice Scorecard: New York Community Distributed Generation Program

Scoring Key: 1 (No), 2 (A little bit), 3 (Somewhat), 4 (Mostly), 5 (Yes)

Question	Score	Explanation	Reference
(1) Process: Have marginalized communities participated meaningfully in the policymaking process with sufficient support?	5 (4) 3 2 1	Mostly yes. Frontline communities were able to participate in dockets at the NY PSC, but it is questionable if they were meaningfully heard.	Party comments can be found online.[129]
(2) Restoration: Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the energy system?	5 4 (3) 2 1	Somewhat. New York's CDG policy seeks to address energy-related burdens for low-income and environmental justice communities, however does not include environmental justice components in the value of solar.	
(3) Decision-making: Does the policy center the decision-making of marginalized communities?	5 4 3 (2) 1	A little bit. The concept of providing avenues for agency and meaningful decision-making related to the production of energy did not have much traction with policymakers.	
(4) Benefits: Does the policy center economic, social, or health benefits for marginalized communities?	5 4 3 (2) 1	Not currently, but may in the future. Despite advocacy to quantify and include public health, economic, and other social benefits of a solar project, the value stack currently does not include such components.	
(5) Access: Does the policy make energy more accessible and affordable to marginalized communities?	5 4 (3) 2 1	Somewhat. Theoretically yes, but unclear if so in practice. The policy should allow for expanded access but benefits may go to developers and there are various barriers to access and affordability.	
Total Score	14 / 25		

Section 3.3 - Lessons from Community Energy Case Studies

The case studies offer three key lessons for community energy policies consistent with energy justice:

(1) community participation in policy development and program design;
(2) energy pricing and valuation structures that make projects viable and attractive to customers and developers; and
(3) sustainable business models that enable community decision-making and control over customer-generated energy resources while balancing the need to target priority customers and provide consumer protection.

Lesson 1: Community Participation

In both the California and New York contexts, community participation was a crucial element. Adequate community participation requires that voices are engaged, heard, and genuinely responded to. For example, while stakeholders in New York felt as though the final outcome did not tie back to overarching goals and community input, to some degree California's CSGT program represents progress in soliciting comments from community representatives on overarching goals and referencing those goals later on during the process.

Lesson 2: Pricing and Valuation

Both the California and New York programs struggle with pricing solar in their community energy policies. First, at a basic level, the pricing structure is a threshold issue that will determine if any projects are economically viable under the policy. The outcome in New York appears to have provided more certainty that at least some projects can get built, while that is a matter still to be determined in California. Second, the valuation of energy from certain types of projects is also a potential driver for equitable non-energy benefits such as public health, community wealth, and other social benefits. However, both California and New York have yet to include value adders or incentives for those projects that drive more community benefits than other projects.

Lesson 3: New Business Models

The case studies present lessons on developing and transitioning to sustainable business models for community self-generation of renewable energy. First, these experiences highlight the need to adapt the conventional utility model of centralized energy production sold as a commodity to customers to one where individuals and communities have agency, governance, and decision-making around their own production of clean energy. Second, considering equity means both ensuring that programs include and provide benefits to specific target customer groups such as low-income households, while ensuring protection from deceptive business practices.

Reflection on Using the Energy Justice Scorecard for Community Energy Policy

Applying the Energy Justice Scorecard to this arena highlights a key balancing issue in the community energy realm: How can community energy policy prioritize robust benefits for traditionally marginalized utility customers while also making community energy projects feasible for development? Questions 1-4 help to analyze the inclusivity of process and benefits, while question 5 demonstrates the importance of project feasibility. If projects cannot get built, no one will see purported benefits. But without meaningful community participation and evaluating disparate historical harms and present burdens, projects could get built in ways that further exacerbate inequities.

The Scorecard questions help to identify underlying elements that should be considered in designing an equitable community solar policy:

(1) Process: *Have marginalized communities participated meaningfully in the policymaking process with sufficient support?*

- In the community energy context, this could be analyzed in regards to legislative policymaking, but is more likely to have more applicability in terms of regulatory policymaking in a state-level public service/utility commission proceeding. However, this could also occur at the municipal level or through a utility's own internal process in some cases.
- Key considerations include whether accessibility, income, language, or other barriers are addressed to ensure community members can participate; whether there is financial compensation for time spent contributing to the policymaking; and whether the ultimate policy decision-makers have an obligation to respond to public comments and state why they have or have not been addressed.
- Public understanding of the terms and concepts being used in a policymaking forum is critical for meaningful engagement, so key concepts should be explained via print, online, and/or in-person meetings, including virtual net energy meeting, tariffs, power purchase agreements, and procurement mechanisms.

(2) Restoration: *Does the policy aim to remedy prior and present harms faced by communities negatively impacted by the fossil-fuel based energy system?*

- A key mechanism for ensuring such harms are considered is a mapping tool based in large part on disparate pollution burdens, such as the CalEnviroScreen tool developed by the California EPA. The US EPA has a similar tool, and various states are also developing their own. Such a tool can allow for geographic targeting of participation, benefits, and incentives.
- A robust community solar policy would consider mechanisms for prioritizing projects that reduce pollution in these neighborhoods (such as by reducing demand for nearby fossil-fuel plants) in addition to other community benefits from renewable projects.

(3) Decision-making: *Does the policy center the decision-making of marginalized communities?*

- The policy should promote community self-determination, governance, and agency through cooperative ownership or control of renewable energy assets. Moreover, it should support the efforts of community-based organizations that serve marginalized populations to advance energy democracy for their communities.
- Policy mechanisms such as application prioritization, financial adders, and other incentives can promote equitable community-based projects.

(4) Benefits: *Does the policy center economic, social, or health benefits for marginalized communities?*

- The above questions build upon each other and lead to this focus on robust benefits to marginalized community beyond just renewable energy itself, in addition to prioritizing fossil-fuel harmed communities and community decision-making.
- Equitable community solar policies can advance deep impacts with requirements and designs that advance meaningful bill savings; family-sustaining jobs training; community wealth-building and investment opportunities; cleaner air from avoided fossil fuel extraction and generation; reduced fires, costs, and power shutoffs from less reliance on transmission lines; and resilience from power outages through pairing solar with storage.

(5) Access: *Does the policy make energy more accessible and affordable to marginalized communities?*

- As mentioned above, a fundamental issue here is ensuring that pricing and valuation structures making projects feasible and attractive both for developers (ideally community-based ones) and customers. In addition to compensation methods based on retail rates, programs could guarantee a certain amount of savings for customers, or payments to developers.

- Many other mechanisms could be considered. Minimum participation requirements can ensure projects must include a certain percentage of low-income customers but should be balanced with economic incentives to make sure projects can still be financed and constructed. Various groups have developed new methods of evaluating the likelihood a customer pays bills, and more equitable approaches should be utilized as opposed to conventional credit checks. Allowing the limited participation of anchor commercial customers (such as schools, nonprofit organizations, or municipal customers) in a community solar project might make participation more accessible or affordable to residential customers.

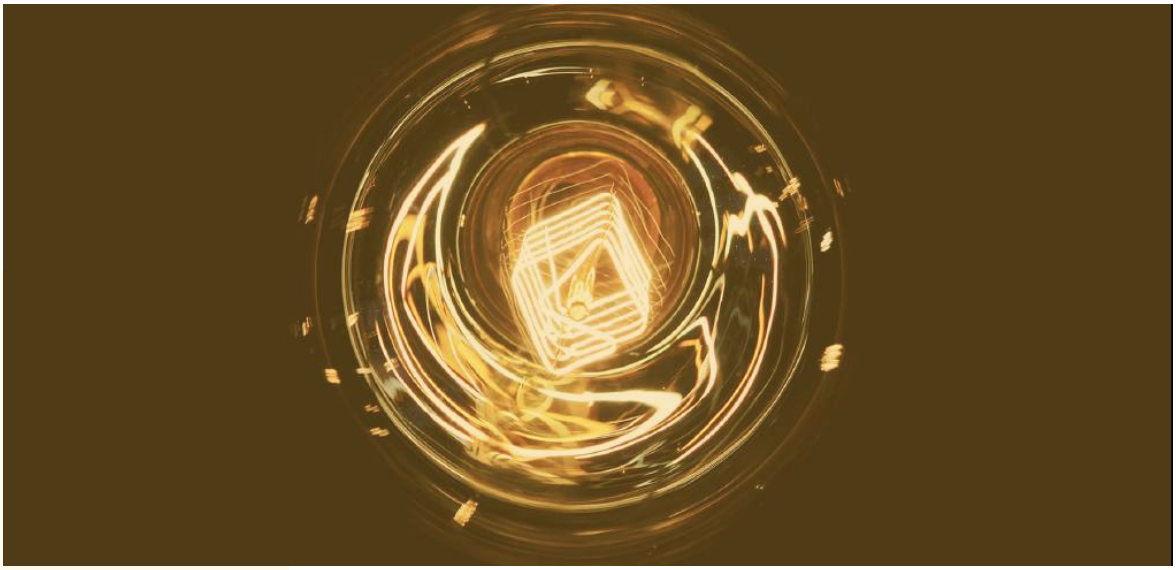
Equitable Community Solar Framework

In light of the case study lessons and Scorecard-based analysis of community solar programs, the elements of good community solar policy becomes more clear. First, instead of simply defining community solar, we can propose a definition of what equitable community solar looks like. Equitable community solar (1) allocates energy and benefits from one solar system to multiple customers via viable economic incentives, (2) intentionally engages and centers participation of marginalized populations, and (3) prioritizes local community self-generation and ownership of energy resources.

The overall goal of an equitable community solar policy is the achievement of robust, justice-oriented impacts, as determined by an equitable process. In sum, from the advocacy, writings, and participation of environmental, economic, and social justice communities, such a process will likely identify, at a minimum, potential outcomes such as equitable economic, health, grid, resilience, and environmental benefits. As emphasized previously, local communities, advocates, and policymakers must go through as process of identifying goals, and then design a program to achieve them.

The definition of equitable community solar laid out above helps illuminate key program objectives for an equitable community solar policy that will ultimately lead to the overall goal of robust, justice-oriented impacts. And the high-level objectives give structure, direction, and purpose for underlying mechanisms in the policy design. Each element of the definition can be summarized generally into three objectives:

(1) Project Feasibility - allocates energy and benefits from one solar system to multiple customers via viable economic incentives
(2) Equitable Participation - intentionally engages and centers participation of marginalized populations
(3) Community Control - prioritizes local community self-generation and ownership of energy resources



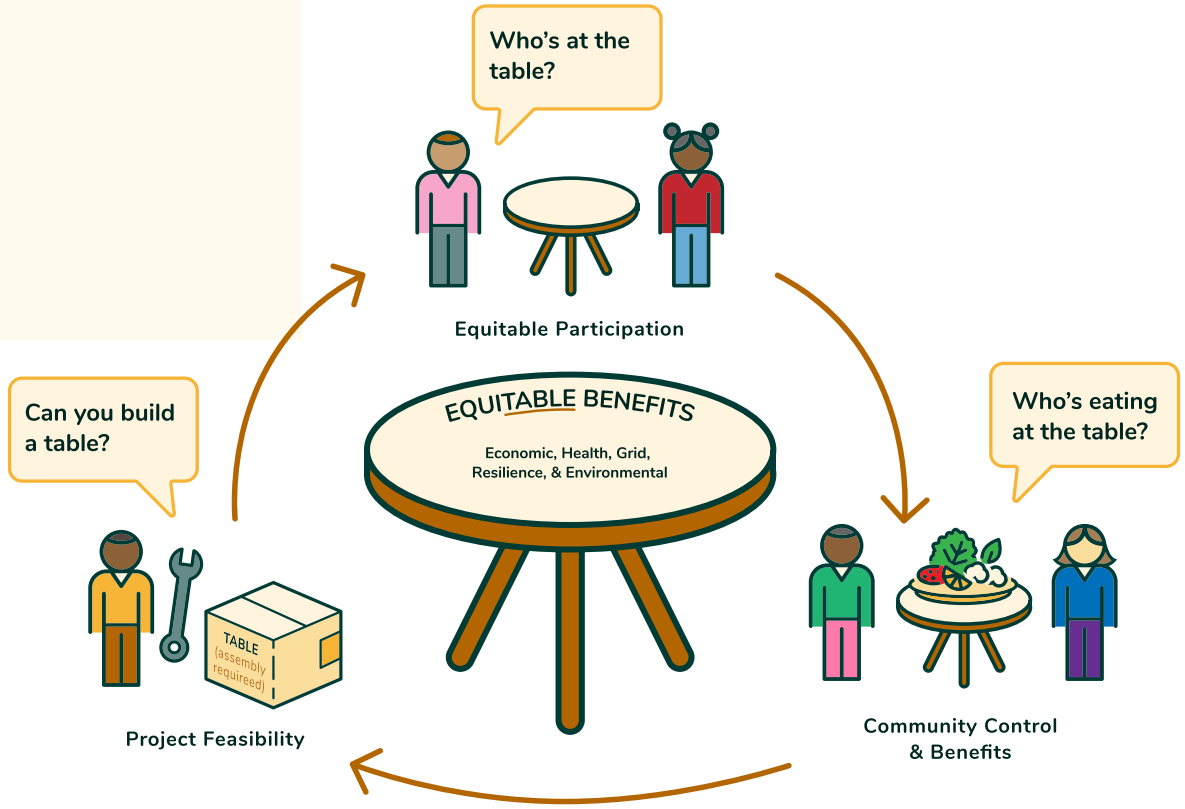


Diagram 12: Equitable Community Solar Framework

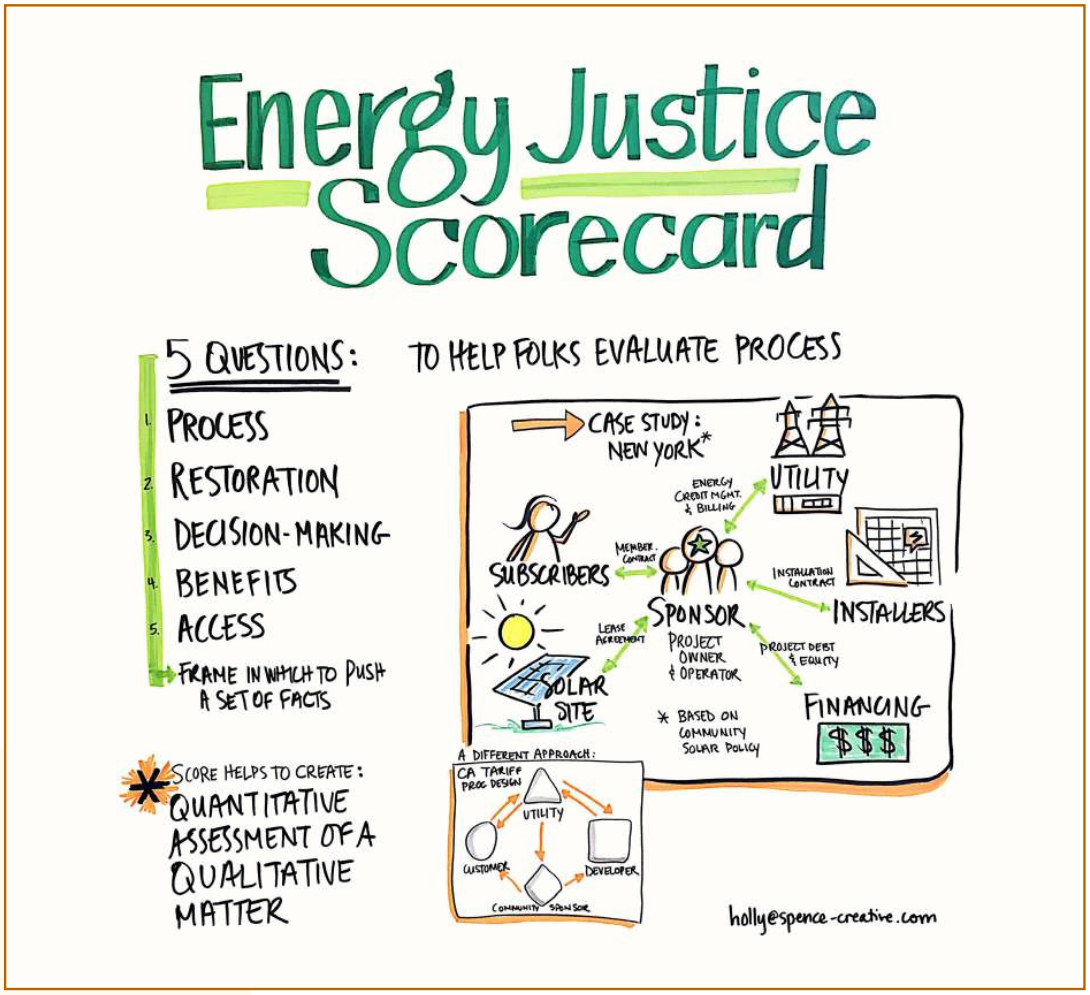
The three program objectives can also be framed as: 1) can projects get built?, 2) are they designed to include marginalized communities?, and 3) are they designed to deliver robust economic, health, and social benefits by allowing communities to own and control energy resources? Or in other words: 1) can you build a table?, 2) who's at the table?, and 3) who's eating at the table?

By delving into the questions that the Energy Justice Scorecard asks, not only does it become evident that we can approach policies in such a way that advances both an equitable and rapid transition to renewables – we *must*. It is our moral imperative.

Conclusion

As the long history of the grassroots struggle for social justice and decolonization intersects with the disparate harms posed by the climate crisis, the concept and urgency of energy justice begins to crystalize. Yet beyond the potential for disaster lies the opportunity of a just transition to a regenerative clean energy economy – along with the dignified work, wellbeing, and shared wealth that it offers. Whatever our planet's outcome – from catastrophe to justice or somewhere in between – it is not inevitable. The generation alive today will determine not just the temperature of the planet that future generations will inherit, but the level of justice or injustice that they will experience.

We hope this Workbook contributes to this social and political discourse for advocates and policymakers by demystifying what energy justice is and how we can achieve it through policymaking. Our effort to propose a definition for energy justice, and a tool to operationalize it through the Energy Justice Scorecard, is just one part of a vast and ongoing movement and dialogue to achieve energy justice, environmental justice, climate justice, energy democracy, and more. It is our hope that this Workbook serves as a vehicle for brainstorming policy campaigns and positions, a practice guide for engaging in policymaking, or simply food for thought and conversation. The more we can visualize responding to our interconnected crises of inequity and climate change in a transformative manner, and the more we can paint a picture of how we get there, the more we convert hope to reality.



Notes, Glossary, and Appendix

Glossary of Terms

Climate Justice: Climate justice is the remediation of the impacts of climate change on poor people and people of color, and compensation for harms suffered by such communities due to climate change.[130]

Community Energy/Solar: Community energy is short for community renewable energy and refers to cooperatively generating renewable energy such as solar.

Distributed Generation: "Distributed generation, also called on-site generation or decentralized generation, is the term for generation of electricity from sources that are near the point of consumption, as opposed to centralized generation sources such as large utility-owned power plants.... Distributed generation systems, which can include on-site renewable energy systems and combined heat and power (CHP), reduce the amount of energy lost in transmitting electricity because the electricity is generated near the point of consumption, often even in the same building or facility."[131]

Distributive/Substantive Justice: Distributive or substantive justice is outcome focused, and speaks to whether all equally share in the benefits and burdens of the energy system.

Energy Democracy: Energy democracy is the notion that communities should have a say and agency in shaping and participating in their energy future.[132]

Energy Justice/Equity: The goal of energy justice or energy equity is to achieve equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those historically harmed by the energy system.

Environmental Justice: Environmental justice is the recognition and remediation of the disproportionately high and adverse human health or environmental effects on communities of color and low-income communities.[133] The key principles of the movement include fair distribution of the burdens of development, and involvement in all aspects of "the development, implementation and enforcement of environmental laws, regulations and policies."[134]

Environmental Justice Communities: Environmental justice communities "are commonly identified as those where residents are predominantly minorities or low-income; where residents have been excluded from the environmental policy setting or decision-making process; where they are subject to a disproportionate impact from one or more environmental hazards; and where residents experience disparate implementation of environmental regulations, requirements, practices and activities in their communities. Environmental justice efforts attempt to address the inequities of environmental protection in these communities."[135] Some state and local governments define environmental justice communities by specific metrics including, the percentage of the population below the poverty line,[136] the rate of toxic cancer among the community,[137] and the makeup of the community by race and ethnicity.[138]

Equity/Justice: Equity or justice "refers to achieved results where advantage and disadvantage are not distributed on the basis of"[139] social identities. "Strategies that produce equity must be targeted to address the unequal needs, conditions, and positions of people and communities that are created by institutional and structural barriers."[140]

Frontline Communities: Frontline communities are the communities experiencing the first and worst of climate change consequences, specifically those most impacted by the energy system and the resulting pollution. Frontline communities include, but are not limited to communities of color, low-income communities, indigenous communities, and communities surrounded by extractive energy production.

Just Transition: The just transition refers to a transition away from the fossil-fuel economy to a new economy that provides "dignified, productive, and ecologically sustainable livelihoods; democratic governance; and ecological resilience."[141]

Marginalized Communities/Populations/Peoples: Marginalized communities are communities denied involvement in mainstream economic, political, cultural and social activities. Marginalization or social exclusion deprives a group from access to basic rights and participation in decision making. Marginalized communities include, but are not limited to, frontline communities, low-income and/or working class communities, and those historically disenfranchised by racial and social inequity (e.g., minority identities based on race, ethnicity, sex, gender, sexual orientation, and ability status).

Net Energy Metering: Net Energy Metering refers to an on-site renewable energy system's accounting "for the value of the electricity produced when production is greater than demand. Net metering allows customers to bank this excess electric generation on the grid, usually in the form of kilowatt-hour (kWh) credits during a given period. Whenever the customer's system is producing more energy than the customer is consuming, the excess energy flows to the grid and the customer's meter 'runs backwards.' This results in the customer purchasing fewer kilowatt-hours from the utility, so the electricity produced from the renewable energy system can be valued at the retail price of power."[142]

Power Purchase Agreement: A Power Purchase Agreement "is an agreement between a wholesale energy producer and a utility under which the utility agrees to purchase power. The [Power Purchase Agreement] includes details such as the rates paid for electricity and the time period during which it will be purchased."[143]

Procedural Justice: Procedural justice concerns who is at the decision-making table, and whether, once at the table, everyone's voice is heard.

Virtual Net Energy Metering: "[V]irtual net metering allows net metering credits generated by a single renewable system to offset load at multiple retail electric accounts within a utility's service territory. As with traditional net metering, credits appear on each individual customer's bill."[144]

Appendix A: An Overview of Energy Justice in Academic Literature

How do Social Scientists Conceptualize Energy Justice?

Key Terms:
- Energy Justice
- Energy Democracy
- Energy Insecurity
- Energy Burden

Northern European scholars currently dominate the energy justice academic landscape, producing over one hundred articles on the topic since 2014. In particular, four scholars have made the biggest impact on the field: Benjamin Sovacool, Darren McCauley, Raphael Heffron,[145] and Kirsten Jenkins. Over the past seven years, these authors have come to define energy justice as "a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making."[146] Energy justice is also comprised of a triumvirate of tenets that include distributional justice, procedural justice, recognition justice[147] and, more recently, restorative justice. All of the tenets should apply across the life cycle of the energy system.[148] Sovacool has also advanced the concept of "eight core principles" of energy justice: availability, affordability, due process, transparency and accountability, sustainability, intra-generational equity, inter-generational equity, and responsibility.[149]

As Heffron and McCauley note, these "defined concepts of energy justice compete with each other and at the same time complement each other."[150] Further, a "major limitation of the approaches outlined above—the triumvirate of tenets, energy life-cycle (systems) approach, and the principle-based approach—is that there is little reflection of how these transfer into practice and are 'enforced' in practice, i.e. energy justice becomes a delivered outcome through policy."[151] Despite these shortcomings, it is useful to review the key aspects of the foregoing frameworks.

In McCauley et al.'s assessment, distributional justice is concerned with the spatial dimensions of energy, in particular, the "physically unequal allocation of environmental benefits and ills and the uneven distribution of their associated responsibilities."[152] Procedural justice "manifests as a call for equitable procedures that engage all stakeholders in a non-discriminatory way."[153] Recognition justice relates to procedural justice, but contains additional elements. According to McCauley et al., recognition justice is "more than tolerance, and states that individuals must be fairly represented, that they must be free from physical threats and that they must be offered complete and equal political rights."[154] Further, recognition justice "includes calls to recognise the divergent perspectives rooted in social, cultural, ethnic, racial and gender differences[.]"[155] Restorative justice "aims to repair the harm done to people (and/or society/nature)."[156] The concept applies when "applying energy justice decision-making forces decision-makers to engage with justice concerns and consider the full range of issues, as any injustice caused by an energy activity would have to be rectified."[157]

Applying these complex conceptual frameworks within policy-making and real-world scenarios poses a challenge. Heffron and McCauley suggest that, in "looking at the energy justice conceptual framework, one begins with looking at the core tenets of the energy justice [framework] to see if they are present before then broadening their scope to see where the issues fits within the energy life-cycle (or energy system) in the context of having a world-view, i.e. a cosmopolitan perspective. They then look at how to apply energy justice in practice and look for how the problem, issue, and/or challenge they are researching can be addressed (or not) by the [eight] principles."[158] **Diagram 13**, below, reflects this analytical approach.

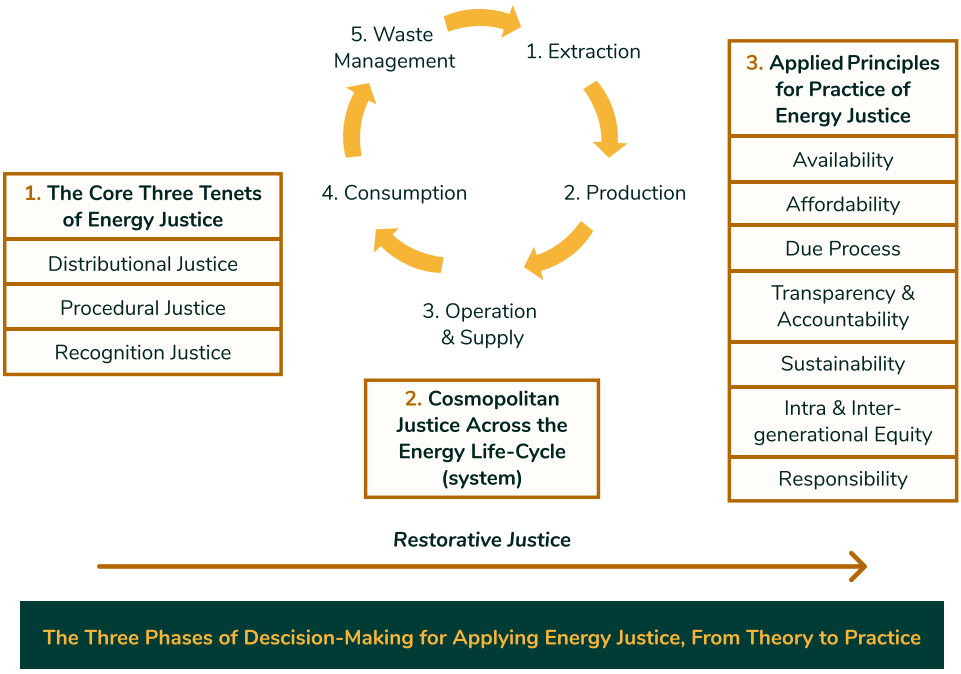


Diagram 13: Heffron and McCauley (2017).

Before moving into the legal literature, three related concepts, energy democracy, energy insecurity, and energy burden, deserve discussion, as they also fit under the broad umbrella of energy justice.

Energy Democracy

As with environmental justice and climate justice, energy democracy exists both as an organizing principle for activists as well as an area of increasing scholarly engagement.[159] Energy democracy, the movement, "seeks to create opportunities for destabilizing power relations, reversing histories of dispossession, marginalization and social and environmental injustices, and

replacing monopolized fossil fuel energy systems with democratic and renewable structures."[160] Borrowing from the Trade Unions for Energy Democracy approach to energy democracy, scholars Matthew Burke and Jennie Stephens note that the energy democracy goals include: (1) **resisting** the dominant fossil fuel agenda in order to shift to 100% renewable energy resources; (2) **reclaiming** public control of the energy sector; and (3) **restructuring** the energy sector to "better support democratic processes, social justice and inclusion, and environmental sustainability."[161]

For some, energy democracy does not always incorporate equity-based principles or a historical analysis,[162] and the use of the term, "democracy" can actually mask inequality. Under this approach, energy democracy could simply mean democratizing the energy system to allow for participation in energy production and ownership. Such participation may, by design, privilege those with access to financial resources and other types of capital that flow from an unequal society. This ahistorical, equity-blind approach to energy democracy threatens to replicate the injustices in the existing energy system by "democratizing" the grid and opportunities for self-generation of electricity only for those who can afford it, rather than emphasizing broader grid access for those whose voices have traditionally been excluded from energy decisions affecting their communities.[163] Policymakers and advocates should thus use caution and be clear when using this term to reflect more meaningful opportunities to participate in the energy system.

> "An ahistorical, equity-blind approach to energy democracy threatens to replicate the injustices in the existing energy system by '**democratizing**' the grid and opportunities for self-generation of electricity only for those who can afford it, rather than emphasizing broader grid access for those whose voices have traditionally been excluded from energy decisions affecting their communities."

Energy Insecurity and Energy Burden

Diana Hernández's work has explored the concept of "energy insecurity," which "reflects hardships with the cost and quality of household energy" and is "defined as 'the inability to meet basic household energy needs.'"[164] Energy insecurity also "describes the interplay between physical conditions of housing, household energy expenditures and energy-related coping strategies."[165] Energy insecurity frequently appears alongside "energy burden," a term that reflects the amount of overall household income spent to cover energy costs. The concerns of low- to moderate-income communities fit under both conceptual frameworks, as studies indicate that such communities consistently find themselves making difficult choices that balance energy expenditures against other household expenses, and simply pay a greater portion of their overall income to cover energy costs. An energy justice approach to energy policy would aim to remediate such burdens by making access to clean energy affordable to those most burdened under the existing energy system.

> "An energy justice approach to energy policy would aim to remediate the financial burdens of energy by making clean energy affordable and accessible to those most burdened under the existing energy system."

In sum, social scientists have attempted to create a conceptual framework for energy justice that includes procedural, distributive, and recognition justice, as well as restorative justice, across the life cycle of the energy system. The framework also includes a consideration of certain principles of energy justice: availability, affordability, due process, transparency and accountability, sustainability, intra-generational equity, and inter-generational equity. Participation (energy democracy), burden of energy costs relative to other household expenditures and income (energy burden), and ability to meet energy needs (energy insecurity), also form a part of the broad picture of energy justice as conceptualized by social scientists in the field.

As noted above, this mix of terms and definitions create challenges for practitioners and policymakers seeking deeper understanding of a coherent framework for energy justice. The Workbook addresses this difficulty in Section 1.3, where the different approaches to energy justice and related concepts are synthesized into a coherent frame. Further, although social scientists have developed a robust energy justice literature, it is largely separate from the legal academics discussing energy justice and related terms. This disconnect also illustrates the need for a synthesized approach to energy justice within the policy arena. Below we provide an overview of the discussion by legal scholars around concerns of equity and fairness within the energy system.

How is the Concept of Energy Justice used in Legal Literature?

Key Terms:
- Energy Justice
- Clean Energy Justice
- Clean Energy Equity
- Energy Democracy
- Energy Poverty
- Energy Insecurity

Although the first mention of energy justice in scholarship appears in a 2010 article, *Energy Justice and Sustainable Development*, by legal scholar, Lakshman Guruswamy,[166] with few exceptions,[167] legal scholars have done little to advance a concrete understanding of the field of energy justice. In fact, at least one scholar suggests that there is no need for a "uniform definition of what energy justice means or what it seeks to achieve."[168] Such a dearth of "energy justice" scholarship is ironic in a field like law, which is committed to justice and equity, but rather than make explicit mention of "energy justice" through a series of self-referential debates (as we see in the social science literature), in legal scholarship, discussions of energy justice have generally evolved to include scattered discussions of "energy poverty,"[169] "energy democracy,"[170] "clean energy justice,"[171] "clean energy equity,"[172] and "fairness."[173] Moreover, legal scholars go a bit further than social scientists by, in some cases, attempting to discuss equity across a range of policy areas, such as distributed energy generation policy.

While the term, "energy justice" is used rarely and is often not fully fleshed out, there is at least some consensus in legal scholarship that energy justice closely relates to environmental justice and should, at the very least, build upon its key principles of distributive and procedural justice.[174] Unlike practitioners, however, legal scholars do not center the concerns or voices of frontline communities or advocates. The following discussion provides an overview of the varying viewpoints of legal scholars. Our overview illustrates that there is no singular vocabulary concerning energy justice, but the concepts elaborated by scholars tend to align along the axes of procedural and distributive justice.

Energy Poverty

Lakshman Guruswamy is credited with introducing the concept of energy justice to the academic community. His 2010 law review article concerns itself with the "energy oppressed poor, defined as people "devoid of life sustainable energy." In the article, he brings together two terms, energy and justice, to suggest that, as a single term, "[e]nergy justice seeks to apply basic principles of justice as fairness to the injustice evident among" the energy oppressed poor" and that energy justice "is an integral and inseparable dimension of the universally accepted foundational principle, or groundnorm, of international law and policy."[175] Guruswamy's later work evolves: "energy oppressed poor" becomes the "energy poor" and "energy justice," converts to "energy poverty."[176]

Most legal scholars have diverged from this narrow focus on energy poverty to discuss the range of energy issues that face the most vulnerable populations. For example, in her article discussing energy justice, Joroff connects energy poverty concepts to the domestic U.S. sphere, referencing the "energy burdens" that force low-income families that face "disproportionately high energy costs relative to income" to make dangerous tradeoffs that "can jeopardize health, safety,

and housing stability," rendering children and the elderly particularly vulnerable.[177] Others have tended to blend the conceptual approaches taken by leading social scientists to flesh out the term.

Energy Justice

Unlike Guruswamy, Shalanda Baker's (a co-author of this Workbook) work on energy justice takes perhaps the broadest view of energy justice. In a 2012 article exploring energy justice within the context of Mexico's transition away from fossil fuels to cleaner energy, *Mexican Energy Reform, Climate Change, and Energy Justice in Indigenous Communities*, Baker argues that energy justice incorporates climate justice, environmental justice, and energy democracy.[178] Energy justice, she argues, "requires that development activities bear in mind the need to reduce vulnerability to climate change and enhance resiliency when possible."[179] Further, certain communities should not be disproportionately burdened by development in the transition to renewable energy. Finally, referencing the indigenous right to free, prior, and informed consent in matters that affect them, Baker states that "[d]evelopment rooted in energy democracy thus allows for broader community participation."[180]

In another departure from the social science literature, legal scholars exploring energy justice concepts and theories beyond energy poverty have tended to examine justice (or fairness) across a range of policy debates concerning the participatory grid (e.g., individual and community participation in electricity generation), including, for example, net energy metering, community solar, and community choice aggregation. Although fully-fleshed out discussions of energy justice are rare in the legal literature, Welton distinguishes "energy justice" from "clean energy justice," by noting that, in each case, the focus is on distributive justice with respect to the energy system, whether that be a system powered by clean energy and smart technology, or one organized around fossil fuels.[181] Further, Welton notes, electricity law has a "long-standing equity commitment," which can help to guide the suite of justice-based challenges that have emerged with the clean energy transition.[182]

Energy Democracy

Defining energy democracy has proven more difficult. As Welton argues in *Grasping for Energy Democracy*, several competing definitions present a "troubling hurdle to the project of democratizing the field, as different conceptions of the term counsel for divergent legal reforms."[183] In the article, Welton outlines three concepts of energy democracy that have emerged in discussions of energy reform:

- **consumer choice**, which suggests that "[e]nergy governance regimes should be redesigned to give consumers more choices in their energy purchasing decisions, including more control over their level of energy demand and the opportunity to generate, store, and sell their own electricity";
- **local control**, which decentralizes energy decision making to local communities "claiming ownership and control of energy resources and control over energy decision making";
- **access to process**, which urges regulators to "embrace procedural reforms that enable more citizens to participate in governmental decision making processes about energy policy across all levels of government."[184]

Here, Welton makes a compelling argument for convergence of definitions and coherence within scholarship to adequately inform policymakers. She states that "[n]umerous other scholars are writing around the concept of energy democracy without labeling it as such: those embracing localism as a climate change strategy; those considering the evolving mandate and powers of public utility commissions; those exploring the relationship between federal energy markets and state policy objectives; and those focused on the opportunities and challenges posed by new, small-scale energy technologies."[185] Further, she notes that energy democracy itself remains incoherent in scholarship, flying "under other reform banners, including those of consumer empowerment, consumer participation, local energy, and energy justice."[186]

Additional discussions of justice-related concerns within the legal literature concerning energy policy argue for less "polarizing" and politically fraught approaches to transitional policy, arguing for equity-based approaches rooted in the familiar cost-benefit analysis framework.[187] Although cost-benefit analysis in policy has done little to advance the aims of deep justice in poor and low-income communities of color, Felix Mormann argues that equity, framed in cost-benefit terms, "offers a reliable metric of socio-economic impact."[188] That said, however, Mormann ultimately calls for deeper participation in the formation of clean energy policies (feed-in tariffs, tender regimes, net energy metering, tax credits, and renewable portfolio standards), in order to avoid unintended negative distributional problems.

In sum, although the current legal approach to energy justice is somewhat scattered and even internally inconsistent, the legal field contributes to the overall understanding of energy justice by hewing closely to the principles of distributive and procedural justice. Operationalizing these concepts across a suite of policies, however, poses a key challenge. Section 1.3 of the Workbook synthesizes the practitioner and academic approaches to energy justice with the goal of providing a condensed framework to guide energy policymaking.

Appendix B: Library of Advocate Terminology

We developed this Library of Advocate Terminology to get a general sense of the use of the terms "energy justice," "energy democracy," and "energy equity" in the advocacy sphere, specifically relating to how the groups themselves define them and characterize their work using the terms. The analysis revealed that for most groups, energy democracy includes a component of community empowerment through transitioning control of energy generation and distribution to the public. Energy democracy also includes equitably distributing both the benefits and harms of energy infrastructure across all communities and stakeholders, which will remedy the current disproportionate harm being done to low-income and minority groups. The analysis also showed that while few groups use the term "energy justice," many include a justice component in their work, which is often framed in terms of social, racial or environmental justice.

Organization	Location	Key Word	Definition of Energy Justice/ Democracy/Equity
Center for Social Inclusion / Race Forward	New York, NY	energy democracy	"Energy democracy means that community residents are innovators, planners, and decision-makers on how to use and create energy that is local and renewable. By making our energy solutions more democratic, we can make places environmentally healthier, reduce mounting energy costs so that families can take better care of their needs, and help stem the tide of climate change." [189] "Energy democracy means ensuring that local communities are innovators, planners, and decision-makers on how to use and create energy that is local and renewable and moves us closer to racial justice." [190]
Institute for Local Self-Reliance	MN, ME, DC	energy democracy	"Energy democracy means both the sources and ownership of energy generation are distributed widely. Energy democracy means that the management of the energy system be governed by democratic principles that allows ordinary citizens to have a say. This means that communities that wish greater control over their energy system should have minimal barriers to doing so. Energy democracy means that the wide distribution of power generation and ownership, and access to governance of the energy system be equitable by race and socioeconomic status." [191]
Trade Unions for Energy Democracy	New York, NY	energy democracy	"Energy democracy must include a decisive shift in power over energy transition activities towards workers, communities and the public. A transfer of resources, capital and infrastructure from private hands to a democratically controlled public sector will need to occur in order to ensure that a truly sustainable energy system is developed in the decades ahead." [192]
Energy Justice Network	Philadelphia, PA	energy democracy	"We seek to ensure that all members of our global society share the same rights to protect and democratically determine the sustainable use of our air, land, food, water and energy resources, so that future generations may thrive." [193]
New York Energy Democracy Alliance	New York	energy democracy	"Our work to promote energy democracy is designed to move the state toward a better system, one in which residents have the right and the authority to determine their own energy future, to protect our most vulnerable populations, and to prevent the wholesale destruction of our precious ecosystems. Putting ownership and control over the means of sustainable energy production into the hands of everyday people, into the hands of municipalities, and into the hands of local businesses." [194]
Soulardarity	Highland Park, MI	energy democracy	"Energy Democracy is the idea that the people most impacted by energy decisions should have the greatest say in shaping them." [195]

Organization	Location	Key Word	Definition of Energy Justice/ Democracy/Equity
Partnership for Southern Equity	Georgia	energy equity	"Against the backdrop of global climate change, 'energy equity' translates into the fair distribution of benefits and burdens from energy production and consumption." [196]
Kentuckians for the Commonwealth	Kentucky	just transition	"The term Just Transition describes an all-in, inclusive, and place-based process to build economic and political power to shift from an extractive economy to a regenerative one. A Just Transition requires solutions that ensure the well-being of workers and communities; address racial, economic and gender injustice; protect our health, environment and climate; and create meaningful, good jobs and a thriving and sustainable economy." [197]
Climate Justice Alliance	National	energy democracy	"Energy Democracy represents a shift from the corporate, centralized fossil fuel economy to one that is governed by communities, is designed on the principle of no harm to the environment, supports local economies, and contributes to the health and well-being for all peoples." [198]
Centre for Sustainable Energy	UK	energy justice	"Achieving a degree of 'fairness' or 'justice' in climate policy may therefore be key to initiating public action on climate change. It is also a core component of sustainability. We've been exploring this subject – which we call 'energy justice' – to establish a clearer picture of how to achieve a socially just climate policy within the UK." [199]
California Environmental Justice Alliance	California	environmental justice	"CEJA is working to build democratic, equitable solutions to pollution, poverty and racism that do not reproduce ecologically and socially harmful systems."[200]
Local Clean Energy Alliance	California	energy democracy	"Energy Democracy: maximizing community ownership and control of energy resources, with shared leadership and decision-making authority that involves all stakeholder communities." [201]

References

[1] Shalanda H. Baker, *Mexican Energy Reform, Climate Change, and Energy Justice in Indigenous Communities*, 56 Nat. Resources J. 369, 379-80 (2016); see also Darren McCauley & Raphael Heffron, *Just Transition: Integrating Climate, Energy, and Environmental Justice*, 119 Energy Pol'y 1, 1 (2018) (arguing that just transition conceptual frame can unite "climate, energy and environmental [] justice to provide a more comprehensive framework for analysing and ultimately promoting fairness and equity throughout the transition from fossil fuels.").
[2] See Ann M. Eisenberg, *Just Transitions*, 92 S. Cal. L. Rev. 273, 280-81 (2019) (noting that the term, "just transition" arises in the context of the energy transition as well as the nexus between labor and environmental reform); see Darren McCauley & Raphael Heffron, *Just Transition: Integrating Climate, Energy, and Environmental Justice*, 119 Energy Pol'y 1, 1 (2018) (noting that "just transition" emerged from the global trade unions in the 1980s). The Climate Justice Alliance frames the "just transition" as a move "away from the global 'dig, burn, drive, dump economy,' towards a vision of many local, living, caring and sharing economies." *Our Power Puerto Rico History of the Climate Justice Alliance*, Climate Just. Alliance, https://climatejusticealliance.org/cja-history/ (last visited Nov. 19, 2019).
[3] *Movement Generation Just Transition Framework Resources*, Movement Generation Justice & Ecology Project, https://movementgeneration.org/movement-generation-just-transition-framework-resources/ (last visited Nov. 19, 2019).
[4] Diana Hernández & Stephen Bird, *Energy Burden & the Need for Integrated Low-Income Housing & Energy Pol.*, 2 Poverty & Pub. Pol. 5, 7 (2010); Lakshman Guruswamy, *Energy Justice and Sustainable Development*, 21 Colo. J. Int'l Envtl. L. & Pol'y 231, 234, 255-58 (2010) (framing energy justice as the lack of access to energy by "the other third," individuals living in Sub-Sahara Africa and Asia).
[5] Lakshman Guruswamy, *Energy Justice and Sustainable Development*, 21 Colo. J. Int'l Envtl. L. & Pol'y 231, 257 (2010).
[6] Matthew J. Burke & Jennie C. Stephens, *Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions*, 33 Energy Res. & Soc. Sci. 35, 36 (2017); Sean Sweeney, *Resist, Reclaim, Restructure: Unions and the Struggle for Energy Democracy*, Trade Unions for Energy Democracy (Apr. 2013), http://unionsforenergydemocracy.org/wp-content/uploads/2014/05/resistreclaimrestructure_2013_english.pdf; Denise Fairchild & Al Weinrub, *Energy Democracy: Advancing Equity in Clean Energy Solutions* 1-2 (2017); James Angel, Strategies of Energy Democracy 9 (2016), available at https://www.rosalux.eu/fileadmin/media/user_upload/energydemocracy-uk.pdf.
[7] Robert D. Bullard, Paul Mohai, Robin Saha, & Beverly Wright, *Toxic Wastes and Race at Twenty* (Mar. 2007), https://www.nrdc.org/sites/default/files/toxic-wastes-and-race-at-twenty-1987-2007.pdf.
[8] In 1991, delegates to the First National People of Color Environmental Leadership Summit adopted seventeen principles of environmental justice that helped to galvanize the grassroots movement for environmental democracy. Reflected in the principles are respect for Mother Earth, an acknowledgment of the fundamental right to "political, economic, cultural and environmental self-determination of all peoples," and demands for equal participation "at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation" concerning the environment. For a complete overview of the Principles, see Energy Justice Network, *Principles of Environmental Justice*, Envtl. Just./Envtl. Racism, https://www.ejnet.org/ej/principles.html (last modified Apr. 6, 1996).
[9] Robert D. Bullard, Paul Mohai, Robin Saha, & Beverly Wright, *Toxic Wastes and Race at Twenty* (Mar. 2007), https://www.nrdc.org/sites/default/files/toxic-wastes-and-race-at-twenty-1987-2007.pdf; Richard J. Lazarus & Stephanie Tai, *Integrating Environmental Justice Into EPA Permitting Authority*, 26 Ecology L. Q 617, 617-18, 627 (1999).
[10] Exec. Order No. 12898, Fed. Reg. 7629 at 1-101 (Feb. 16, 1994), available at https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf.
[11] Kristin Jenkins, *Setting Energy Justice Apart from the Crowd: Lessons from Environmental and Climate Justice*, 39 Energy Res. and Soc. Sci 117, 118 (2018) (arguing, among other things, that environmental justice failed to have an impact beyond the grassroots level, and that the concept "lacks defined and recognised content—a structure or approach that can be readily applied at a range of scales in a systematic manner").
[12] Uma Outka, *Fairness in the Low-Carbon Shift: Learning from Environmental Justice*, 82 Brook. L. Rev. 789, 792 (2017) (arguing that environmental justice can and should inform the transition's trajectory *early* to achieve robust integration of the movement's core principles with the legal and physical infrastructure for a low-carbon energy sector.").
[13] See Kristin Jenkins, *Setting Energy Justice Apart from the Crowd: Lessons from Environmental and Climate Justice*, 39 Energy Res. and Soc. Sci 117, 118 (2018) (arguing that environmental justice is more of a U.S.-based movement), *But see generally* Carmen G. Gonzalez, *Environmental Justice, Human Rights, and the Global South*, 13 Santa Clara J. Int'l L. 151 (2015).
[14] Kristin Jenkins, *Setting Energy Justice Apart from the Crowd: Lessons from Environmental and Climate Justice*, 39 Energy Res. and Soc. Sci 117, 118 (2018) (noting that climate justice emerged "in the 1990s, with a focus primarily on: assisting those affected by climate change; sharing the burdens and benefits of climate change; mitigation and adaptation; and reducing $C0_2$ emissions.").
[15] See *Generally* Reilly Morse, Environmental Justice Through the Eye of Hurricane Katrina (2008), available at https://inequality.stanford.edu/sites/default/files/media/_media/pdf/key_issues/Environment_policy.pdf; Shalanda H. Baker, *Anti-Resilience: A Roadmap for Transformational Justice within the Energy System*, 54 Harv. Civil Rights-Civil Liberties L. Rev. 1, 9-10 (2019); see *generally* Naomi Klein, The Battle for Paradise: Puerto Rico Takes on the Disaster Capitalists (2018).
[16] *People's Agreement*, World People's Conf. on Climate Change & the Rts. of Mother Earth (Apr. 22, 2010), https://pwccc.wordpress.com/support/.
[17] See *Our Power Puerto Rico History of the Climate Justice Alliance*, Climate Just. Alliance, https://climatejusticealliance.org/cja-history/ (last visited Nov. 19, 2019) (noting that a coalition of activist groups including Climate Justice Alliance, "UPROSE, NYC EJ Alliance, Ironbound Community Corporation, IEN, GAIA, GGJ, and a number of allied national green groups and labor unions" organized the Peoples' Climate March).

[18] A Vision For An Equitable And Just Climate Future, https://ajustclimate.org/#platform (last visited Nov. 19, 2019).
[19] A Vision For An Equitable And Just Climate Future, https://ajustclimate.org/#platform (last visited Nov. 19, 2019).
[20] A Vision For An Equitable And Just Climate Future, https://ajustclimate.org/#platform (last visited Nov. 19, 2019).
[21] Raphael J. Heffron & Darren McCauley, *What is the 'Just Transition'?*, 88 Geoforum 74, 74 (2018); Robert D. Bullard & Glenn S. Johnson, *Environmental Justice: Grassroots Activism and the Impact on Public Policy Decision-Making*, 56 J. of Soc. Issues 555, 558 (2000) ("Environmental justice is defined as the fair treatment and meaningful involvement of all people ...with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people...should bear a disproportionate share of the negative environmental consequences").. For the comprehensive set of environmental justice principles set forth by the First National People of Color Environmental Leadership Summit in 1991, see Energy Justice Network, *Principles of Environmental Justice*, Envtl. Just./Envtl. Racism, https://www.ejnet.org/ej/principles.html (last modified Apr. 6, 1996).
[22] Maxine Burkett, *Climate Reparations*, 10 Melb. J. Int'l L. 509, 521-22 (2009).
[23] *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019); see also Jemez Principles for Democratic Organizing (Dec.1996), https://www.ejnet.org/ej/jemez.pdf.
[24] See generally Eleanor Stein, *Energy Democracy: Power to the People?, in* Energy Justice: US And International Perspectives 258 (Raya Salter et al., eds., 2018).
[25] Eleanor Stein, *Energy Democracy: Power to the People?, in* Energy Justice: US And International Perspectives 258, 265 (Raya Salter et al., eds., 2018).
[26] Eleanor Stein, *Energy Democracy: Power to the People?, in* Energy Justice: US And International Perspectives 258, 265 (Raya Salter et al., eds., 2018).
[27] Maxine Burkett, *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism*, 56 Buff. L. Rev. 169, 170, 192-93 (2008).
[28] Aladdine Joroff, *Energy Justice: What it Means and How to Integrate it into State Regulation of Electricity Markets*, 47 Envtl. L. Rep. News & Analysis 10927, 10928 (2017).
[29] Center for Earth, Energy and Democracy, Cecilia Martinez, & Shalini Gupta, *Climate Justice & Energy Democracy: A Platform Vision*, Climate Just. Alliance (2015) https://climatejusticealliance.org/wp-content/uploads/2018/02/Climate-Justice-_-Energy-Democracy-Platform-Vision_Final-2015-1.pdf.
[30] Diana Hernández & Eva Siegel, *Energy Insecurity and its Ill Health Effects: A Community Perspective on the Energy-Health Nexus in New York City*, 47 Energy Res. & Soc. Sci. 78, 78 (2019).
[31] Robert D. Bullard & Glenn S. Johnson, *Environmental Justice: Grassroots Activism and the Impact on Public Policy Decision-Making*, 56 J. of Soc. Issues 555, 558 (2000).
[32] *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019).
[33] *Just Energy Policies & Practices*, NAACP, https://www.naacp.org/climate-justice-resources/just-energy/ (last visited Nov. 21, 2019).
[34] *Energy Democracy*, Center for Social Inclusion, https://www.centerforsocialinclusion.org/our-work/our-programs/energy-democracy (*last visited* April 10, 2019); *Energy Democracy: The Big Picture*, Institute for Local Self-Reliance, https://ilsr.org/energy-democracy-the-big-picture/ (last visited Nov. 21, 2019); *About Us*, N.Y. Energy Democracy Alliance, https://energydemocracyny.org/about-us/ (last visited Nov. 21, 2019); Resources on *Energy Democracy*, Local Clean Energy Alliance, http://www.localcleanenergy.org/EnergyDemocracy (last visited Nov. 21, 2019).
[35] Denise Fairchild & Al Weinrub, *Energy Democracy: Advancing Equity in Clean Energy Solutions* 6 (2017).
[36] Denise Fairchild & Al Weinrub, *Energy Democracy: Advancing Equity in Clean Energy Solutions* 6 (2017).
[37] It is interesting to note that the U.K.-based organization represented in the sample, Centre for Sustainable Energy (CSE), does not feel the same pressure to avoid using the word "justice" to describe its work. However, "justice" in their context takes on a different meaning from that usually found in social and racial justice movements. CSE uses justice to mean fairness in the distribution of the burden of climate action, specifically that every person must feel like his or her required contribution is fair in relation to the contributions of those around them. This definition lacks the restorative and moralistic angles of justice movements in the United States.
[38] *Energy Democracy*, Center for Soc. Inclusion, https://www.centerforsocialinclusion.org/our-work/our-programs/energy-democracy (last visited Apr. 10, 2019).
[39] *Just Transition, Kentuckians for the Commonwealth*, http://kftc.org/campaigns/just-transition (*last visited Apr. 10, 2019*).
[40] *Why Energy Democracy?*, Soulardarity (2014), https://www.soulardarity.com/why_energy_democracy.
[41] *Los Angeles Area Environmental Enforcement Collaborative*, United States Environmental Protection Agency, https://www.epa.gov/environmentaljustice/los-angeles-area-environmental-enforcement-collaborative (last visited Nov. 21, 2019); Liberty Hall Foundation, Drilling Down, The Community Consequences of Expanded Oil Development in Los Angeles (2015), https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf; Tony Barboza, *EPA 'environmental justice' map highlights California's pollution ills*, L.A Times (June 10, 2015), https://www.latimes.com/local/lanow/la-me-ln-environmental-justice-map-20150609-story.html.
[42] *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019).
[43] *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019).
[44] *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019).
[45] On its website, Climate Justice Alliance lays out a comprehensive set of Just Transition Principles that include: Buen Vivir (living well without living better at the expense of others); Meaningful Work; Self Determination; Equitable Redistribution of Resources and Power; Regenerative Ecological Economics; Culture and Tradition (acknowledging the harms to culture and tradition enacted by capitalism, colonialism, patriarchy, genocide and slavery); and Solidarity. *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019).
[46] See Jason Coughlin et al., A Guide to Community Shared Solar: Utility, Private, & Nonprofit Project Development 3 (May 2012); David Feldman, et al, Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation v (Apr. 2015).

[47] See John Farrell, *Report: Beyond Sharing – How Communities Can Take Ownership of Renewable Power*, Instit. for Local Self-Reliance (Apr. 26, 2016), https://ilsr.org/report-beyond-sharing/.
[48] S.B. 43, 2013 Leg., Reg. Sess. (Cal. 2013)
[49] Assemb. B. 327, 2013 Leg., Reg. Sess. (Cal. 2013).
[50] Cal. Pub. Util. Code § 2833(p).
[51] The term "disadvantaged communities" was not defined in the statute, but is now commonly used in California energy policy to refer to communities facing higher pollution burdens and other vulnerabilities. Unless otherwise directed, the state typically uses the CalEnviroScreen, a tool created by the California EPA, to designated specific census tracts as disadvantaged communities.
[52] Cal. Pub. Util. Code § 2827.1(b)(1).
[53] *Application of San Diego Gas & Elec. Co. (U902E) for Authority to Implement Optional Pilot Program to Increase Customer Access to Solar Generated Elec.*, No. 12-01-008 (Cal. Pub. Util. Commission Jan. 17, 2012); *In the Matter of the Application of Pacific Gas & Elec. Co. (U39E) to Establish a Green Option Tariff*, No. 12-04-020 (Cal. Pub. Util. Commission Apr. 24, 2012), and *In the Matter of the Application of S. Cal. Edison Co. (U338E) for Approval of Optional Green Rate*, No. 14-01-007 (Cal. Pub. Util. Commission Jan. 10, 2014) [hereinafter "SB 43 proceeding" or "A. 12-01-008, et al."].
[54] *Proceeding Details R1407002*, Cal. Pub. Util. Comm'n (July 10, 2014), https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1407002 [hereinafter "AB 327 proceeding" or "R. 14-07-002"].
[55] Cal. Pub. Util. Code § 2831(g) (emphasis added).
[56] See Cal. Pub. Util. Code §§ 2831(b),(f).
[57] Cal. Pub. Util. Code § 2831(a).
[58] Cal. Pub. Util. Code 2832(a).
[59] Cal. Pub. Util. Code § 2833(d).
[60] Cal. Pub. Util. Code § 2833(b).
[61] Cal. Pub. Util. Code § 2833(d).
[62] Cal. Pub. Util. Code § 2833(d)(1)(A).
[63] Cal. Pub. Util. Code § 2833(j).
[64] Cal. Pub. Util. Code § 2833(p).
[65] Cal. Pub. Util. Code § 2833(e).
[66] See Cal. Pub. Util. Code § 2831.
[67] See *Decision Approving Green Tariff Shared Renewables Program for San Diego Gas & Elec. Co., Pacific Gas & Elec. Co., & S. Cal. Edison Co. Pursuant to S. B. 43*, Decision 15-01-051, No. 12-01-008, No. 12-04-020, No. 14-01-007 (Cal. Pub. Util. Commission Jan. 29, 2015) [hereinafter "Decision 15-01-051"].
[68] See *Decision Addressing Participation of Enhanced Community Renewables Projects in the Renewable Auction Mechanism & Other Refinements to the Green Tariff Shared Renewables Program*, Decision 16-05-006, No. 12-01-008, No. 12-04-020, No. 14-01-007 (Cal. Pub. Util. Commission May 12, 2016) [hereinafter "Decision 16-05-006"]. One lingering issue remained related to requirements for the developer of an ECR project to obtain a legal opinion on securities compliance.
[69] See Decision 15-01-051.
[70] See Decision 16-05-006.
[71] See Cal. Pub. Util. Code § 2833(o).
[72] *Electric Power Monthly: Table 5.6.A. Average Price of Electricity to Ultimate Customers by End-Use Sector*, U.S. Energy Info. Admin. (Oct. 24, 2019), https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a.
[73] *Electric Schedule E-ECR: Enhanced Community Renewables Program*, Pacific Gas & Electric Company 3 (Oct. 1, 2019), https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_SCHEDS_E-ECR.pdf.
[74] See A.12-01-008 SDG&E Monthly GTSR Report for May 2019 (June 24, 2019); A.12-01-008 PG&E Monthly GTSR Progress Report for May 2019 (June 25, 2019); A.12-01-008 SCE Monthly GTSR Program Progress Report for May (June 25, 2019).
[75] The CPUC first required developers to submit a legal opinion from an "Am Law 100" law firm, that is, a law firm listed on the American Lawyer magazine's list of the 100 law firms with the highest gross revenue. Decision 15-01-051 at 71; Decision 16-05-006 at 34. This requirement was later modified to be based on factors such as an attorney's experience and the amount of liability insurance coverage held by the firm. *Decision Modifying the AmLaw 100 Securities Opinion Requirement for Enhanced Community Renewables Projects Under the Green Tariff Shared Renewables Program in D.15-01-051*, Decision 17-07-007, No. 12-01-008, No. 12-04-020, No. 14-01-007 (Cal. Pub. Util. Commission July 13, 2017).
[76] See Cal. Pub. Util. Code § 2833(p) ("The commission shall ensure that charges and credits associated with a participating utility's green tariff shared renewables program are set in a manner that ensures nonparticipant ratepayer indifference for the remaining bundled service, direct access, and community choice aggregation customers and ensures that no costs are shifted from participating customers to nonparticipating ratepayers.")
[77] The "Am Law 100" is an annual list published by The American Lawyer.
[78] *Proceeding Details A1201008*, Cal. Pub. Util. Comm'n (Jan. 17, 2012), https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:A1201008.
[79] Assemb. B. 327, 2013 Leg., Reg. Sess. (Cal. 2013).
[80] See Cal. Pub. Util. Code §2827.3(a) (requiring the CPUC to study costs and benefits associated with a net metering tariff); §2827.1(b)(3) ("Ensure that the standard contract or tariff made available to eligible customer-generators is based on the costs and benefits of the renewable electrical generation facility.").
[81] Under existing policy, California allows for multifamily buildings and adjacent properties to enroll in VNEM. The state's VNEM rules for those properties were renewed in the first phase of the AB 327 proceeding when the standard NEM tariff was reauthorized. Both the NEM and VNEM tariffs were slightly modified from their first generation versions, but

fundamentally retained the basic concept of on-bill retail rate compensation for rooftop solar generation.
[82] See *Vote Solar, SEIA, & CalSEIA Opening Proposal*, R.14-07-002 (Apr. 24, 2017).
[83] See *CEJA SELC Opening Proposal*, R.14-07-002, 2, 11 (Apr. 24, 2017). The main incentives along the lines of location, size, and ownership proposed in Equity VNEM were providing a slightly higher bill credit for (about 2 cents/kWh compared to DAC VNEM) to "community-based projects" defined as (1) "located within the same or an adjacent DAC census tract as all customers," (2) having a generating capacity which does not exceed 1 megawatt, and (3) being majority owned or controlled by the residents of disadvantaged communities or a nonprofit or government entity.
[84] *Alternate Decision Adopting Alternatives to Promote Solar Distributed Generation in Disadvantaged Communities*, Decision 18-06-027, No. 14-07-002 at 56 (Cal. Pub. Util. Commission June 21, 2018).
[85] *Id.* at 57.
[86] *Id.*
[87] *Id.* at 64.
[88] *Id.* at 74.
[89] *Id.* at 76-78.
[90] *Id.* at 65 n. 40.
[91] *Id.* at 73.
[92] *Id.* at 16.
[93] *Id.* at 66, 68.
[94] See *Id.* at 75 (stating that the CSGT program "allows for local ownership of projects if feasible." The CPUC declined to set requirements or incentives for community ownership, instead leaving "this to the market and communities to determine.").
[95] *Id.* at 72.
[96] *Id.* at 74.
[97] *Id.* at 76.
[98] *Id.* at 86.
[99] *Id.* at 77.
[100] *Id.* at 78.
[101] *Id.* at 79.
[102] *Id.* at 82.
[103] *Id.* at 65, 82.
[104] *Id.* at 82.
[105] *Id.* at 82.
[106] *Id.* at 86.
[107] *Id.* at 84.
[108] Participants must be located within 5 miles for most projects, and within 40 miles for some select pilot projects in the San Joaquin Valley. Some commentators worry this limit may pose a challenge in finding enough customer or raise the cost of finding customers beyond what is economically viable for a profitable project.
[109] Utilities will enter power purchase agreements for all of the energy produced by the CSGT projects if they select a project's bid within biannual auctions. However, the price the utilities may pay for that energy is capped at 200% of the highest executed contract price in previous California renewable auctions for its Green Tariff program. It remains to be seen if the auction ceiling is high enough to allow projects to be built given the additional limitations and costs for such projects beyond other wholesale renewable projects.
[110] R. 14-07-002.
[111] New York State, *Reforming the Energy Vision*, https://rev.ny.gov/s/REV-fm-fs-1-v8.pdf (last visit Nov. 12, 2019).
[112] The first iteration of the CDG policy was codified in the Order Establishing a Community Distributed Generation Program and Making Other Findings, Proceeding on Motion of the Commission as to the Policies, Requirements and Conditions for Implementing a Community Net Metering Program, Case 15-E-0082 (July 17, 2015) [hereinafter "CDG Order"].
[113] The CDG Order included certain limitations on membership to a CDG project but explicitly kept it quite flexible to encourage project development in the nascent CDG market. For example, projects required a minimum of ten subscribers, each of whom could offtake up to 25kW of energy, and any large offtaker (or "anchor") that had an energy demand exceeding 25kW could only offtake up to 40% of the total energy generated by the project.
[114] Filings by the Joint Utilities, a coalition that includes included Central Hudson Gas & Electric, Consolidated Edison Company of New York, Inc., N.Y. State Electric & Gas Corp., Niagara Mohawk Power Corp., Orange & Rockland Util., Inc., and Rochester Gas and Electric Corporation, *In the Matter of the Value of Distributed Energy Resources*, Case 15-E-0751 (N.Y. Pub. Serv. Commission 2015).
[115] Comments of the Joint Utilities on an Interim Successor to Net Energy Metering at 3–5, *In the Matter of the Value of Distributed Energy Resources*, Case 15-E-0751 (N.Y. Pub. Serv. Commission Apr. 18, 2016).
[116] More on the Berkeley Lab study available at: https://emp.lbl.gov/sites/all/files/lbnl-1007261.pdf
[117] Notice Soliciting Comments and Proposals on an Interim Successor to Net Energy Metering and of a Preliminary Conference, Case 15-E-0751, In the Matter of the Value of Distributed Energy Resources, Case 15-E-0882, Proceeding on Motion of the Commission as to the Policies, Requirements and Conditions for Implementing a Community Net Metering Program (Dec. 23, 2015).
[118] CDG Order at 22.
[119] *Id.* at 31.
[120] Summary of the Collaborative Working Group Reports Regarding Community Distributed Generation for Low-Income Customers, *In the Matter of the Value of Distributed Energy Resources*, Case 15-E-0082 (N.Y. Pub. Serv. Commission Aug. 15, 2016), available at http://www3.dps.ny.gov/W/PSCWeb.nsf/

ca7cd46b41e6d01f0525685800545955/8a75b07f45e1672485257edd00602d7c/$FILE/15-E-0082%20Low%20Income%20Collaborative%20Report%208-15-16.pdf.
[121] The Aligned Parties were comprised of the following organizations: Alliance for a Green Economy, Association for Energy Affordability, Azure Mountain Power, Binghamton Regional Sustainability Coalition, Citizens for Local Power, Ecogy Solar, Green Street Solar Power, LLC, Natural Resources Defense Council, New York City Environmental Justice Alliance, New York Lawyers for the Public Interest, Pace Energy and Climate Center, ProjectEconomics, PUSH Buffalo, Solstice, Vote Solar, WE ACT for Environmental Justice.
[122] Staff Report on Low-Income Community Distributed Generation Proposal, *In the Matter of the Value of Distributed Energy Resources Working Group Regarding Low and Moderate Income Customers*, Matter 17-01278, (N.Y. Pub. Serv. Commission Dec. 15, 2017) [hereinafter "LMI Working Group Staff Report"].
[123] LMI Working Group Staff Report at 33.
[124] Whitepaper Regarding Future Value Stack Compensation Including For Avoided Distribution Costs, *In the Matter of the Value of Distributed Energy Resources*, Case 15-E-0751 (N.Y. Pub. Serv. Commission Dec. 12, 2018).
[125] *Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers*, Case 14-M-0565, (N.Y. Pub. Serv. Commission 2015).
[126] Order Adopting Low Income Program Modifications and Directing Utility Filings at 3, *Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers*, Case 14-M-0565 (May 20, 2016) [hereinafter Affordability Order].
[127] Affordability Order at 7.
[128] Specifically, low-income households were the target of such practices after the regulation of the energy market in New York which resulted in the formation of many energy service companies (ESCOs). The ESCOs would engage in door to door sales, pitching potential customers on the opportunity to reduce their energy costs if they signed a contract with the company. Many of these contracts contained provisions that not only did not lower costs, but in fact in many cases resulted in sky rocketing utility costs for the customer. Significant litigation and regulatory reform resulted from the ESCO fiasco.
[129] *Matter Master: 15-00348/15-E-0082*, New York State, http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=47415&MNO=15-E-0082 (last visited Nov. 21, 2019).
[130] Maxine Burkett, *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism*, 56 Buff. L. Rev. 169, 170, 192-93 (2008).
[131] *Distribution Generation*, American Council for an Energy-Efficient Economy, https://aceee.org/topics/distributed-generation (last visited Nov. 21, 2019).
[132] Center for Earth, Energy and Democracy, Cecilia Martinez, & Shalini Gupta, *Climate Justice & Energy Democracy: A Platform Vision*, Climate Just. Alliance (2015) https://climatejusticealliance.org/wp-content/uploads/2018/02/Climate-Justice-_-Energy-Democracy-Platform-Vision_Final-2015-1.pdf.
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[134] Raphael J. Heffron & Darren McCauley, *What is the 'Just Transition'?*, 88 Geoforum 74, 74 (2018).
[135] *Environmental Justice*, Cal. Energy Commission, https://ww2.energy.ca.gov/public_advisor/environmental_justice_faq.html (last visited Nov. 21, 2019).
[136] Industrial Economics, Incorporated, Defining Environmental Justice Communities & Distributional Analysis for Socioeconomic Analysis of 2016 SCAQMD Air Quality Management Plan 1 (Nov. 30 2016), available at https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/scaqmdfinalejreport_113016.pdf?sfvrsn=6.
[137] *Id.*
[138] *Environmental Justice Communities in Massachusetts*, Mass. gov, https://www.mass.gov/info-details/environmental-justice-communities-in-massachusetts#what-is-an-environmental-justice-community?- (last visited Nov. 21, 2019).
[139] About Us, Race Matters Institute, https://viablefuturescenter.org/racemattersinstitute/about-us-2/ (last visited Nov. 21, 2019).
[140] *Id.*
[141] *Just Transition*, Climate Just. Alliance, https://climatejusticealliance.org/just-transition/ (last visited Nov. 19, 2019).
[142] Jason Coughlin et al., *A Guide to Community Shared Solar: Utility, Private, & Nonprofit Project Development* 4 (May 2012).
[143] Jason Coughlin et al., A Guide to Community Shared Solar: Utility, Private, & Nonprofit Project Development 5 (May 2012).
[144] Jason Coughlin et al., *A Guide to Community Shared Solar: Utility, Private, & Nonprofit Project Development* 34 (May 2012).
[145] Raphael J. Heffron holds a law degree, but publishes mainly in non-legal journals.
[146] Benjamin K. Sovacool & Michael H. Dworkin, Global Energy Justice: Problems, Principles, and Practices 13 (Cambridge University Press 2014).
[147] Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, 105 Energy Pol. 658, 659 (2017).
[148] Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, 105 Energy Pol. 658, 659 (2017).
[149] Benjamin K. Sovacool, Raphael J. Heffron, Darren McCauley & Andreas Goldthau, *Energy Decisions Reframed as Justice & Ethical Concerns*, 1 Nature Energy 1, 5 (2016).
[150] Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, 105 Energy Pol. 658, 659 (2017).
[151] Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, 105 Energy Pol. 658, 659-60 (2017).

[152] Darren McCauley, Raphael J. Heffron, Hannes Stephan, and Kirsten Jenkins, *Advancing Energy Justice: The Triumvirate of Tenets*, 32 Int'l L. Rev. 107, 108 (2013).
[153] Darren McCauley, Raphael J. Heffron, Hannes Stephan, and Kirsten Jenkins, *Advancing Energy Justice: The Triumvirate of Tenets*, 32 Int'l L. Rev. 107, 108 (2013).
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[162] *See generally* Eleanor Stein, *Energy Democracy: Power to the People?, in* Energy Justice: US And International Perspectives 258 (Raya Salter et al., eds., 2018).
[163] Shelley Welton, *Grasping for Energy Democracy*, 116 Mich. L. Rev. 581, 585 (2018).
[164] Diana Hernández & Eva Siegel, *Energy Insecurity and its Ill Health Effects: A Community Perspective on the Energy-Health Nexus in New York City*, 47 Energy Res. & Soc. Sci. 78, 78 (2019).
[165] Diana Hernández, *Understanding 'Energy Insecurity' and Why it Matters to Health*, 167 Soc. Sci. & Med. 1, 1 (2016).
[166] Lakshman Guruswamy, *Energy Justice and Sustainable Development*, 21 Colo. J. Int'l Envtl. L. & Pol'y 231 (2010).
[167] Shalanda H. Baker, *Mexican Energy Reform, Climate Change, and Energy Justice in Indigenous Communities*, 56 Nat. Resources J. 369, 379-80 (2016); Shelley Welton, *Clean Electrification*, 88 U. Colo. L. Rev. 571 (Apr. 10, 2017).
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[169] Lakshman Guruswamy, *Energy Justice and Sustainable Development*, 21 Colo. J. Int'l Envtl. L. & Pol'y 231 (2010); Aladdine Joroff, *Energy Justice: What it Means and How to Integrate it into State Regulation of Electricity Markets*, 47 Envtl. L. Rep. News & Analysis 10927, 10927 (2017).
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Understanding 'energy insecurity' and why it matters to health

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ABSTRACT

Energy insecurity is a multi-dimensional construct that describes the interplay between physical conditions of housing, household energy expenditures and energy-related coping strategies. The present study uses an adapted grounded theory approach based on in-depth interviews with 72 low-income families to advance the concept of energy insecurity. Study results illustrate the layered components of energy insecurity by providing rich and nuanced narratives of the lived experiences of affected households. Defined as an inability to adequately meet basic household energy needs, this paper outlines the key dimensions of energy insecurity-economic, physical and behavioral- and related adverse environmental, health and social consequences. By thoroughly examining this understudied phenomenon, this article serves to raise awareness of an increasingly relevant issue that merits more attention in research and policy.

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> "*I mean, no bill drives me crazy like my gas bill.*" – Erica, mother of two and market rate renter
>
> "*My apartment was huge but it was awful too because of the heating system. It was never constant, consistent heat. So that basically was the start of my high gas bill 'cause I had to keep running that 'senseless' heat.*"–Nicole, mother of three and housing subsidy recipient

1. Introduction

1.1. Energy as a critical social and public health matter

Erica and Nicole's experiences are emblematic of a source of hardship that affects an estimated 16 million low-income households in the United States (Power, 2006). For this segment of the population, the struggle to meet basic household energy needs is a common strain that remains hidden in plain sight (Hernández, 2013). The World Health Organization (2006) affirms that "energy is essential to meeting our basic needs: cooking, boiling water, lighting and heating. It is also a prerequisite for good health-a reality that has been largely ignored by the world community." The lack of attention to energy-related hardship, particularly in the U.S. context impels a need to further explore this issue in order to better understand its implications at the nexus of place, health and socioeconomic factors.

Energy is an increasingly important social and public health concern. As costs for residential heating, cooling and other household energy needs steadily increase, they account for a higher percentage of household budgets and represent emerging disparities between richer and poorer households (American Coalition for Clean Coal Electricity, 2012). An economic ratio, represented as "low household income/high energy expenditures," is used to estimate energy burden in the US and fuel poverty in Europe (Residential Energy Consumption Survey, 2012; Power, 2008; Moore, 2012). Both energy burden and fuel poverty ensue when energy expenditures exceed ten percent of a household's income. Recent data shows that most U.S. households at or near the federal poverty line are significantly burdened by energy costs (Hernández et al., 2014, 2016). However, this economic ratio captures only one dimension of energy-related hardship and otherwise fails to account for additional factors that contribute to energy burden such as housing conditions and energy behavior.

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1.2. Energy insecurity as a needed conceptual framework

One factor that contributes to energy as an ignored hardship is the lack of an appropriate label and related conceptual framing. While the term "energy insecurity" exists in the literature, the phenomenon is not well understood. Existing studies have utilized the term to understand its connection to low socioeconomic status and other social disadvantages, negative health outcomes, and in conjunction with other economic and environmental insecurities. First, socioeconomic status and race/ethnicity are closely linked to the experience of economic energy insecurity. Hernández et al. (2016; 2014) demonstrated that households near or below the federal poverty line were more likely to surpass the ten percent threshold on energy expenditures. The authors also found that African Americans across the economic spectrum experienced economic energy insecurity at the highest rates while Asian and Latino immigrants were the least burdened (Hernández et al, 2014, 2016). Second, energy insecurity has been linked to health and other hardships (Cook et al., 2008; Smith et al., 2007 Frank et al., 2006; Nord and Kantor, 2006). Cook et al. (2008) found that children in moderately and severely energy insecure homes are more prone to food insecurity, hospitalizations, poorer health ratings, and developmental concerns than children in 'energy secure' homes. The "heat or eat" dilemma demonstrates the trade-offs that low-income householders make in order to meet the basic necessities of life whereby at-risk groups are forced to decide between food and energy, often sacrificing one for the other (Frank et al., 2006; Nord and Kantor, 2006; Food Research and Action Center, 2005; Bhattacharya et al., 2002). Third, energy insecurity has also been linked to other insecurities such that rising energy costs have also impacted access to clean and safe water (Eichelberger, 2010). Beyond these limited examples, attention to energy insecurity remains scant and research in this area is severely underdeveloped (Hernández, 2013).

This article fills a critical gap in the literature by more comprehensively operationalizing the concept of "energy insecurity." Energy insecurity is defined here as "an inability to adequately meet basic household energy needs." Besides offering this definition, the present study advances this concept by highlighting its primary dimensions-economic, physical and behavioral- and exploring the mutually reinforcing nature of this phenomenon. Based on an adapted grounded theory analytical framework, this paper gives meaning to the term *energy insecurity*-by providing real world examples of how energy insecurity is experienced and the different forms it takes in the lives of vulnerable groups.

2. Methods

2.1. Research questions

The key dimensions of energy insecurity emerged using an adapted grounded theory approach in a qualitative study originally conducted to explore broad housing problems among low-income families (Hernández, 2016a; 2016b). The present analysis focused on energy as a unique housing problem and addressed the following research questions: (a) What are the primary dimensions of energy insecurity? (b) How is the experience of energy insecurity related to the larger landscape of material hardship for low-income households? and (c) What are the health and social implications of energy insecurity?.

2.2. Sample

A convenience sample of 72 participants was recruited from community health centers in the Boston area. The author approached families in the waiting areas of pediatric departments and asked willing parties to answer a 10-question screen to determine their eligibility for the study. Eligible participants included those with: a) at least one self-reported housing hardship, ranging from housing affordability, to frequent moves, to hazardous housing conditions, b) an income at or below $32,000, which equals 150 percent of the 2008 federal poverty level and c) residence in Dorchester, Massachusetts.

A sample consisting of 70 female and 2 male heads of household ranging in age from 18 to 59 were enrolled in the study. Most participants were single mothers (97%), racial/ethnic minorities (47% African American; 29% Latino), native-born (62%), English (72%) or Spanish (25%) speakers, and had a high school education or higher (85%). The median annual income was $30,000 and the majority received housing subsidies (65%).

2.3. Data collection

Participants underwent a home-based, semi-structured interview to understand their housing and neighborhood environments, the coping strategies that participants used to deal with housing problems, the use of safety net resources, and parental and child health. The housing, energy and health questions included: "Please describe any problems you've had with respect to your housing" "What have you done to deal with/fix this problem?" "Now, I'm going to ask you about your housing expenses including the rent and utilities." "How, if at all, has your housing affected you and/or your children in terms of health?" In addition, respondents were asked to give the interviewer a tour of their home in order to document the housing conditions described in the interview such as drafty windows, faulty thermostats, poor lighting, electrical hazards, outdated appliances and pest infestations. Observations from the walkthroughs were captured in field notes. Interviews were conducted in English and Spanish by the author and in Vietnamese with the assistance of a translator. Interviews were digitally recorded and transcribed; the average duration was 90 min. Respondents were compensated $25 in cash.

This study was approved by Institutional Review Boards at Cornell University, Boston University Medical Center, and Beth Israel Deaconess Medical Center, and by participating community health centers not affiliated with academic institutions. All study participants provided informed consent. Identifying information has been removed to protect the confidentiality of study participants.

2.4. Data analysis

Interview transcripts and field notes were systematically coded for emergent themes using an adapted grounded theory analytical approach involving a two-phase coding process (Charmaz, 2006). Two coders (the principal investigator and a graduate-level research assistant) reviewed the transcripts and field notes several times in order to become deeply familiar with the data. This process was aided by qualitative data analysis software (Atlas.TI version 6.0), which facilitates the systematic analysis of qualitative data and assists in the process of categorization and coding, developing themes and organizing data segments (Creswell, 2012). Following an inductive analytic approach characteristic of grounded theory, we employed open and axial coding techniques. In the open coding phase small segments of the data were summarized to offer basic descriptions of the text and enable the grouping and categorization of thematically similar codes. These codes included descriptive terms such as "light," "gas," "heat," "bills," "boiler," "utilities," and "shut-offs" and *in vivo* terms (in participant's own language) such as "NSTAR" and "ABCD," which respectively

referenced the local utility company and a popular fuel assistance organization. During the axial coding phase, several codes were selected for in-depth analysis on the evolving topic of energy-related hardship. The analysis yielded emergent themes that demonstrate repeated categories of information and the nature of their associations. The process of analysis linked codes and traced processes that ultimately led to the observed outcomes related to the three dimensions of energy insecurity and related consequences (see Tables 1–4). Collectively the data conveyed a tale of material hardship, inefficient building infrastructure, complex

Table 1
Economic Energy Insecurity- Definition, related codes and exemplary quotes.

Dimension	Related codes	Exemplary quotes
Economic energy insecurity Definition: *Financial hardship associated with the cost of energy relative to income and other expenses.*	Poverty, material hardship and tenuous employment	*We're definitely not making ends meet between the price of food, the gas is killing us, just the normal day [things] … It's hard to keep up.* *At the time I was working part-time and I just couldn't give them anything. I know sooner or later they'd probably be taking me to court for non-payment but it's sad because even then I could never get no help also for my high gas bills.* *If I had access to a job or a little bit more money it would be so much easier to pay these bills and stuff, you know, 'cause I don't like owing anybody anything.* *I'm playing catch-up with my light bill because like I said, for two years, I wasn't really working. When I moved here my light bill was I think 800, almost 1000 dollars. So shortly after I moved here, I went back to my real job. Then I got laid-off in January but I went back to work in February. It's just playing catch-up* *If I go back to work he says that I will lose the food stamps. We'll lose the fuel assistance, and he feels like we really won't be any better off. So I feel like it's a catch-22.*
	Energy-specific financial hardship	*I'm having a hard time keeping up with the utilities. It's just really throwing me over the edge financially.* *The only difficulty we have is the lights. Other than that, we make it.* *It's just been high, high, high! And it's like when you pay all the bills, they let you know you're gonna get another light bill … It's like it's not going anywhere.* *My electric bill has gone way out of whack. I mean, I have a 700 dollar electric bill.* *The bill is at $7000.00. I told the representative to do a payment plan that is no more than $60.00, because I honestly can't pay any more than $60.00 plus the regular bill. It's too much for me.*
	Priorities and trade-offs	*If I had to choose between paying my rent, paying my utilities, and feeding my children, I'd feed my children and I'd worry about that later. But I do. My rent's always paid. He'll tell you. My rent's right there. Because I figure, at least I've got a roof over their head, you know.* *I have difficulty paying the utilities. Sometimes I have to pay one and then pay the other. I'ma always pay my rent 'cause I'm not trying to be out there on the [street] you know what I'm sayin'.* *It's either pay the electricity bill or do what I gotta do for my kids and to be honest with you I'd rather just turn all this stuff off.*
	Seasonal variations	*The bills vary by season. For example, summertime gas is slightly lower than electricity and then you know, wintertime gas is much, much higher – extremely higher than electricity. As for summertime, electricity is obviously higher because of air-conditioning. It's so hot and we live on the third floor. It is burning hot. It is extremely hot.*
	Billing issues	*Sometimes your gas bill you get charged twice on your gas bill. You get charged a gas supply charge and a delivery charge. So that's what gets you.* *They had to give my niece $2000 back 'cause they overcharged her. She was paying for [her neighbors too].*
	Landlord improprieties	*I never took any landlords to court though I should've one time because this landlord was using my electricity to clean out his units and ran me a bill for almost $9000. When I wasn't home, I was at school, he's using my socket from outside.*
	Discontinued service due to non-payment	*Well the light just came as a new bill for $120.00. Earlier it was disconnected because the account went up to $3000.* *I have difficulty paying the utilities, sometimes I have to pay one and then pay the other. They threatened to shut off my gas and I was like, 'Listen, I can't do it. I only get one check.' I can't afford it, you know what I'm sayin'. I got the rent, lights, gas and everything but it's just me …*

Table 2
Physical Energy Insecurity- Definition, related codes and exemplary quotes.

Dimension	Related codes	Exemplary quotes
Physical energy insecurity Definition: *Deficiencies in the physical infrastructure of the home environment that impact thermal comfort, induce harmful indoor exposures and increase energy costs.*	Poor overall housing quality	*The disadvantage of having a Section-8 voucher is that these landlords tend to take advantage. In a lot of Section-8 apartments, none of them provide you with heat and hot water. It's always no utilities. It's not the best apartments. I'm quite sure it's not the best heating systems 'cause like I said, I've lived there. I'm a prime example. That's why people have to know their rights as a tenant.* *There's no insulation in the house. That's why it's cold, and the heating's always gone so … The electrical is outdated, and the plumbing.*
	Faulty building infrastructure	*If I open this door you feel like you're standing outside. There's no heat in here and there's no heat in the kitchen but it's big, huge, empty house.* *Our heater goes down to 60, 61, 62 [degrees] tops all year-round but the walls were never insulated, so the heat goes right out the window.* *The thermostat, if you turn it off, the heat will still be on, and that runs up the bill.* *I want Boston Gas to come out here so they can look at the boiler for themselves 'cause the first [inspector], when I first got my energy report he told me it looked like I was heating the whole of Boston. Then I get the next [inspector's] report and his report is just as bad as the first man's report. What don't they understand? Don't go after me. Go after the landlord 'cause I can only afford to give you $200 a month and that's all I can give you*
	Changes in building energy systems	*We didn't have to pay for the heat, it was oil based and the landlords paid for it themselves. Then about a year later they changed it, without notice and they didn't even tell us. The bill just came. It was very warm before, now you put that thing on and you'll still feel cold …*

coping strategies, and limited options for assistance as illustrated below.

3. Results

3.1. The three dimensions of energy insecurity: economic, physical and behavioral

An understanding of the challenges associated with energy insecurity was shaped by the rich and detailed narratives of participants who described energy as a main source of hardship. Three primary dimensions of energy insecurity emerged: economic, physical and behavioral. The presentation of findings is organized to explain each dimension followed by a discussion of the environmental, health and social consequences of this phenomenon.

3.2. Economic energy insecurity

Economic energy insecurity represents the disproportionate financial burden that high energy costs impose on low-income households. Participants reported a wide range of household energy expenditures, from as low as $30 a month to, in some cases, as high as $650 a month at the height of the heating season. On average, participants reported monthly bills between $100 and $300 dollars, with considerable variations by season and housing type. To put this economic burden in perspective, according to Massachusetts State guidelines in 2012 a household of four receiving public assistance would net $691 in cash assistance, a portion of which would need to be allocated to utility expenses (Community Resources Information). Utilities bills at $200 per month would represent nearly thirty percent of household income and therefore a significant, and likely unaffordable, expense. This would also render those at the federal poverty line ($23,050 for a family of four in 2012) as energy insecure using the 10 percent threshold.

The experience of economic energy insecurity is linked to financial hardship and the prioritization of basic needs. Many participants attributed low household incomes to unstable employment, low wages and the "cliff effect" (Prenovost and Youngblood, 2010; Romich et al., 2007). "Cliff effects" occur when households become ineligible for safety net benefits despite not experiencing full economic self-sufficiency through employment, a circumstance described by one participant as a "catch-22." Further, in comparison to other household expenses such as housing and food, utilities were often considered less of a priority and were handled with more flexibility because service interruptions take time to ensue and can be avoided. Nevertheless, participants expressed an ethos of responsibly "paying the bills," except many simply could not afford the monthly utility payments and were often "playing catch up." This vicious economic cycle borne from a process of prioritization and trade-offs complicates the already fragile financial profiles of low-income ratepayers.

The economic hardships associated with unaffordable utility bills resulted in arrearages often marked by thousands of dollars of debt to utility companies and brought consequences which included limits to energy access as well as restrictions on the ability to change residences. Utility arrearages reflected financial hardship but were also linked to billing issues, landlord improprieties and seasonal variations as well as building-level inefficiencies that increased costs. Shut-off threats and the disruption of utility service were a persistent cause for concern among those behind on their bills, though some families were able to seek shut-off protection by leveraging medical vulnerabilities.

Moving represented a challenge for families with accumulated utilities debt seeking to transfer service accounts to a new residential address. Under these circumstances, some participants elected to put services in the name of other household members including underage householders. As a vivid illustration of this point, Nicole accumulated $5000 in utilities debt after a year and a half of paying for the "senseless heat" (meaning: inadequate) she

Table 3
Behavioral Energy Insecurity- Definition, related codes and exemplary quotes.

Dimension	Related codes	Exemplary quotes
Behavioral energy insecurity Definition: *Behavioral strategies used to cope, improvise and counteract the impacts of economic and structural energy insecurity.*	Energy conservation	*I use my gas wisely, you know. Only time it's on is to cook real quick or hot water for showers … Right before its time for them to take showers I turn the heat on, and then when they get ready for bed, sometimes I'll turn it down or turn it off 'cause they're underneath the blankets. You just gotta manage how you do it … If you don't need it you shut it off."* *I don't' use heat all that much and we manage because the gas is budgeted … We have been watching what we keep the thermostat at.* *During the day we keep off lights. The only thing that's running is the TV … We also don't burn that much gas. We don't use that much electricity 'cause I know the electricity be sky-high if you leave the lights on and stuff.*
	Seeking thermal comfort	*In the wintertime if something happens to the heat by chance, I turn the oven on, which is my electricity. The heat goes through the place like that and then I cut it off. That's what I do.* *Some people also came in here and showed me how to save electric … I pretty much did it myself—the insulation. I put the stuff under the doors and plastic over the windows [to keep the cold out].*
	Lump sum and partial bill payments	*I'm praying that I get enough money back from my tax return to pay everyone off so they can leave me alone, don't bother me no more.* *So the whole week [during a shut off], all we did was took a bucket like we were having a cookout. You know those buckets that you use to put sodas and stuff. Put some ice in it, it lasted for a week. Eating sandwiches, takeout. My kids said, 'Mommy, when they gonna put the gas back so we cook the fish?' I finally got two checks and turned the lights back on. You gotta sacrifice.* *My mother's pays like 50 dollars here, 100 dollars there, whatever she can.* *But even if I give them $100 right now, I can't pay because even if I give them $80 the bill is $100, $120 every month. That's why I give them $80 'cause I can't pay the whole bill.*
	Fuel assistance	*I can go to certain places if I need help to get fuel assistance* *After running around trying to get help there but they helped me out finally. I did that … fuel assistance helped me.* *I just started with them last year … they gave me $350 for the bill. Then I got a letter from them a couple of weeks ago to fill out and send back [to renew].* *I could never get no help for my high gas bills. I would call the local foundations, the Salvation Army, churches and they would always say that they had no money.*
	Leveraging medical vulnerability	*They can't turn it off, basically, because my baby has asthma, for one thing. My mother has a bad heart, for another thing. I don't care how high it gets. They can keep on sending us [bills]; we'll pay what we can …* *I had my son's doctor fax a letter to [the utility company] saying they can't turn off my lights because he's on an asthma machine and he needs it. So that's the only reason my lights stayed on.* *I have called the electric company. We're protected from our lights getting shut off for now from financial difficulties and because of [my son's] asthma.*
	Faith, hope and despair	*That's [a shut off] what was worrying me before, but I'm trusting in God.* *My outlook on it is that, I want better for my children. To have better for my children I need better housing.* *Inside these neighborhoods ain't no way for us to save no money on no electricity 'cause they come out when they want to come out and it's hard to find people to talk to [for good information]. There's nothing you can do …*

referenced in the opening quote. She considered moving, but essentially was stuck until she could pay off the debt as the utility company barred arrearage transfers. Nicole attributed this conundrum to living in subsidized housing. She noted that while mobile voucher program recipients have more housing choices they are often limited to subpar units where they cannot control the efficiency of the dwelling's appliances and heating/cooling systems and seldom have utilities included in the rent.

Economic energy insecurity thus reflects the financial hardship associated with making ends meet on limited budgets and the

Table 4
Environmental, health and social consequences of energy insecurity.

Consequence	Related codes	Exemplary quotes
Environmental	Hazardous exposures	*For three months there was a gas leak and I ended up going to the hospital. … The smell kept on coming up [but] the [stove] pilot wasn't lit. I had to call the gas company. I said, "Look, you have to come down here. This gas is killing me." …*
	Heat stress	*As for summertime, electricity is obviously higher because of air-conditioning. It's so hot and we live on the third floor. It is burning hot. It is extremely hot.*
	Cold stress	*If I open this door you feel like you're standing outside. There's no heat in here and there's no heat in the kitchen. He [the landlord] says it's a four bedroom but really it's a big, huge, empty house.*
Health	Asthma	*In the wintertime its more [of a problem] 'cause he [child] gets sick more with asthma.*
	Chronic stress	*"Stress. It adds stress. It's silly sometimes, but I think like, "Geez. My lights are gonna shut off." Even though I know they won't but even if I'm behind a few days a week I worry. I worry about a lot of things. I do. I mean, I know it won't happen but I worry about it. I do. I worry a lot."*
	Mental health trigger	*Every time I call I get nowhere, that's why I told my psychiatrist. Then I went into a depression, you know, 'cause I'm trying to show them my bill and everything and don't nobody ever have funds for me. So I told her I feel like I'm being targeted, which I know better, but I was just feeling low, you know …*
Social	Parental fear and stigma	*One day I didn't have no money to pay my bill and they was gonna turn off my lights. When they turn off your lights people look at that and I didn't want nobody coming in here and take my children from me because I don't have my lights on.*
	Family disruption	*My bills started raising up and raising up and I went to the doctor's because they turned off my gas. So, I sent my kids to their aunt's house 'cause I didn't want them in the house since you can't cook or give them a bath or nothing. I didn't want them here. And then I went through my depression thing- it just went down for me.*
	Residential instability	*From all my apartments I've always had faulty heating systems and I always had to pay my own utilities. That's one of the reasons why we moved so much.*

consequences of exorbitant utility bills. The economic challenges are further exacerbated by surplus costs stemming from inefficiencies in the physical environment, reflecting the second dimension of energy insecurity.

3.3. Physical energy insecurity

Physical energy insecurity is defined as deficiencies in the physical infrastructure of the home environment that impact thermal comfort, induce harmful exposures and increase energy costs. Examples of such deficiencies include but are not limited to malfunctioning heating and cooling systems, outdated plumbing and electrical systems, poor lighting, and inefficient appliances. In some instances physical energy insecurity stemmed from the overall poor quality of the housing unit marked by a lack of upgrading in older housing, the use of subpar building materials and inadequate maintenance practices. Facing limited housing options due to lack of affordability, many poor renters and homeowners alike are at increased risk of living in lower-quality housing. Renters are at a significant disadvantage when landlords have little incentive to improve older, less efficient building systems and appliances particularly when the onus of payment falls on the tenants (Bird and Hernández, 2012). In this sample, energy-specific inefficiencies deriving from drafty doors and windows, faulty thermostats and lack of insulation resulted in significant heat loss and thermal discomfort. Further, participants noted that the transition from oil to gas, often a more efficient option, resulted in less comfort and unexpected bills. These conditions not only caused further economic hardship, but contributed to unsafe living conditions. In response to these challenges, study participants often devised a variety of behavioral strategies to manage the physical and economic facets of energy insecurity.

3.4. Behavioral energy insecurity

Behavioral energy insecurity is defined by strategies used to cope, improvise and counteract the impacts of economic and physical energy insecurity. This dimension is marked by both positive and negative behavioral approaches. Positive strategies had environmental and economic benefits and demonstrated resourcefulness; negative strategies presented risks to health, safety and residential stability. Strategies revolved around three inter-related categories: energy conservation and/or thermal comfort compensation, bill-paying, and shut-off avoidance and compensation.

Participants described a range of energy conservation strategies, some more elaborate than others. Many practiced vigilance in energy consumption using lights, heating equipment and other appliances sparingly so as to minimize costs. Some participants sought thermal comfort by insulating their homes to reduce drafts and addressing other sources of heat loss. However, the inability to regulate temperatures and the consideration of costs led some to sacrifice comfort and jeopardize health and safety. For example, under desperate circumstances, some described using space heaters to compensate for inadequate thermal comfort, and others used the stove or oven as improvisational heating methods.

Bill-paying behaviors described by participants included juggling expenses by paying down utilities debt using funds from annual tax returns when available or making partial payments to keep the services on while simultaneously accruing debt for the unpaid portion. Some enrolled in "balanced billing" to better predict expenses based on a monthly average of the annual energy costs for the home, that is then billed evenly across the year by the utility company. Other participants drew on external resources such as fuel assistance administered through local organizations to help pay bills. Fuel assistance is typically applied directly to the utility bill and renewed annually for those fortunate to qualify and enlist when resources are available. However, several participants described being turned away as federal and state-sponsored fuel assistance resources are often quickly exhausted in high demand areas such as Boston, leaving needy households with few options for relief.

In the event of a shut-off, households sacrificed by drawing on basic survival skills using non-energy sources to store and prepare food until they obtained the needed funds to reinstate the services. Many utility companies offer shutoff protection for eligible households, including those with very young children and elderly inhabitants or those with medical conditions that require household energy, though this stipulation varies by utility company and state-level policy (U.S. Department of Health and Human Services). At the time of data collection, shut-off protection in Massachusetts required a letter from a qualified medical provider and was subject to renewal every 90 days. Many study participants with young children or medical conditions such as asthma, diabetes or mental health disabilities qualified for this renewable protection. However, leveraging medical vulnerabilities proved an insufficient and

unsustainable method of shielding a household from energy insecurity since arrearages mounted and participants were, in essence, trapped when unable to transfer accounts with balances to a new residence.

Participants noted key challenges in receiving helpful information on energy savings and available resources in marginalized communities, feeling that nothing could be done to improve the circumstances. Still others simply hoped for more and had faith that they would overcome the energy hardships they encountered. Ultimately, the persistence of such economic and physical deficiencies posed significant environmental, health and social risks.

3.5. Adverse consequences of energy insecurity

Study participants identified a number of adverse environmental, health and social consequences related to the energy insecurity problem. Whether renters or owners, the economic and physical housing hardships and negative behavioral strategies significantly compromised resident health and environmental quality as well as exacerbated conditions of social disadvantage. Poor housing quality and lack of proper maintenance (i.e. poor insulation, limited ventilation, and malfunctioning heating and cooling systems) often caused harmful environmental exposures including extreme home temperatures, gas leaks and dampness, mold and humidity. Further, the use of stoves for heat was a common strategy for seeking thermal comfort yet doing so induces harmful exposures shown to jeopardize health and safety (Lanphear et al., 2001; Garrett et al., 1998). The lack of comfortable home temperatures also exacerbated asthma symptoms, particularly during winter months.

Economic hardships and poor physical conditions also contributed to chronic stress (Evans and Kantrowitz, 2002; McEwen, 1998). Participants described feeling worried about fuel bills and the deteriorated conditions of their home environments. The experience of energy insecurity also triggered mental health disorders such as anxiety and depression. Several participants mentioned involvement with medical providers for adversity-related mental health treatment or to leverage a medical vulnerability for shut-off protection purposes. The constant threat of service interruptions due to non-payment fueled parental fear and stigma. Parents felt judged by persistent surveillance on the part of child protective services and feared losing parenting privileges to the State with the concern that being unable to “keep the lights on” could be considered a marker of inadequate parenting. Some participants expressed feelings of shame and a disruption of family life when living through a utility service disconnection. Moving represented a way out of the discomfort with some participants moving frequently to escape both faulty heating systems and high bills. However, this coping strategy brings with it negative consequences, as residential instability spurs the loss of social network and institutional ties, which comes at a significant cost in terms of social capital.

4. Strengths, limitations and future directions

This article presents a comprehensive view of a hidden source of hardship–energy insecurity. Although the original purpose of this study was to examine housing problems experienced by low-income householders, the phenomenon of energy insecurity emerged from a rigorous examination of the data using an adapted grounded theory approach. This process uncovered the dimensions of energy insecurity along with its adverse environmental, health and social consequences. Notwithstanding these strengths, the exploratory nature of the research may omit other critical aspects of this phenomenon that did not surface in the analysis. Also, this study was conducted in the Northeast where cold weather and home heating issues factored prominently into participants' narratives. Warm weather burdens and cooling hardships borne by those in hotter climates should be explored in future research. These results should be used to inform larger epidemiological studies to validate the links between energy insecurity and various health outcomes pertaining to overall health and in particular respiratory and mental health. These findings should also motivate refinement of existing measures of energy insecurity, which to date focus heavily on shut-offs, inability to pay and using alternative heating sources rather than the more comprehensive dimensions of energy insecurity exposed in the present article (U.S. Department of Health and Human Services, Office of the Administration for Children and Families).

5. Discussion

5.1. The energy insecurity pathway to disease and disadvantage

The present analysis focused on the lived experiences of energy insecurity among low-income householders. The evocative narratives presented above highlight the salience of material hardship in determining an outcome of vulnerability that renders keeping the lights on and staying warm an everyday challenge for poor households throughout the United States. As demonstrated by the results, energy insecurity is an important social, economic and environmental determinant of health. It is a manifestation of poverty comprised not only of an imbalanced ratio of household income to energy expenditures but also one that includes physical and behavioral realms of hardship. In this way, energy insecurity is akin to food insecurity. In fact, an almost equal number of U.S. households encounter food insecurity as do experience energy insecurity (16 million versus 17 million, respectively) (Power, 2006; Coleman-Jensen et al., 2015). Many are burdened by both. Similar to food insecurity, where affordability and access to quality food matters, energy insecurity is determined by access to decent, efficient and affordable housing. Both are embedded within larger contexts of material deprivation and neighborhood disadvantage. Still, food is generally considered indispensable whereas energy is often perceived as an amenity. As most of people would cringe at the thought of hunger-prone families, few shudder at the notion of poor households living in the cold and in the dark, accruing debt to fulfill a basic need (Fig. 1).

The energy insecurity phenomenon is predicated on markers of social disadvantage such as low socioeconomic status, race, ethnicity, family composition and housing tenure; all considered key social determinants of health. In addition, energy insecurity acts as a mediator in the poor housing to poor health continuum. Set within the larger context of neighborhood disadvantage, factors such as racial residential segregation, concentrated poverty, limited social cohesion and deficient institutions produce a backdrop of structural challenges with direct implications for the availability of a decent housing stock. Unsafe neighborhood conditions also amplify the salience of the home environment as people stay home more often to avoid violence and danger (Hernández, 2016a,b). As an additional layer of disadvantage, housing marked by deficiencies in quality and lacking modern efficiencies affect the conditions of the home environment and the costs associated with its operation (i.e. utility expenses). Individuals living under these circumstances proceed to interact with the physical and economic aspects of housing and energy according to available material, informational and institutional resources. If limited by poverty and low social capital, householders may cope in ways that are detrimental to health and well-being (i.e. experiencing a shut-off, thermal discomfort). The environmental, health and social consequences of

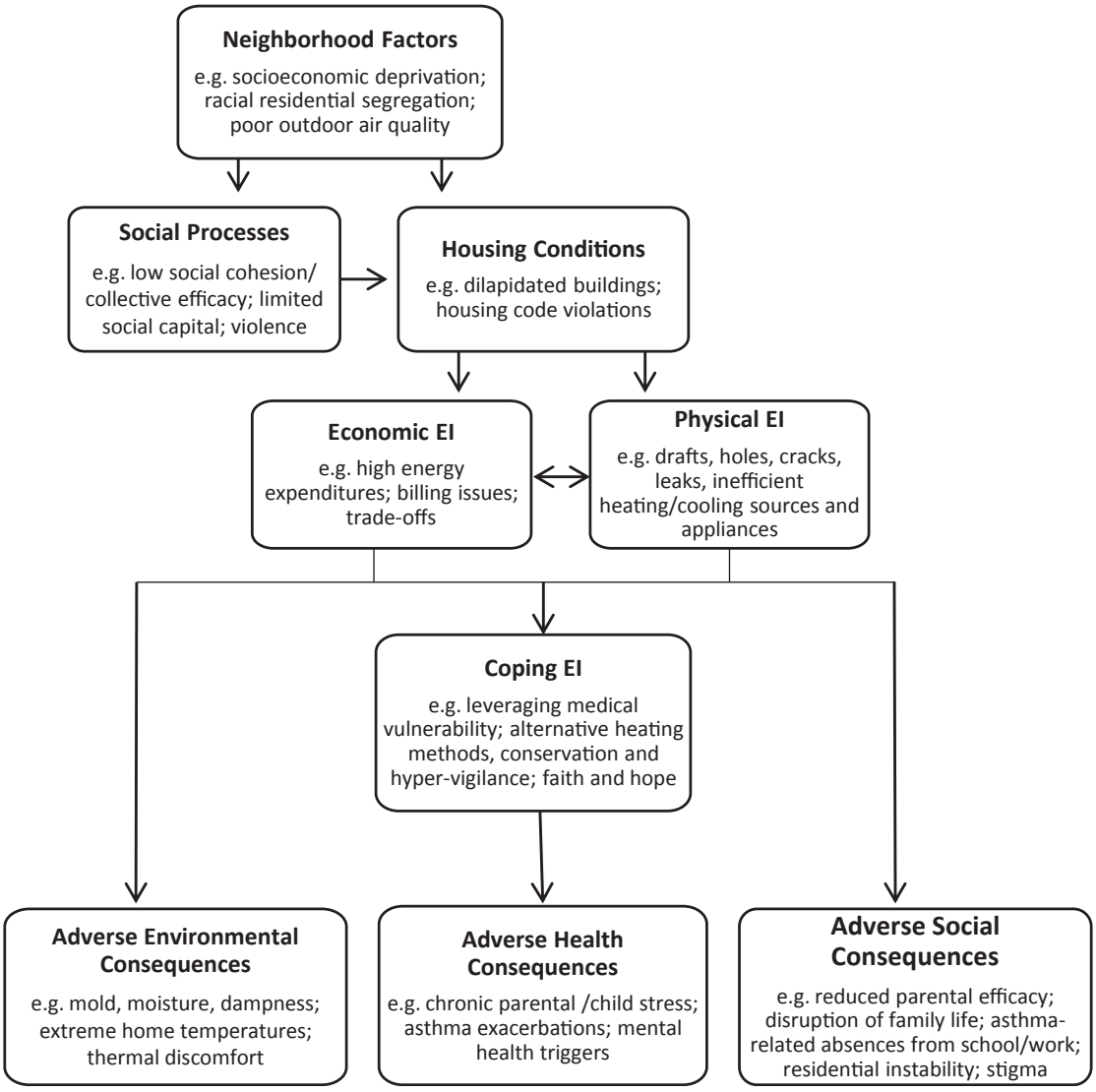

Fig. 1. Energy insecurity: a pathway to disease and disadvantage.

this phenomenon are thus the result of a "pathway of disadvantage" in which energy insecurity plays a unique meditating role. Its position reflects and exacerbates layers of ecological disadvantage from household income at the micro-level to housing cost and quality at the meso-level to low resource neighborhood settings and lack of adequate policies at the macro-level.

Literature suggests that housing interventions that promote warmth and energy efficiency are among the most effective options to improve health outcomes by way of housing conditions and the socio-economic determinants of health (Thomson and Thomas, 2015). While evidence in this area is still emerging in the U.S. context, researchers in Europe and New Zealand have established that investments in warmth and energy efficiency improve housing conditions, reduce fuel costs, and increase comfort and a sense of pride in one's home, which then lead to direct and indirect improvements in general health, respiratory health and mental health. Further, cycles of disadvantage are thwarted by reduced time off from school and work thereby increasing parental and child productivity (Thomson and Thomas, 2015). The intergenerational promise of such interventions is critical given the deleterious impact of adverse childhood experiences and chaotic environments on child development (Shonkoff et al., 2012; Evans et al., 2005). Therefore, addressing energy insecurity through energy efficiency interventions has the potential to break chronic cycles of hardship along this path of disadvantage.

5.2. Energy insecurity and housing-related factors

Energy insecurity is impacted by housing type, tenure and quality whereby one's status as an owner or renter determines if and how one experiences this phenomenon. The majority of study participants that experienced economic energy insecurity were either a) housing choice voucher recipients, which provides the option to rent market rate apartments using a subsidy that covers two-thirds of the rental amount; b) renters in market rate apartments or c) low-income homeowners; all in a low resource neighborhood context. For renters, subsidized and market rate alike, decisions regarding the quality of the building and energy infrastructure remain outside of their control and mostly favored the interests of landlords and property managers. At times, energy-related infractions qualified as housing violations and in most instances exhibited egregious abuses of power and privilege on the part of landlords. As shown above, landlord improprieties, maintenance practices and choices to improve property (or not) had a direct impact on the quality of household energy, with implications for cost and comfort on the part of tenants. The "split-incentive

problem," whereby landlords lack clear incentives to invest in the most efficient options when they are not responsible for utility costs, further exacerbates the dilemma of energy insecurity for renters (Bird and Hernández, 2012). Renters would have further recourse with revised and better enforced housing codes related to energy as well as further financial incentives for landlords to upgrade properties in order to decrease costs, mitigate risks and increase comfort.

Among renters, energy expenditures were often cited as a significant consideration in choosing to move to or from apartments that required tenants to pay utilities. Many ultimately chose poorer quality apartments in lieu of utilities payments. Public housing residents and a handful of participants for whom utilities were included in the rent were spared from the financial hardships associated with economic energy insecurity. Nonetheless, these economic protections did not always shield against the physical and behavioral aspects of energy insecurity, for instance, over- and under-heating, poor insulation, drafts and malfunctioning appliances. In fact, the experience of those who did not pay for utilities but still encountered energy challenges formed the basis for further exploration of the various dimensions of energy insecurity beyond the economic component. In order to address both the cost and conditions issues presented by energy insecurity, the U.S. should consider adopting an energy rating system for all buildings, already implemented throughout Europe, to increase transparency in energy performance in all housing types but especially in rental properties (Bio Intelligence Service et al., 2013).

Unlike renters, low-income homeowners shouldered the entire burden of economic responsibilities related to housing and energy expenditures, and as such the onus and associated trade-offs were more severe for this group. Further, the costs to properly maintain and upgrade older homes were often prohibitively expensive given the upfront costs of upgrades and the broader housing and economic crises occurring at the time of data collection. So, while homeowners enjoyed some measure of control over the structural conditions of their home, their low-income status constrained opportunities to increase the energy efficiency of their property. Safety net benefits should look to especially target low-income homeowners with subsidies to improve housing conditions, increase efficiency, and decrease costs so as to promote economic and residential stability in this vulnerable group.

5.3. Addressing energy insecurity through policy and advocacy

Energy insecurity is impacted by gaps in energy-related safety net policies and by the lack of sufficient protection for low-income energy consumers. As a critical component in alleviating poverty, addressing energy insecurity at the policy level necessitates a closer look at the current options to support affected populations. The Low-Income Home Energy Assistance Program and the Weatherization Assistance Program are the most relevant federal-level initiatives seeking to provide fuel assistance and weatherization services to eligible households. However, both programs have historically been underfunded and subject to budget cuts particularly in recent years, thus preventing low-income households from accessing needed resources to address energy-related hardships (Hernández and Bird, 2010). Greater awareness of the dimensions of energy insecurity and accompanying advocacy may lead to more comprehensive policy measures to expand existing programs in order to ensure that the needs of low-income householders are better met (Bird and Hernández, 2012; Hernández and Bird, 2010).

State-level policy and utility companies play critical roles in the problem of energy insecurity. State disconnection policies vary substantially but most cover medically vulnerable households and often contain seasonal policies barring shut-offs during extreme weather (U.S. Department of Health and Human Services). Nevertheless, many of these policies are time limited taking effect for a year or less on average and thereby dismissing the chronic nature of energy-related hardship (U.S. Department of Health and Human Services). Comprehensive measures are needed to a) better protect households from the experience and threat of utility disconnection; b) mandate more favorable rates for indigent households; and c) defend against the accumulation of debt and related account transfer restrictions. Utility companies may be compelled to realize such priorities as non-payment marks a financial liability and shut-offs are an encumbrance for all. Pressure by lawmakers and advocates may help propel these changes as utility companies (like landlords) may otherwise lack incentives to act in the best interest of low and moderate-income ratepayers.

The present research has implications for revising standards for healthy *and* sustainable housing to ensure that low-income households across the U.S. can access higher quality, health-conducive and energy secure housing environments. The Centers for Disease Control and the U.S. Department of Housing and Urban Development (HUD) have issued healthy housing guidelines in order to reduce exposure to environmental hazards in the home and promote healthful indoor living environments (Centers for Disease Control and Prevention and U.S. Department of Housing and Urban Development, 2006). However, thermal comfort and energy efficiency are not comprehensively included in the various health and safety measures covered by current national-level initiatives. For example, HUD-subsidized housing, including the housing choice voucher program and public housing, does not enforce an energy efficiency standard leaving tenants more susceptible to energy insecurity. Nevertheless, energy and health are becoming more integrated in affordable housing development via mechanisms such as the Enterprise Green Communities Criteria and Certification, which provides a framework to ensure that low-income housing is healthier, more efficient and incorporated into the fabric of communities thereby promoting resident well-being and sustainability. Improved standards and integrative housing development are a critical application of "health in all policies" that should apply to both new construction and existing buildings.

Finally, the concept of energy insecurity provides a useful framework to fuel advocacy. "Energy justice", which seeks equity for vulnerable populations along the energy production and consumption continuum, recognizes sacrifice and insecurity as central tenets of the present energy landscape in the U.S. (Hernández, 2015). While the call for energy justice is broad and includes imperatives to move toward healthy, sustainable energy production and access to the best available energy infrastructure, the movement relates directly to energy insecurity with demands for affordable energy and uninterrupted energy service. Housing, poverty and public health advocates should consider promoting energy justice in order to address the complex social, environmental and public health problem that is energy insecurity.

6. Conclusion

This article describes three key dimensions of energy insecurity: economic, physical, and behavioral that are premised on poverty and carry adverse environmental, health and social consequences. Study results help to uncover the layered components of energy insecurity by providing rich and nuanced narratives of the lived experiences of those affected by this form of hardship. As a construct, energy insecurity reveals and amplifies other chronic and interactive vulnerabilities that low-income householders encounter. The economic hardship associated with energy insecurity is indicative of low incomes relative to high energy expenditures. In addition to the constraints caused by poverty, the problem

of economic energy insecurity might be viewed from a structural perspective, as exemplified by the participant who aptly attributed energy insecurity to the poorer quality of housing available to low-income renters. In its physical form, energy insecurity encompasses inadequate housing conditions such as drafts from windows/doors and holes/cracks in the walls, floors or ceilings that induce energy inefficiencies and reduce "tightness" in the home. These conditions, in turn, create difficulties in regulating home temperatures and produce vulnerabilities in a home's physical infrastructure that provoke mental health risks and unhealthy exposures. Combined, the physical and economic challenges associated with energy insecurity prompt coping strategies in the form of behavioral responses to energy inefficiencies that sacrifice comfort and potentially safety in response to energy costs (e.g. using space heaters or ovens for heating, carrying utility arrearages due to making partial bill payments). Paradoxically, these practices may lead to higher utility bills compared to more efficient alternatives. Some energy conservation methods used by study participants did result in economic and environmental benefits and the ingenuity employed under these circumstances demonstrated resourcefulness. However, there were several adverse health and social consequences to the energy insecurity problem including environmental hazards, parental fear and stigma as well as residential instability. Critical issues pertaining to energy insecurity such as the role this phenomenon plays along the pathway of disadvantage and the salience of housing type, tenure and quality were discussed alongside the need for policy-level changes to better address energy insecurity and advance energy justice.

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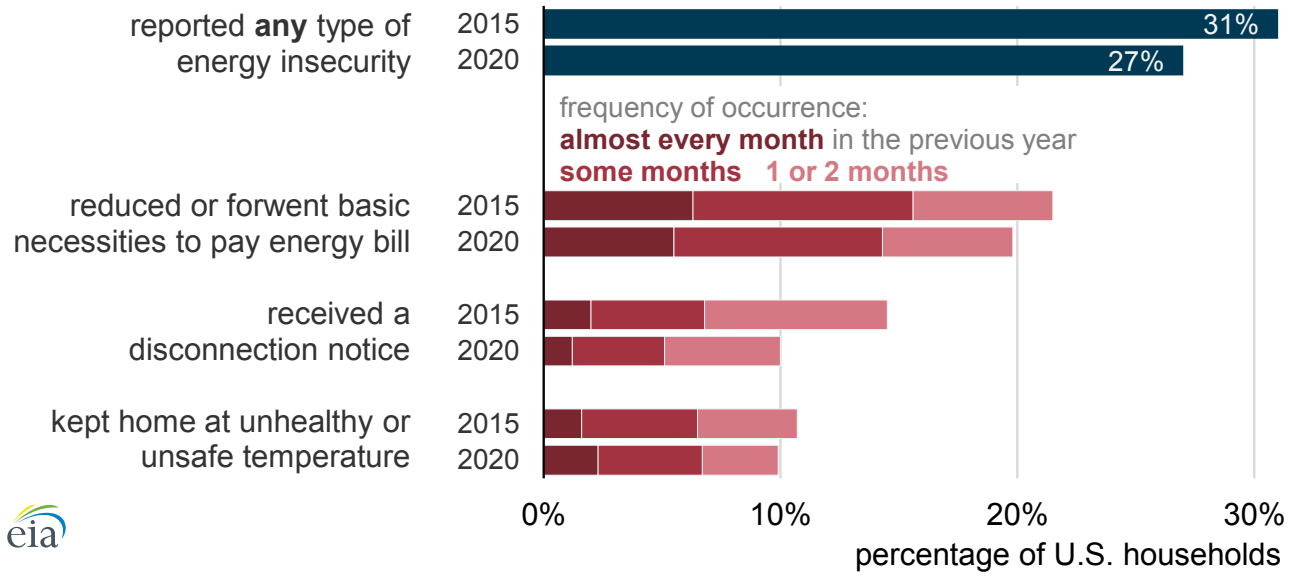
U.S. Energy Information Administration

Today in Energy

April 11, 2022

In 2020, 27% of U.S. households had difficulty meeting their energy needs

U.S. household energy insecurity measures (2015 and 2020)



Source: U.S. Energy Information Administration, *Residential Energy Consumption Survey* (RECS)

In 2020, 34 million U.S. households (27% of all U.S. households) reported difficulty paying energy bills or reported that they had kept their home at an unsafe temperature because of energy cost concerns. This estimate is less than what was reported in the previous iteration of the *Residential Energy Consumption Survey* (RECS), when 37 million households, or 31%, reported similar issues in 2015. The RECS measures household energy insecurity by asking a series of questions about challenges paying energy bills or conditions of unsafe temperatures attributable to energy cost concerns.

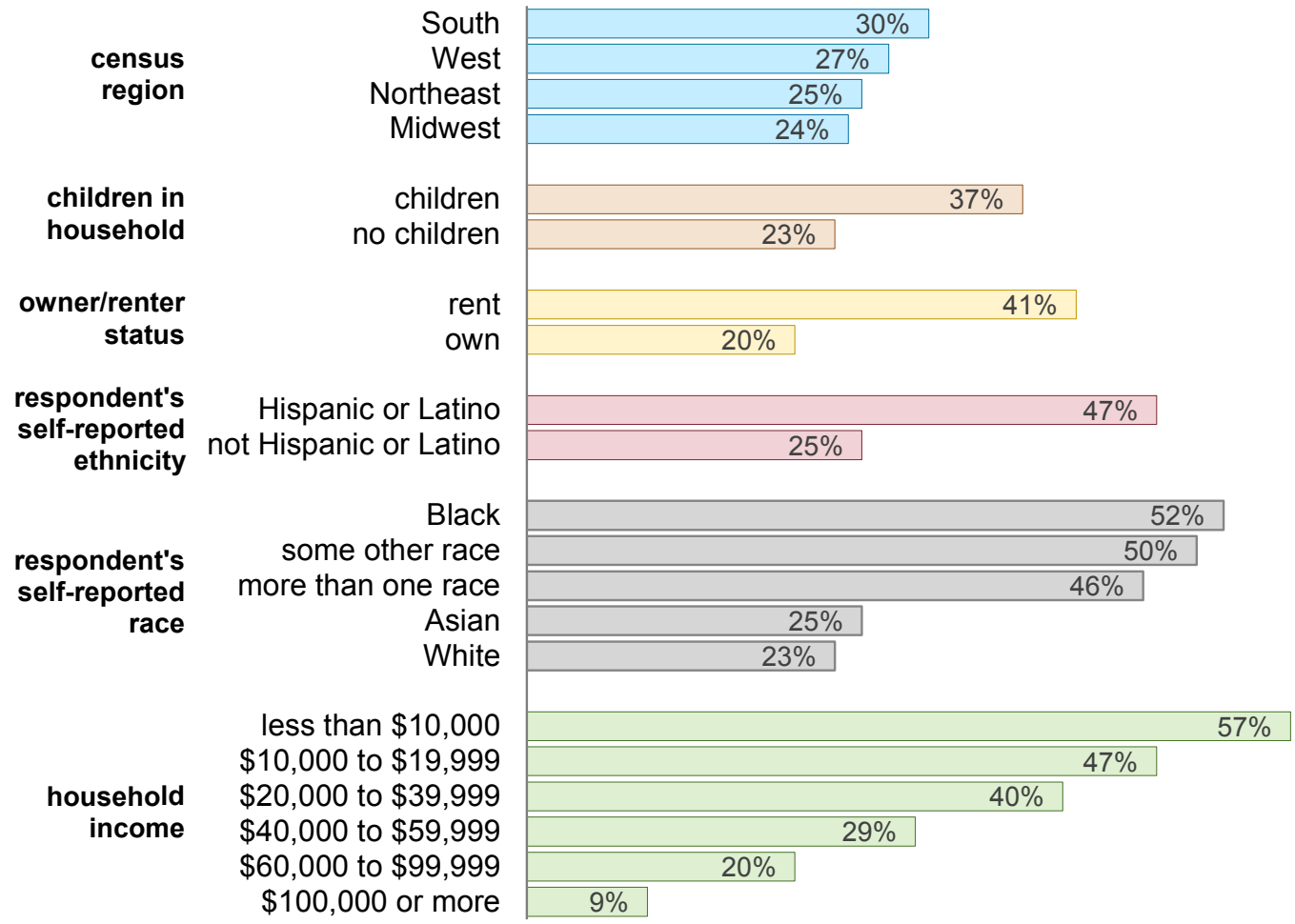
In addition to the overall reduction in U.S. household energy insecurity between 2015 and 2020, fewer households reported each of the components of energy insecurity as well. The largest reduction in a single component between 2015 and 2020 was in the percentage of households that reported receiving a disconnection notice, which decreased from 14% in 2015 to 10% in 2020. In response to the COVID-19 pandemic, many states issued moratoria on utility shutoffs for several months in late 2020.

The survey also captured how often these households dealt with particular energy challenges over the previous 12 months: almost every month, some months, 1 or 2 months, or never. Households receiving disconnection notices were more likely to experience that form of energy insecurity for only 1 or 2 months, while the other forms of energy insecurity were reported more frequently.

We also asked households if they were unable to use their heating or air-conditioning equipment because the equipment was broken and they could not afford to have it fixed or because they could not afford fuel. Five million households reported that they were unable to use their heating equipment, and 6 million reported that they were unable to use their air-conditioning. In 2020, 1.4 million households (1%) reported that someone in the household needed medical attention because their home was kept at an unsafe temperature.

U.S. households reporting some form of energy insecurity (2020)

percentage of U.S. households within each category



Source: U.S. Energy Information Administration, *Residential Energy Consumption Survey* (RECS)

Certain demographic groups reported more instances of energy insecurity, including lower income households, households with children, and renters. Households where survey respondents self-identified as either Black or African American alone or as Hispanic or Latino reported higher rates of energy insecurity.

The 2020 RECS collected data on household energy use from 18,496 households, the largest responding sample in the program's history. Respondents completed the survey using self-administered web or mail questionnaires during late 2020 and early 2021.

In addition to data on household energy insecurity, the initial 2020 RECS results include estimates of structural and geographic characteristics, electronics, appliances, lighting, and demographic characteristics. In the coming months, we will release estimates on additional topics and results with information for all 50 states and Washington, DC.

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LARA MPSC

Workgroups

About Workgroups

The MPSC has established workgroups with the purpose of investigating specific issues or developing and streamlining various regulatory activities. These workgroups can include participants from MPSC Staff, regulated utilities, industry experts, utility customers and others and are open to the public. On this page you will find information about current MPSC workgroups and about opportunities for participation.

MPSC Workgroups

Nuclear Feasibility Study

Public Act 166 of 2022 directed the Michigan Public Service Commission to engage an outside consulting firm to examine the feasibility of nuclear power generation in Michigan. Public Act 218 of 2022 provides for the parameters of the nuclear feasibility study. In response, on March 24, 2023, the Commission issued an order Case No. U-21358 establishing the Nuclear Feasibility Study workgroup.

View the Nuclear Feasibility Study Workgroup >

Low-Income Energy Policy Board

The Low-Income Energy Policy Board guides the work of the Energy Affordability and Accessibility Collaborative and the Energy Waste Reduction Low-Income Workgroup and connects this work to other state agencies and efforts. With a focus on effectuating

affordability, equity, access, and environmental justice, the group's goal is to connect the expertise, experience, and perspectives of members and provide recommendations to the Commission to better serve low-income and vulnerable households with their energy needs. Board membership is by invitation and meetings are open to the public.

View the Low-Income Energy Policy Board Workgroup >

Energy Affordability and Accessibility Collaborative

The Energy Affordability and Accessibility Collaborative is an open, working group committed to facilitating discussion and obtaining input from a broad range of stakeholders on existing and emerging policy issues related to energy assistance, customer protections and low-income energy waste reduction services. The group's goal is to connect the expertise, experience, and perspectives of participants and provide recommendations to the Commission to better serve low-income and vulnerable households with their energy needs.

View the Energy Affordability and Accessibility Collaborative >

Low Income Workgroup

The Low Income Workgroup is collaboratively working to identify and address low income specific energy issues, energy waste reduction measures, and create new initiatives that can reduce the cost of the energy burden on Michigan's low income energy consumers and communities. With the goal of connecting and combining the expertise, experience, and perspectives of the participating groups, the workgroup is attempting to bridge gaps between program offerings, facilitate more complete delivery of energy efficiency programs, and seek opportunities to better serve low income single family residences and multifamily buildings.

View the Low Income Workgroup >

Energy Waste Reduction Collaborative

The goal of the Energy Waste Reduction collaborative is to make recommendations for improving energy waste reduction plans for energy providers, provide program evaluation and support, and promote economic development and job creation in

Michigan by connecting Michigan manufacturers, suppliers and vendors with energy waste reduction programs.

View the Energy Waste Reduction Collaborative >

Energy Waste Reduction and Demand Response Statewide Potential Study

Public Act 341 of 2016 requires the Michigan Public Service Commission to periodically conduct Energy Waste Reduction (EWR) and Demand Response (DR) potential studies to support modeling scenarios and assumptions used by electric utilities in Integrated Resource Plans filed before the MPSC.

View the EWR and DR Study Workgroup >

MPSC Statewide Energy Assessment (SEA)

The Energy Assessment is a statewide review of the supply, engineering, and deliverability of natural gas, electricity, and propane systems, as well as contingency planning related to those systems. The Energy Assessment culminated with a final report published on September 11, 2019.

View the Statewide Energy Assessment Workgroup >

Renewable Natural Gas Study Workgroup

Public Act 87 of 2021 directed the Michigan Public Service Commission to conduct a study into the potential for renewable natural gas development in the state. In part, PA 87 directs the Commission to identify and engage interested stakeholders in the development of the study. The Commission issued a report to the legislature on the Renewable Natural Gas Study on Sept. 28, 2022.

View the Renewable Natural Gas Study Workgroup >

MPSC Technical Conference on Emergency Preparedness, Distribution Reliability, and Storm Response

On August 25, 2021, the Michigan Public Service Commission (the Commission) issued an order opening MPSC Case No. U-21122 seeking to collect additional data from Michigan's investor owned utilities on several issues related to reliability work as well as seeking to better understand planning and restoration efforts related to the August 2021 storms.

View the Preparedness, Reliability, and Storm Response Workgroup >

Mutual Aid Agreements and Transmission Contingency Planning Workgroup

The Mutual Aid Agreements and Transmission Contingency Planning Workgroup is collaboratively working to review and discuss the development of mutual aid agreements for all natural gas distribution utilities, and how best to facilitate the development of gas transmission contingency planning.

View the Mutual Aid Agreements Workgroup >

Natural Gas Curtailment Procedures Workgroup

The Natural Gas Utility Curtailment Procedures Workgroup is collaboratively working to review and discuss whether natural gas curtailment procedures should be updated to prioritize natural gas use for residential heating over natural gas use for electric generation when appropriate during energy emergencies.

View the Natural Gas Curtailment Procedures Workgroup >

Data Accessibility Stakeholder Forum

The Data Accessibility Stakeholder Forum was created to develop more refined, clear, and consistent language addressing customer data accessibility as utilities comply with billing rules – particularly, R 460.153 (2) (g) which requires utilities to “provide clear instructions regarding the method by which a customer and a third party, authorized by the customer, may obtain customer usage data in a timely manner and a readily accessible format from the utility.”

View the Data Accessibility Stakeholder Forum >

Demand Response Aggregation

The Commission directed Staff to work with interested stakeholders to discuss issues related to demand response aggregation.

View the Demand Response Aggregation Workgroup >

Third-Party Community Energy Projects Workgroup

The MPSC Staff is leading a stakeholder engagement process to examine the potential opportunities and barriers to third-party community energy projects that could be integrated into utility planning and procurement processes.

View the Third-Party Community Energy Projects Workgroup >

PURPA - Legally Enforceable Obligation

The Commission directed Staff to initiate a stakeholder process with the purpose of gathering input to assist with developing rules for defining and establishing a legally enforceable obligation (LEO) under the Public Utility Regulatory Policies Act of 1978.

View the Legally Enforceable Obligation Workgroup >

Distributed Generation & Legacy Net Metering Rules

The Commission directed Staff to initiate a stakeholder process with the purpose of gathering input to update the Electric Interconnection and Net Metering Standards to reflect the new distributed generation program and changes in the availability of the net metering program as a result of 2016 Acts 341 and 342.

View the Distributed Generation & Legacy Net Metering Rules Workgroup >

2016 Energy Legislation

Public Act 341 updated Michigan's energy laws relating to utility rate cases, electric choice, certificate of necessity, and electric capacity resource adequacy, and established an integrated resource planning process. Public Act 342 updated Michigan's energy laws relating to renewable energy, energy waste reduction, and distributed generation, and allows utilities to implement on-bill financing programs.

View the 2016 Energy Legislation Workgroups >

MI Power Grid

MI Power Grid is a focused, multi-year stakeholder initiative supported by Governor Whitmer and the MPSC to maximize the benefits of the transition to clean, distributed energy resources for Michigan residents and businesses.

Learn More About MI Power Grid >

Copyright State of Michigan

Equity and Environmental Justice Technical Assistance

Good morning –

The Michigan Public Service Commission (MPSC or Commission) is seeking a vendor to provide technical assistance understanding the scope and implications of equity and environmental justice issues that have appeared in recent cases before the Commission; and establish a framework that MPSC Staff and the Commission can apply broadly across all divisions of the MPSC and the Commission Office when assessing utility filings within its legal framework, including but not limited to the equity and environmental justice provisions of Public Acts 229 and 231 of 2023. A request for quotes is attached, along with a pricing sheet for your use.

To be awarded this contract, bidders must be registered in SIGMA. Please visit the following link. The "Register" button is on the left-hand side of the screen.

https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService

An opportunity to ask questions related to this request for quotes is being provided. Questions must be emailed to BeckL12@Michigan.gov by 5:00 PM Eastern on Thursday, April 25, 2024. Questions will be compiled, and a response document sent to potential bidders by Wednesday, May 1, 2024.

Thank you in advance for reviewing this request for quotes and the related documentation. Please respond to this inquiry by 5:00 pm on Monday, May 6, 2024, if you believe you can provide the services requested. **A bidder's proposal received at 5:00:01 p.m. Eastern is late and subject to disqualification.**

Note that a response does not guarantee any future contract.

Any other questions should be directed to BeckL12@Michigan.gov with "Equity and EJ Technical Assistance" in the subject line of the email.

Thank you,

Lynn Beck
Michigan Public Service Commission

MPSC
MICHIGAN PUBLIC SERVICE COMMISSION

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS
PUBLIC SERVICE COMMISSION

MARLON I. BROWN, DPA
DIRECTOR

KATHERINE PERETICK
COMMISSIONER

DAN SCRIPPS
CHAIR

ALESSANDRA CARREON
COMMISSIONER

MICHIGAN PUBLIC SERVICE COMMISSION

REQUEST FOR QUOTES

Equity and Environmental Justice Technical Assistance

General Description of the Michigan Public Service Commission

The Michigan Public Service Commission (MPSC or Commission) is a state agency housed under the Department of Licensing and Regulatory Affairs (LARA). The MPSC is tasked with regulatory responsibilities which include ensuring safe, reliable, and accessible energy and telecommunications services at reasonable rates.

General Description of the Project

In recent years, intervenors and parties to cases have consistently raised equity and environmental justice concerns across Commission proceedings. These same issues are likely to increase in prominence moving forward. Additionally, the 2023 Michigan energy laws contain several directives to the Commission related to equity and environmental justice issues, specifically in the development of Energy Waste Reduction programs and program review, and in the review of utility Integrated Resource Plans. As the Commission continues to evaluate these areas and commits to incorporating equity across its work, it seeks assistance with two broad goals:

- Understanding the scope and implications of equity and environmental justice issues that have appeared in recent cases before the Commission, especially since the onset of COVID-19.
- Establishing a framework that MPSC Staff and the Commission can apply broadly across all divisions of the MPSC and the Commission Office when assessing utility filings within its legal framework, including but not limited to the equity and environmental justice provisions of Public Acts 229 and 231 of 2023.

Statement of Work (SOW)

As the MPSC continues to integrate equity and environmental justice considerations across all its divisions and work, including proceedings and external engagement processes, it seeks support to collaboratively address the three following objectives:

1. **Identify and describe recurring themes and recommendations** on equity and environmental justice from the case record and filed comments related to significant proceedings from the past four years. The description must include themes from interested parties, Staff, and Commission decisions and directives.

2. **Review existing processes and strategies** where environmental justice and equity have been operationalized within the MPSC and across MPSC initiatives or work groups previously, including any definitions and metrics that are formally used within that work. Summarize the outcomes of these processes and make recommended process improvements.

3. **Design a framework that includes key definitions, guiding principles, and metrics.** The framework must identify opportunities to embed considerations of equity in MPSC outreach, staff analysis, expert testimony, and Commission determinations; ensure procedural equity; and aid in assessing whether or not equity has been holistically considered and appropriately addressed in utility filings across the Commission. In designing the framework, it is expected that the selected vendor will conduct research with regard to other state regulatory commissions' activities and goals related to equity and environmental justice, and consult with Michigan's Interagency Environmental Justice Response Team as outlined in Executive Order 2019-06 to ensure cross agency integration of equity and environmental justice as appropriate in the Commission's work. The framework and associated metrics should be structured to identify both historic equity challenges and future trends.

Following completion of this work, the Commission will utilize the findings to inform an internal operating system that will help define and operationalize equity across our strategic plan and organizational structure, including developing relevant staff competency and subject matter expertise.

Contract Requirements

The bidder must meet the following criteria:

1. Bidder must have at least five (5) years of experience with equity and environmental justice issues related to energy utility matters. Additional familiarity with and understanding of equity issues related to telecommunications matters is preferred.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	
Bidder must list and detail all relevant experience. Attach additional pages if necessary:	

2. Bidder must demonstrate a working knowledge of state regulatory utility commission proceedings, with an understanding of the MPSC's proceedings and Michigan laws governing utilities.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	
Bidder must describe their knowledge of state regulatory utility commission proceedings, especially their understanding of the MPSC's proceedings and Michigan laws governing utilities. Attach additional pages if necessary:	

3. Bidder will work both independently in researching MPSC dockets as well as in collaboration with MPSC Staff or other past intervenors to cases to identify and describe recurring themes and recommendations on equity and environmental justice from the case record and filed comments related to significant proceedings from the past four (4) years.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	

Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:

4. Bidder will conduct a series of interviews and surveys to collect MPSC Staff, Commission Office, and other interested party or external organizations' input in identifying key themes, processes, and framework pillars in accordance with the SOW's three objectives.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	
Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:	

5. Bidder will work in collaboration with MPSC Staff to review existing processes and strategies where environmental justice and equity have been operationalized within the MPSC previously, including any definitions and metrics that are formally used within that work. Bidder will summarize the outcomes of these processes and provide recommendations for process improvement.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	
Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:	

6. Bidder will work in collaboration with MPSC Staff to design a framework that includes key definitions, guiding principles, and metrics. The framework must identify opportunities to embed considerations of equity in MPSC outreach, staff analysis, expert testimony, and Commission determinations; ensure procedural equity; and aid in assessing whether or not equity has been holistically considered and appropriately addressed in utility filings across the Commission. In designing the framework, it is expected that the selected vendor will conduct research with regard to other state regulatory commissions' activities and goals related to equity and environmental justice, and consult with Michigan's Interagency Environmental Justice Response Team as outlined in Executive Order 2019-06 to ensure cross agency integration of equity and environmental justice as appropriate in the Commission's work. The framework and associated metrics should be structured to identify both historic equity challenges and future trends.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.

List all exception(s):
Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:

7. Bidder will host two workshops. Workshops will be held in-person at the MPSC offices with an option for virtual participation via Microsoft Teams. The two workshops will build upon each other and engage Staff and Commission Office participants. The first workshop will aim to consolidate core topics and guidance around the three objectives for the SOW through facilitated dialog and other activities. The second workshop will refine the draft deliverables prepared for each objective with participant feedback. Agenda(s) will be developed by the bidder with input from MPSC Staff. Bidder will determine the format, interactive program, and materials best suited for the workshops with opportunity for Staff reactions prior to finalization.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	

Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:

8. Bidder will meet with MPSC Staff weekly throughout the length of the contract to provide progress updates. Bidder will meet with Commissioners twice throughout the length of the contract – first within the first two weeks of project kick-off to identify key milestones and again before the final presentation of findings for initial reactions to the proposed deliverables. A final presentation will be given to Staff and Commissioners at the conclusion of the project. Meetings will be one hour in length and held via Microsoft Teams.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	
Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:	

9. The bidder will submit a final report addressing all objectives under the SOW including any of their own prior research and expertise, as determined appropriate by MPSC, to MPSC Staff at the conclusion of the project. This report may be made publicly available and must include the following:

    - A description of themes and recommendations, process review summary and process improvement recommendations, and suggested framework per the SOW's three objectives, respectively, including supporting research and interview design and responses;
    - List of all internal and external interviewees, state agency(s) consulted, workshop participants, and any other interested parties or contributors to the final report;
    - A summary of the workshop design, facilitation process, and key findings; and
    - Any benchmarking or research conducted with regard to other state regulatory commissions' activities and goals related to equity and environmental justice that may serve as useful references in the MPSC's implementation of a new internal operating system for equity integration.

    Bidder will develop a report template within the first two weeks of the length of the contract which will be reviewed and approved by MPSC Staff. Bidder will obtain permission from all named persons and organizations within the report to list the person or organization in the final, publicly available report.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.

List all exception(s):

Bidder must describe how they comply with the above requirement(s). Attach additional pages if necessary:

10. The bidder will propose a detailed timeline in which the work described above can be completed, with consideration of relevant MPSC engagement sessions and events for observation as listed here, including when the final report will be submitted.

☐	I have reviewed the above requirement and agree with no exception.
☐	I have reviewed the above requirement and have noted all exception(s) below.
List all exception(s):	
Bidder's proposed timeline and explanation. Attach additional pages if necessary.:	

Qualified candidates interested in supplying a quote to the MPSC will need to provide the following:

1. Summary of proposed approach with detailed timeline.
2. Completed pricing sheet with the total project cost.
3. Documented knowledge and experience in equity and environmental justice, including links to past publications of work related to the SOW.
4. A resume or curriculum vitae for key personnel.
5. Three references.

Questions related to this RFQ must be emailed to BeckL12@Michigan.gov by 5:00 PM Eastern on Thursday, April 25, 2024 with "Equity and EJ Technical Assistance Question" in the subject line. Questions will be compiled, and a response document sent to potential bidders by Wednesday, May 1, 2024.

Submit quotes by email to: BeckL12@Michigan.gov with "Equity and EJ Technical Assistance" in the subject line. **All quotes must be received by 5:00 PM on Monday, May 6, 2024.** Quotes received at 5:00:01 PM Eastern are late and subject to disqualification. This contract is likely to commence the week of May 20, 2024.

PRICING SHEET

Equity and Environmental Justice Technical Assistance

All invoices submitted to the State must include: (a) date; (b) purchase order number; (c) description of the Contract Activities; (e) unit price; and (f) total price. Overtime, holiday pay, and travel expenses will not be paid. Hours must be less than 832 hours per individual per 12-month period.

Vendor Name:

Primary Contact Name:

Primary Contact Phone:

Primary Contact Email:

Please enter your costs in the table below.

Name of Personnel	Position Title	Estimated Number of Hours (A)	Per Hour Cost (B)	TOTAL (A x B)
			TOTAL COST	

STATE OF MICHIGAN
PROCUREMENT
STANDARD CONTRACT TERMS (SHORT FORM)

Vendor is deemed to have accepted these terms upon the earliest of vendor's: written acceptance of these terms; commencement of work; receipt of payment; or submission of a bid, proposal, or other offer in response to a solicitation.

1. **General**. Vendor's failure to deliver or comply with any of these terms, may result in damages against the Vendor and the termination of the Contract.
2. **Delivery, Title and Risk of Loss**. Vendor must pay all costs associated with packaging, freight, and shipping, and must ship all deliverables F.O.B. destination, inside delivery, unless otherwise specified in the Contract. Title and risk of loss or damage to deliverables remains with Vendor until the deliverables have been received, inspected and accepted by the State in accordance with these terms. All containers and packaging become the State's exclusive property upon final acceptance. Vendor shall ensure that all deliverables and services ("Deliverables") are provided to the State by the date and time specified on the Contract. If Vendor fails to provide the Deliverables in accordance with the Contract, the State may reject the delivery and terminate the Contract without any termination charges or penalties, and Vendor must pay all associated costs, including, but not limited to, expedited routing costs, return shipping charges, the procurement of the Deliverables from another source, and any storage removal, or disposal expenses. The risk of loss of rejected or non-conforming Deliverables remains with Vendor. Rejected Deliverables not removed by Vendor within 10 calendar days will be deemed abandoned by Vendor, and the State will have the right to dispose of such Deliverables as its own property. Vendor is responsible for filing, processing, and collecting all damage claims.
3. **Inspection**. The State may inspect the work and activities of Vendor, and its subcontractors, at all reasonable times and places before, during and after delivery of the Deliverables. All Deliverables are subject to final inspection and acceptance by the State notwithstanding any prior payments or inspections. Final inspection will take place within 30 calendar days of the later of the delivery date, installation, or completion of services. If any Deliverables are non-conforming or defective, the State is entitled to, at its option and at Vendor's expense: (a) a refund; (b) a credit; or (c) correction or replacement. If Vendor fails to correct defects or replace non-conforming Deliverables within 10 calendar days, the State may, in addition to its other remedies: (i) reject such Deliverables; (ii) accept such Deliverables at a discount; or (iii) make such corrections or replace such Deliverables and charge Vendor any resulting costs incurred by the State plus an additional 10% administrative fee.
4. **Payment**. Invoices must include an itemized statement of all charges. All undisputed amounts are payable within 45 calendar days of the later of the State's: (a) receipt of an invoice; or (b) final acceptance of the Deliverables. The State is exempt from State sales tax for direct purchases and may be exempt from federal excise tax, if Deliverables purchased under the Contract are for the State's exclusive use. Notwithstanding the foregoing, all fees are inclusive of taxes, and Vendor is responsible for all sales, use, and excise taxes, and any other similar taxes, duties, and charges of any kind imposed by federal, state or local government entities on any amounts payable by the State. The State may withhold payment in whole or in part for Deliverables the State determines are defective, untimely, or otherwise non-conforming to the Contract. All amounts due and payable by the State to Vendor shall be subject to deduction or setoff by the State against any claim the State may have against Vendor whether arising out of the Contract or any other transactions with the State. The State will only disburse payments through Electronic Funds Transfer (EFT). If Vendor does not register to receive payments at http://www.michigan.gov/SIGMAVSS, the State is not liable for failure to provide payment.
5. **Warranties and Representations.** Vendor represents and warrants: (a) all Deliverables furnished under the Contract will conform to all specifications and industry standards, and will be free from defects, including, where applicable and without limitation, defects in material, workmanship, and title;

(b) Vendor is the owner or licensee of all Deliverables it licenses, sells, or develops and Vendor has the rights necessary to convey title, ownership rights, or licensed use; (c) all Deliverables are provided free from any security interest, lien, or encumbrance and will continue in that respect; (d) the Deliverables will not infringe the patent, trademark, copyright, trade secret, or other proprietary rights of any third party; (e) Vendor must assign or otherwise transfer to the State or its designee any manufacturer's warranty for the Deliverables; (f) Vendor will not negate, exclude, limit, or modify in any warranty otherwise available to the State in any way; (g) the Deliverables are merchantable and fit for the State's intended use ; (h) the Deliverables furnished will conform in all respects to samples, advertisements, and other forms of representation made to the State; (i) the Contract signatory has the authority to enter into the Contract; (j) all information furnished and representations made in connection with the Contract is true, accurate, and complete, and contains no false statements or omits any fact that would make the information misleading, and the (k) Vendor is neither currently engaged in nor will engage in the boycott of a person based in or doing business with a strategic partner as described in 22 USC 8601 to 8606. Vendor agrees to promptly replace or correct any Deliverables not conforming to the foregoing warranty, without expense to the State, when notified of such non-conformity by the State. A breach of this Section is a material breach of the Contract.

6. **Termination for Cause.** The State may terminate the Contract, in whole or in part, at any time for cause in the event Vendor fails to comply with any of these terms, including, without limitation, late delivery or performance, the delivery of defective or non-conforming Deliverables, or failure to provide the State with reasonable assurances of future performance. In the event of termination for cause, the State will not be liable to Vendor for any amount, and Vendor will be liable to the State for any and all damages, including but not limited to, administrative fees, court costs, attorney fees, and cover costs. Any ineffectual termination for cause is hereby deemed a termination for convenience, effective as of the same date and limited to those rights.

7. **Termination for Convenience**. The State may immediately terminate the Contract, in whole or in part, without penalty and for any reason or no reason, including but not limited to, appropriation or budget shortfalls. Upon termination for convenience, the State will only pay for those Deliverables, not including standard stock, then in progress and which cannot be returned under these terms.

8. **Indemnification**. Vendor must defend, indemnify and hold the State, all of its instrumentalities, and employees harmless, without limitation, from and against any and all actions, claims, losses, liabilities, damages, costs, attorney fees, and expenses (including those required to establish the right to indemnification), arising out of or relating to: (a) any breach by Vendor (or any of Vendor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable) of any of the promises, agreements, representations, warranties, or other requirements contained in the Contract; (b) any infringement, misappropriation, or other violation of any intellectual property right or other right of any third party; (c) any bodily injury, death, or damage to real or tangible personal property occurring wholly or in part due to action or inaction by Vendor (or any of Vendor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable); and (d) any acts or omissions of Vendor (or any of Vendor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable). Due to constitutional prohibitions, the State will not indemnify Vendor, or its employees or affiliates, for any reason whatsoever.

9. **Confidentiality**. Vendor agrees that any information, including State Data, disclosed by the State in relation to the Contract will be used only in the performance thereof. Vendor will keep the information confidential, will not disclose it to any third party, except as authorized by the State, and will only disclose it to those within its organization who need it for performance of the Contract. Upon completion or termination of the Contract, Vendor will return all such information to the State, or make such other disposition thereof as directed or approved by the State. No item furnished under the Contract, or tools, plans, designs, or specifications for producing the same, which have been specifically designed for or by the State, will be duplicated or used by Vendor. Nothing in this provision will restrict Vendor's right to use or disclose any information which is or becomes known to the public without breach of this provision by Vendor or is rightfully obtained without restriction from other sources.

10. **Proprietary Rights.** All materials, tools, plans, designs, specifications, equipment, and other property either furnished by the State to Vendor or paid for by the State, will remain the property of the State, but the Vendor assumes the risks of, and will be responsible for, any loss or damage, until returned in good order to the State. Such property must be safely stored and properly maintained by Vendor. Upon

completion of this Contract, Vendor will return such property to the State or to any other entity as the State may direct, in the condition in which it was received, manufactured or procured by Vendor, except for reasonable wear and tear and except if such property has been incorporated into the Deliverables.

11. **State Data**. All data and information provided to Vendor by or on behalf of the State, and all data and information derived therefrom, is the exclusive property of the State ("State Data") and may only be used as specifically required by the Contract; this definition is to be construed as broadly as possible. Upon request, Vendor must provide to the State, or its third-party designee, all State Data within 10 calendar days of the request and in the format requested by the State. Vendor will assume all costs incurred in compiling and supplying State Data. No State Data may be used for any marketing purposes.

12. **Intellectual Property**. Unless otherwise stated in the Contract, Vendor: (a) agrees that any computer program, software, documentation, copyrightable work, discoveries, inventions or improvements developed by Vendor resulting from supplying the Deliverables are the property of the State; and (b) hereby assigns all rights therein to the State. Vendor further agrees to provide the State with any assistance which the State may require to obtain patents or copyright registrations.

13. **Limitation of Liability.** The State is not liable for consequential, incidental, indirect, or special damages, regardless of the nature of the action. Under no circumstances will the State be liable for any amounts, in whatever form, in excess of the total aggregate value set forth in the Contract.

14. **Records Maintenance, Inspection, Examination, and Audit.** The State or its designee may audit Vendor to verify compliance with the Contract. Vendor must retain and provide to the State or its designee and the auditor general upon request, all financial and accounting records related to the Contract through the term of the Contract and for 4 years after the latter of termination, expiration, or final payment under the Contract or any extension.

15. **Notices.** All notices and other communications required or permitted under the Contract must be in writing and will be considered given and received: (a) when verified by written receipt if sent by courier; (b) when actually received if sent by mail without verification of receipt; or (c) when verified by automated receipt or electronic logs if sent by facsimile or email.

16. **Modifications**. The Contract may not be amended except by signed agreement between the parties (a "**Change Notice**").

17. **Independent Contractor.** Vendor is an independent contractor and assumes all rights, obligations and liabilities set forth in the Contract. Vendor, its employees, and agents are not considered employees of the State.

18. **Subcontracting and Assignment.** Vendor may not delegate or assign any of its obligations or rights under the Contract without the prior written approval of the State.

19. **Compliance with Laws and Policies.** Vendor must comply with all applicable federal, state and local laws, rules and regulations. Vendor must also comply with all applicable State physical and IT security policies and standards, which will be made available upon request

20. **Nondiscrimination.** Under the Elliott-Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, *et seq*., the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, *et seq*., and Executive Directive 2019-09. Vendor and its subcontractors agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex (as defined in Executive Directive 2019-09), height, weight, marital status, partisan considerations, any mental or physical disability, or genetic information that is unrelated to the person's ability to perform the duties of a particular job or position. Breach of this covenant is a material breach of the Contract.

21. **Unfair Labor Practice.** Under MCL 423.324, the State may void any Contract with a Contractor, Vendor, or subcontractor who appears on the Unfair Labor Practice register compiled under MCL 423.322.

22. **Governing Law.** The Contract is governed, construed, and enforced in accordance with Michigan law, excluding choice-of-law principles, and all claims relating to or arising out of the Contract are governed by Michigan law, excluding choice-of-law principles. Any dispute arising from the PO must be resolved

in Michigan Court of Claims. Vendor hereby waives any objections, such as lack of personal jurisdiction or *forum non conveniens*. Vendor must appoint agents in Michigan to receive service of process.

23. **Non-Exclusivity.** Nothing contained in the Contract is intended nor will be construed as creating any requirements contract with Vendor. The Contract does not restrict the State or its agencies from acquiring similar, equal, or like Deliverables from other sources.

24. **Force Majeure.** Neither party will be in breach of the Contract because of any failure arising from any disaster or acts of god that are beyond their control and without their fault or negligence. Each party will use commercially reasonable efforts to resume performance. Vendor will not be relieved of a breach or delay caused by its subcontractors. If immediate performance is necessary to ensure public health and safety, the State may immediately contract with a third party.

25. **Media Releases.** News releases (including promotional literature and commercial advertisements) pertaining to the Contract or project to which it relates must not be made without prior written State approval, and then only in accordance with the explicit written instructions of the State. Vendor will provide the State, for its review, copies of all presentations or articles being submitted for publication at least 30 calendar days in advance.

26. **Website Incorporation.** The State is not bound by any content on Vendor's website unless expressly incorporated directly into the Contract.

27. **Severability.** If any part of the Contract, or these terms, is held invalid or unenforceable, by any court of competent jurisdiction, that part will be deemed deleted and the severed part will be replaced by agreed upon language that achieves the same or similar objectives. The remaining Contract terms will continue in full force and effect.

28. **Waiver.** Failure to enforce any provision of the Contract, or these terms, for any period of time will not constitute a waiver.

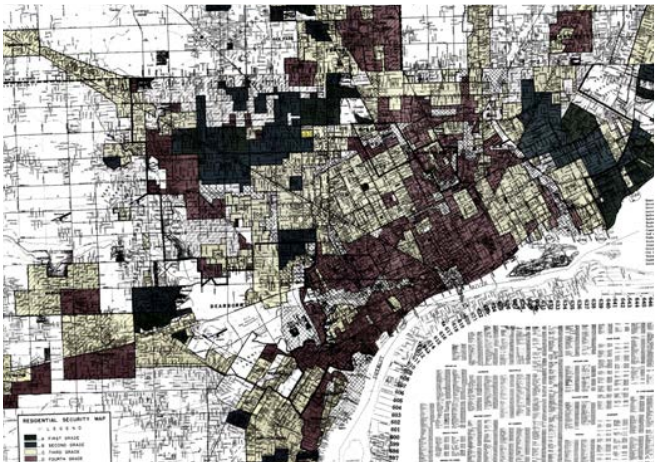
29. **Survival.** The provisions of these terms that impose continuing obligations, including warranties and representations, termination, indemnification, intellectual property, and confidentiality, will survive the expiration or termination of the Contract.

30. **Entire Contract.** The Contract and these terms constitute the sole and entire agreement of the parties with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings and agreements, both written and oral, with respect to such subject matter. No terms on any invoice, quote, purchase order, website, browse-wrap, shrink-wrap, click-wrap or other non-negotiated terms and conditions provided with any of the Deliverables (including software and hardware) or documentation, whether by Vendor, Contractor, subcontractor, or any third-party, will constitute a part or amendment of the Contract or is binding on the State or any authorized user for any purpose.

SEAS SCHOOL FOR ENVIRONMENT AND SUSTAINABILITY
UNIVERSITY OF MICHIGAN

Energy Equity Project Report

2022



Energy Equity Project Report

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Energy Equity Project Framework Report, v1.0

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Join us at the Energy Equity Hive on Slack

INTENDED USAGE

The Energy Equity Project Framework (EEP Framework, "the Framework") is an open source document available at no cost to the general public. All of its contents may be freely used and shared for non-commercial purposes.

When referencing the document or a concept, idea, or other content that is drawn specifically from the Framework in printed or static website materials, please attribute the work as detailed in the suggested citations. Informally, as in blogs, social media posts, and video interviews, we appreciate a shoutout, too.

The framework is a holistic guide to measuring and advancing energy equity. Our goal is that the framework is used to directly benefit Black, Brown, Native, frontline, and low-income communities. If your purpose in using the framework conflicts with these goals, we kindly ask you to reconsider.

The framework has numerous potential uses, which we discuss in detail in the EEP Overview chapter.

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Acknowledgments and Authorship

DEDICATION

The Energy Equity Project is dedicated to all people who have been systemically excluded from the benefits of clean energy and saddled with the burdens of an unjust energy system. We stand in solidarity with leaders who have stood up for energy justice—first and foremost from grassroots organizations in frontline communities—but also with outspoken advocates within government, academia, non-profits, and energy providers.

LAND ACKNOWLEDGMENT

No words can sufficiently acknowledge what Indigenous peoples across North America have endured from White European colonizers. Indigenous peoples have faced genocide, massacres, forced relocations and death marches, land theft and despoilment, and residential boarding schools that sought to "kill the Indian to save the man."

Words alone do little to bring justice. And yet, they are a necessary starting point. All of our "non-Indigenous" partners and colleagues occupy unceded lands that are the ancestral and contemporaneous homes of Indigenous peoples. The University of Michigan was founded in 1817 from a supposed gift of 1,900 acres of land by the Anishinaabeg and the Three Fires Confederacy of the Potawatomi (Bodéwadmi/Bodowadomi), Ottawa (Odawa) and Chippewa (Ojibwe/Ojibwa). Its founding came with the promise of free education for their children, which was never fulfilled. University of Michigan also occupies land that belonged to the Burt Lake Band in Northern Michigan, which was taken in 1900 and the homes of 19 families were systemically burned.[1]

We call for recognition of crimes against Indigenous people that have happened continuously throughout colonial history in North America. These acknowledgments must be the beginning of real remedies that repatriate land, compensate to the greatest degree possible for the immeasurable losses and suffering caused by European colonizers, and invest in a future in which Indigenous history, sovereignty, culture, and material wellbeing are deeply honored and uplifted.

[1] For more about the University of Michigan's complicity in abuses of Native peoples, please see: https://healingmnstories.wordpress.com/2019/03/09/burt-lake-burnout-a-story-of-land-theft-and-indigenous-perseverance/

ACKNOWLEDGMENTS

We thank the hundreds of colleagues and listening session participants who have contributed their time and feedback and posed critical questions, all of which have sharpened the focus of the Framework. In particular, this framework would not have been possible without the extensive contributions of the 45 Workgroup Members, who stuck with an intense and at times evolving process over seven months.

The six lead authors in particular demonstrated extraordinary leadership in convening and motivating their teams, bringing different personalities and stakeholder perspectives toward consensus, and synthesizing a web of inputs into something seamless and usable. We extend our deepest gratitude to Aditi Bansal, Moah Christensen, Lamisa Chowdhury, Pamela Fann, Anna McCreery, Shahed Shafazand, and Akiya Simms.

Many others were influential in our understanding of the task at hand: Mark Orlowski, Suzanne Russo, Ariel Drehobl, Julie Michals, Julia Eagles, Isaac Sevier and the team at the Initiative for Energy Justice.

EEP was sharpened in many ways by additional contributors. The folks at Earthrise and Shift7: in particular Dan Hammer, Mason Grimshaw, Susan Alzner, Megan Smith, were instrumental in taking our vision and our data and turning it into the EEP map.

A University of Michigan stats team comprised of Dr. Michael Craig and graduate students An Pham, Claire McKenna, Kent Ratliff, Michael Storch, Pam Wildstein, Srihari Sundar, and Larson Lovdal were instrumental in working with our data sets and proposing a methodology for creating equity scores for each census tract. We are grateful for the many hours they invested in this project.

EEP would not exist without the vision and leadership of Dr. Tony Reames. From creating the Urban Energy Justice Lab at University of Michigan to advocating for an energy equity track at the 2018 ACEEE Summer Session and securing funding for developing and launching the project, Dr. Reames has been a leading thinker, convener, and champion for energy justice broadly and for EEP in particular. He is the heartbeat of this work.

EEP was the vision of its founding advisors, who invested the time to secure funding, write white papers that envisioned the project's future, and supported the project through its launch. Thank you Michael Colgrove, Marti Frank, Emily Levin, Jamal Lewis, Carlos Martín, and Elizabeth Palchak for bringing this to life.

EEP began under the wing of Dr. Tony Reames, professor and founder of the Urban Energy Justice Lab at University of Michigan's School for Environment and Sustainability (SEAS). Dr. Reames took the baton at a critical time, nurturing EEP into fruition before stepping up to serve the Biden Administration and passing the reins of Principal Investigator to Dr. Kyle Whyte. Dr. Whyte has been an outspoken advocate for the project and taken the lead on securing resources, facilitating sessions, supporting communications and thought leadership, and being a deeply engaged champion for the work.

To the team at SEAS: Dean Overpeck, Carole Love, Lori Atherton, Scott Culver, and the many others who provided ongoing administrative, financial, and communications support: thank you for making EEP a success.

And finally, a special thank you to our funders:

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You made this collaborative work possible.

AUTHORSHIP

The framework was collaboratively written by members of the EEP workgroups. Workgroup members, their affiliations and roles (lead author, contributing author, or advisor) are listed below. Author contributions are as individuals and do not necessarily represent the positions of their organizational affiliations.

Some additional people participated on workgroups but either were unable to continue or were not comfortable being included in the authors list. We thank them for their contributions.

The introductory materials and EEP chapter were written by EEP Project Manager Justin Schott, who also served as the editor of the framework. The content of each of the workgroup chapters are the research, ideas, and framing of the workgroup members with limited edits for clarity and consistency.

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1. Fann, Pamela (lead author), Das, Runa; Drehobl, Ariel; Green, Shelby; Harris, Garry; Lee, Maddie; Russo, Suzanne; Schwartz, Suzanne and Tillman, Gayla;, 2022. "Recognition Equity – Principles, Metrics, Qualitative Approaches and Best Practices." In *Energy Equity Project Framework,* University of Michigan.

2. Chowdhury, Lamisa (lead author); Aki, Megan; Beaulieu, Shelley; Behringer, Marguerite; Bolon, Cecilia; Junod, Anne; McAdams, Jasmine; Parker, Quinn; Patel, Anjali, and Schwartz, Judith 2022. "Procedural Equity – Principles, Metrics, Qualitative Approaches and Best Practices." In *Energy Equity Project Framework,* University of Michigan.

3. McCreery, Anna, Simms, Akiya (lead authors); Ahlstrom, Zoe; Moline, Heather; Osborne, T.J.; Scott, Alicia; Stacey, Ben; Tarekegne, Bethel; and Wentz, Lauren, 2022. "Distributional Equity – Principles, Metrics, Qualitative Approaches and Best Practices." In *Energy Equity Project Framework,* University of Michigan.

4. Christensen, Moah, Shafazand, Shahed, Bansal, Aditi (lead authors); Conant, Carolyn; Middleton, Erin; Pelkofsky, Kimberly; and Perry, Theresa, 2022. "Restorative Equity – Principles, Metrics, Qualitative Approaches and Best Practices." In *Energy Equity Project Framework,* University of Michigan.

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Executive Summary

To bolster a just transition to cleaner, more resilient energy systems, the Energy Equity Project (EEP) developed the first standardized national framework for comprehensively measuring and advancing energy equity. The Energy Equity Project (EEP) is a collaborative initiative housed at University of Michigan's School for Environment and Sustainability and supported by more than 40 authors and advisors who represent community grassroots organizations, non-profits, research institutions, regulatory agencies, utilities and independent energy consultants.

Energy equity recognizes the historical and cumulative burdens of the energy system borne by frontline and low-income communities and by Black, Brown and Native people in particular. To eliminate these disparities, energy equity centers the voices of frontline communities in energy planning and decision-making and ensures the fair distribution of clean energy benefits and ownership.

"We intentionally took a human-centered approach, acknowledging the inequitable impacts that past and current processes have on communities, and collaboratively imagined pathways towards deep systems change and energy democracy. The data, and lack thereof, tells an unsettling story—we simply do not have a history of inclusive, equity-centered processes in the energy space. Communities of color have continued to be harmed by and excluded from energy decision-making processes, and categorically denied the benefits of energy programs and investments."

LAMISA CHOWDHURY, LEAD AUTHOR – PROCEDURAL WORKGROUP

For decades, Black, Indigenous, and People of Color (BIPOC), frontline and low-income communities have borne the brunt of the negative impacts of the energy system while receiving a negligible slice of benefits from the clean energy transition. With the EEP Framework, we are both illuminating these inequities and establishing a process for reversing them. The ability to define guiding principles and adopt a range of quantitative metrics and qualitative best practices is essential for tackling the numerous energy inequities that persist. With dozens of states considering equity in energy policy and planning and trillions of dollars in new federal infrastructure and climate investments, the EEP Framework arrives at a critical moment that will affect frontline communities for decades.

We can hope for the day when energy equity is the norm, but until then, this Framework to Measure and Advance Energy Equity is a powerful tool for accountability and ensuring measurable progress.

New Contributions of the EEP Framework

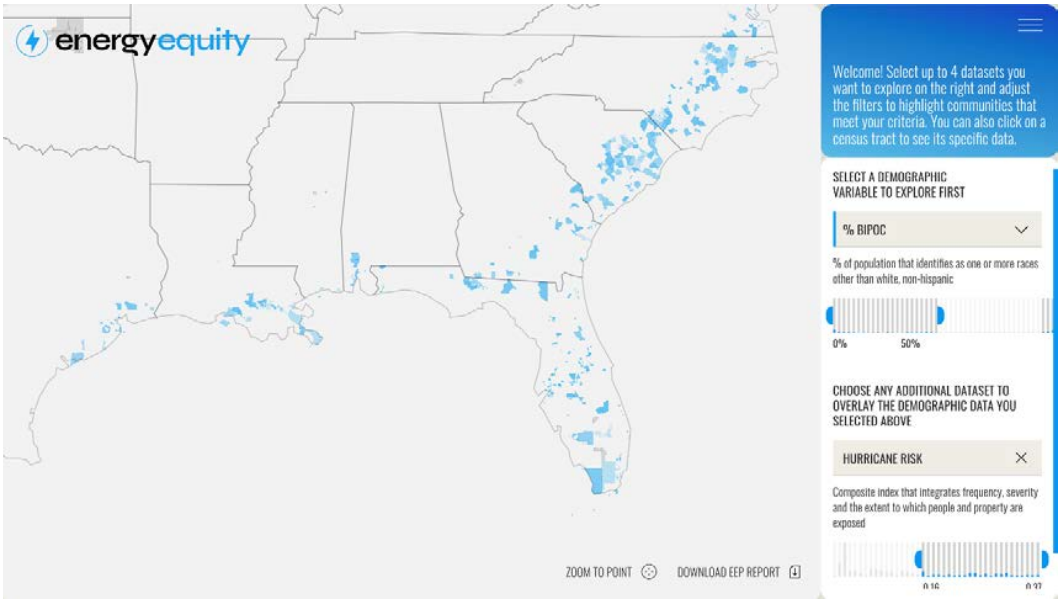
EEP builds on the longtime contributions of energy justice leaders and frontline environmental justice communities by synthesizing existing resources and compiling dozens of data sets and best practices. Over 15 months, EEP developed two foundational resources:

1) Framework for Measuring and Advancing Energy Equity (this document)
2) Energy Equity Interactive Map (access the map from www.energyequityproject.com)

Designed to be accessible for the public, these two complementary, open-source resources fill critical gaps in efforts to advance energy equity.

New contributions of the Framework to Measure and Advance Energy Equity:

- **Makes a bold case for energy equity** and what energy equity requires (EEP Overview chapter). This chapter provides detailed context and objectives for creating the framework, and a summary of the equity dimensions, sub-dimensions and associated metrics (p.15.) A guide to getting started (pp.16–22) includes equity prompts and considerations for different audiences and templates for creating an energy equity plan.
- **Describes guiding principles** for each of the four dimensions of energy equity (Recognition, Procedural, Distributional and Restorative chapters).
- **Assesses 148 potential energy equity measures** in depth—the status of data, whether they should be included as a quantitative metric or qualitative best practice, and a collection of resources and case studies for implementation. Each chapter aims to help users adopt a particular set of metrics and best practice to address local energy equity needs.
  1. **A highly transparent, collaborative process.** The Origins of EEP (pp.23–28) and the appendices tell the story of the 15-month EEP effort. Readers will find how each measure was scored by workgroups, community engagement summaries, and a conceptual framework by the University of Michigan statistics team for developing a standardized energy equity score.



A snapshot of the Energy Equity Interactive Map. This image identifies census tracts that are majority BIPOC (Black, Indigenous, and other People of Color) and face high risk from hurricane impacts. With no prior knowledge or expertise, users of the interactive map can choose any combination of EEP datasets and use sliders to easily filter by criteria that are important to their communities.

New Contributions of the Energy Equity Interactive Map:

- **Compiles 26 national, census-tract level data sets.** Some of the data may be familiar, but this compilation is unique to energy equity.
- **Enables users to explore the intersection of two data sets.** For instance, users can identify neighborhoods that both face a risk of hurricanes or heat waves and have a high proportion of older adults who live alone and are particularly vulnerable.
- **Encourages customization.** Behind the scenes, the Earthrise-Shift7 team of developers built a site that can be accessed by novice coders and tailored to community needs. The data and platform can be replicated and new local data sets can be added to supplement the baseline provided by the Energy Equity Project.

Applications of the EEP Framework for Different Audiences:

Frontline communities: Use data to communicate their lived experiences, advocate for remedies that protect against future harms and disparities, and effectively engage in formal planning and decision-making processes.

Government agencies: Track the benefits of their investments and prioritize communities that have historically been excluded from clean energy benefits.

Philanthropists: Support capacity-building of frontline community organizations. Invest in rectifying energy equity data gaps that government, regulators, and utilities do not address.

Policymakers: Define energy equity and frontline communities in statute and set a requirement that new investments and benefits prioritize these communities and measurably reverse existing disparities and inequities.

Regulators: Define energy equity metrics and targets for utility energy efficiency and integrated resource plans. Increase data transparency and make formal proceedings more accessible.

Researchers and practitioners: Review priority data gaps and develop approaches to collect, report, and mobilize new data.

Utilities: Track energy equity impacts among different groups of customers, improve customer engagement, promote distributional equity through workforce investments and community ownership of distributed renewables and storage, and invest in programs that address the root causes of energy poverty and insecurity.

With a massive transition to clean energy underway, the Framework to Measure and Advance Equity is primed for immediate adoption by government agencies, community organizations, regulators and utilities. We hope that widespread adoption will lead to a host of equitable policies, programs, and institutional structures. Most importantly, we hope it enables frontline communities to advance their visions of an equitable energy future.

FEATURES OF THE FRAMEWORK:

- Quantitative, comparative scores by Census Tract for nationally available datasets.
- Guidance on how to approach qualitative data.
- Guidance for best practices that represent outputs or strategies for advancing equity but are not themselves measurable outcomes.

FEATURES OF FUTURE VERSIONS:

- Addition of new and updated national datasets as they become available.
- Platform for accepting and hosting user-provided data, including state and local data.
- Creation of quantitative, user generated scales to assess qualitative elements. For instance, users might create a dataset by rating a utility or government agency on how effectively they engage frontline communities in climate planning and implementation.

AN INVITATION:

Work with The Framework and receive technical support from EEP

Tools like the EEP Framework are only valuable to the extent they meet the needs of users and empower them to meet their own goals. EEP staff are seeking interested users to partner with and explore how the Framework can be useful and where improvements can be made. We seek to work with potential partners such as:

- Grassroots BIPOC and frontline organizations that are organizing a campaign to promote policies that enable community-owned solar
- Public utility commissions that are tasked with implementing legislation that requires the creation of energy equity metrics or indicators

EEP technical support is primarily available for non-profit and public sector partners at this time. We will consider partnering with for-profit entities that align with the EEP vision and values on a fee-for-service basis and as EEP staff capacity allows.

Contact us: energyequityproject@umich.edu

In every moment lies an opportunity to advance energy equity.

Historically, the energy system has consistently (though not exclusively) been a source of inequities. The present inequities that accrued over many decades will grow and persist without actions to actually reverse inequities. The energy savings from energy efficiency, solar, and electric vehicles, for instance, continue to provide financial returns and generate wealth for those households, disproportionately white and higher income, that were able to take advantage of special government and utility incentives that were mostly not accessible to people of color and lower incomes.

Reversing energy inequities is possible at any time, provided there is a willingness to shift the underlying structures.

THE PURPOSE OF THE ENERGY EQUITY FRAMEWORK

- **To shift and expand how we think about equity.**
  - *Equity is a journey, not a destination.* In recognition of this, we try to use verbs and phrases like advancing equity, achieving greater (but not ultimate) equity, and more (but not perfectly) equitable.
  - *Equity is complex and multi-dimensional.* We organize our thinking and representation of equity into four dimensions, but there are related frameworks that use different language (e.g. structural instead of recognition) or different concepts, like intergenerational equity. Considering multiple dimensions of equity is important to ward off tendencies like reducing equity to a handful of key metrics. An equity goal to ensure no household faces an energy burden above 6% of income is laudable, but is just one consideration of *distributional equity* that must be considered alongside procedural elements, historical discrimination, and opportunities for marginalized households and communities to own the means of clean energy production and distribution in the future.
  - *Exemplary performance in one dimension while other dimensions lag is not a vision of equity.* What good is a body that is muscular if the heart is not also strong? How can someone live in a community with abundant clean air and affordable housing but no water to drink? What use is a high end bicycle if it doesn't have a seat, or handlebars, or pedals? In these cases, as in equity, most people would prefer to have something usable then to have the gold standard in some areas while being totally deficient in others. Equity is about lifting all boats, starting with those that have been ignored and shunned to the greatest degree. Defining equity is a multi-dimensional journey reminds us to work on all types of equity together, focusing on our greatest deficiencies first.

- **Equity in, equity out.** This parallels familiar adages like "you reap what you sow" and, framed negatively, "garbage in, garbage out." We don't believe it is possible to deeply embrace and advance equity without working to root out inequities internally. This kind of equity work has been developed by organizations focused on anti-racism or racial justice, anti-oppression, combating white supremacy culture, and decolonization. The number of new circumstances where equity concerns will arise is nearly infinite. The EEP Framework speaks to the most well-known and commonly encountered equity issues—like unaffordable energy burdens or the need to have materials available in multiple languages. But ultimately, we believe the strongest, most durable form of energy equity is when agencies, organizations, and individual staff have embraced equity and can apply it to a variety of new situations.

  What does it mean to embrace equity internally? It means adopting guiding principles that can be applied to any activity or situation, especially those that are not anticipated. It means asking the right set of questions and understanding that all dimensions of equity must be considered together. Embracing equity means shifting our focus from particular projects, policies, and dockets to the everyday and mundane: our ongoing relationships with community organizations, how we prioritize and structure our own work.

  Embracing equity will permeate recruiting, hiring, and job promotion practices, salaries and benefits, training and formal job responsibilities, organizational culture that rejects the norms of white supremacy, performance goals and expectations, transparent reporting, relationships with each other and community, and accountability structures to stakeholders we engage with and impact. Recommendations for how to embed and practice equity internally are too broad for a full examination here but is discussed in greater detail in the Procedural chapter. Additional resources are included in the Appendix.

- **To urge immediate action.**

  "But there is no neutrality in the racism struggle…One either allows racial inequities to persevere, as a racist, or confronts racial inequities, as an antiracist. There is not in between safe space of 'not racist.' The claim of 'not racist' neutrality is a mask for racism."

  DR. IBRAM X. KENDI, *HOW TO BE AN ANTIRACIST*

  Every day our actions and decisions have equity implications. As Dr. Kendi astutely notes, there is no such thing as sitting on the sidelines—either we are part of the solution, or, even if we are "neutral", we are complicit in the perpetuation of the problem, which is the status quo. In the case of racial justice, Kendi's primary focus, our actions are either actively advancing justice—they are anti-racist—or they are enabling the continuation of racism. Even if most people would not consider an action to be actively racist, it doesn't take a policy that blatantly discriminates to disproportionately impact people of a certain race. This is apparent in the justice system, for instance, which purports to have "colorblind" approaches but because of implicit and explicit bias, these are disproportionately punitive toward Black, Brown, and Native people.

  In recognition that we cannot suspend judgment or be bystanders without advancing inequity, the Framework advises that equity be considered in all decisions and actions of the energy system immediately. This doesn't mean that those decisions

and actions should move so quickly that they exclude people, water down important engagement processes, or make rash decisions. Our efforts still need to be inclusive, and thoughtful and, as adrienne maree brown says, to move at the speed of trust.[2]

But what does not make sense is to delay the process. If we know a decision is mandated by law before our ideal process is in place or before we have all of the datasets we desire, we still need to employ the most equitable processes and tools available to us in the moment, even when they are imperfect. We should always be striving to do more, and we cannot revert to inaction or not considering equity at all. Something thoughtful and somewhat inclusive is better than the default of no consideration for equity at all, provided it is not the endpoint. We need to step forward holistically and in good faith today, knowing that equity is iterative and we can continue to do better tomorrow, the next day, and all the days after that. This is what makes the practice of internal equity so vital—we are called on not just at specific moments like designing a new clean energy program or enacting policy, but to continuously improve how equity is embodied in all our relationships and all of our work.

- **To offer an adaptable process for advancing equity.** No single organization or decision-making body has control over all aspects of energy equity. All organizations and agencies connected to the energy system, however, do have opportunities to advance energy equity, beginning with their own internal HR and data reporting processes. Because advancing energy equity is not linear, the Framework is intentional in offering multiple approaches—quantitative and qualitative, regulatory and policy, near-term and long-term—for advancing equity where the needs and the opportunities are greatest.

- **To propose an agenda for collectively measuring and advancing energy equity.** Throughout our extensive research and collaborative development of the Framework, we often found ourselves wishing: "Wouldn't it be great if…." or "I really wish there was a data set that represented…." We asked these questions of ourselves and colleagues across our personal and professional networks. Sometimes we learned that in fact the data or best practice we were seeking already existed, but more often these pursuits confirmed where there were gaps. Creating a list of priority data gaps and proposing processes for collecting and transparently reporting this data, both quantitative and qualitative, became an important purpose of the Framework.

EEP is Grounded in an Intersectional Struggle for Justice

Too often, the origin stories of marginalized groups have been under- and mis-represented or erased entirely. There is little recognition that all of the Americas were occupied before the arrival of European colonizers, that we still occupy lands that were taken by force or coercion. Our narratives of the energy system rarely include mention that the language and culture of Native children was something colonizers literally tried to beat out of them in Indian boarding schools.[3] Monuments to those who fought for the institution of slavery still stand, although thankfully some have already been taken down. The histories that are taught to our children in public schools are still predominantly presented through a lens of white supremacy, although again, thankfully, this is changing, slowly and in pockets. The erasure and caricatures of Black people, Indigenous people, other People of Color, women and non-binary people, LGBTQ+ people, the disabled, the poor—all of these are stains that must be uncovered and brought into full light.

If this seems extraneous or tangential to a framework about energy equity, it is our small acknowledgement that our work does not and cannot stand in isolation from other movements, other struggles for justice. Efforts to divide and isolate movements and sever their inherent intersectionality weaken each individual movement, as none can advance apart from their independence on others. The principles of EEP's our Restorative Equity dimension call on us to consider our place, first within the full web of justice (racial, social, environmental, economic) and then within our smallest sphere of the energy justice and equity peers and initiatives.

The Roots of Energy Equity

The EEP Framework is one page among an intelligent, diverse, and beautiful volume of contributions. The emergence of energy equity, more commonly referred to as energy justice, is only about a decade old, although struggles not linked to that term have been ongoing for many decades. Energy justice traces its roots in the environmental justice movement, which in turn traces its roots in the civil rights movement and connects to a host of other struggles for social justice. Today, this recognition of intersectionality is increasingly common, readily apparent in statements like "Climate justice is racial justice" and "Indigenous justice is environmental justice".

[2] "Move at the speed of trust" is one the core principles of adrienne maree brown's *Emergent Strategy* (2017). Tiago Forte provides a nice summary here: https://fortelabs.co/blog/emergent-strategy-organizing-for-social-justice/

[3] See Bureau of Indian Affairs, May 2022. Federal Indian Boarding School Initiative Investigative Report. Retrieved June 1, 2022 from: https://www.bia.gov/sites/default/files/dup/inline-files/bsi_investigative_report_may_2022_508.pdf

WHAT TO EXPECT IN THE ENERGY EQUITY FRAMEWORK

- **An effort to consider and represent equity holistically** in the context of energy systems and efforts to combat climate change.
- **A series of high-level guiding principles** that establish the rationale for assessing and establishing goals for certain elements of equity
- **The framework distinguishes between three elements:**
  - quantitative data,
  - qualitative data,
  - best practices, which are output measures that affect both qualitative and quantitative outcomes (e.g. providing documents, marketing materials and interpretive services to serve non-native English speakers)
- **Multi-dimensional**, considering four pillars of energy justice: recognition (aka structural), procedural, distributional, and restorative and a total of 11 sub-dimensions. *A summary view of the EEP dimensions is available here.*
- **A compilation of energy equity best practices**, including measurement tools, community engagement and procedural processes, program design, policies and communications
- **An extensive source of resources** and organizations and individuals leading on energy equity and justice
- **A combination of national data sets** by census tract, which are visualized on the EEP Map. In all, EEP workgroups scored, assessed, and categorized 148 potential energy equity measures. The map enables users to compare multiple variables and filter by user-selected criteria.
- **An analysis of priority data gaps** and limitations of existing data

NOTE: EEP's data and back-end coding can be publicly accessed below:

Google Colab | Github | EEP Summary of Metrics

To explore the EEP Map, visit
www.energyequityproject.com

- **A tool for establishing state and local equity metrics and targets.** The Framework can serve as a starting point. We also offer guiding principles for each dimension to help users establish a "true north" prior to assessing and selecting metrics.
- **Iterative.** The beta version has established our process for creating and updating the Framework, a platform for data reporting and visualization, and . Future versions will attempt to fill high priority data gaps and to integrate feedback from groups that work with the Framework to advance their state and local energy equity initiatives.

The Framework is not:

- **A one-size-fits all approach** to energy equity (we believe that sentence is an oxymoron)
- **A target or check box** for equitable energy and climate initiatives. While the framework suggests considerations for equitable program design and delivery, it is not intended to offer passing or failing grades or for a particular entity to claim that its activities or goals are sufficiently equitable
- **A universal scorecard** (though we offer quantitative metrics that users can use to assess their local energy equity shortcomings, needs, and progress)
- **A universal set of equity targets** (though we suggest approaches to setting local targets)
- **A substitute for deep, authentic, inclusive community-led** planning, decision-making, and implementation
- **For partial or selective application.** An organization or agency that performs well in three dimensions of equity but dismally in the fourth is not performing equitable overall. The framework should not be used to demonstrate equitable practices in one of the dimensions in order to ignore or counteract shortcomings in another
- **An end point;** achieving a certain score is only valuable to the extent that it aligns with community-driven priorities. Equity is not a goal to be accomplished, but an on-going pursuit that continues to assess and reduce disparate benefits and burdens between populations, unequal access and power in design and decision-making processes, rectifies past inequities, and ensures that community standards for holistic well-being are honored and protected
- **Restricted for use** by a particular audience
- **A source of blame for energy inequities**—we emphasize historical context, accountability and reparations *for the purpose of advancing future remedies* that are sufficient to address past harms and disparities.[4]

[4] As we discuss in the Restorative Equity chapter, accountability and reparations are critical considerations to meaningfully advance equity and remedy historical disparities and marginalization. The framework encourages documenting and telling the story of these historical legacies and integrating them when considering the scope and scale of future investments. Energy equity is absolutely concerned with accountability; we offer best practices for addressing inequities primarily to inform present and future investments and programming, rather than to ascribe blame or suggest approaches to justice to address historical wrongs.

Figure 1. Final EEP Framework Structure – 4 dimensions and 12 sub-dimensions

DIMENSION	INDEX	DESCRIPTION	SAMPLE METRICS
RECOGNITION	Historical	Captures historic disinvestment, discrimination, disenfranchisement, and environmental justice burdens that continue to impact present circumstances.	· Proportionate disparities in historic program spending and savings by race, income · Historic presence of toxic facilities/superfund sites/cancer clusters · Anti-equity/anti-clean energy lobbying expenditures · Redlining and housing discrimination
	Identity	Captures demographic, social-economic, and geographic variables that are closely correlated with energy and climate vulnerability and disproportionately high burdens and low benefits from the energy system.	· Climate vulnerability score · Housing access/stress · Demographics · Pollution burden · Health measures (e.g. asthma rates) · Economic indicators (e.g. % HH below 50% AMI)
	Security	Captures data that indicate how continuously, safely, and reliably one has access to energy without interruption or compromising other basic needs or comfort.	· Power outage frequency and disparities · Shutoffs/shutoff policies · Arrearages · Energy as human right declarations
	Affordability	Considers rate structures, payment plans, financial assistance, household financial benefits from clean energy programs, and disparities in energy costs among different demographic groups.	· Presence of progressive/lifeline rate structures · Maximum limits on energy burdens · Rate disparities between residential, commercial, industrial · Size of overall safety net (per capita) · % of safety net spent on longterm afforability, vs bill assistance
PROCEDURAL	Procedural	To what extent are BIPOC, frontline, and low-income residents able to engage in PUC cases, decarbonization planning, and have a meaningful voice in how plan and policies are created and designed. To what extent are they the architects of their energy future?	· Presence/extent of intervenor funding and resources · PUC commissioner selection process and representation · Mandatory equity training for PUC (and utility?) staff · Data disclosure requirements · Utility performance incentives and penalties tied to equity targets
	Access	How easy is it for people to learn about, qualify for, and enroll in programs?	· Multi-lingual ads, program materials, enrollment, and participation · Marketing representing and to BIPOC, frontline audiences · Disparities in participation rates · Financing availability and eligibility requirements · Access for renters · Auto- and co-enrollments, ease of enrollment
DISTRIBUTIVE	Household benefits	Captures immediate financial and health benefits that participating households receive.	· Proportion of high impact programs received by BIPOC, LI, frontline households · % BIPOC households achieving >25% energy savings · Reduction in unhealthy/unsafe housing conditions among BIPOC; improved indoor air quality · Reductions in negative health conditions among BIPOC
	Community benefits	Captures medium- and long-term community level or indirect benefits including health, wealth-building, jobs, and environment.	· % of new jobs held by BIPOC, frontline, low-income · % of work for BIPOC-owned businesses; supportive policies · Wages and job quality for BIPOC, disparities · Reduction in heat islands, localized flooding · Improved outdoor air quality · Community health outcomes
RESTORATIVE	Reparations & Accountability	How do we liberate data and ensure transparency? How do we rectify and compensate for past harms and ensure they are not perpetuated in the future? How do we ensure that all dimensions of equity are considered holistically, with no dimensions ignored?	
	Power to the People	Who owns clean energy and receives the economic and environmental benefits? How do governance structures benefit or harm frontline communities? Who designs the systems? Who are the ultimate decision-makers?	
	Indigenous Sovereignty	How can a just transition promote visibility, healing, and a different relationship with energy? How are we connecting Indigenous justice and environmental justice and elevating the landback movement? How can clean energy and climate programs respect and honor Indigenous Sovereignty and traditional knowledge? How can we ensure that we are not perpetuating the language and practices of colonizers and move beyond a capitalist mindset? How do we measure/evaluate progress towards Indigenous Sovereignty in the realm of energy and climate?	
	Restoring Our Relations	How are we protecting and restoring ecosystems holistically and not merely transferring impacts to far away sacrifice zones? How can we shift our language and cultural practices to recognize non-human kin? How do we recognize and uplift the right of other species and ecosystems to exist? How can we ensure a habitable planet for future generations?	

GETTING STARTED

Creating an energy equity plan:

1. **Review equity prompts** – these foster a mindset for how each group of actors can advance equity. Participating in equity training is another valuable pathway for focusing on the process of creating and energy equity plan.

2. **Map a robust process of co-creation (a.k.a. community engagement) with frontline communities** – the opportunities for community engagement should be clear and transparent from the beginning, rather than being invited to weigh in after the initial process is already established. Organizers of equity initiatives should consider how and when frontline communities can have maximum voice and influence throughout the process. This will entail considering how much authentic power, decision-making, and design ability frontline communities have at each stage and how it can be increased toward the far right end of "The Spectrum" or a similar community engagement framework.[5]

3. **Define equity dimensions** – co-creators do not need to create their own unique definitions for each of the four dimensions; straight adoptions or minor adaptations of existing definitions are perfectly fine. Definitions are intended to create shared understanding and language, to guide the development of equity targets and best practices.

4. **Co-create principles for each dimension** – guiding principles establish an equity initiative's true north. By qualitatively describing what equity should look like, these principles anchor potential equity targets to a shared vision. Once established, guiding principles help assess questions about equity targets and measurement:
   - Is this target or program budget sufficient to meet our guiding principle that all households can access the benefits of energy efficiency?
   - Have we really heard from all frontline communities, including Tribal communities, about how they would like the program to operate?
   - How long will it take the current program to correct the historical disparities that have accumulated since the inception of the program? Is this an adequate pace of change?
   - The four EEP workgroups each begin their chapter with a discussion of guiding principles which can serve as models.

5. **Set equity targets** – some examples include: 1) Reducing the number of households spending more than 10% of their income on energy by 50% each year and eliminating energy burdens above 10% within 7 years, 2) Increasing the number of frontline community organizations that participate in PUC proceedings each year and providing financial resources (aka intervenor compensation) for each community organization.

6. **Establish metrics needed for accountability** – to determine whether an equity target has been achieved.

7. **Develop a process for collecting and transparently reporting data** – in developing the process, the following questions should be addressed:
   - What data already exists and where are the gaps?
   - Who will hold and share the data?
   - What protections are in place to protect data and personal identities?
   - What format and timing is needed to collect the data?
   - What resources are needed—staff time, funding, server capacity, etc.?

8. **Establish best practices and use of qualitative data** – qualitative data is generated by subjective assessment. For instance, a rating scale may be developed to determine the extent to which PUC meetings are inclusive and accessible.

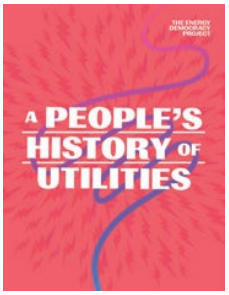
9. **Define roles and responsibilities for implementation** – once a comprehensive energy equity plan is in place, it should provide clear guidance for how the plan will be implemented and progress will be assessed and communicated. Each stakeholder needs clarity on their roles in the process.

[5] Movement Strategy, 2021. https://movementstrategy.org/wp-content/uploads/2021/08/The-Spectrum-of-Community-Engagement-to-Ownership.pdf

Equity prompts for different audiences:

Frontline communities:

- What guiding principles do we want to see established in the energy system?
- What is the extent of energy inequities we face? What data is available to help us quantify these inequities? How can we compliment this data with the stories of our lived experiences?
- What are the structural issues in the energy system (financial, regulatory, policy) that have and continue to contribute to these inequities? How would we remediate them?
- Power mapping – who are making energy decisions that impact us? What specific powers do they have and what maintains those forms of power? What levers do we have to intervene?
- What tools, tactics, and narratives would inspire our community members to action?



- What do we want from people in power? What are our asks? If we must start somewhere, what are our highest priorities?

RECOMMENDED RESOURCE:

- Rivera et al, 2021. A People's History of Utilities. The Energy Democracy Project

Regulators:

- What does our mandate say about our ability to advance energy equity? Where do we have opportunities to center equity in our interpretation of statutes, policies, and rules? If some would argue we "go too far" to advance energy equity, what are the likely and potential consequences of our actions? How can we minimize the risks?
- How can we make our work more transparent and accessible to people who have traditionally been excluded from regulatory processes? How are we providing accessible opportunities to learn how the process works?
- How are we practicing equity internally? Consider hiring and promotion processes, tracking and reporting staff demographics, representation of staff leadership, mandatory equity trainings and integrating equity in job responsibilities and performance evaluations. How are we communicating these efforts publicly?
- How are we supporting people with the full array of resources they need to meaningfully and effectively engage in our processes and proceedings?
- How are we valuing local forms of knowledge, such that the lived experiences of community have equal or greater weight to technical arguments presented by experts?
- How can we proactively deepen authentic relationships with frontline communities so that we are already in dialogue when there is an opportunity to collaboratively engage in program design and decision-making?
- How can we move more of our proceedings along "The Spectrum" of Engagement, so that frontline communities are more often in roles of decision-making and co-creation rather than merely being informed of having feedback sought after the fact?
- What examples of moral and political courage can we draw on when facing pressure to act in ways that negatively impact energy equity? What arguments have our peers made successfully to defend energy equity?

Program administrators, including utilities and utility contractors:

- What are the end goals (outcomes) of the program? How do those align with principles of equity?
- How are we measuring progress toward these goals? Do we need to collect additional data or collect it in a different way?
- Why is this program designed the way that it is? How did it come to be that way?
- Who is the intended audience and who is actually participating?
- How have participant interests, needs, backgrounds, and concerns shaped the program?
- How are members of the impacted communities involved in implementing the program (e.g. program managers, outreach and technical staff, etc)?
- Are there sufficient program slots or resources to meet the demand and achieve the end goal (consider waiting lists, time needed to serve all clients, etc.)?
- What level of investment is needed to reverse cumulative energy inequities accrued over many years?

Considerations by equity dimension for specific audiences:

AUDIENCE	RECOGNITION CONSIDERATIONS	PROCEDURAL CONSIDERATIONS	DISTRIBUTIONAL CONSIDERATIONS	RESTORATIVE CONSIDERATIONS
Frontline communities	Data gaps, undercounts/ underrepresentation, misrepresentation of local realities	Understanding of complex regulatory processes; resources, partners and expertise to engage effectively	Workforce development and clean energy business benefits, health, energy savings, wealth creation, climate resilience	Defining and communicating a vision of an equitable energy and climate future that centers frontline communities
Non-profits and researchers	Authentic, non-extractive relationships with frontline communities	Decisions made by or with frontline community, not for them; making space for narratives and qualitative data; reaching groups that have historically not participated due to access or trust issues	Documenting actual vs "deemed" savings; measuring and accounting for non-energy benefits	Advocating for durable, longterm solutions that address deep structural issues vs. band-aid solutions that do not address systemic or root causes; addressing lack of internal equity and representation
Regulators and government agencies	Community definitions; documenting historical legacies on the record; staff and commissioner representation	On-going engagement; decision-making and co-creation; informal opportunities to participate; range of supports and compensation to participate	Use of most inclusive societal cost tests; support for decentralized and cooperatively owned and managed systems; establishing mandatory targets for specific benefits (energy savings, jobs and wages)	Ensuring basic human rights and needs/ protecting human health and well-being; considering historical legacies and cumulative impacts; precautionary approach to infrastructure investment
Philanthropists	Representation of frontline communities among grantee staff, leadership, and boards	Accessibility of the grant application process; sufficient payoff for time required to apply; offering meaningful feedback and supporting organizations time to apply (e.g. capacity-building benefits for non-grantees); transparent reporting	Documenting recipients and beneficiaries and increasing funding to frontline communities; plugging gaps	Equity in endowments; community decision-making power; being an ally/aligning with frontline communities in advocacy work
Policy-makers	Community definitions and prioritization methodologies	Meeting with frontline communities	Mandating equitable targets for investments and benefits with strong implementation and accountability	Exceeding the proportionality/Justice40 standard
Utilities and contractors	Tracking and prioritization beyond income factors; outreach to most vulnerable, historically impacted, and underrepresented communities	Transparency and public data reporting; community led program design and evaluation; abstaining from lobbying and campaigns against the interests of frontline communities	Coordinating with and leveraging multiple service providers; maximizing investment in deep retrofits and lasting benefits; measuring and minimizing disparities; mechanisms to enable participation by all; affordability structures (e.g. percentage of income payment plans, on-bill financing)	Supporting community ownership; lifting caps on participation; holistically and deeply valuing resilience and distributed generation benefits to the grid

GETTING STARTED WITH METRICS

A first objective of the framework was to catalogue the status of potential metrics to be used at a census tract level, nationally. From an initial compilation of 148, we pared down to 80 that our workgroup members deemed valuable. But for metrics to be meaningful and guide energy equity work, there must be a much smaller number that are consistently evaluated and reported in each community.

Recognition: As with other screening tools, these metrics are useful for identifying communities that have been harmed by the energy system and deserve a larger share of benefits and investments in the future. While we did not include a final index of these variables that would result in a single score for recognition equity, the 23 recognition data sets that were included in the map can be used in this way. Users of the framework can choose to select and weight a subset of these metrics to identify and prioritize specific, historically marginalized and vulnerable communities.

Recognition variables offer descriptive data about different neighborhoods and communities. Because changes in the energy system will typically have limited impact on recognition metrics, at least in the near-term. For instance, energy efficiency retrofits and electrification may improve indoor air quality and ultimately reduce asthma among an entire population, but this will take time to observe. Radical changes in the energy system that enhance affordability and wealth generation opportunities can reduce evictions and unemployment, but the energy system is just one of dozens of societal factors to consider.

Most often, we are interested in combining recognition data with distributional data. Are there disparities in energy burden and program participation? Which specific populations are benefitting and which are burdened? How can we use census tract level data to target the most vulnerable households for participation in clean energy programs?

For the **distributional and procedural dimensions**, we recommend starting with a small subset of metrics and best practices for each dimension. The subset should be small enough for real progress to be made and that progress can be concisely communicated without losing people in a sea of action items.

The measures should be selected through an inclusive process in which members of BIPOC, frontline and low-income communities are leading or co-leading the selection. For each measure selected, there should be a clear tie back to the guiding principles and a definition of what success looks like. This definition

TAKEAWAY: SELECTING ENERGY EQUITY MEASURES

- **Select a feasible initial set of 3–7 distributional and procedural measures:**
  - How well do the proposed metrics align with priorities of historically marginalized communities? Members of these communities should have an opportunity to shape the metric selection process and decision-making.
  - Start with data that is readily available. You can always add complexity or consider more advanced measures in the future.
  - Simplify whenever possible. Think about why you are considering a measure and how this reflects your guiding principles.
- **Make a plan for measurement:**
  - What specifically needs to be tracked and reported?
  - How will the data be collected and analyzed? At what geographic resolution and how often? Who is responsible?
  - Which recognition variables (e.g. race, income, home occupancy status) are being considered to look at population disparities?
- **Establish a baseline and set targets:**
  - Ensure targets are specific in defining outcomes (whether qualitative or quantitative) and timeframes
  - Targets can be applied to different communities. For instance, the goal of the percentage of renters with high energy burdens may be different from the goal for households in single-family homes or mobile homes. Be specific.
- **Share the results transparently.**
  - How will these assessments be made accessible and communicated to the public? Focus on simple visuals that tell a story about how progress is being made toward an equitable energy system.

could be a quantitative target or qualitative: changes in how programs are designed, outreach is conducted, or participation in PUC dockets is enabled, for instance.

For measures that are not selected but are still considered meaningful by frontline communities, their underlying concepts and purpose can still be incorporated in planning and decision-making. If a state-wide equity plan does not decide to formally measure disparities in shutoff rates by race, for instance, it can still address the overarching concern by improving its outreach of energy efficiency and affordable payment plans to BIPOC communities and examine whether there are differences in energy savings or spending in majority BIPOC census tracts.

Below, we identify potential measure selections for the procedural and distributional dimensions, from core or baseline measures to intermediate and more advanced selections, based on the write ups of the workgroups. We note that in most cases, these measures are not exclusive. For instance, both energy burden by census tract (distributional core measure, #2) can be complimented by making percentage of income payment plans available (advanced measure #2).

These tables are not intended to be used to rank one locale above another for their equity measurement efforts. Furthermore, what one locale finds easy to measure and report (core level) another may find to be of intermediate or advanced difficulty, depending on available data and existing data collection and analysis procedures.

NOTE: The suggested lists of measures below include both quantitative metrics and qualitative best practices or rating scales. This list is a set of measures to assess, but does not aim to set goals or targets, which are best established by local stakeholders. In other words, even if the current state of performance in the measures below is far from the goal, selecting measures at this stage is simply about identifying which outcomes are most important to track and report.

Sample Distributional Metrics Selection

CORE	INTERMEDIATE	ADVANCED
Exceeding the E3b metric – spending	Exceeding the E3b metric – savings	Exceeding E3b at the program level
Average energy burden by census tract	Energy burden disparities among BIPOC, low-income and frontline communities	Percentage of income payment plans and/or arrearage management plans
Disparity in energy savings	% frontline participants achieving substantial energy savings (>20%)	Time to serve all frontline households with significant retrofits
% Contracts awarded to frontline-owned businesses	% jobs to individuals from frontline communities	% total economic benefits (including wages, wealth generation) to priority communities
Reductions in asthma or respiratory distress	Indoor air quality improvements	Climate and resilience benefits to frontline communities

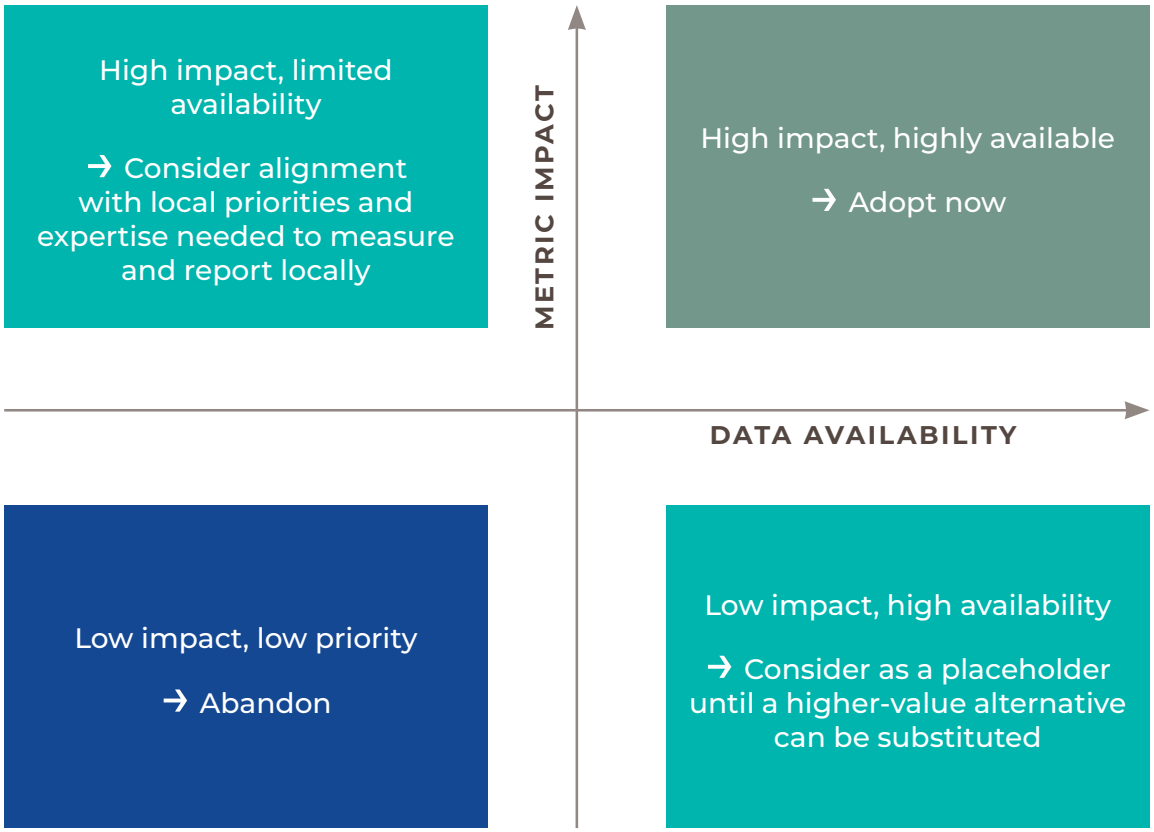
Sample Procedural Measure Selection

CORE	INTERMEDIATE	ADVANCED
Ease of access to participate	Marketing materials are culturally appropriate and in multiple languages	Access for renters
Stated energy equity principles and goals	Regulatory disclosures	Utility disclosures and reporting
PUC commissioner/decision-maker representation	Regulatory agency/utility/contractor mandatory equity training/internal practice of equity/diversity reporting requirements	Utility penalties for failing to hit equity targets in clean energy plans and program commitments
Financing access	Funding for home repair	Access for renters

Implementing the principles of **restorative justice** require a more qualitative approach. Restorative equity, which aims to remedy past harms from the energy system and prevent future harms from occurring, holistically considers whether each of the other three dimensions has been sufficiently addressed. For the restorative dimension, we recommend focusing on a series of questions, such as:

- How is the energy system honoring and not honoring the Native peoples of this land?
- Who holds the power to shape the energy system and its impacts? How can we shift power so that frontline communities have greater self-determination of their energy future?
- How will we acknowledge and reconcile harms that have been inflicted on certain people and communities in the past? What is needed to make them whole and repair harm done? How do those historically marginalized and impacted communities want past injustices to be addressed?
- What systems will we put in place to protect frontline communities from future harm and hold entities that have been responsible for past harms accountable?
- Are we thinking holistically about equity? Are there loopholes or equity dimensions that lag? How are we thinking about our actions and decisions today in relation to the needs of human and non-human kin seven generations into the future?

Approach to Metric Impact vs Availability



Ideally, many of the measures selected in an energy equity plan will be both high impact and highly available.

Template for proposing measures for each dimension:

ENERGY EQUITY DIMENSION	CORE MEASURES	INTERMEDIATE MEASURES	ADVANCED MEASURES
Recognition			
Procedural			
Distributional			
Restorative			

Use this chart to identify a few metrics or best practices for each equity dimension. Core measures should be ones that are achievable you are 100% committed to. Intermediate measures represent stretch goals, and advanced measures are longterm aspirations or increasing community ownership of solar and storage.

A proposed process and template for establishing the basic details of an energy equity plan:

PLAN ELEMENT	STAKEHOLDERS INVOLVED	TIME TO DEVELOP	LENGTH AND FORMAT	ANTICIPATED BENEFITS	PITFALLS TO WATCH FOR
Review equity prompts					
Map a robust process of engagement					
Define equity dimensions					
Co-create equity principles					
Set equity targets					
Establish accountability measures					
Develop a process for collecting and reporting data					
Establish roles and responsibilities for implementation					
Establish evaluation practices					

Origins of EEP

DEVELOPING THE EEP FRAMEWORK

The Energy Equity Project was originally conceived following a special equity session at ACEEE's Summer Session in 2018. With initial funding from Energy Trust of Oregon, founding advisors[5] came together to develop the vision for the project, wrote three white papers that defined key considerations and models of assessment frameworks both within and outside the energy sector. Dr. Tony Reames agreed to host the project at University of Michigan and secured initial funding from Energy Foundation and Joyce Foundation. One full-time project manager and two part-time graduate students were hired in spring 2021, and the project publicly launched that May. 215 people attended two kickoff sessions.

From the white papers by the founding advisors and early research by EEP staff, EEP developed a guiding vision for the framework and assessed how this fit within the existing landscape of energy equity and justice metrics and tools. The team identified specific gaps that the framework might fill, namely that it could compile data sets to provide census-tract level energy equity scores, much like Department of Energy's (DOE's) Low-income Energy Affordability Tool (LEAD) Tool offers an interactive map to explore energy burdens.

OUTREACH & ENGAGEMENT

One of the earliest and most important decisions was that the framework would not be agnostic—its explicit aim would be to drive meaningful benefits to Black, Indigenous, and People of Color (BIPOC), frontline, and low-income communities. EEP would pursue a robust and defensible methodology for developing the framework, ensuring that collaborative stakeholder engagement was central to the process.

EEP spent the summer of 2021 building relationships with energy equity and justice leaders through dozens of 1-to-1 meetings, by participating in a series of events and workgroups (e.g. ACEEE's Leading with Equity Initiative and Institute for Market Transformation's (IMT) Utility Regulatory Transformation Advisory Group). We convened 9 sector-specific listening sessions to solicit feedback on our proposed equity

Figure 1. Examples of tools to measure and advance energy equity that existed prior to EEP.

SCORECARD/TOOL	ORGANIZATION	DETAIL
Justice in 100 Scorecard	Initiative for Energy Justice	User-assessed rating scale for state 100% clean energy laws (not regulation), focusing on process, restoration, decision-making, benefits, and access.
Justice in 100 Metrics	Initiative for Energy Justice	Review of utility actions and equity indicators for energy access and affordability, procedural justice and democracy, economic participation and community ownership, and health and environmental impacts.
State Energy Scorecards	ACEEE	A mix of objective and user-scored metrics on state energy policies and performance.
Utility Scorecards	ACEEE	A mix of objective and user-scored metrics on utility energy investments and performance.
Community Energy Scorecard	Institute for Local Self Reliance	An assessment of state-level policies that enable or restrict community ownership of clean energy.
Electric Co-Op Scorecards (Southeastern U.S.)	Energy Justice Y'All	A ratings-based assessment of cooperative utility governance and operating practices.
Utility Disconnection Protections	Indiana University Energy Justice Lab	State-level of tabulation of 16 shutoff protection measures.
California Energy Equity Indicators	California Public Utilities Commission	Series of metrics adopted for evaluating energy equity and redistributing CA cap and trade funds. A mix of objective and user-scored metrics on energy.

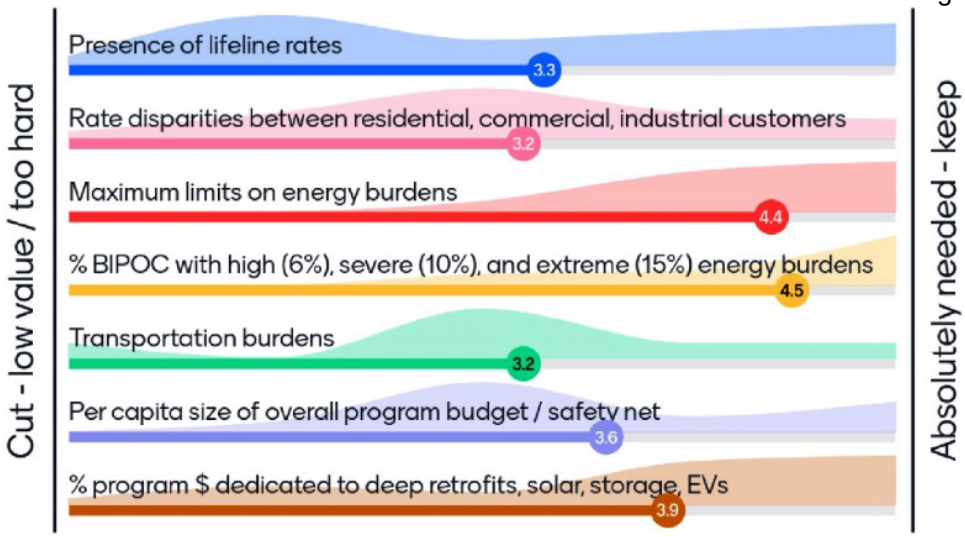


Figure 2. Example of live polling results from an EEP listening session.

dimensions, sub-dimensions, and individual metrics. Listening sessions included both live polling and lively discussion. The listening session feedback was maintained confidentially; an extensive summary that included both narrative feedback and rating scores of metrics and indices, by stakeholder type, was shared with the workgroups; highlights of the listening sessions can be found in the Appendix.

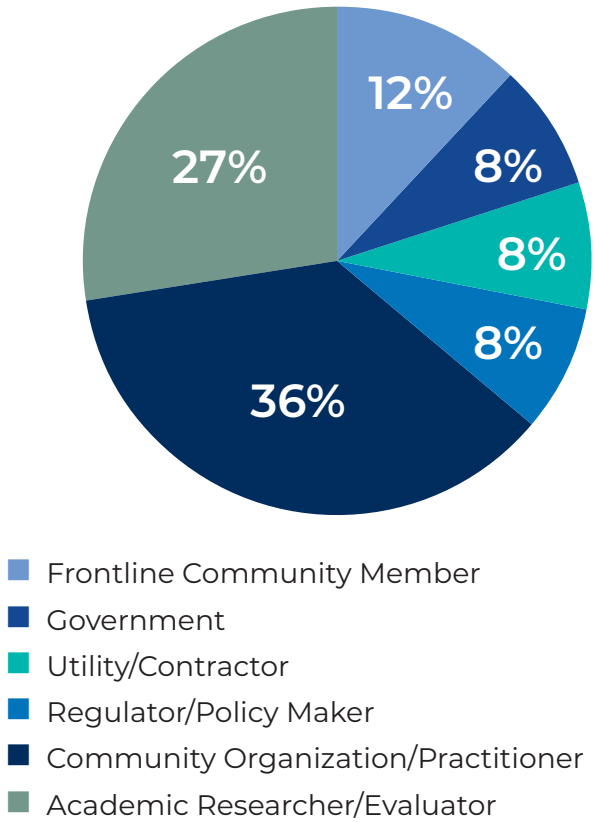
EEP WORKGROUPS

After completing summer listening sessions, EEP requested nominations for workgroups: one aligned to each of the four dimensions of energy equity. Prospective members identified their expertise, preferred workgroup and workgroup role: lead author, contributing author, or reviewer. 50 workgroup members were initially selected; 43 completed the framework development process with EEP. Workgroup members received a stipend based on their role and expected time commitment:

Advisors:	**12–15 hours, $625**
Contributing authors:	**30–40 hours, $1,250**
Lead authors:	**60+ hours, $2,000**

EEP offered workgroup members an opportunity to request an alternate, equitable stipend, which ranged from $0 (a full, pay it forward donation to future EEP participants) to twice their original stipend, based on personal need. About ⅓ of workgroup members participated in this alternative structure, with many foregoing stipends which in turn were leveraged to compensate participants in a future listening session that was convened to hear from Indigenous leaders across the U.S. and Canada in February, 2022.

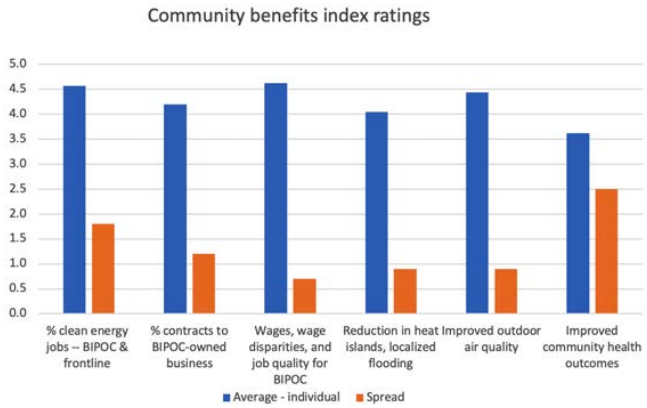
Figure 3. Composition of EEP Workgroups.



COMMUNITY BENEFITS INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	5
Practitioner	6
Utility	11*
Regulator	
Philanthropy	

* Utilities did not rate wage disparities.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
% clean energy jobs — BIPOC & frontline	4.6	4.1	3.2	5.0	1.8
% contracts to BIPOC-owned business	4.2	3.8	3.0	4.2	1.2
Wages, wage disparities, and job quality for BIPOC	4.6	4.7	4.3	5.0	0.7
Reduction in heat islands, localized flooding	4.0	4.2	3.7	4.6	0.9
Improved outdoor air quality	4.4	4.2	3.7	4.6	0.9
Improved community health outcomes	3.6	4.0	2.5	5.0	2.5

Community Benefits Index – Discussion

Highlights:
Economic benefits and improved community health benefits rate highly among most stakeholder groups (although averages were lowered by utility ratings, which was a common theme).

Key Questions & Staff Reflections:
Achieving greater equity in health and economic benefits has traction in many places, including from some utility partners. Diverse coalitions with interests including labor, civil rights, environmental justice, and other constituencies have advocated for their inclusion in program design. And yet, for some metrics (e.g. EJSCREEN pollution scores), there are major disparities by race and income. Because these metrics are affected by factors outside of any one agency's control, regulators and utilities may understand their value but be reluctant to take responsibility for achieving better outcomes.

If the Community Benefits Index identifies inequities, how should those be addressed by different stakeholders? As a starting point, they may be used for identifying disadvantaged communities and targeting program investments. But there may be more nuanced, stakeholder specific guidance. If a community action agency notes a household is located within an urban heat island and has numerous heat vulnerability factors, what agencies and organizations does it need to coordinate with to reduce the risk of heat illness and mortality? A local non-profit might be available to plant shade trees; if the household did not have air conditioning it might be prioritized to participate in an air source heat pump program, which would also provide cooling. The layers of action that might emerge from this index will require significant thought and guidance.

On another note, it is unclear where data for many of these metrics would live. Are these held by state agencies? Are there universal metrics we can identify or will this require more user input?

EQUITY DIMENSION	MEASUREMENT SUMMARY	FUTURE NEEDS AND APPROACHES
RECOGNITION	Extensive data availability for demographic sub-dimension, especially through U.S. Census and American Community Survey datasets.	i) Develop historical dimension to: a) Measure cumulative disparities in benefits and burdens when possible (e.g. receipt of financial incentives). b) Suggest a process for integrating narratives of historical concerns into equity assessment. ii) Secure energy insecurity data for every census tract. Shutoff data is already held by utilities but infrequently disclosed.
PROCEDURAL	Numerous best practices have been identified in guides and reports, but almost none are measured quantitatively.	i) Create quantitative rating scales to assess qualitative performance in procedural and program access sub-dimensions.
DISTRIBUTIONAL	A limited number of national data sets exist; some of these are state-wide scores that need to be applied.	i) Pursue priority data gaps in affordability, household benefits (e.g. energy savings by race, health benefits) and community benefits (e.g. job creation and quality.)
RESTORATIVE	Primary approach is qualitative best practices; majority does not lend itself to quantitative measurement.	i) Develop an overarching process for setting standards in the other three dimensions that must be met from a restorative perspective. ii) Continue to hone conceptual development of sub-dimensions and identify applications specific to the energy system. iii) Compile and develop new resources that promote holistic consideration of restorative equity in energy planning, programming and decision-making.

In reality, most workgroup members invested significantly more time than the projected amount, as EEP staff significantly underestimated the number and frequency of workgroup meetings that were necessary to develop guiding principles of their equity dimension, review and select metrics, and coordinate a collective writing process.

Bringing people together from different sectors proved challenging and tensions arose during the workgroups orientation meeting in October. There were questions about whether the existence of investor-owned utilities (IOUs) could be compatible with the goals of increasing community ownership and sovereignty of energy generation, for instance. We used Google Jamboard to collectively brainstorm norms and expectations, ranging from non-negotiable (necessary practices for someone to commit to be a part of EEP) to “no fear”, which we prompted with: “let’s embrace a radical understanding of equity and challenge the status quo.” While we did not officially adopt a particular set of norms, we compiled an extensive document to foster a shared understanding of EEP values (see Appendix A) and provide a basis for consensus-based decision making and writing. The document also indicated specific tensions that workgroups had to navigate, a task that was taken on primarily by lead authors. Although the spirit of workgroup meetings was mostly collaborative, in hindsight, we received feedback that devoting more time initially to formally defining core values, workgroup member expectations, and governance structures would have been valuable.

The elements of the framework process that were clearly mapped from the beginning were more

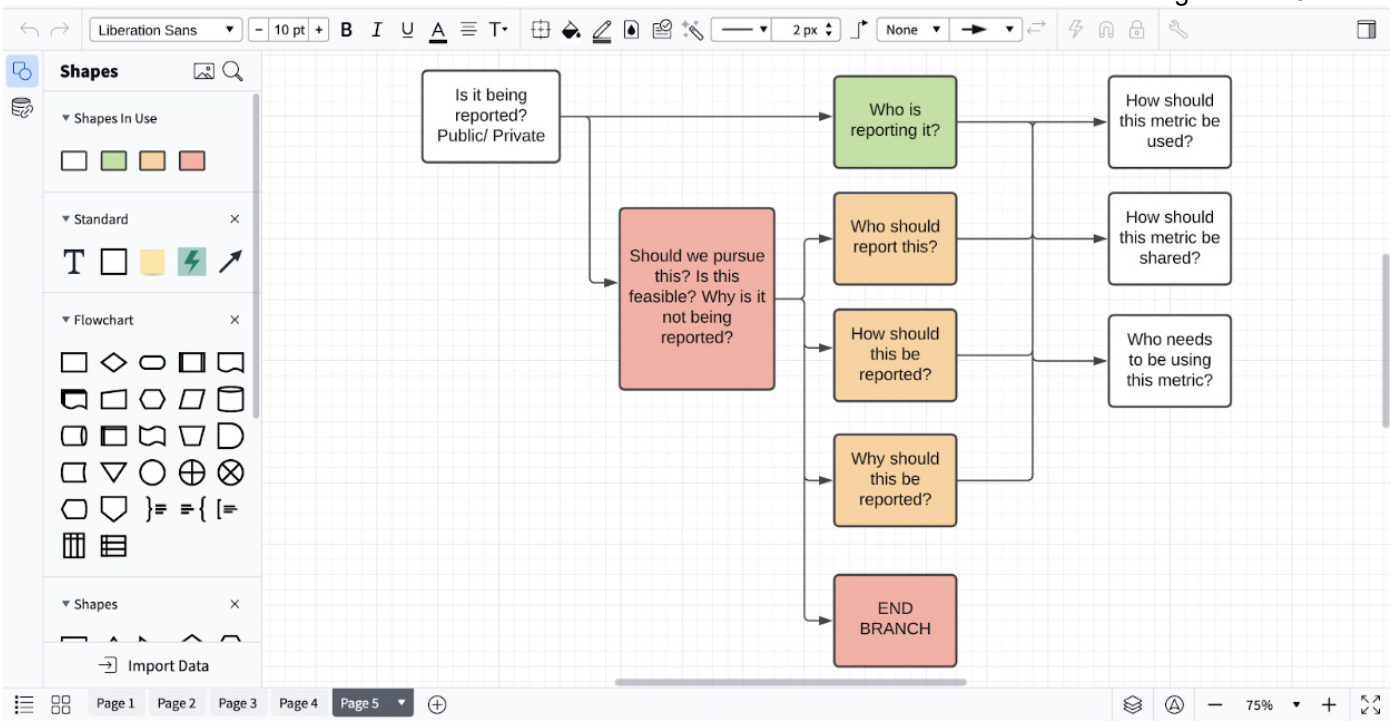


Figure 4. Flowchart workgroups received for how to assess proposed energy equity measures.

successful than those that evolved over the course of the work. Workgroups needed to invest sufficient time in reaching a holistic, shared understanding and language of their particular dimension before they could achieve consensus about guiding principles, which quantitative metrics and qualitative best practices to recommend. Time to explore existing resources and scholarship and to muddle forward to the particular contribution for EEP required 3–5 meetings, instead of the 1–2 EEP staff budgeted.

WHAT WE FOUND

Initially, with inspiration from other census-tract level data maps like the Opportunity Atlas and DOE's Low-Income Energy Affordability Database (LEAD) Tool, we envisioned creating a similar visualization. We had proposed nine different sub-dimensions, or indices; for each we hoped a unique score could be generated for each census tract, based on available metrics and user-selected weighting of those metrics. We had

Figure 5. Final catalogue of proposed energy equity measures.

Dimension	Total # Proposed Metrics	Included	Priority Data Gap	Desire to Create Rating	Shift to Best Practice	Unlimited Coverage or Unreliable Data	No Potential, Not Requested, Abandoned
Recognition	55	26	10	0	9	4	6
Procedural	40	0	1	8	10	5	16
Distributional	47	3	5	0	6	8	25
Restorative	6	0	0	0	2	4	0
TOTALS	**148**	**29**	**16**	**8**	**27**	**21**	**47**

	Metric	Included Status	Dimension	Sub Dimension	Resolution	Workgroup Initial Rating
4	Defining "disadvantaged" / target populations	Included	Recognition	Identity	State	5.00
5	Relative poverty (% of AMI)	Included	Recognition	Identity	Census Tract	5.00
6	Age of housing (affects efficiency and exposure to toxics)	Included	Recognition	Identity	Census Tract	5.00
8	disconnections disproportionately impacting BIPOC	X - priority data gap	Recognition	Security	Census Tract	5.00
9	disconnection suspensions during extreme circumstances	Secured - late additior	Recognition	Security	State	5.00
14	# of disconnections	X - priority data gap	Recognition	Security	Census Tract	4.86
15	Change in air quality in BIPOC-F-LI communities.	X - priority data gap	Distributional	Community E	Census Tract	4.80
16	% BIPOC	Included	Recognition	Identity	Census Tract	4.78
17	Deep poverty rate	Included	Recognition	Identity	Census Tract	4.78
22	Energy burden disparities	Included	Distributional	Household B	Census Tract	4.75
24	% renters	Included	Recognition	Identity	Census Tract	4.67
25	Trend in disconnections	X - priority data gap	Recognition	Security	Census Tract	4.63
26	outages (frequency, duration, restoration time) disproportionately affecting FL-LI-BIPOC	Included	Recognition	Security	Census Tract	4.57
27	Poverty rate	Included	Recognition	Identity	Census Tract	4.56
28	Housing burden	Included	Recognition	Identity	Census Tract	4.56
30	disconnections policies protecting vulnerable populations	Secured - late additior	Recognition	Security	State	4.50
31	Ease of restoration	X - priority data gap	Recognition	Security	State	4.50
34	% contracts awarded to BIPOC-F-LI-owned businesses	X - priority data gap	Distributional	Community E	State	4.45
35	Climate vulnerability - heat exposure	X - priority data gap	Recognition	Identity	Census Tract	4.44
36	Incarceration rate	Included	Recognition	Identity	Census Tract	4.44
37	Educational attainment	Included	Recognition	Identity	Census Tract	4.44
38	Air quality	X - priority data gap	Recognition	Identity	Census Tract	4.44
42	access for renters	X - priority data gap	Procedural	Access	Utility Service	4.44

Figure 6. Assessment tool used by EEP workgroups to score and evaluate equity measures.

envisioned 5-7 metrics would represent each of the 9 indices (~50 total), and scores could be tracked over time and compared to national averages.

Our final framework diverged considerably from this original vision. Ultimately, we found that we did not have sufficient data to represent the new indices as intended, with the exception of a demographic index under recognition, which primarily relies on well-known variables from the U.S. Census. A smattering of datasets infrequently used in EJ screening tools adds value to the beta version of the framework. These include monthly eviction rates,[6] median income of households installing rooftop solar,[7] the home energy affordability gap,[8] Community Power Scorecard,[9] and average energy savings per low-income household by investor-owned utilities.[10] In all, 26 national datasets were included at the census tract level.

[6] Eviction Lab
[7] Lawrence Berkeley National Lab
[8] Sheehan, Fisher and Colton
[9] Institute for Local Self-Reliance
[10] ACEEE

CLOSING INSIGHTS ABOUT ENERGY EQUITY

In this section, we offer some broad thoughts for those who work in the energy system or are working to advance energy equity. These insights are intended to invite framework users to develop a lens for thinking about and evaluating energy equity. The insights should prompt questions and focus readers on frequent issues and tensions that arise. This is a guest blog post written by Justin Schott in April, 2022 and graciously published by Pecan Street.

WHEN IT COMES TO ENERGY AND EQUITY, METRICS AREN'T ENOUGH

GUEST BLOG by Justin Schott, Project Manager of the Energy Equity Project at the Urban Energy Justice Lab
The University of Michigan School for Environment & Sustainability

Note: *Justin Schott is project manager for the Energy Equity Project at the Urban Energy Justice Lab in the School for Environment & Sustainability. EEP was founded by Dr. Tony Reames and is working to create a standardized framework for equity measurement, reporting, and tracking that drives clean energy investment and impact for Black, Indigenous and People of Color (BIPOC) and frontline communities.*

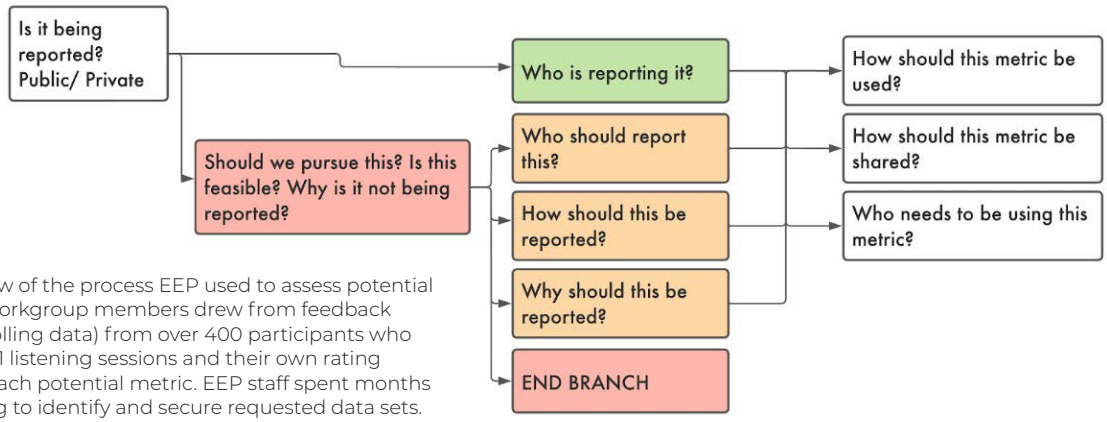
Energy justice is now a requirement for acceptance of federal funds, such as the infrastructure bill, and part of the standard formula for awards by at least 21 agencies. Requirements are proliferating at the state and even the municipal level, too, and various players are tracking these developments, including The New School's Tishman Environment and Design Center, Illume Advising, and a collaboration between E9 Insight and Yale's Center for Business and the Environment.

On one hand, this rapid shift to quantitatively define and measure equity is what many have been working toward—it is a victory we need to celebrate. No longer can an agency or a utility simply say it cares about equity or will "work closely with community partners." Having measurable equity requirements gives mandates teeth and supplants the potential for equity washing with measurable accountability.

But measurement alone is only part of the journey, and in isolation, it may even be dangerous. In a post last year, Meredith Fowlie wrote "What gets measured will get managed. And possibly manipulated."

Last May, the Energy Equity Project set out to create a national framework for measuring and advancing equity in clean energy programs and investments. Working with 45 energy equity leaders across a range of disciplines, from grassroots environmental justice advocates to regulators and utility staff, we identified a universe of 148 potential energy equity metrics. Our goal was to evaluate the value of each metric across four dimensions of equity:

- Recognition – Who is vulnerable, who is privileged, and how?
- Procedural – Who is at the table and what voice and power do they have in influencing planning, decision making, and implementation?
- Distributional – Who bears the brunt of the burdens, and who benefits, and how?
- Restorative – How can we rectify past injustices caused by the energy system and prevent future harms?



An overview of the process EEP used to assess potential metrics. Workgroup members drew from feedback (e.g. live polling data) from over 400 participants who attended 11 listening sessions and their own rating scores of each potential metric. EEP staff spent months attempting to identify and secure requested data sets.

Dimension	Total # Proposed Metrics	Included	Priority Data Gap	Desire to Create Rating	Shift to Best Practice	Unlimited Coverage or Unreliable Data	No Potential, Not Requested, Abandoned
Recognition	55	26	10	0	9	4	6
Procedural	40	0	1	8	10	5	16
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TOTALS	**148**	**29**	**16**	**8**	**27**	**21**	**47**

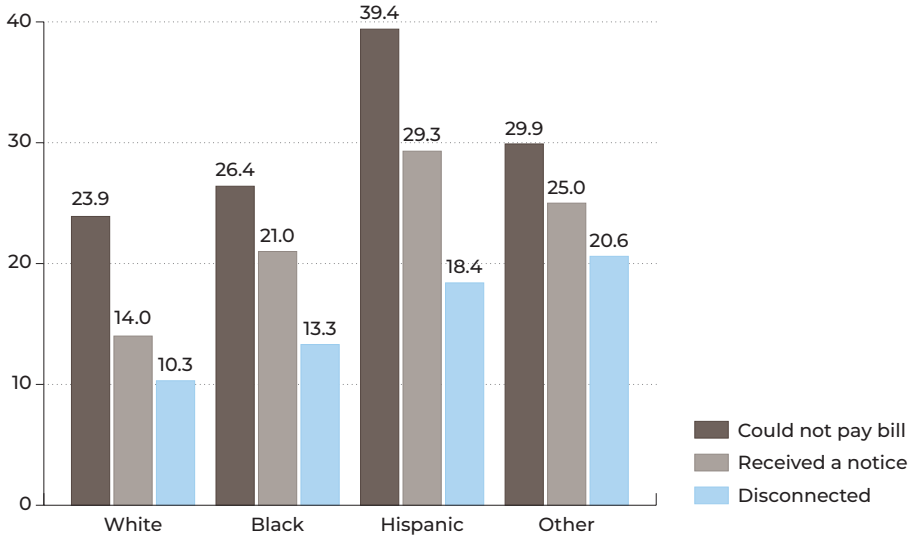
We assigned each metric to one of six categories:

- Included in the final EEP framework (data exists at the census tract level, nationally)
- Priority data gap
- Desire to create a rating scale based on qualitative assessment
- Shift to qualitative approach or best practice
- Abandon – limited or no potential due to spotty data, issues with geographic resolution or frequency of updating, or would require additional data procurement and manipulation
- Abandon – not an important reflection on energy equity

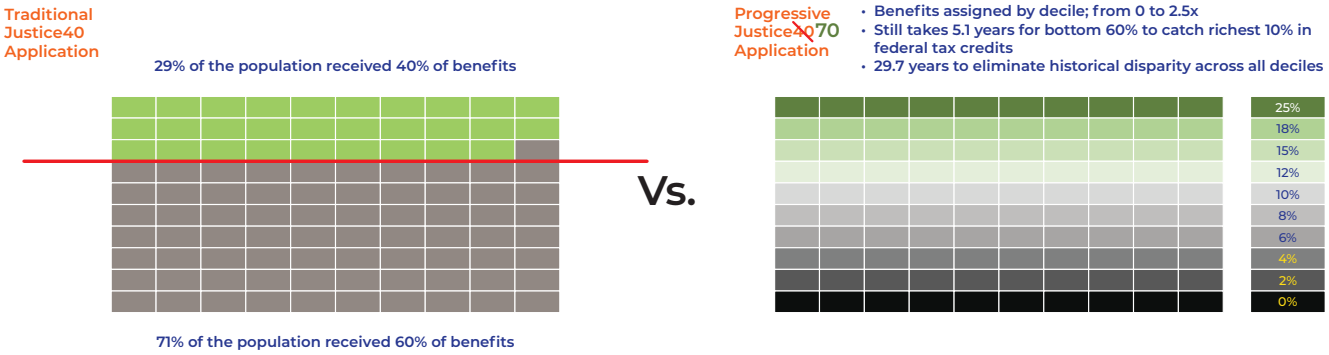
You can review a Google Sheet of our full matrix, but here's a quick view and some takeaways:

- Only 29 of the proposed 148 metrics will be included in the quantitative database and national map with census tract scores. This means that the vast majority (87%) of potential metrics do not currently lend themselves to rigorous and consistent quantitative measurement.
- Most of the metrics included are demographic and fall within the recognition dimension; no procedural or restorative metrics were identified.
- For eight of the procedural metrics, there is a desire to create a rating scale. These include concepts like the ability to access a range of programs regardless of income and owner vs. renter status.
- 16 priority data gaps remain—these represent metrics like the rate of shutoffs by utility and by demographic variables like race. Some of this data exists, but there is not a comprehensive national dataset.
- We identified 27 proposed metrics that we reclassified as best practices.
- And finally, about a third of our proposed metrics were abandoned, either because they were not deemed of significant value by workgroup members or we see no future pathway to obtaining reliable and useful data.

Energy Insecurity by Race Last Three Months (November 2021–January 2022)



Shutoffs put people's lives at risk, yet no national shutoff data exists. Source: Indiana University's Energy Justice Lab, February 2022.



Is the Justice40 standard, applied to all federal energy, climate, and infrastructure investments, really the best way to advance energy equity? Above, EEP considers a smoother curve of benefits allocation in a Justice70 scenario.

EEP will release the beta Energy Equity Framework and map this summer, including full write-ups of our assessment of each of these potential metrics and accompanying resources.

At their best, metrics mirror reality. After a year of intensive investigation, we now know that the mirror we can produce will always be blurry to a degree. We will continue to work on securing priority national data sets at the census tract level like shutoffs to add clarity, but this leaves us rethinking the ultimate role of equity metrics vs. best practices.

Even when high-quality metrics are available, the data itself is silent on how we should proceed. What are equitable targets for investments in energy efficiency, solar, and electric vehicles? What is an acceptable maximum percentage of income for people to pay (energy burden) to ensure energy is affordable? Is the Justice40 standard—ensuring 40% of the benefits are received by the 30% most disadvantaged communities —a sufficient target or does it not go far enough? Metrics are only useful for tracking progress once we establish targets determined by our values, policies, and institutions.

Equity metrics are most appropriate for the recognition dimension of energy equity— they can help us identify BIPOC, low-income, and frontline communities that historically have borne the highest burdens of fossil fuel energy systems. These communities deserve the lion's share of the benefits of the clean energy transition, which we can measure using distributional metrics like who receives tax credits and financial incentives for solar and electric vehicles.

Metrics won't, however, address concerns of procedural and restorative justice or the fundamental need to ensure that those most impacted by energy system and climate impacts have prominent seats at the decision-making table. Metrics won't ensure that we are holistically considering utility accountability, community-owned energy generation and storage, or the importance of centering Indigenous communities and sovereignty in the future of our energy system. Indeed, we believe in the power and potential of data to advance equity in the clean energy transition. The process of developing the Energy Equity Framework has also highlighted the importance of focusing on guiding principles and qualitative best practices, particularly given the data limitations that emerged. We look forward to more discussion, feedback, and applications of the framework when we release in the coming months.

Recognition Justice

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TO THE POINT

Recognition justice emphasizes the need to understand different types of vulnerability and specific needs associated with energy services among social groups (especially marginalized communities).
(Lee & Byrne, 2019)

The past injustices of systemic racism in communities of color and lack of investment in marginalized communities, have greatly contributed to the disparities in energy equity. Black, Brown, Indigenous and lower income communities continue to take on much of the impact of pollution, climate change, and high energy burdens that contribute to health issues while widening disparities in household wealth and financial stability. It's important that we recognize how these factors have led to unjust and unethical practices that have negatively impacted specific communities.

Recognition justice is most often associated with who is impacted and who benefits from the energy system. We adopt the definition put forth by Lee & Byrne (2019): "Recognition justice emphasizes the need to understand different types of vulnerability and specific needs associated with energy services among social groups (especially marginalized communities)."

Recognition justice is sometimes referred to as "structural", indicating that factors such as identity and demographics which are largely beyond a household's or community's immediate control play a role in determining the distributional outcomes they experience. The recognition dimension both identifies historical disparities and, if the structures that created those disparities continue, suggests disparate likelihoods of future burdens and benefits.

Our workgroup considered three sub-dimensions of recognition: 1) Demographics, 2) Historical, and 3) Energy Security. A synopsis of each is below; we discuss the conceptual basis and applications of each in more detail.

First and foremost, recognition is concerned with demographics, or community characteristics, that are more likely to be associated with disproportionate outcomes, both benefits and burdens. Recognition is concerned with demographic variables that are predictive of, or at least correlated with, outcomes that include energy affordability and security, health, jobs and economic development.

Second, we organized recognition to include a historical sub-dimension, which is concerned with the magnitude of cumulative disparities and how such disparities came to be.

Finally, our recognition dimension includes energy security as its third sub-dimension. Energy security could be considered under either the recognition or the distributional dimension, as either a semi-independent or a dependent variable. Because continuous access to energy is both closely tied to demographic factors and influences other outcomes, such as household health and wealth, we chose to include it under recognition. Energy insecurity is also an outcome of unaffordable energy and limited access to the benefits of energy efficiency and clean energy.

Demographic Sub-dimension

We considered 39 potential demographic metrics, the majority of which are represented by national, census-tract level datasets. Many of these are available through federal government sources including the U.S. Census (American Community Survey 5-year estimates), U.S. Housing Survey, U.S. EPA, and CDC. Ultimately 22 of these metrics are included. Five metrics were classified as priority data gaps, housing and transportation burden and housing inspection scores were shifted to qualitative best practices, and the remaining 10 proposed metrics were excluded because they were deemed to be lower value, duplicative, or because a clear path to securing national data was not apparent.

Across hundreds of studies, the same demographic variables are shown to be associated with a host of environmental and energy burdens. Race stands out even when controlling for income (Bullard, 2001); with Black, Native, and Latinx households faring worse across distributional impacts than white, and sometimes Asian households. Lower incomes are also tied to greater pollution burdens (Miranda et al, 2011), higher energy burdens (Drehobl and Ross, 2016), and lower access to incentives like federal tax credits for rooftop solar and electric vehicles (Borenstein and Davis, 2016). Because of the close associations between certain demographic variables and distributional outcomes, recognition justice calls for a deep understanding of demographics at the community—or census tract—scale. This understanding can yield improvements in how programs, community engagement, and regulatory proceedings are designed to include and serve frontline and marginalized communities. Metrics from the recognition dimension can also be used to ensure a high share of benefits flow to frontline,

BIPOC, and low-income communities. This approach is widely employed by states that require defining environmental justice or disadvantaged communities,[1] and now by the federal Justice40 initiative,[2] a whole-of-government approach that requires at least 40% of the benefits be received by disadvantaged communities (which include about 29% of the U.S. population).

Historical Sub-dimension

Although the disparities in recognition metrics are structural in nature and the result of historical policies and practices, a historical analysis of the factors that created the underlying disparities is, regrettably, rarely considered within the scope of recognition justice. This absence, or failure to explicitly identify and quantify root causes of recognition disparities, can lead to programs and investments that merely strive for parity going forward, without remedying decades of structural barriers, marginalization, and underinvestment.

Justice40, for instance, first appears to be a restorative approach, in which each disadvantaged census tract would receive about 1.35x the standard share of benefits (40% of the benefits divided among 29% of the population). This factor, however, is arbitrary and will not fully remedy historical disparities in a reasonable timeframe. Imagine that these disadvantaged census tracts representing 29% of Americans historically received only 0.3x of their share of the energy benefits annually, or 9% of the total benefits, and this structure has been in place for at least the last 50 years. This means these communities have been accruing a 0.7x annual deficit of benefits. When that deficit is multiplied by 50 years, it results in a cumulative deficit of 35x of the annual program or investment budget. (This assumes no interest, that the advantage of owning energy efficient homes does not widen the disparity in energy affordability, for instance.) Under Justice40, disadvantaged communities will receive 0.35x above proportional investment each year. In this hypothetical but realistic scenario, Justice40 would be on pace to fully close the 35x cumulative gap in benefits in 100 years (35x / 0.35x = 100), or four generations.

If the hypothetical Justice40 scenario is instructive, it informs us that even marginally exceeding proportional investment in communities of historical underinvestment is not sufficient to close the cumulative gaps in a timely fashion. The historical narratives of how communities have been harmed or excluded from the energy system should be part of the record and told in their own words. **A best practice is to dramatically exceed proportional investments to account for decades of historical disparities.** Justice50 (1.7x of proportional benefits) would be significantly better than Justice40 (1.35x); Justice70 (2.4x benefits) could close the historical gap in less than 15 years, instead of 100.

Dr. Tony Reames and graduate students at University of Michigan's Urban Energy Justice Lab,[3] where EEP was founded, conducted a similar analysis of the energy efficiency program investments of 11 investor-owned utilities (Reames et al, 2019). The analysis looked at whether low-income households were receiving a proportionate share of investments relative to the percentage of customers who were low-income. They defined this proportion as the Energy Efficiency Equity Baseline, or E3b metric.

The analysis spanned 2012-2021; data is readily accessible to the public for only a small number of investor-owned utilities. The researchers found a cumulative gap of about $500 million in underinvestment in programs serving low-income households during this period, with a single utility's gap exceeding $100 million. While the overall trend is reducing the annual deficit and coming closer to the E3b metric, we are not aware of any utility or PUC that is entertaining a path to rectify the total cumulative gap that was created by an entire decade of underinvestment. This "going forward" approach does not align with typical American practices of correcting for financial errors. If a worker has been paid less than the salary in their contract, additional compensation is not merely due with the next paycheck. Payments are owed retroactively, and typically for a period that looks back at least several years.

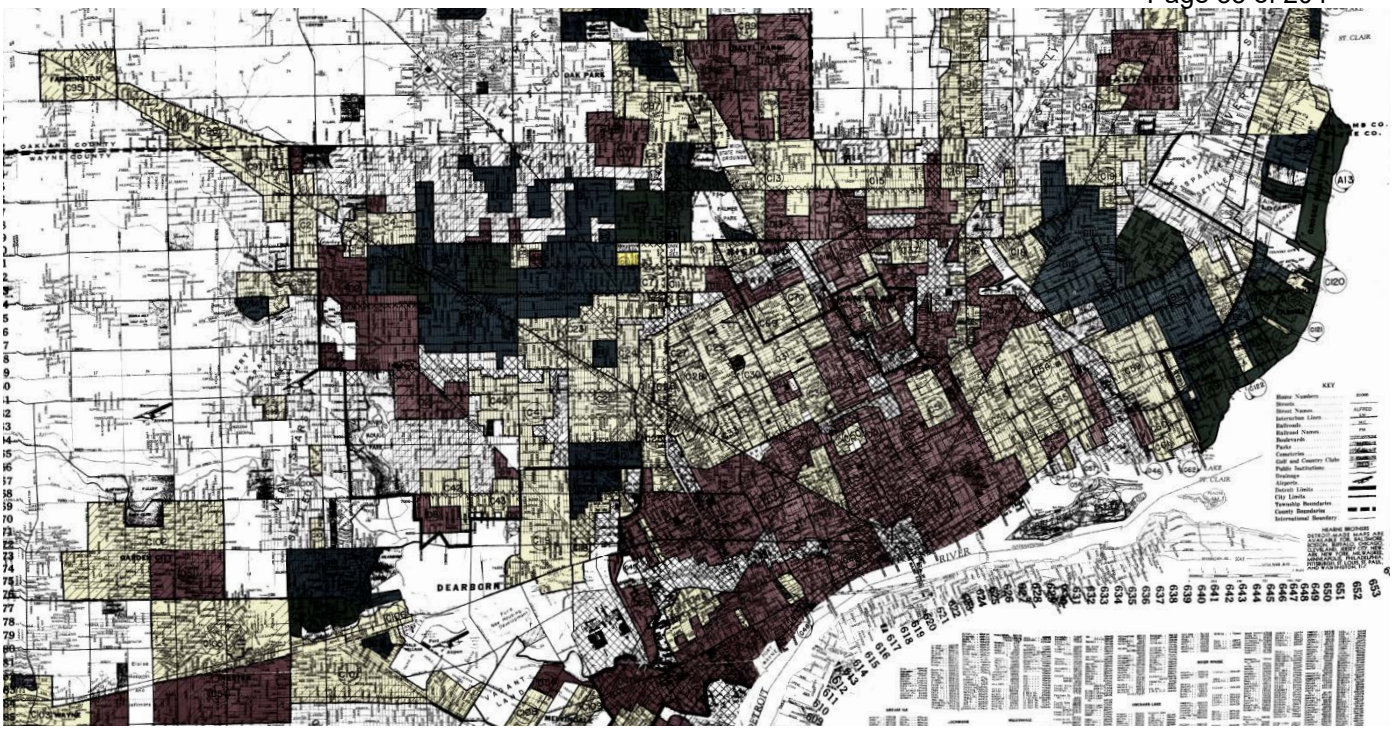
The underlying sources of historical disparities are wide ranging, from extensive housing discrimination and redlining, which had a particularly damaging impact on Black households in cities (Rothstein, 2017), to the intentional siting of polluting facilities in communities of color (Bullard, 2001), to the challenge of promoting weatherization in lower-income or rural communities (Raissi and Reames, 2020).

The workgroup identified seven potential metrics that comprised the historical sub-dimension. Disparities between residential and commercial and industrial electricity rates were included; four metrics were recommended as a qualitative best practice (e.g. adding historical narratives, reparations, accounting for Indigenous land sovereignty violations) and two,

[1] For example, those cataloged by the New School's Tishman Environment and Design Center: https://docs.google.com/spreadsheets/d/1TgwZAAlmLIBYJciXSpUfOOZifuk8MJUU4_NagVnulU8/edit#gid=2096559860

[2] Learn more about the basics of Justice40 at: https://www.whitehouse.gov/environmentaljustice/justice40/#:~:text=What%20is%20the%20Justice40%20Initiative,underserved%2C%20and%20overburdened%20by%20pollution.

[3] https://urbanenergyjusticelab.com/



A map of 20th century redlining in Detroit neighborhoods. Image source: dsl.richmond.edu

including the E3b metric, were not included due to limited data availability.

Quantifying and addressing cumulative deficits in full is central to the historical sub-dimension, yet precise historical data are extremely hard to obtain. Even though accessing data and calculating estimates are difficult does not obviate the pressing need to rapidly correct for large, multi-year disparities. Those considering cumulative disparities may need to work with back-of-the-envelope estimates to ensure some value is considered in decisions and funding allocations. Frontline communities have been largely shut out of the benefits of energy efficiency and clean energy and burdened by the negative impacts of the fossil fuel industry. These histories, regardless of limitations in rigorously quantifying them, should factor significantly into future energy planning and investments.

The historical sub-dimension links closely to the restorative dimension, which calls for greater community ownership of energy assets. In the absence of clean energy resources provided seamlessly to all customers, the "prosumer" strategy places the burden of investment in energy procurement on individual households, subscriber groups, and businesses. This approach to market animation has disproportionately favored affluent populations with significant financial incentives and tax credits as well as personal benefits of bill and carbon footprint reduction. Many of these benefits are actually subsidized by non-solar and low-income customers.

Energy Security Sub-Dimension

EEP affirms that safe, affordable and continuous access to energy is a basic human right. This is a premise of the United Nations Sustainable Development Goal 7 (Shyu, 2021) and backed by a host of coalitions, researchers, and community leaders and advocates.

We considered 11 potential energy security metrics, with 10 relating to shutoffs and one addressing households that keep their homes at an unsafe temperature (a standard question in the Residential Energy Consumption Survey by EIA). Five of these were shifted to priority data gaps. Two related to statewide shutoff protections were secured but EEP is reviewing these further and not including them in the first version of the map. The others were shifted to qualitative best practices.

Energy insecurity, and shutoffs in particular, have a profound effect on households' health, well-being, and financial stability. A study by Kay Jowers and colleagues at Duke estimated that had a national moratorium on utility shutoffs for non-payment been in place from the beginning of the pandemic, total deaths from COVID-19 would have been reduced by 14.9% (2021). Recent survey data from Indiana University's Energy Justice Lab found that 13.5% of all U.S. households had their service disrupted sometime between November 2021 and January 2022 (the height of Omicron). Rates were even higher for Hispanics (18.4%) and households with children under five (28.8%).

Despite these trends, timely and comprehensive disconnection data are still hard to come by. Only 20 states require some degree of reporting; those that do typically apply only to regulated, investor-owned utilities and focus on average frequency of disconnections, duration of outages, and time to reconnect. Even in states where data exists, it is usually not sufficiently granular to be of maximum benefit for studying equity issues: data is not available by race, cannot be cross-referenced with participants in energy efficiency or assistance programs, or is not available at the census tract level.

This dearth of detailed data on disconnection patterns is the highest priority data gap for EEP, based on feedback from many of our community partners. In keeping with the aspiration that energy be recognized as a human right and all people should have continuous access to some basic level of service, we note that 33 states did establish moratoria on shutoffs for non-payment for at least some period during the pandemic. When such moratoria are in place, studies and metrics can emphasize the true cost and impact of maintaining universal reliability.

Demographic Index

D1. Defining "disadvantaged"/target populations

METRIC STATUS: Recommended to be developed as a qualitative rating scale

Rationale: In addition to the Justice40 initiative, a number of states are defining "disadvantaged" or "disproportionately impacted" communities for the purposes of correcting for past injustices and allocating a certain percentage of clean energy investments and benefits. This proposed measure presents an unusual challenge because it is commonly used to describe varied concepts:

- Income qualified consumers.
- Physical neighborhoods that have not experienced investment or environmental protections comparable to other locations.
- Communities of people with shared political, spiritual, or other interests that experience disparate treatment independent of their place of residence.
- Racial or ethnic groups that historically have been excluded from access to home ownership, education, and clean energy.

We see value in defining communities that are due significantly greater clean energy investments and benefits. For standardizing national evaluation at the state level, we recommend considering a qualitative rating scale such as:

0 = No definition exists
1 = Non-quantitative definition
2 = Definition but no associated equity targets
3 = Definition plus moderate targets
4 = Definition plus robust equity targets

NOTES:

All reviewers rated this metric highly because it was viewed as central and foundational to any discussion of equity including access to clean, affordable energy and sage environments needed to maintain good health for residents.

RESOURCES:

- Tishman Center for Environment and Design Analysis – New School
- Illume Advising – EJ Community Definitions
- NY Climate Justice Working Group (see June 15, 2021 meeting presentation)
- Drehbol, A., & Tanabe, K. (2019, November 13). *Extending the Benefits of Nonresidential Energy Efficiency to Low-Income Communities November 13,*

Image source: climatejusticealliance.org

2019. ACEEE. Retrieved January 2022, from ACEEE identified some good examples here: https://www.aceee.org/research-report/u1910

D2. Social Vulnerability Index (SVI)

METRIC STATUS: Included as quantitative metric

Rationale: "Every community must prepare for and respond to hazardous events, whether a natural disaster like a tornado or disease outbreak, or a human-made event such as a harmful chemical spill. Several factors, including poverty, lack of access to transportation, and crowded housing may weaken a community's ability to prevent human suffering and financial loss in a disaster. These factors are known as social vulnerability."(CDCe, 2021)

The CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) SVI[4] uses U.S. Census data to determine the social vulnerability of every census tract. Quantitative data and maps are readily available. The index scores 15 data sets across four themes: 1) Housing/transportation, 2) Household composition, 3) Socio-economic status, and 4) Race/ethnicity/language.

NOTES:

This metric originally had a range of responses from the group but ultimately, we decided to include it after discussion.

RESOURCES:

- CDC Social Vulnerability Index, SoVI University of California

D3. Presence of toxic facilities

METRIC STATUS: Identified, but not yet included in the final EEP map

One common characteristic of frontline communities is significant exposure to nearby sources of air, groundwater, and soil pollutants that adversely impact families' health (particularly children). Exposures may be the result of highways and major traffic arteries cutting through residential areas, locally sited garbage incineration, diesel-fired peaker plants, or chemical and other industrial facilities. These hazards disproportionately harm communities of color (e.g. Donley et al, 2022). To overcome these common hazards, new investment will be needed in electric vehicles (EVs), trucks, charging stations, community solar and storage, replacement of aging water distribution systems, and advanced green technologies for bioremediation and solid waste management.

Multiple data sets exist for the presence of toxic facilities. Notably, the EPA's EJScreen tool offers a census tract-level index and quantitative data for 12 different environmental indicators. CEJST also offers data on proximity to different types of polluting facilities.

Which data would best represent this metric prompted a lot of lively discussion about whether to track superfund sites vs other sources of local pollution. The group recommended adjusting the original definition to include an energy-centric focus, and a final selection of the most relevant and appropriate data sets is still being assessed.

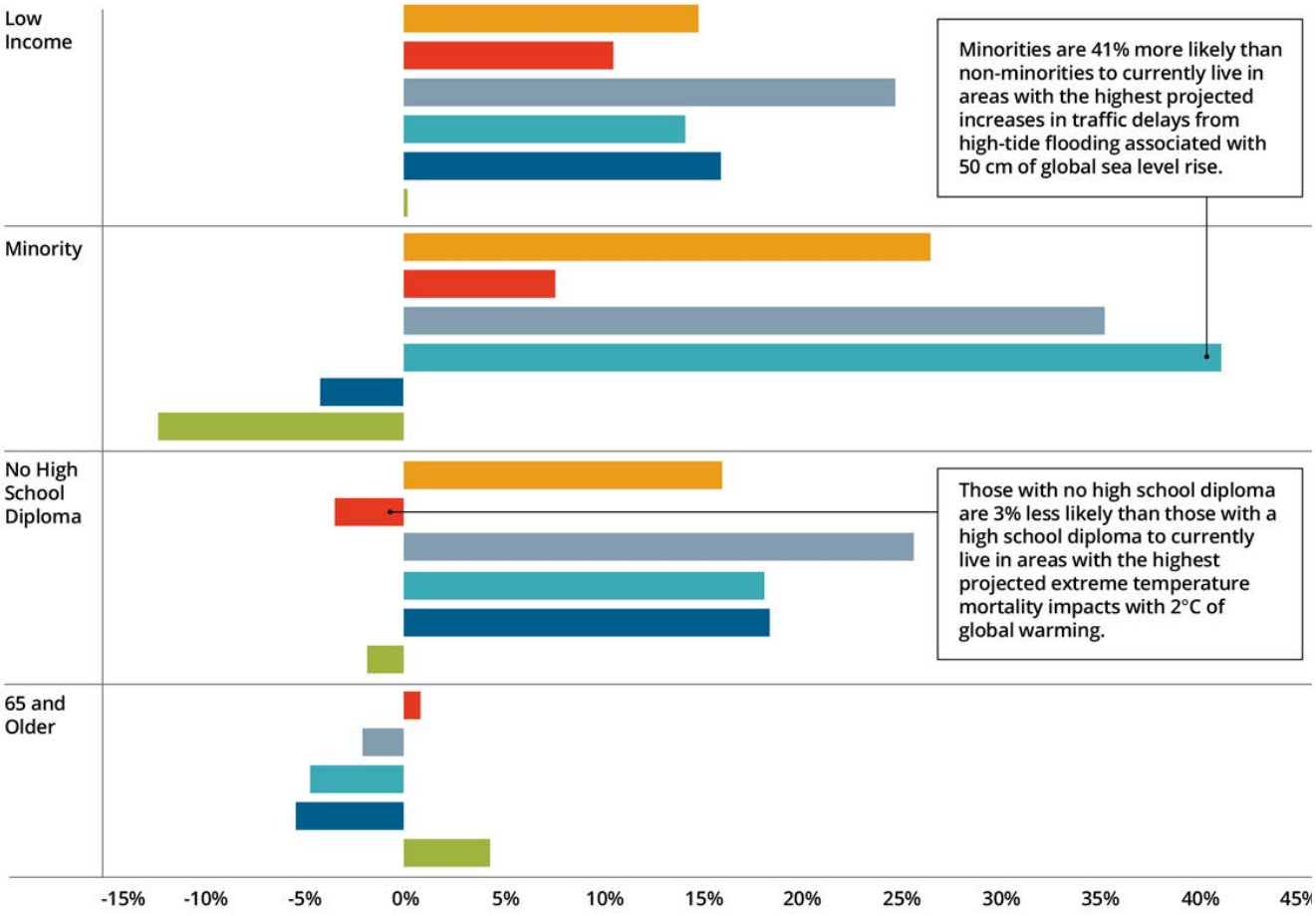
SUPPORTING RESOURCES:

- Partnership for Southern Equity (data on peaker plant locations and replacements in multiple states)
- EPA EJ Screen

[4] https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html

Differences in Risks to Socially Vulnerable Groups Relative to Reference Populations with 2˚C of Global Warming or 50 cm of Global Sea Level Rise

The estimated risks for each socially vulnerable group are relative to each group's "reference" population, defined as all individuals other than those in the group being analyzed. The estimated risks presented in the chart are for scenarios with 2˚C of global warming (relative to the 1986–2005 average) or 50 cm of global sea level rise (relative to 2000). For the inland flooding analysis, the baseline is 2001–2020. Image source: www.epa.gov



AIR QUALITY AND HEALTH*
New asthma diagnoses in children due to particulate air pollution.

EXTREME TEMPERATURE AND HEALTH
Deaths due to extreme temperatures.

EXTREME TEMPERATURE AND LABOR
Lost labor hours for weather-exposed workers.

*Impacts not estimated for 65 and Older.

COASTAL FLOODING AND TRAFFIC
Traffic delays from high-tide flooding.

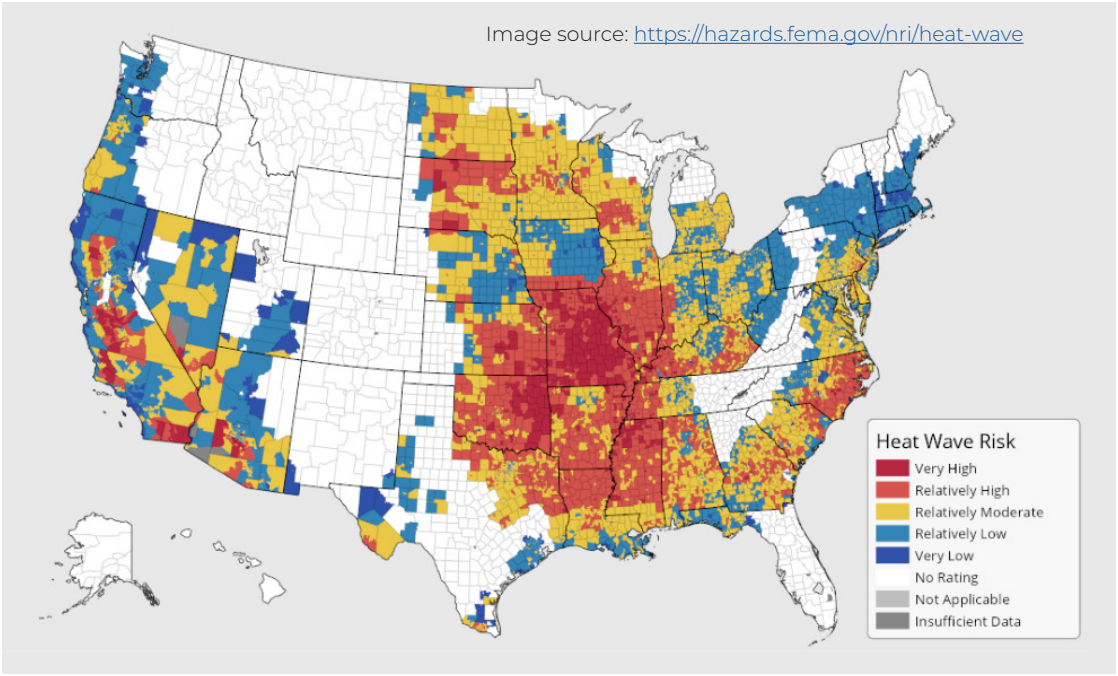
COASTAL FLOODING AND PROPERTY
Property inundation due to sea level rise.

INLAND FLOODING AND PROPERTY
Property damage or loss due to inland flooding.

D4. Climate vulnerability – heat exposure

METRIC STATUS: Priority data gap—recommend local data collection; closest proxy metric included is FEMA National Risk Index (NRI) Expected Loss data. In our conversations around the climate vulnerability topics, we discussed how these might be consolidated given that the data sources are found in a common set of tools and resources.

Image source: https://hazards.fema.gov/nri/heat-wave



Rationale: Heat exposure is a combination of climate and surface cover, including tree cover and impervious surfaces. Tree canopies in affluent neighborhoods provide cooling and protection for residents. Trees are noticeably absent in nearby underserved neighborhoods with the same weather and climate (Cusick, 2021). Heat exposure negatively affects air quality and energy use, requiring more air conditioning and higher bills in summer months. Trees and vegetation are also carbon sinks which provide general environmental benefits. Tree canopy and impervious surfaces are available through the National Land Cover Database managed by U.S. Geological Survey (USGS).

Some excellent local heat mapping studies have shown temperature disparities within the same city of up to 18 F on a summer day. CAPA Strategies, for instance, provides volunteers with real-time temperature monitors to drive or bike transects within a city during morning, afternoon, and evening hours, ensuring every area has an accurate reading. While this data can illuminate heat exposure at the block level, there is not a national dataset that effectively assesses heat exposure at the census tract level.

National climate risk maps, including the NRI, incorporate heat exposure projections. The NRI assesses heat exposure on a 1–100 scale, based on anticipated days/year above 95 degrees F, combined with other social vulnerability data sets. For local scale planning and decision-making, we recommend conducting high resolution local heat mapping to assess vulnerable neighborhoods in urban areas.

RESOURCES:

- National Land Cover Database, USGS
- Heat Watch, CAPA Strategies

D5. Climate vulnerability – flooding/sea level rise exposure

METRIC STATUS: Included as a proxy through FEMA's NRI

Rationale: Communities are impacted by different types of flooding, including extreme precipitation events and sea level rise. As climate impacts, flooding can exacerbate a number of energy equity concerns. Communities with significant Black and Latinx populations and low-income communities are more likely to live in more flood-prone areas, often due to a history of housing segregation and redlining (Mittan, 2020; Bakkensen & Ma, 2020). Without tree cover to reduce erosion, roots from vegetation to soak up excess water, and higher percentages of impervious surfaces, these communities are also more susceptible to flooding.

Beyond the primary impacts of flooding that include risk of life, displacement, and the costs of clean up, flooding can directly affect the energy situations of households. In Detroit, for instance, hundreds of households lost furnaces and water heaters due to basement flooding; many have been unable to find the resources to replace these and live without heating and/or hot water after the floods (Allnutt, B., 2021). FEMA grants and other recovery support may be limited. Floods also create mold and mildew problems, and homes with poor ventilation are more likely to

experience hazardous indoor air quality after a flood. Households that are flooded may also lose power or need expensive back up generators or sump pumps until power is restored. Renters, in particular, may face the expensive and disruptive task of relocating if flood damage is not quickly remediated.

RESOURCES:

- FEMA National Risk Index
- Rush, E. (2022, April 11). *I Would Have Never Bought This Home if I Knew It Flooded.* The New York Times. Retrieved April 2022, from https://www.nytimes.com/2022/04/11/opinion/climate-change-flooding.html?referringSource=articleShare

D6. Climate vulnerability – severe storm/hurricane exposure

METRIC STATUS: Included as part of NRI expected loss data set

Rationale: While all residents of a given region will be affected by storms, some people are less likely to be able to self-evacuate and afford temporary lodging in a safe area. Older adults, households with young children, people with disabilities, and people with limited economic resources are more vulnerable. From an energy equity perspective, communities that face the greatest vulnerability and these other demographic risk factors may warrant additional climate resilience investments. These include emergency support services and centers available to residents who are left behind using microgrids and long-duration energy storage.

D7. Climate vulnerability – fire exposure

METRIC STATUS: Included as part of NRI expected loss data set

Rationale: The hazards and equity implications of exposure to wildfire is similar to the concerns for exposure to hurricanes and severe storms. Sensitive groups face the greatest risk and require additional support to mitigate vulnerability. Wildfire impacts extend well-beyond direct loss of structures; air quality impacts are becoming increasingly problematic in fire-prone regions even if flames never approach community borders. Wildfire risk should prompt greater investment in healthy homes measures that improve indoor air quality, including air sealing, duct cleaning, and air filtration.

D8. Climate vulnerability – adaptive capacity/ resilience

METRIC STATUS: Included as part of NRI expected loss data set

Rationale: Community resilience is a community's ability to prepare for, withstand, and recover from the effects of natural hazards and disasters. Low-income communities of color have historically received less money from the federal government in the event of natural disasters, limiting their ability to both rebuild after a disaster and prepare for future events. Communities that are identified as having limited resilience should be prioritized for clean energy investments.

RESOURCES:

- NAC. (2020). National Advisory Council Report to the FEMA Administrator. FEMA | Department of Homeland Security. https://www.fema.gov/sites/default/files/documents/fema_nac-report_11-2020.pdf
- Flavelle, C. (2021, June 7). *Why Does Disaster Aid Often Favor White People?*. The New York Times. Retrieved January 2022, from https://www.nytimes.com/2021/06/07/climate/FEMA-race-climate.html
- FEMAd. (n.d.). *The National Risk Index.* FEMA.gov. Retrieved March 2022, from https://hazards.fema.gov/nri/, Georgetown Climate Center

D9. % BIPOC

METRIC STATUS: Included. U.S. census data sets for all non-white populations (including Hispanic, non-white) were included in this measure.

Rationale: Race is one of the strongest indicators of disproportionate outcomes for energy costs (Drehobl et al, 2020). Communities of color spend a disproportionately higher amount of their income on household energy costs. Black households spend 43% more than white households, Native American households spend 43% more, and Hispanic households spend 20% more.

D10. Low birth weight

METRIC STATUS: Not requested. The group prioritized other demographic variables that indicate energy and climate vulnerability and historic marginalization

Rationale: Low birth weight is defined by the World Health Organization as weight of birth below 5.5 pounds.[5] Low birth weight, similar to maternal

[5] WHO. (n.d.). *Low birth weight.* World Health Organization | Nutrition Landscape Information System (NLiS). Retrieved February 2022, from https://www.who.int/data/nutrition/nlis/info/low-birth-weight

mortality, disproportionately affects newborns of color. It is included in a number of other indices, including the Opportunity Atlas, CalEnviroScreen, and the Deep Disadvantage Index.

D11. Maternal mortality

METRIC STATUS: Not requested. The group prioritized other demographic variables that indicate energy and climate vulnerability and historic marginalization

Rationale: Black and American Indian/Alaska Native women have pregnancy-related mortality rates that are over three and two times higher, respectively, compared to the rate for White women (40.8 and 29.7 vs. 12.7 per 100,000 live births; Artiga et al, 2020).

RESOURCES:

- CDC data on maternal mortality

D12. COVID Case and Death Rates

METRIC STATUS: Not requested—highly significant but temporal. We strongly urge local consideration as a qualitative measure or best practice.

Rationale: COVID-19 has disproportionately affected Black, Brown, and Native households, who have higher rates of cases, hospitalization, and death (CDC; Magesh et al, 2021). These disparities have roots in a host of racial and socio-economic disparities in access to and quality of medical care, housing characteristics, and types of employment. COVID-19 disparities were exacerbated by severe distributional inequities in the energy system, illustrating the two-way relationships between the metrics of the recognition and distributional dimensions. Jowers et al (2021) found that had a national moratorium on utility shutoffs been in place, the total number of COVID deaths in the U.S. would have been reduced by 15%. Florida Power and Light and Georgia Power, alone, shut off electricity to more than 650,000 households–10.5% and 8.4% of their customers respectively–between February 2020 and June 2021, more than double the rate of 16 investor-owned utilities that were required to disclose data (Su and Kuveke, 2021; calculated using utility customer data provided by PowerSuite).

RESOURCES

- CDC COVID-19 Dashboard
- Powerless in the Pandemic Data and Calculations
- PowerSuite

D13. % Without Health Insurance

METRIC STATUS: Included

Rationale: Health insurance is a key measure of one's risk to a variety of health problems and exposures. Populations without health insurance receive insufficient care and are thus especially vulnerable to respiratory distress, poor indoor air quality, and shutoffs. Communities where the many are without health insurance warrant both affordability and energy security investments.

D14. % of Seniors Living Alone

METRIC STATUS: Included

Rationale: While we thought this was important, and is particularly relevant if you consider income, with many older adults relying on low fixed incomes. ACEEE research found older adults have higher energy burdens: https://www.aceee.org/energy-burden (ACEEEb, 2020).

D15. Income Mobility

METRIC STATUS: Not requested. Represents income for people who grew up in this census tract at age 35. Available in the opportunity atlas: https://www.opportunityatlas.org/ (TOA, n.d.)

D16. Incarceration Rate

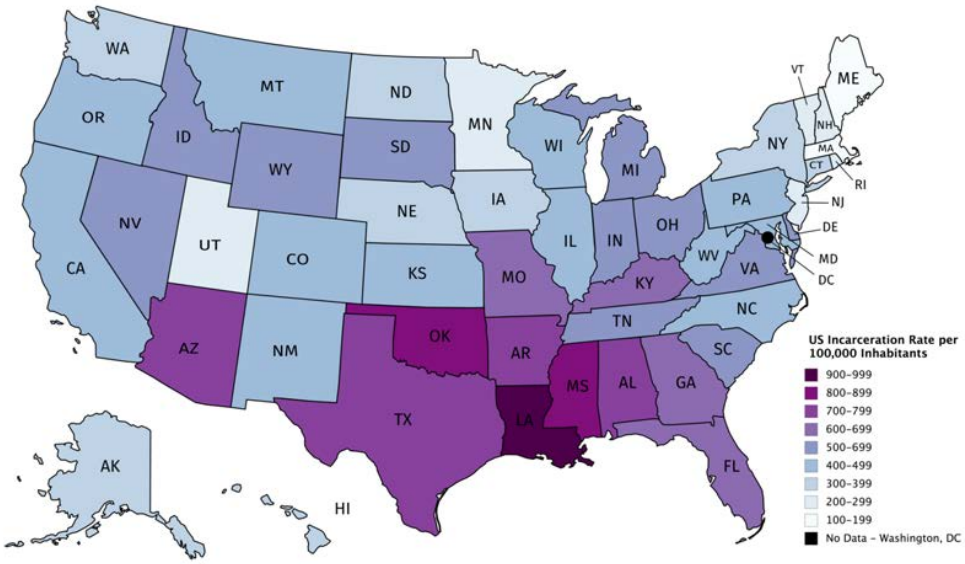
METRIC STATUS: Included; available as percentage of the population incarcerated by census tract from: https://www.opportunityatlas.org/ (TOA, n.d.)

Rationale: Incarceration is often an indicator of how criminal justice policies and practices target marginalized communities, particularly Black, Latinx and Native communities (Mauer and King, 2007.) Incarceration through racially biased policing, targeting, and prosecutions is a particularly severe form of social and economic marginalization that disadvantages BIPOC communities across a range of sectors, including energy.

D17. Educational attainment

METRIC STATUS: Included (American Community Survey data).

Rationale: Educational attainment impacts one's ability to access and adopt energy efficiency and clean energy programs and their associated energy savings (Sart et al, 2022). Second, it affects participation in green jobs and the clean energy economy (Yi,



US Incarceration Rate per 100,000 Inhabitants by State. Image source: Prisoners in 2016. US Bureau of Justice Statistics. January 2018, NCJ 251149.

2014). Users can consider multiple options within this variable, such as percentage without a high school degree, with some college, etc.

D18. Poverty rate

METRIC STATUS: Included (American Community Survey data). See Census information on poverty line and guidelines: 2021-poverty-guidelines (USDHHS, 2017).

Rationale: According to a census.com publication in 2021, the In 2020 the official poverty rate was 11.4%, up 1.0 percent from 2019. This is the first increase in poverty after five consecutive annual declines (Shrider et al., 2021).

Reported in 2020 by ACEEE.org, nationally 67% (25.8 million) of low-income households <200% of the federal poverty level (FPL) face a high energy burden above 6% and 60% (15.4 million) of low income households with a high energy burden face a severe energy burden above 10% (ACEEEa, 2020).

D19. Deep poverty rate

METRIC STATUS: Included (American Community Survey data). See Census information on poverty line and guidelines and divide by two to calculate deep poverty thresholds based on household size: 2021-poverty-guidelines (USDHHS, 2017).

Rationale: The U.S. Census Bureau defines "deep poverty" as living in a household with a total cash income below 50 percent of its poverty threshold (UC Davis), which equates to about $11,000 in annual earnings for a household of three. About a third of the people with below-poverty resources—**14.5 million Americans (4.4 percent of the population)**—are in deep poverty (Giannarelli et al, 2021).

Households in deep poverty need a different level and kind of support than those who can be adequately helped with existing energy assistance programs. Program designers and administrators need to ask: how can people surviving at chronic poverty levels ever get their heads above water with utility bills? What deep supports will it take for them to achieve energy security and affordability?

D20. Relative poverty (% of AMI)

METRIC STATUS: Included

Rationale: Relative poverty is sometimes described as "relative deprivation" because the people falling under this category are not living in total poverty, but they are not enjoying the same standard of life as everyone else in the country. It can be TV, internet, clean clothes, a safe home (a healthy environment, free from abuse or neglect), or even education.

Relative poverty can also be chronic, or permanent, meaning that certain families have scant chances of enjoying the same standards of living as other people in the same society currently have access to. These households are effectively trapped in a low relative income box.

TEAM NOTES:

Area Median Income (AMI) is a better indicator than FPL because the cost of living can vary so widely in different places (e.g., folks living in NYC vs. Alabama) as well as minimum wage; if we were choosing one income metric, think this would our preference.

RESOURCES:

- Habitat for Humanity

D21. Employment rate

METRIC STATUS: Included

Rationale: Among people in the labor force for 27 weeks or more, **2.8 percent of those usually employed full time were classified as working poor**, compared with 11.1 percent of part-time workers (see table 1., U.S. Bureau of Labor Statistics, 2020). Women were more likely than men to be among the working poor (5.3 percent and 3.7 percent, respectively).

About 38.1 million people, or 11.8 percent of the nation's population, lived below the official poverty level in 2018, according to the U.S. Census Bureau.[6] Although the poor were primarily adults who had not participated in the labor force during the year and children, 7.0 million individuals were among the "working poor" in 2018, according to data from the Bureau of Labor Statistics (BLS). Importantly, the unemployed are more likely to experience energy insecurity (Graff et al, 2021).

RESOURCES:

- US Bureau of Labor Statistics

D22. Job access score

METRIC STATUS: Low potential, not included. Favor unemployment rate.

Rationale: The Redfin Opportunity Score is a rating from 0 to 100 that measures the number of jobs within a 30-minute, car-free commute from a given address. An Opportunity Score of 100 represents a home with the most job access, and scores are weighted by population. Opportunity Score is currently available in more than 350 cities across the country. This metric considers the number and type of available jobs and commuting distance.

D23. % Households without internet access

METRIC STATUS: Included

Rationale: Vast inequities in technology access—which, together, have come to be known as the *digital divide*—have intensified and worsened (Broom, 2021). Roughly half of low-income families have struggled to pay their internet and cell phone bills (Vogels et al, 2020).

A report by Phela Townsend (2020) finds that approximately 19 million Americans—6 percent of the population—still lack access to fixed broadband service at threshold speeds. In rural areas, nearly one-fourth of the population —14.5 million people—lack access to this service.

More and more utilities and other service providers are moving most of their customer operations to web-based tools. This leaves those not connected with significant access problems.

KEY FINDINGS:

Number of US households without internet

- 27.6 million (22.5%) of US households don't have home internet.
- Over a quarter million (265,331) households use dial-up internet at home.
- Utah, Colorado, and California are the most-connected states.
- Mississippi, Arkansas, and Alabama are the least-connected states

The number of households without internet is greater than the total number of households in 13 states combined.

RESOURCES:

- Reviews.org article
- The Century Foundation article
- COVID has exposed digital divides article, World Economic Forum
- Federal Communications Commission (FCC)

D24. % Households where English is not the primary language spoken

METRIC STATUS: Included

Rationale: This metric is an energy equity issue because without access to accurate information, it is difficult for these families to make informed choices regarding energy efficiency and access to clean energy.

D25. Average age of building

METRIC STATUS: Included

Rationale: Older homes, especially those built before 1940, but even those built before 1980 are significantly less energy efficient than newer homes, due to improvements in building codes and degradation over time (Jeunesse, 2017). Members of the group shared their own lived experiences wrestling with this problem. One member recently wrote a report for the Smart Energy Consumer Collaborative on the subject of renters and energy use.

Older, substandard multifamily buildings and houses tend to have more affordable rents. This means their

[6] See A Profile of the Working Poor by U.S. Bureau of Labor Statistics and the technical notes section for examples of poverty levels.

tenants are likely to live with less energy efficient structures, appliances, HVAC systems, and exposure to toxic materials like asbestos, lead or poor-quality septic systems. If landlords and property owners are persuaded or compelled to retrofit older units to bring them up to current energy-efficient standards or add green amenities, rents are likely to rise—often pushing them out of reach of low-income renters.

RESOURCES:

- American Housing Survey
- Joint Center for Housing Studies, Harvard University (JCHS)
- America's Rental Housing (JCHS, 2022)

D26. Housing burden

METRIC STATUS: Not included; similar information provided by % renters, income and poverty data.

Rationale: Housing is the single largest expense for households, and far too many pay too much for housing, particularly low-income renters (National Low Income Housing Coalition, 2020). High housing costs squeeze family budgets, leaving few resources to pay for other expenses, save for emergencies, or make long-term investments. The Housing Burden indicator measures the share of households that are cost-burdened (spending more than 30 percent of gross income on housing costs) and "severely" cost-burdened (more than 50 percent). The group saw this as a comparable metric to energy burden.

RESOURCES:

- National Equity Atlas
- National Equity Atlas – Tableau
- National Low-Income Housing Coalition

D26. Housing inspection scores (HUD multifamily)

METRIC STATUS: Shift to qualitative/best practice

Rationale: Age is not the only indicator of a building's energy efficiency or housing quality. The physical condition of the building envelope, quality of windows, doors, and HVAC systems all have a great deal to do with how livable a space feels to the family that resides within. No one wants to live in a drafty space at the mercy of the elements, but too often those living in poverty or facing discrimination in housing opportunities have little choice when seeking shelter.

In the review of this metric, a deep distrust of HUD's practices was expressed. From a data perspective, the HUD data tends to be organized by municipality (a reasonable approach based on community awareness and local zoning policies and building codes) instead of census tract data used by other data sources for EEP.

A home's insulation and drafty spots viewed through an infrared camera. Image source: https://www.energy.gov/energysaver/thermographic-inspections

The data is not uniformly organized and formatted, based on differences in local reporting, and would take extensive work to clean and organize into a more usable form. It's not clear that local reporting is sufficiently uniform or accurate to draw out disparities in housing quality, though it remains an interest. Given the limited quality of data, we suggest moving this to a best practice to be considered locally or at the state level.

RESOURCES:

- HUD inspection scores

D27. Availability of affordable housing

METRIC STATUS: Not included—no reliable source available nationally.

Rationale: A large and growing share of US households cannot find housing they can afford (Joint Center for Housing Studies, Harvard University), and every state has lost low-rent units since 2011.[7] The lack of affordable and subsidized housing has become a national crisis based on trends affecting inventory and pricing:

- High income renters are driving growth in the rental market.
- "Affordable housing" doesn't just refer to subsidized or below-market-rate housing anymore.
- AirBnB and other short-term rentals take many units off the market.
- Remote work (promoted by COVID) drove high paid professionals to previously low-cost regions.
- Second and third homes (urban homeowners looking for extra space during pandemic)
- Corporate and international investors are dominating housing purchases.

[7] JCHSa. (n.d.). Every State has Lost Low-Rent Units Since 2011. Joint Center for Housing Studies. Retrieved January 2022, from See JCHS map, https://www.jchs.harvard.edu/loss-low-rent-units

GROUP NOTES:

This is a critical need that does not necessarily correlate with housing burden. An approach similar to the home energy affordability gap would be useful here. We suggest continuing to seek examples of best practice data collection or better proxies than housing burden. An appropriate metric might be the number of available affordable housing units per eligible household (e.g. households living below 80% of AMI).

RESOURCES:

- American Housing Survey
- Harvard Joint Center for Housing Studies (JCHS)
- https://www.jchs.harvard.edu/research-areas/affordability
- Washington Post analysis of investors in major housing markets

D28. % Renters

METRIC STATUS: Included

Rationale: According to the U.S. Census Bureau, in 2020, more than a third of American households rented rather than owned their homes. Unlike property owners, tenants often lack authority to make physical upgrades to their residences. As a result, control over their energy consumption is relegated to behavior changes, simple improvements, and service provider program participation. This metric is also needed for distributional outcomes (e.g. percent of program energy savings among renters vs percentage of renters in the population).

RESOURCES:

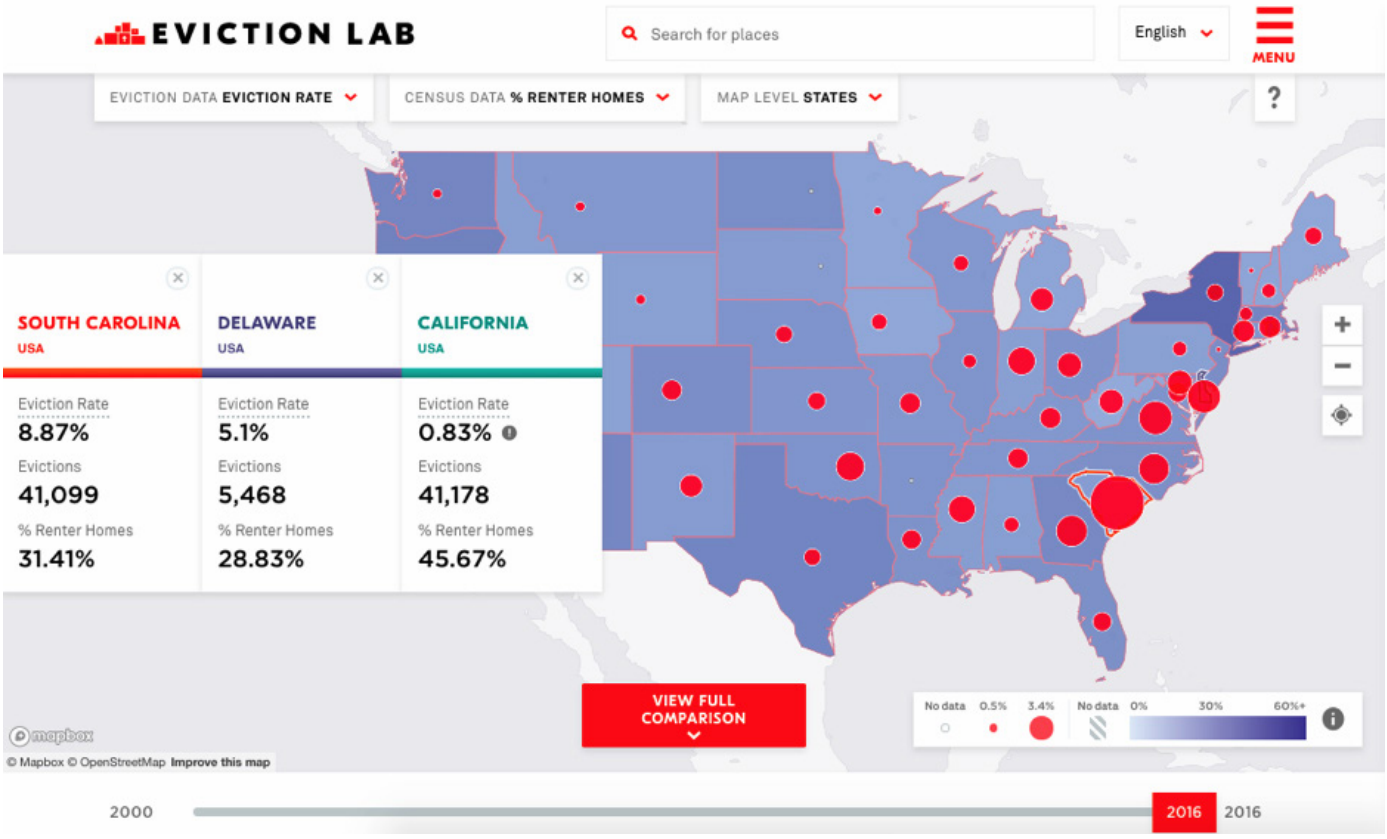
- American Housing Survey
- Harvard Joint Center for Housing Studies (JCHS)

D29. Eviction Rate

METRIC STATUS: Included. According to the National Eviction Lab at Princeton University, eviction rate is the number of eviction judgments divided by the renter population. When an eviction filing is ruled in favor of the plaintiff an eviction order is issued. "The eviction rate is the best measure of the number of eviction occurring during a given time period and those persons removed by court order." (Eviction Lab, n.d.)

Rationale: Groundbreaking research by Kay Jowers and colleagues (2021) revealed that evictions had a stunning and deadly impact during the pandemic. Reviewing counterfactual data retrospectively in states that employed different timings to begin and

Image source: Eviction Lab



end eviction moratoria, Jowers et al conclude through that had a national eviction moratorium been in place from March to November 2020, overall COVID cases would have been reduced 14.2% and *overall COVID deaths* would have been reduced by 40.7%. The CDC concurred; Dr. Walensky signed "an order determining the evictions of tenants for failure to make rent or housing payments could be detrimental to public health control measures to slow the spread of SARS-CoV-2, the virus that causes COVID-19." (August 3rd, 2021). The order, however, lasted only a matter of weeks in summer 2021 and applied only to counties experiencing high levels of transmission. Many states ended temporary eviction moratoria long before new waves of Delta and Omicron fueled record numbers of COVID cases in late 2021 and early 2022 (Johns Hopkins University, n.d.)

Although energy and housing insecurity are closely intertwined, we find eviction data is rarely used in the definition of environmental justice or disadvantaged communities by states or in federal tools such as CEJST or EJSCREEN. Evictions are not the mere result of high housing burdens, they are the outcome of decades of discriminatory housing policy and sometimes violent enforcement by both law enforcement and local mobs (Rothstein, 2017.) Housing discrimination mechanisms extended far beyond redlining, or cordoning off minorities, Blacks in particular, to certain sections of a city. Real estate agents were notorious for "block busting", threatening whites to sell low and then doubling prices on those same homes for potential Black buyers. Loans were not provided, requiring Blacks to purchase homes on land contract, in which a single missed payment resulted in the total loss of the house and all of the potential financial equity it had accrued. Those that persisted were often subjected to broken windows and even firebombing, often while police stood by passively observing or even encouraging the mob. Rothstein notes 213 incidents of racially motivated intimidation and violence in Philadelphia in just the first six months of 1955. One city, half a year, not an outlier.

Data from the National Eviction Lab confirm this (quoted from www.evictionlab.org):

- Black individuals made up 19.9% of all adult renters in the counties for which we had data, but 32.7% of all eviction filing defendants.
- One in every five adult renters was Black, yet one in every three eviction filings were served to a Black renter.
- Black renters experienced the highest average rates of eviction filing (6.2%) and eviction judgment (3.4%).
- By contrast, the average eviction filing rate among white renters was 3.4% and the average eviction rate was 2.0%.
- Nearly one in four black renters lived in a county in which the black eviction rate was more than *double* the white eviction rate.

The vast investment that made homeownership available to a huge middle class of whites typically skipped over people of color, who today are much more likely to be renters and to live in poorer quality housing stock. As white flight from the suburbs reversed to an influx into many of America's cities, neighborhoods that were historically Black and Brown faced gentrification. The gulf between housing stability enjoyed by whites and housing instability suffered by people of color was drawn over many decades and persists today.

EVICTION DIVERSION PROGRAM

Economic challenges caused by the COVID-19 pandemic have caused an increasing number of renters to fall behind on their rent payments, which raises the potential for widespread evictions (HUD User, 2021a). In September 2020, the Centers for Disease Control and Prevention issued a temporary eviction moratorium to mitigate the spread of the coronavirus and protect tenants at risk of eviction during the pandemic (HUD User, 2021b). Although the eviction moratorium has slowed the spread of COVID-19, it expired at the end of June 2021 with the lifting of COVID-19 restrictions around the nation and the resumption of economic activity to pre-pandemic levels. To prevent a wave of evictions, states and cities have created eviction diversion programs and expanded existing programs intended to deter formal legal proceedings by offering landlords and tenants opportunities for negotiation and mediation. Eviction diversion programs may also include supports such as legal assistance for tenants and financial compensation to landlords for past-due rent.

RESOURCES:

- Local and state eviction reduction strategies for responding to COVID, HUD User
- Eviction Prevention and Diversion programs, Urban Institute
- Benefits of Eviction Diversion, HUD User

D30. Eviction Protections Score Card

METRIC STATUS: Shift to qualitative/best practice or limited local use where data sources are robust. This was not included in the final map due to inconsistent coverage and insufficient time to review methodology.

Rationale: Although not used in the EEP map, the Eviction Lab also offers a scoring methodology for eviction moratoria that could be adopted locally as a best practice. Five scores are derived from a formula that "groups measures by stage in the process or type

of support, awarding points based on which measures states have enacted. Because some interventions have a greater impact on housing stability, the formula weights certain categories heavier than others." The breakdown of points within the total score is as follows:

- Initiation of Eviction: 40% of total score.
- Court Process: 15% of total score.
- Enforcement of Eviction Order: 15% of total score.
- Short-Term Supports: 10% of total score.
- Tenancy Preservation Measures: 20% of total score.

Although moratoria have been lifted, states and municipalities seek remedies to reduce evictions and ensure strategies to ensure safe, and stable housing, after the pandemic. Eviction lab provides a wealth of resources and background about the impact of evictions and steps that can be taken to minimize them. We recommend that programs to reduce energy costs, either through affordable payment plans or investments in energy efficiency and solar be concentrated in areas where evictions and eviction filings are high.

D.31 Transportation Burden

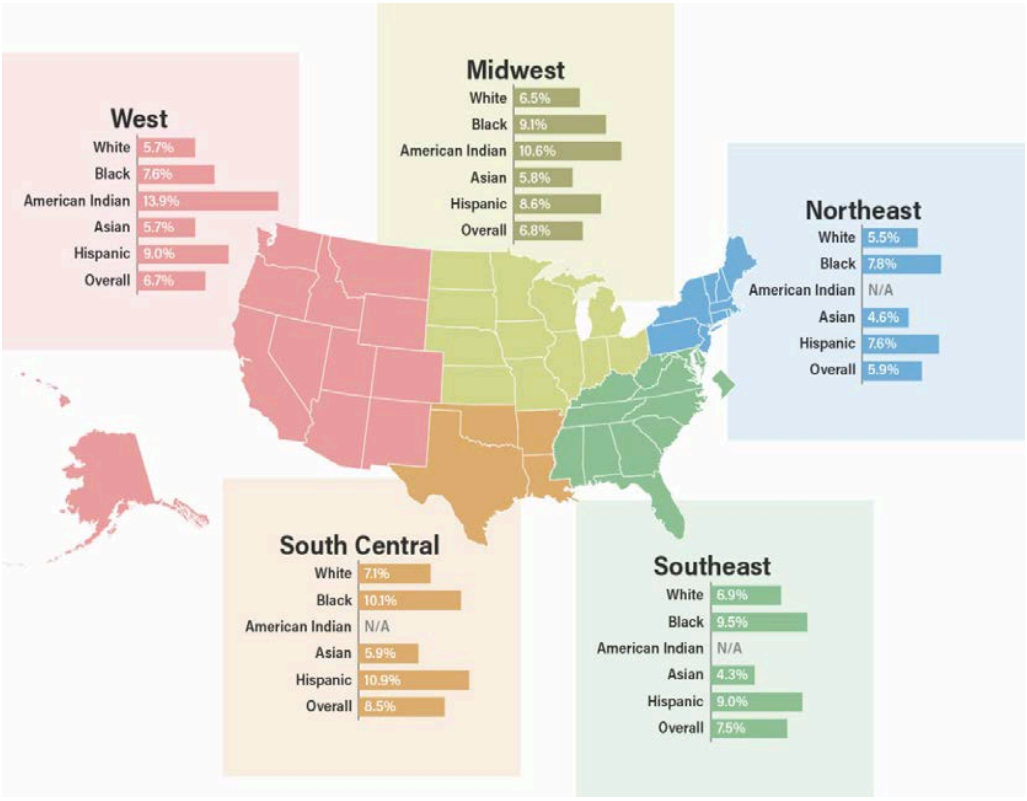
METRIC STATUS: Priority data gap. While rated as important by the workgroup, data is not available with sufficient frequency through the American Community Survey (Vaidyanathan and colleagues at ACEEE noted in 2021 that it relied on a 2013 snapshot to assess transportation burdens) or sufficiently fine resolution (census tract level instead of metro statistical area). Gas prices, too, now more than $5 per gallon at the time of this writing, will result in a rapid surge in transportation burden that is not reflected in the data. The overall patterns observed, however, are informative. We recommend local analysis and estimation of transportation burdens (e.g. average commutes, use of public transit, local gas prices) and consideration of how energy policies, such as supporting public transit and electric vehicles, can be directed to benefit BIPOC, frontline and low-income communities.

Rationale: Urban sprawl, land use planning, and uneven transportation investments have displaced many low-income households and communities of color into the suburbs or exurbs and left them without adequate access to affordable and efficient transportation.

Next to housing, transportation costs are the second-largest expense for households in the United States. The average household in the United States spends approximately "13% of its total income on expenses for vehicles, fuel, insurance, and maintenance" (Vaidyanathan et al, 2021) For low-income households, this average transportation burden (percentage of income spent on the costs mentioned above) can be "as high as 30%" (Fulton et al, 2018). Residents of sprawling urban areas and rural areas do more driving than those in urban cores with quality public transit systems and have higher transportation burdens.

Additional key insights from Vaidyanathan include the following:

- Gasoline cost burdens for low-income households are more than three times larger than burdens for higher-income households.



Transportation energy burden by region, race, and ethnicity. Note: Insufficient data exists for American Indian households in South Central, Southeast, and Northeast regions. Image source: ACEEE 2021.

- Among low-income households, these burdens are higher for Black, Hispanic, and American Indian households than for white and Asian households.
- Metropolitan areas in the Northeast have some of the United States' lowest average burdens, while those in the Sunbelt have some of the highest.
- Households outside key metropolitan areas have gasoline cost burdens that are 25% higher than those borne by households located within metro regions.
- Burdens are higher for households living in apartments and mobile homes.

There is not an official threshold for an affordable transportation burden. While not currently available, EEP supports the concept of developing a combined affordability metric that accounts for housing, utility (including energy, water and internet), transportation, and potentially food burdens. Affordability is deeply intersectional and at minimum, clean energy programs and investments should account for multiple cost burdens for all basic needs, not just those of the energy system itself.

Within the energy system, much of the emphasis on reducing transportation burdens has been on supporting growth of electric vehicles. This approach, however, has resulted in a great deal of taxpayer and ratepayer funded incentives being diverted to the wealthiest households (Bornstein et al) and typically those who own their own homes (Borenstein and Davis, 2016). A $7,500 federal tax credit on a new $40,000 EV may be a huge draw for a household earning more than $100,000, but it does nothing to make that purchase more accessible for a household earning $30,000.

An equitable approach would focus investments on public transit. Los Angeles offered 22 months of fare free public transit; and advocates note that only 6% of the system's revenues are sourced from rider fares (Divinity, 2022). More broadly Governor Newsome has proposed universal free public transit statewide.

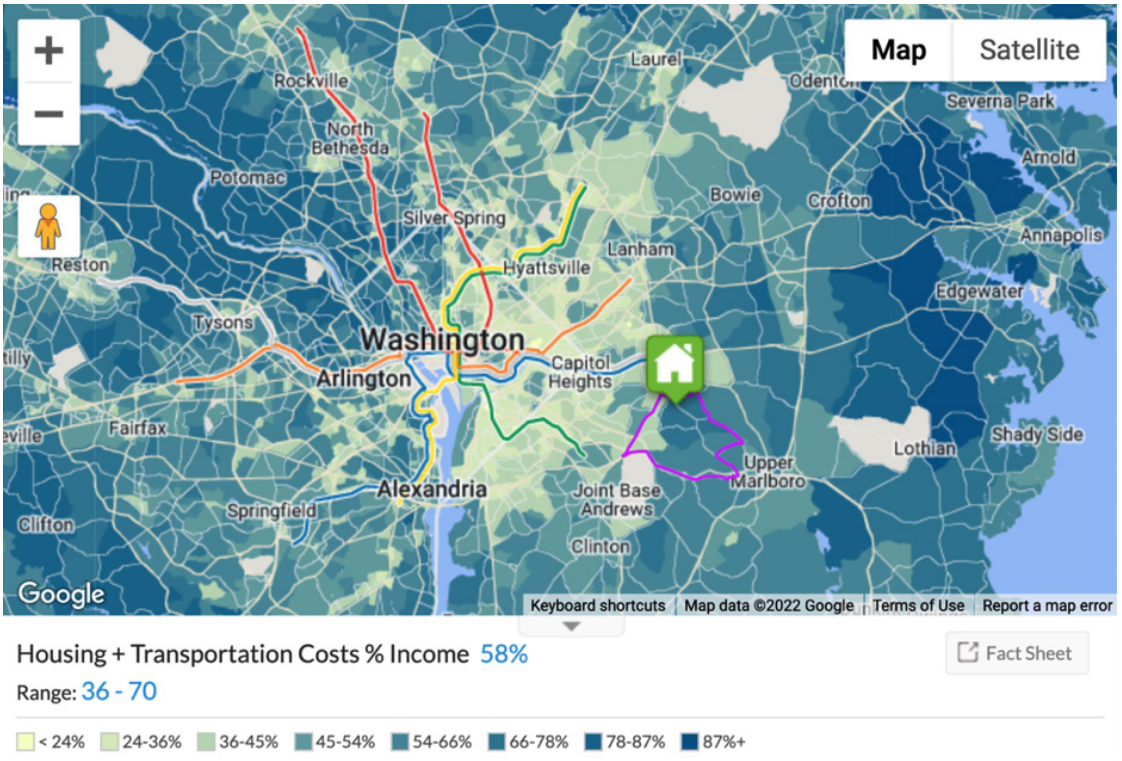
D32. Housing and Transportation Affordability Index

METRIC STATUS: Priority data gap. The Housing & Transportation Affordability Index was identified as a potential high quality source (although data may be several years old), but it was identified too late to vet and consider for inclusion in the first version of the EEP map. We will revisit this source when we update the map data in 2023.

Rationale: Traditional measures of affordability for housing do not take into account transportation costs. According to HUD, affordable housing costs should be no more than 30% of household income.

The Housing and Transportation Affordability Index provides a comprehensive view of both the cost of both housing and transportation at the neighborhood level. This index sets a benchmark of "no more than 45% of household income" (Center for Neighborhood Technology, 2022).

According to the Center for Neighborhood Technology: "The H+T presents housing and transportation data as maps, charts and statistics for 917 metropolitan and micropolitan areas—covering 94% of the U.S. population. Costs can be seen from the regional down to the neighborhood level. The Index shows that transportation costs vary between and within regions depending on neighborhood characteristics."



A sample map of the H&T Affordability Index in the greater Washington, DC area. Burdens average 58% of income and typically range from 36-70%. Image source: Housing and Transportation Affordability Index.

"When transportation costs are considered the amount of available affordable housing drops to 55% to only 26%, resulting in a net loss of 59, 738 communities and neighborhoods where individuals can afford to live." (Center for Neighborhood Technology, Housing and Transportation Index, 2022)

D33. Air Quality

METRIC STATUS: Priority data gap. While multiple measures of air quality exist at the Census Tract from sources such as EPA's EJScreen tool and the Climate and Economic Justice Screening Tool (CEJST) used for Justice40, the group was not able to decide upon a single metric or set of metrics for inclusion. We suggest users of the EEP map and framework cross reference one of the high quality existing screening tools to account for air quality impacts.

Rationale: Researchers have long demonstrated that pollution in general, and air quality specifically, has disproportionate impacts on people of color, especially Black people, and the poor.

For decades, this body of research has continued to amass more and more robust data on the scope and impact of these disparities. In summarizing general conclusions about air quality exposures and impacts here, we drew on studies and reviews by Cushing et al (2015), Daouda et al (2021), Newkirk II (2018), Tessum et al (2021) and Weaver et al (2021).

The burden of air pollution hits the poor and people of color in a disproportionate manner. These groups face disproportionately high exposure to an array of pollutants, such as ozone, nitrous oxides, and PM 2.5 (particulate matter smaller than 2.5 microns in diameter). Regarding pollution exposure, Black households in particular face 50% more exposure to particulate matter than whites (Newkirk II, 2018), and in California, Latinx households are 7 times more likely to live in the most polluted census tracts than whites (Cushing et al, 2015). That exposure is the source of increased rates of asthma, cancer, and even preterm births (Daouda et al, 2021).

Globally, a new study (Greenstone et al, 2022) found that PM 2.5 alone shortens the life expectancy of *all people* by an average of 2.2 years, which is 17 billion collective life-years. The World Health Organization (WHO) recently cut the safe level in half from 10 to 5 micrograms per deciliter, which means over 97% of the world's population is regularly subjected to unsafe levels of PM 2.5.

Recent studies have revealed that there is a higher rate of death from African Americans exposure to particle pollution than among whites and confirmed race is a more powerful predictor of exposure than income:

"Even African American Americans with higher incomes still faced the same threat from particle pollution. Therefore other factors such as race and constant pressures of discrimination may be a factor. Redlining and other segregation factors place African Americans closer to places where pollution exists". (US EPA 2021, reviewing Tessum et al, 2021)

"Several studies show a direct correlation between poverty, lower home values, large urban inner city populations, use of public transportation" and exposure to pollution (US EPA, 2021). These all contribute to environmental racism, the disproportionate siting of environmental justices in communities of color, even when accounting for income.

These disparities may exist due to three factors: proximity to sources due to racism and class bias, housing dynamics and land costs. Pollution sources tend to be located near disadvantaged communities. "Second, low social positioning makes some groups more susceptible to health threats because of factors related to their disadvantaged status. Lack of access to health care, grocery stores and good jobs, poorer job opportunities, dirtier workplaces and higher traffic exposures. Lastly, existing health disparities [like diabetes, Weaver et al, 2021] tend to increase risk." (US EPA, 2021).

The effects of transportation related pollution is greatly exacerbated by closer proximity to a major roadway. According to the EPA, the number of people living next to busy roads may include 30 to 40 percent of the urban population. The Health Effects Institute (2010) published a major review of the evidence put together by a panel of expert scientists. The panel examined some 700 studies from around the world, and concluded that traffic pollution causes asthma attacks in children and is most dangerous for those living within 0.3 miles of major roads. For those very close to roads—within 50 meters—COPD and poor cognition were apparent.

D34. Blood Lead Levels in Children

METRIC STATUS: Not included; not requested by the workgroup.

Rationale: Lead exposure has major impacts on health, particularly on the cognitive abilities of children. Lead exposure and poisoning disproportionately affects the Black community, in particular, which reflects historic housing segregation and poor quality housing. While lead is a major environmental and justice concern in many communities, it was not recommended for inclusion, in part due to the inconsistent data availability which is often held by local or county health departments. As noted in the Distributional chapter, remediating household health and safety

issues, including lead, is a best practice that should be taken up locally and by designing and targeting utility programs to have maximum benefit.

RESOURCES:

- Several CDC references are noted in the References section of this chapter
- Things parents can do to prevent and mitigate lead exposure (CDC)
- Health Impact Project, Pew Charitable Trusts

Protecting children from exposure to lead is important to lifelong good health. No safe blood lead level in children has been identified. Even low levels of lead in blood have been shown to affect learning, ability to pay attention, and academic achievement. While the effects of lead exposure may be permanent, if caught early there are things parents can do to prevent further exposure and reduce damage to their child's health (CDCf, n.d.).

The most important step that parents and caregivers, healthcare providers, and public health professionals can take is to prevent lead exposure before it occurs (CDCc, 2021; CDCed, 2021; CDCe, 2021).

CDC supports primary and secondary lead exposure prevention.

- Primary prevention is the removal of lead hazards from the environment before a child is lead exposed. It is the most effective way to ensure that children do not experience harmful long-term effects of lead exposure.
- Secondary prevention includes blood lead testing and follow-up care and referral. It remains an essential safety net for children who may already be exposed to lead (CDCa, 2019).

D35. Opportunity scores

METRIC STATUS: Not included—using composite scores and indices within a new index is not a best practice.

The Opportunity Scores index is comprised of 16 metrics in economy, education, health, and community (e.g. youth disconnection, voter registration, access to healthy food) by region.

RESOURCES:

- https://opportunityindex.org/
- https://opportunityindex.org/, https://careshq.org/map-room/

Image source: Getty/Bettmann Collection

Historical Index

H1. Adoption of historical narratives/root causes of disparities in the energy system

METRIC STATUS: Shift to qualitative/best practice

Rationale: The recognition group believes these first-person accounts are critical to developing a coherent and holistic understanding of the experience of energy inequity, and to providing a foundation for the various metrics proposed by the EEP working group. We are not aware of an existing template or guide to compiling narratives as told directly by frontline communities. Whatever form they take, they should stand on equal footing with the stories told in data; lived experience is powerful and needs to have a significant impact on how policies and programs are shaped.

RESOURCE:

- SEEA Storyboard about Energy Insecurity in the South

H2. Historical rate & billing changes relative to 1) National average, and 2) Commercial & industrial sector

METRIC STATUS: Secured, late edition (not included in beta version of the EEP map). The data that exists is primarily for investor-owned utilities, so the ~30% of U.S. households served by cooperative and municipal utilities or using distributed fuels for heating are not included. The data requires further analysis and calculation to provide historical perspective and may not be feasible as a national dataset. We provide information on how this data could be used below.

Rationale: Although there is value to utilities for having larger commercial and industrial (C&I) users as baseload consumers, this metric would consider the relative change between C&I users over time, rather than the absolute disparity. If residential and

commercial rates were both $0.10 / kWh in 2010, but by 2020 residential rates are $0.15 and commercial rates are $0.08; what were once equal rates now have a disparity with residential rates being 87.5% higher than commercial rates. This scenario could be scored as -87.5%, with the negative sign indicating residential rates have moved away from parity. This metric could also consider change in residential rates in a particular state or utility to other states or utilities.

This metric will be challenging to use accurately in unregulated markets where households in the same area will have different utility service providers and different rate plans. Data sources include EIA historical billing data and published utility rate plans.

H3. Reparations

METRIC STATUS: Not included, no existing data

Rationale: We are not currently aware of any area providing reparations for harms caused by the energy system, so the metric score would be zero. If reparations are in place in even a few locations, the recognition group believes it is important to track this to show disparities and benefits across regions. *Reparations are addressed in depth as an important concept of the Restorative Dimension chapter.*

From a housing perspective, maps are available for many cities that show historically redlined neighborhoods. Because discriminatory housing policies and practices like redlining had a direct negative impact on the quality and energy efficiency of homes (Hoffman et al., 2020) and limited home ownership (Lynch et al. 2021), formerly redlined neighborhoods should be prioritized for clean energy investments. We also note that while housing segregation and discrimination was experienced by multiple racial and ethnic groups, the problem was particularly acute for Black Americans and warrants particular consideration when considering reparations or other remedies (Rothstein, 2017).

Even without a formal reparations policy or mechanism, energy efficiency and clean energy programs could be targeted to communities that were historically marginalized as one form of reparations.

RESOURCES:

- Redlining in New Deal America – University of Richmond
- The Case for Reparations – TaNehisi Coates
- Community Solar as Energy Reparations – Nikki Luke and Nik Heynen, 2020

H4. Energy efficiency equity baseline (E3b) metric

METRIC STATUS: Not included, limited coverage. The concept is valuable for local calculation and determining historical deficits.

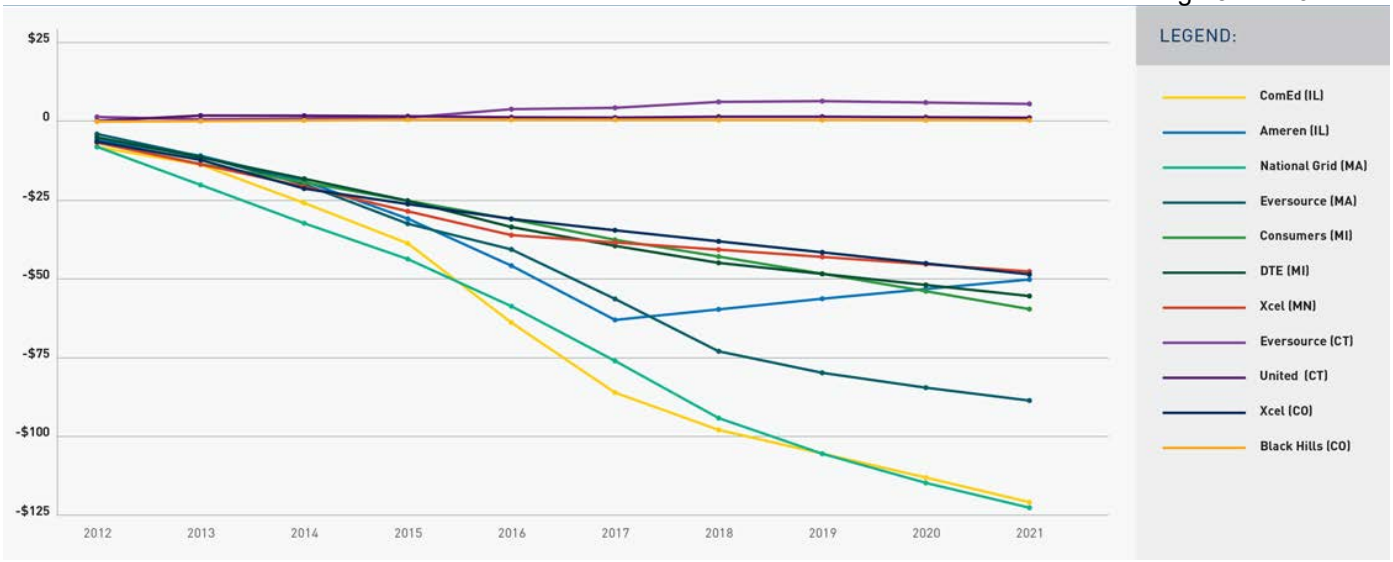
Rationale: The Energy Efficiency Equity Baseline (or "E3B") map visualizes investor-owned electric utilities' investments into energy efficiency programs for low-income customers. Intended to be an interactive tool for both state and utility policy-makers, and energy justice advocates, the E3B map provides a comparative framework to examine the equity of utilities' investments into low-income energy efficiency measures against a novel standard: the E3B.

NOTES:

This parallels the concept of Justice40. It establishes proportionate spending and energy savings between different groups (first done between low-income and non low-income) compared to the percentage of the population in a program service territory. For instance, if 35% of a utility's customers are low-income, the E(3) b would be 35% of the total program budget and total energy savings. This metric would be reflected as a % of E(3)b achieved, with 100% being exactly proportional. In the example above, $35 million in LI spending out of a $100 million budget would yield an E(3)b score of 100%. $28 million for LI programs would score 80%, while $42 million would score 120%. The same calculation can be applied to energy savings. This metric could have multiple permutations by income, race, EJScreen score, between residential and commercial spending, etc.

Also note that even the Justice40's target that 40% of benefits flow to disadvantaged communities is a *floor*, because shifting to proportional investments does not remedy historical disparities or marginalization that Black, Indigenous, Latinx, poor, and frontline environmental justice communities have been subjected to.

Dr. Tony Reames and students at U of M's Urban Energy Justice lab applied the E3b metric to cumulative energy efficiency program funding deficits for low-income households. Analyzing eleven investor-owned utilities, they found a total cumulative (historical) gap of $585 million, and as much as $123 million (Reames et al, 2019). EEP contends that *before* proceeding with proportionate investments suggested by E3b or Justice40, the historical gap must first be closed. Once the gap is closed, we achieve a fresh starting point for all communities within that particular funding source for energy efficiency programs. Because of other historical inequities, from pollution burdens to access to tax credits and financing to redlining and housing.



This image visualizes the cumulative impacts of underinvestments in utility programs over time. In this case, investments in low-income energy efficiency programs by IOUs are well below the proportion of the low-income population in their service territory. (Reames et al, 2019). Image source: Poverty Solutions, University of Michigan.

RESOURCES:

- Urban Energy Justice Lab (University of Michigan) publications
- E3b map
- E3b presentation

H5. Residential energy consumption disclosure/ benchmarking

METRIC STATUS: Not included due to very limited data and adoption. Shift to qualitative/best practice.

Metric definition note: Similar policies require buildings, generally large commercial and industrial above a certain square footage, to disclose energy consumption. These are frequently referred to as benchmarking ordinances and may require annual or bi-annual disclosures. These metrics are used primarily to support carbon reduction initiatives. We are speaking of a related but different form of energy disclosure, one that informs potential renters or buyers of the energy bills they would be likely to inherit in a potential new home.

Rationale: Energy costs can rival those of mortgage payments, depending on the climate, the size and efficiency of the home, and the usage patterns of the household. This form of energy consumption disclosure would be mandated with real estate listings, ideally for both homes for sale and for rent. The existing Home Energy Score, created by the Department of Energy, provides a 1-100 score that would enable prospective renters and buyers to compare properties. Similar labeling tools exist for vehicles (EPA fuel efficiency/MPG ratings), for water heaters, and for other appliances (e.g. EnergyStar).

As of 2020, about 12 cities and states required home energy consumption disclosures (Gerdes, 2020). As this metric is novel in its adoption and availability, we do not recommend it for inclusion in the national EEP map, but suggest it as a best practice for municipalities and other jurisdictions seeking to give households information about what they can expect to pay in energy costs. Potential buyers and renters might see a home energy score or energy use index for the property. This might be a qualitative spectrum — 0 = does not exist, 1 = limited disclosure, 2 = full transparent, accessible disclosures.

WORKGROUP NOTES:

ACEEE tracks this a bit in the city and state Scorecards but only for the 100 largest cities. RMI has a tool that's tracking this.

RESOURCES:

- RMI's Residential Energy Performance work
- Lessons from Developing and Deploying the Nation's First Mandatory Home Energy Score Policies (Presented at ACEEE 2018 Summer Study)
- Valuing efficiency in real estate listings: an experiment (ACEEE)
- Home Energy Score – DOE Office of Energy Efficiency and Renewable Energy (EERE)
- City of Portland Home Energy Score

H6. Historical violations of land sovereignty – general

METRIC STATUS: Not included—see discussion on Indigenous Sovereignty in the Restorative Chapter. Indigenous groups should have the ability to tell the story of violations and have that included in the public record. These documents should influence decision-making. We would include this because it closely connects to Indigenous Allyship.

WORKGROUP NOTES

"There are a lot of examples out there that could be the basis for a very important study. Whether these abuses could be presented as a metric seems like the wrong tool to me."

"I would love to see a study on this that we can cite. Without that, it would likely be really difficult to include, as there's so much history that would need to be explored. We could focus it in on more specific violations (such as the metric below for the energy industry), but even then it would be a massive undertaking to unearth all that's been taken over the last 300+ years."

H7. Historical violations of land sovereignty by the energy industry

METRIC STATUS: Not included—see discussion on Indigenous Sovereignty in the Restorative Chapter.

WORKGROUP NOTES

"You would really need to distinguish between the utility sector and oil and gas sectors to extract useful and actionable information."

"I think this is super important, yet again would need a study to unearth all the violations that need to be brought to light. I'm giving it a 5 though because I believe it does need to be included and we should strive to collect this data."

Energy Security Index

ES1. # of shutoffs

NOTE: *Shutoffs are a word choice used by EEP. To us, they are more indicative of an active, avoidable, and punishing response to block households that cannot afford to pay their energy bills from access to a basic and universal human right. Many advocates for ending shutoffs emphasize the use of this term. The word disconnections, while more popular among regulators and utilities, connotes a passive action that is a natural, unpreventable and unfortunate consequence of poverty. We cannot speak to the intent or awareness behind these terms by others, but we note a significant nuance in how we perceive and use them.*

METRIC STATUS: Priority data gap. Some data exists, but varies widely by state and utility type.

Rationale: Despite the acute risks of living without power during the pandemic, just sixteen investor-owned utilities conducted nearly 1 million shutoffs from February 2020 to June 2021 (Su and Koveke, 2021). More than any other metric, we hear requests from grassroots community organizations and advocates for more reliable data on shutoffs. Regardless of the reasons for the shutoffs, they represent the greatest threat to life and well-being within the energy system. A recent study by Indiana University's Energy Justice Lab found that 13.5% of households were shut off between November 2021 and January 2022, during the height of the Omicron surge (Carley et al, 2022).

Shutoff data is THE highest priority data gap for EEP. It is most sought by grassroots organizations and nonprofit practitioners, and shutoffs can have immediate life and death ramifications during extreme weather events or among individuals with disabilities and chronic medical conditions. Remarkably, data on shutoffs are not mandated in many states, and even those that do require data typically only require it from IOUs, giving no indication of how those served by co-ops, municipal utilities, and distributed fuel utilities are impacted.

Despite the severe human toll of shutoffs, most utilities are not required to, and do not, publicly report on this. More regulation is needed for this type of data to be publicly available.

RESOURCES:

- Power in the Pandemic Report – Center for Biological Diversity and the Bailout Project

ES2. Trend in shutoffs

METRIC STATUS: Priority data gap. This would entail further calculations by researchers, whether local or at an initiative like EEP.

Rationale: Centering energy as a human-right calls into action the need to protect people from being shut-off from access to energy. This aligns with United Nations Sustainable Development Goal 7 (SDG7). Research also indicates that pre-payment might not be the best solution, with those pre-paying often paying more, and at risk of energy poverty (O'Sullivan et al., 2011). As a best practice this metric would take into account: 1) change by year and 2) requirements to reduce over time.

Utilities that have higher levels of shutoffs might be required to more aggressively curtail the practice, as was ordered by the California Public Utilities Commission in 2020 (see p. 173 of CPUC, 2020):

ROLLING METHODOLOGY FOR THE DISCONNECTION CAP

TARGET DATE	PG&E	SDG&E	SCE	SoCal-Gas
07/01/2020	4%	3%	8%	2%
01/01/2021	4%	3%	7%	2%
01/01/2022	4%	3%	6%	2%
01/01/2023	3.5%	3%	5%	2%
01/01/2024	3.5%	3%	4%	2%

Source: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M340/K648/340648092.PDF (p.173)

RESOURCES:

- Academy4SC video on SDG7
- Lights Out in the Cold report – NAACP
- Flaherty, M., Carley, S., & Konisky, D. M. (2020). Electric utility disconnection policy and vulnerable populations. *The Electricity Journal,* 33(10), 106859.
- O'Sullivan, K. C., Howden-Chapman, P. L., & Fougere, G. (2011). Making the connection: The relationship between fuel poverty, electricity disconnection, and prepayment metering. *Energy Policy,* 39(2), 733-741.

ES3. Shutoffs disproportionately impacting BIPOC

METRIC STATUS: Priority data gap. This would entail further calculations by researchers, whether local or at an initiative like EEP.

Rationale: Data demonstrates that shutoffs impact those who are vulnerable and/or marginalized differently than those who are not (Brown et al., 2020). There are two approaches to determining this metric: 1) The utility collects and directly provides customer data on race (which customers could opt out of providing). This method would have higher accuracy but many utilities we have heard from are averse to collecting customer data, particularly on race. Or, 2) Estimate shutoffs based on the racial composition within geographic boundaries, ideally at the census tract level or even the block level. This method doesn't require collecting any additional information, but requires the additional step of matching census tract populations to utility shutoffs. Additionally, in heterogeneous census tracts (which average about 4,000 residents nationwide), this method could miss disproportionate impacts to a particular group (e.g. if less proficient English speakers are being shut off at higher rates).

The workgroup rated this metric as a high priority to include in the EEP map. As a best practice, the group strongly recommends collecting and reporting as much data as possible at frequent intervals to enable analysis of trends and potentially disproportionate impacts.

RESOURCES:

- Brown, M. A., Soni, A., Lapsa, M. V., Southworth, K., & Cox, M. (2020). High energy burden and low-income energy affordability: Conclusions from a literature review. Progress in Energy, 2(4), 042003.
- DEFG. (2022). Struggling Utility Customers on the Road to Recovery in 2022. Retrieved from: https://www.michigan.gov/mpsc/-/media/Project/Websites/mpsc/workgroups/eaac/DEFG-22-01-19-LIEIF-Consumer-Survey-Road-to-Recovery.pdf?rev=bcbc7f5c523d43398f753a12b4d2ae7e&hash=A8BE728A7F209789D009117982A9DF4F

ES4. Shutoff policies protecting vulnerable populations

METRIC STATUS: Secured—late addition, shift to qualitative (currently). Data from Indiana's Energy Justice Lab addresses multiple types of shutoff protections and policies at the state level (Flaherty et al, 2021). Any additional protections offered by individual utilities are not widely available through a single data set. EEP is exploring the potential to use

the shutoff policy data to create a rating scale and a new quantitative metric.

Rationale: Each year, millions of people in the U.S. have their utilities shut off for non-payment. Further, shutoffs can be associated with mental and physical harm, but can also lead to death from exposure to extreme heat or cold (Flaherty et al., 2020). This metric was rated highly by the workgroup.

Innovative methods are needed to conceptualize policies that have the potential to protect vulnerable populations. One possible assessment is a weighted checklist that users would score on the basis of: mandatory notifications and time to rectify; mandatory enrollment in efficiency programs; mandatory enrollment in affordability programs; protections for vulnerable populations (seniors, young children, people with medical conditions); and decreasing caps on the number of allowable shutoffs.

While shutoff protection policies are today considered a best practice and take numerous forms, we note that in the presence of shutoff moratoria, such as those in place in 33 states during COVID-19, **the design of specific shutoff protections becomes moot when a single, overarching protection is in place.**

RESOURCES:

- Flaherty, M., Carley, S., & Konisky, D. M. (2020). Electric utility disconnection policy and vulnerable populations. *The Electricity Journal,* 33(10), 106859.
- LIHEAP (n.d.). Disconnect policies. Retrieved from https://liheapch.acf.hhs.gov/Disconnect/disconnect.html
- Resolution on Disconnection Data Disclosure – NASUCA (National Association of State Utility Consumer Advocates)
- National Consumer Law Center (NCLC, 2021). Protecting Seriously Ill Consumers from Utility Disconnections: What States Can Do to Save Lives Now. Retrieved from: https://www.nclc.org/issues/energy-utilities-a-communications/protecting-seriously-ill-consumers-from-utility-disconnections.html
- Utility Service Principles – NCLC
- Utility Bill of Rights – NCLC

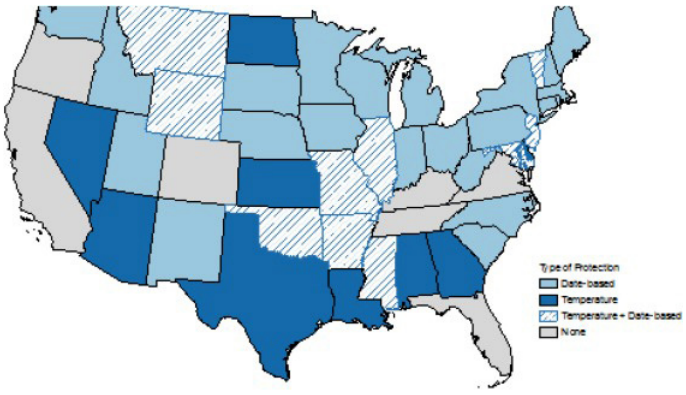
ES5. Shutoff suspensions during extreme circumstances

METRIC STATUS: Secured, late addition—see ES4 status; the details are the same.

Rationale: In addition to disconnections being problematic for vulnerable groups, this is doubly problematic when disconnections occur during extreme circumstances such as heat waves, a pandemic, and natural disasters. Furthermore, many jurisdictions have imposed moratoriums on shutoffs during Covid but it is unsure if these will remain and/or for how long (e.g., Das et al., 2022). This metric was rated a high priority by the workgroup. Data collection should include: tracking shutoffs, the timing of lifting of shutoff suspensions and moratoria, the circumstances under which they are used, and who they serve.

RESOURCES:

- Das, R. R., Martiskainen, M., & Li, G. (2022). Quantifying the prevalence of energy poverty across Canada: Estimating domestic energy burden using an expenditures approach. *The Canadian Geographer/ Le Géographe canadien*. https://doi.org/10.1111/cag.12750



Panel A. Cold Weather Protections

Panel B. Hot Weather Protections

While many states have shutoff protections for cold weather, heat-related protections are uncommon, even though far more people die each year from heat illness than cold exposure. Source: Flaherty et al, 2021.

- LIHEAP (n.d.). Seasonal termination protection regulations. Retrieved from https://liheapch.acf.hhs.gov/Disconnect/SeasonalDisconnect.htm

ES6. Ease of restoration

METRIC STATUS: Priority data gap

Rationale: In the absence of improved shutoff protections or moratoria, the process of restoring service is an important consideration. Currently, there is not a clear model of how to address this need. Considerations should include time to be restored, fees required, and if there are disparate impacts in restoration service by demographic group. We recommend that those who are impacted are involved in attempts to better understand this issue. For example, utilities could work with householders to understand the experience of disconnection followed by restoration and be accountable by asking users to provide a rating with respect to the "ease" of restoration. Finally, we note that with AMI meters, restoration of electric service should be nearly instantaneous and incur hardly any expense, since no staff are dispatched to the home.

RESOURCES:

- Utility Disconnection Protections – Indiana University Energy Justice Lab

ES7. Outages (frequency, duration, restoration time) disproportionately affecting frontline, low-income, and BIPOC households

METRIC STATUS: Included; EIA data sets for "SAIDI" and "SAIFI"[8] is at the utility service territory scale, which can cover an entire state, and is applied equally to all census tracts in that service territory. More fine-grained data at the census tract level should be a priority and would reflect disparities in infrastructure age and quality, resilience, and overall grid vulnerability.

Rationale: Outages may be felt differently by those belonging to vulnerable, marginalized, or BIPOC groups. Existing inequities have and continue to contribute to housing segregation, which can then contribute to disparities in energy service reliability and power outages (Bouzarovski and Simcock, 2017; Ko et al., 2014). Outages are an increasing risk as a result of climate impacts; outages that occur as a result of severe storms, hurricanes, or wildfires in summer leave households vulnerable to extreme heat and loss of refrigeration, while outages due to winter storms, as in Texas and Oklahoma in February 2020, leave households without heat.

Inequities can also be spatially driven given the "geographical assemblage" of energy flows, production, distribution infrastructures, characteristics of the built environment, and social and economic networks (Harrison and Popke, 2011). For households, heating systems, energy carriers used with them, and the energy efficiency of dwellings create certain ways of accessing and affording energy (Maxim et al., 2017). Environmental features such as climate conditions also interact with the geographical assemblage. Taken together all these features can put some in more vulnerable positions than others (Yenneti et al., 2016).

RESOURCES:

- EIA reports
- EIA national outage statistics
- Outage Data Initiative
- Catalyst Cooperative

ES8. Data transparency for outages and shutoffs

METRIC STATUS: Shift to qualitative/best practice

Rationale: It might be difficult to address data transparency without first knowing what available data exists. From here, the concept of "transparency" would need to be conceptualized (see the Procedural chapter). This is critical for being able to address the various metrics this group has considered. And for utilities and stakeholders to consider for best practice going forward.

RESOURCES

Significant overlap with shutoff protection metrics:

- Resolution on Disconnection Data Disclosure – NASUCA (National Association of State Utility Consumer Advocates)
- Powerless in the Pandemic Data and Calculations
- Utility Service Principles – NCLC
- Utility Bill of Rights – NCLC

ES9. Energy as a human right policy/declaration guaranteeing access/permanent moratorium on shutoffs

METRIC STATUS: Shift to qualitative/best practice

Rationale: The concept of "right to energy" was first introduced in the 1950s by the United Nations and although it is not explicitly stated in Sustainable Development Goal 7 (SDG7), it is implied that access to affordable, reliable, sustainable, and modern energy is a fundamental need for human development, and that this need reflects principles of human rights (Shyu,

[8] See the footnotes and a link to a 5-minute YouTube tutorial on the EIA website: https://www.eia.gov/electricity/annual/html/epa_11_01.html#:~:text=SAIDI%20%3D%20System%20Average%20Interruption%20Duration,year%2C%20the%20average%20customer%20experienced.

2021). Furthermore, SDG7 is an important international policy agenda that emphasizes the necessity of energy services for human capabilities (Hesselman et al., 2021).

RESOURCES:

- Draft House Resolution: Human Rights to Utility Services
- Sustainable Development Goal 7 – United Nations

ES10. % Households keeping homes at unsafe temperature

METRIC STATUS: Shift to best practice and monitor regularly

Rationale: This is reported in EIA's Residential Energy Consumption Survey (RECS); but only every ~5 years and not in every state. Best practice is to monitor regularly across jurisdictions. The last RECS survey data is from 2015; new data is due out in 2023. More than 10% of households in 2015 reported keeping their homes at an unhealthy temperature. The Census Pulse Survey, administered every 1–2 weeks during COVID-19, identified nearly 20% of households keeping their homes at a temperature that felt unsafe or unhealthy (U.S. Census, 2022).

Dr. Destenie Nock and colleagues at Carnegie Mellon University led an innovative study to create the Energy Equity Gap, which looks at disparities in when households turn on their air conditioning as a proxy for energy poverty.

RESOURCES:

- EIA. Residential Energy Consumption Survey (RECS). (n.d.). Retrieved from: https://www.eia.gov/consumption/residential/
- https://www.eia.gov/consumption/residential/reports/2015/energybills/
- Energy Equity Gap – Nock et al, Carnegie Mellon

RECOGNITION MEASURES SUMMARY

Demographic Index

- D1. Defining "disadvantaged"/target populations
- D2. Social Vulnerability Index (SVI)
- D3. Presence of toxic facilities
- D4. Climate vulnerability – heat exposure
- D5. Climate vulnerability – flooding/sea level rise exposure
- D6. Climate vulnerability – severe storm/hurricane exposure
- D7. Climate vulnerability – fire exposure
- D8. Climate vulnerability – adaptive capacity/resilience
- D9. % BIPOC
- D10. Low birth weight
- D11. Maternal mortality
- D12. COVID Case and Death Rates
- D13. % without health insurance
- D14. % of Seniors Living Alone
- D15. Income Mobility
- D16. Incarceration Rate
- D17. Educational attainment
- D18. Poverty rate
- D19. Deep poverty rate
- D20. Relative poverty (% of AMI)
- D21. Employment rate
- D22. Job access score
- D23. % Households without internet access
- D24. % Households where English is not the primary language spoken
- D25. Average age of building
- D26. Housing burden
- D26. Housing inspection scores (HUD multifamily)
- D27. Availability of affordable housing
- D28. % renters
- D29. Eviction Rate
- D30. Eviction Protections Score Card
- D.31 Transportation Burden
- D32. Housing and Transportation Affordability Index
- D33. Air Quality
- D34. Blood Leads Levels in Children
- D35. Opportunity scores

Historical index

- H1. Adoption of historical narratives/root causes of disparities in the energy system
- H2. Historical rate & billing changes relative to 1) National average, and 2) Commercial & industrial sector
- H3. Reparations
- H4. Energy efficiency equity baseline (E3b) metric
- H5. Residential energy consumption disclosure/benchmarking
- H6. Historical violations of land sovereignty – general
- H7. Historical violations of land sovereignty by the energy industry

Energy Security Index

- ES1. # of shutoffs
- ES2. Trend in shutoffs
- ES3. Shutoffs disproportionately impacting BIPOC
- ES4. shutoff policies protecting vulnerable populations
- ES5. Shutoff suspensions during extreme circumstances
- ES6. Ease of restoration
- ES7. Outages (frequency, duration, restoration time) disproportionately affecting frontline, low-income, and BIPOC households
- ES8. Data transparency for outages and shutoffs
- ES9. Energy as a human right policy/declaration guaranteeing access/permanent moratorium on shutoffs
- ES10. % Households keeping homes at unsafe temperature

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Procedural Equity

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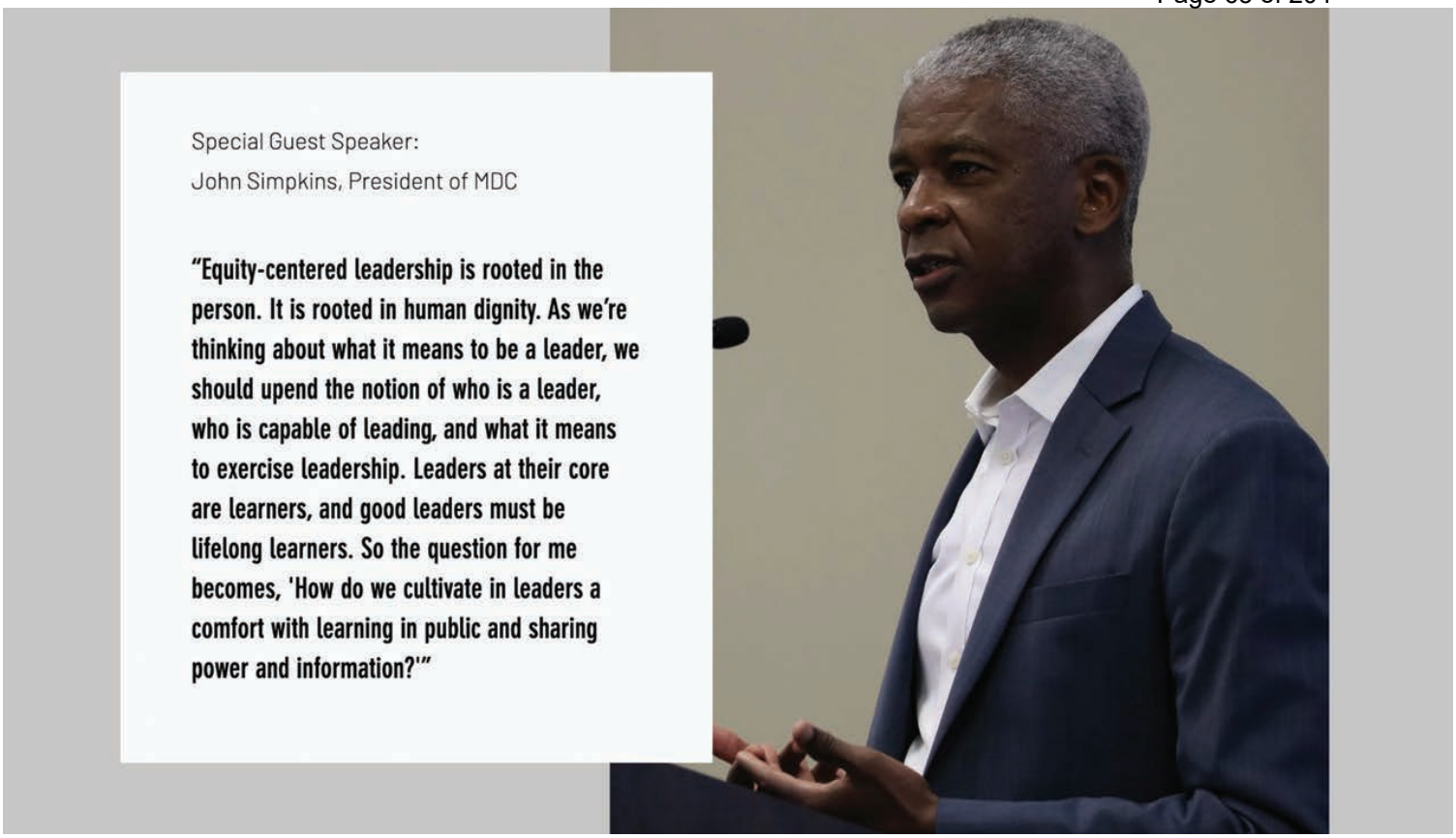
Historically, energy decision making processes have been inaccessible for individuals and communities to participate in meaningfully. This is due to both the complex, judicial nature of energy decision making processes and to the legacy of systemic racism embedded in many of our policies and procedures (Kowalski, 2021). The ***procedural equity dimension*** *is a critical piece of the EEP framework because it reveals who is at the decision-making table and promotes diverse representation of impacted communities among decision makers and energy service providers. The measures in this section outline a framework to ensure that community voices are heard throughout the design, implementation, and evaluation of energy programs and policies; we outline enforcement and accountability mechanisms that tie these principles to the internal practices of an organization.*

Themes of trust, credibility, and power emerged as vital components in procedural equity; these principles lean on ethics and social licenses to operate (The Ethics Center, 2018). These themes guided writing and research into how utilities and regulators can shift current processes and build new frameworks to better engage communities. The workgroup also explored how to ensure current and future programs and procedures are truly accessible to all communities, especially those most heavily impacted by climate change. A key finding is that procedural equity is



deeply intertwined with systems change, and this chapter highlights strategies to shift existing systems and processes for long term, transformative change.

With **trust**, we emphasized that *equitably shifting energy systems must: 1) ensure long term investments (time, financial resources, capacities, staff) that build community power and authentic relationships with communities, 2) create inclusive listening sessions that uplift and value community wisdom, 3) ensure a consistent process of sharing transparent information with communities (including demographic backgrounds of staff and commissioners), and 4) expand the depth of racial, economic, and social equity knowledge that utility and PUC staff must maintain in order to continue their role.*

With **credibility**, we underscored that *equitably shifting energy systems must change the current explicit and implicit norms of the utility and PUC sector, including but not limited to: 1) pivoting away from white supremacy cultural characteristics (Okun, 2021), ensuring flexibility to respond to arising concerns from communities, 2) providing trauma-informed and accessible decision-making and meeting spaces, 3) targeting outreach and trust building with historically marginalized communities, 4) enstating more authentic and representative decision-makers, 5) ensuring transparent communications and materials, and 6) being accountable to community inputs within IOU, PUC, and other agency processes.*

15 Characteristics of White Supremacy Culture

1. Perfectionism
2. Sense of Urgency
3. Defensiveness
4. Quantity Over Quality
5. Worship of the Written Word
6. Only One Right Way
7. Paternalism
8. Either/Or Thinking
9. Power Hoarding
10. Fear of Open Conflict
11. Individualism
12. I'm the Only One
13. Progress is Bigger, More
14. Objectivity
15. Right to Comfort

Tema Okun and Kenneth Jones, Dismantling Racism Workbook, 2001.

And with **power**, we aimed for communities to gain power in decision-making spaces through better representation and accessibility to these spaces to ultimately make their own energy decisions. We highlighted that *equitably shifting energy systems must support and facilitate community influence over utility outcomes, including 1) the impacts of utility actions and regulatory decisions, 2) access to meetings, data, funding, and technical assistance, and 3) ensuring community leadership in the design, implementation, and evaluation of programs, facilities, and procedures. When communities can exercise these forms of power, they are more likely to result in a more representative, accessible, and transparent energy sector.*

Given the three guiding themes, the workgroup determined that metrics for procedural equity can be organized into two sub-dimensions: procedural and program access. Procedural measures focus on pathways to implement equitable processes, and program access focuses on expanding accessibility for communities to engage meaningfully. We acknowledge that some aspects of procedural equity are more ripe for implementation than others. While some potential metrics are very straightforward, others require more exploration and co-creation. We also acknowledge that procedural equity alone cannot achieve the transformation necessary for the clean energy sector, and each dimension in the framework is interrelated.

We discuss potential metrics and why they were recommended for inclusion in the EEP framework or not. Please note that we selected metrics to create a baseline for this work, develop longer-term goals, and to offer a pathway to more inclusive and transparent procedures that shift power and do not perpetuate further harm. Given the complexities of the energy sector, we discussed how to target the multiple parties involved (i.e., environmental and consumer advocates, legislatures, commissioners, governors) in these opaque and quasi-judicial regulatory spaces. Importantly, we explored the feasibility and impact of our recommendations, and how to decipher what is a best practice versus a qualitative metric.

The workgroup also examined the most appropriate language to utilize when discussing procedural equity. We believe that communities should have a voice in how they are portrayed and communicated about, and not dehumanized as part of our advocacy in the movement for energy justice. Within our workgroup, a smaller team coalesced to identify terms that are often used interchangeably and explore the implications of their use. We then researched their historical usage, defined them, and collectively decided which terms best fit our chapter and principles. This work formed the glossary of terms and guidance for community descriptors which are used throughout the EEP framework (see Inclusive Language Review, at the end of this chapter).

All procedural equity workgroup members were instrumental in co-creating our process, values, goals, and metric narratives by providing thoughtful insights, expert guidance, and pertinent data and resources they had firsthand experience in developing. Each member showed a true commitment to energy justice that inspired innovative solutions and generative dialogue.

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A NOTE ON RATING SCALES

Many of the measures in the procedural index do not lend themselves to pure quantitative assessment, as there are not straightforward or consistently used standards for reporting data. A more appropriate and familiar practice for procedural equity is using qualitative information to create a quantitative tool for comparative assessments. Scorecards in particular establish a methodology for assigning scores or letter grades, often developing an evaluation rubric to improve consistency across different reviewers and to establish consistent expectation or thresholds at each rating level. The procedural dimension of equity, in particular, lends itself to the development of such rating scales. However, for such rating scales to be both equitable and robust, they require input and review from numerous groups and an evaluation of the rating framework after a trial run to verify that it closely aligns with the lived experience of people with firsthand knowledge of the local context. If done right, the iterative process of developing a rating scale takes several months; it was beyond the scope of EEP to develop these scales for particular proposed metrics at this stage, but new scales will be considered for inclusion in v 2.0 of the EEP framework. For now, we have identified eight potential metrics that would benefit from a new rating scale. States, communities, and individual institutions (e.g. regulatory agencies, utilities) might also embark on an inclusive process of developing rating scales for their own service areas. Below, we present a sample of energy justice rating scales that have been developed and may offer guidance for new ones; Brookhart (2018) provides an outstanding review of approaches to developing rubrics.

Instructions:

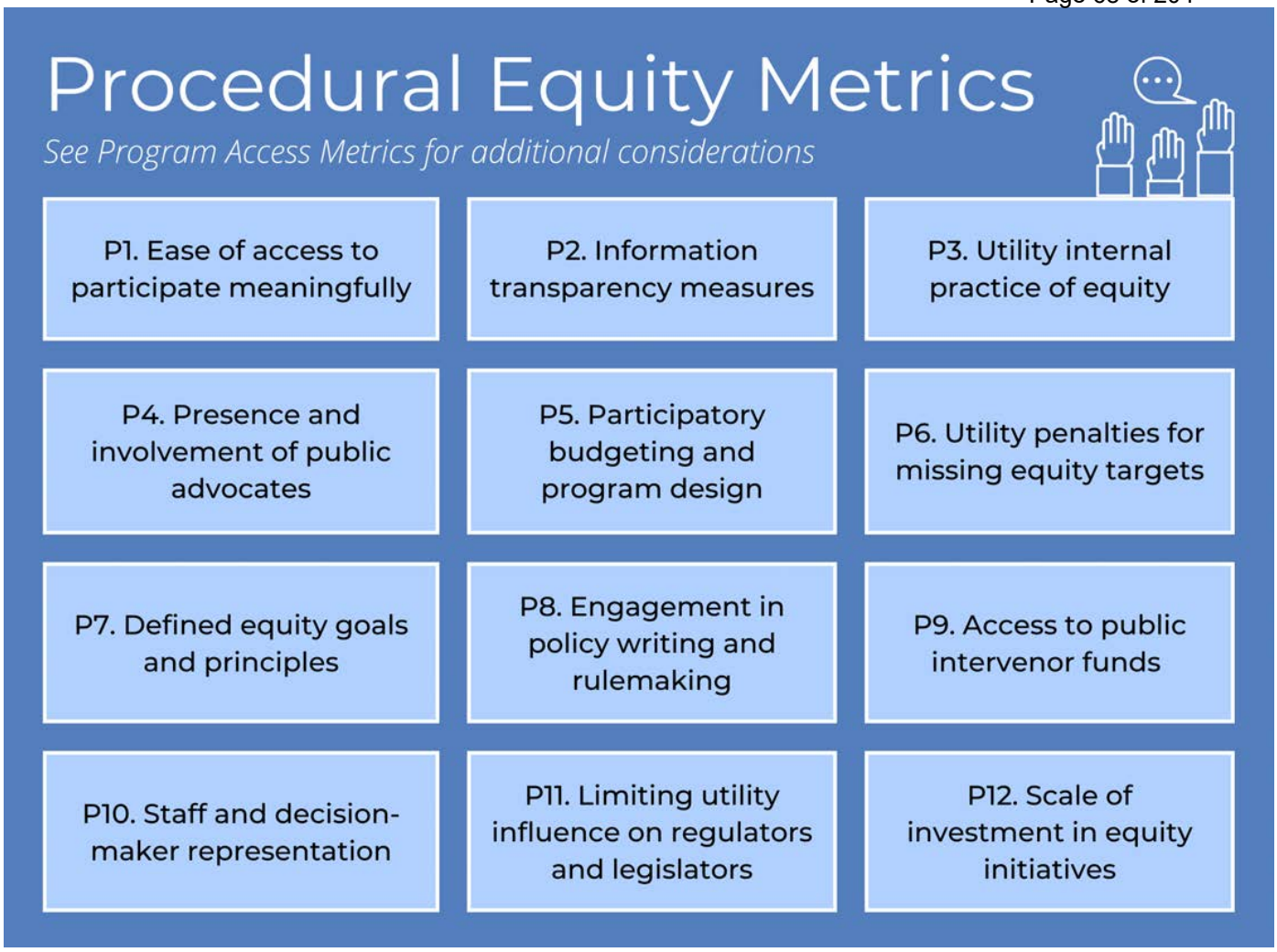
Use the Worksheet below to give points for elements that exist in the law being scored. Each item has further explanation, sources, and notes in the Guidance section that follows. Indicate partial credit where the answer is not quite yes (1) or no (0). For example, 0.25 or 0.5 indicates a quarter or half of the requirements are met, respectively. This is not an exhaustive list of important elements for 100% laws, nor a rigid point system. The total points from each Part in the Worksheet is a guide for answering the five scorecard questions on page 3.

Part 1	**Process:** Have marginalized communities participated meaningfully in the policymaking process with sufficient support?	
LINE	**ELEMENT**	**POINTS (0 = No 1 = Yes)**
Drafting Legislation		
1	Community leaders report that direct outreach and meaningful participation in law-making effort occurred for the public and marginalized communities, including accessible meetings	
2	Community leaders report that relevant information and other resources were provided to the public and marginalized communities to sufficiently evaluate the proposed legislation	
Procedural Elements in Enacted Law and Rule-making		
3	Commits to principle of free, prior, and informed consent; requires consultation with Indigenous communities	
4	Mandates significant outreach for public and marginalized community participation in rule-making efforts, including accessible meetings	
5	Provides relevant information, financial compensation, and other necessary support to participate in rule-making proceedings	
6	Incorporates a mandatory and funded structure of governance, oversight, evaluation, accountability, and follow-up in response to public engagement	
7	Creates dedicated program(s) for advancing diversity, equity, and inclusion in hiring and other operational practices within energy rule-making agencies	
8	**Part 1: Process - Total Points** (add lines 1-7 and enter total)	

An example of a high quality rating scale is the Justice in 100 Scorecard from the Initiative for Energy Justice (page 13 shown above).

Sample rating scales:

- 2021 Community Power Scorecard (Institute for Local Self-Reliance)
- 2021 Foundation & NGO Transparency Report Card (Green 2.0)
- Electric cooperative scorecards (Energy Democracy Y'all – states in the Southeast)
- Energy Democracy Scorecard (Emerald Cities)
- Justice in 100 Scorecard (Initiative for Energy Justice)
- State and City Energy Efficiency Scorecards (ACEEE) – the State and Local Policy Database also contains a link to a local self-assessment tool; ACEEE also puts out a Utility Scorecard



Procedural Index

P1. Ease of access to participate meaningfully

METRIC STATUS: Desire to create a rating scale using qualitative assessment

Rationale: Community members need easy access to information about how to participate in clean energy programs and decision-making processes. This access is essential for demonstrating program credibility and generating public trust. Changes in the management or implementation can result in changes in public support, and loss of public support can result in project or program failure (Vanclay & Hanna, 2019).[1] We recommend conducting a suite of qualitative assessments for program information access and ease of meaningful community stakeholder participation.

Future metrics could be assessed as a simple presence or absence (0 or 1) and combined into an index of information availability and access ease. Alternatively, an index could evaluate the content of publicly available sources such as public comments, hearing and meeting minutes, and public-facing project, program, or utility reporting materials, and supplemented by periodic stakeholder interviews or focus groups.

It is important to continually assess information access and ease of participation over time and whether there are changes in communication, engagement efforts, community perceptions and participation levels.

Some indicators that could be assessed qualitatively include:

- **Specific, measurable, and thorough public-facing communication** about public engagement activities and opportunities, including processes and steps for participation. These communications should be accessible to those in impacted communities, including, for example, by translating to the

[1] Vanclay, F. and P. Hanna. 2019. Conceptualizing Company Response to Community Protest: Principles to Achieve a Social License to Operate. Land 8(6),101: https://www.mdpi.com/2073-445X/8/6/101/htm

languages spoken by the community and providing communications accessible to those with hearing and visual impairments.

- **Presence and recurrence of community stakeholder meetings** or hearings where public comments are solicited and publicly responded to in a timely matter, with language translation and interpretation services available
- **Availability of flexible planning and support services** or resources to ensure that meetings or hearings are accessible to underrepresented and historically marginalized community groups, such as:
  - holding meetings at different times of day and different days of the week to accommodate different schedules;
  - offering in person as well as remote attendance options;
  - holding meetings and hearings in different neighborhoods across a community to ease access;
  - providing onsite childcare;
  - supplementing transportation costs or directly providing transportation services;
  - providing refreshments, snacks, or meals depending on the time of day meetings are held;
  - compensating attendees for participation
- **Availability and ease of submitting public comments** for the official record during all phases of the proceeding and resulting project—including in planning, implementation, and closeout project or program phases—that allows for: comments to be submitted in languages appropriate to community stakeholder populations, e-filing options, transcribed community hearings, availability of midnight filings, and adequate review and consideration of public comments as part of the final regulatory decision
- **Availability and communication of planning, budgeting, and outcome reporting materials,** written in accessible language and available in multiple languages
- **Quality of available data,** including completeness, accuracy, and timeliness
- **Dedicated outreach and engagement efforts** to underrepresented or historically marginalized groups; these efforts should receive additional resources to go above and beyond standard levels of outreach and engagement

P2. Information transparency measures

METRIC STATUS:

Rationale: Regulatory bodies (e.g. utility commissions, licensing agencies) are the final arbiter on whether a program, infrastructure project, or rate is "just and reasonable".[2] But just and reasonable decision-making requires a balancing of: (1) the utility or business interest, with (2) ratepayer or public interest.[3] As customers and the public are captive to the rates and impacts of the impacts authorized by the regulatory bodies, it is important that regulatory processes have sufficient transparency that all members of the public, regardless of their level of sophistication with respect to energy issues, can understand the benefit, impacts, and rationale for the proposed project, and can participate meaningfully in the agency's decision-making process.

Currently, there are several barriers to needed transparency:

- The utility or business that is proposing the project or rate also control the data and information needed to understand and verify the need for their request, and may be reluctant not provide any information unless and until directed to do so by the regulator;
- The regulated industry has long operated similar to an ivory tower in which the public has been asked to trust that the decisions being made are in the public's best interest;
- Regulators do not always agree with public representatives as to the data and information that the utility or project proponent needs to share;
- While the legal standards usually assign the project proposer with the burden to justify their request as just and reasonable, if a party raises a concern or complaint, the burden shifts to the complainant to demonstrate with evidence that the concern or complaint is valid. Public representatives may not have the resources or the expertise needed to make technical requests for information needed to support their concerns and complaints, or they may face regulatory hurdles in obtaining necessary information.
- Even though Commissioners at regulatory agencies are usually subject to *ex parte* laws, these laws do not always extend to staff at the agencies. Moreover, there is a lack of transparency about when and why commissioners and agency staff meet with utility and business representatives.

These barriers result in regulatory decisions that are, or that can appear to be, skewed in support of the proposer and against the public.

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[2] See, e.g. Federal Power Act, Sec 205, 16 USC sec 824; Natural Gas Act, 15 U.S. Code § 717c (the just and reasonable language codified in the Federal Power and Natural Gas Acts are also reflected in many state utility laws); see also Isser, Steve N., Just and Reasonable: The Cornerstone of Energy Regulation (June 30, 2015). Available at SSRN: https://ssrn.com/abstract=2625131 or http://dx.doi.org/10.2139/ssrn.2625131

[3] See FPC v. Hope Natural Gas, 320 U.S. 591, 601 (1944)(The rate-making process under the Act, i.e., the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests.)

In order for the public to have the opportunity to understand the actions being proposed and to participate meaningfully in the processes that determine whether those actions are appropriate, we recommend that regulators adopt transparency measures for I) Regulatory agencies, II) Independent organizations, and III) Utilities and businesses. We further recommend that each of these entities maintain sufficient staff to support the needed transparency measures.

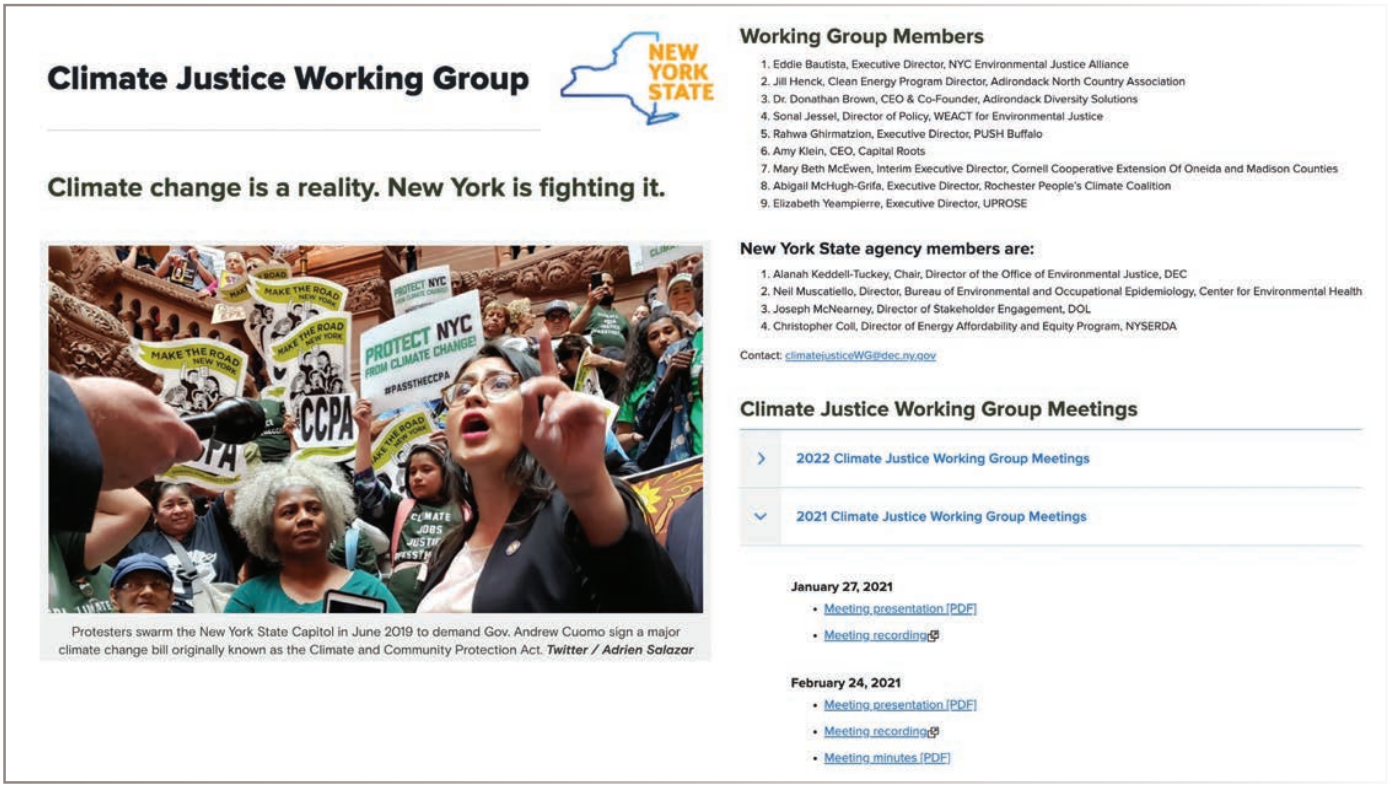
These sets of measures relate to Trust, Power, and Credibility and consist of a suite of disclosures and reporting requirements. Metrics may need to be mandated by the regulatory agency to the extent the relevant entity does not have processes in place to voluntarily disclose the information required by the transparency measure.

We recommend that this metric have both a quantitative and qualitative aspect. Each transparency measure could be scored on a scale of 0 to 2 points: 0-the measure is non-existence, 1-measure exists but is difficult to navigate and or use, 2-measure exists and is easy to navigate or use.

❶ The transparency measures that apply to the regulatory body:

1. Accessible Public docket
   - Docket is electronic and is updated with 8 business hours of filings being made/orders being issued
   - Docket is easily located online and from the regulator's home page, is publicly accessible and does not require an account to access
   - Docket entries are searchable by docket number, party, date, document titles, and document contents
   - Docket entries can be sorted by docket number, party, date, document title, and document type (eg pleading, brief, intervention, motion, order, comment
   - Docket provides links to historical documents
   - Docket provides link to excel spreadsheets
   - Docket entries are downloadable
   - Training materials are provided explaining what the docket is used for, what materials are available, how to file comments and pleadings, and how to search and download materials from the docket; training materials should be accessible to the public (e.g. in the form of webinars, include screenshots, and be translated into the languages of the impacted public.)
2. Accessible Tariffs
   - Regulator's website provides access to current and previous utility tariffs and a summary of changes between each tariff
   - Regulator's website provides access to proposed tariffs
   - All tariffs are text searchable and downloadable
   - Instructions are provided on how to review the tariffs
3. Access to proposed projects and rates
   - The regulator should maintain a website listing pending project and rate proposals that includes:
     - A neutral description[4] of the proposal that does not purport to provide public benefits unless such benefits have been verified through an evidentiary process
     - A map of communities that could be affected by the project (e.g. identifying communities where the project is currently or will be located and communities that will be impacted by the cost recovery mechanisms or proposed tariff change)
     - A list of the parties to the proceeding and contact information for the individual designated for service
     - A calendar of upcoming intervention and filing deadlines, hearings, public meetings, etc. concerning that project
     - A link to the public docket in which materials regarding that filing can be found
     - A publicly available and accessible notice explaining the change in rates and impacts on communities should the proposed project or rate be authorized as submitted. The notice should be made available on the Commission's website and in a format that best reaches the impacted communities (e.g. bill insert, social media posting, newspaper posting, etc.)
   - The regulator should maintain a website that provides access to utility grid modernization plans, transmission and/or distribution system plans, and if applicable, climate policy plans
   - Each of the communications above should meet accessibility best practices and should be translated into languages used by the impacted communities
4. Decision-making Transparency
   - Website provides a list of non-public meetings and discussions between: (1) regulators or regulatory staff and (2) any third-party entities. The list should note the date of the meeting, subject matter discussed, the individuals present, and the name of the company, agency or organization that each

[4] See FERC OPP's Project descriptions: https://www.ferc.gov/projects



individual represents, and the reason why the meeting and minutes are not public.

- With respect to contested cases and regulatory proceedings, emails between regulator or regulatory staff and third parties are docketed in the proceeding to which they apply to; all communications not covered by the preceding sentence, between a regulator or regulatory staff and any employee of the regulated entities should be docketed in a communications docket.
- Transparency with respect to the Regulators (e.g. Commissioners, Board Members, etc.).
  - Website provides a full resume for each Regulator
  - In addition to conducting a conflict of interest check for individual proceedings, regulators complete annual conflict checks that addresses their spouses and immediate relatives' financial interests;
  - For regulators that were elected to their positions, the website provides a list of campaign contributions;
  - Website provides a list of speaking engagements that each regulator plans to attend or has attended over the past year that identifies: the topic of the engagement, whether the meeting was private or open to the public, and whether the regulator received any remuneration for the engagement.
- Website provides educational materials regarding the role of the regulatory body, including[5]
  - A description of the issues under the regulator's jurisdiction
  - A description of related issues that are not under that regulator's jurisdiction and who the public should refer to for questions on those issues
  - Contact information for organizations that can assist with disputes with or concerns about utility and energy businesses, including, but not limited to, interconnection, billing, and service disputes or concerns
- Website should provide information about enforcement proceedings and history, searchable by entity

5. Agency Information and Annual Reports

- Regulatory body files annual reports identifying:
  - The number of proceedings filed in the past year disaggregated by the type of filing
  - The number of proceedings pending
  - A list of active working groups and members
  - A summary of major issues decided
  - A list of parties that participated in working groups and proceedings before the regulatory body
  - A list by regulator of conferences attended
  - A list by regulator of speaking engagements over the past year

[5] See https://pubs.naruc.org/pub/F358864A-0EC2-9185-D0B5-5A6B9C13BEA6

❷ The set of transparency measures that apply to **independent organizations** that provide a planning or market operations function (e.g. Independent System Operator and Regional Transmission Organizations)

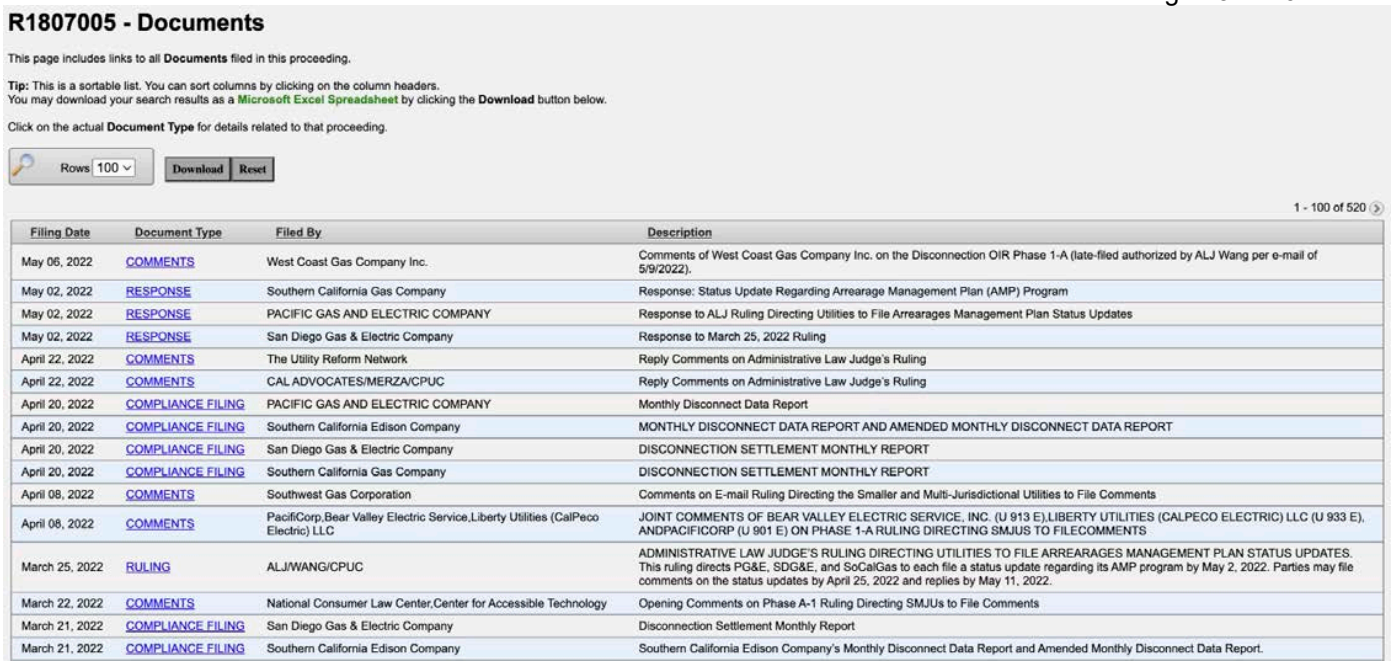
1. Decision-making Transparency
   - Website provides a list of non-public meetings and discussions between: (1) the organization staff or board members and (2) any third-party entities. The list should note the date of the meeting, subject matter discussed, the individuals present, and the name of the company, agency or organization that each individual represents. Similar to government freedom of information acts, the organization should have a method for the public to seek access to non-privileged documents and communications
   - Website should provide access to educational materials describing the role of the organization in the energy industry, the process by which decisions are made (e.g. the role of boards, staff, and stakeholders in making decisions), and a description of issues that are not under the organization's purview and an identification of which body to refer to for assistance on those issues (e.g. licensing and siting decisions)

2. Publicly accessible calendar of upcoming trainings and stakeholder meetings
   - Calendar should include instructions on who may attend and how to attend
   - Meetings and trainings should provide log-in/call-in options

3. Access to market information
   - Website should provide access to educational materials written in layperson's language on each of the markets that are run by the organization and should include an explanation of the purpose of the market, descriptions of the market rules and market design, and definitions for market terms
   - Website should provide access to market information, including where relevant, clearing prices for capacity auctions, real-time prices for day ahead and real time energy markets, prices for ancillary services, and real time locational marginal pricing maps
   - Website should provide access to any modeling that has been conducted to examine the impact of rule or industry changes to the market
   - Access to GHG emission data by zone
   - The organization should maintain a website which provides access to information about proposed market changes, including
     - A description of the proposal that discusses the current market rules (if any), the purported justification for the change, and the impact on the public and stakeholders if the proposal is made effective
     - A calendar of upcoming stakeholder meetings regarding the proposed changes
     - When applicable, deadline dates for interventions and comments

4. Access to information about transmission projects and planning
   - The organization should maintain a website which provides access to information about generation and transmission projects that have been proposed to be sited in that organization's footprint, including
     - A neutral description of the proposal that includes: an identification of the problem the project proposes to solve, an identification of project costs, an identification of purported benefits, an identification of alternative solutions considered and reasons as to why the alternative solutions are less cost-effective as the chosen solution
     - A map of communities that could be affected by the project (e.g. identifying communities where the project is currently or will be located and communities that will be impacted by the proposed cost recovery mechanisms)
     - A calendar of upcoming filings, hearings, and public meetings concerning the project
     - Information about how to comment on the project including contact information for the relevant siting and licensing authorities
     - A link to the public docket in which materials regarding that filing can be found.
   - The organization should maintain a public queue consistent with best practices outlined by the Interstate Renewable Energy Council
   - The website should provide general information and information about the dispute resolution process related to interconnection

5. Access to tariffed rates
   - Website provides public access to links to tariffs for utilities in the organization's footprint. Tariffs should be searchable by zone, utility name, and zip code serviced
   - If any utilities in the organization's footprint operate under formula rates, the website should provide public access to the formula rate, formula rate protocols, and annual updates. These materials should be searchable by utility name, and year
   - All tariffs should be text searchable and downloadable
   - Instructions are provided on how to review and respond to the tariffs and formula rate updates



R1807005 - Documents

This page includes links to all **Documents** filed in this proceeding.

Tip: This is a sortable list. You can sort columns by clicking on the column headers.
You may download your search results as a **Microsoft Excel Spreadsheet** by clicking the **Download** button below.

Click on the actual **Document Type** for details related to that proceeding.

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Filing Date	Document Type	Filed By	Description
May 06, 2022	COMMENTS	West Coast Gas Company Inc.	Comments of West Coast Gas Company Inc. on the Disconnection OIR Phase 1-A (late-filed authorized by ALJ Wang per e-mail of 5/9/2022).
May 02, 2022	RESPONSE	Southern California Gas Company	Response: Status Update Regarding Arrearage Management Plan (AMP) Program
May 02, 2022	RESPONSE	PACIFIC GAS AND ELECTRIC COMPANY	Response to ALJ Ruling Directing Utilities to File Arrearages Management Plan Status Updates
May 02, 2022	RESPONSE	San Diego Gas & Electric Company	Response to March 25, 2022 Ruling
April 22, 2022	COMMENTS	The Utility Reform Network	Reply Comments on Administrative Law Judge's Ruling
April 22, 2022	COMMENTS	CAL ADVOCATES/MERZA/CPUC	Reply Comments on Administrative Law Judge's Ruling
April 20, 2022	COMPLIANCE FILING	PACIFIC GAS AND ELECTRIC COMPANY	Monthly Disconnect Data Report
April 20, 2022	COMPLIANCE FILING	Southern California Edison Company	MONTHLY DISCONNECT DATA REPORT AND AMENDED MONTHLY DISCONNECT DATA REPORT
April 20, 2022	COMPLIANCE FILING	San Diego Gas & Electric Company	DISCONNECTION SETTLEMENT MONTHLY REPORT
April 20, 2022	COMPLIANCE FILING	Southern California Gas Company	DISCONNECTION SETTLEMENT MONTHLY REPORT
April 08, 2022	COMMENTS	Southwest Gas Corporation	Comments on E-mail Ruling Directing the Smaller and Multi-Jurisdictional Utilities to File Comments
April 08, 2022	COMMENTS	PacifiCorp,Bear Valley Electric Service,Liberty Utilities (CalPeco Electric) LLC	JOINT COMMENTS OF BEAR VALLEY ELECTRIC SERVICE, INC. (U 913 E),LIBERTY UTILITIES (CALPECO ELECTRIC) LLC (U 933 E), ANDPACIFICORP (U 901 E) ON PHASE 1-A RULING DIRECTING SMJUS TO FILECOMMENTS
March 25, 2022	RULING	ALJ/WANG/CPUC	ADMINISTRATIVE LAW JUDGE'S RULING DIRECTING UTILITIES TO FILE ARREARAGES MANAGEMENT PLAN STATUS UPDATES. This ruling directs PG&E, SDG&E, and SoCalGas to each file a status update regarding its AMP program by May 2, 2022. Parties may file comments on the status updates by April 25, 2022 and replies by May 11, 2022.
March 22, 2022	COMMENTS	National Consumer Law Center,Center for Accessible Technology	Opening Comments on Phase A-1 Ruling Directing SMJUs to File Comments
March 21, 2022	COMPLIANCE FILING	San Diego Gas & Electric Company	Disconnection Settlement Monthly Report
March 21, 2022	COMPLIANCE FILING	Southern California Edison Company	Southern California Edison Company's Monthly Disconnect Data Report and Amended Monthly Disconnect Data Report.

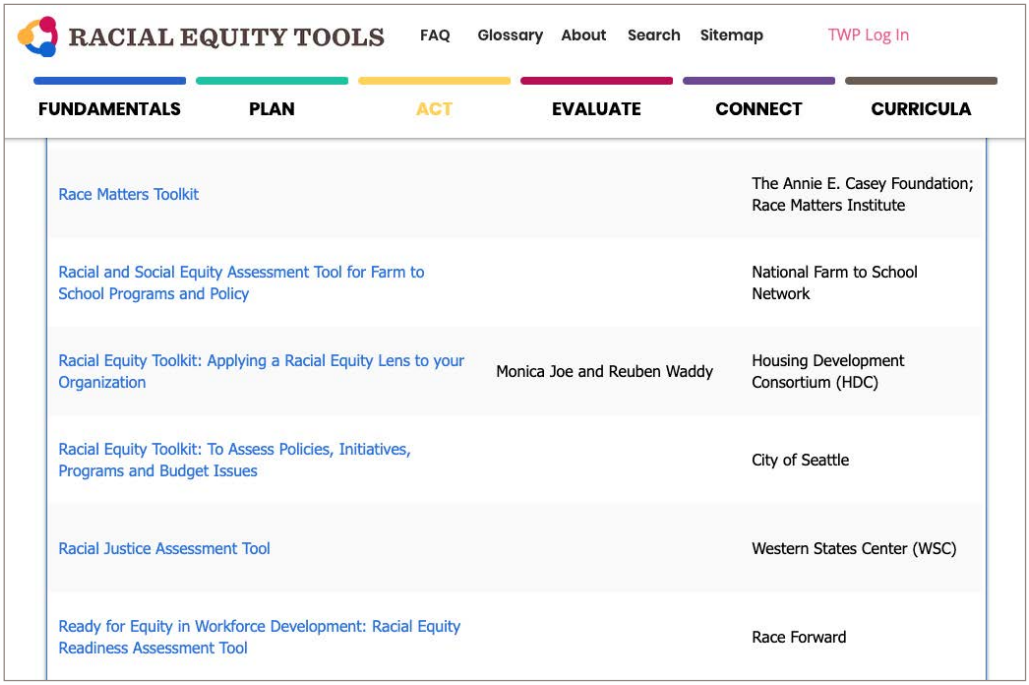
There are 520 records totaling tens of thousands of pages in this single California PUC docket about disconnections that was initiated in 2018 and continued through 2021. If even professional staff at intervening organizations struggle to track and digest this volume of information, how is an individual member of the public supposed to stay informed enough to meaningfully engage in the process? A relevant, accessible summary page, series of FAQs, visual timeline, etc would all be valuable resources PUCs could provide as part of their dockets. Source: CPUC Public Docket R1807005 Image source: https://apps.cpuc.ca.gov/apex/f?p=401:1:0

❸ The set of transparency measures that apply to utilities and infrastructure developers

1. Transparency related to proposed projects or tariff changes
   - Initial filing should include access to workpapers that support the filing in native file format in order to avoid delay in seeking workpapers through discovery
   - Filing should include a map identifying the communities that could be affected by the project (e.g. identifying communities where the project is currently or will be located and communities that will be impacted by the proposed cost recovery mechanisms)
   - Prior to filing, the applicant should hold a pre-filing meeting with the consumer advocate and other stakeholders in that jurisdiction that routinely intervene in infrastructure project or rate proceedings on behalf of public entities
   - Filing should identify both: (a) the costs of project or tariff change, and (b) an independently conducted analysis of the full range of purported public and societal benefits that includes an equity analysis that maps the costs and benefits across the footprint of consumers that will be impacted by the project
2. Transparency related to utility operations
   - Utilities should provide quarterly reports on utility earnings, and on safety, reliability, affordability, and quality of service metrics that are set by the regulator
   - Where applicable, third-party suppliers should be required to file annual reports on their customers and sales
3. Transparency related to planning and integrated resource plans (IRPs)
   - Utilities should be required to maintain and make publicly accessible grid modernization plans and load forecasts that are revised on a regular basis. Such plans and forecasts should be accompanied by an explanation of the methodology and assumptions used to develop the plan/model
   - Utilities should be required to maintain a public interconnection queue consistent with best practices outlined by the Interstate Renewable Energy Council[6]
4. Transparency related to rates and programs
   - Utility should be required to maintain a publicly accessible link to current and proposed tariffs
   - Utility should be required to provide educational materials explaining how to read a bill

[6] See https://irecusa.org/resources/irec-model-interconnection-procedures-2019/

- Utility should be required to provide educational materials on how a customer may dispute a charge or service
- If the utility offers any alternative rate program (e.g. demand response, time of use, dynamic), their website should provide an explanation of the different rates, an explanation of which programs can be subscribed to simultaneously, and a calculator for the customer to use to determine the impact electing one or more of these programs would have on their bill



A snapshot of a few of the dozens of resources available at www.racialequitytools.org. Image source: https://www.racialequitytools.org/resources/plan/informing-the-plan/organizational-assessment-tools-and-resources

- If it is a retail choice state:
  - The utility's website must explain the utility's role in generation supply, and how the customer may access a retail choice supplier
  - Third party suppliers should maintain a website with publicly accessible terms and conditions, and an explanation of the difference in their rate compared to the utility rate

P3. Utility internal practice of equity

METRIC STATUS:

Rationale: This checklist is intended to provide a framework for guidance and assessment of internal best practices related to equity, specifically within utilities. However, this tool can be used by regulatory agencies, contractors or consultants as a guide to support equity within any organization. While this guide is focused on internal processes and procedures, it is logical to assume that organizations that lack internal equity practices will have difficulty developing equitable products and services for their customers. This internal assessment can be the first step towards the development of more comprehensive internal and external equity initiatives and can be adapted to address the unique context of each organization. Organizations may add or remove questions, or use a rating scale rather than select from 'Yes or No' options.

In assessing equity in internally, utilities and energy organizations should consider the following:

- Has the organization clearly articulated what equity means? [Y/N]
  - Has the organization shared this definition with internal and external stakeholders? [Y/N]
- Does the organization define and measure success? [Y/N]
  - How does the organization define and measure success? [description]
- Has the organization used the equity definition to develop a Diversity, Equity and Inclusion Plan that clearly outlines a strategy to increase equity within the organization? [Y/N]
  - Did the organization create goals and are they reported on regularly? [Y/N]
  - Does the organization seek input from employees across the organization in the development of the plan? [Y/N]
  - How frequently do they report on these goals? [frequency]
- Does the organization offer DEI resources to employees, including education tools or trainings? [Y/N]
  - Are there required trainings? [Y/N]
  - Are trainings facilitated by an external organization? [Y/N]
  - Are the trainings customized based on the level and role in the organization? [Y/N]
  - Are trainings assessed frequently to ensure relevance? [Y/N]

- Have internal processes and procedures been audited to identify any potential unintended inequities? [Y/N]
  - Are all new process and procedures developed with an equity lens? [Y/N]
- Has the organization created spaces for equity and inclusion conversations? [Y/N]
  - What are the forums for open DEI dialogues (listening sessions, employee resource groups, etc.) [description]
- Does the organization include the community in product development or decision making process? [Y/N]
- How well does the organization's workforce represent the community being served?
- Does employee diversity increase annually? [Y/N]
- Does the organization report on diversity? [Y/N]
  - How granular is their reporting? [description]

RESOURCES:

- National Utilities Diversity Council
- Suggested Best Practices, Advisory Council on Utility Supplier and Workforce Diversity, Public Service Commission of the District of Columbia
- The Diversity, Equity and Inclusion (DEI) Metric Inventory, Gartner
- Racial Equity Tools
- Justice in 100 Scorecard, Initiative for Energy Justice

P4. Presence and involvement of public advocates

METRIC STATUS: Shift to best practice

Rationale: The presence and meaningful oversight of a public advocate, board, or council is essential to ensuring program accountability to diverse public interests. Public advocates can also enhance transparency in decision making and resource allocation, demonstrate credibility, and elicit public trust.

The needed scope and structure for oversight will vary with community and program contexts, but it is imperative that oversight authority be more than titular. Representatives must hold meaningful authority and funding to investigate complaints and work with program representatives to resolve them.

We recommend that oversight roles be tailored to the type of program and community interests. This may take the form of a public oversight board, public advocate, ombudsman, attorney general, consumer advocate, or nonprofit intervenor. We recommend that:

- Their investigative and oversight duties are specific, measurable, codified, and publicly available;
- If a board or committee structure is chosen, it is reflective of impacted community demographics, especially race and income characteristics; and
- They are able to produce binding recommendations in response to solicited or gathered community stakeholder complaints, input, or other information.

P5. Participatory budgeting and program design

METRIC STATUS: Shift to best practice

Rationale: Currently, decision-making power around budgeting is held by a handful of individuals—members of PUCs or equivalent regulatory bodies. We recommend that some portion of the PUC's budget be open to participatory budgeting, which puts decision-making power about how to spend public funds into the hands of constituents. Fines and other funds received from compliance violations or community benefits agreements could also be considered for participatory budgeting.

PARTICIPATORY BUDGETING HAS A LONG TRACK RECORD OF SUCCESS—IT WORKS!

An excellent case study from World Resources Institute details the origins and benefits of participatory budgeting:

"Porto Alegre is hailed as the birthplace of participatory budgeting. The practice has since been adopted by more than 2,700 governments throughout the world.

"Participatory budgeting contributed to a more equitable distribution of city services. [From 1990 to] 1997, sewer and water connections went up from 75 percent to 98 percent; health and education budgets increased from 13 percent to about 40 percent; the number of schools quadrupled; and road building in poor neighborhoods increased five-fold. Importantly, participation in budgeting meetings grew from fewer than 1,000 people per year in 1990 to about 40,000 in 1999." (Gelman and Votto, 2018)

Source: https://www.wri.org/insights/what-if-citizens-set-city-budgets-experiment-captivated-world-participatory-budgeting

Given the challenges that constituents face when they try to engage in energy regulatory proceedings (limited information, terminology/language barriers, lack of time/energy to participate meaningfully, etc.), participatory budgeting is an effective way to allow more inclusive and democratic decision-making. When all constituents have the power to participate in allocating budgets, their priorities will be more fairly and equitably represented in the budget. This is especially important given the lack of socio-economic, racial and ethnic diversity in decision-making bodies (PUCs, etc.).

Some potential uses of participatory budgets include community-owned solar arrays, tree plantings to reduce both heating costs and buffer outdoor air pollution, deep retrofits for households with the highest energy burdens, and home retrofit parties, where residents join and learn each other in basic air-sealing and insulation measures, with materials and party refreshments provided through the participatory budget. Regardless of what constituents choose to pursue, the idea behind participatory budgeting is that constituents decide how participatory budgeting funds are allocated.

EXAMPLE:

Set aside for residents to determine how program investments are spent. If a state IOU program has $20 million dedicated to impacted communities, this could include $2 million for community-determined participatory budgeting.

Source: Participatory Budgeting Project

See the following guide for Participatory Budgeting best practices and case studies:

- https://www.participatorybudgeting.org/
- Exploring participatory energy budgeting as a policy instrument to foster energy justice (Capaccioli et al, 2018).

P6. Utility penalties for missing equity targets

METRIC STATUS: Desire to create a qualitative scale

Rationale: Utility performance incentives are emerging as a tactic to shift clean energy plans and programs toward the achievement of more equitable outcomes. Penalties are a necessary instrument to ensure that the targets and commitments outlined in the plans and policies are actually being met rather than being treated as a "bonus" for performing well. This metric assesses whether or not penalties are being administered in relation to clean energy plan and program commitments as a measure of procedural equity. The presence of utility penalties is most closely associated with the guiding principle of increasing credibility.

Qualitative assessment of this metric requires data to be collected on states where there are penalties in place. As a starting point, this could be scored on a simple yes/no scale of there being penalties in place. Additionally, data could be collected on the specifics regarding the percent of the budget or reduction in their Return on Equity for shareholders and scored based on the "severity" of the penalty. Because of the difficulty of combing through official dockets for this information, acquiring this data will be up to local parties that are familiar with proceedings.

RESOURCES:

- *Advancing Equity in Utility Regulation* (Farley et al, 2021)

P7. Defined equity goals and principles

METRIC STATUS: Desire to create a rating scale

Rationale: Legislatures have an important relationship with state agencies and regulators who help design and implement climate programs and policies. Their mandates include outlining structures and goals for agencies, which in turn deeply impact communities. Often, the goals and structures created for agencies and regulators are opaque and lack an equity focus. For instance, in the early 1900s, legislators created PUCs to ensure utilities provide fair and reasonable rates and services for communities. These century-old mandates also provided for meeting shareholder interests and cost recovery requirements.

In 2022, this scope has proven to be too narrow to tackle the pressing and complex issues of our society, including the legacy of systemic racism embedded within many policies and procedures. In the clean energy sector, it is especially important to understand the implications of this legacy and its impacts on communities (Jack-Scott, 2020). Research has shown that Black and Brown communities have been

historically marginalized and overburdened by pollution and high energy/housing costs, underinvestment in clean energy infrastructure, energy-efficient housing and transportation due to the inequitable procedures baked into the energy system and process (Behringer, 2022).

Legislatures have the power to direct PUCs to incorporate equity goals while commissioners articulate how those goals will be integrated into rulemakings and other decisions (Ciulla et al., 2022).

Massachusetts

Docket (MA) - 21-50 Inquiry into Participation and Environmental Justice https://e9radar.link/nol

4/16/2021. Opening Notice

DPU examines participation, EJ strategy https://e9radar.link/w5x

In April 2021, the Massachusetts DPU opened an inquiry to examine procedural enhancements to our public notice requirements to increase public awareness of and participation in Department proceedings, especially to help develop its environmental justice strategy. The opening notice cited the 2021 "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy" and other legislation that prompted the DPU to develop an environmental justice strategy to enhance meaningful involvement of all people and communities with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies, including climate change policies, and the equitable distributions of energy and environmental benefits and burdens. The Department recognized that people with limited English proficiency must be provided with the opportunity to participate in a matter consistent with those who have English proficiency.

Therefore, it is critical that agencies are required to consider equity within their internal and external policies and procedures, goals, structure, and outcomes to ensure past harm is repaired, further harm is reduced, and future plans are holistic and equitable. Many states have begun to require utilities to consider equity in their resource planning[7] and decision making,[8] including Maine, Colorado, California, Oregon and Connecticut, which can provide helpful examples and lessons for other states.

We recommend a multifaceted approach in advancing equity goals and principles in this sector:

1. Establish an equity assessment framework to evaluate past, present and future equity implications of agency and regulatory investments and programs. This should be developed in collaboration with community members via accessible and transparent engagement opportunities (including compensation granted to community members, virtual meetings, etc.). The framework could draw on lessons from other states, such as Virginia's Senate Bill 851, which requires PUCs to assess whether new or expanding facilities disproportionately impacts historically disadvantaged communities (Farley et al, 2021).
   a. Narratives of historical legacies/impacts could be submitted by community groups and shared to the public record for future proceedings.
   b. Summaries and impacts can be cataloged and linked through the EEP Map and other analyses, uplifting how these agencies are defining and practicing equity.
2. To assess equity goals established by agencies, we recommend a simple rating scale to the extent to which quality equity goals exist within regulatory agencies (i.e., 1 for no, 2 for somewhat, 3 for yes; this is similar to this Energy Democracy scorecard) (Giancatarino & House, 2019).[9]
3. State legislators should work to pass state statutes requiring state agencies (including utilities, PUCs) to define and establish equity goals, principles, and decision making practices (ultimately, broadening their scope) and ensuring clear progress data are shared with the public. For example, Colorado's Senate Bill 21-272, for instance, requires the Commission to "consider equity in all its work." (Colorado State Assembly, 2021).
4. Align PUC rules and decisions with state equity and climate goals. Advocate for internal PUC commitments or administrative initiatives to examine and center equity, including the internal practices mentioned previously in this chapter.
5. In order to understand utility commitments to define and implement equity-centered programs, we recommend tracking which state IOUs, co-ops and other agencies have defined equity and whether other pathways (E9Insight, 2021) to implement equitable procedures for state agencies, regulators, and related parties have been enacted.

[7] For instance, see the Institute for Market Transformation: https://www.imt.org/in-pursuit-of-equitable-clean-energy-the-power-of-coalitions-for-utility-regulatory-transformation/

[8] https://www.nclc.org/images/pdf/energy_utility_telecom/electric_and_gas/Rpt_adv_equity_util_reg.pdf

[9] Giancatarino, A. & House D. (2019). Energy Democracy Scorecard. Emerald Cities Collaborative.

a. See recent utility equity activities as outlined by E9Insight as well as the example below from Page 14.[10]

Additional exploration into the expansion of the Federal Energy Regulatory Commission's scope to better center equity and pave state pathways to FERC's Office of Public Participation may also be useful (FERC, 2022).

P8. Engagement in policy writing and rulemaking

METRIC STATUS: Shift to qualitative/best practice

Rationale: When thinking about how best to serve communities that have been traditionally marginalized by PUCs and other regulatory bodies, ensuring inclusion of these community members in decision-making is a critical first step. Most PUC's and other decision-making bodies do not include diverse representation, which is especially concerning considering the disproportionate energy budens that historically disinvested in communities face. The historic failure to include and center these communities in decision-making perpetuates the disempowerment of these groups, and it is partially to blame for the continued disproportionate harm communities have at the hands of our energy system. We suggest including and prioritizing communities of color and communities with limited incomes in policy making processes. Prioritizing community engagement in policy making can help elevate the issues that are most important to them and create policies that help to address them. This engagement includes, but is not limited to:

- Creating access to meetings (physical access, sufficient notice, outreach/resources/information in different languages, etc.)
- Providing necessary background information, translation, etc.
- Meaningful and continued follow-through/ accountability on the priorities voiced by the frontline, low-income and BIPOC community members (i.e. participation should not be tokenizing, and should lead to action towards desired outcomes)

P9. Access to public intervenor funds

METRIC STATUS: Not included due to limited coverage, only available in about 10 states

Rationale: Diverse and inclusive representation in PUC decision-making processes is fundamental to ensuring that equity is central to utility planning, investments, and rate-making. One way in which parties can participate in commission decision-making processes and influence outcomes is by participating in formal, adjudicatory proceedings as intervenors. Parties must be granted intervenor status in a proceeding to have the right to make legal arguments, conduct discovery, file testimony, cross-examine witnesses, and are subject to cross-examination by other parties in the case if they testify (UCAN, n.d.). As adjudicatory proceedings are the most resource intensive form of commission participation, requiring a substantial amount of time, money, legal resources, and expertise (Harak, et al., 2003), only well-resourced parties such as utilities and large customers have a profound advantage in influencing the course of a proceeding. Further, though many states have utility consumer advocates that participate in proceedings, they may not always be in a position to collect and provide evidence needed to adequately represent perspectives of frontline communities. This is particularly problematic for consumer advocates with fewer economic resources or technical expertise (Duncan & Eagles, 2021).

Intervenor compensation is one mechanism to enable broader access to participate in proceedings and is the practice of providing funds to parties for the costs of their involvement. In 16 states, intervenor compensation is authorized through legislative rules and statutes, but only six state programs are actively being used by intervenors—in California, Idaho, Michigan, Minnesota, Oregon, and Wisconsin. Programs in Illinois and Washington are currently being established (Gavan et al., 2021). While intervenor compensation programs are authorized in these states, they are only effective to the extent that the programs are active and are actively distributing funds.

The structure of intervenor compensation programs varies between states and includes differences in characteristics such as the applicable utilities, plan type, eligibility criteria, eligible costs, and funding limits (ibid). **Table 1** on the following page an excerpt from the NARUC's intervenor compensation report, illustrates the differences in program design across several states (ibid). How these programs are structured ultimately determines their accessibility and influences the balance of power in the decision-making process. Best practices to promote the equitable distribution of and access to intervenor compensation funds include providing grants or awards in advance of a proceeding, enabling intervenor compensation requests for all types of utility proceedings, and providing guidance for new parties requesting intervenor compensation.

[10] See: http://e9insight.com/wp-content/uploads/2021/11/Equity_Activities_Detailed.pdf, page 14

Table 1. FEATURES OF AUTHORIZED STATE INTERVENOR COMPENSATION PROGRAMS

STATE	APPLICABLE UTILITIES	PLAN TYPE	APPLICANTS	ELIGIBILITY CRITERIA	COSTS	LIMITS	PAYEE	USED IN PRACTICE
Alaska	Electric	Cost reimbursement	Electric consumer of regulated utility, either intervenor or public witness	I, F, M, J	Reasonable Costs	None	Utility	N
California	Electric, Gas, Water and Telephone	Cost reimbursement	Customer or eligible local government entity; intervenor with conflicts of interest are ineligible	I, F, M, J, O	Reasonable Costs based on Market Rate Study	None	Utility	Y
Colorado	Electric or Gas Utility	Cost reimbursement	Intervenors other than office of consumer counsel; prohibits any intervenor in direct competition with public utility involved in proceeding	I, M, O	Reasonable Costs	None	Not specified	N
Hawaii	Integrated Resource Plans only	Cost reimbursement	Excludes government agencies, for-profit entities, or an association of for-profit entities	F, M, O	Reasonable Costs	None	Utility	N
Idaho	In any case involving electric, gas, water, or telephone utilities with gross Idaho intrastate annual revenues exceeding $3,500,000	Cost reimbursement	Excludes any intervenor who is in direct competition with a public utility involved in the proceeding	I, F, M, O	Reasonable Costs	$40,000 for all intervening parties combined in any proceeding	Utility	Y

I - Granted intervenor status in proceeding; F= Financial hardship; M = Participation materially contributed to decision of commission; R = Represents interest not otherwise adequately represesented in proceeding; J = Intervenors with same or similar interests, may be joined as one party; O = other.

Qualitative and Quantitative metrics that can be used to evaluate the accessibility to public intervenor funds are:

1. Is an intervenor compensation program authorized in the state? [Y/N]
2. Is the intervenor compensation program actively being used? [Y/N]
3. Is intervenor compensation restricted to specific utility proceedings (i.e., electric, gas, water, and telecommunications utilities)? [Y/N]
4. Does the program have a grant structure, providing funding in advance of a proceeding? [Y/N]
5. If a state has a reimbursement structure, what is the timeline for parties to receive compensation? [# of days or average # of days]
6. What is the representation of new parties or one-time parties receiving intervenor compensation? [example, # of parties/proceeding]
7. What is the administrative burden of applying for intervenor compensation? [steps of the application process]
8. What is the funding limit per party? [$/proceeding]
9. What is the total intervenor compensation funding limit? [$/year]
10. What costs are eligible for funding? [list of allowable costs]
11. Does the program provide guidance or support for parties interested in applying for compensation? [Y/N]

DATA AND RESOURCES

- State Approaches to Intervenor Compensation, NARUC

P10. Staff and decision-maker representation

METRIC STATUS: Limited coverage, varies by state. Potential to create rating scales.

Rationale: Energy policy is shaped by the staff and leaders of governmental bodies, who are expected to "accommodate the needs of an increasingly diverse population."[11]

[11] See Newell, Charldean (2004). *The effective local government manager*. Washington, DC: ICMA Press.

The demographics of state and PUC employees—including race, gender identity, class, religion, experience with poverty or homelessness, and other dimensions—intrinsically influence the outcomes of the regulatory process. "Diversity in the utility commission workforce, from analysts and administrative support to senior executives and commissioners themselves, introduces awareness of cultural needs and the impact of utility decisions on customers that may typically be overlooked. Staff bodies that lack diversity may fail to consider how people of various backgrounds are affected by existing policies and programs. This problem is amplified when PUCs are tasked with drafting new policies to support specific populations despite staff's lack of experience living and working with those communities (e.g. low-income, environmental justice, people with disabilities, majority Black, Indigenous and Latinx, immigrant). Historically, the public sector has lacked diversity and prioritized white hires over people of color, and without intentional processes, this inequity will continue (NEOGOV, 2021).[12]

It is inappropriate for regulators to make decisions "for" particular populations without drawing from their own direct experience and from extensive discussion with impacted communities. As one slogan says, "Nothing About Us Without Us."

Diverse staff representation can also introduce innovation, reduce implicit bias and unintended consequences, enhance public trust in government, and attract non-traditional talent to government jobs. Efforts to diversify PUC staffing must be paired with internal strategies (i.e. educational initiatives, training from external organizations, committee creation, surveys) that incorporate local context and demographics. Strategies must ensure that hiring practices are not performative and instead are meaningfully designed to bring representatives from marginalized communities into the decision making process.

Quantitative Best Practices

- Diverse staff and commissioner representation can be measured through quantitative data, especially by comparing the percentage of staff who identify with certain backgrounds, races, experiences, etc. Beyond traditional diversity metrics, additional questions related to energy issues illuminate staff experience with consumer issues. For example, a survey on staff representation may also include questions about one's personal experience with utility shutoffs; receiving low-income rebates or programming; participation in other state low-income programming (i.e. food assistance); and others.
- Staff demographic data should be compared against local demographics both in terms of proportions and by what marginalized communities are represented (i.e., a staff person who lives in an area identified as a marginalized community). Representation should be considered at different levels of the organization to ensure that diversity efforts are visible in leadership ranks, not just among less senior or lower-paid positions.
- To meaningfully diversity PUC processes and representation, change must be monitored over time and strategies must be extended to external contracting.
- Demographics and representation data must be shared with the public in order to enhance transparency and demonstrate intentional efforts to shift cultural competency at the PUC. Commissioner demographic profiles and experiences are especially important to share with the public.

Case Studies and Best Practices

- Following the tragic deaths of Ahmaud Arbery, Breonna Taylor, and George Floyd in 2020, the Michigan Public Service Commissioners asked staff to reflect on these events and how the issue of race and discrimination affect the Commission and the communities it serves (MPSC, 2021). From this conversation, staff led a new Diversity, Equity, and Inclusion (DEI) initiative, and one of the first activities was the issuance of an all-staff survey, followed by five all-staff listening sessions, discussing "attitudes toward DEI in the workplace," "disrcimination and harassment," "recruitment, hiring and retention," and other issues. Staff members participated in a research and methodology committee, which provided educational materials focused on race, discrimination, and feminism (Scripps, 2021). Recruitment of a diverse workforce is emphasized throughout the Michigan PSC's DEI plan, and the commission hired its first DEI officer in 2021. While the internal survey is not available to the public, the Michigan PSC has demonstrated that it is willing to invest internal resources into the exploration of diversity and inclusion, and is also willing to change its policies to address identified problems.
- The Wisconsin Public Service Commission has also taken initial steps to address diversity in its workforce. The PSC's 2021–2023 Equity and Inclusion Plan (Abral et al., 2021) included information on the gender and minority makeup of its staff, sorted by job group and seniority. The publication of this data is an important step for the Wisconsin PSC, though these results do not include information about commissioners, experience with low-income issues, and other dimensions of diversity.

[12] For more on equitable hiring, consider Vu Le's post in Nonprofit AF: https://nonprofitaf.com/2015/04/our-hiring-practices-are-inequitable-and-need-to-change/

RESULTS AND CAVEAT

As presented in the below table, on January 1, 2020 the Michigan Public Service Commission workforce (total 139 employees) was comprised of the following percentages of women and minorities in permanent positions in the below job groups.

JOB GROUP	NUMBER OF POSITIONS AVAILABLE IN THE AGENCY	NUMBER OF WOMEN	PERCENTAGE OF WOMEN	NUMBER OF MINORITIES (ALL GENDERS)	PERCENTAGE OF MINORITIES (ALL GENDERS)
Administrators/Senor Executives	10	7	70.0%	1	10.0%
Mid-Level Supervisors	5	2	40.0%	1	20.0%
Business Supervisors	3	2	66.7%	0	0.0%
Architect Engineer Supervisors	2	0	0.0%	0	0.0%
Fiscal	31	13	41.9%	5	16.1%
Program Specialist	4	1	25.0%	0	0.0%
Business Professionals	1	1	100.0%	0	0.0%
Inspectors, Investigators and Compliance	5	4	80.0%	3	60.0%
Architects and Engineers	20	5	25.0%	4	20.0%
IS Professionals	12	3	25.0%	3	25.0%
Policy, Planning and Research	14	6	42.9%	2	14.3%
Environmental Specialists	6	2	33.3%	0	0.0%
Legal Professionals	8	3	37.5%	1	12.5%
Administrative Support	10	9	90.0%	1	10.0%
Unclassified	8	3	20.0%	2	25.0%

The 2020 service status analysis of the agency's 139 employees found that 70.5% of the Michigan Public Service Commission's workforce is comprised of employees with fifteen (15) years or less seniority.

Philanthropy has become an important weapon in the utilities' arsenal that—when used effectively—can both boost the companies' own media image while also dividing our communities. In EPI's seminal report, they dive into the use of utility philanthropic giving and found four key ways that the utilities use to leverage donations:

1. **Utilities get grantees to weigh in on political issues.**

   In Ohio, FirstEnergy outright asked its grantees to write comments to the regulators in favor of a coal and nuclear bailout. They've also had grantees speak up in favor of rate hikes.

2. **Utilities curry favor with politicians by giving money to causes they care about.**

   In Virginia, Dominion Energy's CEO and the company itself **gave a gift totalling $125,000** to an influential Democrat's nonprofit.

3. **Utilities suppress organizing and dissent by dividing communities or muzzling them with money.**

   In Missouri, Peabody Coal gave money to the St. Louis NAACP branch. When the NAACAP **took a stand** against the pollution in their communities, Peabody pulled their contributions.

4. **Utilities use communities of color and low wealth communities for their own benefit.**

   In Florida, Duke and Florida Power & Light convinced the NAACP chapter to fight against solar in the state by writing opinion pieces and speaking to the media all based on the premise that solar would have a negative impact on low-income ratepayers. As the **chapter leader Adora Nweze described,** "I felt that if we wanted the money, we had to do it [...] The shortcoming on my part was that I didn't have the necessary knowledge to know that it was a problem."

Source: p. 24, Energy Democracy Project (2021). People's Utility Justice Handbook

P11. Limiting utility influence on regulators and legislators

METRIC STATUS: Shift to qualitative best practice

Rationale: Clean energy programs and climate policies are significantly influenced through lobbying, marketing and public relations campaigns, sometimes as much as they are through official regulatory channels. It is critical for the public to understand how these essential policies and programs are being influenced and who is influencing them to ensure accountability mechanisms are followed, possible corruption is monitored and avoided, and communities are safe from deception and harm, especially as the impacts of climate change on communities worsens. As explored in EPI's recent study (Anderson et al., 2019), utility companies can influence politics through their charitable donations to organizations, such as ensuring organizations receiving monetary contributions provide support for controversial proposals (e.g., rate hikes), which also creates a tax shelter where the company can earn greater returns.[13] A recent report produced by EPI delves into four ways utilities wield their influence over utilities, which highlights the deep level of control utilities have institutionalized to stay in control, including manipulating communities of color.[14]

This type of power can lead to utility companies even using customer funds to undermine clean energy programs (Roth, 2020). As shared in the People's Utility Playbook, utility companies utilize public relation firms to keep public opinion on their side, sometimes going as far as hiring actors to protest for the development of a gas power plant in New Orleans.[15]

We recommend assessing utility influence on communities, legislators and regulators at multiple levels, which can be integrated into a rating scale that tracks utility influence and supports stricter limits on utilities, deeper community review, and greater transparency:

- Contributions and conflicts of interest
  - Assess whether the utility company is making contributions to energy trade associations that do not benefit communities or customers, and whether those contribution expenditures are recovered through ratepayer dollars.
  - Advocate for the advancement of a FERC rule making the costs of utility payments made to energy trade associations nonrecoverable through ratepayer dollars (Wilson, 2022).
  - Utility lobbying, marketing, and public relations activities and campaign contributions to political candidates and government agencies should be disclosed to ensure ratepayer dollars are not subsidizing these efforts or being recovered through rate increases.[16]
  - Utilities should be prevented from contributing to campaigns or candidates that affect their regulation. For instance, in states where PUC commissioners are elected, utilities should be prohibited from contributing to or endorsing candidates.

- Disclosures and oversight
  - Assess whether utilities are required to define their use of lobbying, marketing, public relations, clearly with stakeholders and the general public.
  - Assess whether communities have resources to review and scrutinize utility lobbying, public relations, and donation activities and findings are considered part of the public record.
  - Assess availability of third party auditors or consumer advocates office to review utility lobbying, marketing, public relations, and donation activities and have the capacity to share with the general public and establish the use of third party auditors or consumer advocates office to review activities and ensure state and federal guidelines are being followed.
  - Assess whether state and federal lobbying guidelines are aligned and followed at the utility level.
  - Advocate for deeper oversight on lobbying, marketing, and public relations activities as well as their charitable contributions, including requiring utilities to define their use of public relations firms, lobbyists, and marketers, clearly and ensuring avenues for community review and scrutinization as necessary through FERC or state mandates.
    - As noted by the Energy and Policy Institute, "mandatory disclosure can be a key tool for regulators and the public to know when organizations attempting to influence decisions are being paid by utilities with an interest in a proceeding's outcome. The New Hampshire Public Utilities Commission requires utilities to disclose their charitable contributions during rate cases, providing one possible model, though annual filings would allow for more consistent oversight."[17]
  - Assess whether intervening parties in any utility proceeding are receiving any monetary contributions from the utility company and whether they disclose this information.

[13] https://energydemocracy.us/utility-justice-playbook/

[14] https://www.energyandpolicy.org/strings-attached-how-utilities-use-charitable-giving-to-influence-politics-increase-investor-profits/

[15] See page 31, https://energydemocracy.us/utility-justice-playbook/

[16] See recent contribution examples here: https://www.energyandpolicy.org/strings-attached-how-utilities-use-charitable-giving-to-influence-politics-increase-investor-profits/

[17] Ibid.

- As shared by the Energy and Policy Institute, it would be ideal for intervenors to "voluntarily disclose any involvement, of any kind, with charitable organizations by themselves or family members. If a utility is financially supporting a charitable organization with whom the regulator or policymaker, or a family member, is affiliated, then the regulator or policymaker should recuse herself from matters involving that utility."[18]
- Additionally the Energy and Policy Institute recommends to "require all entities making written or oral comments in a proceeding that would impact a utility to disclose whether they are receiving money from the utility, have been in conversations about future funding, or have a utility staff member or board member on the organization's board of directors."[19]

· Historical documentation
  – Assess whether influence has been documented and acknowledged by communities, intervenors/stakeholders, regulators, and/or the general public and create scorecards where possible. See this example utility scorecard here.
  – Support pathways for communities to conduct historical reviews of utility influence, for instance, providing the extent to which policymakers reach out to utilities first to write a legislation/regulation or inquire confirm position before taking their own, etc.
  – Gather narrative histories of utility corruption, influence and conflict of interests should be documented and submitted to regulators and policy-makers by community groups, including a timeline of stakeholder actions (e.g. utility campaign contributions), and a statement of how such engagement has impacted them. Ultimately, these summaries may be cataloged and perhaps linked to the EEP Map.

P12. Scale of investment in equity initiatives

METRIC STATUS: Shift to qualitative/best practice

Rationale: How much an agency invests in initiatives, programs, and staff that directly supports equitable energy outcomes can be used as an indicator of the agency's commitment to equity and justice, to track progress over time, and foster accountability. In a survey of organizational DEI efforts across organization types in the United States, Traliant found a discrepancy in the extent to which organizations prioritize DEI and whether they had dedicated resources and budget for such initiatives. Despite many organizations indicating

[18] Ibid.
[19] Ibid.

Procedural Index metrics we voted out: This table summarizes additional measures that were considered but not recommended for inclusion in the index.

Utility performance incentives tied to outcomes in frontline communities	Could be % of total budget, absolute amount, amount per customer	Procedural	Qualitative	Not a lot of data out there. Don't keep for now.
Utility complaints rate—frequency and severity	This could be formal cases filed with PUC	Procedural	Qualitative	Don't keep—can be pursued locally if interested
Composite index of 16 metrics in economy, education, health, and community (e.g. youth disconnection, voter registration, access to healthy food). Details here.	Qualitative policy analysis	Procedural	D	Don't keep—more appropriate in Recognition dimension
PUC commissioner/decision-maker selection process (election vs appointment)		Procedural	Best Practice	Don't keep. It is not clear that elections are more democratic than appointments, depending on how districts are drawn.
Philanthropic support for grassroots BIPOC, frontline, and low-income engagement	Thinking about how much public or ratepayer dollars or benefits impacted communities leverage as a result of philanthropy grants	Procedural	Best Practice	Don't keep—too hard to track and impacts are not clearly beneficial.

DEI as a business priority, fewer organizations reported having a devoted budget and allocation of resources (Trailant, 2021).

Because there is no established level of DEI investment that guarantees systemic change, we cannot offer a set percentage of a budget that agencies or organizations should allocate to DEI activities. Agencies should ask whether they have sufficient resources needed to meaningfully advance equity initiatives. A range of quantitative elements can be tracked over time to identify DEI investment allocations and trends, such as:

- Recruiting, hiring, and staff development resources
- External consultants to conduct internal trainings
- Community outreach programs
- The development of a DEI plan
- The development of employee affinity or resource groups

RESOURCES:

- The Society for Human Resource Management
- Diversity Toolkit

PROCEDURAL EQUITY: PROCEDURAL INDEX

Recommendations and Best Practices

MEANINGFUL PARTICIPATION

Create and use indices for information accessibility and ease of procedural participation

TRANSPARENCY

Adopt measures for regulatory agencies, independent organizations, utilities and businesses

UTILITY INTERNAL PRACTICES

Assess internal best practices and initiatives related to equity

PUBLIC ADVOCATES

Adopt tailored oversight roles relevant to program types and community interests

PARTICIPATORY BUDGET

Adopt participatory budget with community involvement and design

UTILITY EQUITY PENALTIES

Assess penalties for clean energy plan and program commitments

DEFINED EQUITY GOALS

Create equity assessment and rating scales to guide eqiuty principles

POLICY DESIGN ENGAGEMENT

Prioritize community engagement in policy-making processes

ACCESS TO INTERVENOR FUNDS

Promote equitable distribution of and access to intervenor compensation funds

STAFF REPRESENTATION

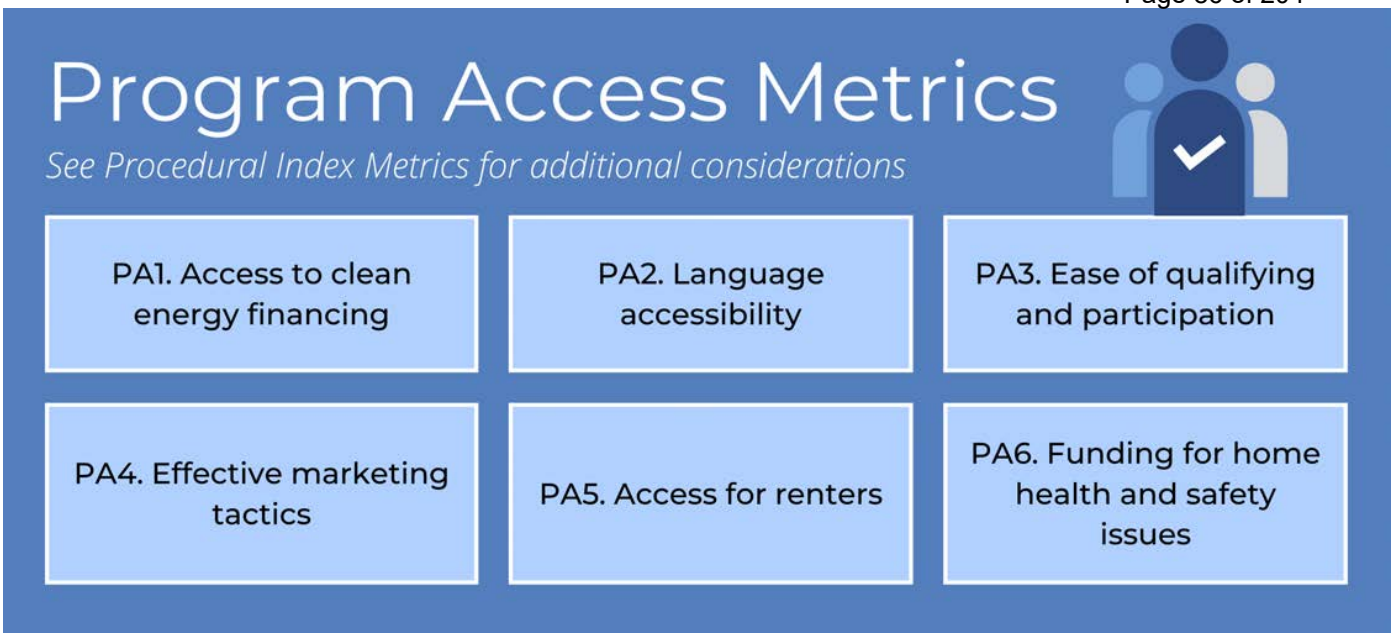
Ensure meaningful hiring practices, hire representatives from marginalized communities

LIMIT UTILITY INFLUENCE

Assess, track influence on legislators and regulators, impose strict limits, transparency

INVESTMENT SCALE

Allocate sufficient resources to meaningfully advance/track equity initiatives, DEI trends



Program Access Index

PA1. Access to clean energy financing

METRIC STATUS: Shift to qualitative/best practice

Rationale: To advance equity and address systematic disadvantages in both energy costs and access to clean energy benefits among people of color and populations with low incomes (Carley & Konisky, 2020), both cost reduction and financing access and tools must be expanded, regulated, and targeted to these populations. Examples include:

- Reducing or eliminating credit score and payment history requirements for financing qualifications
- Subsidizing or eliminating interest payments
- Lowering residential utility bills and energy costs through subsidized clean energy programs
- Expanding eligibility requirements for low-income families for cost-effective energy efficiency upgrades through Weatherization Assistance and related programs
- Expanding on-bill financing and repayment programs to pay for improvements or investments in clean energy upgrades

We recommend a range of potential strategies for increased access to clean energy financing, such as:

- A low minimum credit score requirement and preventing participation in clean energy programs from negatively impacting credit scores
- An index or scale combining credit score and payment history requirements, with a good payment history outweighing the need for credit scores
- Tracking the race and income of financing beneficiaries, with accompanying minimum or target threshold criteria.

We also caution against harmful and predatory financing mechanisms, such as household-level energy efficiency improvement loans tied to property ownership, which have been used to target low income property owners. As a best practice, we also recommend cost reduction and access tools as priority interventions first (i.e. fully funded by the program), ahead of financing mechanisms. Although financing can be an important tool for increasing access to energy efficiency, it can also saddle residents with greater household debt and credit damage without sufficient precautions.

PA2. Language Access

METRIC STATUS: Desire to create rating scale

Rationale: The United States has 25.3 million people, or 8.2% of its population, who report that they speak English less than "very well" (U.S. Census, 2020).[20] (As discussed in our Inclusive Language Review section, we chose to use the term non-English speakers to describe this group.) There are even higher concentrations of non-English speakers in certain communities across the country, upwards of 45% in some counties. These people are unable to read, write,

[20] U.S. Census. (2020). DP02-Selected Social Characteristics in the United States. American Community Survey-5 Year Estimates. https://data.census.gov/cedsci/table?q=DP02# (Last accessed May 4, 2022).

speak or understand English at the level necessary to meaningfully and confidently engage with efficiency programs, utilities and regulatory commissions.

Utility programs, utilities and regulatory commissions should design their engagements, community outreach, customer service, program and marketing materials to serve the needs of households in their community, including non-English speakers. Healthcare facilities, court and justice services, and state and local governments commonly use a document called a Language Access Plan that outlines the policies the organization will follow to provide services to non-English speakers. While not as common in the energy industry, several utilities and regulatory agencies do have Language Access Plans, including but not limited to Massachusetts Department of Public Utilities, New York State Department of Public Services and San Francisco Public Utilities Commission (MDPU, 2013; . NYSDPS, n.d; SFPUC, n.d).

This metric evaluates the presence and use of a current Language Access Plan or similar document. A Language Access Plan should include the following five elements:

1. An evaluation of the language access needs of the organization's constituency.
2. A list of the services the organization will provide to assist these constituents such as document translation, interpreters available at public meetings and multilingual call centers.
3. A plan for notifying constituents of these services.
4. A plan for training employees about processes and procedures for providing these services.
5. A framework for monitoring the effectiveness of these services.

We created a draft 1–5 scale to evaluate the language accessibility of engagements, community outreach, customer service and program/marketing materials of utility programs, utilities and regulatory commissions as follows:

- Existence of current Language Access Plan or similar policy document (Up to 2 points)
  - Organization has a policy document that addresses all 5 elements (2 points)
  - Organization has a policy document that addresses some of the 5 elements (1 point)
  - Organization does not have a policy document addressing these elements (0 points)
- Best practice of including basic services (e.g., translation of vital documents, ability to address customer concerns) to support all languages spoken by either 1,000 or more households, or more than 5% of total households, in the service territory (2 point)
- Best practice of having a continuous improvement process to increase access to non-English speakers. (1 point)

DATA/RESOURCES:

- Reference: Developing a Language Access Plan | ULG – Professional Language Translation Solutions
- The National Center for Access to Justice (NCAJ) has developed a comprehensive benchmarking methodology to quantitatively measure language access specifically for the justice system, that could be used if one is looking to delve deeper into improving language access.

PA3. Ease of qualifying and participation

METRIC STATUS: Desire to create a rating scale

Rationale: Evaluating the ease of qualifying for income eligible clean energy programs and overall ease of participation in clean energy programs are both important elements of building credibility with historically underserved communities. It is critical to be specific about whose ease of qualifying and participation is being evaluated (BIPOC, frontline, low-income communities) and how that will be assessed. Additionally, it is important to clarify that while many of the procedural equity metrics identified by the working group will ease participation, this metric focuses on evaluating the specific step where customers qualify for a program and the resulting program participation demographics.

We recommend a threefold approach to understanding this particular metric:

1. collect appropriate demographic data of participants,
2. assess the eligibility practices in place, and
3. conduct targeted customer interviews.

Collecting demographic data is vital to understand how effective clean energy initiatives are at advancing equity. Regulators should require program administrators to establish baseline demographic datasets for their customers in tandem with data collected on program participation, as well as non-participant studies (DNV GL, 2020). We recommend the following best practices associated with the collection of demographic data (Health Research & Educational Trust, 2013).

- The intent and use case for collecting the specific demographic data should be clearly communicated upfront to customers and connected to a compelling case for accountability.
- The language used and structure of the survey matters. Avoid wording and question formats that

may make respondents feel marginalized, such as the use of terms like "other" or not allowing multiple selections for each category to support multi-racial identities.
  - Program administrators should include options such as "I prefer not to say" and "Different identity: [fill in blank]" for every category and, as appropriate, make responses optional.
  - Options for each category should be alphabetical to avoid insinuating hierarchy.
- Practices should be put in place to ensure the data collected is secure and anonymized.
- Follow through is key. Program administrators should make the anonymized data publicly available in a timely manner. Datasets should be available for download by the public to increase transparency and support third-party analysis of program outcomes.

We recommend that ease of qualification be evaluated through qualitative assessment. The assessment should focus two scales (1) rigid to flexible (e.g., very rigid, rigid, netural, flexible, very flexible) and (2) siloed to comprehensive (e.g., completely siloed, somewhat siloed, neutral, somewhat comprehensive, very comprehensive). These scales could be applied to evaluate policies including, but not limited to the following examples: documentation requirements, auto-enrollment availability or opt-out program structures, single point of enrollment for multiple programs, and income threshold flexibility.

Lastly, we recommend the best practice of collecting customer feedback from those who participated in the program and those who did not, with a focus on conversations with individuals representative of historically underserved communities in the service area. Regular assessment of customer feedback on their experience of the enrollment process and participation in the program will identify pain points that quantitative data cannot provide.

DATA/RESOURCES:

- DNV GL Residential Nonparticipant Customer Profile Study (Massachusetts)
- ACEEE: Supporting Low-Income Energy Efficiency: A Guide for Utility Regulators

PA4. Effective marketing tactics

METRIC STATUS: Shift to best practice

Rationale: To effectively reach and engage with communities that have historically been marginalized by utility programs, marketing materials must be intentionally developed and culturally responsive. It is important to identify the specific communities that the utility wants to reach, potentially including frontline communities, Black communities, Indigenous communities and other communities of color. Keeping these specific communities in mind, we recommend all materials developed using public or ratepayer dollars follow these best practices:

- Vet marketing materials with the communities that will be most directly impacted. How well has their feedback been integrated into the process? Were they consulted or were they involved in the development process?
- Ensure representation within the campaigns (e.g., People of Color, women, people with varying abilities). This includes not only representative pictures, but also includes capturing the values, norms and perspectives of the communities. Assess imagery and language. When looking at campaign collateral, does it represent all communities? How intentional were the designers in correctly representing the community? This could be based on an assessment by the community.
- Ideally, include people and case studies from the local communities, not stock images. Evaluate the collateral; are the majority of the images generic? Choose images and words the community is more likely to actually resonate with.
- Ensure the campaign (and program materials) are accessible, including to those with visual impairments, hearing loss and those with limited internet access. Consider conducting an accessibility audit to see how your digital or web-based marketing is being used and better understand access and ease of use by different potential users, including people with disabilities and the visually impaired. Were improvements recommended? Were they implemented?
- Ensure a variety of channels are used to market and engage with the communities, including social media, email, radio, newspaper, etc. Assess your marketing channels and understand which demographics seem to respond better to certain communication methods.
- Ensure the messaging is dispersed geographically. Are certain areas of the service territory receiving more or less information about the program? Do certain areas that have historically not participated need more attention?

Lastly, in order to assess the effectiveness of marketing materials' ability to reach and engage with the identified communities, it will be necessary to collect demographic information on participants. There is no way to accurately measure impact to all communities, especially marginalized communities, without first collecting data. More information on the collection of demographic data can be found in the *PA3. Ease of qualifying and participation for BIPOC, frontline, and low-income households* narrative above.

Image source: GHHI, 2021 (p.16)

DATA/RESOURCES:

- Campaign Monitor: Why Diversity, Inclusion, and Equity is a Key Differentiator in Your Marketing Strategy
- Campaign Monitor: Let's Call It What It Is: Multicultural Marketing not Diversity, Equity and Inclusion
- ProRelevant: How Marketers Can Measure Diversity, Equity and Inclusion

PA5. Access for renters

METRIC STATUS: Priority data gap—considered as best practice for the moment.

Rationale: Renters face greater barriers to accessing clean energy benefits because they typically have far less control over their own energy choices and making changes to their living environment. While landlords or property managers are the ones with control over energy-saving upgrades being made in a building, renters typically are the ones responsible for their energy bills and therefore the ones experiencing the impacts of higher energy costs. This creates what we know to be the "split incentive" challenge (McKibbin, 2013). BIPOC, frontline, and low-income communities typically have higher percentages of renter populations, making renter access to clean energy programs an important measure of procedural equity (Desilver, 2021). This metric is most closely associated with our guiding principle of establishing credibility.

This quantitative metric evaluates the saturation of participation by renters in proportion to the percentage of residents that are renters within a service territory. A baseline understanding of residents that are renters and the characteristics of rental housing can be assessed using American Community Survey data, which is included in the EEP Map as a Recognition metric.

This baseline data should be paired with the best practice of regularly collecting demographic data on the participation and non-participation of residents that are renters in energy efficiency and renewable energy programs (see PA3. "Ease of qualifying and participation for BIPOC, frontline, and low-income households".) We also recommend conducting community-engaged research with individuals and families living in rental housing, and adopting policies to remove barriers identified during engagement (Samarripas & Jarrah, 2021).

ADDITIONAL RESOURCES:

- ACS Data on Housing Tenure, Renter-Occupied and Owner Occupied
- ACEEE's State and Local Policy Database
- ACEEE Energy Equity for Renters Policy Tracker

PA6. Funding for home health and safety issues

METRIC STATUS: Desire to create rating scale

Rationale: One persistent barrier to performing energy efficiency improvements in housing is the presence of health and safety issues. These issues can present potential health and safety concerns for the contractor or resident to perform the work (e.g., faulty wiring or presence of asbestos), can result in increased health and safety issues once the energy efficiency work is complete (e.g., poor indoor air quality exacerbated by air sealing the building envelope), or can prevent the work from moving forward altogether (e.g., insufficient electrical panel). Organizations that participate in the DOE's Weatherization Assistance Program often have to walk away from serving these houses due to insufficient funding to make these repairs; these abandoned projects are referred to as "deferrals" (DOE, n.d.).

A 2018 report by the Environmental Defense Fund found that up to 15 percent of homes, nationwide, have health and safety issues such as mold, leaky roofs, and asbestos that prevents them from accessing weatherization services (EDF, 2018). Per the U.S. Census Bureau, American Housing Survey 2019, Black households are 1.7 times more likely to live in housing that is considered substandard (moderately or severely inadequate) than white households, which contributes to exacerbating racial equity issues in housing and energy (U.S. Census Bureau, 2022). According to the same survey, households below the poverty level are 2.3 times more likely to be living in substandard houses than those at or above the poverty level. "Limited-income households are, on average, 27% less efficient than high-income households. As a result, energy and electricity are more expensive for the poor than for the rich," according to Norton et al., 2021.[21] Electricity isn't the only cost impacting communities. Inefficient homes can lead to conditions such as asthma from mold, dust, and pests. 40 percent of asthma episodes that are caused by housing-based triggers represent $5 billion lost annually in preventable medical costs, which are not easily affordable and can lead to further financial burdens.[22]

A common recommendation among weatherization advocates is that states, utilities and programs identify and provide dedicated resources to address the underlying health, safety and structural issues to enable energy efficiency work in low-income housing. The U.S. Department of Energy Weatherization Assistance Program (WAP) has increased the availability of funding to support health and safety issues in eligible housing through Weatherization Program Notice 22.7, (US DOE, 2021). Previous to this policy change, the Weatherization Assistance Program "primarily support[ed] cost-saving measures, with a limited budget of 15% of project cost available to address necessary health and safety issues. For the average project, the maximum budget for health and safety is just over $700 and is often not enough to address the many health and safety issues present in homes within ESJ communities" (Norton et al., 2021).

In positive news, DOE has allowed grantees to create a separate budget for health and safety funds and does not require that these funds be included in the cost-effectiveness calculation for the energy efficiency work that is enabled by fixing these health and safety issues. And while there are several existing energy efficiency programs that have been able to leverage resources from other organizations and state programs to fund these health and safety issues, including these Pre-WAP programs[23] as well as the Healthy and Lead-Safe Home Program offered by the Vermont Housing & Conservation Board,[24] there is still much more to be achieved to truly meet the needs of communities, especially in the wake of climate change (NASCP, 2019; VHCB, n.d.).

Once homes that were previously deferred are retrofitted, it is important that healthy building materials are used so as to not further exacerbate potential health hazards. According to an Energy Efficiency For All report,[25] "across the United States, homes with insulation containing formaldehyde, a known cancer- causing chemical and respiratory irritant, had significantly higher indoor levels of formaldehyde in the air that were associated with adverse health impacts for occupants (Singla et al., 2018)." In ensuring health and safety issues are resolved for residents, and that they have access to energy efficiency programs and benefits, it remains critical to ensure solutions are not maladaptive.

We created a sample 1–5 scale to evaluate the accessibility of utility run programs and their ability to repair and retrofit homes most impacted by health and safety (H&S) issues as follows:

- Points for percent of program budget allocated to be spent on H&S work (Up to 2 points)
  - 20% or more budget allocated for H&S work (2 points)

[21] Access the Green and Healthy Homes Initiative report at: https://www.greenandhealthyhomes.org/wp-content/uploads/2021-GHHI-Leading-with-equity_wp_Final.pdf

[22] See GHHI: https://www.greenandhealthyhomes.org/hazard/asthma/#easy-footnote-bottom-5-1545

[23] See National Association for State Community Service Programs: https://nascsp.org/wp-content/uploads/2019/08/Pre-WAP-Programs.pdf

[24] https://vhcb.org/our-programs/healthy-lead-safe-homes/program-services

[25] https://assets.ctfassets.net/ntcn17ss1ow9/3Bw3JFqYHgI7xWcvb7unwN/a17352bc9c1162b32729ed866ed98705/NRDC-3084_Guide_to_Healthier_Retrofit_Hi-res_smaller.pdf

  - 15%–19% budget allocated for H&S work (1 point)
  - Less than 15% budget allocated for H&S work (0 points)
- Best practice of not including H&S funds in cost-effectiveness calculations (1 point)
- Best practice of not having per house/per unit funding caps (1 point)
- Best practice of targeting outreach to previously deferred households (1 point)

Additionally, we recommend that agencies collect data and report on health and safety issues identified in potential housing upgrades, including but not limited to:

- Percent of housing units/buildings applicants that had health and safety issues identified that prevented energy efficiency investments to move forward (disaggregate between income-qualified and market rate as well as between single family and multifamily)
- Data on types of H&S issues encountered
  - Percent of each H&S issue that were addressed with program funding, enabling energy efficiency work to move forward
  - Average cost of H&S repairs, by type
  - For deferred projects, provide an explanation of reasons for walking away
  - Description of types of energy efficiency investments that were enabled through H&S repairs

Lastly, we recommend that when performing retrofits, healthy building materials be used to prevent exacerbating potential health issues.

ADDITIONAL RESOURCES ON THIS TOPIC:

- A Guide to Healthier Upgrade Materials
- Guidance for Specifying Healthier Insulation and Air-Sealing Materials

Program Access Index metrics that we voted out:

No artificial caps on participation (e.g. net metering / energy choice caps)	Qualitative scale—not allowed, severe cap, moderate cap, no cap	Program Access	Qualitative	Don't keep—limited coverage
Multiple enrollments in all eligible programs encouraged and supported	Qualitative policy assessment (1–5 scale)?	Program Access	Best Practice	Don't keep—add to ease of enrollments
Auto-enrollment notification/ opt-out for programs households are eligible for	Qualitative scale? Data on individual household participation (% participating in multiple programs)	Program Access	Best Practice	Don't keep—add to ease of enrollments
Customer satisfaction scores	Utility or state rank	Program Access	Quantitative	Don't keep. There are multiple sources for this, though often require payment for access

Inclusive Language Review

Whenever possible, **we use the most specific language possible** to describe a group of people we are referencing as the experiences of communities differ significantly. Rather than use terms such as **BIPOC** as the default, which broadly refers to individuals who are Black, Indigenous, and People of Color, using specific language can be important for elevating the experiences of a particular group and resisting their erasure from decision-making spaces. This allows us to more adequately consider variations in the lived experiences of people with different identities. For example, Black people have been most impacted by redlining and housing discrimination and by the siting of polluting facilities. Native people have repeatedly had their autonomy as sovereign nations disregarded, and their land taken and misused despite treaty rights. They have been routinely skipped over by federal infrastructure investments like rural electrification and have a dearth of even basic data which perpetuates the cycles of erasure. Residents of Puerto Rico were left largely to fend for themselves after the devastation of Hurricane Maria, while energy shutoffs continue to plague Latinx households more than any other group in California.

When we are speaking of multiple groups that have been similarly impacted by climate change or the energy system, **we use frontline communities as an umbrella term**. For instance, policies that concentrate financial incentives among wealthier and whiter households, as seen in the uptake of federal tax credits for electric vehicles and rooftop solar installations, result in distributional inequities among frontline communities. In this instance, we mean frontline communities to refer to Black, Indigenous, and Latinx households, the rural poor, renters, immigrants, and people with disabilities, to name a few. Because the experiences of being negatively impacted by the energy system, shut out of planning and decision-making processes, and unable to partake in the benefits of clean energy are common among many specific communities, we use frontline communities to reference their shared experience as the "have nots" of the energy system, as compared to the "haves".

Drawing from the definitions of the United Frontline Table and the It Takes Roots coalition (ITR, n.d.) (UFT, n.d.),[26] groups we include under the umbrella of frontline communities include, but are not limited to:

- **Gender & sexual orientation:** Women, gender non-conforming people, trans people
- **Race and Ethnicity:** Indigenous Peoples, and Black, Latinx, Asian, Arab, Immigrant and Muslim communities
- **Household characteristics:** elderly, youth, people with disabilities and medical conditions, single mothers
- **Housing status:** renters, unhoused, historically redlined
- **Geography:** pollution burdens and proximity to polluting facilities, rural, urban, fenceline communities, coal communities
- **Income & wealth:** "low, lower, and low-to-moderate income (LMI)", multiple tiers of absolute (e.g. % of federal poverty level) and relative income and cost burdens (e.g. % area median income, energy and housing cost burdens), ability to benefit from financial incentives (credit scores, sufficient tax burdens)

[26] ITR. (n.d.). About. It Takes Roots. Retrieved April 2022, from https://ittakesroots.org/about/

UFT. (n.d.). *A People's Orientation to a Regenerative Economy.* United Frontline Table. Retrieved February 2022, from https://unitedfrontlinetable.org/report/

See definitions of frontline communities at: https://ittakesroots.org/about/ and https://unitedfrontlinetable.org/report/

Shutoffs vs Disconnections: A Note on Language Usage

In the EEP framework, we deliberately use the word shutoffs to describe when a household has involuntarily had their utility service terminated for non-payment.

The term **disconnections** has now become the dominant term used in regulatory proceedings and by utilities. **Shutoffs** is preferred among the marginalized communities that are disproportionately impacted by shutoffs.

Language choices are often political, and can be used to polarize and weaponize debate. Ensuring people have access to energy, a fundamental human need and, we believe, a fundamental human right, is too important to shut down conversation over word choice.

At the same time, the distinction between shutoffs and disconnections is not mere semantics. To us at EEP, disconnection sounds abstract, far away, benign. It does not conjure the devastating personal impact that losing access to heat and electricity has on families. It does not paint the stark picture of people living in cold, dark homes because they cannot pay more. It does not illustrate the terrible stress of whether to pay the energy bill, go hungry, skip medical care, or let it ride with the rent or mortgage and hope this does not precipitate eviction or foreclosure. Disconnections, to us, has an innocuous connotation; it can make it sound as if the problem is intractable and result of some unnamed external force.

By contrast, the term shutoff is rightly jarring. The word itself makes it harder to look away from the human suffering that results. And because it is a jarring word, it presses the idea that alternatives are both possible and necessary. If shutoffs are so severe and oppressive, what are we doing to reduce and ultimately end the practice?

The Energy Equity Project exists to be in service to Black, Brown and Indigenous communities and allies, to frontline environmental justice communities, to the poor, people with disabilities, and all other marginalized groups that have suffered under the current structure of the American energy system. We have heard from these groups with exceptional clarity and consistency that ending shutoffs is a priority.

We honor the priority of frontline communities in this small way by choosing to use what we believe is both the most appropriate term and the most reflective term that most widely used by those who are most impacted. Our objective is not to correct others who use the term disconnections, but to communicate a choice we made that aligns with our values. Regardless of language, we are eager to partner with any organization that seeks to use data to document and illuminate the issue and most importantly, to work for lasting solutions that ensure everyone has the energy they need to live comfortably and with dignity.

Fenceline communities specifically reference a community's physical proximity to environmental burdens that result from the energy system and its industrial facilities (Lerner, 2012).[27] We will use these when specifically referring to locations such as neighborhoods located adjacent to oil refineries on the Gulf Coast of Louisiana and Texas.

The term **disproportionately impacted community** most commonly references elements of recognition equity-disparities in historical treatment and current demographics that result in distributional inequities of burdens and benefits. Because disproportionately impacted can imply either a common language meaning or reference a specific legal or policy definition, we limit our usage of this term to specific policy references or qualify our usage of the term; e.g. disproportionately impacted by legacy pollution burdens.

A prominent example of the term disproportionately impacted communities is found within Colorado's SB 272.[28] In this case, the definition serves to designate specific Census block groups for additional consideration in energy and climate decision-making and investments. Designation as a disproportionately impacted (DI) community requires meeting one or more conditions, such as exceeding a threshold that 40% households be low-income (<200% FPL or <80% AMI) or housing cost-burdened (not defined). Colorado's use of DI communities is similar to the Justice40 usage of **disadvantaged communities**, by which some census tracts will be designated as

[27] Lerner, S. (2012). *Sacrifice zones: the front lines of toxic chemical exposure in the United States.* MIT Press.

Adams, A. E., Shriver, T. E., Saville, A., & Webb, G. (2018). Forty years on the fenceline: community, memory, and chronic contamination. *Environmental Sociology*, 4(2), 210-220.

[28] SB 21-272, 100, 2021 Reg. Sess. (CO. 2021) https://leg.colorado.gov/sites/default/files/2021a_272_signed.pdf

disadvantaged based on their percentiles across several dimensions and indicators (CEQ, 2022).[29]

Colorado's definition also allows for determining DI communities, perhaps by some process of self-determination (to be developed) by a qualitative assessment of historical systemic racism or redlining or experiencing a range of disproportionate environmental and socio-economic stressors, including cumulative impacts of pollution and procedural inequities.

Impacted communities is another term that can be found in multiple sectors, e.g. AIDS-impacted community, mining-impacted community. To us, impacted community also prompts further questions like: "Impacted in what way? How severely?" Because impacted communities is less common and more ambiguous than frontline communities, we refrain from using it.

Non-English speakers

Per 2013 U.S. Census data, the United States has more than 25 million people, or 9% of its population, over the age of five who reported that they spoke English less than "very well". These people are unable to read, write, speak or understand English at the level necessary to meaningfully engage with efficiency programs, utilities and regulatory commissions.

The term **limited English proficiency (LEP)** is used by both the federal government and those receiving funds from the federal government, notably the healthcare industry, schools and the justice system. A person with LEP is defined as a person who does not speak English as their primary language and has limitations in their ability to read, write, speak or understand English. The federal government, based on the 1964 Civil Rights Act and as reiterated in Executive Order 13166, is required to ensure that their programs, services and information are meaningfully accessible to LEP persons. Specifically, the Executive Order mandates federal agencies to "examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them." While this term is widely used in many fields, this is a deficit-based term that is not commonly used by the communities themselves, and so we choose not to use this term.

The term **non-native English speaker (NES)** is defined as a person who did not learn English as their first language. Non-native English speakers, however, may or may not be fluent in English. As some non-native English speakers may be fluent in English and therefore be able to meaningfully engage with efficiency programs, utilities and regulatory commissions, we choose not to use this term when discussing language access barriers.

While we could not find consistent community support of any specific term, the term **non-English speaker** tends to be the most commonly used term by these communities. As such, we chose to use this term in this document.

Immigrants

Most commonly, an **immigrant** is defined as a person who lives in a different country than their birth country. There are about 50 million immigrants living in the U.S. There are several categories of immigrants, including naturalized citizens, permanent residents, refugees, asylees and undocumented immigrants—each category having varying legal privilege and encountering varying barriers. Undocumented immigrants, who account for about one out of four immigrants per the Pew Research Center, experience the most extreme barriers (Buidman et al, 2020).

Barriers to participating in programs as well as engaging in public meetings for immigrants include, but are not limited to, language barriers, cultural barriers (e.g., some immigrants are unaware that programs such as energy assistance exist as they come from countries that do not have similar programs), lack of documentation (e.g., proof of employment or income due to irregular or nontraditional jobs), and fear of mistreatment and deportation of themselves, their family and their friends. This fear is reinforced by incidents such as U.S. Immigrations and Customs Enforcement (ICE) using utility databases to access personal information about undocumented immigrants, as reported by *The Washington Post*, (Harwell, 2021).

When referencing immigrants, it is important to avoid overgeneralizations and instead recognize the different barriers, immigration statuses and situations of individuals or communities. The term "illegal" is incendiary and dehumanizing and should always be avoided.

[29] At the time of this writing, the final methodology for selecting disadvantaged communities had not been set. CEQ. (2022). Climate and Economic Justice Screening Tool (CEJST): Beta. Council on Environmental Quality, https://screeningtool.geoplatform.gov/en/cejst#3/33.47/-97.5

Historically Disinvested, Disenfranchised, Underserved, Underrepresented Communities

The terms **historically disinvested community** and **historically disenfranchised community** commonly relate to a racially homogeneous group of individuals who have been impacted by the legacy of implicit and explicit activities that systemically devalued and withdrew resources and money from their communities within the United States (e.g., structurally racism). These discriminatory practices, such as, segregation and redlining of Black communities led to higher rates of Black people being denied banking services to buy homes, thus leading Black communities to have lower overall generational wealth and health.[30]

Historically disinvested or disenfranchised can also refer to groups that have limited or no access to resources. These groups may include people who are "socioeconomically disadvantaged; people with limited English proficiency; geographically isolated or educationally disenfranchised people; people of color as well as those of ethnic and national origin minorities; women and children; individuals with disabilities and others with access and functional needs; and older people (FEMA, n.d.)."[31]

Similarly, the term **underserved community** can be defined as "populations that face health, financial, educational, and/or housing disparities, including facing barriers that make it difficult to get health coverage and basic health care services (JHU, n.d.)."[32] However, we recognize that these barriers are interrelated with other critical services people interact with daily, such as housing, energy, and banking services.

We also want to acknowledge the impacts of linguistic choices, especially as they manifest in our state and federal policies, because they can lead to the perpetuation of negative stereotypes, marginalization, and normalizational institutional racism. Terms, such as underserved community, may denote a negative perception of whole groups of people, othering the community, and insinuating people are not enough or unworthy (Williams, 2020).[33]

While the term **"underrepresented community"** is defined as "a group that is less represented in one subset (e.g., employees in a particular sector, such as IT) than in the general population," it can be too broad. For instance, it can also refer to gender, race/ethnicity, physical or mental ability, LGBTQ+ status, and many more (Kutch & Kutch, 2022).[34] It's important to be specific about who we are referring to and convey dignity for all people.

Given systemic policies, procedures and culture that strengthened and perpetuated the marginalization of certain communities across America, under-representation, especially in seats of power, is prevalent. It is critical to use language purposefully and respectfully, and also ensure there are pathways to change current representation. For instance, by the end of 2021, AB 979 (Bell et al., 2020)[35] required all "California-headquartered public companies have at least one director on their boards who is from an underrepresented community, defined as an individual who self-identifies as Black, African American, Hispanic, Latino, Asian, Pacific Islander, Native American, Native Hawaiian, or Alaska Native, or who self-identifies as gay, lesbian, bisexual, or transgender (Bell et al., 2020)."[36]

For all these terms referring to communities, we recommend distinguishing their use cases. While federal and state governments are using overarching terms, we recommend that if you are participating in evaluation and community engagement, being as specific as possible, humanizing, and inclusive in your language is critical.

Individuals/Communities Navigating Low Income

Terms that indicate socioeconomic status such as **low-income communities** have the potential to serve as implicit descriptors for racial or ethnic identities, leading to implicit biases that can conflate racial and ethnic identities with one's occupational, educational or economic situation (APA Style, n.d.).[37] In addition,

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[30] OpenSciEd. (2020). *Reading: Disinvestment in Communities.* OpenSciEd. https://www.openscied.org/wp-content/uploads/2020/09/L6.Reading-Systemic-Racism-and-Disinvestment-in-Communities.pdf

[31] FEMA. (n.d.). Glossary. Glossary | FEMA.gov. Retrieved February 2022, from https://www.fema.gov/about/glossary/u

[32] JHU. (n.d.). *Diversity and Equity Initiatives: Definitions.* Johns Hopkins University. Retrieved February 2022, from https://publichealth.jhu.edu/departments/environmental-health-and-engineering/about/diversity-and-equity-initiatives/definitions

[33] Williams, T. L. (2020, June 19). *'Underrepresented Minority' Considered Harmful, Racist Language.* Communications of the ACM. Retrieved January 2022, from https://cacm.acm.org/blogs/blog-cacm/245710-underrepresented-minority-considered-harmful-racist-language/fulltext

[34] Kutch, B. D. M., & Kutch, J. S. M. (2022). Innovation through diversity and inclusion: A roadmap for higher education information technology leaders. In *Research Anthology on Changing Dynamics of Diversity and Safety in the Workforce* (pp. 1811-1833). IGI Global. From https://www.igi-global.com/chapter/innovation-through-diversity-and-inclusion/224239

[35] Bell, D., Belt, D., & Hitchcock, J. (2020, October 10). New law Requires Diversity on Boards of California-Based Companies. The Harvard Law School Forum on Corporate Governance. Retrieved February 2022, from https://corpgov.law.harvard.edu/2020/10/10/new-law-requires-diversity-on-boards-of-california-based-companies/

[36] APA Style. (n.d.). Socioeconomic Status. American Psychological Association. Retrieved March 2022, from https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/socioeconomic-status

[37] DCFPI. (2017). DCFPI Style Guide for Inclusive Language. DC Fiscal Policy Institute. https://www.dcfpi.org/wp-content/uploads/2017/12/Style-Guide-for-Inclusive-Language_Dec-2017.pdf

socioeconomic terms do not recognize the broader social context such as community disinvestment, racist housing policies, and voter disenfranchisement. We recommended that when writing about communities navigating low-incomes, authors acknowledge the social context as well as the non-economic assets of the community such as its culture, arts, history, and social ties (DCFPI, 2017).[38] Additionally, we recommended that authors refer to specific metrics when talking about low-income individuals, citing specific income levels or categories.

Disabled Communities

When referring to individuals with disabilities, it is generally regarded as best practice to use "people-first language," putting the person before their condition. However, it is of even greater importance to inquire of one's preferred terminology, as identity-first language may be preferred by some individuals. For some, identity-first language allows them to claim and celebrate their disabilities and promotes their autonomy (APA,2015).[39] However one chooses to identify, a respectful approach also means avoiding victimizing, villainizing, sentimentalizing or heroizing language (Thomas & Hirsch, 2016).[40]

In an anti-ableist framework, it is also critical to evaluate the language we use when not explicitly referring to individuals with disabilities. For example, it is best to avoid language that methaphorizes or make a joke of disabilities or mental/emotional health such as "lame," "crazy," or "freak," as well as language that describes individuals without disabilities using descriptors such as "healthy" or "normal."

Environmental Justice Communities

Commonly referred to as "environmental justice communities," the US EPA describes communities that face disproportionate exposure to environmental hazards or exposures as "overburdened" communities, defined as: "minority, low-income, tribal, or indigenous populations or geographic locations in the United States that potentially experience disproportionate environmental harms and risks. This disproportionality can be the result of greater vulnerability to environmental hazards, lack of opportunity for public participation, or other factors. Increased vulnerability may be attributable to an accumulation of negative or lack of positive environmental, health, economic, or social conditions within these populations or places. The term describes situations where multiple factors, including both environmental and socio-economic stressors, may act cumulatively to affect health and the environment and contribute to persistent environmental health disparities (EPA, 2020)."[41]

Although the label "environmental justice community" is common and useful for shared understanding of the environmental challenges faced by many communities, some social scientists have found that rather than metric-based, outside labeling or definitions based on the satisfaction of criteria—which can useful for allocating resources to address EJ issues—*community*-based identification of their own EJ areas or EJ sub-populations or communities is most effective for assessing EJ outcomes (Rowangould et al., 2016).[42]

Energy Justice Communities

Energy justice applies environmental justice principles to energy production and consumption matters, including related "energy policy, energy production and systems, energy consumption, energy activism, energy security, and climate change (Jenkins et al. 2016)"[43] issues.

Energy justice for communities refers to "the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system. Energy justice explicitly centers the concerns of communities at the frontline of pollution and climate change ("frontline communities"), working class people, indigenous communities, and those historically disenfranchised by racial and social inequity. Energy justice aims to make energy accessible, affordable, clean, and democratically managed for all communities (IEJUSA, 2019)."[44]

[38] Kutch, B. D. M., & Kutch, J. S. M. (2022). Innovation through diversity and inclusion: A roadmap for higher education information technology leaders. In *Research Anthology on Changing Dynamics of Diversity and Safety in the Workforce* (pp. 1811-1833). IGI Global. From https://www.igi-global.com/chapter/innovation-through-diversity-and-inclusion/224239

[39] APA. (2015). Choosing Words for Talking About Disability. American Psychological Association. Retrieved March 2022, from https://www.apa.org/pi/disability/resources/choosing-words

[40] Thomas, H. & Hirsch, A., (2016). A Progressive's Style Guide. Sum of Us. https://s3.amazonaws.com/s3.sumofus.org/images/SUMOFUS_PROGRESSIVE-STYLEGUIDE.pdf

[41] EPA. (2020). EJ 2020 Glossary. EPA. Retrieved March 2022, from https://www.epa.gov/environmentaljustice/ej-2020-glossary#:~:text=Overburdened%20Community%20%2D%20Minority%2C%20low%2D,disproportionate%20environmental%20harms%20and%20risks

[42] Rowangould, D., Karner, A., & London, J. (2016). Identifying environmental justice communities for transportation analysis. Transportation Research Part A: Policy and Practice, 88, 151-162. https://doi.org/10.1016/j.tra.2016.04.002

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Energy justice communities exist on the spectrum of the energy production-consumption continuum, with different but interconnected environmental justice challenges. On the consumption end of the energy spectrum, energy justice communities are communities that experience higher rates of energy poverty, higher rates of energy insecurity, and higher energy costs, and these are disproportionately people of color and people with low incomes.

On nomenclature, the Initiative for Energy Justice reviewed literature, practitioner products, and statements from advocacy, "frontline," and community groups, and found that "With a few notable exceptions, practitioners and advocates tend to rely less on "energy justice" and more on terms like "energy equity" and "energy democracy" in their work. Although the terminology differs, the usage commonly focuses on frontline-led approaches to energy policy that center the economic, social, and health concerns of marginalized communities (IEJUSA, 2019)."[45]

Older Populations

Results found that groups of older adults perceived to be "elderly" in New Zealand were frequently being culturally put down through systemic intolerance (Butler, 1969), with the descriptive label of "elderly" perpetuating stereotypes and prejudicial attitudes towards aging and older adults (Amundsen, 2019).[46]

Online news media articles need to avoid the term "elderly" and instead use "older adults", "or "older people", or as advocated by the United Nations (2020), "older person/s."

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LIST OF BEST PRACTICES

- Distinguish different use cases for different terms—e.g., federal government may have definitions, but advocacy and community groups might prefer different terms and nomenclature, and where possible contextualize term use with specific data and descriptions
- Where possible, understand and distinguish between common nomenclature, policy or jargon, etc., versus community-identified and preferred terms
  - Respect individual and community preferences for how they wish to be identified
- Be specific with regards to group classifications: income (e.g., federal "low income" classification? other?), race, ethnicity, etc.
- Acknowledge what isn't always reflected in one metric of income
- Use people first language, e.g., individuals with disabilities
- Explain and provide detail of metrics or criteria used to qualify or determine eligibility for or description of "environmental justice community" in reporting and writing; center community and population self-identification of "environmental justice community"
- Re: "energy justice community," clarify the energy community and detail where appropriate and possible the energy justice issues impacting people in different types of energy communities (e.g., production, consumption, export, transportation communities); target energy "justice" vs. "democracy" vs. "equity" language to appropriate respective audiences
- For energy justice, make sure to consider the full spectrum from energy production to consumption

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Distributional Equity

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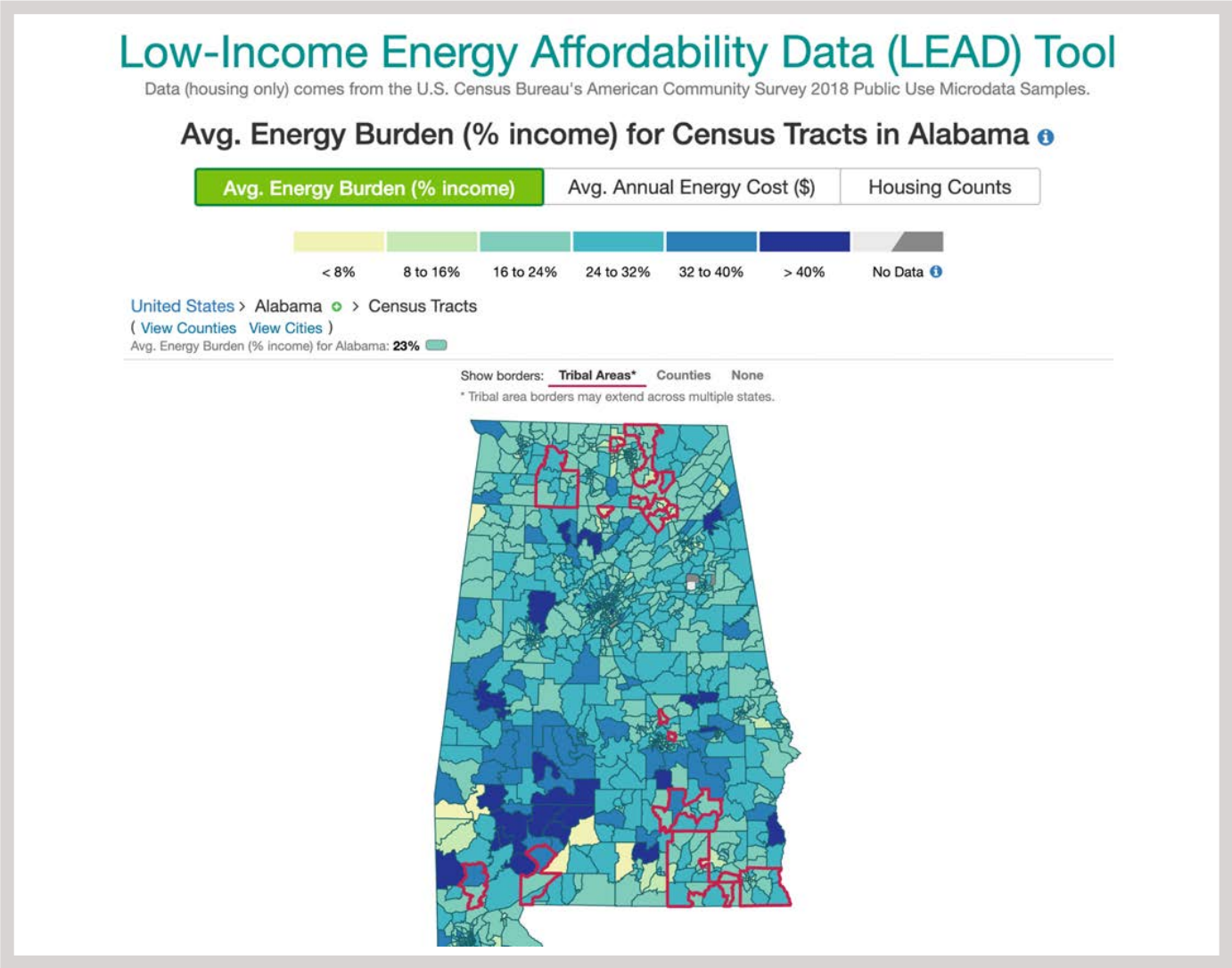
Equity is achieved not by simply redistributing the benefits and harms, but by eliminating the harms and increasing the benefits while expanding access to them.

(Holifield 2001)

Broadly speaking, distributional equity refers to how the benefits and harms of the energy system are distributed, and is closely aligned with the notion of "justice as fairness" (Pello 2000; Rawls 1971). Distributional inequities have been thoroughly documented in the field of environmental justice scholarship and activism (e.g. Ard 2015; Bullard 1994; Bullard 2000; Mohai et al. 2009). Low-income communities and Black, Indigenous, and People of Color (BIPOC) communities are much more likely to face exposure to environmental harms (e.g. toxic pollution, presence of polluting facilities, etc.) and less likely to have access to environmental "goods" like green space and parks.

As with environmental justice, distributional equity in the energy system is multifaceted and concerns both *what* is distributed and among *whom* it's distributed. For example, distributional equity can include distribution of: energy technologies, energy efficient buildings and appliances, economic outcomes (e.g. utility contracts), environmental or climate risks from energy production, health impacts of the energy system (e.g. air pollution both indoors and outdoors), spending and benefits from energy programs (e.g. energy savings, bill savings, financial assistance), investment in communities, the cost of energy, or other energy system characteristics. In terms of who is impacted, the Recognition workgroup has reviewed in detail the sociodemographic and other characteristics that are most likely to influence which people and communities receive more of the benefits and harms. These include frontline or fence-line communities living close to polluting power generation facilities, BIPOC communities who have been historically and are still excluded from investments and economic development opportunities low-income families



Low-Income Energy Affordability Database (LEAD) Tool. Image shows energy burdens (percentage of gross income spent on heating and electricity) among households at or below 100% of the Federal Poverty Level in Alabama. Image source: U.S. Department of Energy.

struggling with high bills and lack of access to energy efficient housing or technologies. Generally speaking, these are the same people and communities that face greater risk of harm from environmental and energy injustices.

As shown in the principles of distributional equity described below, equity is achieved not by simply redistributing the benefits and harms, but by eliminating the harms and increasing the benefits while expanding access to them (Holifield 2001). The elimination of harms is addressed in detail by the Restorative workgroup. When measuring distributional equity, we need to include metrics that capture overall reductions in harms and improvement of lives and livelihoods, as well as the distribution of energy system benefits and investments.

In this chapter, we start by defining Distributional Equity and the guiding principles that can best illustrate it. We then review and discuss a set of recommended metrics that can be used to measure three key aspects of distributional equity: 1) Energy affordability, 2) Household benefits, and 3) Community benefits.

For the majority of recommended metrics, data are not currently publicly available for researchers, regulators, practitioners, and others interested in evaluating distributional equity. Given the importance of capturing equity in all its dimensions and facets, it is critical that future work on energy equity prioritize making data available so that distributional equity can be accurately assessed at all geographic scales including neighborhoods, cities, utility territories, and states.

Principles of Distributional Equity

Before seeking to measure distributional equity we first have to define what we mean by the term and what it looks like in the real world. The Distributional Equity workgroup evaluated various principles to define the concept and capture its ideals and framing. In other words, what does it look like when an energy system is equitable in a distributional sense, and what does inequity look like? This section begins to answer these questions by describing principles of distributional equity.

ENERGY AFFORDABILITY

Energy is a fundamental need for all households because it's essential to fulfilling basic needs such as heating and cooling, cooking, lighting, and communication. Access to affordable energy is therefore essential for families and households; it is both a principle of distributional equity and a key aspect for measurement. There is a large body of research highlighting the dangers families face when they do not have consistent access to affordable energy services, such as: increased risk of poverty (Bohr and McCreery 2020); increased risk of eviction (Desmond 2016); reduced food expenditure and calorie intake (Bhattacharya et al. 2003; Nord and Kantor 2006); and poor respiratory health, mental health, and sleep outcomes (Hernández and Siegel 2019). When households spend more than 6% of their income on energy, this is considered a high energy burden; above 10% is considered severe. However, this energy unaffordability can also be experienced in other ways, such as sacrificing comfort and health by keeping the home at an unsafe temperature to save on bills, reducing spending on food or medicine to pay high energy bills, receiving a disconnection notice or experiencing a disconnection and general financial and housing insecurity (EIA 2015; Hernández 2016).

In addition to the general problem of energy insecurity and lack of affordable energy services, research has also clearly documented income and racial disparities in which households have access to affordable energy. For example, while one in three households in the U.S. were energy insecure in 2015, there were significantly higher rates of energy insecurity for low-income, Black or African American, and Hispanic or Latinx households compared to higher income and white or Caucasian households (EIA 2015).

In an equitable energy system, all households would have access to affordable, clean, reliable energy services. In practice this would mean:

- No households face extreme/severe burdens (>10%).
- A plan and pathway to reducing high energy burdens (>6%) within the next three years
- The distribution of energy burdens does not disproportionately impact any particular demographic or socioeconomic group. In other words, no disparities in energy burden by race, income, education, disabilities or health conditions, age, family structure, or property ownership.
- All households have access to a minimum level of energy services at a cost they can afford without sacrificing other needs.
- Appropriate programs, resources, and support are available for mitigating extreme and severe energy burdens among vulnerable populations, accounting for shutoff experiences, arrears, medical conditions, housing instability, and local environmental quality and cost of living.
- Arrears reduction programs are available for customers with previous experiences of energy insecurity or high energy burdens.
- Financial assistance is provided to households to meet these goals.

EQUITABLE INVESTMENTS, BENEFITS, AND HARMS

The energy system creates a wide variety of benefits and harms, from the point of energy production through consumption in customers' homes. On the production side, the benefits include economic development and job creation in fields such as solar installation, wind farm construction and maintenance, energy efficiency contracting, battery storage technology, and a wide variety of administrative and support roles for this work. On the consumption side, the benefits of energy programs include direct energy savings and bill reductions, as well as various non-energy benefits such as: health benefits from home improvements, increased home value and wealth creation, improved thermal comfort, improved thermal resilience (i.e. the building stays at a comfortable temperature for longer during a power outage or loss of heating service), and more.

In terms of harms, the production of energy from fossil fuels is responsible for some of the greatest environmental harms that humanity has produced,

including climate change and disruption on a global scale, as well as more local harms from mining of coal and metals, natural gas production (e.g. hydraulic fracturing), nuclear fuel mining and waste disposal, air pollution and health impacts from burning fossil fuels, etc. (Hernández 2015). Renewable energy generation can also create harms when large utility-scale solar or wind farms are installed in sensitive ecosystems without the support of local Indigenous people, and through the mining of raw materials and production and manufacturing for solar panels and wind turbines (Baker 2021).

In order to achieve distributional equity, all benefits from the energy system must be distributed fairly and equitably, and harms must be both minimized and distributed equitably and minimized. For example, utility program benefits should be allocated such that frontline communities and households receive a large majority at least 40% of the benefits, or a proportion that matches the percentage of those households in the utility territory, whichever is greater. This is similar to the goal of the Justice40 initiative from the Biden Administration which seeks to allocate at least 40% of the benefits to environmental justice communities (The White House 2021). We must also ensure that no new polluting facilities are placed in communities that already host too many.

One of the ways we can work toward more equitable benefits is to start with equitable investments, i.e. ensuring that a prominent share of utility program investments reach frontline communities and households that have previously been underserved. This is a significantly higher standard required than achieving equal, or proportional investments to different populations without remedying extensive underinvestment that may have accumulated over decades. Furthermore, historically disinvested communities often need additional investment to receive the same benefits and outcomes. A home with deferred maintenance, for instance, may need a larger investment to retrofit and receive the same energy savings and health benefits.

SERVE RENTERS EQUALLY

Rental housing is often recognized as less energy efficient or more energy intensive than occupant-owned homes. This is due to the "split incentive" problem: since landlords usually do not pay utility bills, or can pass along the cost of energy to their tenants, they have less of an incentive to invest in energy efficiency upgrades (Gillingham et al. 2009). Efficiency programs may find it harder to serve rental housing due to this challenge, which creates distributional inequities when rental housing has less insulation, fewer energy-related home improvements, and overall worse physical condition among the building characteristics that most impact energy needs (Middlemiss and Gillard 2015; Samarripas and Jarrah 2021). Programs may need to be redesigned to support these outcomes, for example with tailored multifamily programs designed to connect with landlords and encourage or incentivize energy retrofits for rental housing.

Distributional equity is best achieved when utility programs serve renters equally alongside other customers. In practice, this means:

- Residential energy efficiency programs reach tenants of rental housing on par with owner-occupied housing. This may require disproportionately high investment in programs for renters if they were previously absent or underfunded.
- Incentive programs for advanced or new energy technologies (e.g. smart thermostats, electric vehicles, etc.) are accessible to renters. This may require additional support or incentives to encourage landlords to allow installation in rental units, or programs supporting essential infrastructure in rental housing (e.g. electric vehicle charging stations in multifamily buildings).

- Renters do not face higher energy costs than homeowners due to building conditions. Renters also do not experience higher energy burdens, greater risk of energy insecurity, or similar challenges.
- Programs should be designed so that improvements in rental housing do not lead to gentrification or displacement of low-income families. When buildings are improved by an energy retrofit, programs must ensure that this does not lead to higher rents or tenant turnover.

ENSURE ACCESS TO ALL FORMS OF NECESSARY ASSISTANCE AND MAXIMIZE CO-ENROLLMENTS WHERE APPROPRIATE

There is a perception that for households struggling with unaffordable energy bills, energy insecurity and energy poverty, there are forms of public, utility and charitable assistance to meet their needs. The data, however, confirm that the majority of customers who are eligible for assistance programs such as LIHEAP, weatherization, or utility-provided energy efficiency improvements, do not receive service. For example, LIHEAP typically serves around 20% of eligible households each year (Wein 2017). This can be due to housing characteristics, lack of information about available programs, and other barriers to access, such as lack of local energy efficiency contractors or an inability to access program services and materials in one's native language. Slots are often too limited to meet customer demand (Perl 2018); one organization calculated that at its current pace, it would take 291 years to weatherize all eligible households (CERT, 2017).

For assistance programs to be equitable, "there must be efforts to maximize enrollments and availability of these programs provide more favorable rate options for historically marginalized communities."

Programs can use co-enrollments to ensure that customers who need financial assistance can also enroll easily in other appropriate programs such as favorable time-of-use rates and energy efficiency programs. Despite the goal of ensuring access to assistance programs, the ultimate purpose of reaching frontline populations facing energy poverty and insecurity should remain focused on reducing energy needs through deep energy efficiency retrofits and supporting adoption of distributed solar and storage among these households.

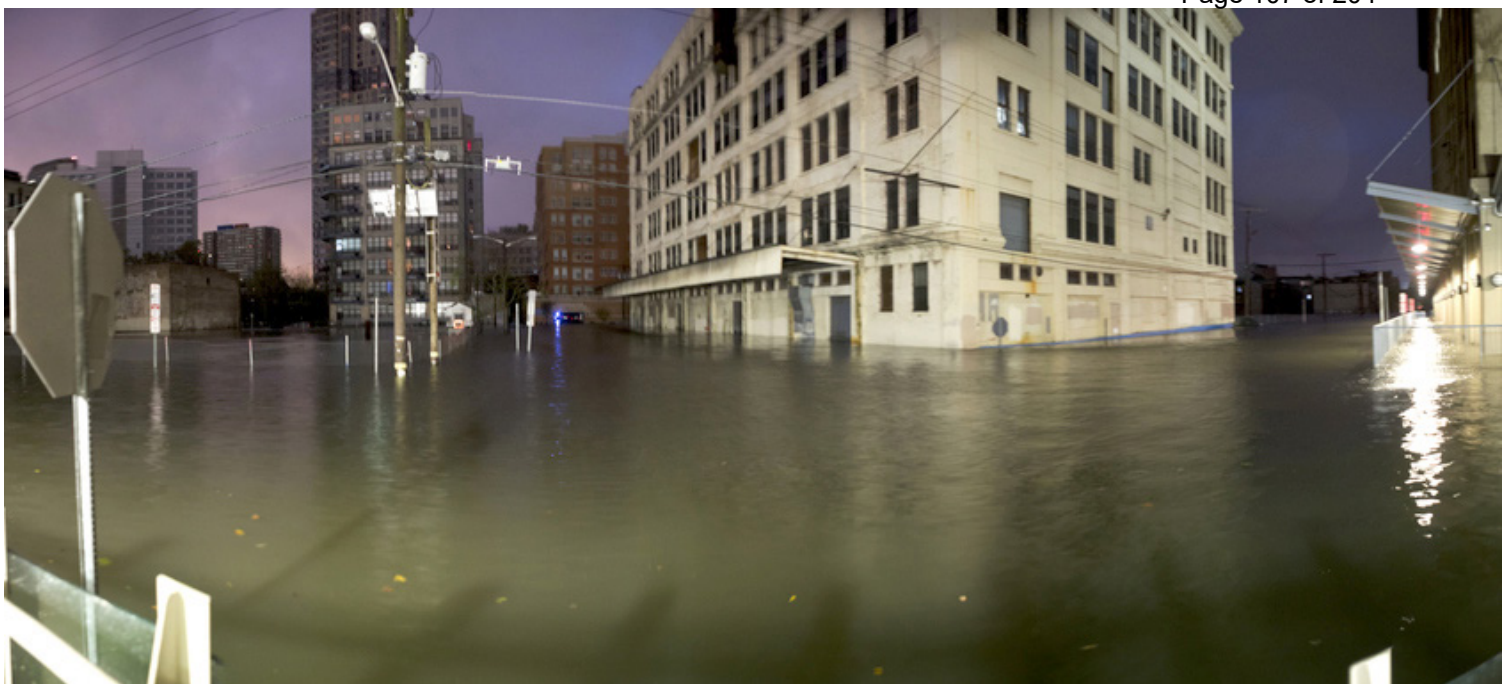
SUPPORT HEALTHY HOMES FOR ALL

The relationships between housing and health are well documented, and housing is generally recognized as a key social determinant of health (Jacobs et al. 2009; Swope and Hernández 2019; Thomson et al. 2013; Wilson et al. 2013). Energy insecurity has been clearly linked with both housing conditions and health outcomes (Hernández 2016; Hernández and Siegel 2019; Jacobs et al. 2009; Swope and Hernández 2019), while improving housing—including the energy characteristics of homes—has been shown to improve health (Thomson et al. 2013; Wilson et al. 2013). This relationship is subject to the same disparities we see elsewhere in the energy system, where BIPOC and low-income households face greater health risks and higher energy costs, with housing as a key link between the two (McCreery 2018; Scheu et al. 2018). Additionally, health-related housing characteristics can act as a barrier to energy efficiency retrofits and programs. When a home has deferred maintenance or existing building health and safety issues, such as a knob and tube wiring, vermiculite insulation that contains asbestos, or mold, this must be remediated before a retrofit can safely proceed. Many programs are unable to serve these homes because they do not have sufficient funds or are not allowed to spend energy efficiency funding on health and safety repairs. These "deferrals", also known as walkaways, can be very common, with some program walkaway rates as high as 50% (Scheu et al. 2018).

Energy efficiency and other utility programs can help address housing-related health disparities by setting aside funding for health and safety repairs as part of a retrofit program. A whole-building approach to retrofits can blend funding sources to address multiple housing related issues at once in the homes and communities that need it most, including energy efficiency, lead paint and pipes, water leaks and mold, and roof repair. To support distributional equity we must ensure that no one has to live in a home that damages their health, and all people have access to safe, healthy, and energy- efficient homes.

SUPPORT ECONOMIC DEVELOPMENT FOR ALL COMMUNITIES

The distributional benefits of clean energy development, such as federal tax credits for energy efficiency upgrades, rooftop solar, and electric vehicles, have been primarily captured by Americans with the highest incomes. This is particularly true for electric vehicles, of which 90% of tax credits went to the top decile of households who earn more than $200,000 annually (Borenstein and Davis, 2016). When tax credits and other financial incentives are inequitably distributed, they result in growing wealth disparities and prevent frontline communities from partaking in the economic benefits of the clean energy transition. Similarly, the majority of the workforce development benefits and contracts for performing the work have gone to white workers, men, and white-owned companies (Said et al, 2021). While considering the distributional impacts of energy efficiency and clean



energy in housing; it is important that investments also prioritize frontline communities that have had little access to the broad economic benefits—reducing the cost of energy, generating wealth, and workforce-related—of these investments.

MAXIMIZE CLIMATE RESILIENCE; MINIMIZE VULNERABILITY

Despite efforts to decarbonize rapidly, climate impacts continue to ratchet up, particularly in frontline communities. In the U.S., climate impacts are particularly severe in areas prone to tropical storms and wildfires and communities that are experiencing unprecedented heat waves (Pacific Northwest "heat dome" of 2021; Golden, 2021) and severe weather (the paralyzing ice storm that left much of Texas and Oklahoma without power for days in February 2021; FERC, NERC, and Regional Entities 2021). Across Tribal nations, many households, including about 15% of Navajo households, still lack electricity after being largely skipped over by federal rural electrification initiatives (Sandoval, 2018). The severity of how these impacts are felt depends significantly on a community's and a household's ability to weather and adapt to these impacts. Improving a home's insulation can protect it from dangerous indoor temperatures if the power goes out during a heat wave; expanding the use of distributed renewables and battery storage capacity can reduce stress on the grid and supplement power if peak demand exceeds the capacity of existing generation plants (Denholm et al, 2020).

Advancing distributional equity requires the consideration and valuation of resilience benefits that result from clean energy programs and investments. These should be considered in formal decision making tools like benefit-cost analyses and societal cost tests and as a holistic approach to protect those most vulnerable to climate impacts.

SUPPORT OR MANDATE WEATHERIZATION STANDARDS FOR ALL HOMES, AND PROVIDE FUNDING

The most durable distributional benefits for households result in significant reduction in household energy demand through efficiency improvements. Weatherization and other programs that offer deep retrofits to the house shell and heating, ventilation, and cooling systems (HVAC) are a primary strategy for such efficiency improvements, but access to these programs is limited for multiple reasons, as mentioned earlier. Addressing this conundrum requires, in part, an examination of critical questions such as:

- Who should pay for this work beyond existing taxpayer-funded programs?
- How can landlords be incentivized to make upgrades without raising the rents for existing tenants?
- Are there ways utilities can help owners of multifamily housing make them more energy efficient with reasonable investments so rents don't need to increase significantly?

Solutions can include simplifying the process to identify retrofit and upgrade plans for existing structures, introducing property owners to qualified trade allies, and facilitating supplemental investment funds for income-qualified homeowners and landlords renting to income-qualified families.

Metrics

Number metrics reviewed	40
# included	3
# priority data gaps	6
# recommend rating scales	1
# shift to qualitative/best practice	6
# not feasible (e.g. data availabilty)	10
# not prioritized (low value)	23

The Distributional Equity workgroup reviewed and evaluated 40 qualitative and quantitative metrics for potential inclusion in three sub-dimensions:

- **Energy Affordability**
- **Household Benefits**
- **Community Benefits**

After the rating and evaluation process described in Chapter 1, we decided to recommend 4 metrics for Energy Affordability, 8 metrics for Household Benefits, and 5 metrics for Community Benefits; these are discussed below. Metrics that were not recommended for inclusion, either due to significant barriers with the data or because they received low scores from the workgroup, are visible in the metrics summary but not discussed further.

The best practices described in the section below could potentially be assessed with a qualitative or quantitative metric, and we recommend any future data gathering work evaluate the feasibility of adding metrics related to the best practices, particularly at the local or utility-scale level. For example, having an arrears forgiveness program or policy with sufficient funding is a best practice, and it could potentially be measured with a metric for the percentage of customers with arrears enrolled in forgiveness programs, or average arrears among low-income households, or other approaches.

Most of the recommended distributional metrics do not have data available publicly at the census tract level, and in many cases public data are not available for any geography in the U.S. Additionally, some metrics may need to be evaluated with data analysis or statistics for the best approach to operationalize them, or for ways to convert qualitative metrics to quantitative (e.g. creation of new rating scales, or development of an appropriate operationalization) for inclusion in the index. In some cases we've recommended multiple metrics on closely related topics, for example, indoor air quality and respiratory distress are captured as separate metrics in the Household Benefits and Community Benefits indices. In those cases we recommend additional analysis when data are available to assess statistically whether both metrics can be included in the same index or whether it's more appropriate to include just one on its own.

Even though public data are not available at this time, utilities and program implementers may have internal data for many of these metrics. We encourage utilities and program implementers to consider using their data for self-evaluation, and to investigate ways they can make the data more available publicly while protecting customers and privacy. Regulators have an important role to play in requiring more transparent reporting of data that utilities are already collecting.

ENERGY AFFORDABILITY INDEX

EA1. Percentage of eligible customers served by financial assistance programs

METRIC STATUS: Priority data gap

Rationale: Energy assistance programs provide direct financial assistance to low-income families in the form of bill reductions or assistance payments. These programs can have significant benefits, for example by reducing energy insecurity (Murray and Mills 2014), and the need to make trade-offs between utilities and other essential expenses like food and medicine (Bhattacharya 2003; Frank et al. 2006). However, due to funding levels these programs typically are not able to reach all households that could benefit from and need assistance. For example, the Low Income Home Energy Assistance Program (LIHEAP) is a federal utility assistance program that started in 1981; the income threshold for this program varies by state and is most commonly set at 150% of the federal poverty level or 60% of the state median income (Graff and Carley 2020; Wein 2017). Typically, LIHEAP provides assistance to around 20% of eligible households before funding is exhausted (Wein 2017), leaving many households unable to access the support they need. While other programs such as state, local, or utility programs may fill some of those gaps, these programs are typically smaller and also unable to provide support to every family that needs it. For these reasons, we recommend a quantitative metric for the percentage of eligible utility customers that are served by income-based assistance programs. Since distributional equity is

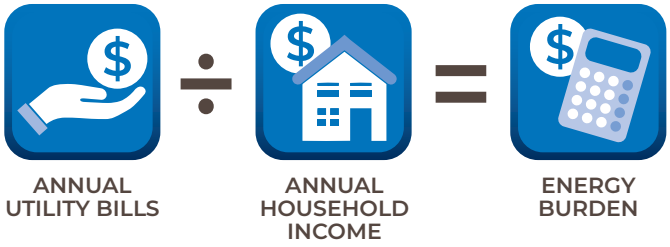
Typically, LIHEAP provides assistance to around 20% of eligible households before funding is exhausted (Wein 2017), leaving many households unable to access the support they need.

best achieved by ensuring everyone has access to the programs, financial support, or other resources they need, a larger percentage would indicate greater distributional equity.

EA.2 Average energy burden among low-income households, BIPOC, and frontline households, and/or other disproportionately impacted groups (e.g. renters)

METRIC STATUS: Not included as a specific data set, but available data allows for proxy analysis. The Framework includes data on energy burden for each census tract, as well as percent BIPOC rates and % below the federal poverty level. Although not as precise as the using actual household level data, it is possible to use these existing data sets to analyze the energy burdens in census tracts with certain population characteristics (e.g. > 50% BIPOC, >25% poverty). The data for this metric should be analyzed to consider different approaches to assessing both average energy burdens and disparities between demographic groups, especially potential racial or other disparities for households within the same income band.

Rationale: Energy burden is defined as the percentage of gross household income spent on energy cost (Tarekegne et al. 2021). The two key metrics in measuring energy burden are income and energy cost and any change in one or both metrics can either increase or reduce the level of household energy burden. For example, people that rely on higher-cost fuels such as propane or those living in older energy-intensive homes could see a higher energy cost (DOE State and Local Solution Center 2022).



Research on energy burden has shown that low-income and other underserved groups (for example, frontline households, renters, etc.) tend to experience higher energy burdens than more affluent and non-underserved groups (Drehobl et al. 2020). Low-income households, often defined as those whose incomes do not exceed 80 percent of the area median income (AMI) or those making less than 150 percent of the federal poverty level (FPL), are more vulnerable to energy burden challenges. The DOE's Low-Income Energy Affordability Data (LEAD) Tool[1] shows that the national average energy burden for low-income households is 8.6 percent compared to the 3 percent observed for the average- or higher-income households. These vulnerabilities are further manifested through the tradeoffs and sacrifices households are making on their necessities (i.e., food, comfort, etc.) in order to meet their basic energy needs. For example, children that live in energy insecure homes are more likely to be food insecure and have poorer health conditions compared to children in energy secure homes (Hernández 2016).

Table 1. Average household energy burden by household type

Type of Household	Average Energy Burden (percent)
Low-income	8.6
African-American	5.4
Latino	4.1
Renters	4.0

**6 percent is high energy burden and 10 percent is considered severe energy burden (ACEEE 2020)*

The issue of energy burden and insecurity is exacerbated by social disadvantages including socioeconomic status (concentrated poverty), race (racial residential segregation), ethnicity, family composition, and age of housing (Brown et al. 2020; Drehobl and Ross 2016; Mercado 2020). Distributional equity remedies for reducing energy burden and insecurity could include expanding federal programs such as the Low-Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP) and creating new energy efficiency programs targeted towards vulnerable and highly impacted groups. In addition, percentage of income payment plans (PIPPs), protection from utility disconnection threats, support for access to affordable and quality housing, equity centered ratemaking, and access to distributed energy can alleviate the burden.

We recommend evaluating quantitative metrics for the average energy burden, with a focus on vulnerable or under-served communities such as low-income, BIPOC, frontline communities, and renters. This metric should take into account both average energy burden overall, and disparities between groups such as race, renters versus homeowners, income bands. Tracking change over time is also an important consideration for energy burdens.

[1] DOE. (n.d.). Low-Income Energy Affordability Data (LEAD) Tool. Energy.gov. Retrieved February 2022, from https://www.energy.gov/eere/slsc/low-income-energy-affordability-data-lead-tool

EA.3 Percentage of eligible customers served by Percentage of Income Payment Plans (PIPPs)

METRIC STATUS: Shift to best practice and local measurement. For states and utilities that offer PIPPs, this is easily calculated by dividing the number of participating households by the number eligible (those that meet an income threshold and/or have a high energy burden). We recommend this metric for inclusion in the future if data become available.

Rationale: Percentage of Income Payment Plans are designed to bring a customer's energy burden into an affordable range. Affordability is generally defined as 6% of the household's income for energy costs.[2] A PIPP will calculate the given percentage of the household's income and divide by 12 to determine the monthly payment. The remaining portion of the bill is paid for by the program, either through an assistance agency (with state and/or federal dollars) or ratepayer or taxpayer dollars. Since many households have separate bills for electricity versus heating fuel, for these households some PIPPs will evenly reduces the energy burden to 3% of income for both electric and heating costs, while other PIPPS may use a 4%–2% split.

Related structures for similar assistance programs can include flat credit amounts applied to customer's bills each month based on their income level. For instance, a customer at 50% FPL could receive a $50/month credit, and a customer at 100% FPL could receive a $25/month credit. Or programs may offer a flat percentage discount of the customer's energy usage each month. These structures function similarly to but are not technically PIPPs, because the final energy burden among households may vary based on their starting burden and the credits applied.

PIPPs can be operated in conjunction with an Arrears Management Program (AMP). For example, a customer with arrears who enrolled in a PIPP may see their arrears payments paused during participation in the PIPP, with the potential for arrears forgiveness after maintaining on-time payments on the PIPP for a year or other time period. The PIPP length and ability to re-enroll are generally set by the program and available funding. Some entities will also provide priority enrollment periods for seniors or others on fixed incomes.

PIPP programs are typically very beneficial for recipients since they tailor the amount of support to each customer's financial circumstances and energy needs. Metrics and practices to assess access to PIPPs could include the number of participants (vs the number qualified), number of seniors, maximum energy burden allowed, the realized energy burden reduction, amount spent in credits, amount spent in arrears forgiveness, length of the program, whether customers can enroll for multiple terms, whether there is a credit cap, whether customers can be removed from the program due to non-payment, and other program details. These are all valuable considerations for local evaluation. Nationally, we recommend evaluating a quantitative metric for the percentage of eligible customers who are served by a PIPP, with the caveat that PIPPs must bring customers' bills to within an appropriate maximum energy burden limit (ideally 6%, never greater than 10%).

As PIPPs are only available in a small number of states and are relatively new, their ability to meet the total need remains to be seen. In OH, which has a longtime PIPP that was first developed in the 1990s, evaluators found that even a $300 million annual budget would only be able to serve 25% of eligible customers (APPRISE et al, 2007).

EA4. Amount of fixed charges on utility bills

METRIC STATUS: Limited coverage (not included), shift to local measurement. This data can be easily calculated locally where the fixed charges are known. We recommend including this metric in the future if data become available, which would require reviewing the billing structure for each utility to create a national dataset.

Rationale: Utility rate design typically includes both variable charges (e.g. a per-kWh or per-therm supply charge for electricity or natural gas), and fixed charges (e.g. a customer charge that's the same amount for a certain class of customers, regardless of how much energy a customer uses). This design is intended to fairly cover both fixed and variable costs of providing utility service, including the cost of distribution infrastructure maintenance and investment. However, higher fixed fees and surcharges can contribute to inequity in several ways:

- They are inherently regressive in that lower-income households pay a higher percentage of their income on these fees regardless of how much energy they use.
- They reduce the incentive and benefits from investing in energy efficiency or conservation.
- They directly contribute to energy burdens and affordability challenges for low-income households, by establishing a higher baseline bill for service, regardless of energy consumption.

For example, a natural gas utility for the city of Chicago has higher fixed charges than the surrounding

[2] The 6% figure, which is recommended by EPA, DOE, and longtime affordability advocates like Roger Colton, was suggested so that energy costs would represent 1/5 of a total housing burden of 30%. In practice, energy costs are higher than the costs of home occupancy (rent or mortgage + property taxes) for many households.

suburban territory, totaling almost $45 a month in January 2021 for households that use gas as their primary heating fuel, which includes a customer charge of approximately $36 (Peoples Gas Light and Coke Company, 2021). These fixed charges have risen substantially in recent years and contribute to high overall residential energy costs which were predicted to nearly double over 2016 to 2031 (ICC 2016).

For these reasons, we recommend including a quantitative metric for the total amount of fixed charges on utility bills (electricity and gas or other heating fuel, as applicable), including all relevant taxes and fees. Lower fixed fees would generally indicate greater distributional equity, and a bottom threshold could be considered to take into account the need for some funds to support distribution infrastructure and maintenance.

HOUSEHOLD BENEFITS INDEX

HB1. Energy efficiency equity baseline (E3b) spending and savings for low-income, BIPOC, and fronline households, and renters.

METRIC STATUS: Not included; shift to local measurement. Data are available on a limited basis for select investor-owned utilities and program years through the E3b website.[3] Recommend for inclusion in the future if data become available.

Rationale: Utilities are generating billions of dollars of revenue each year as a result of state laws that establish what is broadly referred to as Energy Efficiency Resource Standards (EERS). The revenue is generated by a rate-payer surcharge and redistributed to fund each utility's portfolio of residential energy efficiency programs. A University of Michigan study, "A Multi-State Analysis of Equity in Utility Sponsored Energy Efficiency Investments For Residential Electric Customers," found that, "in 2016 alone, twenty-nine EERS states invested $2.5 billion in energy efficiency programs," (Reames et al. 2019). These programs are designed to reach residential customers based on their ability to pay (i.e. income qualified programs). The study created a normative baseline metric, the Energy Efficiency Equity baseline (E3b) for evaluating utility program spending trends and found utilities were systemically disinvesting in income-qualified programs.

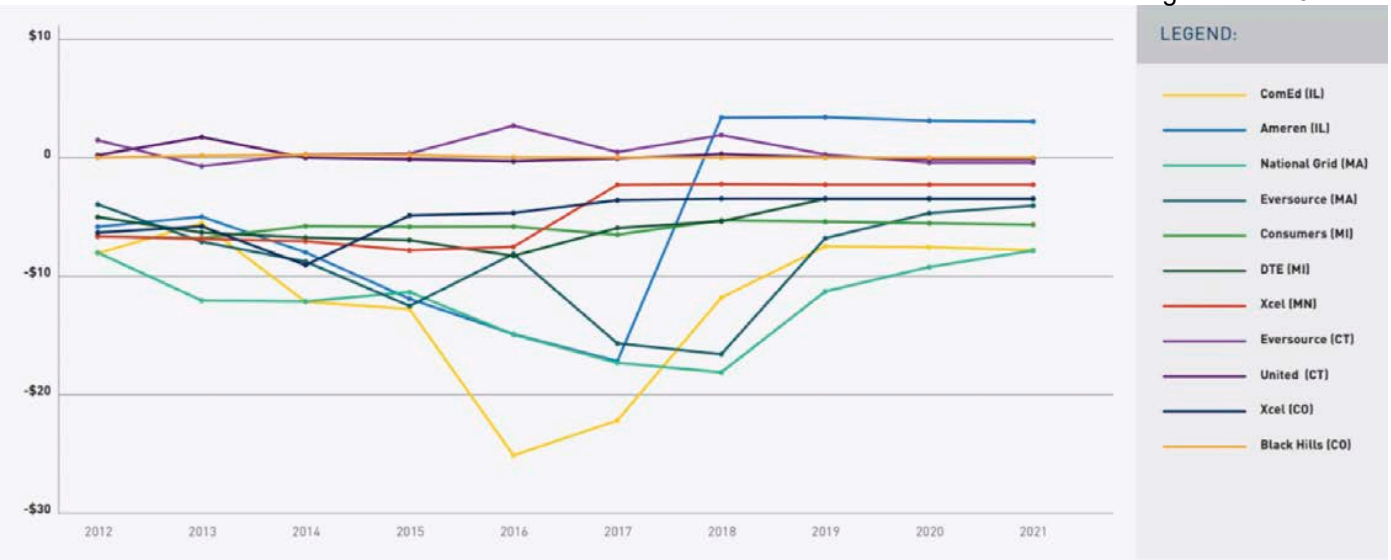
To illustrate, one key finding showed that, "The cumulative E3b deficit for the eleven Investor-Owned Utilities (IOUs) in this study reached $586 million (2012–2021), with the largest cumulative deficit for a single IOU at $123 million," (Reames et al. 2019).This means that, in order for those utilities to invest in low-income programs at a level proportionate with the low-income population in their service territories, they would have to first close the historical gap of $585 million. Using the example above, utilities with a collective annual energy efficiency budget of $2.5 billion and 30% low-income customers would devote 30% of the annual budget ($750 million) plus an additional 10% of the cumulative gap per year ($58.5 million) in order to eliminate the gap and return to the E3b after 11 years:

In other words, program spending should at a minimum align with population levels for demographic

Year	Cumulative Deficit	Minimum Annual Investment	Cumulative Deficit Reduction	Annual Low-Income Budget	%	Non-low Income Budget	%
1	$586,000,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
2	$527,400,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
3	$468,800,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
4	$410,200,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
5	$351,600,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
6	$293,000,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
7	$234,400,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
8	$175,800,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
9	$117,200,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
10	$58,600,000	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%
11	$0	$750,000,000	$58,600,000	$808,600,000	32%	$1,691,400,000	68%

Source: EEP Analysis

[3] UEJLa. (n.d.). *Interactive Energy Efficiency Equity Baseline (E3B) Map.* Energy Efficiency Equity Baseline (E3B) Map. Retrieved January 2022, from https://umich.maps.arcgis.com/apps/Cascade/index.html?appid=28f6792ea2134ffba888413e70647c0c



Year-to-year E3B deficit trends for eleven IOUs. Figures above $0 reflect low-income program investment levels above the E3B, whereas figures below $0 reflect low-income program investments below the E3B.

and other groups, e.g. spending on low-income programs that utilizes rate-payer surcharges as funding should align with the prevalence of low-income households in the utility service territory. The minimum E3b investment would thus reflect the utility service territory population characteristics by income or other socioeconomic and demographic characteristics such as race and property ownership and provide a clear baseline for comparing utility investments across the nation. The E3b map is a first attempt to illustrate these investment disparities between states and major utility providers.[4] Utilities across the country, like DTE, are facing interventions in Public Utilities Commission case filings that may require achieving more equitable outcomes (Walton 2022).

EEP believes that these state-regulated and utility-managed programs should invest, at minimum, to the E3b levels *and* remedy cumulative deficits. Because proportional investments do not account for need or for broader historical disparities in the energy system, truly equitable distribution of benefits will exceed the E3b guideline.

While utilities typically report their portfolio spending in annual reports, standardized and required reporting should be adopted across and within states. For a Household Benefits Index of distributional equity, we recommend a quantitative metric of E3b for energy efficiency programs to capture disparities in program spending.

In addition to whether a minimum of proportional spending and savings were achieved, disparities between groups should be considered, particularly for energy savings. If savings per customer or per dollar invested are lower for a particular population, the program components should be restructured (e.g. focus on deep retrofits like air sealing and insulation) and/or additional funding may be needed to achieve E3b savings levels.

HB2. E3b at the program level, especially for deep energy retrofits, distributed energy resources, electric vehicles, electrification, etc.

METRIC STATUS: Not included; shift to local measurement at the utility and/or program level. Recommend for inclusion in the future if data become available, and for current use by local planners, regulators, and program implementers.

Rationale: This metric represents the amount of program implementer spending–by utilities, third parties, and community action agencies who run energy efficiency programs. These investments encompass deep retrofits of homes, electrification (e.g. of customer vehicles, appliances, heating) and distributed energy resources including residential- and community-scale solar and batteries. Comprehensive measures like these bring benefits that build on each other, like the synergistic benefits in deep energy retrofits when weatherization enables installation of a smaller capacity heating system. These multiplicative benefits that have been disproportionately denied to frontline and BIPOC communities. In line with the E3b map, we recommend a quantitative metric assessing the extent to which spending by program/measure—especially for deep retrofits, electrification, and DERs—

[4] UEJLb. (n.d.). Energy Efficiency Equity Baseline "E3b" Map – States 2016. Energy Efficiency Equity Baseline (E3B) Map. Retrieved January 2022, from: https://www.arcgis.com/apps/mapviewer/index.html?webmap=cea413fef3334775b523ca0cb634e541. Hosted by University of Michigan Urban Energy Justice Lab: https://urbanenergyjusticelab.com/

is proportional to the percentage of frontline, BIPOC, and low-income households in the service territory. For example, if the service territory has a 30% BIPOC population, at least 30% of DER program funding should go to these households, for investment to be considered equitable. Just like with metrics HB1, this is a minimum threshold, and in practice most programs should aim higher to address historical and ongoing inequities and greater need.

There are additional considerations for the allocation of program benefits. While program budgets are most often considered, a more equitable approach is to consider the average savings per household. In designing programs, implementers should keep in mind that higher rebates and funding will be needed to make programs accessible for communities facing disproportionate barriers. For example, a $2,000 rebate on a new solar system might be attractive to a middle- or high-income household, but it's not attractive to families who are struggling to keep up with energy bills every month. Achieving equitable savings benefits will typically require higher budgets per participant among frontline communities in order to address financial barriers and a host of barriers to program access (these are discussed at length in the Procedural Equity chapter).

HB3. % Eligible customers served who need healthy homes measures served

METRIC STATUS: Shift to qualitative/best practice in the short term; recommend for inclusion in the future if data become available.

Rationale: Qualities of a healthy home can be measured by ventilation, roof protection, smoke/carbon monoxide detection, protection from pests, protection from toxic materials (e.g. lead paint and pipes), and energy efficiency (Green and Healthy Homes Initiative, 2022). Unrenovated houses built before 1940 often need have a history of energy inefficiencies with recommendations for improvements by the EPA that include air sealing, insulating, upgrading the heating and cooling system, and regular maintenance (EPA, 2016). These homes can also have a variety of other health and safety issues, especially if homeowners are unable to afford ongoing maintenance costs.

For energy efficiency and weatherization programs, many of these older homes have health and safety issues that need to be addressed before a home can be safely retrofitted, for example leaking roofs, electrical or plumbing issues, moisture issues or mold, loose asbestos, or other issues. When programs do not have sufficient funds or are not allowed to spend retrofit funds on health and safety repairs, these homes can be excluded from receiving energy efficiency retrofits (known as deferrals or walkaways). These deferrals can be very common, with some program walkaway rates as high as 50% (Scheu et al. 2018).

Weatherization and efficiency programs can address these health and safety issues and avoid program deferrals by incorporating health and safety repairs. Budgets should be sufficient to remediate these issues for all households that are waiting to receive weatherization or other energy efficiency services.

As a metric, this could be measured quantitatively as the percentage of homes with health and safety issues that are successfully served in a retrofit or weatherization program. The scale of homes needing health and safety improvements could be estimated based on the percentage of homes built before 1940, although this is not a perfect measure of homes needing health and safety repairs. For example, Wayne County, MI which houses the city of Detroit, has 20.4% of houses built before 1940 (U.S. Census Bureau, 2020). A utility or program administrator (e.g. weatherization agency) can then document all the counties, cities, or even states that it serves and find the percentage of houses built before 1940 using the 2020 American Community Survey database, and compare that to the number of homes receiving health and safety repairs. Ideally, home repair and remediation services would be available to all low-income homeowners and households that were harmed by historic housing segregation, ideally within 5-10 years. At the utility or program level this could also be measured as the walkaway rate, with a lower walkaway rate indicating greater equity.

Alternatively, a qualitative approach or best practice could also emphasize efficiency measures that contribute to healthier homes and to coordinate with agencies offering healthy homes services and maximize co-enrollments, particularly for customers with medical conditions or higher vulnerability.

HB4. Improved indoor air quality in frontline households

METRIC STATUS: Shift to best practice and local measurement. There is not currently a national dataset at this time, but it would be useful to pursue locally and at the household level.

Rationale: Building characteristics are closely related to indoor air quality, including appliances (e.g. gas versus electric), air tightness, mechanical ventilation, and other details such as flooring (e.g. carpets). Many of these same characteristics are also related to energy use and may be affected by energy efficiency programs. There is a substantial body of research linking energy and building characteristics to both indoor air quality and respiratory health outcomes (e.g. Carlton et al. 2019; Colton et al. 2014; Kang et al.

2022; Wilson et al. 2013). Given these links, an equitable energy system should support indoor air quality improvements through appropriately designed and equitable efficiency, electrification, and other building retrofit programs.

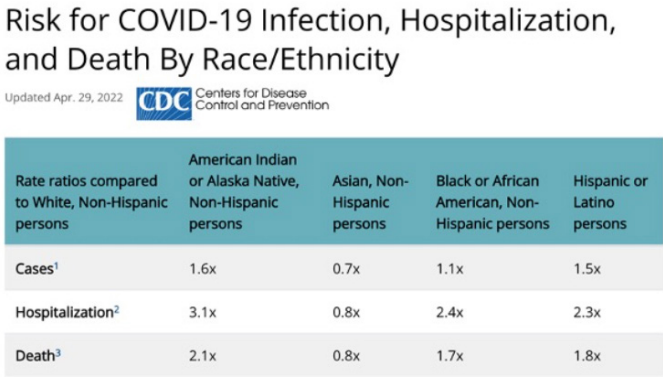
Increasingly, utility programs are including dedicated budgets to provide measures that benefit indoor air quality. Measures like remediating mold, asbestos, and providing HEPA filters do not improve energy efficiency, but with dedicated funding they are a sensible provision for utility contractors to provide at the time of energy efficiency retrofits.

It is possible to measure improvements in indoor air quality at the household level, even for just a sample of customers. The EPA's National Ambient Air Quality Standards (NAAQs) are available for determining an official air pollutant criteria linking routine household activity to health-threatening inhalation exposure. These criteria, however, are typically applied to outdoor instead of indoor air. Indoor air pollution monitors available for less than $300 can measure particulate matter (PM 2.5), volatile organic compounds (VOCs), carbon monoxide and dioxide, temperature and humidity. Improving ventilation and sealing drafty building envelopes help prevent mold and mildew. Effective, holistic public awareness and strategic communication may be targeted to specific populations to encourage behavioral approaches to improving air quality. Some other indoor air quality improvements, like regularly changing furnace filters and cleaning ducts, also offer energy saving benefits.

Improving indoor air quality is a precursor to achieving reductions in respiratory distress. Reductions in respiratory distress are likely to take several years or more to become visible in data, while changes in air quality can be measured almost immediately. This mirrors air quality issues that are addressed in the Recognition chapter, but its focus is on indoor instead of outdoor air quality.

HB5. Reduction in respiratory distress and disparities among frontline households

METRIC STATUS: Priority data gap; the CDC PLACES data has been identified for future inclusion but we are unable to incorporate it due to time constraints. CDC PLACES provides asthma and chronic obstructive pulmonary disease (COPD) rates by race for adults.. Two limitations of the data are that 1) it is based on modeled prevalence rates, and 2) it does not include prevalence among children. EEP is not aware of a single, complete national dataset for all respiratory conditions and populations (i.e. adults and children, with breakdowns by race and other key demographic and socio-economic characteristics) to include in the EEP map. For local analyses and tracking, we



Risk for COVID-19 Infection, Hospitalization, and Death By Race/Ethnicity

Updated Apr. 29, 2022 CDC Centers for Disease Control and Prevention

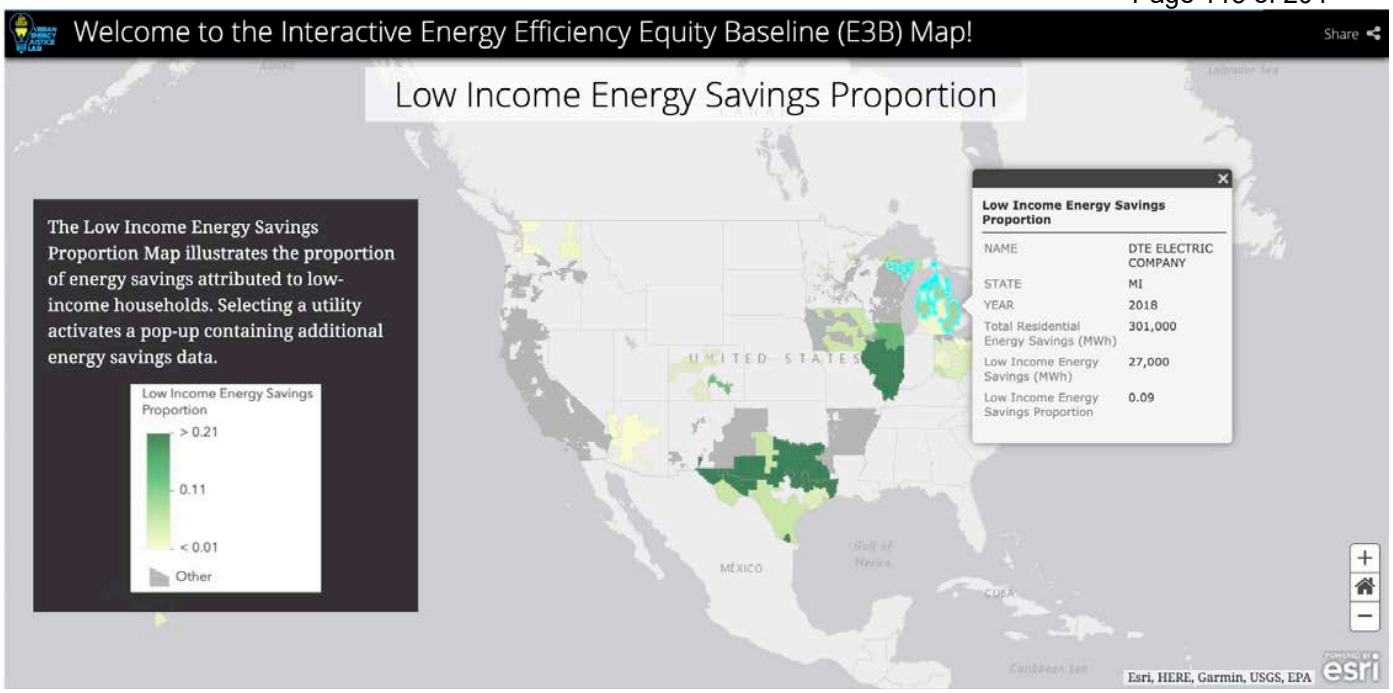
Rate ratios compared to White, Non-Hispanic persons	American Indian or Alaska Native, Non-Hispanic persons	Asian, Non-Hispanic persons	Black or African American, Non-Hispanic persons	Hispanic or Latino persons
Cases[1]	1.6x	0.7x	1.1x	1.5x
Hospitalization[2]	3.1x	0.8x	2.4x	2.3x
Death[3]	2.1x	0.8x	1.7x	1.8x

recommend that datasets from city, county, or state departments of health be utilized as they are likely to be more accurate and encompass all age groups.

Rationale: Nationally, BIPOC and frontline environmental justice communities experience disproportionately high rates of respiratory illnesses like asthma (American Lung Association, 2022). These disparities result from a combination of exposure to outdoor air pollutants from traffic and industrial facilities and from poor indoor air quality, which can be sourced to poor ventilation, moisture (mold and mildew), smoke, and household chemicals. The combustion of natural gas, even if properly vented, can release carbon monoxide and nitrogen oxides, which cause or contribute to an array of health impacts (Seals and Krasner, 2018). Respiratory impacts also disproportionately impact children and older adults and can cause significant absences from school and work. The impacts of pre-existing respiratory distress like asthma were a contributor to higher COVID cases, hospitalization, and death rates among Black, Indigenous, and Latinx people (CDC, 2022).

A primary root cause of these distresses is the neighborhoods where people live. Black neighborhoods were historically selected for the siting of fossil fuel infrastructure and bisected by interstates as part of "urban renewal" (Mohai and Bryant, 2019). Housing segregation and redlining have perpetuated ongoing exposures to outdoor air pollution. Indoor air quality is a major contributor to respiratory conditions, especially in older buildings with deferred maintenance, healthy homes issues, or inadequate ventilation and air filtration. These kinds of building issues are also more common in BIPOC, low-income, and frontline communities (Scheu et al. 2018; McCreery 2018).

Programs that are designed to remediate indoor air quality issues and provide buffers from poor outdoor air quality should reduce respiratory distress among BIPOC and frontline communities, over time. These programs (such as the electrification of school buses) can eliminate current sources of air pollution from diesel engines in neighborhoods.



The E3B Map (Urban Energy Justice Lab) tallied the proportion of savings from energy efficiency programs benefiting low-income customers. Here, DTE Energy shows that 27,000 of 301,000 MWh of total electricity savings, or 9%, benefited low-income customers.
Image source: Urban Energy Justice Lab

For example, when a home has improperly vented combustion appliances this creates an indoor air quality hazard and may lead to carbon monoxide poisoning, and a furnace upgrade should include properly venting the new furnace outside the home. Weatherization measures like air sealing can protect residents from infiltration of outdoor pollutants, and if mechanical ventilation is installed alongside weatherization this can further improve health by improving indoor air quality.

Additional best practices may be needed to achieve greater equity within this metric. These include: dedicating energy efficiency and electrification funding to measures that improve air quality; selecting contractors that have training to improve indoor air-quality, such as LEED-AP certification or certification from the International WELL Building Institute (IWBI), and/or focusing on energy efficiency measures that improve ventilation and filtration and tighten the home's envelope when exposure to outdoor air pollution is high.

Because health improvements are not necessarily observed immediately, we recommend long-term, local tracking of respiratory distress by different populations, particularly by race, proximity to polluting facilities and poor air quality. Data sets from tools such as EPA's EJSCREEN and similar state-specific versions can help identify census tracts most vulnerable to respiratory distress. In the future, local data could be combined into a state-level, regional, or national dataset.

Finally, it is important to note that a variety of other factors influence respiratory health, including factors that are not clearly connected to the energy system. For example, community rates of asthma or respiratory symptoms could drop because of traffic reduction or no-idling efforts rather than the intervention of an energy program. Future analysis should continue to assess the extent of the linkages between the energy system and respiratory health, identify targeted intervention points and track their impacts. Additionally, understanding which communities face the greatest respiratory burden and using that data to target these communities for specific energy efficiency and healthy homes programs is a valuable best practice. Air quality metrics from the Recognition Chapter serve this purpose.

HB6. % BIPOC, frontline, and low-income program participants achieving substantial (>20%) energy savings from building retrofit programs

METRIC STATUS: Priority data gap. Recommend assessing at the scale of a single utility and, including nationally if data can be collected and compiled.

Rationale: The concept behind this metric is that the financial benefits from participating in energy efficiency programs should make a significant difference in people's lives. Programs that generate only minor energy savings, notably direct install programs that offer free LED light bulbs, low-flow sink aerators and showerheads, and pipe insulation

Image source: Jim West/Alamy Stock Photo

are likely to reduce energy consumption by only a few percent. Too often the savings per low income household are lower than they are among non low-income households, because they are unable to access higher impact energy upgrades. In Michigan, for instance, 34% of a utility's customers are low-income, but only 9% of the total energy efficiency program savings benefit those customers.[5] Something is better than nothing, but the focus, particularly for those with high energy burdens and who have been historically underserved by energy efficiency programs, should be on deeper retrofits (e.g. insulation, air-sealing, major improvements to HVAC systems). These retrofits can generate savings of at least 20%, ideally more, which is on par with weatherization programs (DOE 2014). Depending on the local housing stock, deep energy retrofit programs may be able to achieve even higher savings. For example, a recent analysis of Chicago's older single-family and 2-4 unit housing by Elevate and the National Renewable Energy Laboratory found that modeled energy savings of over 50% can be easily achieved in retrofits that include building envelope improvements and upgrades to a heat pump heating system (Laidlaw 2022).

HB7. % Eligible customers served annually by building retrofit programs, or expected time to retrofit all homes with frontline, BIPOC, and low-income families

METRIC STATUS: Priority data gap. Recommend assessing at the scale of a single utility and nationally if data can be collected and compiled.

Rationale: The rate of participation, number of participants and number of years needed to fully serve a frontline community are critical indicators for evaluating distributional equity of a building retrofit program. Together, they present a snapshot of progress made, progress yet to be made, and the resources required to achieve the end goal. However, "Despite the importance of participation, comprehensive program participation analyses remain sparse, and the availability and consistency of participation data vary widely." (2020 Utility Energy Efficiency Scorecard, ACEEE). ACEEE took the initiative to calculate the percent of customers served, however, it did not provide a time horizon based on current funding levels to fully serve the income-eligible population of each utility. Data needed to calculate the time to serve all eligible customers are the number of income-eligible, BIPOC, and frontline households in the utility service territory, number of participants, and funding levels allocated to serve those customers. Participation in income-eligible programs is more commonly tracked, however, in very few cases have utility providers begun tracking program participation by race. DTE recently committed to move in this direction, by geographically targeting underserved communities with energy efficiency program offerings (Walton, 2022).

This metric aims to size the solution(s) to meet the need for building retrofits on a meaningful timescale. One report illustrated this metric well: In Minnesota, over 500,000 homes qualify for the Low-Income Weatherization Assistance Program. Due to funding limitations, only 9% of those households have been served and at current funding levels, it would take, "291 years to weatherize all eligible homes (Clean Energy Resource Teams, 2017)." Importantly, the goal should be to serve all frontline households with significant energy savings—to serve with breadth across frontline community customers *and* with depth in energy savings achieved per household.

[5] Information from the Energy Efficiency Equity Baseline Map (Urban Energy Justice Lab, University of Michigan).

HB8. Disparity in program savings by customer among frontline households and renters

METRIC STATUS: Limited coverage; shift to local measurement. There is limited coverage for publicly available data; for example, Drehobl et al, 2020 (ACEEE) includes data for some Metropolitan Statistical Areas (MSAs). We recommend including this metric if national data can be compiled.

Rationale: As described above for metric HB6, energy efficiency programs can achieve energy and cost savings at varying rates, for example savings for direct install programs that offer LED light bulbs and other small measures will achieve small savings, while more substantial measures like weatherization can produce larger savings.

While metric HB6 addresses the percentage of households achieving deep energy savings from efficiency programs, this metric focuses on differences between BIPOC, low-income, and frontline households versus market-rate or other households undergoing energy efficiency retrofits. The goal is to ensure that weatherization and efficiency assistance programs achieve energy savings on par with or exceeding programs and services for higher-income and white households.

The E3b metric, while primarily used to compare energy efficiency investments to the proportion of a utility's customers who are income-qualified, can also be used to determine shortfalls in energy savings. Energy savings among low-income customers are frequently less than their proportionate investment. In this image of a Michigan utility, for instance, 34% of the customers are low-income, 27% of the program budget is allocated for low-income energy efficiency programs, but only 9% of all program energy savings benefit low-income households (see image on page 113).

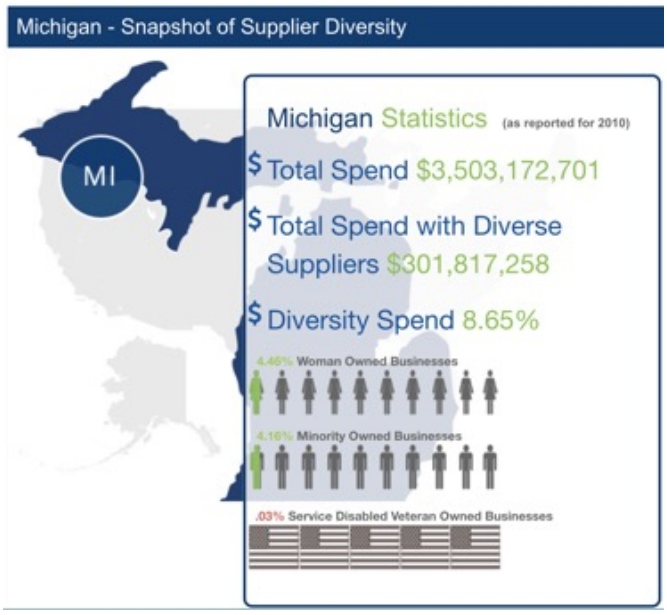
COMMUNITY BENEFITS INDEX

CB1. % of contracts awarded to Black-, Indigenous-, Latinx-, Asian-, women-owned businesses and businesses owned by other marginalized groups including people with a disability and people living in frontline environmental justice communities.

METRIC STATUS: Priority data gap. Some of this data exists by state but not at the census tract level. We recommend including if nationwide data can be collected and compiled, and to evaluate feasibility of including more readily available state-level or utility-level data if census tract data is not available.

Rationale: EEP recommends tracking the percentage of utility or program implementer contracts awarded to "minority-owned" businesses (see specific groups in the metric definition). Utilities typically award contracts through requests for proposals, which could require diversity metrics from bidders. Many states, including Massachusetts and Washington, have or are exploring supplier diversity requirements around energy provision (Massachusetts Governor's Office 2021; UTC 2021, National Utilities Diversity Council), but utilities' economic power extends across the supply chain. To operate their businesses, utilities require everything from toilet paper, budgetary software and HR recruitment services, to project management, construction and event coordination services, all of which represent a constant flow of money. Historically, minority contractors have been underrepresented in energy efficiency retrofit programs, and utilities that require approved contractor pools can unwittingly

The National Utility Diversity Council (NUDC) provides a map of supplier information. However, varying levels of data are available (note this data is from 2010 and useful conceptually, but not for present decision-makers.



create barriers to access for new businesses who would otherwise be well-suited for the work. We recommend including a quantitative metric for the percentage of contracts (both number and monetary value) that are awarded to minority-owned businesses, or minority-led nonprofits, both for utility programs and for utility suppliers in general. Further tracking or certification of supply chain diversity would be valuable.

CB2. Quality of new jobs created by utility programs, and reduction in job quality disparities for frontline workers

METRIC STATUS: Shift to best practice and local measurement, and develop a rating scale. We recommend local measurement of key indicators of job quality, along with development of a clean energy job quality rating scale or index to convert to a quantitative metrics. We encourage regulators and utilities to pursue quantitative data collection and reporting at the local level, and to compile local data into a national metric if it becomes available in the future.

Rationale: Utilities and utility programs create jobs in a various of sectors, including direct employment for utilities and contractors, as well as indirect employment as the economic impacts of utility and energy programs spread throughout the economy (e.g. when a retrofit construction worker buys food at a local restaurant and contributes to local employment overall). Alongside any discussion of job quantity, EEP recommends starting with measuring job quality: to what degree did jobs created by a project or in a jurisdiction consider and incorporate benefits, wages, health and safety risks, etc.? Further work is needed to evaluate potential quantitative metrics or qualitative scales for job quality and whether they should be combined into an index. Further work should also examine different definitions of a 'good' job that may exist in different industries. The University of Buffalo's School of Management issues a Job Quality Index for the private sector, but this considers only wages and the number of working hours as factors in job desirability.[6] Building trades consider prevailing wage instead of living wage—which means implementers and policymakers need to work with labor to define 'good' in a particular context.

The question of whether employment opportunities are equitable will not only consist of evaluating the quality of new jobs and whether those good jobs went to frontline communities, but also the context of whether job opportunities are moving—is there 'net' good job creation? Greater building electrification and solar construction, for example, would likely displace unionized pipefitters who work on natural gas systems. To summarize, there are a variety of nuances associated with job quality that should be considered when developing a rating scale for the quality of new jobs created by utility programs.

CB3. % of new jobs created by utility programs that go to BIPOC and low-income individuals or frontline communities

METRIC STATUS: Limited data availability, shift to local measurement. In the near-term this can be measured at the program, utility, or state level. We recommend development of a metric and reporting process for the long-term and to include nationally if data become available.

Rationale: In addition to the quality of job opportunities, an energy equity score should also measure *who* benefits from those opportunities. What percentage of jobs created by a given project or entity, or within a given time frame, went to frontline communities/households? Similar to the historic underrepresentation of minority contractors, women, Black, Native, and Latinx people are underrepresented in the jobs created by utility programs and in the overall energy industry workforce. We therefore recommend a quantitative metric to track how many net jobs are created by utility efficiency and clean energy programs, and representation of BIPOC, frontline, and low-income communities in those jobs. Measuring jobs created and jobs lost is a complex process, and this metric should take into consideration nuances like indirect versus direct jobs.

CB4. % Electricity generation from renewables

METRIC STATUS: Priority data gap and partially included. This data is available by state (EIA, 2022) and for investor-owned utilities in Rocky Mountain Institute's (RMI) Utility Transition Portal.[7] Data that accounts for distributed generation at the census tract level, however, is not directly available. EEP included census tract level data from Lawrence Berkeley National Lab reports on the median income of households installing rooftop solar, which also includes the number of installations but not the electric output (megawatts).

Rationale: Electricity generation from renewable sources (e.g., solar, wind, biomass, geothermal, hydro, and marine) will have an impact on the economy, environment, and society. According to the U.S. Energy Information Administration (EIA), in 2021, renewables

[6] The Job Quality Index is available at: https://ubwp.buffalo.edu/job-quality-index-jqi/

[7] RMI displays the percentage of each energy generation source for every IOU in the Operations tab from 2005–2020; select the utility or utilities of interest on the left to see their specific data. Another tab shows related emissions data. https://utilitytransitionhub.rmi.org/

accounted for 21% of the U.S. electricity generation with the renewables share divided across solar at 4%, wind at 9%, hydroelectric at 6%, and other at 2% (EIA 2022). The Annual Energy Outlook 2022 (EIA 2022) also shows a projection of 44% electricity generation from renewables to be achieved by 2050.

This continued growth of renewables in the power grid will offer various benefits to communities and electricity customers, including: electric service reliability, security, and resilience; enhanced energy affordability and energy access; reduced emissions and improved air quality; energy independence; and opportunities for job creation and other economic activities (Union of Concerned Scientists 2017). However, access to renewable energy and the benefits it offers has not been distributed equitably. For example, looking at rooftop solar, studies have shown that there is an 80% median rooftop solar potential across all US census tracts and 42% of this potential is within Low- and Moderate-Income (LMI) communities (Reames 2021). However, rooftop solar adoptions have been higher in more affluent households whereas adoption in LMI communities has been limited—in 2018, only 15% of LMI households were solar adopters (Heeter et al. 2021).

These disparities in access to renewable energy can be explained by socioeconomic and demographic characteristics including income (i.e., financing barriers), property ownership (i.e., split incentive for rentals), race and ethnicity, and additional policy and administrative barriers. The following solutions can help mitigate these barriers and advance distributional equity by making clean energy available to underserved communities:

- Community renewable energy: design robust community renewable energy models that allow collaboration between utilities and other relevant stakeholders to increase the percent of renewable energy generation in underserved communities.
- Project financing and ownership: targeted public/private financing mechanisms that provide lower-cost capital.
- Targeted deployment: policy requirements to increase renewable energy deployment to support underserved communities.

We recommend a metric be included for the percentage of electricity generation in a given community that comes from renewable energy. It is important to note that this metric will not provide a complete picture of the impact on communities from renewable energy, and should be included alongside other considerations. For example, although renewable energy generation is typically less harmful than fossil fuel generation and offers a variety of benefits, there are plenty of examples when renewable energy installations are done without community input and with minimal benefit or even harm to the local community (Baker 2021). We also recommend evaluating the possibility of measuring community harms from electricity generation, as discussed in the chapter on Recognition equity.

CB5. Frontline community and climate resilience benefits, and reductions in disparities

METRIC STATUS: Priority data gap; shift to local measurement. We recommend creating a new rating scale. This metric is extremely beneficial if defined and reported at the local level to account for different climate impacts and vulnerability.

Rationale: Energy professionals have often restricted their understanding of resilience to the types of outcomes they can easily see and measure whether power to houses and businesses is continuous or restored quickly after a disaster, and how prepared the poles and wires of the grid are in a given location for disasters or outages. Measurements of these very specific types of resilience are common in energy circles (NARUC 2022). Some utilities go a step further and explore resilience metrics that are about people, rather than about wires and events, such as the Customers Experiencing Multiple Interruptions (CEMI) metric for outages (Avista Corp 2021, Figure 13.7).

"There's a need to take a broader and integrative viewpoint when valuing resilience, one that is inclusive of people and community resilience," (O'Neil et al. 2021). EEP recognizes more work is needed to qualitatively and quantitatively measure resilience benefits, especially for frontline communities. There are two challenges to keep in mind when furthering this work. First, resilience benefits are entirely place-, person-, and community-specific, that is, "priorities are likely to be very different when resilience is approached from the perspective of the impacted community as opposed to the state as a whole," (Rubado et al. 2018). The value of having power on during a wildfire is very different for someone who uses a breathing machine and lives in a mobile home compared to someone who lives in a new, energy-efficient house, for example. Second, jurisdictions may have different definitions of "resilience" and its benefits, which means implementers should be careful not to "double-count" benefits. One community or state might want to measure the amount of back-up power available, another might want to measure built structures' ability to maintain a consistent temperature during an extreme weather event or during a power or heating outage, and a third might want to measure both of those things–but all three should make sure resilience is measured separately from comfort, health, air

quality, etc., which have a lot in common. Third, resilience is place-specific, not just for utility territories, cities, or other jurisdictions, but also down to the level of individual neighborhoods, blocks, and even homes. It is therefore hard to standardize across a jurisdiction, and any metric should account for disparities within a given geographic area.

Finally, while resilience of the energy system is relatively concrete and specific, overall community and climate resilience is much broader. For example, climate resilience includes not just the ability to manage during extreme weather events, but also the ability to maintain affordable energy services and a cool home while every-day outdoor temperatures increase. It encompasses risk of exposure (i.e. the likelihood of experiencing particular climate impacts) and sensitivity of particular populations and adaptive capacity, i.e. the availability of resources (or lack thereof) to preserve physical, social, and economic well-being in the face of harms or challenges (Ribeiro et al. 2015). These concepts are closely tied to all aspects of energy equity, not just distributional. We recommend various potential metrics for community and climate resiliency be reviewed and assessed for inclusion. The U.S. Sustainability Directors Network offers an exemplary compilation of climate resilience resources: https://www.usdn.org/products-climate.html.

Best Practices

MAXIMUM ENERGY BURDEN LIMIT(S)

EEP ranked "establishing a maximum energy burden" as a high priority (4.43). EEP recommends establishing a maximum energy burden of 6%, which EPA and other prominent affordability advocates (e.g. Roger Colton) define as the limit of energy affordability. DOE's Low-income Energy Affordability Data (LEAD) Tool illustrates spatial patterns of Energy Burden by income, and the Greenlink Equity Map (GEM) illustrates energy burden by income and race. Helpful resources include: "How High Are Household Energy Burdens: An Assessment of National and Metropolitan Energy Burdens Across the United States (ACEEE 2020)," "Understanding and Alleviating Energy Cost Burden in New York City (New York City Mayor's Office, 2019)," and "Ten-Year Plan: Reducing the Energy Burden in Oregon's Affordable Housing" (Oregon Department of Energy et al. 2018).

Energy burden is disproportionately experienced between populations when comparing race and income. "According to DOE's Low-Income Energy Affordability Data (LEAD) Tool the national average energy burden for low-income households is 8.6%, three times higher than for non-low-income households which is estimated at 3%. In some areas, depending on location and income, energy burden can be as high as 30%," (DOE State and Local Solution Center 2022). High energy burdens illustrate energy insecurity that leads to, "one in five households reported reducing or forgoing basic necessities like food and medicine to pay an energy bill and 14% reported receiving a disconnection notice for energy service. Households may have also used less energy than they would prefer to: 11% of households surveyed reported keeping their home at an unhealthy or unsafe temperature," (EIA 2015.)

In practice, a maximum energy burden would require income verification and utility bill limitations. This would require payment support and should be structured to target and drive investments in energy efficiency improvements and renewable energy installations necessary to eliminate the excess energy burden. According to ACEEE, "weatherization can reduce low-income household energy burdens by about 25%, making it an effective strategy to reduce high energy burdens for households with high energy use while also benefiting the environment," (ACEEE 2020).

EEP did not identify a jurisdiction that currently has an energy burden maximum in place. Percentage of Income Payment Plans (PIPP) are the closest current mechanism for establishing a cap on energy

burdens. Proposing maximum energy burdens may be particularly applicable for renters, who have minimal control over the efficiency or energy supply of their homes. This best practice would protect renters from the burden of paying high utility bills due to energy-intensive housing. Ideally, this best practice should be structured so that the burden of proof in reporting does not fall solely on renters, and that barriers to reporting unfairly high energy burdens are minimized.

ARREARAGE MANAGEMENT PLANS (AMPs)

Arrears Forgiveness Policies or Management Plans are programs designed to reduce or eliminate customer past due balances. These can be done as part of a discounted bill program, or as a "reward" for customers paying their current bill in full for a determined amount of time. Another format would be a one-time assistance payment. LIHEAP dollars can be used in multiple ways to pay down customer arrears through the state or grantee's crisis assistance program and/or their bill assistance program. States, non-profits, and utilities can also establish their own AMPs. In general, EEP recommends a best practice of offering an arrears management or forgiveness program to any customer with a past-due balance, and structuring these programs in such a way that they do not excessively increase ongoing bills. These programs should enable customers to maintain service and avoid shut-offs, and allow low-income customers to manage and reduce their arrears while keeping their bills below an energy burden limit of 6%. AMPs are especially critical as many U.S. households were unable to keep up with their bills during the COVID-19 crisis, and shut-off moratoriums during the pandemic resulted in very high arrears balances (Sainato 2021).

LOW PRIORITY METRICS AND BEST PRACTICES

The Distributional Equity Workgroup evaluated and decided not to include a variety of other potential metrics and best practices related to energy

Chart 4: PIPP Discount – 6% Target Burden:
Undiscounted and Discounted Electricity Burdens by Selected Household Income

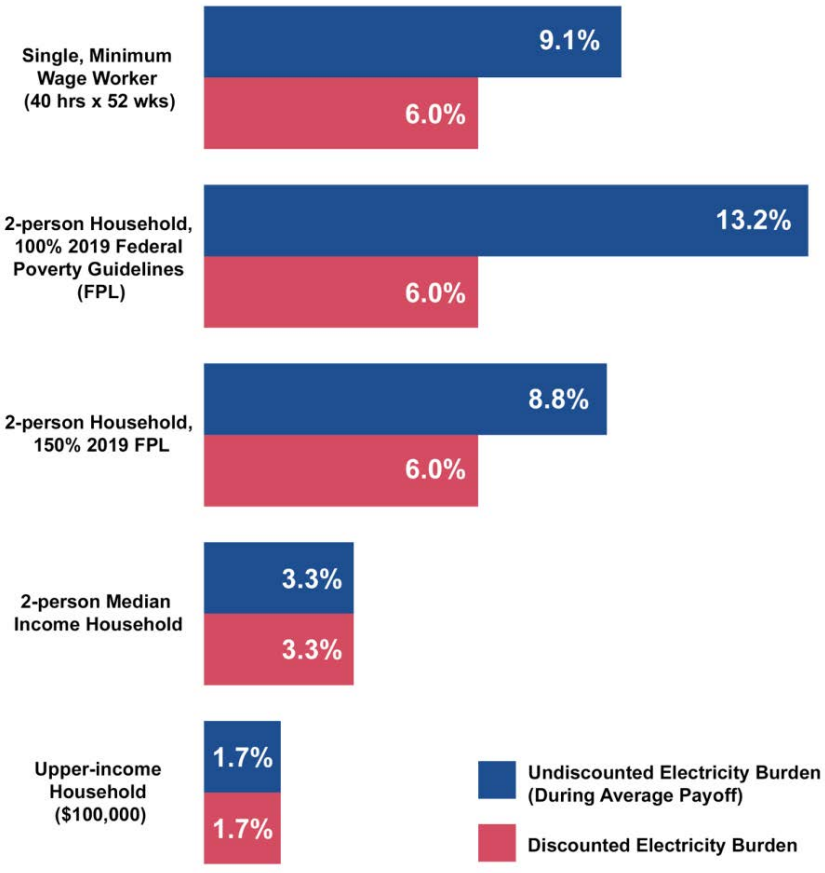


Image source: National Consumer Law Center, 2020. Electric service discount and AMP design, p.20. https://www.nclc.org/images/pdf/special_projects/covid-19/WP_Program_Design_Template.pdf

affordability, household benefits, and community benefits. These other metrics and best practices were excluded for various reasons, including: not being fully aligned with distributional equity principles; not sufficiently reflective of the relevant index (e.g. household energy affordability); possibility of creating perverse incentives; lack of alignment with the best ways to distribute benefits to frontline households and communities; focusing too much on program delivery process details or specific technologies and not enough on the relevant outcomes (e.g. households or communities receiving benefits); program characteristics or approaches that might not improve equity or provide community or household benefits in all contexts; redundancy with other metrics; or other reasons.

Energy affordability metrics and best practices that we evaluated and decided not to include:

- Free or discounted first block of energy consumption
- Enabling subscriptions in community-owned Distributed Energy Resources (DERs)
- % of safety net funds directed toward deep retrofits or DERs
- Transit affordability
- LIHEAP allocation per eligible household
- Rate offsets for electrification or electric vehicles (EVs)
- Beneficial time of day (TOD) and demand response (DR) rates
- Disparity in rates between residential vs commercial & industrial
- Disparate application of rate incentives (e.g. demand response/time of day rates) among BIPOC, frontline, and low-income communities
- Energy burden floor for high income households

Household benefits metrics and best practices that we evaluated and decided not to include:

- % clean energy investments overlapping with healthy homes investments
- % rebates and tax incentives received by BIPOC, frontline, and low-income households
- Total amount or size of clean energy programs
- Selection of a cost effectiveness test for efficiency or other programs

Community benefits metrics and best practices that we evaluated and decided not to include:

- Policy support for BIPOC, frontline, and low-income locally owned contractors
- Electrification, EV-ready, and/or EV charging ordinances
- % of buildings electrified
- % efficiency potential achieved
- % residentially-owned solar potential achieved
- % served by a microgrid
- % distributed energy storage achieved
- Cost per ton of CO2 reduced
- Ordinances specifying no new natural gas buildings

DISTRIBUTIONAL MEASURES SUMMARY

Energy Affordability Index
- EA1. % eligible customers served by financial assistance programs
- EA.2 Average energy burden among low-income households, BIPOC, and frontline households, and/or other disproportionately impacted groups (e.g. renters)
- EA.3 % of eligible customers served by Percentage of Income Payment Plans (PIPPs)
- EA4. Amount of fixed charges on utility bills

Household Benefits Index
- HB1. E3b spending and savings for low-income, BIPOC-FL households, renters, etc.
- HB2. E3b at the program level, especially for deep energy retrofits, distributed energy resources, electric vehicles, electrification, etc.
- HB3. % eligible customers needing healthy homes measures served
- HB4. Improved indoor air quality in BIPOC-F-LI households
- HB5. Reduction in respiratory distress and disparities among BIPOC-F-LI households
- HB6. % BIPOC, frontline, and low-income program participants achieving substantial (>20%) energy savings from building retrofit programs
- HB7. % eligible customers served annually by building retrofit programs expected time to retrofit all homes with frontline, BIPOC, and low-income families
- HB8. Disparity in program savings by customer for and frontline households and renters

Community Benefits Index
- CB1. % of contracts awarded to Black-, Indigenous-, Latinx-, Asian-, women-owned businesses and businesses owned by other marginalized groups including people with a disability and people living in frontline environmental justice communities.
- CB2. Quality of new jobs created by utility programs, and reduction in job quality disparities for BIPOC-F-LI workers
- CB3. % of new jobs created by utility programs that go to BIPOC-F-LI individuals or communities
- CB4. % electricity generation from renewables
- CB5. Frontline community and climate resiliency benefits, and reductions in disparities

Best Practices
- Maximum energy burden limit(s)
- Arrearage Management Plans (AMPs)

Other Potential Metrics and Best Practices

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"Restorative justice is about the idea that because crime hurts, justice should heal. It follows that conversations with those who have been hurt and with those who have afflicted the harm must be central to the process."

JOHN BRAITHWAITE[1]

Restorative Justice does not have a single unified definition, instead it is often a concept used to capture the many different practices centered around repairing harm and relationships.[2, 3, 4] Although it emerged in the mid to late 1970s in relation to criminal justice studies, much of the values, principles, and practices of restorative justice can be traced back to Indigenous cultures.[5, 6]

Recently restorative justice has begun to be applied to issues concerning energy and the environment. Restorative justice plays a vital part within the concept of energy justice as it aims to repair injustices arising from energy decision-making.[7] It encourages decision-makers to ensure that all potential harms and injustices that may arise are addressed, and prevention, mitigation, and restoration plans are implemented. Still, restorative justice is a relatively novel concept and there is still much left to understand about its role in energy justice.

[1] John Braithwaite, Restorative Justice and De-Professionalization, The Good Society, Volume 13, No. 1, 2004

[2] Jennifer J. Llewellyn, Transforming restorative justice, The International Journal of Restorative Justice 2021 vol. 4(3) pp. 374-395

[3] The Federal-Provincial-Territorial Ministers Responsible for Justice and Public Safety defines restorative justice as "an approach to justice that seeks to repair harm by providing an opportunity for those harmed and those who take responsibility for the harm to communicate about and address their needs in the aftermath of a crime." (Principles and Guidelines for Restorative Practice in the Criminal Matters, 2019)

[4] Tony Marshall defined restorative justice as "a process whereby all the parties with a stake in a particular offence come together to resolve collectively how to deal with the aftermath of the offence and its implications for the future" (Marshall 1999: 5)

[5] M.Hazrati & R.J.Heffron, Conceptualizing restorative justice in the energy Transition: Changing the perspectives of fossil fuels, *Energy Research & Social Science,* Volume 78, August 2021, 102115

[6] Ted Lewis (Author), Carl Stauffer (Editor), Fania E. Davis (Foreword), Listening to the Movement: Essays on New Growth and New Challenges in Restorative Justice, Cascade Books (Feb. 21 2021), p. xxii

[7] M.Hazrati & R.J.Heffron, Conceptualizing restorative justice in the energy Transition: Changing the perspectives of fossil fuels, Energy Research & Social Science, Volume 78, August 2021, 102115

Photo by Markus Spiske on Unsplash

The restorative justice dimension of the Energy Equity Project is a dynamic framework that evolved and grew to reflect the complexity and interconnectedness of the ecological, social, economic, and equity dimensions of the energy system. Our goal with the restorative justice chapter is to provide a pathway that will guide and inspire energy system practitioners in their work to cultivate accountability, healing, and resilience.

Approach

The restorative justice chapter has been separated into 2 parts. The first part is dedicated to exploring the concept of restorative justice and its core principles in more detail. Case studies are included to showcase how these principles can be applied in real-life projects and how this can lead to repairing some of the harms brought on by the energy sector. The second part is centered around existing legal and regulatory frameworks that can be used to identify potential injustices and harms that can result from a proposed project. These frameworks could help identify ways to circumvent these or develop action plans for reparations, if unable to do so. This part is also looking at utility reforms to incentivize support for a just and equitable transition. The following section outlines how we as a group ended up with this structure.

CORE PRINCIPLES AND INDICES

The workgroup of the restorative justice dimension consisted of 11 members, representing 10 organizations from various sectors and diverse backgrounds. Initially, the restorative justice dimension was only described using one index, energy democracy. This was, in this framework, defined as *"the notion that communities should have a say and agency in shaping and participating in their energy future"*. As the workgroup went through the previously recorded listening sessions, and a series of discussions organized around the concepts of energy democracy and restorative justice, it became apparent that the concept of energy democracy, while a crucial ingredient, does not fully amount to the transformational and far-reaching work we wish to achieve. **Figures 1 and 2** show some of the questions that were raised during our discussions and a snapshot of one of the jamboard pages.

Figure 1. This figure showcases some of the questions asked during our discussions.

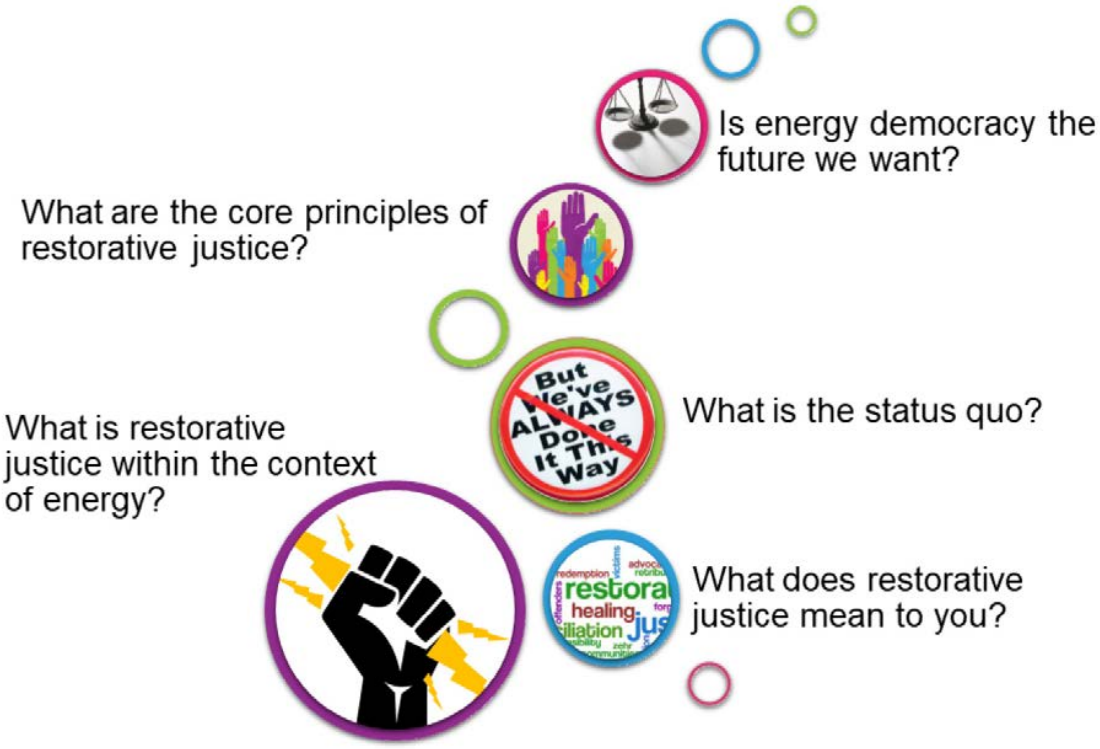

Figure 2. A snapshot of one of the jamboard pages designed to break down "What does Restorative Justice mean to you?"

Relying on listening sessions, conversations, and research, the workgroup decided that the following indices are of importance to the dimension:

- *Indigenous Sovereignty*
- *Power to the People,* and
- *Accountability and reparations*

These indices are all interconnected, and so the restorative justice dimension cannot be represented by a hierarchical figure, instead, we draw your attention to **Figure 3**, showing the deep interconnectedness of the 3 indices.

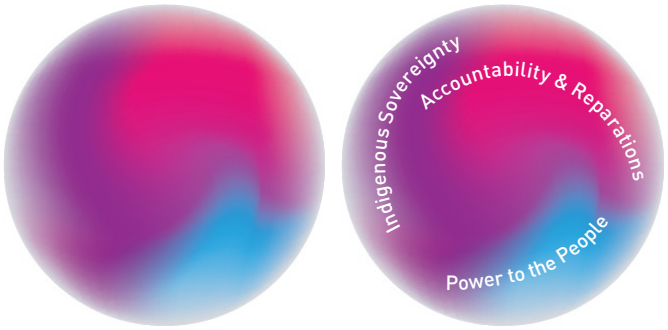

Figure 3. A visual representation of the restorative justice dimension, each index is represented by a color.

The restorative justice workgroup defined core principles for each index to guide us through the research and development process of the dimension. These principles were developed and reevaluated as the workgroup sought feedback and expertise from advisors, Indigenous leaders, community members, and activists.

SUB-DIMENSION	CORE PRINCIPLES
Indigenous Sovereignty	· Restoring balance · Healing our relationship to the land, water, air and all our relations · Environmental justice in the context of land · Traditional knowledge and sacred ways of knowing and teaching
Power to the People	· Shifting the power · Decentralization · Degrowth
Accountability and Reparations	· Transparency · Accountability · Reparations

A NARRATIVE APPROACH

After defining the indices of Restorative Justice and corresponding guiding principles, we moved on to brainstorm and compile metrics that would enable the measurement of progress made towards each index. This turned out to be challenging.

The restorative justice dimension is centered around core concepts such as healing and restoring our relations. As these concepts are deeply subjective, making tracking their progress difficult. Additionally, in order to quantitatively track progress, there needs to be a baseline for comparison. But restoring back to the current status quo is not a victory for BIPOC communities. The work of restorative justice goes beyond restoring to generating something that we may never have had. How can we quantitatively measure progress towards a beautifully undefined better future defined by systems and relationships that do not currently exist?

Our Restorative Justice workgroup believes that the narrative approach to defining our indices will provide the structure and inspiration needed to support energy practitioners on their journey to creating an equitable energy future while retaining the flexibility and boundlessness that this work demands. For the Restorative Justice dimension of energy equity, we provide

- *Explanations and storytelling* of why each index matters
- *Analysis* of what is lacking in or wrong with our existing energy systems and where opportunities for enhancing equity lie
- *Case studies* showcasing examples of where issues have been addressed, not addressed, or addressed badly

We recognize that we all operate within systems that often demand quantification and categorization of work, and a cut-and-dry template for quickly displaying results. This narrative approach to the restorative justice dimension cannot help you meet those needs. We ask that stats-minded, quantitatively-oriented folks bring an open mind to engaging with this part of the Restorative Justice dimension, and we hope that our narrative structure will provide inspiration and insight that will guide you in your work.

Source: A Message from the Future with Alexandria Ocasio-Cortez

PREVENTATIVE MEASURES AND UTILITY REFORMS

The second part of this work is focused on preventative measures and utility reform. The preventative measures section is aimed at discussing existing legal frameworks that can be used to identify where injustices may arise in the future and how they can be avoided or repaired. We also try to pinpoint weaknesses in these mechanisms and provide suggestions on how to address these.

One large piece of why restorative justice is needed in the first place is that the energy sector has constantly put profit over people (and nature). This chapter would not be complete without a closer look at the business model of utilities and a discussion around how this prevents the adoption of renewable and energy efficiency projects and potential reforms that can counteract this.

CASE STUDY OVERVIEW

INDIGENOUS SOVEREIGNTY	
CASE STUDY	**TAKE AWAY**
Old Crow solar farm	This case study is a good example of how the meaningful inclusion of community members during the planning and visioning phase of a renewable energy project led to the preservation and conservation of native plants, the permafrost, the Vuntut Gwitchin Nation's traditional way of life, and cultural sites.
Red Crow Community College	This case study showcases how programs built around Traditional Knowledge can lead to transformative change in the way we view the natural world and our other-than-human kin. By centering caretaking within our relationship with the land and each other, we would be able to create thriving and sustainable communities.
Nuiqsut, Alaska	This case study highlights the importance of understanding the costs of energy extraction on communities and the environment and weighing the economic benefits of such projects against the devastation of ecosystems and community wellbeing.

POWER TO THE PEOPLE	
CASE STUDY	**TAKE AWAY**
One Voice's Energy Democracy Initiative and the Electric Cooperative Leadership Institute (ECLI), Mississippi	This case study shows the role of education to increase engagement and participation. It is an example of how community education efforts can transform existing institutions and bolster community ownership.
Coquí Solar, Puerto Rico	This case study highlights the role renewable energy can play in democratizing power and how community responsibility can build community power.
Machynlleth, Wales	This case study is a good example of how decentralized power can be coupled with degrowth values, especially with the support of energy education.
Buen Vivir, Bolivia & Ecuador	This case study shows how indigenous philosophies can be a source for decentralizing power away from for-profit entities and humans to sharing power with nature and our non-human kin.

ACCOUNTABILITY & REPARATIONS	
CASE STUDY	**TAKE AWAY**
Garrett vs. Williams	This case study is a good example of how reparations between a corporation and Indigenous communities can be performed. The restorative justice conference provided an opportunity for the victims to stipulate their terms for reparations and for the offender to take responsibility by honoring these.
ECHO Notify	This case study outlines ways to increase transparency and how this can be leveraged by the public, as well as regulators and policymakers, to achieve positive behavior change in corporations.
Debt Justice for Climate Reparations	This case study showcases one way that the Global North could take responsibility for its dominating role in shaping the global economy and climate change to the detriment of the Global South by offering a debt restructuring and debt cancellation program.

PART ONE

The Path from the Past to the Future

While fossil fuels were key to industrialization and rising prosperity for some nations, it has resulted in rapid destruction of global ecosystems, displacement of Indigenous Peoples in the name of energy extraction, and has arguably led the world to the current complex economic, ecological, and neocolonialist crises. These crises are felt by all communities around the world, but according to the IPCC,[8] BIPOC communities suffering from historical and ongoing patterns of inequity brought on by colonialism, are the most vulnerable.

Members of these groups often live in sacrifice zones or are forcibly displaced from their homes in the name of energy extraction and profits.[9] Colonialism brought on this vulnerability by not only stealing the land and displacing local communities, but also by devastating ecosystems and our other-than-human relatives. Colonial structures are not a thing of the past, they still run deep within the injustices entrenched in the energy system and the powers that control it.

Colonialism fuels the narrative that 'selected' human societies are superior to the Earth, its ecosystems, and our other-than-human relations. This belief has shaped many societal, cultural, and economic values of modern societies to pave the way for the exploitation of our planet and many communities in the name of perpetual growth. Othering[10] of Black and Brown bodies, Indigenous nations, other-than-human relatives, and the Earth has unleashed tremendous amounts of violence, trauma, and loss upon these communities, groups, and our planet.

As we reflect upon the complex challenges of our world, it becomes increasingly clear that our social and climate justice movements are deeply interconnected. The liberation of Black and Brown bodies, the struggle for environmental and energy justice and Indigenous sovereignty, all intersect in the collective struggle for decolonization. Restorative Justice, embedded

Photo by Logan Weaver | @LGNWVR on Unsplash

"Black and First Nations communities are fighting against the same system of colonization and white supremacy that created two different, but not dissimilar, legacies of poverty, incarceration, and socioeconomic and health disparities."[11]

REGIONAL CHIEF MARLENE POITRAS

"What's often downplayed is the revolutionary potency of what Indigenous resistance stands for: caretaking and creating just relations between human and nonhuman worlds on a planet thoroughly devastated by capitalism."[12]

NICK ESTES (KUL WICASA)

[8] IPCC Sixth Assessment Report-Summary for Policymakers Headline Statements, https://www.ipcc.ch/report/ar6/wg2/resources/spm-headline-statements/ 28 February 2022

[9] Diego Andreucci, Christos Zografos, Between improvement and sacrifice: Othering and the (bio)political ecology of climate change, Political Geography, (https://www.sciencedirect.com/science/article/pii/S0962629821001724)

[10] john a. powell and Stephen Menendian, The Problem of Othering: Towards Inclusiveness and Belonging, https://www.otheringandbelonging.org/the-problem-of-othering/

[11] Marlene Poitras, In Solidarity With The BLM Movement, Assembly of First Nations, http://www.afnab.ca/News-and-Events/BLM-Statement

[12] A Red Deal, Nick Estes (Kul Wicasa), https://www.jacobinmag.com/2019/08/red-deal-green-new-deal-ecosocialism-decolonization-indigenous-resistance-environment

in restoring people, the earth, and communities, has emerged as a holistic pathway to honor the intersectionality of our complex crises and guide our collective efforts to decolonize our systems, our ways of life, and our vision of the future.

Decolonization is the first step to envisioning a different world, a world built upon cultures of care and healing. The strategies needed for this collective vision are deeply rooted in Indigenous resistance in pursuit of nationhood and sovereignty. Transforming our relationships to one another and to the Earth, restoring balance, reciprocity, sovereignty, and stewardship are pillars of many Indigenous knowledge systems that are the guiding principles of the restorative justice workgroup. Borrowing from Indigenous knowledge systems and grassroots movements, we have collectively defined restorative justice as *"a holistic understanding of equity that recognizes past and current energy injustices allowing us to form a pathway to heal our relationship to the land, water, air, and all our relatives."*

Indigenous Sovereignty

"The rights of human beings and the rights of nature are two names of the same dignity."

EDUARDO GALEANO[13]

The forces of colonialism shape Indigenous Peoples' lives all over the world every day. Energy projects often violate Indigenous lands, and expose Indigenous peoples to environmental risks, threatening their livelihoods, health, and cultural values. At the heart of the controversies surrounding these projects lies Indigenous Sovereignty, the inherent rights of Indigenous Peoples over their lands, traditional territories, and resources.

As authors of this chapter, we recognize that we are not Indigenous to the land that we occupy. However, we believe it is our duty to acknowledge and integrate the principles of Indigenous Sovereignty into the vision for restorative justice as people reap the benefits of western colonialism and land theft. Furthermore, we are deeply aware of the fact that Indigenous peoples across the globe are not a monolithic group. Our attempt at defining Indigenous sovereignty is grounded in a recognition of the historic and contemporary role Indigenous communities play in maintaining a restorative and regenerative relationship with the land and our non-human kin. This attempt is not meant to define and or determine sovereignty for the diverse, varied, and self-determining Indigenous peoples of the world.

Restorative justice originates from the idea of restoring something back to its original condition after harm is done. The original harm in North American history was perpetrated against Indigenous communities and their territories. European colonists used the centuries-old *Doctrine of Discovery* to gain title to the lands they "discovered", and Indigenous inhabitants lost their natural right to that land once the Europeans claimed it.[14] Under this legal cover for theft, Euro-American wars of conquest and settler colonialism devastated Indigenous Nations and communities, ripping their territories away from them and transforming the land into private property, real estate." With settler colonialism's manifest for extraction and expansion, an intricate and advanced system of communal politics, land stewardship, and regenerative agriculture was marred and transformed by a mechanistic philosophy.

Fossil fuel extraction was a vital tool for rapid industrialization in the 19th century. This industrial revolution built our modern-day energy system, on the backs of land theft and slave labor—colonized forms of private property. At the root of it, all was the inferiorization and infantilization of Indigenous ways of being. As Amitav Ghosh eloquently puts it, "[t]o *remake immense stretches of terrain to suit the lifestyles of another continent invariably entailed the undermining and elimination of the ways of life of those who inhabited those lands for many thousands of years."*[15] This project of erasure has led us to this moment of crisis: the climate crisis.

In order to respond to the climate crisis, we must transition away from extractivism, racial capitalism, and neocolonialism. This requires our current and future generations to reckon with the attempted erasure of Indigenous Peoples and cultures and how this history shaped the path to this moment. But reckoning cannot begin without recognizing, upholding, and rehabilitating Indigenous rights and sovereignty. Only by restoring our collective relationship to the land and our non-human kin can we create a thriving ecosystem and communities. This effort/restoration must be guided by Indigenous Peoples, as they are the ones who were the originators of the philosophy of humans as part of nature, not separate from it.

As a starting point for developing this index, we held one listening session (February 2022) with about 40

[13] Eduardo Galeano, Message to the Mother Earth Summit, https://climateandcapitalism.com/2010/04/21/eduardo-galeano-message-to-the-mother-earth-summit/, April 21, 2010

[14] An Indigneous People's History of the United States, Roxanne Dunbar-Ortiz.

[15] The Nutmeg's Curse. Amitav Ghosh. Page 55.

Figure 4. A snapshot from one of the breakout sessions focused on *Healing Our Relationship to the Land, Water, and Air & All Our Relations*. As a starting point we asked the question, *How can the transition to renewable energy ensure that nonhuman relatives are not forgotten, abused, or mistreated?*

Indigenous leaders across the U.S. and Canada. The listening session was framed along with four different themes:

- Restoring balance: shifting away from the colonizer's view of power, ownership, and growth
- Healing our relationship to the land, water, and air & all our relations: returning to our sacred duties
- Environmental justice in the context of land: land as nationhood
- Traditional knowledge & sacred ways of knowing and teaching: decolonizing the energy story and conversation

Our session was framed broadly around these themes, so the issues, concerns, and ideas that emerged from this listening session were broadly applicable to the fight for Indigenous sovereignty. A snapshot from one of the breakout sessions can be seen in **Figure 4**.

ATTACK ON INDIGENOUS SOVEREIGNTY

A good example of contemporary colonialism is the Trans Mountain Pipeline Expansion project (TMX) in British Columbia (BC), Canada. In 2012, a proposal was brought forward to triple the capacity of the existing pipeline.[16] Despite being contested by over two-thirds of the First Nations impacted by the project, and the lack of consent to build through their territories, the extension was approved.[17] The Canadian government justified the violation of Indigenous law by referring to national "interests" such as economic growth, job creation, and increased tax revenues.[18]

What is particularly interesting in this case, is that both the provincial (BC) and the federal government have incorporated the United Nations Declaration on

[16] Expansion Project, https://www.transmountain.com/project-overview

[17] No Trans Mountain Pipeline, https://www.wildernesscommittee.org/noTMX

[18] Emiliano Castillo Jara & Antje Bruns,Contested notions of energy justice and energy futures in struggles over tar sands development in British Columbia, Canada, Futures Volume 138, April 2022, 102921, doi: https://doi.org/10.1016/j.futures.2022.102921

the Rights of Indigenous Peoples (UNDRIP).[19] Central to UNDRIP is the Free, Prior, and Informed Consent principle, stipulating that Indigenous People can give or withhold consent to a project that may affect them or their territories.[20, 21] This principle was not respected by the Canadian government. Instead of engaging in a meaningful dialogue, the consultation seemingly appeared to have been performed with the intention of ignoring the right to withhold consent to the TMX, rendering the consultation toothless. This is not surprising as the government of Canada views the UNDRIP legislation as having "no *immediate impact on existing law and is simply 'a forward-looking statement of intent that contemplates an action plan' yet to be prepared and implemented by either level of government."*[22]

[19] Arend J.A. Hoekstra et al. BCSC Decision Suggests Implications for UNDRIP Legislation in Canada, https://cassels.com/insights/bcsc-decision-suggests-implications-for-undrip-legislation-in-canada/, 18 Jan 2022

[20] United Nations Declaration on the Rights of Indigenous Peoples, https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html

[21] Free, Prior, and Informed Consent, https://www.fao.org/indigenous-peoples/our-pillars/fpic/en/

[22] Thomas and Saik'uz First Nation v Rio Tinto Alcan Inc., 2022 BCSC 15 (CanLII), https://canlii.ca/t/jlnn6, retrieved on 2022-04-23

Image source: Aditi Bansal, member of the Restorative Justice working group

Image source: Aditi Bansal, member of the Restorative Justice working group

JUST TRANSITION

The Just Transition[23, 24] framework has been forged by Indigenous Nations and leaders for years. These strategies call for a deep transformation of the global economic, cultural, and social structures. Indigenous Nations are reimagining a future where care and well-being are central to the economic system, our relationship to the Earth, each other, and our other-than-human relatives are restored, and Indigenous communities assert their sovereignty through democratized, decentralized, and regenerative energy systems.[25] Indigenous Just Transition movements center "all relations" and offer a more holistic conception of justice to address the multi-dimensional challenges of our time, including the energy transition.[26]

An Indigenous Just Transition pathway also highlights the importance of healing justice to recognize historical harm to communities and the Earth, traumatic implications of land theft and colonization on Indigenous Nations, and to center decolonization in all Just Transition strategies. By implementing the Just Transition strategies, Indigenous Nations embark on their journey to heal and revitalize their ways of living and knowing by shifting away from the dominant system of capitalism.

To assert their sovereignty, many Indigenous Nations have started to develop small-scale renewable and sustainable energy projects led by their unique knowledge systems, community processes, laws, values, priorities, and needs. These community-based projects act as a foundation for Indigenous Nations to build sustainable, localized, and regenerative economies for the next seven generations.

[23] From Banks and Tanks To Cooperation and Caring: A Strategic Framework for a Just Transition. Movement Generation: Justice & Ecology Project. https://movementgeneration.org/wp-content/uploads/2016/11/JT_booklet_English_SPREADs_web.pdf

[24] Just Transition | Indigeonus Environmental Network. https://www.ienearth.org/justtransition/

[25] From Banks and Tanks To Cooperation and Caring: A Strategic Framework for a Just Transition. Movement Generation: Justice & Ecology Project. https://movementgeneration.org/wp-content/uploads/2016/11/JT_booklet_English_SPREADs_web.pdf

[26] Deborah McGregor, Steven Whitaker, Mahisha Sritharan, Indigenous environmental justice and sustainability, Current Opinion in Environmental Sustainability, Volume 43, 2020, Pages 35-40, ISSN 1877-3435, https://doi.org/10.1016/j.cosust.2020.01.007. (https://www.sciencedirect.com/science/article/pii/S1877343520300075)

CASE STUDIES

This section showcases examples of how principles of the Indigenous Sovereignty Index have been implemented in practice.

Old Crow solar farm

The Vuntut Gwitchin First Nation community of Old Crow is a small rural community with 250 inhabitants.[27] The community lies 80 miles North of the Arctic Circle in the Yukon Territory and is not connected to any road system. Its isolated state has left it dependent upon diesel that has to be flown in, leading to high economic and environmental costs. In 2008 the Vuntut Gwitchin Government started to investigate the potential development of renewable energy alternatives to gain long-term energy sovereignty and security.[28]

"Our people have been occupying this area as archaeological evidence suggests going back 27,000 years. So, I constantly ask myself: How were our people able to thrive in this inhospitable environment? Because we survive off the energy systems local to our areas, the energy in the plants, the animals and in the nutrients—all driven by the sun."[29]

What makes this project unique is the meaningful inclusion of the community members from the beginning.[30] Through a series of sessions, attended by everyone from young children to elders, a community vision was developed. Early on, a potential conflict arose as the best location for the solar farm was at the heart of an area traditionally used for gathering berries.[31] A compromise was reached by making sure to replant native plants on the site once construction was completed. The site was also to remain completely open, allowing citizens, and local wildlife to forage freely.

Another important aspect was to preserve the fragile permafrost. The thawing of permafrost is a major concern for Indigenous People living north of the Arctic circle. As it thaws it can deposit organic matter into the water, upsetting aquatic ecosystems and threatening important cultural sites.[32, 33] These and many more issues are having a profound effect on their traditions. To minimize any disruptions of the permafrost, the design team collaborated with a Vuntut Gwitchin contractor to gain local knowledge.[34] The collaboration led to a tailored design, preventing heat and water from entering the ground.

Once fully operational, the solar project will be able to replace 190,000 liters of diesel per year, reducing greenhouse gas emissions by 680 tons of carbon dioxide, the equivalent of removing 140 cars off the road.[35]

"The whole process was really centered around community leadership, medical experts, harvesters, not just to design it, but how to build and maintain the solar farm." – quote an EEP listening session participant, February 21, 2022.

Red Crow Community College

Prior to colonialism, Indigenous Peoples had their own self-governing and education systems.[36] They relied on Traditional Knowledge,[37] gained over the centuries about the local culture and environment, allowing them to sustain and adapt themselves to their environment over time. Children were educated in many different ways including oral teachings, hunting, demonstrations, and participating in spiritual rituals. Once the colonizers arrived, European classroom-style education was used as a tool to sever the children's ties with their culture and language. It taught the children to "distrust their Indigenous knowledge systems, their elders' wisdom, and their own inner learning spirit".[38] This practice continued in Canada up until the 1970s.[39]

Traditional Knowledge can play a vital role in restoring the health of our planet.[40] It contains an abundance of wisdom gained over millennia from direct observations, and (often) handed down orally. Although facing suppression in the past, Traditional Knowledge is slowly gaining the respect it deserves, especially within the realm of sustainable living and the protection of biodiversity.

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[27] Powered by Nature: The Old Crow Solar Project, https://www.arctic-council.org/news/the-old-crow-solar-project/, 14 Dec 2020

[28] Ibid.

[29] Ibid.

[30] Ibid.

[31] Old Crow Solar project, https://s3.ca-central-1.amazonaws.com/medias.bba.ca/documents/pdf/oldcrow-spread-web-EN.pdf

[32] Kenyon Wallace, Beyond Frozen, https://projects.thestar.com/climate-change-canada/nunavut/, July 4 2019

[33] Permafrost thaw brings major problems to Canada's Northern Arctic communities, https://www.nrcan.gc.ca/simply-science/permafrost-thaw-brings-major-problems-canadas-northern-arctic-communities/23233, 2021-01-04

[34] Old Crow Solar project, https://s3.ca-central-1.amazonaws.com/medias.bba.ca/documents/pdf/oldcrow-spread-web-EN.pdf

[35] Ibid.

[36] Harvey A. McCue, Education of Indigenous Peoples in Canada, https://www.thecanadianencyclopedia.ca/en/article/aboriginal-people-education, January 28, 2020

[37] Traditional Knowledge, Assembly of First Nations, https://www.afn.ca/uploads/files/env/ns_-_traditional_knowledge.pdf

[38] Make Space for Indigeneity: Decolonizing Education, SELU Research Review Journal, 2016, 1(2), 49–5

[39] Ibid.

[40] Fulvio Mazzocchi, Western science and traditional knowledge: Despite their variations, different forms of knowledge can learn from each other, EMBO Rep. 2006 May; 7(5): 463–466

Red Crow Community College[41] is situated in the Blackfoot First Nations Reserve of southern Alberta. The school once occupied the same building that housed the St. Mary's residential school that many of the Red Crow College teachers were forced to attend. The community took the space and their own history back by reclaiming their knowledge systems and re-imagining education. The college developed the *"Kainai Studies"* program, open to the new generation of Blackfoot and non-Blackfoot students. Here they are taught the language, knowledge, and practices that have allowed people to thrive in this region for thousands of years.

One example of how this program is different compared to the European classroom-style education is the class on *Blackfoot ecological knowledge and traditional foods*.[42] Students have no required readings but are instead asked to spend a few hours a day, three days a week outside at the same spot. As the seasons come and go, the participants start to notice the little things. They are able to identify who lives in this nook of the land, what grows here, and where. They are able to gain firsthand experience of how the seasons and the external elements impact the land and its inhabitants. By showing up they are able to develop deep relationships to the place and get to learn from the place and the beings themselves.

This program is a good example of how Indigenous knowledge systems, cultures, and languages are deeply rooted in the interconnection to the natural world and our other-than-human relations. Many Indigenous languages describe animal or plant species in relation to each other; the salmon is described as a fish species that swims up the river and distributes a certain frequency of energy into the ecosystem. In return, other species offer the salmon their energy and gifts. Recentering such reciprocity and caretaking within our relationship to the land and each other will enable us to create thriving and sustainable communities.

The inclusion of Indigenous Knowledge and worldview in the sustainability debate has a lot to offer.[43] The sustainability goals developed by the United Nations are built around the idea of growth, albeit sustainable, and are underpinned by notions such as the sovereignty of humans over nature, individualism, private property, and materialism.[44] This dominant viewpoint often permeates energy projects and can result in the perpetuation of colonialism by non-recognition of Indigenous rights and disrespect for local customs.[45] In order to ensure an inclusive and just energy transition, current non-dominant worldviews must be incorporated into the system. The *Blackfoot ecological knowledge and traditional foods program* highlighted here is a great example of restoring and maintaining cultures and traditions that are at risk of being lost. Incorporating these non-dominant knowledge systems will allow for a more holistic approach to sustainability to be observed, one that is based upon the collective agency, reciprocity, and the nurturing of nature.

Nuiqsut, Alaska

"You know with drilling, and drilling and tearing apart our Earth, that is not who we are. We protect our earth, we protect our animals and our way of life."[46]

The North Slope Borough is one of America's most sparsely populated places, with just 10,000 people across 95,000 square miles.[47] One of the 8 villages in this region is Nuiqsut. It has a small population of just over 400 people with the overwhelming majority being Iñupiaq.[48, 49] Nearly every household in Nuiqsut relies on the land for food.

Nuiqsut has become almost entirely surrounded by oil and gas industries over the past three decades.[50] These industries play a fundamental role in the local economy as the municipal government primarily relies on oil and gas taxes for funding. The economic benefits have resulted in a relatively low number of people living below the poverty line and the villages can pay as little

[41] Kelly Teamey, Re-imagining higher education, Open Democracy, https://www.opendemocracy.net/en/transformation/reimagining-higher-education/, 1 December 2014

[42] Kainai Studies, https://enlivenedlearning.com/2012/11/06/red-crow-college-and-the-role-of-experience/, Nov 6, 2012

[43] Dorine E. van Norren, The Sustainable Development Goals viewed through Gross National Happiness, Ubuntu, and Buen Vivir. International Environmental Agreements: Politics, Law and Economics volume 20, pages 431–458 (2020)

[44] Ibid.

[45] Paola Velasco-Herrejón, et al. Challenging dominant sustainability worldviews on the energy transition: Lessons from Indigenous communities in Mexico and a plea for pluriversal technologie, World Development 150 (2022) 105725

[46] Juliet Eilperin, Facing catastrophic climate change, they still can't quit Big Oil, The Whasington Post, https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-alaska/ Dec. 13, 2019

[47] Elizabeth Harball, How a small, Arctic village found itself in the middle of Alaska's new oil boom, Alaska Public Media, https://www.alaskapublic.org/2019/05/08/the-neighbors-midnight-oil/, May 8th 2019

[48] Nuiqsut, Artic Slope Native Association, https://arcticslope.org/about/communities/nuiqsut/

[49] Elizabeth Harball, How a small, Arctic village found itself in the middle of Alaska's new oil boom, Alaska Public Media, https://www.alaskapublic.org/2019/05/08/the-neighbors-midnight-oil/, May 8th 2019

[50] Sabrina Shankman, Arctic Drilling Ruling Brings Hope to Native Villages, Subsistence Hunters, Inside Climate News, https://insideclimatenews.org/news/03042019/arctic-offshore-drilling-ruling-alaska-native-subsistence-hunters-whaling-oil-gas-trump-administration/ April 3, 2019

as one-tenth to heat their homes compared to some other rural Alaskan communities.[51, 52]

But these benefits come with a cost as climate change has started to severely affect the landscape. The annual temperature in the region has increased by 4° C, over 3 times the global average.[53] This temperature increase has resulted in less sea ice, more rain, and more snow. The thawing of the permafrost is drowning some villages and 12 rural villages in Alaska will be forced to relocate to drier ground, making their residents among the first climate refugees in the United States.[54] Environmental degradation is also destroying important cultural and archaeological sites.[55]

Humans are not the only victims, the warming has impacted local wildlife.[56] In 2019, tens of thousands of summer chum salmon died of heat stress, caribou herds are declining and bowhead whales' migration patterns have started to shift.[57] Hunters have to travel further and further to find game. This severely disrupts the traditional livelihoods of Native communities and leads to food scarcity as food from the land is the base of nearly every meal.

Concerns about oil development accelerated eight years ago as a well-located 18 miles outside of Nuiqsut suffered an apparent blowout, spewing out drilling mud and methane gas.[58] Although a state investigation concluded it was *"highly unlikely"* that residents were exposed to gas from the blowout, the many villagers that started to suffer from respiratory ailments say otherwise.[59] It turns out that the network of air monitors operated by ConocoPhillips had been shut down for routine maintenance. It was clear to the village that they would have to take protective measures in their own hands and so the town installed their own air monitors.

Since then more and more people have started to question the impact of fossil fuels in the region. In 2019, this came to a pivotal point when Nanieezh Peter and Quannah Chasing Horse Potts spoke at *the Elders and Youth Conference* held shortly before the 2019 Alaska Federation convention.[60] They gave a passionate speech to their leaders about how the landscape is changing including the unsafe traveling conditions of weak ice and the deaths and diseases of animals including seals, salmon, and migratory birds.[61] Potts asked to reinstate a task force that would advocate for strong climate policies, develop Indigenous voices and declare a state of emergency on climate change.[62] The emotional debate paid off as AFN approved a resolution that declared a climate change emergency.[63]

"I'm worried for our generation, we are crying up here, we should not have to come to you worrying about future generations."[64] *– Quannah Chasing Horse Potts*

But not everyone was thrilled with the proposal, two months after the resolution, the state's largest Alaska Native Corporation, Arctic Slope Regional Corporation (ASRC) left the AFN.[65] Although the official statement does not mention the resolution, officials from ASRC strongly argued against it during the convention.

"Environmental groups, animal rights groups, these are the same organizations that come into our communities and try to split us all apart, split all the corporations, the tribes, the governments because they have an agenda. And if they had their agenda we wouldn't be able to hunt today. If they had their agenda, we wouldn't be able to develop the oil we have in the ground. That would cripple us economically."[66] *– Crawford Patkotak, ASRC's chairman*

This example showcases how challenging it can be for Indigenous communities to try and balance economic development with community protection and ecosystem stewardship. Transitioning away from fossil fuels will greatly impact these communities and they will need resources to help create a new economic direction.

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[51] Juliet Eilperin, Facing catastrophic climate change, they still can't quit Big Oil, The Whasington Post, https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-alaska/ Dec. 13, 2019

[52] Elizabeth Harball, How a small, Arctic village found itself in the middle of Alaska's new oil boom, Alaska Public Media, https://www.alaskapublic.org/2019/05/08/the-neighbors-midnight-oil/, May8th 2019

[53] Juliet Eilperin, Facing catastrophic climate change, they still can't quit Big Oil, The Whasington Post, https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-alaska/ Dec. 13, 2019

[54] Ibid.

[55] Ibid.

[56] Ibid.

[57] Ibid.

[58] Richard Mauer, North Slope oil well suffers a blowout, Anchorage Daily News, https://www.adn.com/economy/article/north-slope-oil-well-suffers-blowout/2012/02/15/, September 29, 2016

[59] Juliet Eilperin, Facing catastrophic climate change, they still can't quit Big Oil, The Whasington Post, https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-alaska/ Dec. 13, 2019

[60] Alex DeMarban, AFN declares 'state of emergency' for climate change, Anchorage Daily News, https://www.adn.com/alaska-news/2019/10/20/afn-declares-state-of-emergency-for-climate-change/ December 8, 2019

[61] Ibid.

[62] Ibid.

[63] Ibid.

[64] Ibid.

[65] Yereth Rosen, Oil-rich Inupiat corporation to quit Alaska Federation of Natives, https://www.arctictoday.com/oil-rich-inupiat-corporation-to-quit-alaska-federation-of-natives/ December 17, 2019

[66] Ibid.

Image source: *Los Angeles Times*

Power to the People

"Power is not brute force and money; power is in your spirit. Power is in your soul. It is what your ancestors, your old people gave you. Power is in the earth; it is in your relationship to the earth."

WINONA LADUKE

The era of worsening socioeconomic inequality and the climate crisis illustrate the systemic limitations of centralized power, both in relation to the grid and structural power. Centralization of power is designed to create systems that elude efforts for transparency and accountability, which are important guiding principles of restorative justice. In order to incorporate restorative justice into the energy justice movement, there will be a need for adoption of flexible, decentralized, and grassroots efforts.

The control that energy utilities, especially investor-owned utilities, have over energy affordability and accessibility has left numerous Black, Native American, Latinx, and low-income households across the U.S. energy insecure. Looking into the history of the energy system reveals that its foundations are in extractivism, colonial expansion, and capitalism —the trifecta of exploitation of land and people through power and capital accumulation.

Living on the frontlines of the climate crisis, energy insecurity, and polluted environments, people of color are facing a scarier future than wealthier, white Americans. In the context of the contemporary struggle to decarbonize our grid to address the climate crisis, similar patterns of injustices have been recreated by the systems of power. For example, recent studies show that even as the price of solar dropped, a racial disparity in adoption persists.[67] In 2000, the Energy Information Administration reported that 14 percent of Native households on reservations had no access to electricity, and data collected in 2020 revealed little improvement.[68, 69] Creating an equitable future requires communities to be at the helm of determining their own path, with support through reparations and other forms determined by the communities themselves.

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[67] Baker, Shalanda H. Revolutionary Power: An Activist's Guide to the Energy Transition. Washington, DC: Island Press, 2021.

[68] Sandoval, Catherine J.K. "Energy access is energy justice: the Yurok Tribe's trailblazing work to close the Native American reservation electricity gap". In Energy Justice, (Cheltenham, UK: Edward Elgar Publishing, 2018) doi: https://doi.org/10.4337/9781786431769.00014

[69] Sandoval, Catherine JK. "Principles to Advance Energy Justice for Native Americans." EBA BRIEF, OCTOBER (2020)

THE CORE PRINCIPLES OF POWER TO THE PEOPLE

Decentralization and Democratizing

Within the jurisdiction of federal and state governments, publicly owned and decentralized energy must be supported through regulations, processes, policies, and incentives to bolster the efforts of communities to create their own energy systems and have options available outside of extractive, profit-driven utilities. A recent study from 2020 found that of the five US communities that had transitioned to 100 percent renewable energy, three had publicly owned utilities, one had a cooperative, and one had an investor-owned utility (IOU).[70] A wave of returning private utilities to public ownership, remunicipalization, has also been seen outside of the U.S., in places such as Germany where approximately 284 remunicipalizations have happened since 2005.[71] Cooperative utilities can therefore play an important role as an anchor institution for a just energy transition. Converting investor-owned utilities (IOUs) to publicly owned utilities or cooperatives can be the first step to shifting power away from profit motivated private institutions. This shift could allow communities to have a larger role in how their energy systems function and hold them accountable.

However, this is not the ultimate vision for decentralization. Research shows that even public-owned utilities and cooperatives have several limitations with regard to transitioning to renewable energy and equitable participation. One of the primary reasons why cooperatives are not able to rapidly transition to renewable energy is the prevailing incentive structure, which is bound to tax incentives that community utilities do not have access to. This means they cannot build their own sources of energy and have to procure, potentially raising the costs for their customers.[72] Also, although democracy is a founding principle of cooperatives, research has shown that in practice, democratic engagement in existing many rural electric cooperatives is close to nonexistent, with low voter turnout and member engagement.[73] Even the popular, widely adopted model of rural electric cooperatives (RECs) reproduces concentration of power to higher income, white constituents even when the region is largely made up of low income and people of color; missing the mark on issues of equity and justice.[74] Furthermore, RECs have continued to rely heavily on fossil fuels and shown a resistance to shifting to renewables. "Most RECs are indistinguishable in their day-to-day operations and guiding visions from their for-profit counterparts: they see themselves as single-issue businesses run by competent managers and specialized workers, whose sole purpose is to provide electricity."[75]

In converting existing IOUs to cooperatives or publicly owned utilities, it will be important to build processes for deeper democracy, data transparency, and accountability that give communities more power.

Existing Programs

Currently, there are a few policy programs that support various models of community ownership and agency, such as net metering, community choice aggregation, and community solar. However, since much of the power related to capital and decision making (at the federal, state, and local levels) is concentrated amongst a handful of people, these policies have shown to reproduce inequities along race, gender, and class lines.

Net metering (NEM) refers to the ability of a business owner or a homeowner to receive credit on their electricity bill for generating electricity from solar panels on their own property.[76] There are two factors that lead to inequitable outcomes for a policy like net metering. Firstly, due to the legacy of exclusionary zoning, redlining, and *de jure* segregation, Black homeownership is drastically lower than white homeownership.[77] The history of racial residential segregation limits the equitable adoption and reach of net metering as a distributive policy. Secondly, even though residential solar costs reached parity with grid-supplied energy in the last decade, a study from 2019 on "rooftop solar penetration showed that even when controlling for homeownership and income, Black and Brown communities have fewer rooftop solar panels than white communities."[78] Unless NEM policies at the state level are designed to target environmental justice communities, they will continue to reproduce and bolster the status quo.

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[67] Hanna, Thomas M., Johanna Bozuwa, and Raj Rao. "The Power of Community Utilities." Climate and Community Project. https://www.climateandcommunity.org/power-of-community-utilities, n.d. Accessed April 22, 2022.

[68] Ibid.

[69] Ibid. Page 20.

[70] Matt Grimley, "Just How Democratic Are Rural Electric Cooperatives?," Institute For Local Self-Reliance, January 13, 2016, https://ilsr.org/just-how-democratic-are-rural-electric-cooperatives; Spinak, "Infrastructure," 241–42, 250.

[74] Upadhya, RK. "Co-Ops, Climate, and Capital · SFTP Magazine." Science for the People Magazine, March 3, 2022. https://magazine.scienceforthepeople.org/vol24-3-cooperation/co-ops-climate-and-capital/.

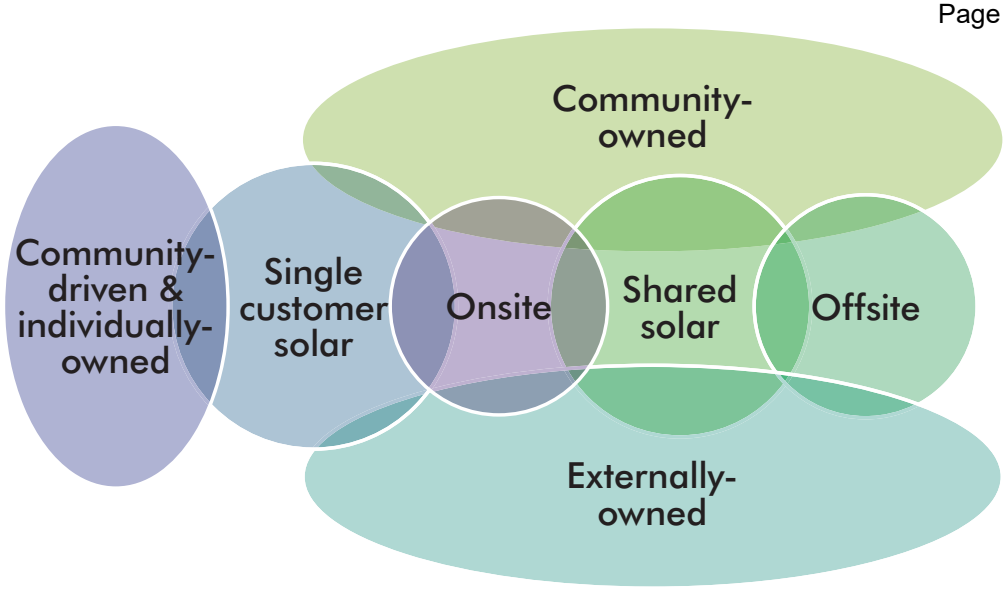
[75] Ibid.

[76] Baker, Shalanda H. Revolutionary Power: An Activist's Guide to the Energy Transition. Washington, DC: Island Press, 2021.

[77] Choi, Jung Hyun. "Breaking down the Black-White Homeownership Gap." Urban Institute, February 21, 2020. https://www.urban.org/urban-wire/breaking-down-black-white-homeownership-gap.

[78] Ibid.

EXISTING PROGRAMS					
ENERGY GENERATION & DISTRIBUTION MODEL	**GOVERNANCE**	**COMMUNITY OWNERSHIP POTENTIAL**	**COMMUNITY GOVERNANCE POTENTIAL**	**PROS**	**CONS**
Municipalization	Local government staff; oversight by appointed and / or elected officials or community board	Low – assets remain under municipal ownership	Moderate – many existing municipal utilities have little input or oversight from the communities they serve, but better engagement and accountability processes are possible.	Existing model; municipalities have a mission to serve their residents and meet their needs and interests.	Community is still separated from the actual energy generation and direct governance. Requires participation in democracy and electoral change to indirectly impact utility planning and operations.
Net metering	Must be legislatively enabled; may require third parties to capture tax credits	Indirect. Net metering may be necessary for community-owned solar projects, but typically it enables individuals or organizations to own solar.	None	Immediately incentivizes solar installations.	Does not ensure equitable access to financing; additional costs (e.g. grid maintenance) can fall to ratepayers who don't participate (and are more likely to be BIPOC and lower-income).
Community choice aggregation	Utility governed; requires an additional system in which the utility is responsive to customer interests.	Indirect. Communities can organize to chose their source of energy, however, it is not owned by the community itself.	None	Good option to democratize the energy system.	Often formed by wealthy communities, burdening lower income customers to bear the cost of grid upkeep.
Community-owned solar	Existing third-party (e.g. non-profit) or new community co-op	None	Mixed. Caution for IOU-owned, community solar subscriptions which do not build wealth		



Models within Community Solar. Image source: Equitable Community Solar: California & Beyond

Community energy or community solar policy emerged as a solution for communities left out of NEM programs, such as low to moderate-income communities, renters, etc. These programs were designed to support community ownership and decision-making. However, the initial NEM programs failed on many fronts to address issues of equity and access because the solar industry and incentive structure are designed to support and incentivize private solar developers and utilities. As the image below shows, there are many ownership models for community solar. The predominant models for community energy put control in the hands of either a utility, a business, and/or a nonprofit, which completely removes generation control out of the hands of communities. With requirements for high credit scores and long contract requirements, these projects make it nearly impossible for low to moderate-income (LMI) communities to consider solar. According to Shalanda Baker, deputy Director for Energy Justice and Secretary's Advisor on Equity at the United States Department of Energy, the program has become a "mask [for] what is ultimately a wealth transfer from the utility industry to the solar industry."[79] Some state community solar programs have carve outs for LMI communities, however, with strict requirements for credit scores and the incentive designed to benefit developers rather than communities, the programs barely address systemic inequities.

The technocratic underpinnings of the energy system in the U.S. is designed to ensure that the current system seems too difficult or too complex to overhaul by mass organizing. The knowledge about how electricity is produced and distributed, how the grid functions, how rates are designed, etc. is concentrated among the professional and managerial class; gatekeeping the working-class people out of the democratic process. With working-class peoples' time and resources bound to corporations as laborers and consumers, they are limited in their ability to participate in protracted political battles.[80] An important element to rectify this will be designing and implementing political education programs. These must be anchored in community institutions—a role that rural electric cooperatives can consider playing—and designed to be flexible. Liberation schools developed by the Black Panther Party in the 1960s for their communities are an excellent example of the importance of raising consciousness for the purpose of liberation. This pathway of community education and organizing could present many challenges, as it is not radically different from the current status quo and can recreate similar inequities.

For power to be decentralized with the restorative justice framing, it must be radically different, which to some may be unimaginable. What the decentralized energy system looks like must vary by each community and their needs for energy, resiliency, and development. However, decentralization of power will require mass organizing across intersecting identities of race, age, gender, and class.

Degrowth

The climate crisis is not only impacting countries in the Global North. As discussed in the introduction, colonialism and racial capitalism have built and designed our systems, leading us to this epoch of

[79] Ibid. Page 134.

[80] Upadhya, RK. "Co-Ops, Climate, and Capital · SFTP Magazine." Science for the People Magazine, March 3, 2022. https://magazine.scienceforthepeople.org/vol24-3-cooperation/co-ops-climate-and-capital/

existential crises. These levers of oppression and power have also sustained the hegemony of the West creating an unequal world with the Global South living under a new form of colonialism, one driven by the growth and profit motivated demands of private markets. Therefore, solutions for the climate crisis must address implications and include direct benefits for the Global South.

A framework for sociopolitical and economic redistribution that could rebalance power dynamics is degrowth, which "challenges the hegemony of economic growth and calls for a democratically led redistributive downscaling of production and consumption in industrialized countries as a means to achieve environmental sustainability, social justice, and well-being."[81] Degrowth as a concept may not immediately seem pertinent to decentralization and community ownership. However, ensuring that industrialized countries are held responsible for the harm they have caused and may cause during the energy transition is imperative to decentralizing power. Furthermore, several studies have found that decarbonizing the economy and transitioning away from fossil fuels will not necessarily keep global average temperatures below 2 degrees Celsius, therefore requiring degrowing larger economies.[82] The framework of degrowth is also compatible with the demand for community ownership of energy, which is one of the core principles of restorative justice. "In contrast to conventional private corporate ownership, public and collective ownership opens up possibilities for the social and ecological transformation that degrowth is calling for, though it does in no way automatically guarantee the implementation of such goals."[83] Shifting power from private utilities to community owned energy systems would allow for reduction in energy consumption, emissions, and a shift away from a growth mindset to one where energy is treated as a communal resource.

[81] Kothari, Ashish, Ariel Salleh, Arturo Escobar, Federico Demaria, and Alberto Acosta. Pluriverse: A Post-Development Dictionary. New Delhi, India: Tulika Books and Authorsupfront, 2019.

[82] Anderson, Kevin, and Alice Bows. "Beyond 'Dangerous' Climate Change: Emission Scenarios for a New World." Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences 369, no. 1934 (2011): 20–44. https://doi.org/10.1098/rsta.2010.0290

[83] Kunze, Conrad, and Sören Becker. "Collective Ownership in Renewable Energy and Opportunities for Sustainable Degrowth." Sustainability Science 10, no. 3 (2015): 425–37. https://doi.org/10.1007/s11625-015-0301-0

CASE STUDIES

This section has some examples of how principles of "Power to the People" have been found in different regions of the world—whether that is in federal policy, or local programs to democratize energy, or indigenous values. This is not an exhaustive list of case studies by any means; there are other resources that exist for the U.S. context. It is a list that is meant to provide the reader with examples and grounding in the fact that the principles presented earlier are found in real projects led by real people.

One Voice's Energy Democracy Initiative and the Electric Cooperative Leadership Institute (ECLI), Mississippi

One Voice is organizing to democratize electric cooperatives in the U.S. South. This organization was built in response to Hurricane Katrina to amplify the policy advocacy needs of marginalized communities in the South. In Mississippi, there are 26 electric cooperatives with board representation of Black members at a shockingly low 6.6 percent, even though 37 percent of the population in Mississippi is Black.[84]

Image source: Energy Democracy Project

One Voice is trying to change the racial makeup of cooperative boards and ensure that member-owners are aware of their rights, so they can deeply participate to establish a true energy democracy in Mississippi. This energy democracy campaign was divided into three phases: 1) Listening, 2) ECLI, and 3) Election Campaigns. In the listening phase of the initiative, One Voice conducted listening sessions with member-owners of all cooperatives in the state. These

[84] "Campaign for Energy Democracy and Energy Security: Electric Cooperatives in Rural Mississippi." One Voice: Working for Justice One Voice At A Time, June 2016. http://onevoicems.org/wp-content/uploads/2016/06/OV_Campaign_for_Energy_Democracy_and_Economic_Security.pdf.

sessions found that members were concerned about the lack of transparency and practices that were suspicious within the cooperative boards.[85] One Voice understood that without broad community education the effort to democratic cooperatives in the state would fail. They used the lessons and findings from the listening sessions to create the Electric Cooperative Leadership Institute. "ECLI was developed as a recurring, six-month intensive training program to facilitate participatory power by co-op member-owners."[86] The three components of the institute were: member education (member ownership, bylaws of the cooperative, and cooperative finances), local engagement, and data collection. The last phase of the energy democracy initiative was election campaigns, which included a selection of candidates and campaign strategy. This phase was largely led by the community with support from One Voice.[87] Since the initiative was launched, the community has seen some small wins, like member-owners being able to secure funds from the cooperative profits for community improvement projects.

Coquí Solar, Puerto Rico

Coquí Solar emerged out of the aftermath of Hurricane Maria that hit Puerto Rico in 2017. The utility company drafted a proposal, "Queremos Sol." Puerto Rico Electric Power Authority (PREPA), notorious for corruption and mismanagement, took months to restore power to both rural and urban parts of the country. Residents of the El Coquí community in Salinas, post-Hurricane Maria decided to accelerate their efforts to transition to renewable energy. "Coquí Solar exemplifies a local, grassroots enactment of energy justice in practice."[88] The community group was dedicated to raising residential solar literacy and increasing rooftop infrastructure. Although group members had similar goals, they faced disagreements specifically on how to "distribute solar technology and create educational opportunities for collaborative learning about energy consumption, infrastructure, and community responsibility."[89] With their guiding principle of mutual support and community empowerment, they decided to giveaway solar kits and ensured that recipients offered meals to installers, and they also "attend group meetings and offer their homes as charging stations for neighbors during outages and other power disruptions," borrowing from the approach

Image source: Primera Hora

Construyendo solidaridad desde el amor y la entrega (Building Solidarity through Love and Commitment).[90]

This effort to democratize energy in El Coquí eventually became part of a movement in Puerto Rico urging the government to pass laws that enabled community-led efforts for solar. "Along with a wide range of collaborators, including the worker's union of PREPA, several environmental and energy organizations, and several professors from the University of Puerto Rico Mayagüez, this island-wide group drafted a proposal, "Queremos Sol." This comprehensive proposal presented a detailed energy vision for Puerto Rico, including the elimination of fossil fuels, using the burgeoning solar movement to enhance local economies, and significantly expanding rooftop solar and microgrids."[91] Although the legislative adoption of these laws has been protracted, at the local level El Coquí has created something that's community-owned, led, developed, and implemented; an effort that is built upon values of resiliency, love, and democracy.

Machynlleth, Wales

In 2003 a small Welsh community, Machynlleth, set out on a journey to collectively own a wind turbine. To supplant arguments around financial burdens, the community procured a used 75-kilowatt turbine from Denmark. With an increase in demand by 2010, a larger wind turbine was set up in the community. It followed a degrowth agenda by using profits to benefit the community (a third of the funds were donated to a fund to support households to save energy, via retrofits, etc.), and reducing energy consumption by increasing energy literacy.[92] This small project is an example of how democratic participation and degrowth can be linked to transitioning a community away from fossil fuels.

[85] Fairchild, Denise, and Al Weinrub. Energy Democracy: Advancing Equity in Clean Energy Solutions. Washington (D.C.): Island press, 2018.

[86] Ibid.

[87] Ibid.

88 De Onis, Catalina M.. "(No) Conclusion Delinking for Energy Justice." Essay. In Energy Islands: Metaphors of Power, Extractivism, and Justice in Puerto Rico. Oakland, CA: University of California Press, 2021.

[89] Ibid. Page 173.

[90] Ibid. Page 175.

[91] Rosa, Melanie La. "Step by Powerful Step, Citizens Lead Puerto Rico into Its Solar Future." NACLA. Accessed April 25, 2022. https://nacla.org/news/2019/09/19/step-powerful-step-citizens-lead-puerto-rico-its-solar-future.

[92] Kunze, Conrad, and Sören Becker. "Collective Ownership in Renewable Energy and Opportunities for Sustainable Degrowth - Sustainability Science." SpringerLink. Springer Japan, May 27, 2015. https://link.springer.com/article/10.1007/s11625-015-0301-0.

Buen Vivir, Bolivia & Ecuador

"Buen Vivir or Vivir Bien are the spanish words used in Latin America to describe alternatives to development focused on the good life," rejecting classical developmental neocolonial strategies pioneered by the West for countries in the global South.[93] It emerged out of the efforts for decolonization, especially in relation to national identity. It borrows ideas from the Indigenous traditions of Latin America, radical environmental scholarship that rejects "anthropocentric perspective of modernity," and the feminist movement challenging gender norms and hierarchies in relation to non-human kin.[94] "Buen Vivir displaces the centrality of humans as the sole subject endowed with political representation and as the source of all valuation."[95] It has been constitutionally adopted by Ecuador and Bolivia, however, each has their own version recognizing different aspects of the philosophy. The Ecuadorian text establishes and protects the right of nature in relation to development projects.

Image source: L'Ideologia Socialista

The constitutional rights for nature were upheld in a recent court decision in Ecuador to protect Los Cedros Protected Forest Ecosystem. In this court decision, all extractive and mining activities were banned.[96] Rights of nature being constitutionally protected offers a pathway to decentralize power away from corporations and private interests. However, its applications are deeply contested and can waver with judiciary and country leadership, therefore it has to be fought for through consistent demands for transparency, accountability, and in the case of harm already done, reparations.

[93] Gudynas, Eduardo. "Buen Vivir: Today's Tomorrow." Development 54, no. 4 (2011): 441–47. https://doi.org/10.1057/dev.2011.86.

[94] Ibid.

[95] Kothari, Ashish, Ariel Salleh, Arturo Escobar, Federico Demaria, and Alberto Acosta. Pluriverse: A Post-Development Dictionary. New Delhi: Tulika Books and Authorsupfront, 2019.

[96] Center for Biological Diversity. "Ecuador's Highest Court Enforces Constitutional 'Rights of Nature' to Safeguard Los Cedros Protected Forest." Center for Biological Diversity. Center for Biological Diversity, December 2, 2021. https://biologicaldiversity.org/w/news/press-releases/ecuadors-highest-court-enforces-constitutional-rights-of-nature-to-safeguard-los-cedros-protected-forest-2021-12-02/.

Reparations & Accountability

"Equality is not likely to be obtained without some form of reparations."

DAVID H. SWINTON[97]

THE ROLE OF REPARATIONS & ACCOUNTABILITY IN RESTORATIVE JUSTICE

Restorative justice is a complex process that aims to generate outcomes that promote accountability, reparation, and healing for everyone involved.[98] The harm caused by energy projects can be long-lasting and sometimes irreversible and can be devastating to communities, the environment, and our other-than-human kin.[99] For Indigenous communities, it can mean the loss of land and cultural sites, profoundly affecting Indigenous traditions and ways of life.

Accountability requires the offender to not only accept responsibility for the harm caused but also to accept their role in repairing the damage done. Reparations for this harm must be centered around the needs and wants of the affected communities and could include financial compensation or restoration of land. The community must be allowed to express their grief, anger, and fear.[100] This provides an opportunity for the offender to truly understand and take accountability for their actions.

Acknowledging and recognizing intergenerational trauma, reparations for past harm, and creating space for frontline, LI, and racialized communities to retell stories of oppressions are pillars of restorative justice that can pave the way for communities to heal and reimagine a different future.

[97] Patricia Cohen, What Reparations for Slavery Might Look Like in 2019, https://www.nytimes.com/2019/05/23/business/economy/reparations-slavery.html, May 23, 2019

[98] Howard Zehr, Little Book of Restorative Justice, https://www.ojp.gov/ncjrs/virtual-library/abstracts/little-book-restorative-justice

[99] M.Hazrati & R.J.Heffron, Conceptualizing restorative justice in the energy Transition: Changing the perspectives of fossil fuels, Energy Research & Social Science, Volume 78, August 2021, 102115

[100] Restorative justice intervention in an environmental law context: Garrett v Williams, prosecutions under the resource management act 1991 (NZ), and beyond, Environmental and Planning Law Journal, 31:263-271

THE CORE PRINCIPLES OF REPARATION & ACCOUNTABILITY

Transparency

What is transparency?

One of the main challenges with transparency is that there is no one definition for it.[101] It has multiple meanings, purposes, and applications. Transparency will be different based on who the efforts are targeted towards, so there can be no "one size fits all" solution.[102]

The notion is that transparency leads to accountability by empowering citizens with information that can allow them to hold institutions accountable. This would then lead to less corruption and improvements in basic services. However, the literature is somewhat torn about this notion.[103] It has been shown that some forms of transparency are better able to leverage accountability than others.[104] But it's not enough to just share information, transparency without taking responsibility does not lead to accountability. High-level transparency goes beyond the mere sharing of raw data and sheds light on institutional behavior and decision-making processes, allowing interested parties to pursue strategies of constructive change. In this way, transparency can lead to one form of accountability.

Why transparency matters

One example of the lack of transparency within the energy system is utility shutoffs, the practice of disconnecting a household's electric service for unpaid bills.[105] The burden of utility shutoffs disproportionately impacts BIPOC communities.[106] Losing vital energy services such as lighting, heating, cooling, and food preservation, can have severe negative impacts on the finances, health, and safety of vulnerable families.

Despite its detrimental effects on people's lives, there is a huge lack of data and transparency surrounding shutoffs. As there is no industry standard or blanket government mandate that applies to all jurisdictions and utilities, data on customer shutoffs are often not disclosed. Without comprehensive data and transparency, it is impossible to understand the full scope of the problem. It prevents advocates, regulators, and utilities from identifying inequitable practices and hinders policymakers and regulators from creating alternative solutions.

Accountability

What is accountability?

Accountability has become synonymous with good governance as it conveys an image of transparency and trustworthiness.[107, 108] Despite this, accountability lacks a clear definition in the literature.[109] It often serves as a conceptual umbrella that covers transparency, equity, integrity, and responsibility. It is this elusive definition that makes it challenging to establish whether or not an official or organization is accountable.

Nevertheless, accountability is closely related to the failure of equitable and democratic governance and it is important to establish mechanisms to achieve it. Accountability can be improved by mobilization of different knowledge systems and building agency within citizen communities.[110] This means broadening the experts engaged in a project —increasing the number of actors that are consulted and engaged— and giving agency to citizens to provide input during the decision-making process.

Why accountability matters

While energy efficiency should play an important role in the current energy transition, the benefits and outcomes of efficiency measures are often only enjoyed by privileged members of a community. There are many factors that play into systemic inequities of these programs but an important component is the absence of equitable and holistic indicators within these programs to hold authorities and program administrators accountable.

For example, when analyzing current low-income energy efficiency programs in British Columbia, Canada, researchers identified a deep disconnect between the overall goals of the programs and the

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[101] Stephen Kosack and Archon Fung. Does Transparency Improve Governance? Annual Review of Political Science Vol. 17:65-87 doi: https://doi.org/10.1146/annurev-polisci-032210-144356

[102] N. Zúñiga et al. Does more transparency improve accountability? U4 Helpdesk Answer 2018:22 U4 Anti-Corruption Helpdesk

[103] Jonathan Fox, The uncertain relationship between transparency and accountability, Development in Practice Volume 17, 2007 – Issue 4-5 doi: https://doi.org/10.1080/09614520701469955

[104] Ibid.

[105] Jean Su, Christopher Kuveke, Powerless in the pandemic: After Bailouts, Electric Utilities Chose Profits Over People

[106] Maria Castillo and Caitlin Odom, What Do We Know about Utility Shutoffs of Vulnerable Families during COVID-19?, https://rmi.org/what-do-we-know-about-utility-shutoffs-of-vulnerable-families-during-covid-19/, March 16, 2022

[107] Mark Bovens, Analyzing and Assessing Accountability: A Conceptual Framework Volume 13, Issue 4. July 2007 doi: https://doi.org/10.1111/j.1468-0386.2007.00378.x

[108] Danielle Hanna Rached. The Concept(s) of Accountability: Form in Search of Substance. Leiden Journal of International Law (2016), 29, pp. 317–342 Doi: https://doi.org/10.1017/S0922156516000042

[109] The United Nations defined accountability as: "Accountability is the obligation of the Secretariat and its staff members to be answerable for all decisions made and actions taken by them, and to be responsible" and the Office for the Prevention of Domestic Violence in New York defines it as: "making sure the participant takes responsibility for their actions, along with the consequences associated with them, and understands that they are the only person who is responsible for their abusive behavior."

[110] Valkenburg, G., Cotella, G. Governance of energy transitions: about inclusion and closure in complex socio technical problems. Energy Sustain Soc 6, 20 (2016). https://doi.org/10.1186/s13705-016-0086-8

defined indicators.[111] While these programs boast their vision to reduce energy poverty, lower household energy consumption and increase home comfort, they have failed to transparently measure their progress and hence, are falling short of achieving these goals in practice. Focusing on outputs like the 'number of customers served' or 'achieving program budget' is not enough to showcase whether households were lifted out of energy poverty. The absence of equity-focused and outcome-based indicators also make it difficult for communities and advocates to hold delivery organizations and utilities accountable for their potential failure to fulfill their obligations to provide fair and affordable service, measure progress, and live up to their promises.

There are major gaps in the funding schemes of these programs as well. Many jurisdictions around North America set minimum funding thresholds for low-income programs but they lack comprehensive accountability mechanisms to showcase where and how these funds are being spent. In addition, low-income energy efficiency programs are justified based on cost-effectiveness and resource tests rather than community-based outcomes including reducing energy poverty, decreasing environmental impact, and increasing home comfort. The absence of detailed information on program expenditure and inequitable indicators inhibit the agency of citizens to hold organizations and authorities accountable.

Reparations & Healing

What are reparations?

The National Coalition of Blacks for Reparations in America defines reparations as *"a process of repairing, healing and restoring a people injured because of their group identity and in violation of their fundamental human rights by governments, corporations, institutions, and families. Those groups that have been injured have the right to obtain from the government, corporation, institution or family responsible for the injuries that they need to repair and heal themselves."*[112]

At the heart of reparations lies the notion that one must fix what has been broken. Reparations can be a physical symbol of the perpetrator's admission of guilt and apology.[113, 114] As such, reparations can signify vindication, that the victim is not guilty, and the acknowledgment of their injustice. In this regard, reparations are then more than just financial or material compensation, they are a message of who is valued. An apology can carry monumental weight as it is can be viewed as a symbolic act of acknowledgment and a step toward restoring faith between the victim and the offender.[115]

The call for reparations has gained momentum in recent years, fueled by growing knowledge about past harms and increased worldwide readiness to call societies to account for their past.[116, 117] As every community and group is unique there can be no one solution for reparations. Where financial compensation may be sought by one group, others will seek the official recognition and preservation of their ancestors' land.

Why do reparations matter?

The harm caused by energy projects can be long-lasting, irreversible, and devastating to communities and the environment.[118] As many as 80 million people may have been displaced by dam projects worldwide.[119] Once displaced, these people often face long-lasting negative impacts such as marginalization and poverty.[120] Another example is the environmental racism faced by the residents of Sarnia and the Aamjiwnaang First Nation, who are surrounded by over 50 large polluting industrial facilities, including one of the largest petrochemical complexes in Canada.[121] Despite growing health concerns, the local government has been criticized for delaying the release of critical air pollution data showing up to 44 times the annual level of the cancer-causing chemical benzene in the community.[122] These are just two examples of instances where restorative justice is lacking.

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[111] Laura MacTaggart, Transforming Income-Qualified Home Energy Retrofit Programs in B.C., UBC Sustainability Scholars report, 2021. https://sustain.ubc.ca/about/resources/transforming-income-qualified-home-energy-retrofit-programs-bc

[112] N'COBRA, Reparations https://www.ncobraonline.org/reparations/

[113] Edited by Jo-Anne M. Wemmers. Reparation for Victims of Crimes against Humanity: The healing role of reparation. Published March 3, 2016 by Routledge ISBN 9781138665361

[114] Adrienne D. Davis. The Case for United States Reparations to African Americans. Human Rights Brief 7, no. 3 (2000): 3-5, 11.

[115] Are Apologies Enough?, https://www.facinghistory.org/stolen-lives-indigenous-peoples-canada-and-indian-residential-schools/chapter-5/are-apologies-enough

[116] Victoria J. Barnett. Racism, Reparations and Accountability Payback? The Christian Century, October 25, 2000, pp. 1070-1073.

[117] M.Hazrati & R.J.Heffron, Conceptualizing restorative justice in the energy Transition: Changing the perspectives of fossil fuels, Energy Research & Social Science, Volume 78, August 2021, 102115

[118] M.Hazrati & R.J.Heffron, Conceptualizing restorative justice in the energy Transition: Changing the perspectives of fossil fuels, Energy Research & Social Science, Volume 78, August 2021, 102115

[119] Dams and Internal Displacement, International Displacement Monitoring Center, https://www.internal-displacement.org/sites/default/files/publications/documents/20170411-idmc-intro-dam-case-study.pdf, April 2017

[120] Ibid.

[121] Sean Craig et al. 'We expected cancer': Are industrial spills in Canada's 'Chemical Valley' making people sick?, https://globalnews.ca/news/3796720/sarnia-oil-industry-spills-human-impact-investigation/, October 14, 2017

[122] Carolyn Jarvis, Cancer-causing air pollution forecast at 44 times annual level in Ont. First Nation, docs show, https://globalnews.ca/news/8369470/ontario-first-nation-air-pollution-cancer-causing-chemicals-new-data/, November 17, 2021

Image source: Phil Pasquini/Shutterstock

Acknowledgment and accountability for the colonization and destruction of many communities around the world in the name of growth and industrialization is a crucial step toward climate and energy justice.[123] Recognizing the harm and trauma inflicted upon these communities through the destruction of their land, culture, and ecosystems can ignite a meaningful transformation of existing colonial relations and lead to systemic changes. In the absence of acknowledgment and accountability, current power dynamics are going to be maintained and these structures are likely to be maintained, leading to further destruction of local cultures, ecosystems, and potential land theft. For this reason, reparations are an important element of the bigger climate and energy justice movement. By taking the first step towards repairing past harms, communities can regain their agency enabling them to shift the power dynamics within the economic, social, and cultural systems and embark on their journey to heal.

Healing

Restorative justice as a framework creates space for healing so that communities on the frontlines of the energy and climate justice movements are able to not only survive but thrive. The first step towards healing from past and present trauma is to acknowledge and recognize the impacts of colonialism, capitalism, and the violence inflicted upon frontline, lower-income, BIPOC, and Indigenous communities. Narrating and recognizing the stories of oppression is a healing process and can create a safe space for communities to be heard and reimagine an alternative world where systems are built upon the foundations of justice, care, and well-being.[124]

Through the strategies offered by the restorative justice framework, communities can define effective processes and initiatives to embark on their healing journey. Food sovereignty, energy justice, reconnecting with the land, and climate reparations are approaches that have created space and place for Indigenous and racialized communities to meaningfully transform systems of oppression and heal from intergenerational trauma.

[123] Anita Bhadani, A Guide to Climate Reparations, https://www.yesmagazine.org/environment/2021/11/29/climate-reparations, Nov 29, 2021

[124] Gilbert, J. L., & Williams, R. A. (2020). Pathways to reparations: land and healing through food justice. Human Geography, 194277862095193. doi: 10.1177/1942778620951936

CASE STUDIES

This section showcases three examples of how principles of "Reparation & Accountability" have been implemented in practice.

Garrett v Williams

This was a criminal case in New Zealand where several Aboriginal artifacts and sacred places were damaged or destroyed during mining activities.[125, 126] In this case, the defendant (Craig Williams) was charged with and pled guilty to an offense against s 90(1) of the National Parks and Wildlife Act 1974 (NSW) (NPW Act). Before the sentencing, a restorative justice conference was held. The conference was funded by the defendant and facilitated by an experienced restorative justice facilitator. Extensive work was done before the conference by the facilitator and included conversations with Broken Hill Aboriginal Land Council (victim), archeologists, and representatives from the mining company.

The conference lasted for 6 hours during which the defendant offered an official apology.[127] The victims could hear from the defendant what had taken place. But most importantly, it allowed for the victims to express how they had been affected and to discuss what could be done to repair any harm and prevent future offenses. During the conference, representatives of the Broken Hill Aboriginal Land Council were also able to share information about the Aboriginal objects and the Aboriginal place and their significance to the Aboriginal people of the area.

The hurt the Aboriginal community experienced can be seen in this quote:

"I was very upset with what I saw because the drains had been dug at a sacred place. I believe that the drains had damaged the Pinnacles sacred area because they would have disturbed the Aboriginal spirits and the storyline of our teaching. I believe that the Aboriginal spirits would be very unhappy. I felt like the spirits were angry because the weather was awful that day. It was very cold and windy. The Pinnacles were serene and a place of beauty until the drains were dug. I remember saying to Steve Millington words like, 'Look at this Steve, isn't it terrible that they put in these drains. Feels like they put a big hole in my body.'"[128]

The importance of cultural education can be seen in the apology of the defendant:

"I regret that I committed the offenses and I am sorry for the harm it has caused. I realize that it was foolish not to be vigilant and more respectful about the Aboriginal objects and the Aboriginal place. During the course of these proceedings, I have learnt a significant amount about Aboriginal archaeology and the importance of the Aboriginal place. I have also realized how both Aboriginal objects and the Aboriginal place are more important to Aboriginal people than I had previously appreciated. I am seriously remorseful about what has occurred."[129]

The defendant and representatives of the Broken Hill Local reached a tentative agreement:

- Financial contributions
- Future training and employment opportunities for the local community
- The seeking of solutions to prevent the occurrence of similar offenses

At a quick glance, this process seems to have been a success, an apology was given, reparations were made and healing could begin. Although the victims of this case were non-human as well as human, the court only recognized the human aspect when it came to the restorative justice proceedings. But for many Indigenous Peoples, there is a deep spiritual connection to the land and all living and nonliving beings, it is an integral part of their identity. Yet they were not recognized in this process. In this case, the offense occurred on a cultural site, allowing the Aboriginals to "not only speak on behalf of the land—they spoke with the land". But for offenses that occur where there are no humans involved it will be challenging for the courts to relate to these victims as they have to rely on expert testimony.

ECHO Notify

This case study outlines ways to increase transparency and how this can be leveraged by the public, as well as regulators and policymakers, to achieve positive behavior change in corporations.

"ECHO Notify" is a new web tool by EPA that allows members of the public to stay informed about important environmental enforcement and compliance activities in their communities.[131] Users

[125] Rob White, Indigenous communities, environmental protection and restorative justice, Australian Indigenous Law Review, Vol. 18, No. 2 (2014/2015), pp. 43-54

[126] Mark Hamilton, Restorative justice intervention in an environmental law context: Garrett v Williams, prosecutions under the resource management act 1991 (NZ), and beyond, Environmental and Planning Law Journal, 31:263-271

[127] Ibid.

[128] Ibid.

[129] Ibid

[130] Mark Hamilton, Restorative justice intervention in an environmental law context: Garrett v Williams, prosecutions under the resource management act 1991 (NZ), and beyond, Environmental and Planning Law Journal, 31:263-271

[131] New EPA Tool Provides the Public with Customized Updates on Local Enforcement and Compliance Activities, https://www.epa.gov/newsreleases/new-epa-tool-provides-public-customized-updates-local-enforcement-and-compliance, March 22, 2022

will receive weekly emails when new information is available within the selected geographic area, such as when a violation or enforcement action has taken place at a nearby facility. Users can request to be notified based on a specific state, county, ZIP code, or EPA Facility ID. The website also has the option to receive a screen reader-friendly email that transforms the text into speech for those who require it.[132]

The service allows one to choose what enforcement and/or compliance activities they want to receive updates about.[133] Examples include failure to complete a required activity by the date specified in a permit or enforcement action (Compliance Schedule Violation), failure to abide by pollutant discharge limits established in a permit or enforcement action (Effluent Violation), and the highest level of a contaminant that is allowed in drinking water (Maximum Contaminant Level). The violations and enforcement are organized by environmental programs such as the Clean Air Act (CAA), Clean Water Act (CWA), and the Resource Conservation and Recovery Act (RCRA).

The benefit of this tool is the ease of receiving news about violations and enforcement actions, not just for the public but for regulators and policymakers as well. This type of transparency can lead to increased public pressure and as such to a behavior change in the corporations.[134] One example of successful public pressure (shaming) is when Shell proposed to dispose of the Brent Spar oil platform in the North Sea by breaking it up with explosives and allowing it to sink along with the residual oil and waste products.[135] Once Greenpeace became aware of the situation it started a relentless campaign that led to an unprecedented consumer boycott of Shell and a firebombing of one of its service stations near Hamburg. Three weeks later Shell announced that they were dropping the plan and would look into an alternative solution.[136]

As valuable as this tool is in creating increased transparency, it may also lead to increased anxiety among members of the BIPOC community that are often living in areas with a high industrial density. This is the result of systematic racist governmental policies, rules, and regulations that have made it easier to build industrial facilities in BIPOC communities.[137]

[132] ECHO Notify, https://echo.epa.gov/help/tutorials#notify, April 22, 2022

[133] ECHO Notify, https://echo.epa.gov/tools/echo-notify, April 21, 2022

[134] Behnam Taebi & Azar Safari, On Effectiveness and Legitimacy of 'Shaming' as a Strategy for Combating Climate Change, Science and Engineering Ethics volume 23, pages 1289–1306 (2017)

[135] Brent Spar: Battle that launched modern activism, https://www.reutersevents.com/sustainability/business-strategy/brent-spar-battle-launched-modern-activism, May 5, 2010

[136] Ibid.

[137] Victoria Whalen, Environmental Racism and Climate Change 101, https://acespace.org/2022/03/10/environmental-racism-101/, March 2022

African Americans are 75 percent[138] more likely to live in a front-line community than the average American. With fewer resources to fight back with, compared to more privileged communities,[139] it is important that the burden is not placed on these communities alone to fight for change. We must ensure that energy justice legislation and policy are passed in order to eliminate these unjust and inequitable conditions.

Debt Justice for Climate Reparations

"Achieving debt justice entails prioritizing the needs of the public and nature in front of creditors' balance sheets..."[140]

There is an ongoing financial debt crisis across the Global South, limiting governments' ability to pursue public health action, alleviate poverty, or implement climate change adaptation strategies. At the same time, the Global North has refused to acknowledge the benefits they have received from the historical and ongoing plundering and resource extraction from these countries, leading to degrading and polluting the local environment and threatening the lives and livelihoods of the people in these countries.

While many of the poorest countries on Earth are the least responsible for climate change,[141] they are the ones affected by it the most. Trapped in the international debt system that favors the global north and its big banks, climate-vulnerable countries now experience higher borrowing costs due to the increased risk of natural disasters and other social disruptions brought on by climate change. These countries are essentially punished for being casualties of climate change. Already stretched thin, the governments are forced to cut spending on essential services including climate mitigation and adaptation to meet the payment obligations.

The Climate and Community Project suggests this lack of responsibility of the Global North could be corrected if the richer nations took accountability and offered a debt restructuring and debt cancellation

[138] Lesley Fleischman & Marcus Franklin, Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities, 2017

[139] Ingrid Waldron, Environmental Racism and Climate Change: Determinants of Health in Mi'kmaw and African Nova Scotian Communities, https://climateinstitute.ca/publications/environmental-racism-and-climate-change/ July 2021

[140] Táíwò, Olúfẹmi O., and Patrick Bigger. "Debt justice for climate reparations." Climate and Community Project, 2022, https://www.climateandcommunity.org/_files/ugd/d6378b_d2d12f75ec8f405a97f336f8a6ddf711.pdf

[141] Táíwò, Olúfẹmi O., and Patrick Bigger. "Debt justice for climate reparations." Climate and Community Project, 2022, https://www.climateandcommunity.org/_files/ugd/d6378b_d2d12f75ec8f405a97f336f8a6ddf711.pdf

program.[142] Their recommendations follow conversations with climate and debt justice movement partners, scholarly research, and the overarching aims of the Green New Deal.

Their recommendations fall into five categories:

1. Cancel publicly held debt and implement debt restructuring mechanisms. Reductions in debt payments have been shown to boost spending on health, education, and other social services.[143]
2. Meet existing climate finance commitments and significantly scale up future commitments. The Global North has pledged to jointly mobilize $100 billion per year by 2020 in support of climate action in the Global South.[144] This figure is set to increase after 2021 and in the following years. This financial commitment is vital to drive net-zero carbon and climate-resilient growth.
3. Redistribute IMF Special Drawing Rights (SDRs). The SDR is an international reserve asset created by the IMF.[145] SDRs can be used for many things such as to gain access to hard currency, the repayment of loans, or the payment of interest on loans.[146] Typically, rich countries receive the majority of SDRs, which has been heavily criticized.[147] However, in 2021, the IMF implemented a new allocation of SDRs worth US$650 billion, only about one-third went to countries in the Global South.[148] The IMF has attempted to correct this injustice by creating the *Resilience and Sustainability Trust*.[149] This trust will be funded by rich countries' unused SDRs. This new trust is aimed at ensuring vulnerable countries' increased resiliency to external shocks and achieving sustainable and inclusive growth.
4. Make it less attractive for private creditors to lend money to the Global South. Debt owed to private creditors has increased dramatically over the last decade.[150] As private lenders are not included in decisions made by the G20, restruction actions often fall short.
5. Fossil fuel companies should be held liable for climate damages. As early as 1977, Exxon was aware of climate change.[151] Despite this, the top fossil fuel companies banded together and formed *the Global Climate Coalition*. A decade later they started a misinformation campaign to question the scientific basis for concern about climate change. The same coalition influenced the U.S. from signing the Kyoto Protocol in 1998. Money from criminal charges can be relocated to fund disaster risk reduction, insurance, and adaptation.[152]

For this proposal to come to fruition, the Global North must reckon with its past, built upon a foundation of colonialism and slavery.[153] They must acknowledge the social, ecological, and economic harms they have inflicted on the Global South both historically and through contemporary operations.[154] As the instigators of climate change, the Global North must take accountability and pay its fair share for decarbonization and adaptation. They must relinquish their obsessive need for power and control, and respect the financial self-determination of the Global South and their right to implement locally and culturally appropriate solutions.

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[142] Ibid.

[143] Debt Relief Under the Heavily Indebted Poor Countries (HIPC) Initiative, https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/11/Debt-Relief-Under-the-Heavily-Indebted-Poor-Countries-Initiative, March 23, 2021

[144] Amar Bhattacharya et al. Delivering on the $100 billion climate finance commitment and transforming climate finance, https://www.un.org/sites/un2.un.org/files/100_billion_climate_finance_report.pdf, 2020

[145] Special Drawing Rights (SDR), https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/14/51/Special-Drawing-Right-SDR, August 5, 2021

[146] What are Special Drawing Rights (SDRs)?, https://www.brettonwoodsproject.org/2021/12/what-are-special-drawing-rights-sdrs/, 9 December 2021

[147] Ibid.

[148] Andrés Arauz, Kevin Cashman, Eighty Countries Have Already Used Their Special Drawing Rights, but More of these Resources Are Needed, https://cepr.net/eighty-countries-have-already-used-their-special-drawing-rights-but-more-are-needed/, January 26, 2022

[149] Ceyla Pazarbasioglu and Uma Ramakrishnan, A New Trust to Help Countries Build Resilience and Sustainability, https://blogs.imf.org/2022/01/20/a-new-trust-to-help-countries-build-resilience-and-sustainability/, January 20, 2022

[150] Táíwò, Olúfẹmi O., and Patrick Bigger. "Debt justice for climate reparations." Climate and Community Project, 2022, https://www.climateandcommunity.org/_files/ugd/d6378b_d2d12f75ec8f405a97f336f8a6ddf711.pdf.

[151] Shannon Hall, Exxon Knew about Climate Change almost 40 years ago, https://www.scientificamerican.com/article/exxon-knew-about-climate-change-almost-40-years-ago/, October 26, 2015

[152] Anita Bhadani, A Guide to Climate Reparations, https://www.yesmagazine.org/environment/2021/11/29/climate-reparations, Nov 29, 2021

[153] josh gabbatiss and ayesha tandon, In-depth Q&A: What is 'climate justice'?, https://www.carbonbrief.org/in-depth-qa-what-is-climate-justice, 4 October 2021

[154] Táíwò, Olúfẹmi O., and Patrick Bigger. "Debt justice for climate reparations." Climate and Community Project, 2022

PART TWO

Preventative Measures

Restorative justice can be used not only to rectify existing injustices, but also to prevent harm.[155] When coupled with the other justice dimensions (distributional, procedural, and recognition), it challenges decision-makers to identify where injustices may occur in the future and the cost of remedying these. For some projects, the cost of restoration would outweigh the gains and the project could simply be stopped or declined.

This section provides a high-level outline of existing legal frameworks and levers which could be used to identify potential injustices and harms that result from a proposed project. These frameworks could help identify ways to circumvent these or develop action plans for reparations if unable to do so.[156] These mechanisms are initiated during the planning stage of a project (Impacts Assessment, IA), throughout the operational lifespan of the project (Social License to Operate, SLO), and throughout the decommissioning and restoration phase of the project (Energy Financial Reserve Obligation EFRO).

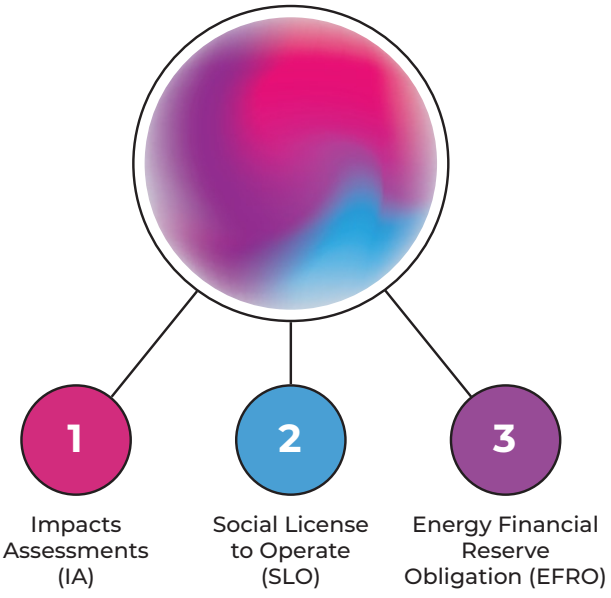

Figure 5. Mechanisms that can be applied during the different phases of a project to ensure that injustices are prevented or minimized.

[155] Ibid.

[156] Ibid.

IMPACT ASSESSMENTS

Environmental Impacts Assessments

An Environmental Impact Assessment (EIA) can be used as a tool to identify the environmental, social, health, and economic impacts of a proposed project or development prior to decision-making.[157] By predicting negative impacts during the project planning and design phases, risk mitigation and restoration plans can be developed, including avoidance strategies.

An EIA follows the same model as a restorative justice process.[158] The proponent can be viewed as the (potential) offender, the impacted community as the victim, and the regulator acts as the mediator. The difference is that an EIA takes place before any harm has occurred. In this way, a well-executed EIA can be used as a preventative tool in the restorative justice process.

In theory, the proper application of EIA would result in *"sustainability, environmental conservation, deliberative dialogue, and biodiversity management goals in the face of proposed projects."*[159] But EIAs are often criticized for the inability to incorporate the best available environmental knowledge and to take into consideration the local interests, needs, and cultures of impacted communities.[160] And once an EIA is performed, the project is rarely rejected.[161] In Canada, energy projects that have gone through an EIA process have still allowed for the occupation of sovereign territories of First Nations, Inuit, and Métis peoples.[162] These examples showcase the limitations of EIA that lact strict accountability measures.

For EIA to act as a restorative justice mechanism, it requires Indigenous power in the decision-making process, recognition of land and treaty rights, and legally binding adherence to UNDRIP.[163] The process must also become more transparent,

[157] What is Impact Assessment?, Convention on Biological Diversity, 2010

[158] M. Hazrati & R.J. Heffron, Conceptualising restorative justice in the energy Transition: Changing the perspectives of fossil fuels, Energy Research & Social Science 78 (2021) 102115

[159] Lauren E. Eckert Leckert et al. Indigenous knowledge and federal environmental assessments in Canada: applying past lessons to the 2019 impact assessment act, FACETS, 5(1) 2020

[160] Ibid.

[161] Alberto Fonseca & Robert B. Gibson, Why are projects rarely rejected in environmental impact assessments? Narratives of justifiability in Brazilian and Canadian review reports, Journal of Environmental Planning and Management, 2021

[162] Ibid.

[163] Lauren E. Eckert Leckert et al. Indigenous knowledge and federal environmental assessments in Canada: applying past lessons to the 2019 impact assessment act, FACETS, 5(1) 2020

allowing for comments from people outside of the local area, especially on energy projects that have global impacts.[164] It should also focus on the positive contributions to sustainability instead of just risk mitigation.[165] And finally, projects that are unlikely to bring lasting positive gains to the environment and society should be outright rejected.[166]

Social Impact Assessment (SIA)

An EIA can be complemented by a Social Impact Assessment (SIA).[167] This assessment can investigate the social effects of a designated project. Projects can result in changes to people's way of life (how they live, work, play), their culture (beliefs, customs, values, language), their community (stability, character, services, and facilities), their environment and their health and wellbeing.[168] The SIA is important as social change usually occurs before any environmental impacts.[169] Even the first rumor that something may happen within or near a community can cause social change to occur. Rumors can lead to speculations that feed anxiety and fear, and these must be managed in an effective way.

In Canada, SIAs have been shown to lack transparency regarding data sources, collection and methods of analysis. SIAs also tend to focus more on economic indicators than those pertinent to culture, livelihoods, and wellbeing.[170] In order for SIA to accurately describe the impact on a community, these indicators must be given much more weight.

Social License to Operate (SLO)

The social license to operate (SLO) is an informal social contract.[171] It was developed in the late 1990s as a result of the mining industry failing to meet societal and community expectations.[172] Since then it has branched out into many other sectors including the activities of the forest, agriculture, and energy sectors.[173] The aim of an SLO is to ensure the ongoing approval and broad acceptance of an operation by its employees, the local communities, and the general public. This will ensure a project's sustainability in the long term. The license cannot be provided by any authorities but is instead associated with the approval, consent, demands, and reputation of its above-mentioned stakeholders.[174]

While the SLO concept has potential, its main drawback is that it is based on a company's voluntary actions. It has further been criticized as a self-preservation mechanism primarily designed to reduce conflict between stakeholders and the company than it is about engagement for long-term development.[175] However, the concept has proven to work, mass protests against different tar sands projects in Canada that lacked SLOs have resulted in the cancellation or halting of various projects.[176]

Energy Financial Reserve Obligation (EFRO)

At the end of the project, the site must be dismantled and the environment returned to its initial state. In the U.S. the US Federal Surface Mining Control and Reclamation Act (SMCRA)[177] was developed to ensure that coal companies were held responsible for restoring the lands where mining activity occurred. The companies must post reclamation bonds with regulators as collateral for remediating the lands. That way emergency funds are available to finish the reclamation, or mine clean up, if the company goes bankrupt or fails to clean up the mine site. This system has been criticized in the following ways:[179, 180]

1. Sometimes the dollar amount of the bonds is not enough to reclaim the land.
2. Many states allow companies to pool their bonds meaning that they pay only a fraction as much as

[164] William Lawrence & David Salt, OPINION: Environmental impact assessments aren't protecting the environment, Ensia, 2018, https://ensia.com/voices/environmental-impact-assessment/

[165] Alberto Fonseca & Robert B. Gibson, hy are projects rarely rejected in environmental impact assessments? Narratives of justifiability in Brazilian and Canadian review reports, Journal of Environmental Planning and Management, 2021

[166] Ibid.

[167] Analyzing Health, Social and Economic Effects under the Impact Assessment Act, Practitioner's Guide to the Impact Assessment Act, Government of Canada, 2020

[168] Frank Vanclay et al. Social Impact Assessment: Guidance for assessing and managing the social impacts of projects, International Association for Impact Assessment, 2015

[169] Ibid.

[170] G.D Pimentel da Silva, Do methods used in social impact assessment adequately capture impacts? An exploration of the research-practice gap using hydroelectricity in Canada, Energy Research & Social Science 79 (2021) 102188

[171] Konstantinos Komnitsas, Social License to Operate in Mining: Present Views and Future Trends, Resources 2020, 9, 79

[172] Ibid.

[173] Kieren Moffat et al. Kieren Moffat The social licence to operate: a critical review, 2016, Pages 477–488, https://doi.org/10.1093/forestry/cpv044

[174] Rethinking Social Licence to Operate: A Concept in Search of Definition and Boundaries, Business Council Of British Columbia, Volume 7, Issue 2, 2015

[175] Pamela Lesser, Challenges that mining companies face in gaining and maintaining a social license to operate in Finnish Lapland, Miner Econ (2017) 30:41–51

[176] M. Hazrati & R.J. Heffron, Conceptualising restorative justice in the energy Transition: Changing the perspectives of fossil fuels, Energy Research & Social Science 78 (2021) 102115

[177] Raphael J Heffron, Inclusive Energy Transition, Commonwealth Sustainable Energy Transition Series 2021/01 ISSN 2413-3175

[178] Who will pay to clean up coal strip mines? Western Organization of Resource Councils, 2019

[179] Who Cleans Up Coal's Current Mess?, Appalachian Voices, https://appvoices.org/coal-impacts/current-mine-reclamation/

[180] Erin Savage, Repairing the Damage: The costs of delaying reclamation at modern-era mines, Appalachian Voices July, 2021.

the normal bond cost. This proves to be a challenge when there is widespread bankruptcy of large companies as this will drain the bonds.

3. The usage of *self-bonding*. This is when companies merely have to claim that they are capable of covering the cost of mine reclamation, and so no money is actually transferred to an independent bank/agency. If the company goes bankrupt, there is no funding available for reclamation obligations.

To ensure that funding is available to decommission an energy project or to cover restoration costs after an accident, a fund should be set up before the project starts. This is known as Energy Financial Reserve Obligation.[181] This type of "polluter-pays" practice is already used in the energy sector. For instance in Canada, the Nuclear Fuel Waste Act requires nuclear electricity producers to establish independently managed trust funds.[182] By making annual deposits to these funds, the public can be sure that money will be available if needed.

UTILITY BUSINESS MODELS AND REFORMS

Utility business models

The number of renewable energy and energy efficiency projects continues to grow on Turtle Island, the land that is also known as North America. Many of the independent and small-scale distributed energy sources are led and initiated by Indigenous nations and communities.[183] But many of these communities face barriers embedded in the regulatory and business structures of local utilities that delay or block the adoption of renewable and energy efficiency projects. The current Cost-of-Service (CoS) business model that most utilities in North America are founded upon hinders energy efficiency projects and clean energy initiatives, mainly due to the unfavorable system of rewarding capital infrastructure projects and the incentive to grow energy sales.[184, 185] Simply put, as more independent and small-scale energy efficiency and renewable energy projects are implemented and the energy demand of communities decreases, utilities tend to lose more revenue. It is then inevitable that most utilities are disincentivized to support energy efficiency and community-owned renewable energy projects.[186]

Utility business models need to be restructured and reformed so that these entities are incentivized to support energy efficiency and renewable energy projects. Principles of restorative justice call on utilities, regulators, and governments to design and implement policies, procedures, and structures that pave the way for community-owned and Indigenous-led energy projects. To move towards true reparations for historical harms and prevent future harm, utilities and regulators should first remove these systemic barriers and strive to become active partners and supporters of energy efficiency and renewable energy projects. Such reforms will not only accelerate the adoption of innovative solutions to mitigate climate change but will also ensure that Indigenous nations and historically underrepresented communities have a voice in the design and implementation of energy efficiency and renewable energy projects.

These reforms can take many shapes and include a wide range of government-initiated policies, modernization of revenue generation avenues, and shifting service offerings to ratepayers.[187] There is no one-size-fits-all approach that can be applied to all jurisdictions so it is important for utilities, regulators, different levels of government, and communities to meaningfully engage with each other so that these revisions are centered around the voices of racialized and frontline communities, informed by equity, and designed to meet climate action targets for all populations.

We encourage our readers to explore these alternatives in more detail and open up more space for innovation and co-creation within their own communities. These alternatives are only a few suggestions among a long list of proposed reforms found in practice and literature.

Performance Incentive Mechanisms (PIMs)

Performance-based policies and regulations are designed to integrate community values, environmental impact, and customer engagement within the utility business model to incentivize these entities to reduce their environmental footprint,

[181] Raphael J Heffron, Inclusive Energy Transition, Commonwealth Sustainable Energy Transition Series 2021/01 ISSN 2413-3175

[182] Funding, Nuclear Waste Managmnet Organization, https://www.nwmo.ca/en/ABOUT-US/Who-We-Are/Funding

[183] WAVES OF CHANGE: Indigenous clean energy leadership for Canada's clean, electric future, Indigenous Clean Energy, 2020, https://climateinstitute.ca/wp-content/uploads/2022/02/ICE-report-ENGLISH-FINAL.pdf

[184] D.Cross-Call, C. Goldenberg, L. Guccione, R. Gold, & M. O'Boyle, Navigating Utility Business Model Reform. Rocky Mountain Institute (2018)

[185] E. He, G. Brown, & D. Levekin, Transforming the Utility Business Model. Pembina Institute (2022)

[186] Utility Business Models. ACEEE: https://www.aceee.org/topic/utility-business-models#:~:text=The%20utility%20business%20model%E2%80%94the,in%20successful%20energy%20efficiency%20programs.

[187] E. He, G. Brown, & D. Levekin, Transforming the Utility Business Model. Pembina Institute (2022)

consider the impacts of their projects on communities, or comply with any other requirements outlined in the regulation or policy.[188]

Through defined metrics and key performance indicators (KPIs), the utility is held accountable for their performance, and the flow of revenue to the utility changes accordingly. For instance, if the implementation of energy conservation programs is a defined KPI, then the successful expansion and uptake of these programs would mean an increase in revenue for the utility. But if the utility fails to comply with the requirement to consult with an Indigenous community prior to building a power plant, then the flow of revenue to this entity declines accordingly. With more emphasis on energy efficiency and the need for communities to reduce their energy demand, performance incentive mechanisms (PIMs) are usually combined with revenue decoupling initiatives to dissociate a utility's revenue from units of energy that they sell.[189] These integrated policies and regulations, when applied in tandem, can result in a shift in utility operations and potentially, embedded structures.

Independent Power Producer (IPP) and Similar Policies[190]

Independent power producer (IPP) policies enable communities, Indigenous nations, and small-scale businesses to generate energy—mostly electricity—using renewable energy sources and sell it back to the grid which is controlled by a utility.[191] These policies can take many forms but generally, they are developed by the local government in partnership with the involved utilities and the regulatory body. Remote communities and Indigenous nations heavily rely on IPP policies and power purchase agreements (PPAs) to transition away from fossil fuels—including diesel power plants—and implement independent small-scale energy projects. Many communities, scholars, and industry experts agree that unfavorable terms and conditions within PPAs and IPPs and short-sighted policy design hinder the uptake of energy efficiency and renewable energy projects within communities.[192]

To encourage the deployment of renewable energy projects and successful implementation of energy efficiency measures, utilities should work with government bodies and regulators to develop stronger IPP policies that incentivize small-scale projects and climate change mitigation. Many utilities have mandates to tackle climate change, reduce their emissions, and improve their community engagement. Designing community-centric IPP policies will open the door for more communities to partner with utilities and collectively reduce the energy system's environmental impact.

One of the main barriers for communities to pursue small-scale energy projects is the low PPA rates that most utilities offer in exchange for the generated renewable electricity sent to the grid.[193] The majority of PPA rates do not reflect the true cost of the status quo power generation which is in many cases reliant on fossil fuels, outdated infrastructure, and displacement of many communities.[194] In many Northern communities dependent on diesel fuel, for instance, energy prices are heavily subsidized by the government to try and maintain an affordable energy supply to local communities.[195] These subsidies conceal the fact that power generation with diesel is not efficient nor profitable and therefore, not good for business or the community's health. Nevertheless, PPA rates offered to small-scale renewable energy projects are too low to justify a transition away from diesel to these new energy sources. In order to support communities in their efforts to implement alternative energy sources and boost uptake in clean energy programs, utilities should consider collaborating with government bodies and regulators to create stronger financial incentives for these projects by offering higher PPA rates. The Pembina Institute in Canada recommends that PPA rates should, at a minimum, approach the *marginal cost of diesel* (cost of fuel, generation, transportation, and taxes) to incentivize more communities and businesses to transition away from fossil fuels and embrace renewable energy power generation.[196]

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[188] E. He, G. Brown, & D. Levekin, Transforming the Utility Business Model. Pembina Institute (2022)

[189] Utility Business Models. ACEEE: https://www.aceee.org/topic/utility-business-models#:~:text=The%20utility%20business%20model%E2%80%94the,in%20successful%20energy%20efficiency%20programs.

[190] Also see Community Choice Aggregation resources compiled by EPA: https://www.epa.gov/green-power-markets/community-choice-aggregation

[191] Yukon's Independent Power Production Policy, https://yukon.ca/en/yukons-independent-power-production-policy

[192] P. Okalik, D. Lovekin, K. Savic, & E. Stewart, Recommendations to improve the CIPP and forthcoming utility-scale IPP policy. Pembina Institute (2022). https://www.pembina.org/reports/recommendations-nunavut-to-improve-cipp-english.pdf

[193] Ibid.

[194] VanCleef, A. (2016). Hydropower Development and Involuntary Displacement: Toward a Global Solution. Indiana Journal of Global Legal Studies, 23(1), 349–376. https://doi.org/10.2979/indjglolegstu.23.1.349

[195] Y. Touchette, P. Gass, & D. Echeverria, Costing Energy and Fossil Fuel Subsidies in Nunavut: A mapping exercise. International Institute for Sustainable Development (2017).

[196] P. Okalik, D. Lovekin, K. Savic, & E. Stewart, Recommendations to improve the CIPP and forthcoming utility-scale IPP policy. Pembina Institute (2022).

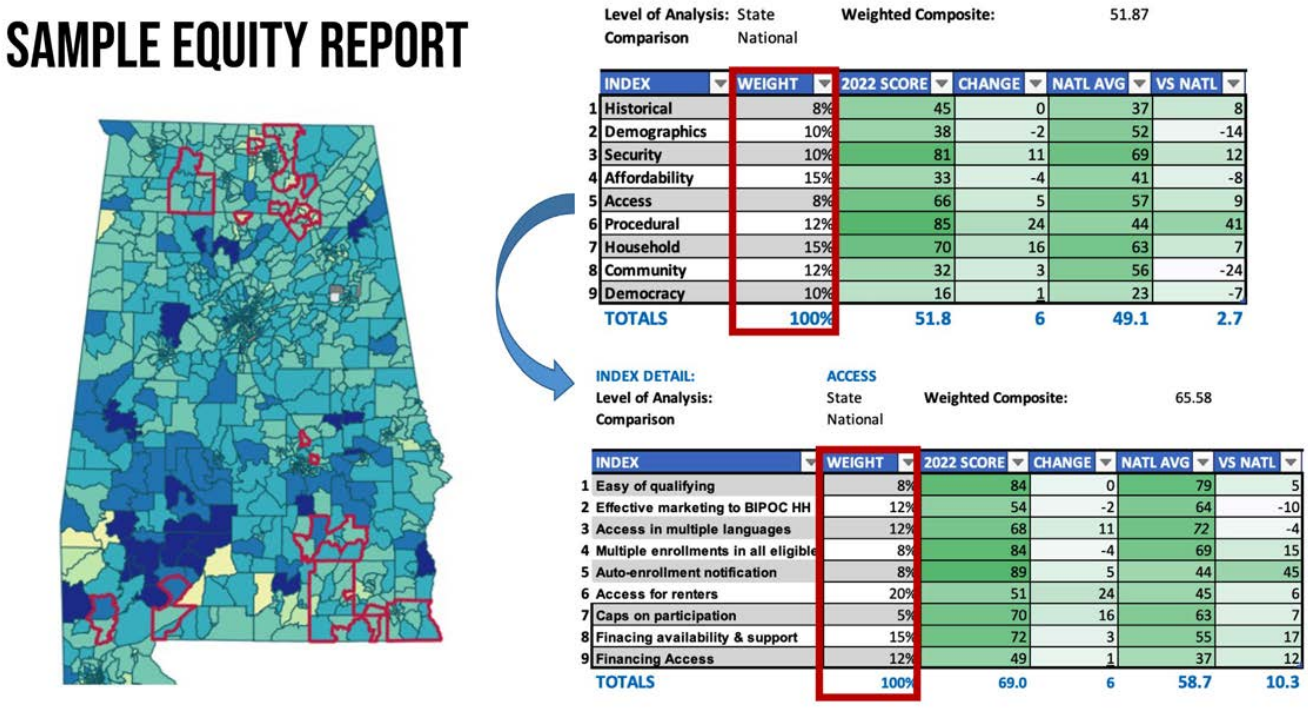
APPENDIX A: The Pathway to Energy Equity Scores

A WORK IN PROGRESS

Original vision: Initially, EEP set out to create a standardized Energy Equity score for every U.S. census tract. We envisioned these scores as a composite of data representing each of EEP's four equity dimensions.

Our original vision would provide comparative scores (e.g. percentiles) for each of nine indices (subdimensions). The metrics comprising each subdimension would also be viewable individually, and users would have the ability to change the weights of both individual metrics and the subdimensions. In the example below, we present a census tract level map (adapted from Department of Energy's Low-Income Energy Affordability Data (LEAD) Tool) as an example of the scores that would be generated by the EEP Framework. In the top right, each index would have a score, a user-selected weight, and comparison to both a national average and the previous year. In the bottom right, users would be able to look at the detail of individual metrics that comprise any one of the nine indices. In this example, we present the scores for nine individual metrics that comprise the Access index.

What we found: The majority of datasets we were able to collect that provide national data at the census tract level reflect recognition equity; few are available that address energy security and affordability and household benefits; virtually none are available at our desired coverage and geographic resolution that address procedural or restorative equity.



Dimension	Total # Proposed Metrics	Included	Priority Data Gap	Desire to Create Rating	Shift to Best Practice	Unlimited Coverage or Unreliable Data	No Potential, Not Requested, Abandoned
Recognition	55	26	10	0	9	4	6
Procedural	40	0	1	8	10	5	16
Distributional	47	3	5	0	6	8	25
Restorative	6	0	0	0	2	4	0
TOTALS	**148**	**29**	**16**	**8**	**27**	**21**	**47**

Because of significant data limitations, the final collection of datasets looks different than the original vision of an equity score. Because many of the subdimensions have only one dataset or none at all, it would not be possible to create a map and subdimension scores as we had originally envisioned.

With this reality in mind, we pivoted to focus on three goals:

1) **Assessing and categorizing all potential metrics,** with an emphasis on identifying priority data gaps and developing a data bill of rights.
2) **Providing the national census-tract level data** we did secure and a platform for users to explore and download data.
3) **Considering alternative methodologies for developing equity scores.** The absence of many desired datasets meant we needed to rethink how we might present an aggregate score.

Metrics selection process: In light of data limitations, one of our primary deliverables is a comprehensive assessment of all metrics and conceptual data sources reviewed and their status. **EEP workgroups assessed 150 potential metrics.** Workgroup members each scored the metrics associated with their equity dimension using the following guidance:

Members used a continuous scale from 0 to 5, with the option to indicate a -5 score for equity for metrics they thought would be in conflict with their dimension of equity or EEP values; no other negative values were enabled. A single workgroup member could apply a -5 score to indicate severe reservations with a proposed metric and to block it from inclusion in the final framework, unless their reservations could be addressed.

Scores for each metric were then averaged and presented back to each workgroup. These scores formed the basis for discussion during 1–2 metric selection sessions that each workgroup convened. Workgroup members were also encouraged to add comments to explain their rationale for scoring or thoughts on improving a metric or suggesting whether it should be captured quantitatively, qualitatively, or as a recommended best practice.

We created 8 classifications for our ultimate usage or determination of these 150 proposed metrics:

1. **Included** – a national dataset either at the census tract level or with lower resolution values applied to each census tract (e.g. all tracts in a county receive the same value ascribed to that county). The data has been cleaned and is readily available for further analysis and visualization.

2. **Secured, late addition** – data is available for inclusion, but was not in our possession in time for inclusion in the beta version of the EEP Framework.

3. **X – Priority data gap** – This data was scored highly by the workgroup and if available, would be very useful for advancing energy equity. We believe policies and data collection and reporting practices are possible to obtain this data universally, or others may already be in the process of compiling a nationally consistent dataset. This data may warrant additional efforts to secure. It may also be available in some states, municipalities, or utility jurisdictions.

4. **X – Desire to create rating scale** – Quantitative data does not currently exist, but there is potential to create a scoring methodology in order to create quantitative data. Data sets that create scores based on qualitatively analyzing existing policies and practices are examples of such rating scales.
   a. Justice in 100 Scorecard, Initiative for Energy Justice
   b. Community Power Scorecard

c. Southeast Rural Electric Co-Op Scorecards, Energy Democracy Y'all
d. Green 2.0 (foundations and NGOs)

Other data sets may be compiled other researchers but not yet translated into a universal scoring method. Examples include:

a. Energy shutoffs practices

A third group of rating scales has been proposed but information about their application is not publicly available.

a. Energy Democracy Scorecard, Emerald Cities

5. **X – Shift to best practice** – These proposed metrics were recognized as neither a fit for quantitative or qualitative assessment and reporting. Reasons for this may have been that they represent an output rather than an outcome metric (e.g. marketing materials available in multiple languages), they are activities that should be promoted regardless of whether and how they are measured (e.g. equity trainings for agency, utility, and utility contractor staff), or we do not anticipate data measurement being appropriate, feasible or useful for comparisons. Centering the voices of BIPOC communities in narratives about historical energy injustices, for instance, would be recommended as a best practice.

6. **X – Limited coverage** – Some quality data is available for a small number of jurisdictions. The presence of funding for public intervenors in utility rate cases and plans, for instance, covers less than a dozen states and there is no clear standard for what is equitable or not. Where data was available for a small portion of the country, we did not include it.

7. **X – Unreliable data** – Datasets that are old or updated sporadically, that are indexes relying on multiple measures (that may each have their own flaws), or from sources we have concerns about or were unable to vet were not included. Generally, this meant we did not include datasets provided by scorecards because we were unable to verify how the subjective scoring was done and whether we believe the underlying methodology was sound. We may consider some of these datasets for future inclusion if we are able to further investigate underlying assumptions and processes of their development and maintenance.

8. **X – no potential, not requested or abandoned** – Workgroups found these proposed metrics uninteresting, low value, or in some cases problematic. We excluded these measures but present them so Framework users see the full universe of metrics that were considered.

Discussion:

- Workgroups found at least some value in 101 of 148 datasets
- Roughly ¼ were included, ¼ were shifted to best practices or qualitative dimensions
- 16 remain priority data gaps, and another 17 remain limited coverage, primarily in the Recognition and Distributional dimensions
- 8 procedural metrics could be developed by creating rating scales as used in scorecards
- The restorative dimension is largely about a holistic approach that does not conform to the same structure of quantitative and qualitative metrics and best practices. Defining restorative equity and how it might be operationalized is pathbreaking work in the field

On the following page, we summarize the status of equity measurement and the future needs for each of the four equity dimensions.

EQUITY DIMENSION	MEASUREMENT SUMMARY	FUTURE NEEDS AND APPROACHES
RECOGNITION	Extensive data availability for demographic sub-dimension, especially through U.S. Census and American Community Survey datasets.	i) Develop historical dimension to: a) Measure cumulative disparities in benefits and burdens should be quantified when possible (e.g. receipt of financial incentives). b) Suggest a process for integrating narratives of historical concerns into equity assessment ii) Secure energy insecurity data for every census tract. Shutoff data is already held by utilities but infrequently disclosed
PROCEDURAL	Numerous best practices have been identified in guides and reports, but almost none are measured quantitatively.	i) Create quantitative rating scales to assess qualitative performance in procedural and program access sub-dimensions.
DISTRIBUTIONAL	A limited number of national data sets exist; some of these are state-wide scores that need to be applied	i) Pursue priority data gaps in affordability, household benefits (e.g. energy savings by race, health benefits) and community benefits (e.g. job creation and quality)
RESTORATIVE	Primary approach is qualitative best practices; majority does not lend itself to quantitative measurement.	i) Develop an overarching process for setting standards in the other three dimensions that must be met from a restorative perspective. ii) Continue to hone conceptual development of sub-dimensions and identify applications specific to the energy system. iii) Compile and develop new resources that promote holistic consideration of restorative equity in energy planning, programming and decision-making.

DATABASES CONSIDERED, ALL DIMENSIONS

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	METRIC DESCRIPTION (Initial Granularity, how it's been adapted for census tracts, coverage)	WORKGROUP INITIAL RATING
Defining "disadvantaged"/ target populations	Included	Recognition	Identity	State	5.00
Relative poverty (% of AMI)	Included	Recognition	Identity	Census Tract	5.00
Age of housing (affects efficiency and exposure to toxics)	Included	Recognition	Identity	Census Tract	5.00
Adoption of historical narrative of disparities in energy system and root causes	X – shift to qualitative/best practice	Recognition	Historical	Municipality/ City	5.00
Disconnections disproportionately impacting BIPOC	X – priority data gap	Recognition	Security	Census Tract	5.00
Disconnection suspensions during extreme circumstances	Secured – late addition	Recognition	Security	State	5.00
# of disconnections	X – priority data gap	Recognition	Security	Census Tract	4.86
% BIPOC	Included	Recognition	Identity	Census Tract	4.78
Deep poverty rate	Included	Recognition	Identity	Census Tract	4.78
% renters	Included	Recognition	Identity	Census Tract	4.67
Trend in disconnections	X – priority data gap	Recognition	Security	Census Tract	4.63
Outages (frequency, duration, restoration time) disproportionately affecting FL-LI-BIPOC	Included	Recognition	Security	Census Tract	4.57
Poverty rate	Included	Recognition	Identity	Census Tract	4.56
Housing burden	Included	Recognition	Identity	Census Tract	4.56
Energy efficiency equity baseline (E3b) metric	X – limited coverage	Recognition	Historical	Utility Service Territory	4.50
Disconnections policies protecting vulnerable populations	Secured – late addition	Recognition	Security	State	4.50
Ease of restoration	X – priority data gap	Recognition	Security	State	4.50
Data transparency for outages and disconnections	X – shift to qualitative/best practice	Recognition	Security	State	4.50
Climate vulnerability - heat exposure	X – priority data gap	Recognition	Identity	Census Tract	4.44
Incarceration rate	Included	Recognition	Identity	Census Tract	4.44
Educational attainment	Included	Recognition	Identity	Census Tract	4.44

DATABASES CONSIDERED, ALL DIMENSIONS *continued*

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	METRIC DESCRIPTION (Initial Granularity, how it's been adapted for census tracts, coverage)	WORKGROUP INITIAL RATING
Air quality	X – priority data gap	Recognition	Identity	Census Tract	4.44
Opportunity scores	Abandon	Recognition	Identity	Census Tract	4.44
Presence of toxic facilities	X – priority data gap	Recognition	Identity	Census Tract	4.33
Climate vulnerability – severe storm / hurricane exposure	Included	Recognition	Identity	Census Tract	4.33
% without health insurance	Included	Recognition	Identity	Census Tract	4.33
Job access score	X – no potential	Recognition	Identity	Census Tract	4.33
Housing + transportation burden	X – shift to qualitative/best practice	Recognition	Identity	Census Tract	4.33
Social Vulnerability Index	Included	Recognition	Identity	Census Tract	4.22
Climate vulnerability – flooding/sea level rise exposure	Included	Recognition	Identity	Census Tract	4.22
Climate vulnerability – adaptive capacity/resilience	Included	Recognition	Identity	Census Tract	4.22
Historical rate & billing changes relative to 1) National average, and 2) Commercial & industrial sector	Secured – late addition	Recognition	Historical	Utility Service Territory	4.14
Asthma rates	X – no potential	Recognition	Identity	Census Tract	4.13
Outage and wrongful disconnection record/ disincentives	X – shift to qualitative/best practice	Recognition	Security	Utility Service Territory	4.13
% households keeping homes at unsafe temperature	X – priority data gap	Recognition	Security	Census Tract	4.13
Employment rate	Included	Recognition	Identity	Census Tract	4.11
% households where English not primary language spoken	Included	Recognition	Identity	Census Tract	4.11
Housing inspection scores (HUD multifamily)	X – shift to qualitative/best practice	Recognition	Identity	Census Tract	4.11
Availability of affordable housing	X – unreliable source	Recognition	Identity	Census Tract	4.11
Eviction rate	Included	Recognition	Identity	Census Tract	4.11
Climate vulnerability – fire exposure	Included	Recognition	Identity	Census Tract	4.00
COVID case and death rates	X – priority data gap	Recognition	Identity	Census Tract	4.00
% households without internet access	Included	Recognition	Identity	Census Tract	4.00

DATABASES CONSIDERED, ALL DIMENSIONS *continued*

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	METRIC DESCRIPTION (Initial Granularity, how it's been adapted for census tracts, coverage)	WORKGROUP INITIAL RATING
Historical violations of land sovereignty by the energy industry	X – shift to qualitative/best practice	Recognition	Historical	Other	4.00
Energy as a human right policy/declaration guaranteeing access/ permanent moratorium on disconnections	X – shift to qualitative/best practice	Recognition	Security	State	4.00
% senior, living alone	Included	Recognition	Identity	Census Tract	3.89
Eviction scorecard (during COVID)	X – limited coverage	Recognition	Identity	Census Tract	3.89
Transportation burden	X – priority data gap	Recognition	Identity	Census Tract	3.89
Maternal mortality		Recognition	Identity	Census Tract	3.80
Life expectancy		Recognition	Identity	Census Tract	3.78
Income mobility	Not requested	Recognition	Identity	Census Tract	3.78
Historical violations of land sovereignty – general	X – shift to qualitative/best practice	Recognition	Historical	Other	3.63
Residential energy consumption disclosure/ benchmarking	X – limited coverage	Recognition	Historical	Municipality/ City	3.57
Reparations	X – shift to qualitative/best practice	Recognition	Historical	Other	3.38
% with a disability	Included	Recognition	Identity	Census Tract	3.33
Blood lead levels in children	Not requested	Recognition	Identity	Census Tract	3.22
Low birth weight		Recognition	Identity	Census Tract	2.78

The Different Dimensions of Equity

RECOGNITION EQUITY

Data is generally available and suitable for quantitative analysis at the Census tract level.

I. Discussion summary:

- Community demographics and climate vulnerability at the census tract level are largely available through existing federal datasets, particularly through the American Community Survey of the U.S. Census. These datasets are not perfect and contain some systematic flaws, such as undercounting of Tribal, unhoused, immigrant, and urban populations or an absence of data altogether, particular for Tribal nations. With attention to these cat
- Quantitative historical data is limited. One notable exception is the University of Richmond's Mapping Inequality map[1] on redlining. While many sources of demographic datasets are available for prior years, EEP did not have the capacity to incorporate this historical data to analyze changes over time.

II. Metrics review:

1. Included

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Defining "disadvantaged"/ target populations	Included	Recognition	Identity	State	5.00
Relative poverty (% of AMI)	Included	Recognition	Identity	Census Tract	5.00
Age of housing (affects efficiency and exposure to toxics)	Included	Recognition	Identity	Census Tract	5.00
Disconnection suspensions during extreme circumstances	Secured - late addition	Recognition	Security	State	5.00
% BIPOC	Included	Recognition	Identity	Census Tract	4.78
Deep poverty rate	Included	Recognition	Identity	Census Tract	4.78
% renters	Included	Recognition	Identity	Census Tract	4.67
Outages (frequency, duration, restoration time) disproportionately affecting FL-LI-BIPOC	Included	Recognition	Security	Census Tract	4.57
Poverty rate	Included	Recognition	Identity	Census Tract	4.56
Housing burden	Included	Recognition	Identity	Census Tract	4.56
Disconnections policies protecting vulnerable populations	Secured - late addition	Recognition	Security	State	4.50
Incarceration rate	Included	Recognition	Identity	Census Tract	4.44
Educational attainment	Included	Recognition	Identity	Census Tract	4.44
Climate vulnerability – severe storm/hurricane exposure	Included	Recognition	Identity	Census Tract	4.33
% without health insurance	Included	Recognition	Identity	Census Tract	4.33
Social Vulnerability Index	Included	Recognition	Identity	Census Tract	4.22

[1] Digital Scholarship Lab, University of Richmond, in collaboration with Virginia Tech University and Johns Hopkins University 2020. Mapping Inequality. Last accessed Friday, April 15, 2022 from: https://dsl.richmond.edu/panorama/redlining/

1. Included *continued*

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Climate vulnerability – flooding/sea level rise exposure	Included	Recognition	Identity	Census Tract	4.22
Climate vulnerability – adaptive capacity/resilience	Included	Recognition	Identity	Census Tract	4.22
Historical rate & billing changes relative to 1) National average, and 2) Commercial & industrial sector	Secured – late addition	Recognition	Historical	Utility Service Territory	4.14
Employment rate	Included	Recognition	Identity	Census Tract	4.11
% households where English not primary language spoken	Included	Recognition	Identity	Census Tract	4.11
Eviction rate	Included	Recognition	Identity	Census Tract	4.11
Climate vulnerability – fire exposure	Included	Recognition	Identity	Census Tract	4.00
% households without internet access	Included	Recognition	Identity	Census Tract	4.00
% senior, living alone	Included	Recognition	Identity	Census Tract	3.89
% with a disability	Included	Recognition	Identity	Census Tract	3.33

2. Priority data gaps & desire to create rating scales

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Disconnections disproportionately impacting BIPOC	X – priority data gap	Recognition	Security	Census Tract	5.00
# of disconnections	X – priority data gap	Recognition	Security	Census Tract	4.86
Trend in disconnections	X – priority data gap	Recognition	Security	Census Tract	4.63
Ease of restoration	X – priority data gap	Recognition	Security	State	4.50
Climate vulnerability – heat exposure	X – priority data gap	Recognition	Identity	Census Tract	4.44
Air quality	X – priority data gap	Recognition	Identity	Census Tract	4.44
Presence of toxic facilities	X – priority data gap	Recognition	Identity	Census Tract	4.33
% households keeping homes at unsafe temperature	X – priority data gap	Recognition	Security	Census Tract	4.13
COVID case and death rates	X – priority data gap	Recognition	Identity	Census Tract	4.00
Transportation burden	X – priority data gap	Recognition	Identity	Census Tract	3.89

3. Shift to best practice

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Adoption of historical narrative of disparities in energy system and root causes	X – shift to qualitative/best practice	Recognition	Historical	Municipality/ City	5.00
Data transparency for outages and disconnections	X – shift to qualitative/best practice	Recognition	Security	State	4.50
Housing + transportation burden	X – shift to qualitative/best practice	Recognition	Identity	Census Tract	4.33
Outage and wrongful disconnection record/ disincentives	X – shift to qualitative/best practice	Recognition	Security	Utility Service Territory	4.13
Housing inspection scores (HUD multifamily)	X – shift to qualitative/best practice	Recognition	Identity	Census Tract	4.11
Historical violations of land sovereignty by the energy industry	X – shift to qualitative/best practice	Recognition	Historical	Other	4.00
Energy as a human right policy/declaration guaranteeing access/ permanent moratorium on disconnections	X – shift to qualitative/best practice	Recognition	Security	State	4.00
Historical violations of land sovereignty – general	X – shift to qualitative/best practice	Recognition	Historical	Other	3.63
Reparations	X – shift to qualitative/best practice	Recognition	Historical	Other	3.38

4. Significant data limitations issues and low priorities

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Energy efficiency equity baseline (E3b) metric	X – limited coverage	Recognition	Historical	Utility Service Territory	4.50
Opportunity scores	Abandon	Recognition	Identity	Census Tract	4.44
Job access score	X – no potential	Recognition	Identity	Census Tract	4.33
Asthma rates	X – no potential	Recognition	Identity	Census Tract	4.13
Availability of affordable housing	X – unreliable source	Recognition	Identity	Census Tract	4.11
Eviction scorecard (during COVID)	X – limited coverage	Recognition	Identity	Census Tract	3.89
Income mobility	Not requested	Recognition	Identity	Census Tract	3.78
Residential energy consumption disclosure/ benchmarking	X - limited coverage	Recognition	Historical	Municipality/ City	3.57
Blood lead levels in children	Not requested	Recognition	Identity	Census Tract	3.22

PROCEDURAL EQUITY

Minimal data is available at the state level and is often patchy; data is primarily suited for qualitative assessment, subjective rating scales, and local narratives.

1. Included – NONE

2. Priority data gaps & desire to create rating scales

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Ease of access to participate meaningfully (clearly explained on website, ease of filing comment, easier path of public intervention, trainings/overview of the process and opportunities, ability to join workgroups that have decision-making power, ease of access to data, FL-LI-BIPOC surveys and focus groups)	X – desire to create rating scale	Procedural	Procedural	State	4.89
Easy of qualifying/ participation	X – desire to create rating scale	Procedural	Access	State	4.89
Regulatory disclosures/ reporting	X – desire to create rating scale	Procedural	Procedural	State	4.50
Regulatory agency/utility/ contractor mandatory equity training/internal practice of equity/diversity reporting requirements	X – desire to create rating scale	Procedural	Procedural	State	4.44
Mandatory utility disclosures/ reporting	X – desire to create rating scale	Procedural	Procedural	State	4.44
Access for renters	X – priority data gap	Procedural	Access	Utility Service Territory	4.44
Presence and involvement (number, budget, etc.) of public advocate/ ombudsman/attorney general/consumer advocate/ non-profit intervenors/ advisory council	X – desire to create rating scale	Procedural	Procedural	State	4.22
Stated equity goals, principles	X – desire to create rating scale	Procedural	Procedural	State	4.11
Auto-enrollment notification/ opt-out	X – desire to create rating scale	Procedural	Access	Utility Service Territory	2.33

3. Shift to best practice

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Financing access – eliminate credit score requirements, subsidize/eliminate interest payments, etc.	X – shift to qualitative/best practice	Procedural	Access	State	5.00
Access in multiple languages	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	4.89
Population access – multilingual materials, public meetings in impacted communities at appropriate times, multiple ways to participate, public comment early in meeting and extended	X – shift to qualitative/best practice	Procedural	Procedural	State	4.78
Effective marketing to BIPOC, frontline, low-income households	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	4.78
Utility penalties for failing to hit equity targets in clean energy plans and program commitments	X – shift to qualitative/best practice	Procedural	Procedural	Utility Service Territory	4.11
FL-LI-BIPOC engagement in writing policy/rulemaking	X – shift to qualitative/best practice	Procedural	Procedural	State	4.00
Financing availability and support – on-bill/PACE/PAYS	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	3.44
Utility lobbying/anti-equity campaigning	X – shift to qualitative/best practice	Procedural	Procedural	Utility Service Territory	3.22
Multiple enrollments in all eligible programs supported	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	3.11
%/total budget for equity measurement	X – shift to qualitative/best practice	Procedural	Procedural	State	3.11

4. Significant data limitations issues and low priorities

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Financing access – eliminate credit score requirements, subsidize/eliminate interest payments, etc.	X – shift to qualitative/best practice	Procedural	Access	State	5.00
Access in multiple languages	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	4.89
Population access – multilingual materials, public meetings in impacted communities at appropriate times, multiple ways to participate, public comment early in meeting and extended	X – shift to qualitative/best practice	Procedural	Procedural	State	4.78
Effective marketing to BIPOC, frontline, low-income households	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	4.78
Utility penalties for failing to hit equity targets in clean energy plans and program commitments	X – shift to qualitative/best practice	Procedural	Procedural	Utility Service Territory	4.11
FL-LI-BIPOC engagement in writing policy/rulemaking	X – shift to qualitative/best practice	Procedural	Procedural	State	4.00
Financing availability and support – on-bill/PACE/PAYS	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	3.44
Utility lobbying/anti-equity campaigning	X – shift to qualitative/best practice	Procedural	Procedural	Utility Service Territory	3.22
Multiple enrollments in all eligible programs supported	X – shift to qualitative/best practice	Procedural	Access	Utility Service Territory	3.11
%/total budget for equity measurement	X – shift to qualitative/best practice	Procedural	Procedural	State	3.11

DISTRIBUTIONAL EQUITY

1. Included

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Energy burden disparities	Included	Distributional	Household Benefits	Census Tract	4.75
Average energy burden among low-income households, BIPOC-F-LI households, and/or other groups (e.g. renters)	Included	Distributional	Affordability	Census Tract	4.43
Disparity in rates between residential vs commercial & industrial	Secured – late addition	Distributional	Affordability	State	3

2. Priority data gaps & desire to create rating scales

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Change in air quality in BIPOC-F-LI communities	X – priority data gap	Distributional	Community Benefits	Census Tract	4.80
% contracts awarded to BIPOC-F-LI-owned businesses	X – priority data gap	Distributional	Community Benefits	State	4.45
BIPOC-F-LI community and climate resilience benefits, reduction in disparities	X – priority data gap	Distributional	Community Benefits	Census Tract	4.33
Reduction in asthma rates	X – priority data gap	Distributional	Community Benefits	Census Tract	4.27
% electricity generation from renewables	X – priority data gap	Distributional	Community Benefits	Utility Service Territory	3.18

3. Shift to best practice

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
BIPOC-F-LI quality of new jobs/wage disparities	X – shift to qualitative/best practice	Distributional	Community Benefits	Census Tract	4.00
% of new jobs obtained by impacted communities/ households	X – shift to qualitative/best practice	Distributional	Community Benefits	Census Tract	4.00
Arrears forgiveness policies/ plans/funding (aka AMPs – arrearage management plans)	X – shift to qualitative/best practice	Distributional	Affordability	Utility Service Territory	3.85
% BIPOC-F-LI participants achieving “substantial” (20%+?) energy savings	X – shift to qualitative/best practice	Distributional	Household Benefits	Utility Service Territory	3.82
Maximum energy burden for renters	X – shift to qualitative/best practice	Distributional	Affordability	State	3.21
% eligible customers needing healthy homes measures served	X – shift to qualitative/best practice	Distributional	Household Benefits	Census Tract	N/A

4. Significant data limitations issues and low priorities

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
% eligible customers served by $ assistance programs	X – limited coverage	Distributional	Affordability	State	NR
% eligible customers served annually/expected time to retrofit all frontline customers	X – limited coverage	Distributional	Affordability	Utility Service Territory	4.77
% eligible customers served annually/expected time to retrofit all frontline, BIPOC, and low-income homes	X – limited coverage	Distributional	Household Benefits	Utility Service Territory	4.77
E3b – spending and savings – for LI, BIPOC, renters, other target populations	X – limited coverage	Distributional	Household Benefits	Utility Service Territory	4.73
Maximum energy burden limit(s)	X – no potential	Distributional	Affordability	State	4.43
Percentage of income payment plans (PIP(P)s)	X – limited coverage	Distributional	Affordability	State	4.42
Improved indoor air quality in BIPOC-F-LI households	X – no potential	Distributional	Household Benefits	Census Tract	4.42
Reduction in respiratory distress / disparities among frontline households	X – limited coverage	Distributional	Household Benefits	Census Tract	4.18
Amount of fixed charges on a bill	X – limited coverage	Distributional	Affordability	Utility Service Territory	4
Disparity in program savings by customer for BIPOC-F-LI households and renters	X – limited coverage	Distributional	Household Benefits	Utility Service Territory	4
E3b at program level, esp for deep retrofits, DERs, EVs, electrification	X – no potential	Distributional	Household Benefits	Utility Service Territory	3.9
Policy support for BIPOC-F-LI locally owned contractors	Not requested	Distributional	Community Benefits	State	3.82
Transit affordability	Abandon	Distributional	Affordability	Census Tract	3.77
Enabling subscriptions in community-owned DERs	Abandon	Distributional	Affordability	Utility Service Territory	3.77
LIHEAP allocation per eligible household	Abandon	Distributional	Affordability	State	3.54
Electrification/EV ready/ charging ordinances	Not requested	Distributional	Community Benefits	Municipality/ City	3.44
% clean energy investments overlapping with health homes	Not requested	Distributional	Household Benefits	Utility Service Territory	3.36
Free or discounted first block of energy	Abandon	Distributional	Affordability	State	3.29
% buildings electrified	Not requested	Distributional	Community Benefits	Census Tract	3.20

4. Significant data limitations issues and low priorities *continued*

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Disparate application of rate incentives (e.g. demand response/time of day) among frontline households	Abandon	Distributional	Affordability	Utility Service Territory	3.17
% of safety net funds directed toward deep retrofits/DERs	Abandon	Distributional	Affordability	Utility Service Territory	3.15
Total amount of clean energy programs	Not requested	Distributional	Household Benefits	Utility Service Territory	3.09
Rate offsets for electrification/ EVs	Abandon	Distributional	Affordability	Utility Service Territory	3.08
% residentially-owned solar potential achieved	Not requested	Distributional	Community Benefits	Census Tract	2.90
Selection of cost effectiveness test	Not requested	Distributional	Household Benefits	Utility Service Territory	2.73
% rebates and tax incentives received by LI, BIPOC households	Not requested	Distributional	Household Benefits	Utility Service Territory	2.67
Beneficial time of day (TOD) and demand response (DR) rates	Abandon	Distributional	Affordability	Utility Service Territory	2.64
% efficiency potential achieved	Not requested	Distributional	Community Benefits	Utility Service Territory	2.60
Cost per ton CO2 reduced?	Not requested	Distributional	Community Benefits	Utility Service Territory	2.22
No new natural gas ordinances	Not requested	Distributional	Community Benefits	Other	2.20
% distributed storage achieved	Not requested	Distributional	Community Benefits	Utility Service Territory	2.10
% served by microgrid	Not requested	Distributional	Community Benefits	Census Tract	2.00
Energy burden floor for high income customers	Abandon	Distributional	Affordability	Utility Service Territory	0.15

RESTORATIVE EQUITY

1. Included: NONE

2. Priority data gaps & desire to create rating scales: NONE

3. Shift to best practice

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
** Aggregate presence of restorative elements	X – shift to qualitative/best practice	Restorative	Reparations & Accountability	Other	3.89
Protections against gentrification resulting from clean energy	X – shift to qualitative/best practice	Restorative	Reparations & Accountability	Municipality/City	2.9

4. Significant data limitations issues and low priorities

METRIC	INCLUDED STATUS	DIMENSION	SUB-DIMENSION	RESOLUTION	WORKGROUP INITIAL RATING
Presence of community choice aggregation or virtual utilities	Not requested	Restorative	Power to the People	State	2.4
Net metering	Not requested	Restorative	Power to the People	State	1.8
Favorable rates for time of day use/generation	Not requested	Restorative	Household Benefits	Utility Service Territory	1.56
Adders/bonus rebates or tax credits for impacted communities and households	X - limited coverage	Restorative	Power to the People	State	4.1

Data Considerations

What data should regulators require, collect, and share?

Data gaps are one of the greatest frustrations in attempting to advance equity. Too often, we don't know who participates in public processes, who participates in clean energy programs, who receives incentives or tax credits, and how different groups benefit from clean energy and climate policies and investments. In these situations, efforts to advance equity are operating in the dark.

There are a host of reasons underlying data gaps, including:

1) **No data exists.** No one has thought to collect this particular data, thought it was important, or had the resources to collect and maintain data for it to be sufficiently useful and secure.
   a. *Legality concerns:* Another common reason data may not exist is that it is believed that collecting the data is unallowable/unethical/illegal. These justifications may or may not be right, or entirely right. For instance, we often hear a blanket objection to collecting data on race "because the lawyers say it is illegal" or a "non-starter" or something to that effect. There are indeed likely to be *legal concerns* that might be raised if data on race were to be collected and publicized, but it is simply not true that no data can be collected, or that we are sure such an effort would be rejected by the courts in a particular context. There may be appropriate cautions or limitations to collecting data on race, but knee-jerk reactions to sweep all options off the table are probably short sighted. There is often room for more nuanced approaches to getting some data or data for de-personalized usage in a particular context.
   b. *Data privacy and security* are legitimate concerns that need to be respected. That said, most often there are effective safeguards that can be enacted to protect data to very high standards. In California, legislation enables use of individual household energy consumption data (the finest resolution possible) by providing the. UCLA's Energy Atlas, led by Dr. Stephanie Pincetl, is one of the public research institutions that has met these stringent requirements and been granted access to the data. The Energy Atlas, as a result, has provided some ground-breaking insights they were able to achieve by working with data at such a fine scale.
   c. *Data acquisition cost and difficulty.*

2) **Data is not in usable format.** Data must be easy to analyze for all interested parties—regulators, researchers, and community-based organizations. We have seen data that is available only as a scanned PDF or an image, thus preventing users from doing further analysis or requiring exasperating hand entry to recreate a table. We know no data is collected as an image or PDF, and only presenting data in this format flies in the face of transparency.

   At a bare minimum, data must be downloadable in a standard format that can used in simple, readily accessible software. .CSV and .XSLX (Excel) formats should be available. Other formats and features that make data more accessible and transparent to the public include:

   - Choice of multiple formats for export
   - Ability to query specific data and dedicated technical support
   - Pre-selected analyses
   - Combination of raw data and data visualization through maps, tables, graphs
   - Clearly described methodology for obtaining, cleaning, and maintaining data, along with descriptions of data limitations

3) **Data is not available at an appropriate scale of geography or time.** It is easy to draw unintended conclusions when working with data that do not align with the needed time and place.

   For instance, the DOE's LEAD Tool that reports energy burdens by census tract, does not have energy consumption data at this scale. Without this half of the equation, the data

4) **Data is available only as a proxy for the desired data.**

Summary of recommendations to close gaps:

1) Create an open, accessible process to identify high priority data gaps. The process shoulrd include multiple government agencies, data collectors (e.g. utilities), researchers, and frontline community representatives and organizations so that efforts to fill data gaps can be coordinated.

2) Identify the end outcomes and proposed uses of data for each type of data desired. What data is absolutely essential for achieving the desired outcomes and what data is only interesting and nice to have? Given staff capacity and funding limitations, data needs should be prioritized to align with community goals.

3) Define the data strategy parameters, including:
   a. Who collects, cleans, and maintains the data?
   b. What supporting resources are available to data users, including technical assistance support, data hosting and queries capacity, training, and budget for public advocacy, such as allowing use of public funding for intervenors in rate cases to be used for data analysis?
   c. What format is the data held in?
   d. What geographic scale is the data collected at and how frequently is it updated?
   e. What privacy and security protections must be in place? What data, if any, is off limits or only accessible in aggregate and why?
   f. Are there different levels of access to data based upon meeting different standards of data protection?
   g. What policies and administrative rules must be enacted to codify the data strategy?
   h. What staff time, budget, and other resources are needed both to start and sustain the data strategy?

4) Liberating data in the nearterm. Researchers, regulators, advocates and community organizers may be entitled to data that already exists but has not been previously published or publicly disclosed. These avenues include:
   a. Searching existing public records – A link to all state utility commission websites if available here
   b. FOIA (Freedom of Information Act) requests and requests through state and local public meetings acts (e.g. requiring release of agendas, minutes, and meeting presentations)
   c. Formal discovery requests by a state public utility commission or a legal intervenor in a public proceeding or docket.
   d. Citizen science – data collected by the public is invaluable. The tragedy of the Flint Water Crisis serves as a powerful example of how, when stonewalled by the agencies charged with protecting their water quality, the citizens of Flint organized and collected their own water samples and reached out to scientists and labs that would help conduct the analysis and prove that Flint's water had been poisoned with lead. Not all citizen science needs to be so impressively coordinated or exhaustive. Neighbors on a block documenting regular outages, their dates and durations and the weather conditions when they occurred, or contractors refusal to provide service for an energy efficiency program despite being listed on the utility website as a qualified contractor serving their city or county, are viable, straightforward strategies for collecting and using data to argue for change, and for justice.

APPENDIX B: Stakeholder Engagement Summary

EEP LISTENING SESSION COMPILATION

SUMMER 2021

Listening Sessions Overview

This document details the feedback we received over seven 90-minute stakeholder listening sessions, attended by 153 people in Summer 2021. To create a safe space during the session, we agreed that we would not make responses public. We did, however, create a summary document of what we heard in the sessions and provide more detail here about how participants value proposed indices and metrics. We ask workgroups to consider feedback for the indices they are responsible for.

Before launching in May, 2021, EEP decided it would work to develop indices and metrics associated with four dimensions of equity: 1) Recognition, 2) Procedural, 3) Distributional, and 4) Restorative. These four dimensions were drawn from the pillars of energy justice. Recognition (often called "structural"), procedural, and distributional equity are most commonly adopted in other contexts. The restorative dimension is not widely recognized or may be considered a component of distributional and recognition equity. We decided to include this is as its own dimension to shine a light on energy democracy and sovereignty issues which are concerned with the right to own and control clean energy assets and systems.

From there, EEP researched and brainstormed a potential list of 92 metrics that could be used to represent the four equity dimensions. Dozens of sources were reviewed to develop this potential list of draft metrics. Some of the more prominent resources we drew from include:

- ACEEE Scorecards
- Initiative for Energy Justice – Justice in 100 metrics
- Greenlining reports and guides
- State and city indicators, such as California's Energy Equity Indicators
- Public data sets, such as EIA's Residential Energy Consumption Survey (RECS), DOE's LEAD Tool for energy burdens, and EPA's EJSCREEN tool for pollution exposure

Other metrics were suggested to EEP based on dozens of 1 to 1 conversations with allies, partners, and other stakeholders and decades of EEP staff experience with community-based energy justice initiatives and research in Detroit.

We organized individual metrics into a series of nine themes, or indices. In our first session we asked participants to rate every metric in every index, which was overload. We tailored our remaining sessions to focus on indices and metrics we thought would be of interest to specific stakeholder groups or asked the groups to pick three indices to rate. As a result, each stakeholder group rated a subset of the indices and metrics; the number and composition of raters varies for each index. The question consistently posed to raters was: **"How essential are these metrics for the _____ Index?"** on a 1 to 5 scale, with 1 = Cut/low value/too hard and 5 = Absolutely needed/keep.

Participation

We invited all contacts in our network to participate in sector-specific listening sessions, with the goal of creating safe spaces for each group of stakeholders to emphasize their priorities and concerns about EEP's proposed indices and metrics. New suggestions and refinements were added to the potential metrics as they were received.

Document Organization

Each index includes three charts: 1) The number of participants by stakeholder group, 2) A bar graph of the mean individual scores (across all stakeholder groups) for each metric in that index and the variance in scores between the highest and lowest stakeholder

EVENT	DATE	# REGISTERED	# ATTENDED
Kickoff #1	6/9/21	210	130
Kickoff #2	6/17/21	165	85
Listening #1 – Practitioners #1	6/23/21	39	27
Listening #2 – Community #1	7/14/21	40	13
Listening #3 – Utility	8/4/21	67	36
Listening #4 – Regulator	8/11/21	50	25
Listening #5 – Philanthropy	8/18/21	26	9
Listening #6 – Community #2	8/19/21	36	17
Listening #7 – Practitioners #2	8/25/21	66	26
Listening #8 – Indigenous	2/21/22	71	41
9 EVENTS	**11 WEEKS**	**699**	**409**

group score, and 3) A table with additional rating detail. These charts are described in the highlights, themes, quotes, questions, staff reflections and references are provided (some entries are blank for some indices). If you view the navigation pane, you can move directly to the data summary or commentary for any index.

Limitations

- While participants do represent a cross section of stakeholders, they are not necessarily a representative sample of each stakeholder group. We have a limited sample size and participants have pre-existing interest in the topic of energy equity.

- Although we did not collect demographic data on participants, we observed that the majority of participants were white, and were professionally involved in the energy or climate work and thus often able to participate as part of their job. We held second sessions for grassroots community stakeholders and participants, offered compensation for participating, and did direct outreach to energy and environmental justice groups in underrepresented states and regions. Despite that, we did not achieve majority BIPOC representation and have gaps in participation from politically conservative states and frontline communities.

- There is considerable variation in previous knowledge of or exposure to the metrics we presented. Someone with firsthand knowledge of how a metric can improve program outcomes may rate the same metric significantly differently than someone who is encountering them for the first time. We consider ratings for the less commonly used metrics to be the least reliable.

- We used menti.com for live polling to gather quantitative data about the proposed indices and metrics.
  - The sample size is limited (and noted with each index below), so there is likely to be significant noise and variations in ratings are not statistically significant
  - There was a degree of interpretation about the precise definition of each metric. Some clarifications were made in the moment, but for others, like reparations, the value of a potential metric to a rater could depend significantly on the data set used.
  - Live polling proved to be tedious. After our first round of live polling with practitioners, we scaled back our use of this strategy and limited it to indices that were either voted on by participants or suggested as the most relevant for soliciting input on specific metrics.

- **EEP created a survey in Qualtrics** that allows respondents to rate the same indices and metrics that were rated during the listening sessions. This survey was not widely promoted and has few responses as of October 2021. As with the live ratings done in listening sessions, this requires a lot of effort by participants to read and score potentially dozens of metrics. That said, respondents can choose to rate the metrics associated with just one index, greatly reducing the burden of participation. If workgroups decide that feedback from a larger audience is valuable, we have this tool available. You can see the survey here.

Interpreting Feedback

Despite the limitations, the combination of narrative feedback and supplemental quantitative feedback were extremely useful for identifying themes, general priorities, and sticky or unresolved issues. We hope that these ratings, coupled with qualitative feedback received during the sessions, *provide direction* for workgroup members: indicating where there is general agreement, where there are concerns or questions, and where there are tensions. Greater variance in ratings between stakeholder groups indicates potential opposing values or goals. The data will not, however, provide a quantitative justification for the selection of metrics. Some of this content will provide transparency to users of the beta framework and the public, but we intend to keep individuals' ratings and quotes from the listening sessions confidential, as we committed to do at the start of each session.

Broad Themes

Some of these metrics represent end outcomes, while others reflect outputs or program design considerations. There is general agreement by both listening session participants and EEP staff that we should consider these differently. We should focus quantitative assessment through metrics on end outcomes, and offer guidance or best practices for inputs and outputs. For instance, we might suggest how many call center staff should be fluent in Spanish, based on the percentage of Spanish speakers in a program service territory. We wouldn't, however, need to track the number of those staff as a metric. Not having enough Spanish-speaking staff might influence and be reflected in the outcome metric—the percentage of program participants who are not native English speakers and their energy savings resulting from program participation. In short, we will aim to measure outcomes, and provide guidance (both qualitative and quantitative) on inputs and outputs that effect our target outcomes.

Quotes (broad application)

"It seems that a traditional regulatory goal (in statutes) has been 'fair treatment' is defined as 'treat people the same.' This may change now, but the law is hard to change."

"Directives should come from the regulators."

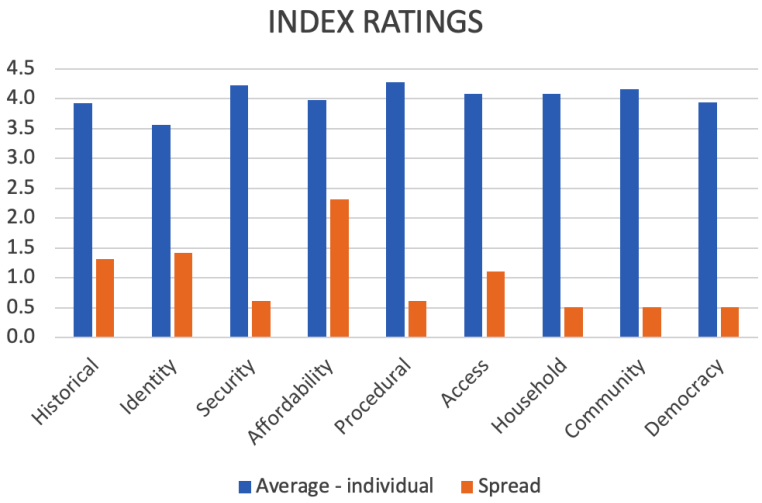
Questions

All these require a baseline. How do you get that in time to be useful for short term programs?
"**A question on data availability: How available is this information?** Will customers share this data willingly? How can we ensure that undocumented folks are included in data collection? Perhaps an extra index should be added to reflect % of customers surveyed."

0. INDEX RATINGS – BY THE NUMBERS

SESSION	# OF RATERS
Community	1
Practitioner	6
Utility	16*
Regulator	17
Philanthropy	5

* Utility stakeholders only rated identity, affordability, and access indices.



INDEX	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Historical	3.9	4.2	3.4	4.7	1.3
Identity	3.5	3.9	3.0	4.4	1.4
Security	4.2	4.4	4.0	4.6	0.6
Affordability	4.0	4.6	2.5	4.8	2.3
Procedural	4.3	4.2	3.8	4.4	0.6
Access	4.1	4.4	3.3	4.4	1.1
Household	4.1	4.1	3.8	4.3	0.5
Community	4.2	4.2	4.0	4.5	0.5
Democracy	3.9	4.0	3.8	4.3	0.5

Index Ratings – Discussion

Highlights:

- **Identity:** For these ratings, participants saw a snapshot of the indices, a description, and 3–5 sample metrics that comprise the index. We had the highest number of respondents to this rating and the most consistent scores all were between 3.9 and 4.3, with the exception of Identity, which was rated at 3.5 but may have been lower due to utility ratings of 3.0. Interest in the identity index may also be lower because its data sources, such as US Census data, are already widely available. Furthermore, the federal government is in the midst of an intensive process to determine the metrics that will assess whether a community is disadvantaged for Justice40 purposes. Other states are in the process developing similar criteria. While extremely valuable, existing efforts for creating metrics for this index are the most robust and may be adopted as is or with minor modifications by EEP.

- **Historical:** This index had the greatest variance between listening sessions, indicating there may be specific differences between stakeholder types or that people vary in how they envision the index and its metrics will be operationalized.

- **Security** and **Affordability** remain top concerns for practitioners, grassroots community organizations, and regulators. It was surprising to see procedural score highest (regulators were about 1/3 of respondents). Procedural elements are raised very frequently but rarely assessed quantitatively. Draft metrics for this index, such as the amount of public funding for intervenors or composition of PUC staff, sparked significant interest with the possibility of measurement.

- Despite being perhaps the least defined at this stage, interest the energy democracy index (e.g. % ownership of clean energy assets by BIPOC households) was surprisingly consistent, tied for the lowest difference in ratings by different stakeholders.

Themes:

Aside from the question about the identity index, all indices were deemed valuable. Between the scores and feedback expressed verbally or in the chat during the session, we think this organization of indices is useful and intuitive for most. We did not attempt other groupings, however, such as simply one index for each of the four equity dimensions.

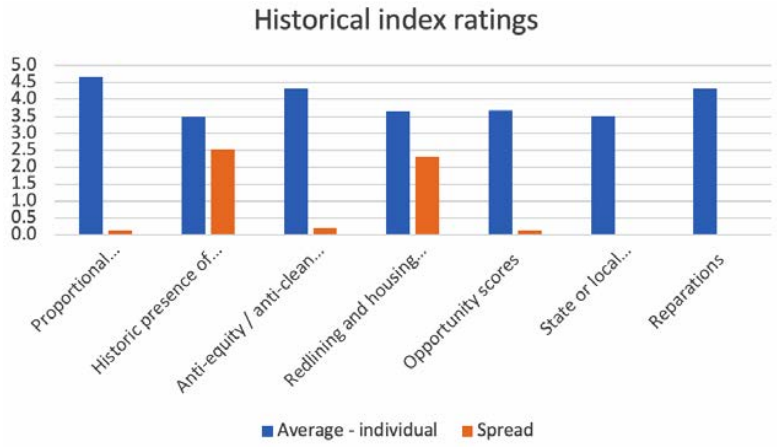
REFERENCES:

The State of Equity Measurement was written in 2019 by Dr. Carlos Martín and Jamal Lewis, both members of the EEP advisory team. They identify six elements of equity and provide context for which elements can be reflected quantitatively and qualitatively.

1. HISTORICAL INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	6
Practitioner	5
Utility	16*
Regulator	
Philanthropy	

* Utility stakeholders only rated historic presence of toxics and redlining.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	VARIANCE
Proportional disparities in program spending and savings	4.7	5.7	4.6	4.7	0.1
Historic presence of toxic facilities, cancer clusters	3.5	4.1	2.5	5.0	2.5
Anti-equity/anti-clean energy lobbying and campaigns	4.3	4.3	4.2	4.4	0.2
Redlining and housing discrimination	3.6	4.2	2.7	5.0	2.3
Opportunity scores	3.7	3.7	3.6	3.7	0.1
State or local designations (e.g. rising tide communities)	3.5	3.5	3.5	3.5	0.0
Reparations	4.3	4.3	4.3	4.3	0.0

Historical Index – Discussion

Highlights:

Proportional spending (also known as the E3B metric which was developed by the Urban Energy Justice Lab), negative lobbying efforts, and reparations were received the most ratings. Historic presence of toxics and redlining are strongly supported by community groups, but not by utilities.

Themes:

Opportunity scores, an existing index that combines health, economic, and housing data, was questioned multiple times and had lower value in both discussion and quantitative ratings.

Redlining and other housing discrimination and potential reparations received robust discussion during multiple listening sessions.

Staff Reflections & Key Questions:

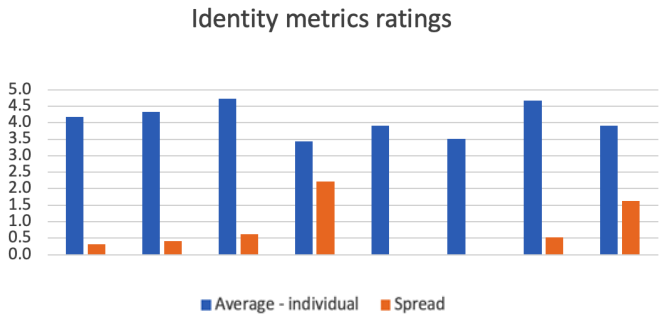
Quantifying the historical differences of program benefits is feasible, at least for certain benefits. It seems, however, that the most prevalent use of historical disparities is merely in the designation of a community as "disadvantaged", but this does not attempt to repay the disparities. Imagine a utility that has been providing residential energy efficiency programs for fifteen years. Annual plan filings with the PUC document that during that time, the utility spent $250 million on programs for non-low-income households, but only $25 million on programs for low-income households. Despite receiving just 10% of program spending (and likely less than 10% of benefits), low-income customers make up 40% of this utility's customer base. Proportionate spending, which we would argue falls short of equitable spending (proportionate spending is equality, not equity), would have required $110 million be spent on LI programs over the course of 15 years. Should LI customers be due the $85 million gap in spending to make up for this, just to get to a baseline of equality? How and when would this be paid? What would this mean for determining an equitable program budget?

If we are serious about correcting for historical disparities in program benefits, it would seem this might require either 100% of program budgets for the next several years be dedicated to LI programs or a massive infusion of additional funds to make up for historic LI shortfalls. Despite the logic behind this, both of these requests seem likely to receive kneejerk reactions of "that's simply not possible," with a willingness only to correct the disparity going forward. We often hear the same response in general about reparations, whether for land taken from Indigenous people or the enslavement and violence against African Americans—it is not practical to quantify historically and we lack the ability to pay what's owed. Allowing messiness and impracticality to stand as excuses for not addressing historic wrongs seems like a major loss. Do you have ideas about how to sell this idea of correcting for historic disparities to reluctant decision-makers?

2. IDENTITY INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	8
Practitioner	8
Utility	16*
Regulator	
Philanthropy	

* Utility stakeholders only rated housing stress and other economic stresses



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Climate vulnerability	4.3	4.3	4.3	4.3	0.0
Pollution	4.1	4.1	4.1	4.1	0.0
Demographics	5.0	5.0	5.0	5.0	0.0
Housing access	3.0	3.2	2.2	4.1	1.9
Language access	3.9	3.9	3.9	3.9	0.0
Opportunity scores	3.5	3.5	3.5	3.5	0.0
Health measures	4.4	4.4	4.4	4.4	0.0
Other economic	3.8	4.1	3.3	4.9	1.6

Identity Index – Discussion

Highlights:

- Opportunity scores were not well known or well received and were widely recommended to be cut. EEP staff concur.
- Health measures, pollution burden, and climate vulnerability were very important identity metrics to stakeholders.

Themes:

Knowing the identity of who is and isn't participating is a central need for assessing energy equity. Many of these metrics are existing, publicly available datasets. Several states and federal agencies (as required by Justice40) are using identity metrics to define "disadvantaged communities" (or some similar emphasis on disproportionately impacted groups).

Quotes:

"How do you we know if climate vulnerability has decreased?"

Key Questions:

How much should EEP invest in defining identity metrics vs waiting for guidance or to adopt what is being developed by others?

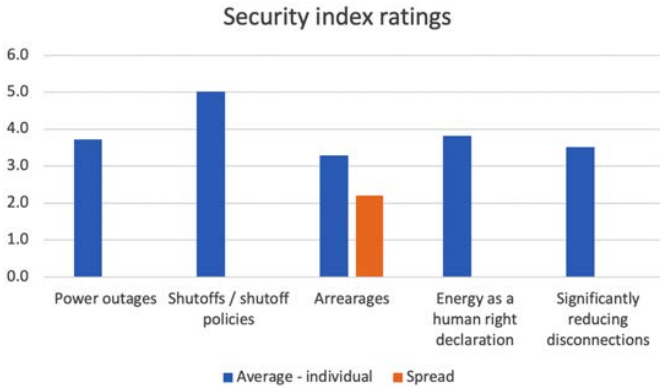
REFERENCES:

- Justice40 draft metrics and data submissions for defining disadvantaged communities
- NY State proceedings on defining disadvantaged communities – see especially June 2021 meeting

3. SECURITY INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	
Practitioner	6
Utility	11*
Regulator	
Philanthropy	

* Utility stakeholders only rated arrearages and significantly reducing disconnections.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Power outages	3.7	3.7	3.7	3.7	0.0
Shutoffs/shutoff policies	5.0	5.0	5.0	5.0	0.0
Arrearages	3.3	3.6	2.5	4.7	2.2
Energy as a human right declaration	3.8	3.8	3.8	3.8	0.0
Significantly reducing disconnections (utility rated only)	3.5	3.5	3.5	3.5	0.0

Security Index – Discussion

Highlights:

We had limited voting on this index but considerable discussion, and it has been our most active topic in Slack. The bottom line is that dramatically reducing or eliminating disconnections is the main metric people care about in this index.

Themes:

Eliminating disconnections is primary goal for many practitioners and grassroots advocates. They note the deaths that occurred during heat waves this summer and additional deaths during COVID after shutoff moratoria were lifted in many states. Some states are doing more than others at both disconnection reporting and reductions; the majority of states do not require any reporting on disconnections.

Arrearages were listed as a key factor in energy insecurity, particularly as many households have accrued additional debts during COVID-related shutoff moratoria.

Quotes:

"The time to restore people also varies widely by utility and needs to be considered."

Key Questions:

- What are the desired reporting guidelines for disconnections?
- What series of protections should be in place before a disconnection can be considered?
- What is a proposed pathway to greatly reduce or eliminate disconnection?
- There are a number of storytelling projects about the impacts of utility disconnections—how could these and qualitative input in general be incorporated in our framework?

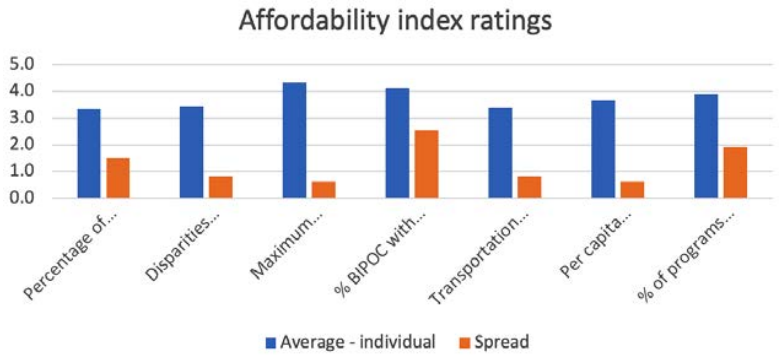
REFERENCES:

- Info on CA efforts
- Info on CARES funding, executive bonuses and shareholder payouts, and shutoffs
- Info on increased COVID infection and mortality as a result of shutoffs and evictions

4. AFFORDABILITY INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	7
Practitioner	26
Utility	11*
Regulator	
Philanthropy	

* Utility stakeholders only rated PIPPs, severe burdens, and deep savings.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Percentage of income payment plans (PIPP)	3.4	3.6	3.0	4.5	1.5
Disparities between customer classes	3.4	3.6	3.2	4.0	0.8
Maximum energy burdens	4.3	4.1	3.8	4.4	0.6
% BIPOC with severe burdens	3.9	3.9	2.5	4.8	2.3
Transportation burdens	3.4	3.6	3.2	4.0	0.8
Per capita energy program budget	3.6	3.5	3.4	3.6	0.2
% of programs dedicated to deep energy savings	3.7	3.8	3.0	4.4	1.4

Affordability Index – Discussion

Highlights:

Despite being an imperfect measure, energy burdens are still the most preferred metric for representing affordability. A subset of this concern was the percentage of BIPOC households with high (>6% income), severe (>10%), or extreme burdens (>15%), which had lower ratings among utility stakeholders but was near the top among practitioners (4.5) and substantially higher among grassroots community stakeholders (4.8).

There was considerable vocal and chat support for percentage of income payment plans (PIPP), although this is not well reflected in the scores and may represent either a minority opinion or greater familiarity with these metrics.

Themes:

Electrification: Some efforts to reduce emissions, particularly electrification, would raise energy costs without significant changes to program design or additional supports. Any increase in cost from decarbonization is strongly opposed by many affordability advocates. Another feedback loop of concern is that as more people stop using natural gas or the electric grid, those that are not able to switch to electricity or distributed sources will be forced to pay a higher share of maintaining the fossil fuel infrastructure. People in cities like Detroit have experienced sharp increases in their water bills, as the systems were originally built for much larger populations but white flight resulted in many paying lower rates in the suburbs. At a minimum, ensuring that costs do not increase, either immediately or from rate increases down the line, should be the baseline for any new clean energy programs.

Quotes:

"I would examine RESIDENTIAL RATE DESIGN, too. For example, large customer charges are regressive and diminish value of energy efficiency investments. Perhaps also look at late fees and deposit requirements—other punitive policy data."

"On % program $ dedicated to deep retrofits, I'd specifically want to see that with a racial/ethnic/ income overlay. As we've discussed a bit already, $ may exist but folks may not be able to take advantage of it."

"Instead of per capita program budget for safety net, why not focus a metric on the recipients? e.g. % of energy costs covered by avg. safety net recipient."

"Problem with all energy burden metrics: energy is a housing cost—unless its transportation. The federal standard is 33% is the right housing burden. Every standalone energy burden metric suggests advocates mean to add that to whatever else the consumer has to pay for to survive. Measure housing burden including energy—then focus on those whose housing will be more affordable if we can lower the energy burden"—lots of support for total housing burden.

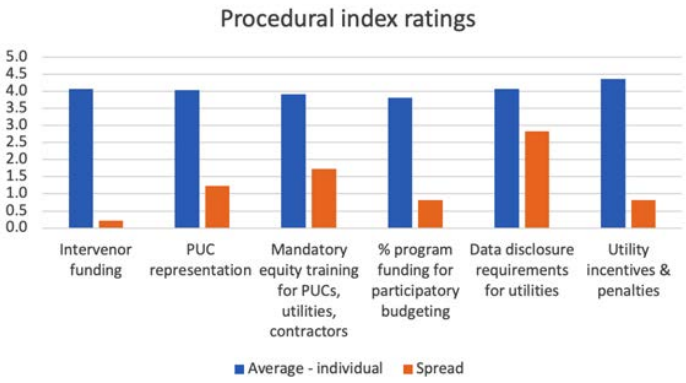
Key Questions:

- How should total housing burden be defined?
- What other cost of living factors should be considered in affordability?
- What are the limitations of estimating current energy burdens? (e.g. accessing IPUMS Census data or customer-scale utility data)
- If rate structure is important, how should that be assessed?
- Which elements of affordability should be treated as prescriptive guidance and which as outcome metrics?

5. PROCEDURAL INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	6
Practitioner	25
Utility	11*
Regulator	15
Philanthropy	

* Utility stakeholders only rated data disclosure requirements for utilities.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Intervenor funding	4.1	4.1	4.0	4.2	0.2
PUC representation	4.0	4.1	3.6	4.8	1.2
Mandatory equity training for PUCs, utilities, contractors	3.9	3.9	3.0	4.7	1.7
% program funding for participatory budgeting	3.8	3.8	3.4	4.2	0.8
Data disclosure requirements for utilities	4.1	4.0	2.0	4.8	2.8
Utility incentives and penalties	4.3	4.3	3.8	4.6	0.8

Procedural Index – Discussion

Highlights:

Addressing how utility compensation ties to program performance, especially achieving equity targets, received the highest ratings. Data disclosure requirements (except among utility stakeholders), PUC representation and mandatory equity training all received strong support.

Themes:

This index is one of the most complex. Creating equitable participation processes includes appropriate external structures (e.g. making meetings and documents more accessible), internal work (equity trainings and increasing BIPOC staff representation) and on-going relationships between regulators and impacted communities.

Quotes:

"I see a lot of data disclosure requirements coming from settlements and stipulations, or potentially from rulemaking proceedings where the PUC defines new procedures."

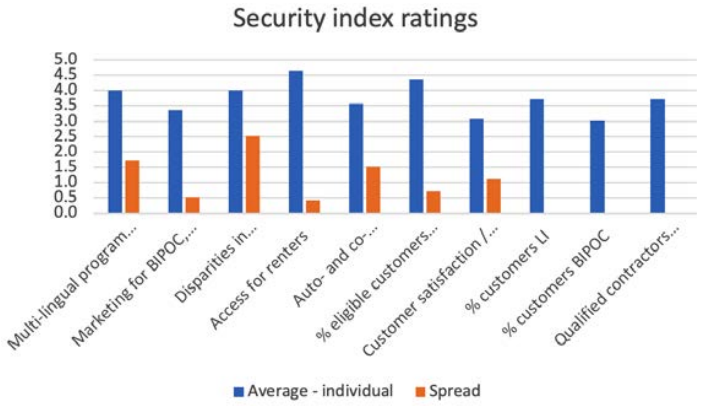
Key Questions:

The question of what constitutes and outcome vs. an output for this index is crucial. Do we need to track intervenor funding, or should we focus on establishing guidelines for this, as one method of increasing public engagement?

6. ACCESS INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	1
Practitioner	21
Utility	11*
Regulator	
Philanthropy	

* Utilities did not rate access for renters, % eligible customers, or customer satisfaction. Practitioner did not rate the last three measures.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Multi-lingual program options	3.4	4.2	3.3	5.0	1.7
Marketing for BIPOC, frontline audiences	3.1	3.1	3.0	3.1	0.1
Disparities in participation rates by race, etc.	2.7	3.8	2.5	5.0	2.5
Access for renters	5.0	5.0	5.0	5.0	0.0
Auto- and co-enrollments, ease of enrollment	3.6	4.3	3.5	5.0	1.5
% eligible customers served	5.0	5.0	5.0	5.0	0.0
Customer satisfaction/utility trust scores	2.0	2.0	2.0	2.0	0.0
% customers LI	3.7	3.7	3.7	3.7	0.0
% customers BIPOC	3.0	3.0	3.0	3.0	0.0
Qualified contractors serving all HH	3.7	3.7	3.7	3.7	0.0

Access Index – Discussion

Highlights:

The raters were almost entirely utility stakeholders (plus one participant in the practitioner session).

Themes:

The importance of end outcomes vs outputs: This was raised for other indices but was most prominent in the Access Index discussion. Better design of marketing materials is good, but meaningless if it doesn't result in participation by desired groups, typically most historically disadvantaged and/or currently vulnerable.

Heated conversation around financing: Financing sparked a lot of debate-notably the idea that people with lowest incomes and/or highest burdens should be expected to somehow pay for these upgrades, even over time. There was concern that financing could be predatory or have negative, have unintended consequences (e.g. liens on houses), or that the presence of financing could reduce the motivation to subsidize upgrades. They also expressed that

because rates change (mostly increase) and energy savings are often underestimated, it is not possible to guarantee or even predict savings. There was skepticism about the idea that these improvements would pay for themselves.

There were a few others that spoke up about financing being important, particularly for certain income brackets, e.g. just above 200% where households not eligible for assistance programs but still may not have enough to fund upgrades out of pocket. Even for income eligible households, grant programs that cover the full cost (like WAP) have very limited slots relative to need and long waitlists.

The trade offs of this metric strike me as similar to the potential tradeoffs between electrification and affordability. It is possible to target and structure well to serve households meeting specific criteria, but it is very possible to get it wrong or perpetuate inequities.

Utility trust scores: Many advocated for cutting this metric; EEP staff agreed.

Quotes:

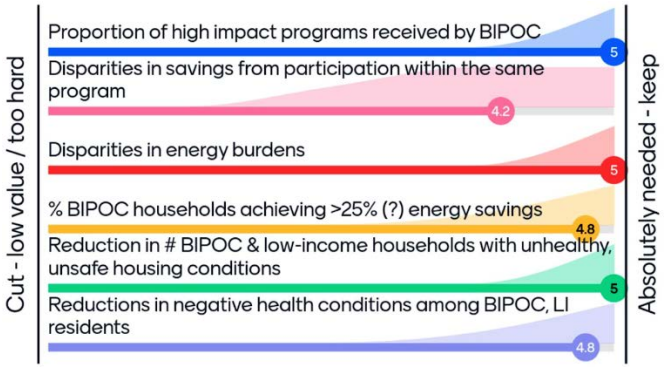
"I would add removal of immigration/citizenship eligibility participation requirements." [especially for govt programs like weatherization]

"Not just access for renters, but for a variety of different housing types" like manufactured housing

"Don't measure outputs like program materials. At all. Results only." +1

"I would also say that actual access metrics are more important. Good program design is a necessary first step but it's only important to the extent that it leads to equitability in who's actually accessing the program."

7. HOUSEHOLD BENEFITS INDEX – BY THE NUMBERS



Household Benefits Index – Discussion

Highlights:

Because of the limited number of responses and limited time reviewing this index, stakeholder feedback remains largely unknown. Based on feedback about affordability and security and health measures, we would expect these metrics, which focus on the outcomes of individual households, would be important to many.

Themes:

Measuring health outcomes at the household level is going to be difficult, and other metrics would require collection of participant data, presumably by utilities or the program administrators they contract with.

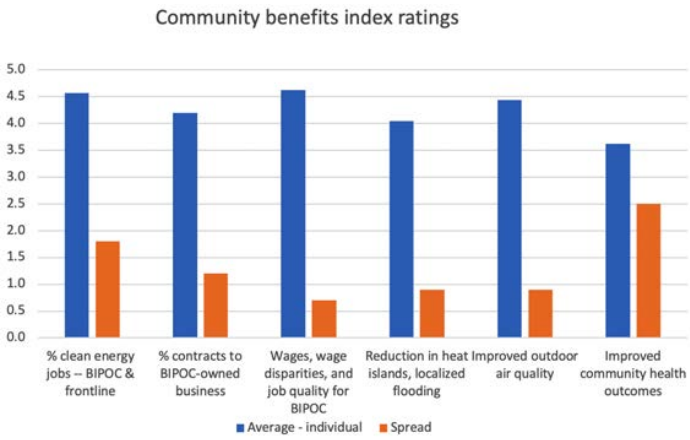
Key Questions:

- Should this be its own index or should it be coupled with community benefits?
- What is the state of data availability for these metrics? Are there leading states or municipalities we could look to for guidance?

8. COMMUNITY BENEFITS INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	5
Practitioner	6
Utility	11*
Regulator	
Philanthropy	

* Utilities did not rate wage disparities.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
% clean energy jobs — BIPOC & frontline	4.6	4.1	3.2	5.0	1.8
% contracts to BIPOC-owned business	4.2	3.8	3.0	4.2	1.2
Wages, wage disparities, and job quality for BIPOC	4.6	4.7	4.3	5.0	0.7
Reduction in heat islands, localized flooding	4.0	4.2	3.7	4.6	0.9
Improved outdoor air quality	4.4	4.2	3.7	4.6	0.9
Improved community health outcomes	3.6	4.0	2.5	5.0	2.5

Community Benefits Index – Discussion

Highlights:

Economic benefits and improved community health benefits rate highly among most stakeholder groups (although averages were lowered by utility ratings, which was a common theme).

Key Questions & Staff Reflections:

Achieving greater equity in health and economic benefits has traction in many places, including from some utility partners. Diverse coalitions with interests including labor, civil rights, environmental justice, and other constituencies have advocated for their inclusion in program design. And yet, for some metrics (e.g. EJSCREEN pollution scores), there are major disparities by race and income. Because these metrics are affected by factors outside of any one party or agency's control, regulators and utilities may understand their value but be reluctant to take responsibility for achieving better outcomes.

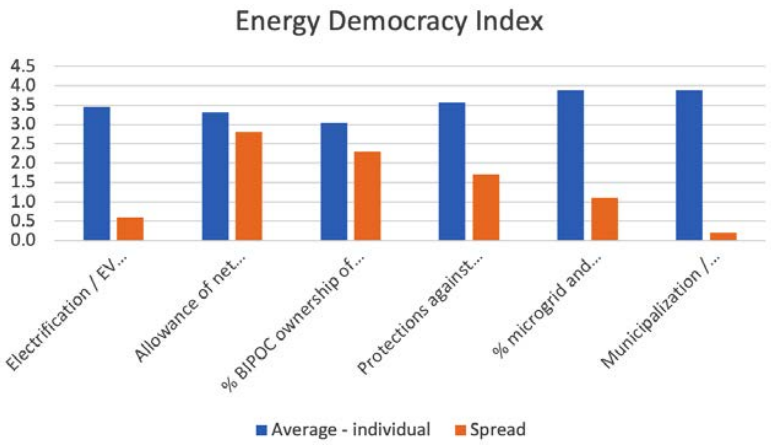
If the Community Benefits Index identifies inequities, how should those be addressed by different stakeholders? As a starting point, they may be used for identifying disadvantaged communities and targeting program investments. But there may be more nuanced, stakeholder specific guidance. If a community action agency notes a household is located within an urban heat island and has numerous heat vulnerability factors, what agencies and organizations does it need to coordinate with to reduce the risk of heat illness and mortality? A local non-profit might be available to plant shade trees; if the household did not have air conditioning it might be prioritized to participate in an air source heat pump program, which would also provide cooling. The layers of action that might emerge from this index will require significant thought and guidance.

On another note, it is unclear where data for many of these metrics would live. Are these held by state agencies? Are there universal metrics we can identify or will this require more user input?

9. ENERGY DEMOCRACY INDEX – BY THE NUMBERS

SESSION	# OF RATERS
Community	4
Practitioner	5
Utility	11*
Regulator	
Philanthropy	

* Utilities only rated net metering and % BIPOC ownership of solar.



METRIC	AVERAGE – INDIVIDUAL	AVERAGE – SESSION	LOW – SESSION	HIGH – SESSION	SPREAD
Electrification/EV-ready ordinances	3.5	3.5	3.2	3.8	0.6
Allowance of net metering, community solar, community choice aggregation	3.3	3.8	2.2	5.0	2.8
% BIPOC ownership of solar, storage, EVs	3.1	3.5	2.2	4.5	2.3
Protections against "greentrification"	3.6	3.7	2.8	4.5	1.7
% microgrid and resilience investments in BIPOC and frontline communities	3.9	4.0	3.4	4.5	1.1
Municipalization/public utility ownership and control	3.9	3.9	3.8	4.0	0.2

Energy Democracy Index – Discussion

Highlights:
Only five practitioners rated the full group of Energy Democracy metrics, and utility stakeholders, not surprisingly, rated net metering and BIPOC ownership of clean energy lower (2.2 for both). Interest in the Energy Democracy Index as a whole received better scores in the overall index ratings (a 3.9).

There were questions about the meaning of "greentrification", an idea expressed to us by staff at Seattle City Light, who worried about the potential for gentrification specifically arising from investments in clean energy, like the presence of EV chargers or microgrids.

Themes:
Energy democracy is fundamentally opposed to an energy system run mainly by monopoly, investor-owned utilities. Proposing greater community ownership has already been met with significant resistance in numerous places.

Level of interest in BIPOC ownership of clean energy assets is relatively unexplored. Many practitioners expressed an interest in focusing on security and affordability first and were not linking these to energy democracy metrics. To those who are more supportive of the democracy index, these metrics may represent a path toward security and affordability.

Restorative WG member – 10/22/21
"I was thinking about why metrics for restorative justice often seem reductive or ideological—as if a certain ownership model alone is equivalent to restorative justice. Looking at your calculators, it occurred to me that maybe restorative justice is actually the presence of a cluster of co-occurring indicators, including those from the other equity working groups. So, (making up an example here for illustrative purposes) restorative justice in Cleveland might look like reducing energy burden and increasing representative membership of CPP board + city council in formerly redlined poverty neighborhoods and some opportunity for wealth sharing via CPP reinvestment of profits into community institutions. The wealth sharing or community owned governance models alone aren't restorative if they don't also co-occur with reliability, cost reduction (recognition), representation (procedural), health benefits (distributive) etc. and actually it is the combination of these factors situated within an understanding of historical/social context that together create restorative justice."

Quotes:
"I'm having trouble with these—your bias to electrification/EVs as a BIPOC/justice outcome is doubtful." – practitioner

Key Questions:
When it comes to owning clean energy assets, knowing the identity of program recipients is critical. Some have suggested that disclosing identity should be a requirement (or at least an opt out), to participate in programs funded by rate payers or tax payers. What are the pros and cons of approaches to gathering data on race, income, and other identities for solar installations, etc. Where are the key opportunities in the system to collect this data? (e.g. anyone requesting a federal tax credit must disclose race, income, etc)

For locations that have higher energy democracy scores, what mandates, supportive policies and incentives/disincentives are in place to foster energy democracy? What arguments and language have been used successfully?

How should utility resistance to community ownership be documented in the framework? Are there metrics for this?

REFERENCES:

The Energy Democracy Project is our go-to resource and lists collaborating organizations from around the country. https://energydemocracy.us/

Energy Equity Project Data Sprint

Team 1 Final Deliverable
March 18, 2022

LEAD AUTHORS
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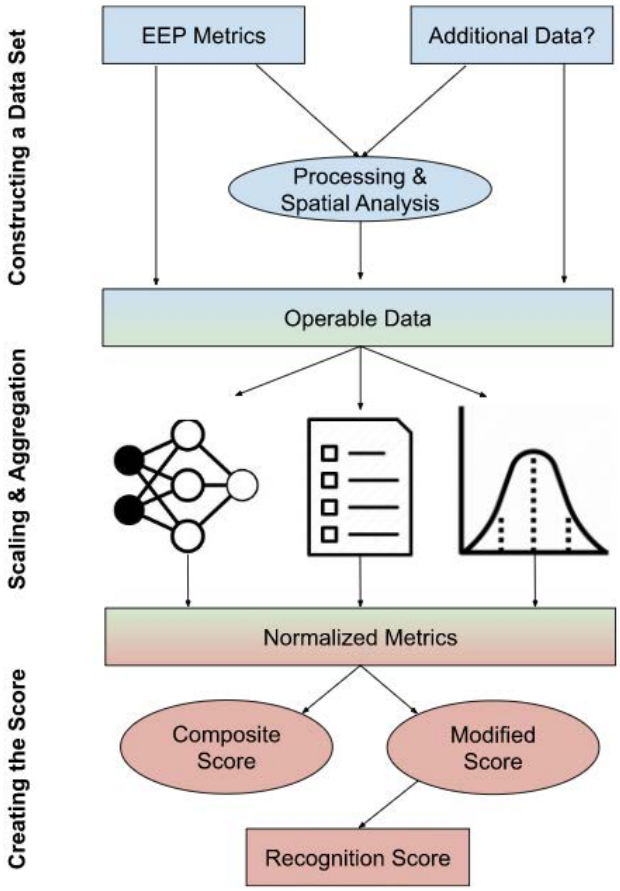
Framing: How we understand the purpose of this exercise and implications for our approach

- To the extent possible, the score should strive to quantitatively reflect the (in)equity and (in)justice of peoples' lived experience with the energy system.
- To do so, we should structure our score based on the leading thinking from communities/experts on what constitutes an equitable and just energy system
- The score should be a tool to enable future analysis and insights and the current focus on producing census tract level data should not be construed as a suggestion that solutions should be focused at that scale.

Process: How we are approaching the challenge

- The process diagram below lays out the steps we used to organize our work efforts. Ovals and icons represent actions while rectangles represent inputs and outputs. The three project phases on the left side structure the steps to producing a final score.

Figure 1. Team 1 Energy Equity Score Process Overview Diagram



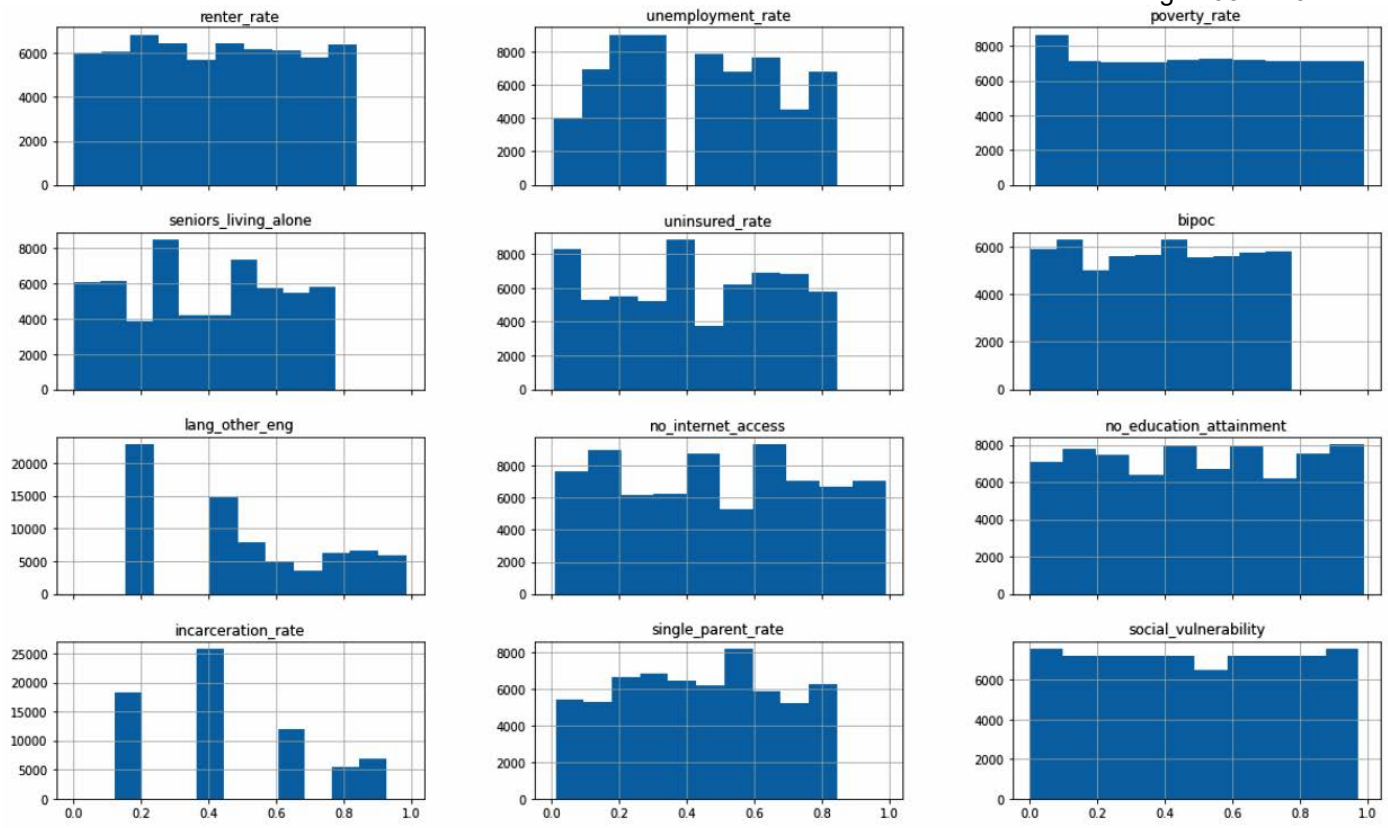


Figure 2. Histograms of the demographic sub-dimension's constituent metrics.

Constructing the Data Set

- Spatial Metrics
  - We resampled EIA 861 reliability data to the census tract level as described in our metrics documentation.
  - This data is notably limited in resolution because it is only reported at the utility territory level (i.e. it does not capture any difference in reliability between a census tract in Ann Arbor and Detroit as long as they are both in DTE territory)

- **American Community Survey (ACS) data and other non-spatial metrics were extracted and combined as described in our metrics documentation.**
  - We performed significant additional cleaning on the provided data set including redownloading raw ACS data for internet access and poverty rate because the data included negative values and percentages well above 100 among other issues that produced erroneous scores. These steps are documented in the data preparation and score calculation code available on the EEP drive.
  - Nonetheless, reviewing the histograms for metrics in the demographics sub-dimension in Figure 2 we still see unexpected behavior. We would expect histograms of percentiles calculated from random distributions to be relatively flat (i.e. have close to an even number of census tracts per bin) like poverty rate or social vulnerability. Therefore the underlying data should be vetted further before additional analysis.

- Additional Data
  - We included one additional metric in our final score, the percent of single parent households per tract, via the demographic sub-dimension.
  - We were not able to include any of the additional data provided toward the end of the project such as the ACEEE Scorecard, community power scores, etc.

- Scaling & Aggregation
  - The table below lists various options we brainstormed for standardizing metrics so that those with unlike units could be combined into a single score.
  - We chose to standardize all metrics using the percentile method for consistency, expedience, and given our lack of expertise/resources to utilize the more qualitative methods.

Table 1. Metric Normalization Techniques

STANDARDIZING METHOD	PROS	CONS	EXAMPLE
Calculate percentile relative to all census tracts or some specific subset (i.e. only compared to census tracts in certain income bracket, with specific racial makeup, in a certain geographic zone, etc.)	Preserves relative relationships, relies exclusively on available data		CalEnviroScreen
Score groups of related variables e.g. 1 of 6 = 25 2 of 6 = 33 ... 6 of 6 = 100	Allows for qualitative assessment of importance of metric Creates a "conversation" between variables, a way of relating the importance of interactions	You have to know enough about the problem to accurately (usefully) combine variables that describe it	Energy Justice Workbook Policy evaluation tool
Set a threshold for the variable and determine what pop% fits that criteria	Great precedent – we should consider using this for energy burden because it already exists	Not all variables have a data-backed target	AEEE Energy Burden Report (High energy burden = pay more than 6% of income on energy bills)
Develop qualitative criteria for score in specific category e.g. Does the policy make energy more accessible and affordable to marginalized communities? 1 (No), 2 (A little bit), 3 (Somewhat), 4 (Mostly), 5 (Yes)	Allows for reasonable and sensible final score, easily understood	Hard to develop a qualitative question for so many variables Subjective and hard to determine what is "a little bit", "somewhat", and "mostly".	Energy Justice Workbook Policy evaluation tool

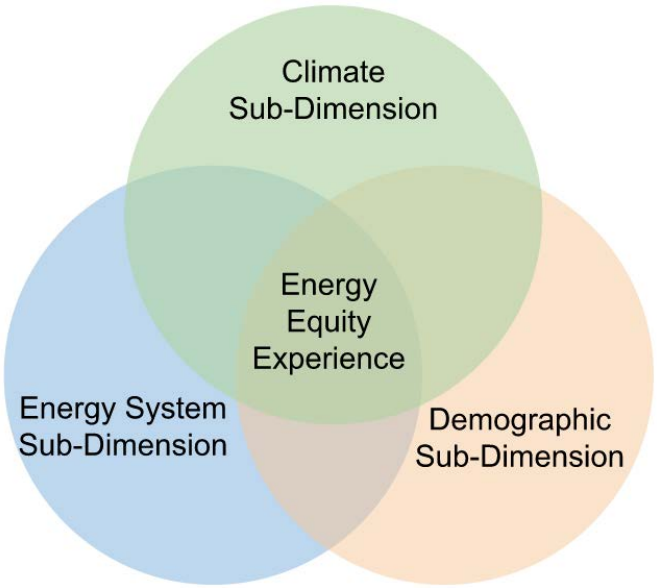


Figure 3. Energy-specific adaptation of the CalEnviroScreen theory on representing experience.

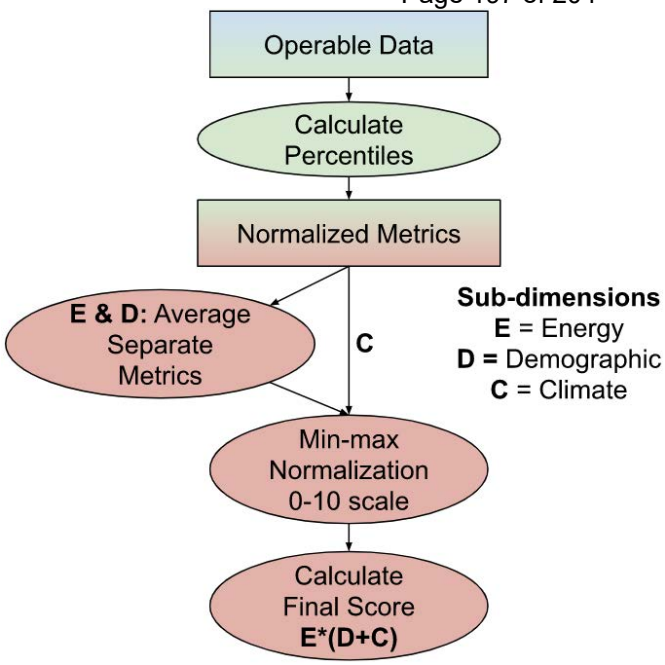


Figure 4. Detailed score calculation steps for the sub-dimensions and overall score.

Creating the Score

- Our approach was inspired by CalEnviroScreen and most closely mirrors their theory of representing experience. Our energy-specific adaptation of this theory is depicted in Figure 3, where the energy equity experience is the intersection of the Energy System, Demographic, and Climate sub-dimensions. Figure 4 shows the individual steps for calculating the separate dimensions and combining them into the final score.
- The Climate dimension is calculated by dividing the National Risk Index (NRI) Expected Annual Loss (EAL) score by the NRI Community Resilience score then calculating the percentile of each census tract. We chose to use only EAL and Community Resilience rather than the overall NRI score so that all demographic metrics are accounted for via the Demographic sub-dimension (the overall score incorporates a social vulnerability index).
- Each input metric is normalized by expressing its percentile relative to all other US tracts. However, comparing tracts at the national level may not be the best approach (i.e. for state-level decision making, it may be more useful to calculate percentiles among only tracts in a state).
- The Energy System and Demographic sub-dimensions are calculated by averaging their constituent metrics, listed in Table 2. This avoids weighting the score towards a sub-dimension solely because more data is available.
- As shown in Figure 4, all three sub-dimensions are then min-max normalized to a 0 to 10 scale.
- Finally, the three sub-dimensions are combined: Modified Final Score = Energy * (Demographic + Climate)
- We advocate for this construction—the Modified Score—over simply multiplying all three dimensions together—the Composite Score—we originally proposed, based on a brief post-hoc analysis of both methods. In particular, we found the Composite Score disproportionately reflected the Climate sub-dimension based on the correlations shown in Table 3.

Table 2. CalEnviro Method Sub-Dimensions and Metrics

ENERGY SYSTEM	DEMOGRAPHIC	CLIMATE MULTIPLIER
Energy-system specific metrics	*Metrics describing various population characteristics*	*Likelihood of disaster and capacity to address impacts*
EIA Reliability	Social Vulnerability Index	NRI Expected Annual Loss
LEAD Energy Burden	Employment rate	NRI Community Resilience
Average Age of Building	Educational attainment	
	Eviction rate	
	Poverty rate	
	% senior living alone	
	% without health insurance	
	% BIPOC	
	% households where English not primary language	
	% households without internet access	
	% with a disability	
	Incarceration rate	
	% renters	
	% single-parent households	

Table 3. Correlations among the sub-dimensions and two final score methods.

	Energy Score	Demographics Score	Climate Score	Composite Score	Modified Score
Energy Score	1.000000	0.269248	0.036696	0.500782	0.746802
Demographics Score	0.269248	1.000000	-0.020263	0.480824	0.493092
Climate Score	0.036696	-0.020263	1.000000	0.668485	0.562284
Composite Score	0.500782	0.480824	0.668485	1.000000	0.919686
Modified Score	0.746802	0.493092	0.562284	0.919686	1.000000

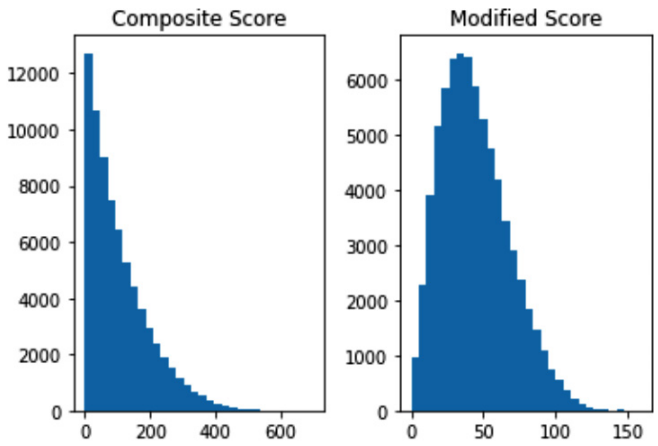


Figure 5. Histograms of resulting scores for the Composite and Modified Score methods.

- We found the Composite score had the strongest correlation with the Climate dimension, which we feel does not align with the stated purpose of reflecting energy equity experience. While the presence of climate risk may compound existing inequalities, the absence of climate risk does not ameliorate other inequities. As we can see in the side by side Composite and Modified histograms (Figure 5), the Climate dimension was skewing the Composite results heavily toward zero and potentially 'hiding' tracts with serious demographic and energy system inequities. Therefore, we propose using the Modified score, which shows the highest correlation with the Energy dimension (intuitively appropriate for an energy equity score) and incorporates climate risk without diminishing scores in tracts with low climate risk.
- Each of the dimensions are currently weighted equally as they can all interact and magnify each other but it is our understanding that the EEP intends to make these weightings available as parameters for users of the eventual online tool. Varying the weight of the climate component offers the opportunity to perform a sensitivity analysis on the importance of climate risk on the final score. Similarly, the ability to vary the climate multiplier allows policymakers and communities to choose how heavily they want to weight climate change impacts and the extent to which they feel climate change exacerbates pre-existing inequities.
- To further understand the sub-dimensions and resulting scores, we examine national and state-level maps in Figure 6 and Figure 7. Additional figures including national maps of each sub-dimension, histograms of sub-dimensions, and histograms of the final score by state are included at the end of the document.

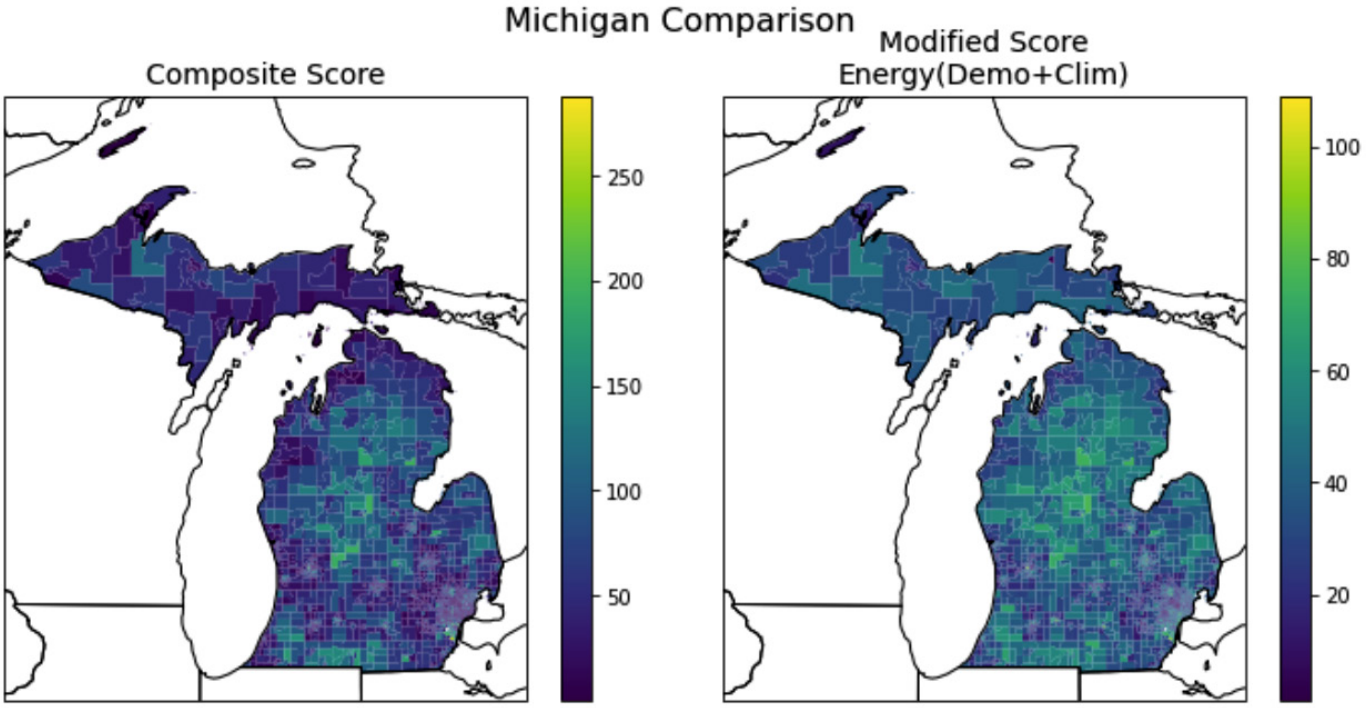


Figure 6. Comparison of resulting scores for Michigan using the Composite and Modified Scores. The effect of climate on the energy equity score is especially visible in the Upper Peninsula where low climate risk puts most tracts near the bottom of the score distribution under the Composite Score while the Modified Score shows many tracts closer to the middle.

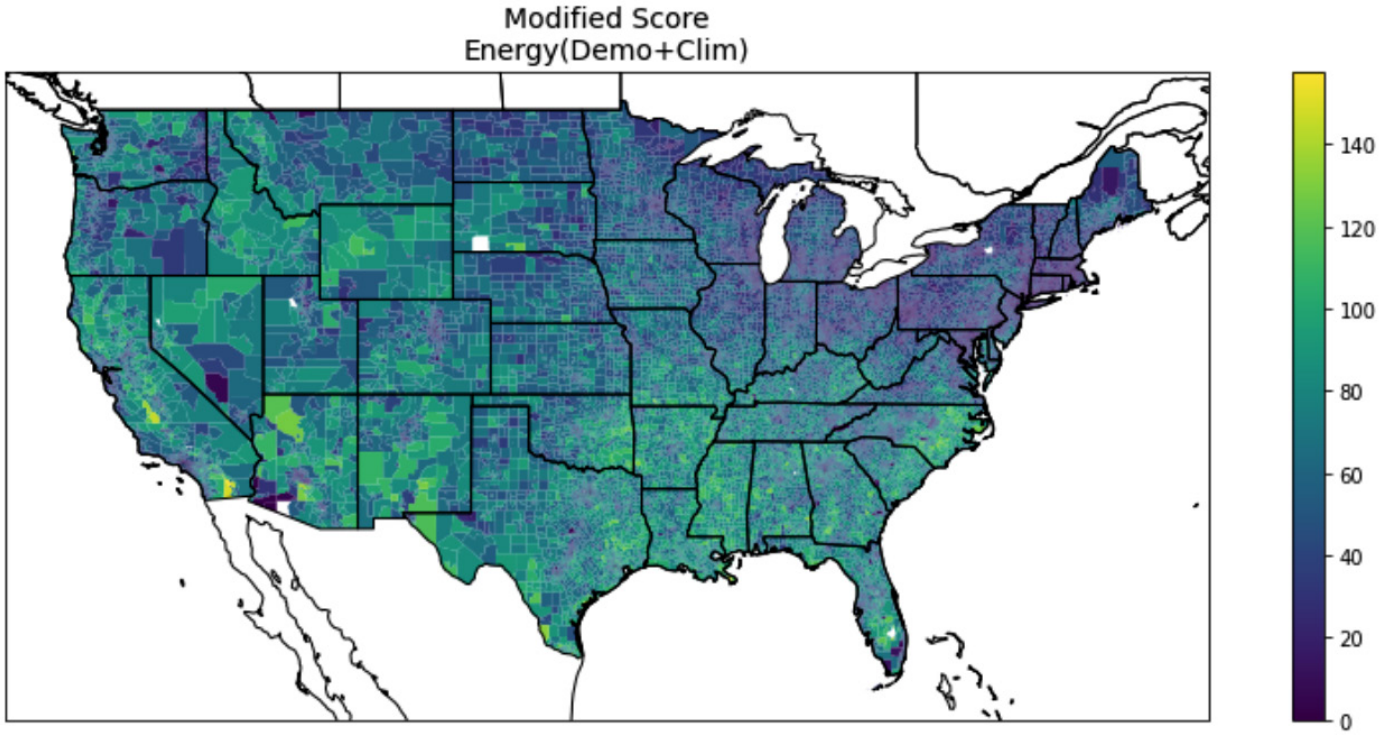


Figure 7. National map of Modified Score results.

Limitations and Future Work

- First and foremost, we acknowledge that we have not had the opportunity for meaningful community involvement in constructing this approach or verifying that it accurately reflects lived experiences. Thus, future work required to make our proposed method a viable scoring tool for energy equity across census tracts is a robust validation analysis that involves both quantitative and qualitative assessments of results.
- Climate multiplier uses FEMA National Risk Index (NRI). The FEMA calculations are backward looking as opposed to forward projection based on climate science, and so under-represent the risk and therefore the climate factors that exacerbate energy inequity. This makes the score less effective as a planning tool than a descriptive tool. Our score will fail to capture the eventuality that some areas will sharply diverge from the current national trend in future risk (areas prone to wildfire and coastal flooding, for example). However, as a placeholder we think the NRI data is valuable until a more robust future-looking vulnerability assessment is available.
- Future work should consider reliability reported at utility territory level, as well as utility-level policies and programs, to better take into account what services are available to individual communities.
- We advocate for more investigation into an energy equity score tool that can meaningfully incorporate energy justice principles defined and studied by our colleagues leading this work such as Michigan Environmental Justice Coalition (MEJC), Greenlining, and Initiative for Energy Justice (IEJ).
- We structured the Justice Principles Method (proposed in the draft deliverable) in an attempt to consider how the demographic factors provided in the EEP data set (like education, language, internet access) enable communities to shape their energy futures. Our team and the reviewers note that limited metrics/dataset availability hinders our ability to create a robust scoring methodology based on the justice principles framing.
- Some metrics that we propose adding include: state level energy policy, pollution, household fuel connections. Justin Schott also suggested utility project margins and percent energy ownership that is distributed.

Additional feedback and suggestions from the EEP that we were unable to implement include:

- Investigate correlations and internal consistency of variables. Consider a Chronbach's alpha to check for internal consistency.
- Factor analyses (exploratory or confirmatory) on 1) the metrics within each sub-dimension, 2) all the metrics of all the sub-dimensions (as if you were combining them all into a straight index—this will help to assess whether your assignments into sub-dimensions match the data), and 3) how the collapsed sub-dimensions interact with each other.
- Qualitative assessment is also useful. Maybe compare the overall index to % BIPOC on its own or the climate multipliers on their own, to see if anything has an overly large influence on the final result.
- Item response theory analysis, which is a technique to assess indices of latent variables and identify which pieces of an index are most influential on the final score.

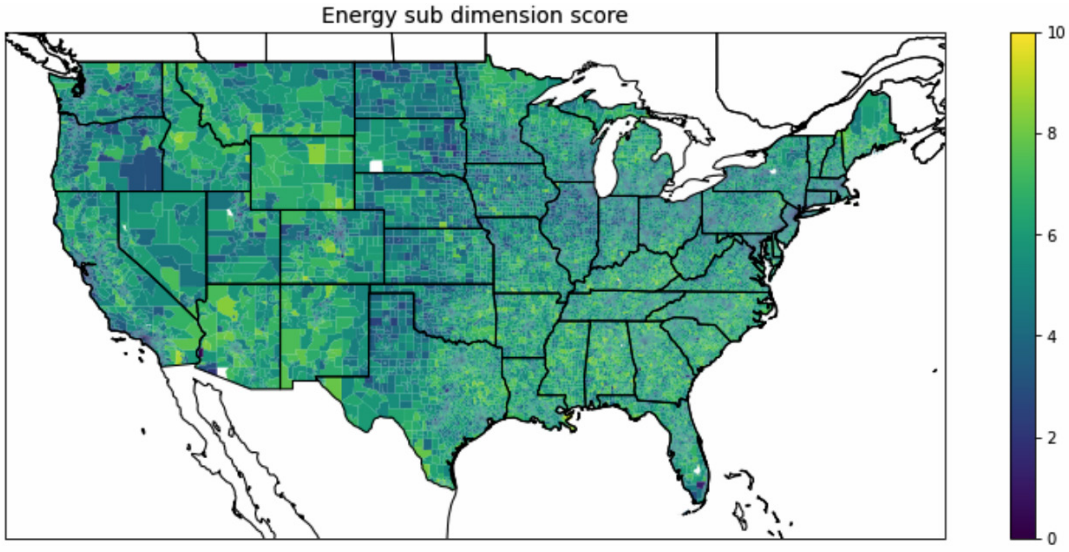


Figure A1. National map of normalized Energy sub-dimension.

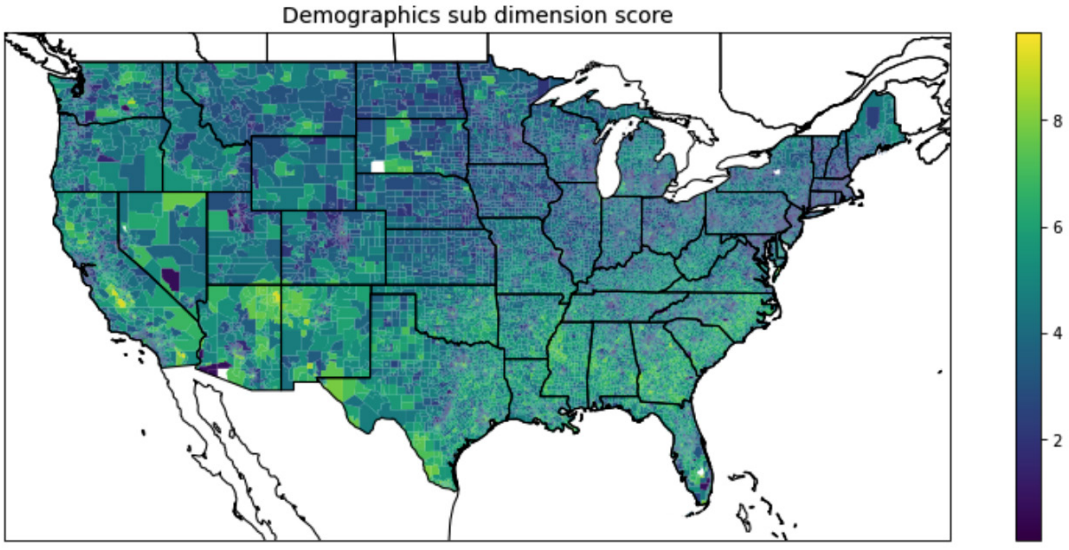


Figure A2. National map of normalized Demographic sub-dimension.

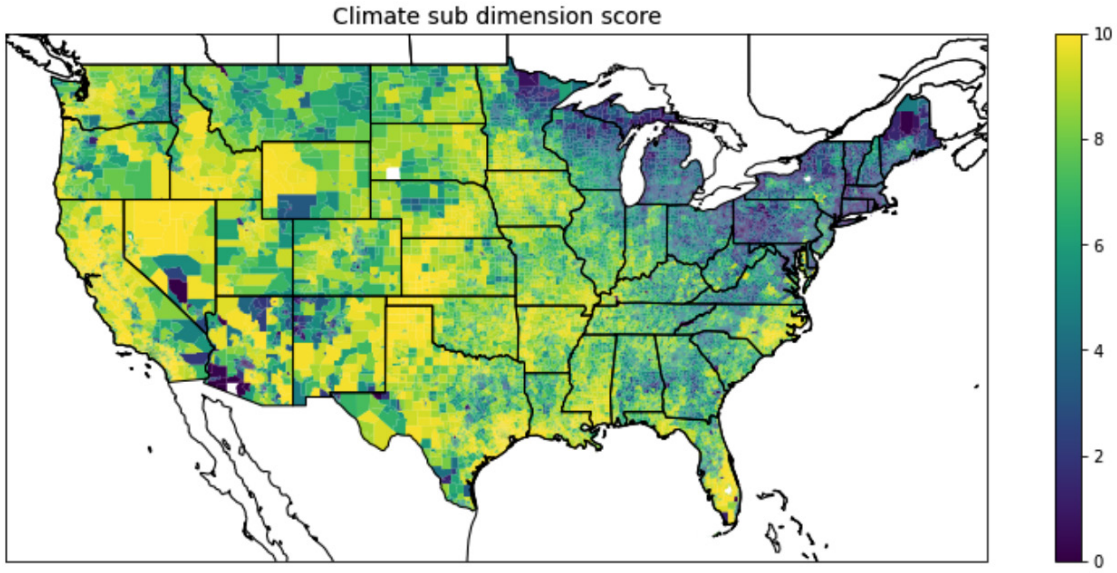


Figure A3. National map of normalized Climate sub-dimension.

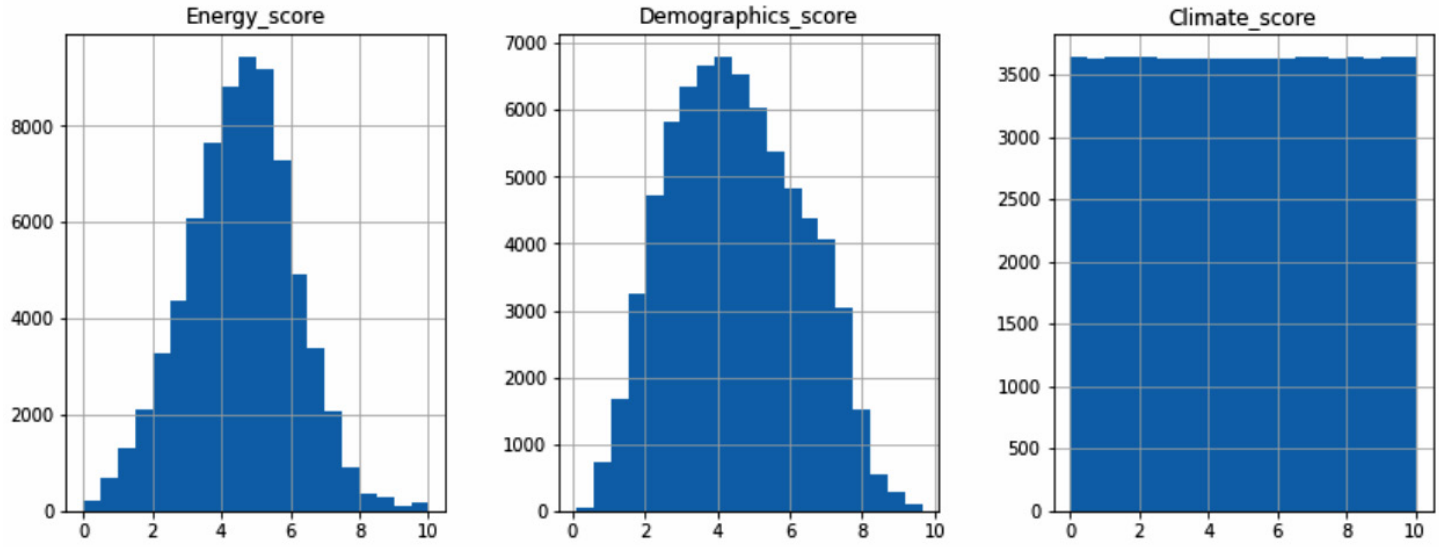


Figure A4. Histograms of separate sub-dimensions.

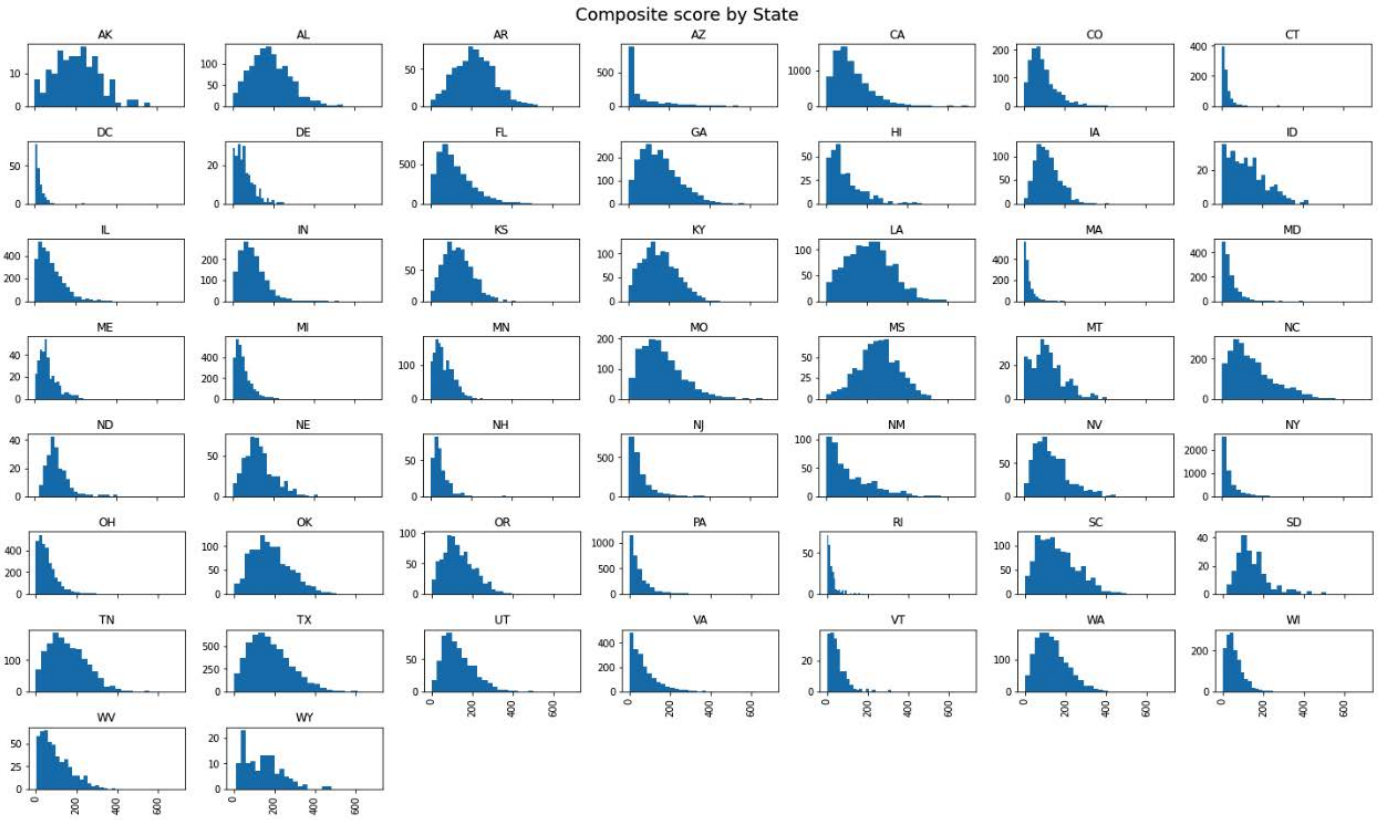


Figure A5. Histograms of Composite score results by state. ***Note:*** All census tracts are not created equal. Because they are determined by population, some geographical locations are more heavily weighted than others.

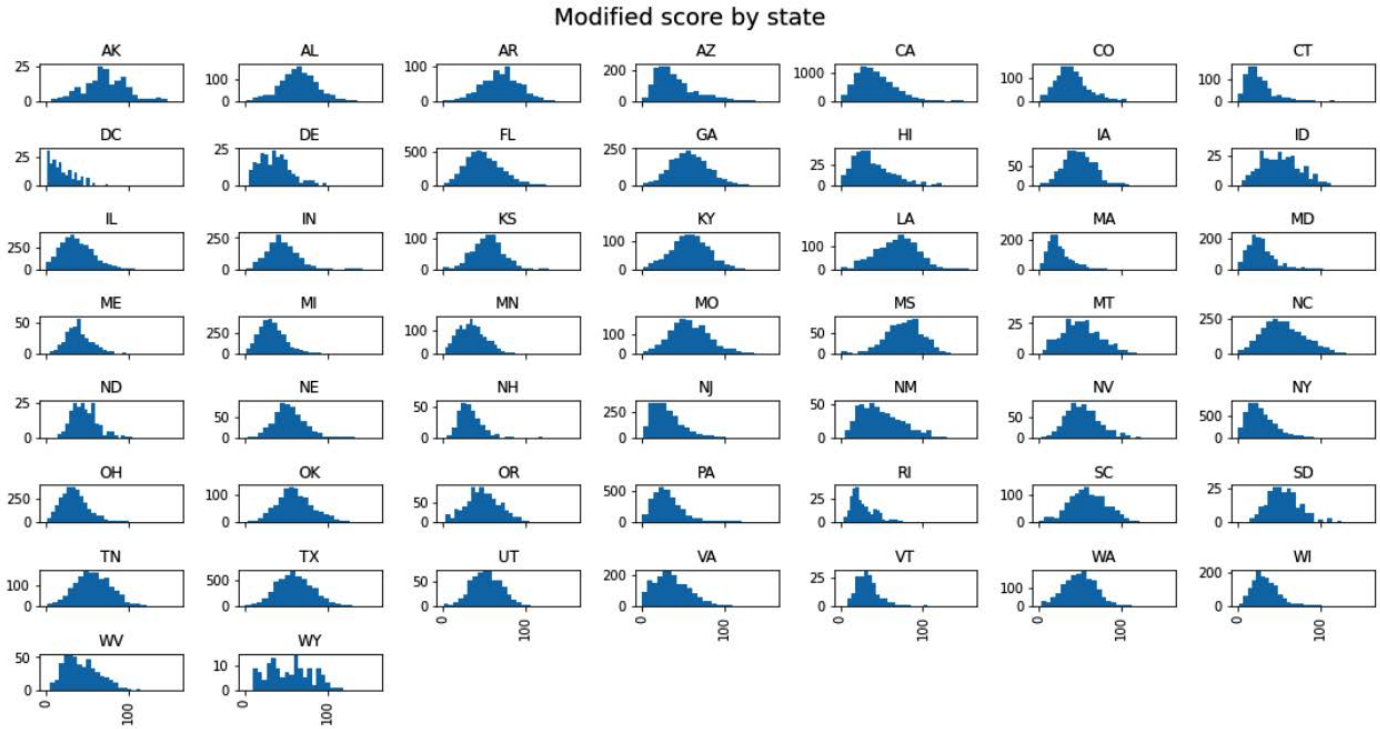


Figure A6. Histograms of Modified score results by state.

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Join us at the Energy Equity Hive on Slack

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of **DTE ELECTRIC COMPANY** for authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority	Case No. U-21534 ALJ Sally Wallace

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PROOF OF SERVICE

I, Mark N. Templeton, certify that an electronic copy of the Direct Testimony of Justin Schott on Behalf of Soulardarity and We Want Green, Too and Accompanying Exhibits DAO-101 to DAO-107 (Part 1 of 5) was served on the following on July 26, 2024.

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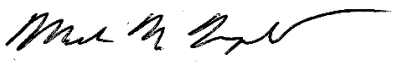
The statements above are true to the best of my knowledge, information, and belief.

UNIVERSITY OF CHICAGO LAW SCHOOL
ABRAMS ENVIRONMENTAL LAW CLINIC
Counsel for Soulardarity and
We Want Green, Too

Date: July 26, 2024

Sincerely,



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