Founded in 1852
by Sidney Davy Miller

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August 14, 2019

Ms. Barbara Kunkle
Acting Executive Secretary
Michigan Public Service Commission
7109 W. Saginaw Highway, 3rd Floor
Lansing, MI 48917

Re: Upper Peninsula Power Company
Case No. U-20350

Dear Ms. Kunkle:

Enclosed for electronic filing is Upper Peninsula Power Company's (Redacted) Initial Brief and Proof of Service.

Should you have any questions, please kindly advise.

Very truly yours,

Miller, Canfield, Paddock and Stone, P.L.C.

Paul M. Collins

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Enclosure

cc: Parties of Record
Gradon Haehnel

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

*** * * ***

In the matter of the application of	)	
UPPER PENINSULA POWER COMPANY	)	Case No. U-20350
for approval of its integrated resource plan	)	
pursuant to MCL 460.6t and for other relief.	)	

PROOF OF SERVICE

Allison Kellogg, being first duly sworn, deposes and states that on August 14, 2019, she served **Upper Peninsula Power Company's Initial Brief**, upon the parties set forth on the attached Service List via electronic mail.

Allison R. Kellogg

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Allison Kellogg

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on this 14th day of August, 2019.

Kimberly S. Fox

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State of Michigan, Eaton County
My Commission Expires: July 20, 2023
Acting in Ingham County

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

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In the matter of the application of	)	
UPPER PENINSULA POWER COMPANY	)	
for approval of its integrated resource plan	)	Case No. U-20350
pursuant to MCL 460.6t and for other relief.	)	

INITIAL BRIEF OF UPPER PENINSULA POWER COMPANY

Dated: August 14, 2019

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INITIAL BRIEF OF UPPER PENINSULA POWER COMPANY

I. INTRODUCTION

This case represents the first application of MCL 460.6t of Public Act 341 of 2016 ("Act 341") to Upper Peninsula Power Company ("UPPCO" or the "Company"). UPPCO is a small, investor-owned utility with approximately 52,000 customers located in predominantly rural areas of Michigan's Upper Peninsula.

UPPCO's objective throughout the Integrated Resource Plan ("IRP") process was to develop an integrated resource plan that reflects the priorities and concerns of the customers whom UPPCO serves. This objective manifested in the approach that UPPCO took in community and stakeholder outreach. UPPCO initiated two sets of stakeholder engagement meetings to provide information and receive critical input and feedback into its IRP process. That feedback made it resoundingly clear that clean, renewable and locally sourced solutions were a leading choice from its residential customers for potential generation solutions. UPPCO's commercial customers also conveyed that they value clean, renewable generation and advocated for decision making that would balance cost considerations with long term sustainable solutions. In addition to incorporating these objectives in its IRP, UPPCO prioritized providing excellent reliability to its customers - something that is especially important for a rural, electric utility. In summary, in developing its IRP, with the input from those the Company serves, UPPCO prioritized ensuring the delivery of safe, clean, reliable, and efficient power to its customers at competitive costs.

In developing its first IRP pursuant to Act 341, UPPCO conducted a comprehensive assessment of the Company's capacity and energy needs using the planning objectives set forth

by the Michigan Public Service Commission ("MPSC" or the "Commission"), including extensive stakeholder interaction to develop its proposed courses of action ("PCA"). The PCA consists of:

- Increasing UPPCO's energy waste reduction ("EWR") goal to 1.5%.
- Moving certain existing hydroelectric generating facilities "in front of the meter".
- A 125 MW power purchase agreement for solar power ("Solar PPA") with a financial compensation mechanism ("FCM") for the Company.
- Retirement of the Company's existing Portage combustion turbine ("CT") and replacement with the construction of a 20 MW natural gas reciprocating internal combustion engine ("RICE") unit in the eastern portion of the Company's service territory.
- Updating UPPCO's Public Utility Regulatory Policies Act ("PURPA") avoided costs, which were originally established in Case No. U-18094.

This PCA will (i) dramatically increase the Company's renewable power portfolio, (ii) reduce the risk of price volatility due to market spikes, (iii) reduce costs through competitive bidding, (iv) improve reliability, and, very importantly, (v) *reduce future energy costs for all of UPPCO's customers*. As evidenced by recent outcomes in the Company's general rate case (U-20276), depreciation case (U-18467), and power supply cost recovery ("PSCR") cases (e.g., U-20229), UPPCO has executed a strategy intended to reduce residential rates. Approval of UPPCO's PCA in this case will allow UPPCO to continue this important and needed strategy.

The Commission should approve the Company's PCA in its entirety because the PCA represents the most reasonable and prudent means of meeting UPPCO's energy and capacity needs throughout the planning period. In approving the PCA, UPPCO specifically requests that the Commission make the following determinations:

- Approve the Solar PPA as set forth in Confidential Exhibit A-31.
- Approve the Company's proposed FCM for the Solar PPA subject to rate recovery in UPPCO's next general rate case.
- Approve the construction of a new 20 MW RICE unit in the eastern portion of the Company's service territory as a replacement for the Portage CT unit.

- In conjunction with the approval of the RICE replacement, approve the retirement of the Portage CT unit and the Company's requested accounting treatment for the proceeds from the insurance payment following the catastrophic failure of the Portage CT
- Approve the Company's proposal to increase its target for EWR savings to 1.5% subject to cost analysis and approval in the Company's EWR plan case.
- Approve UPPCO's proposal to set its PURPA avoided cost rates at equivalent market-based avoided cost, as modified by Staff's proposal and accepted by the Company in rebuttal.
- Grant the Company such other relief as set forth in this Initial Brief and the Company's record evidence.

II. PROCEDURAL HISTORY AND OVERVIEW

A. Overview of Authority

The IRP process and framework for electric utilities whose rates are regulated by the Commission is established under Act 341; MCL 460.6t. Under that statute, electric utilities are required to include specific components in an IRP filing, and the Commission shall approve a proposed IRP if it determines that the proposed IRP represents the most reasonable and prudent means of meeting the electric utility's energy and capacity needs. To make such a determination, the Commission must consider whether the proposed IRP appropriately balances the following factors:

(i) Resource adequacy and capacity to serve anticipated peak electric load, applicable planning reserve margin, and local clearing requirement.

(ii) Compliance with applicable state and federal environmental regulations.

(iii) Competitive pricing.

(iv) Reliability.

(v) Commodity price risks.

(vi) Diversity of generation supply.

(vii) Whether the proposed levels of peak load reduction and energy waste reduction are reasonable and cost effective. Exceeding the renewable energy resources and energy waste reduction goal in section 1 of the clean

> and renewable energy and energy waste reduction act, 2008 PA 295, MCL 460.1001, by a utility shall not, in and of itself, be grounds for determining that the proposed levels of peak load reduction, renewable energy, and energy waste reduction are not reasonable and cost effective.

MCL 460.6(t)(8)(a).

To enable IRP filings, MCL 460.6t required the Commission to: (i) establish modeling scenarios and assumptions each electric utility should include, in addition to its own scenarios and assumptions in developing an IRP and (ii) establish filing requirements, including application forms and instructions, and filing deadlines for an IRP filed by a utility regulated by the Commission. See MCL 460.6t(1)(f) and (3). In compliance with the above statutory provisions, the Commission set forth all required IRP modeling scenarios and assumptions, requirements, instructions, and guidelines for utilities filing IRPs by issuing an Order dated November 21, 2017 in Case No. U-18418 approving "Michigan Integrated Resource Planning Parameters" ("MIRPP"). The Commission also issued an Order on December 20, 2017 in Case Nos. U-15896 *et al.,* which approved "Integrated Resource Plan Filing Requirements," hereafter called "Filing Requirements". These documents set forth all required IRP modeling scenarios and assumptions, requirements, instructions, and guidelines for utilities seeking relief pursuant to MCL 460.6t. UPPCO is a small utility with substantially less than 1,000,000 customers and could have sought waivers from many of the Commission's filing requirements. However, UPPCO has endeavored to comply with all of the filing requirements.

The Commission's August 28, 2018 Order in Case Nos. U-15986 and U-18461 established December 14, 2018 as the filing date for UPPCO's first IRP. Due to a fire and unforeseen catastrophic failure at UPPCO's Portage facilities in late November 2018,[1] UPPCO filed a motion on December 3, 2018, seeking to extend the Company's IRP filing date until

[1] This event is described in more detail *infra.*

February 12, 2019. On December 6, 2018, the Commission issued an order granting UPPCO's request.

B. Procedural History

On February 12, 2019, pursuant to MCL 460.6t of Act 341, UPPCO filed its IRP Application and testimony and exhibits of Gradon R. Haehnel, Andrew McNeally, Eric W. Stocking and David R. Tripp, P.E, and a motion for a protective order. The Commission's Executive Secretary issued the Notice of Hearing for this case on February 15, 2019. Petitions to intervene were filed by Citizens Against Rate Excess ("CARE"), Verso Corporation ("Verso"), Circle Power LLC ("Circle Power"), the Association of Businesses Advocating Tariff Equity ("ABATE") and Michigan Attorney Dana Nessel ("Attorney General").

Administrative Law Judge ("ALJ") Sharon L. Feldman presided over the prehearing conference on March 15, 2019 and granted all of the petitions to intervene. Following that conference, ALJ Feldman was reassigned and ALJ Martin D. Snider was assigned to be the presiding office in the case, effective on March 22, 2019. ALJ Snider issued a protective order governing the use and disposition of the parties' non-public, confidential information and materials on March 27, 2019.

The parties to this IRP proceeding subsequently engaged in extensive discovery. UPPCO filed supplemental testimony and exhibits for witnesses Gradon R. Haehnel and Debashis Bose on March 29, 2019 and for witness David R. Tripp, P.E. on June 6, 2019.

In addition to the public comments that were filed on May 4, 2019 and May 9, 2019 (U-20350-0078 and U-20350-0083, respectively), the MPSC Commissioners and members of the MPSC Staff held a public hearing in this docket on May 17, 2019 at the campus of Bay de Noc Community College in Escanaba, Michigan to solicit feedback and comments regarding

UPPCO's IRP from residents and businesses that are customers of the Company. (U-20350 Docket #0095).

On June 14, 2019, pursuant to MCL 460.6t(1)(c), the Michigan Department of Environment, Great Lakes, and Energy's ("EGLE") filed its Advisory Opinion on UPPCO's IRP. (U-20350 Docket #0107). That same day, (i) Staff filed the testimony and exhibits of 13 witnesses[2], (ii) CARE filed the testimony and exhibits of Douglas B. Jester, (iii) ABATE Amanda M. Alderson, and Circle Power filed the testimony and exhibits of Christopher Moore.

On July 8, 2019, UPPCO filed the rebuttal testimony and exhibits of witnesses Gradon R. Haehnel, David R. Tripp, Eric W. Stocking and Wenxiong Huang. Circle Power filed the rebuttal testimony of Christopher Moore, ABATE filed the rebuttal testimony of Amanda M. Alderson, and Staff filed the rebuttal testimony and exhibit of Zachary C. Heidemann. CARE and Verso filed letters stating that they did not intend to file rebuttal testimony.

All parties agreed to waive cross examination and the parties bound in their respective witnesses' public and confidential testimony and exhibits in an evidentiary hearing before ALJ Martin D. -Snider on July 17, 2019. The record in this case consists of 740 pages of testimony and 112 exhibits. Pursuant to the schedule established by ALJ, initial briefs are due on August 14, 2019 and reply briefs are due on August 29, 2019.

[2] Staff witnesses included Paul Proudfoot, Anna Schiller, Sarah A. Mullkoff, Olumide Makinde, Jonathan J. Decooman, Cody S. Matthews, Brad B. Banks, Fawzon B. Tiwana, Lisa M. Kindschy, Zachary C. Heidemann, Meredith A. Hadala, Robert F. Nichols II, CPA, and Jesse J. Harlow.

III. OVERVIEW OF UPPCO'S DIRECT CASE: DEVELOPMENT OF IRP AND PCA

A. IRP Process Planning Objectives

The Company's primary planning objective was to create a well-diversified, balanced portfolio of energy and capacity resources. Through this portfolio approach and the development of its IRP, UPPCO focused on providing value to customers through (i) greater price stability over the long-term (i.e., hedge against market price volatility), and (ii) greater diversification of power supply resources. 2 T 35. UPPCO's IRP is the synthesis of the Company's efforts to incorporate input from customers and stakeholders and, in return, to achieve the goal of providing electric service to its customers in the most efficient, reliable, cost-effective and sustainable manner possible. As detailed further through the record and its filings, UPPCO approached the IRP process with the focus on six attributes to reach this goal: (1) recognizing the importance of engaging and incorporating stakeholder input through meetings with the Company's customers, other interested parties, and Staff and incorporating that feedback where appropriate; (2) committing to using clean and sustainable energy sources; (3) maintaining stable pricing to the greatest extent possible to insulate the Company's customers from market sensitivities; (4) maximizing the value of existing resources by investing in and leveraging its existing hydro generation resources; (5) engaging in competitive bidding processes through a robust request for proposals ("RFP") procedure for the enhancement and growth of its resources; and (6) performing rigorous and thorough analyses. 2 T 36-37.

B. The IRP Process Was Informed From Extensive Stakeholder Input

Throughout all of 2018 and continuing into 2019, UPPCO engaged in comprehensive outreach to ensure transparency and to gain the benefit of stakeholder input and feedback. The stakeholder engagement process had three distinct components of engagement.

First, the Company hosted four public forums throughout its service territory in first quarter of 2018 to gather insight, viewpoints, and feedback from its customers. Customers and interested stakeholders had an opportunity to meet with UPPCO staff involved in the IRP process, as well as representatives from the Company's Regulatory, Generation, Energy Waste Reduction and Customer Service departments. 2 T 49. As evidenced in Exhibit A-3 IRP Survey Questionnaire and Exhibit A-4 IRP Survey Results, it became clear that UPPCO's customers value clean, locally-sourced, renewable energy options, as well as a well-diversified and balanced power supply portfolio that would limit UPPCO's reliance on short-term market purchases, thus avoiding the associated risks of price volatility. Key takeaways from the customer survey included:

- Question 4 –A balanced portfolio of energy resources and renewable energy sources were ranked highest when asked where energy should come from in the future.
- Question 7 – 97% of respondents said it was "important" (30%) or "very important" (67%) that UPPCO own enough generation to provide long-term price stability.
- Question 8 –73% of respondents agreed (21%) or strongly agreed (52%) that UPPCO should exceed State renewable energy mandates
- Question 10 – 79% of respondents agreed (42%) or strongly agreed (37%) that generation resources should be located in the Upper Peninsula.

2 T 50.

The second component of UPPCO's IRP stakeholder engagement process involved direct meetings held with UPPCO's largest commercial and industrial customers throughout 2018 and Q1 of 2019. 2 T 50. Lastly, UPPCO engaged in ongoing engagement and education with state and local elected and appointed officials, Independent Power Producers and developers of energy projects, other electric utilities, and any other stakeholders expressing an interest in UPPCO's IRP. As a result, UPPCO's commercial and industrial customers gained an understanding of the value proposition of the Company's planning efforts regarding building a sustainable and

renewable energy future for all customers. 2 T 51. In general, fact-based decision making based on a rigorous process with consistent and clear communication are what UPPCO's commercial and industrial customers value most. *Id.*

The third component of the stakeholder engagement process occurred throughout this process, with the Company seeking input from and communication with various elected and appointed government officials and UP electric companies, to ensure that open lines of communications were established with stakeholders across the U.P. and Michigan. The Company also has met several times with the Commission Staff, and other groups that regularly intervene in Commission proceedings, to keep them abreast of the IRP's focus and process. 2 T 50.

As a result of this process, UPPCO learned that its customers are focused on the bottom-line in terms of impact on their electric bills and reliability. The Company's customers also do not view the IRP process as a stand-alone issue. Between UPPCO's filed rate case in U-20276, UPPCO's AMI metering investment, the 2017 Tax Cut and Jobs Act tax reform refunds, and the expiration of the Presque Isle Power Plant related System Support Resource ("SSR"), UPPCO's customers are consistently monitoring and tracking the drivers that potentially impact their bills. 2 T 51- 52. In light of this, and to maintain continued engagement with stakeholders and customers, UPPCO has developed a webpage page directly supporting its efforts. This page is located at: https://www.uppco.com/did-you-know/regulatory/. 2 T 52.

C. UPPCO's Current Power Supply Procurement Strategy, Resource Adequacy, and Portfolio Risk Mitigation.

UPPCO's current power supply portfolio is heavily dependent upon market purchases, especially energy purchases:

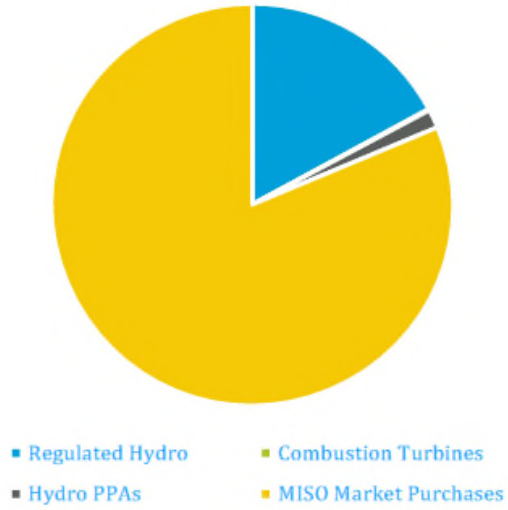

Figure 1-3 Sources of UPPCO Energy

For 2018, UPPCO has purchased approximately 70.7 percent of its energy needs through a series of short term power purchase agreements (PPAs) following competitive auctions, leaving the company with approximately 11 percent spot market exposure. For 2019 calendar year, UPPCO has also locked in 25 MW of around-the-clock energy, as well as various short-term on and off-peak purchases, leaving its projected non-RTMP energy needs 84 percent covered.

Revised Exhibit A-1, page 15.

The Company owns generating assets consisting of two oil-fired CTs and seven hydroelectric facilities, which are powered by stored water at reservoirs. Only four of these hydroelectric generating stations provide capacity. Collectively, Company-owned CTs and hydroelectric units currently receive a combined capacity credit from the Midcontinent

Independent System Operator ("MISO") of 44.8 MW. 2 T 159. The breakdown of each unit's capacity credit is as follows:

- Portage CT: 14.3 MW[3]
- Gladstone CT: 14.4 MW
- Hoist Hydroelectric Plant: 1.1 MW
- McClure Hydroelectric Plant: 3.3 MW
- Victoria Hydroelectric Plant: 11.3 MW
- Prickett Hydroelectric Plant: 0.4 MW

UPPCO's four small capacity-providing hydroelectric plants have a total net capacity of about 16 MW. Each of these hydroelectric plants operates with limited capability to store water. In a normal year, these plants may operate at approximately a 50% utilization factor. Since hydro is currently UPPCO's resource with the lowest variable operation and maintenance cost, its operation is used to minimize costs from other supply resources. 2 T 113.

In addition, the Company owns two oil-fired CTs, which are rarely dispatched economically, and therefore, provide little to no energy value for customers. These units have, however, historically provided a significant portion of the capacity that UPPCO relies upon to meet its resource adequacy requirements, both in terms of MISO Module E and State Reliability Mechanism ("SRM") requirements. 2 T 113-114.

1. Short Term Power Purchase Agreements ("PPAs") Provide Energy and Capacity

Output from the Company's four hydroelectric units comprises approximately 20% of the energy that is ultimately delivered to retail customers, not inclusive of sales to the RTMP rate class.[4] The Company currently procures the remaining 80% of the energy that it ultimately

[3] Due to a catastrophic mechanical failure of Portage CT generator, the Portage unit is currently out of service.

[4] RTMP sales are purchased solely on the MISO real-time market, per the tariff definition.

delivers to its retail customers through two small, long-term power purchase agreements with U.P. Hydro, LLC. ("U.P. Hydro"), various short-term fixed price market contracts, and purchases from the MISO day-ahead and real-time energy markets. 2 T 115.

UPPCO currently has two 10-year PPAs associated with the prior sale of hydroelectric facilities (called "Cataract" and "Au Train"). For the 2019 calendar year, the energy and renewable attributes of the Au Train and Cataract hydroelectric facilities are priced at $80.89 and $78.54 per MWh, respectively, escalating by at least 3.0 percent each year. The terms for these two long-term PPAs expire in 2020 and 2025 for Au Train and Cataract, respectively. 2 T 115. Based upon the current contract rates, UPPCO does not anticipate a renewal of the U.P. Hydro PPAs because the contract pricing exceeds the cost of procuring energy and capacity from several alternatives. 2 T 116.

Due to the requirements inherent within the SRM, Michigan utilities are required to demonstrate that they own or have contractual rights to sufficient capacity resources to meet their need four years into the future. As such, UPPCO entered into a contract with Wisconsin Power and Light ("WP&L) to purchase 25 MW of capacity through the 2019/20 planning year. Similarly, UPPCO has entered into a contract with Dairyland Power Cooperative ("Dairyland") to purchase 20 MW of capacity in planning years 2020/21 and 2021/22. 2 T 119 – 120.

2. Recent Combustion Turbine Failures Create Uncertainty for UPPCO's Capacity Portfolio

Unforeseen events occurring in late 2018 have caused UPPCO to reevaluate the status of the Gladstone CT and Portage CT and their ability to provide capacity and energy when dispatched. Originally, UPPCO planned to retire the Gladstone CT in 2019, with the Portage CT to be retired in 2024. The Gladstone CT retirement date was selected following the identification of a condition during a 2018 inspection, which caused UPPCO to take it out of service immediately because of the potential for a catastrophic failure. Further analysis and review of

both the condition and the repair costs associated with the Gladstone CT led UPPCO to reinvest and repair the Gladstone CT, so it could provide short-term capacity energy value for UPPCO customers until the next IRP filing cycle in five years. Repair work began in November 2018. The Gladstone CT returned to operation in December 2018, and it is now slated to be retired in 2022.[5] 2 T 159-161.

Further, and just following the start of repair work on the Gladstone CT, the Portage CT unit experienced a catastrophic failure of the turbine unit in November 2018 and is now non-functional. The failure was not caused by known issues and subsequent inspections have been inconclusive on the cause. As a result, UPPCO plans to retire the Portage CT in 2019.[6] The critical repair at Gladstone and the catastrophic mechanical failure at Portage illustrate the Company's concern about the age of these units and their sustained ability to provide capacity, as well as energy, when dispatched. 2 T 159-161.

In light of the likely retirement of the Portage facility, as well as uncertainty related to the continued operation of the 40+ year old Gladstone facility, UPPCO customers could be exposed to capacity market volatility for up to 56 Zonal Resource Credits ("ZRC") in the coming years. The expiration of the U.P. Hydro PPAs constitute an additional future capacity need of 1 ZRC. 2 T 120.

[5] The timing of the inspection and repairs precluded modifying the IRP modeling assumptions from the originally-planned 2019 retirement date.

[6] The insurance settlement associated with the Portage CT is discussed later in this Initial Brief.

D. UPPCO First Sought to Obtain Maximum Value from Its Existing Generating Assets and Maximize Demand-Side Resources

1. UPPCO Obtained Additional Value from Existing Hydroelectric Assets by Moving Them "In Front of the Meter".

UPPCO recognized an opportunity to maximize the value of certain existing hydroelectric facilities by working with MISO to consider registering these facilities as "in front of the meter." Currently, the Hoist and McClure hydroelectric plants are "behind the meter" hydroelectric generating plants. The terms "behind" or "in front of the meter" refer to how MISO considers the units in its modeling as part of the greater power grid. If MISO considers the unit "behind the meter," it does not value the unit's potential contribution to stabilize the grid beyond its typical generation. If MISO considers a generating unit "in front of the meter," it will value the unit's ability to be called upon during times of energy need to increase generation and provide a grid stabilizing effect. MISO assigns capacity values based on "in front of the meter" generating unit's maximum 1 hour generating capability. 2 T 161.

UPPCO saw an opportunity to move the Company's Hoist and McClure hydroelectric generating units "in front of the meter" because the FERC license for each facility allows for generation above normal levels during periods of energy emergency. By moving the Hoist and McClure generating units "in front of the meter" with MISO, UPPCO will be able to report their capacity to MISO at their annual maximum generation value instead of their averaged generation. UPPCO filed the required documentation with MISO on December 5, 2018. UPPCO has received notification from MISO that this move has been accepted and will be recognized and complete as of March 1, 2019. Based upon the capacity reported for the Hoist and McClure hydroelectric facilities in 2018, this change to "in front of the meter" status will increase the reported combined capacity for these two units by 7.6 MW. 2 T 162.

2. Maximizing Demand-Side Resources by Adopting an Ambitious Goal of 1.5% Energy Waste Reduction

UPPCO examined its existing demand-side resources with the goal of maximizing value for the Company's customers. UPPCO plans to maximize available demand-side resources through implementation of its 2020 and 2021 EWR plan filed in Case No. U-20376, which adopts an ambitious but reasonable target of 1.5% EWR for each plan year based on the previous 3 years' annual retail electricity sales in megawatt hours. UPPCO believes increasing the 1.5% EWR target from 1.14%[7] to 1.5% is ambitious because the definition of EWR energy savings is changing for electric utilities in both Michigan and across the nation. These challenges include, but are not limited to: (i) adoption or repeal of national energy efficiency standards for light bulbs and (ii) movement within energy efficiency toward developing programs that achieve "deep energy savings." 2 T 153.

Nevertheless, UPPCO believes increasing the 1.5% EWR target from 1.14%[8] to 1.5% is reasonable because UPPCO experienced great success in 2018, which was the first year in which UPPCO served as the EWR plan administrator. Based upon this success, UPPCO believes additional EWR programs can be implemented to meet the 1.5% target. UPPCO is starting the transition to 1.5% by increasing both residential and commercial measures that qualify for incentives, such as expanding residential solar water heating and expanding the small business direct install commercial program to include multi-family properties in 2019. 2 T 152.

Finally, UPPCO examined its existing demand response programs. A large portion of UPPCO's industrial load is interruptible (representing approximately 52% of the Company's

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[7] The 1.14% EWR target for 2018 was established by the Commission's February 18, 2018 Order Approving Settlement Agreement in Case No. U-18265.

[8] The 1.14% EWR target for 2018 was established by the Commission's February 18, 2018 Order Approving Settlement Agreement in Case No. U-18265.

total capacity requirement). 2 T 42. Because a large portion of UPPCO's large commercial and industrial customers already participate in demand responses, UPPCO did not find additional opportunities to expand demand response efforts. *Id.* UPPCO is currently implementing AMI meters under a program recently approved by the Commission in Case No. U-20276. 2 T 51. UPPCO believes additional opportunities for smaller commercial and residential customer demand response will likely materialize when AMI implementation is complete.

E. UPPCO Then Developed Reasonable Sales and Peak Demand Forecasts for Use in Modeling

The Company's long-term sales forecast for residential customers was developed for use in this IRP by combining the Integrated and Iron River systems into combined tariff units, forecasting both systems in tandem. The residential forecast used two regression models, a monthly customer count projection and a monthly use-per-customer model; both models include seasonal customers and sales. The customer count projection is based on a regression analysis of the historical monthly trend in the number of residential customers. 2 T 110.

The long-term sales forecasts for commercial and industrial customers utilize regression models, a customer model and a use-per-customer model. The customer forecast is based on a regression analysis of the historical monthly trend in the number of commercial customers within the service territory, excluding those served by an Alternative Energy Supplier ("AES"). 2 T 110.

The peak demand forecast was forecasted using a regression analysis of historical peak kilowatt ("kW") to monthly kilowatt-hour ("kWh") sales, along with weather and seasonal explanatory variables. UPPCO accounted for weather and temperature by using a 10-year average of actual monthly weather observations at KI Sawyer International Airport, as reported

by the National Oceanic and Atmospheric Administration ("NOAA") between the years of 2007 – 2018 as the basis for assumed future weather characteristics utilized in the forecast. 2 T 112

F. UPPCO Engaged Black & Veatch to Perform Modeling in Accordance with the MIRPP

UPPCO engaged Black & Veatch Ltd. of Michigan, LLC ("Black & Veatch") to assist in the development of an IRP that facilitates the selection of future supply options over the course of the next twenty years. UPPCO contracted with Black & Veatch to perform both evaluation and modeling services in conjunction with UPPCO's IRP. The Black & Veatch Report, sponsored as Revised Exhibit A-1, describes the analyses conducted and the underlying assumptions that produced a 20-year resource plan that will meet UPPCO's energy and capacity requirements. 2 T 38.

The Black & Veatch Report used the following three modelling scenarios, as required by Section VIII of the MIRPP for utilities located in the Michigan portion of MISO Zone 2:

- Scenario 1: Business as Usual
- Scenario 2: Emerging Technologies
- Scenario 4: High Market Price Variant.

2 T 54.

As Black & Veatch witness Debashis Bose testified regarding its modeling methodology, Black & Veatch's first step was to characterize existing generating resources to understand the system conditions and characteristics, including performance, costs, and reliability. Black & Veatch then worked closely with UPPCO to identify future goals and constraints pertaining to retirement plans, upgrades, environmental considerations, fuel diversity, reliability constraints, and other goals or concerns. A load forecast was then created to ensure sufficient capacity will be able to be maintained to cover projected peak demands plus reserve margins for all years during the 20-year planning horizon. Once these steps were completed, Black & Veatch

developed generating resource alternatives that considered various capacity and energy alternatives that can reliably and cost effectively meet future projected capacity and energy requirements, while meeting such goals as renewable energy generation, demand response, and intermittent capacity needs. Black & Veatch then utilized a fundamental market model and key assumptions of energy efficiency trends, fuel price forecast, reliability concerns, emission prices, and other sensitives, to forecast future wholesale market prices. See Revised Exhibit A-1.

1. Modeling of Scenarios Required by the MIRPP

The fundamental market model was created by using the PROMOD IV cost model, which allowed Black & Veatch to look at hourly production costs to project costs to meet power supply needs, which included assumptions on long-term planning for hourly loads, economically dispatching units based on hour generation output and costs, and chronological constraints, such as ramp rates. The final step was for Black & Veatch to use the economic analysis and other models to determine the optimal generation resource portfolio based on the lowest cost portfolio which meets power supply needs and strategic objectives.

Two commercial software models were utilized to support the analysis behind the Black & Veatch Report, PROMOD® and PLEXOS®. A model of the MISO market was developed using PROMOD to simulate an hourly forecast of wholesale energy and capacity prices over the 20-year planning horizon of the IRP. The regional price forecast was used to establish prices at which UPPCO can sell into or purchase electricity from the MISO market over the study horizon. A model of the UPPCO system was also developed in PLEXOS to support the evaluation of the least cost expansion plan. The UPPCO System Model incorporated specific generation parameters for existing UPPCO units and existing PPA purchases. Market prices from the MISO Model were used as inputs to determine the costs and revenue associated with serving load and selling power into the MISO market.

PLEXOS was selected for the evaluation of the least cost expansion plan due to its ability to simulate long-term resource expansion analysis based on a detailed representation of utility load shape(s), granular representation of generator operating characteristics and cost, and customizable constraints on system planning requirements and/or system operation. Examples of constraints or criteria that can be included in the model include a system planning reserve margin and target levels of renewable energy. Using such constraints and input data such as UPPCO's load forecast for energy and peak demand, PLEXOS determined the least cost expansion plan by assessing all possible combinations of expansion options for the time period under evaluation and selecting the plan that has the lowest costs, accounting for lifecycle investment costs, fuel costs, and fixed and variable operations and maintenance costs. 2 T 191-193; Revised Exhibit A-1 at p. 21.

2. Demonstrated Need for Additional Resources

Based on the modelling conducted by Black & Veatch, under the Business As Usual ("BAU") Base Case scenario, UPPCO currently has sufficient existing and near-term capacity resources to meet its projected peak demand and planning reserve requirements over the study period without the need to procure additional capacity, as well as RPS requirements. However, UPPCO will require additional energy resources to have less of a reliance in the wholesale and spot market in order to improve reliability and mitigate market risk for its customers. Revised Exhibit A-1 (DB-1) at p. 41.

3. Planning Reserve Margin and Firm Capacity Requirements

Regarding capacity, UPPCO has a capacity Planning Reserve Margin ("PRM") of 8.4 percent, which has been determined by MISO's annual Loss of Load Expectation ("LOLE") report. The PRM is a Michigan reliability requirement is a measure of the resources required to be physically located inside a local resource without considering imports from outside of the

zone. The purpose of the PRM is to provide additional capacity cushion above the expected maximum demand, in order to ensure that adequate capacity is available in times of high demand without the need for load shedding or the risk of unserved load. . See Revised Exhibit A-1 (DB-1) at p. 41.

UPPCO's full peak demand including interruptible loads is 142.2 MW in 2018, which is materially consistent with UPPCO's available capacity of 140.5 MW. UPPCO's highest firm demand of 86 MW occurs in 2018, resulting in a required capacity of 93.3 MW including the PRM. See Revised Exhibit A-1 (DB-1) at p. 42.

A summary of UPPCO's peak capacity sources and requirements over the planning period is shown in Figure 6-1.

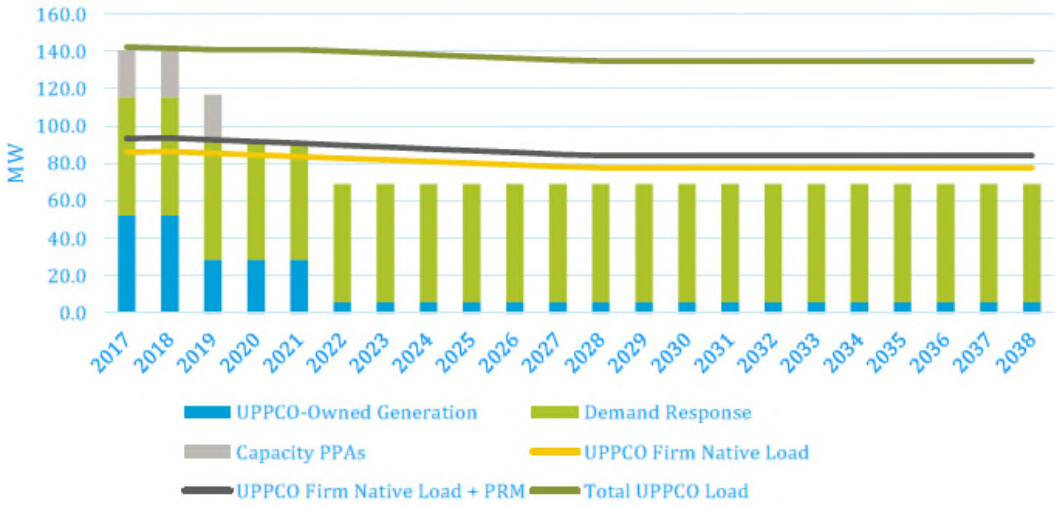


Figure 6-1 UPPCO's Capacity Requirement Projection and Capacity Sources

Additionally, UPPCO's two CTs will soon retire. See Section III.D.2, *supra*. UPPCO will accordingly need additional firm capacity beginning in 2022 in order to meet PRM requirements. Revised Exhibit A-1 (DB-1) at p. 42.

a. Supply Side Resources.

In consideration of the objective of achieving long-term reliability, stable electric costs, and fuel diversity to lower risk of dependence on a single fuel source or the market, UPPCO

developed a list of multiple resource options to evaluate as candidates to serve UPPCO's future needs. Incremental options considered in the analysis were solar, combustion turbines, wind, RICE, biomass, and battery energy storage resources. Revised Exhibit A-1 (DB-1) at p. 45.

Among these options, solar is the fastest growing energy source in the U.S., with 9.5 gigawatts of utility-scale solar power added in the U.S. last year alone – more than the previous three years combined. The biggest driver behind solar power's emergence is dramatic price declines in panel and installation pricing – with prices having fallen by 70 percent over the past 6 years. Revised Exhibit A-1 (DB-1) at p. 45.

While a conventional technology, there are a variety of natural gas-fired generating units on the market that serve different niches and functions. Based on UPPCO's system size and needs, UPPCO would benefit most from a generator that is a modular, fast-start, back-up/peaking technology such as RICE units, which are currently being installed elsewhere in the upper peninsula by MBLP and UMERC. Revised Exhibit A-1 at pp. 50 and 52.

b. Transmission System/Solutions.

Transmission carrying capacity information provided by UPPCO and Black & Veatch's PROMOD modeling confirmed that UPPCO's existing transmission rights are adequate to fully dispatch the generation considered in each of the IRP scenarios modeled, and therefore transmission upgrades are not required to realize the benefits of those scenarios. Revised Exhibit A-1 at p. 55.

c. Scenarios Analyzed.

UPPCO, through Black & Veatch, modeled several scenarios, each considering different methods to meet UPPCO's energy, capacity, and RPS needs through different combinations and permutations of new generation and PPAs. Each of these scenarios was compared to each other, as well as the BAU Base case, on a Cumulative Present Worth Calculation ("CPWC") basis to determine the least-cost option. Additionally, these scenarios were also compared with altered

variables such as load growth, market pricing, and gas pricing in order to determine the merit order of least cost solutions not only under base case assumptions, but also to understand each scenario's exposure to risk and pricing volatility under different assumptions. Revised Exhibit A-1 at p. 57.

Revised Exhibit A-1, page 59, Figure 9-1 describes the Business As Usual Scenario as Follows:

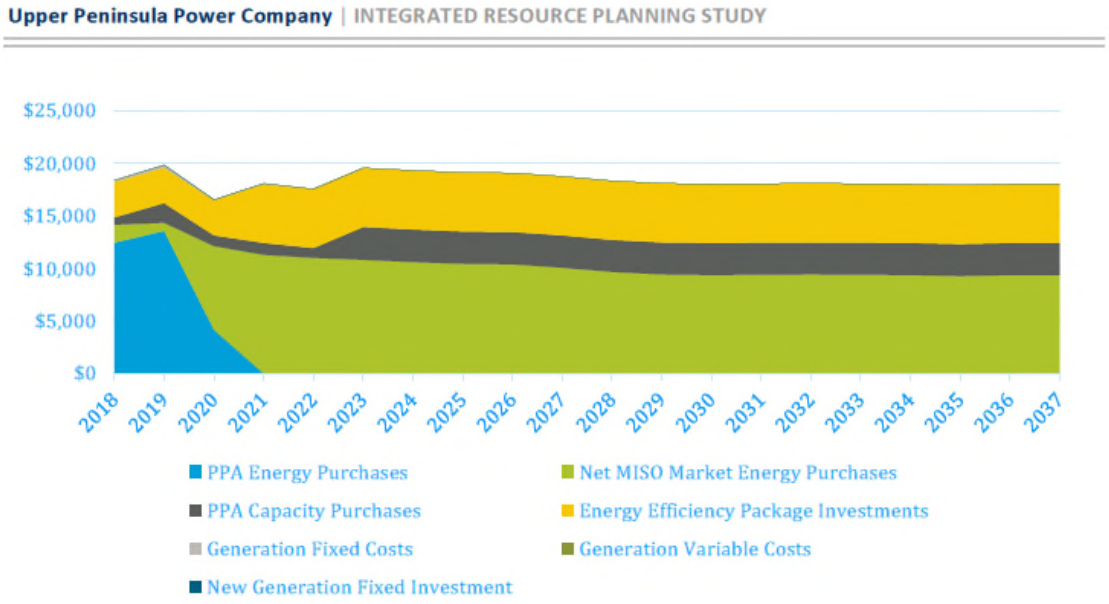


Figure 9-1 Components of the BAU Base Case CPWC

Black & Veatch then modeled a variety of scenarios in accordance with Commission requirements, in order to determine the cost-effective and most reasonable and prudent plan. A summary of the results of these modeled scenarios appear in Revised Exhibit A-1, page 1-6, Figure 1-5:

Black & Veatch understands that the state of Michigan requires analyses of the following three scenarios: (BAU), emerging technology (Emerging Technology), and high energy market prices, as discussed further in Section 2.2. Black & Veatch conducted analyses of the cumulative present worth cost (CPWC) and levelized cost over a 20-year period for several unique possible cases within each of the three scenarios as summarized in Figure 1-5 and Table 1-1. Eighteen BAU, five emerging technology, and eight high market cases were analyzed for a total of 31 unique cases.

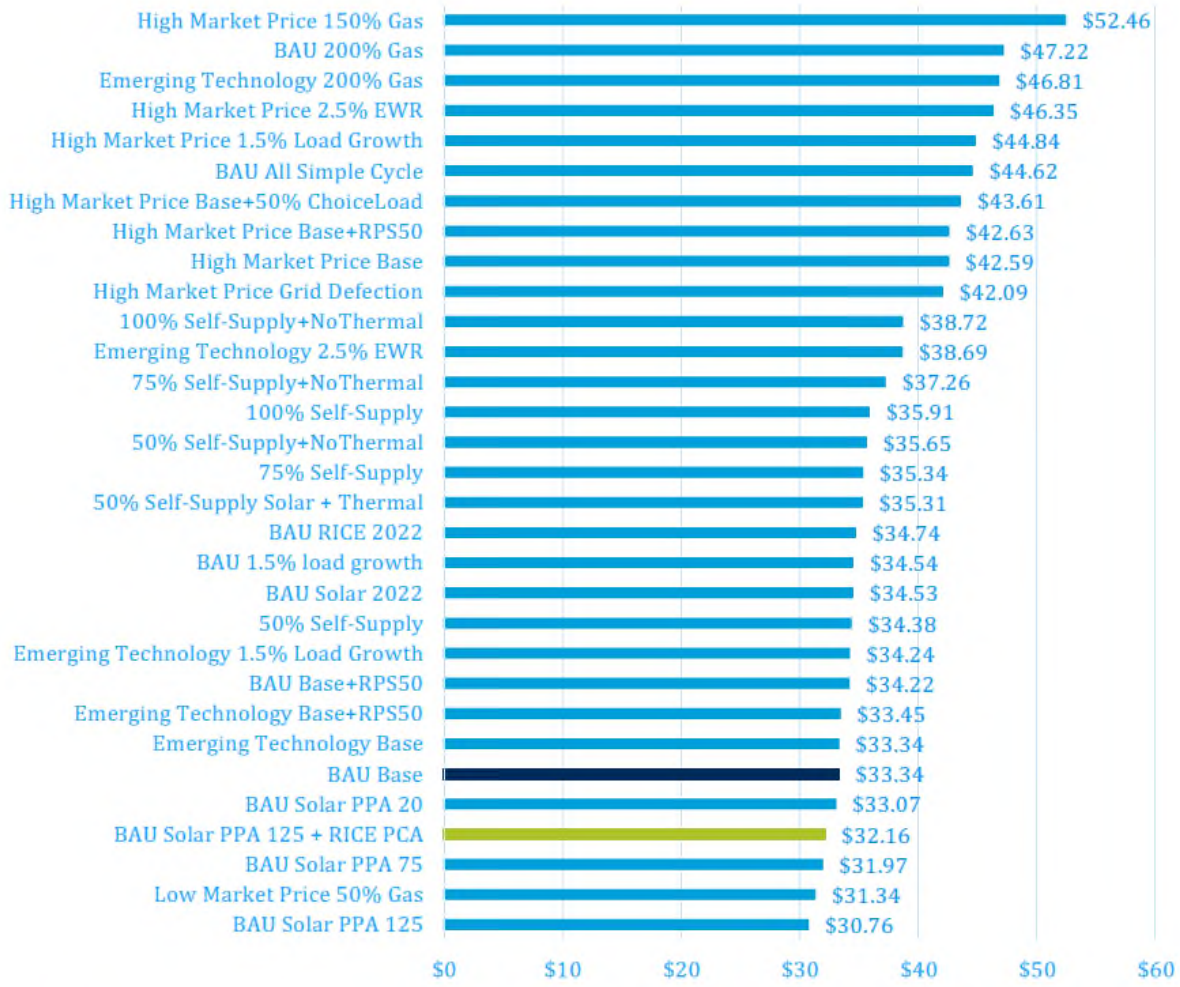


Figure 1-5 Comparison of All Scenario Levelized Costs ($/MWh)

Black & Veatch notes that many of these scenarios evaluated in this IRP were selected in order to comply with Michigan requirements or to sensitize different energy procurement strategies to technology and market changes, but do not represent a selectable IRP case to UPPCO (e.g. UPPCO cannot chose higher or lower MISO market costs, and those scenarios should only be compared to their respective base cases). Those scenarios which are informative but not selectable are identified in Table 1-1.

4. Identification of Most Reasonable and Prudent Alternative

Black & Veatch then identified the five most cost-effective scenarios and conducted additional analyses to identify the most reasonable and prudent plan:

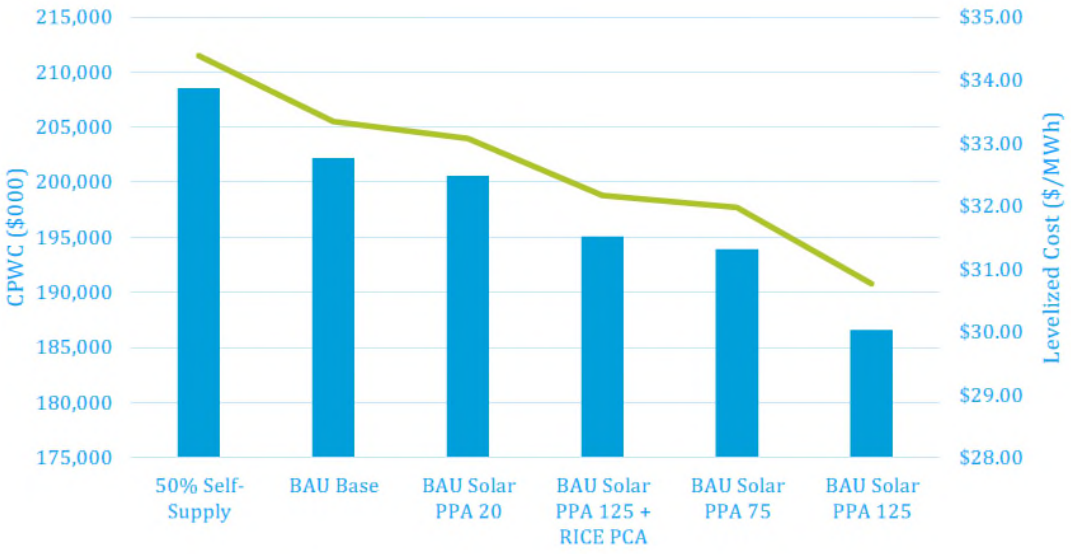


Figure 10-1 CPWC and Levelized Cost Delta of the Top Six Cases ($000)

Though the scenarios are ranked in ascending order of their CPWC, the lowest cost scenario may not be the best option for UPPCO. A scenario with a higher CPWC may be a better fit for UPPCO's system compared to a scenario with a lower CPWC depending upon multiple aspects, both on a qualitative and quantitative basis.

Revised Exhibit A-1, page 118.

Black & Veatch ultimately concluded that the 125 MW Solar + RICE scenario was the most reasonable and prudent plan based upon reliability and diversity considerations:

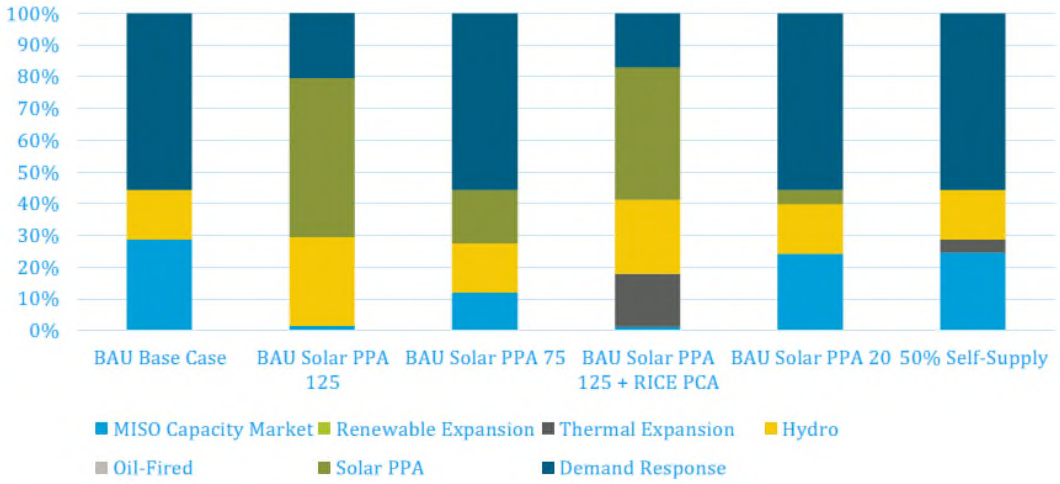


Figure 10-2 Firm Capacity Breakdown and Comparison of Top Five Cases

Black & Veatch is of the opinion that from a capacity resource mix the BAU Solar PPA 125 + RICE PCA case is the most diverse and therefore the least risky case amongst the six cases being discussed here. It relies least on buying capacity from the regional MISO capacity market. The capacity market price used in the model is based on the capacity prices forecast developed by Aces Marketing. Black & Veatch notes that though UPPCO territory falls within MISO Zone 2 region, the bilateral capacity prices at which UPPCO currently buys capacity is lower than the MISO zonal capacity clearing price.

Thus, from a resource mix standpoint, the BAU Solar PPA 125 + RICE PCA case is an ideal and robust option as it is the most varied.

G. Competitive Bidding/Requests for Proposals

With the benefit of the identification of the most reasonable and prudent plan for meeting the Company's energy and capacity needs, UPPCO then utilized competitive bidding to obtain the most reasonable pricing. UPPCO issued two RFPs, both administered and evaluated by an independent third party, to identify the most reasonable pricing for solar generation and RICE generation. 2 T 43.

1. Solar RFP

For its solar capacity needs, UPPCO initially sought to acquire up to 20 MW[9] of AC solar photovoltaic ("PV") generating capacity with a Commercial Operation Date ("COD") commencing on or before June 1, 2022, all located in the Upper Peninsula of Michigan. As such, the capacity could be met by a single 20 MW facility or multiple facilities of lower capacity. For purposes of this RFP, AC capacity referred to the net generating capacity at the facility's point of interconnection ("POI"), as controlled by the plant supervisory control and data acquisition ("SCADA") system. Respondents could propose solutions with an aggregate inverter capacity exceeding the 20 MW AC limit at the point of interconnection, if advantageous.

UPPCO considered a number of options to structure the solar RFP. These options included, generally, (i) a Build Transfer/EPC or Build-Own-Operate-Transfer PPA with a purchase option where the Developer would be responsible for development, turn key EPC construction and commissioning of Solar PV facilities up to the POI with UPPCO's Generation Step-up ("GSU") transformer; (ii) a Build Transfer/EPC or Build-Own-Operate-Transfer PPA with a purchase option where the Developer would be responsible for development, turnkey EPC construction and commissioning of Solar PV and related interconnection facilities; and (iii) Equity Ownership, where UPPCO would enter a 25-year PPA (for energy and capacity) with an equity investment made in year 6 from COD. 2 T 43-45.

UPPCO enlisted the services of WSP, a professional services firm that serves as UPPCO's bid process designer and administrator, because WSP has experience in both designing solar facilities as well as conducting solar project bids. All communication with bidders is conducted by and through WSP for a multi-step process that started with the development of a

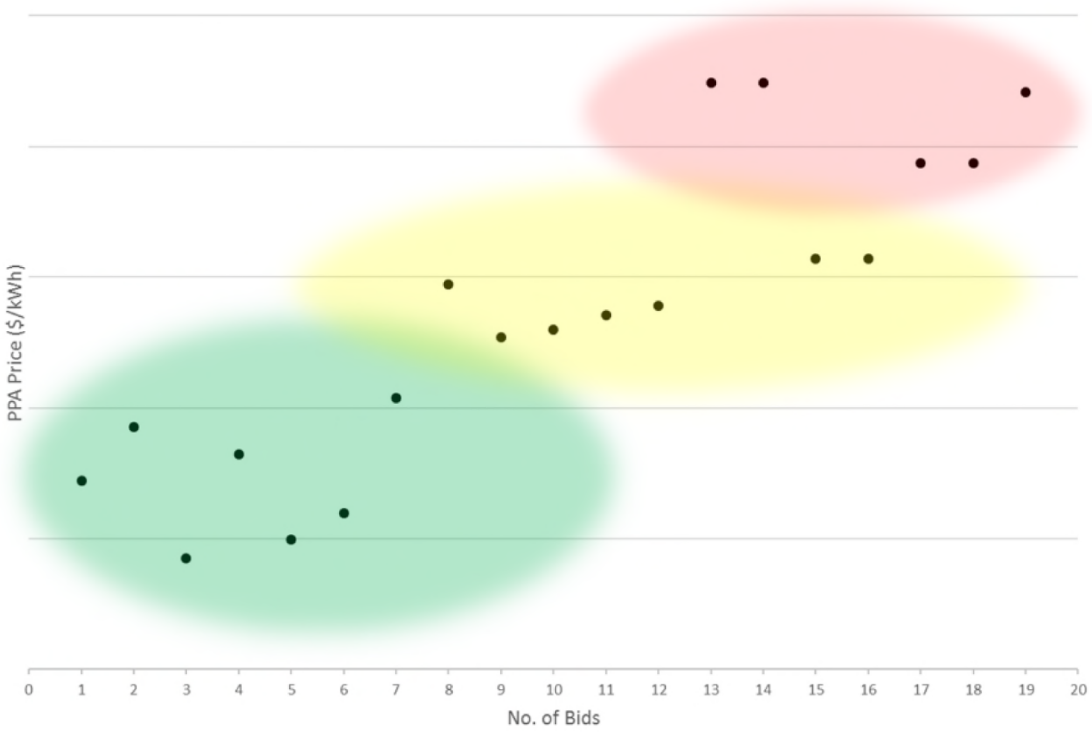
[9] Additional scenarios were added to the Black & Veatch modeling following the initial favorable pricing received in response to the Solar PPA.

bidders list. WSP, through its experience and contacts, developed a core bidders list. UPPCO added a number of potential bidders to this list that had expressed interest in bidding on solar projects for UPPCO and/or were known to be considering development projects within UPPCO's service territory. WSP developed a Request for Interest ("RFI") issuance to the full bidders list, which required bidders to return a statement of interest and a signed non-disclosure agreement prior to being issued the RFP. The issuance of the RFI commenced the RFP process. There was a deadline for return of this RFI documentation to be included on the bidder list. Most of the parties on the bidders list did return the required information, and those that did not were provided with follow up communication to confirm that they were not interested in bidding. Following the RFI deadline, and as stated in the RFI documentation, the RFP was issued on September 14, 2018. See Exhibit A-18. See also 2 T 162 – 163.

Two organizations approached UPPCO after bid issuance expressing a desire to participate. UPPCO worked with WSP to get these two bidders caught up and rolled into the bidding process in a manner that was equitable for all parties. During the process UPPCO did issue an addendum and bid extension, which was required due to a late realization on the impacts of UPPCO's tax position and its inability to utilize the solar Investment Tax Credit. See Exhibit A-19. Bid responses were delivered to WSP on January 4, 2019. WSP developed a bid process report and ranking results. See Exhibit A-20. 2 T 163

UPPCO received 30 bids from 6 different bidders. As evidenced in Company Witness David R. Tripp's Exhibit A-20 Solar RFP Evaluation Summary, the PPAs, including those with purchase options, were more economic than EPC alternatives for UPPCO's customers at this time.

Solar RFP Bid Prices (including assumed Interconnection Costs) Figure 2



2 T 47.

As shown in the figure above, the PPA bids received in response to the Solar RFP were extremely competitive with three natural groupings of bid prices, as identified above in the three separate color bands. UPPCO's preferred bid and bidder resides in the green, lower priced band. Also, UPPCO's chosen bid, as represented in the chart above, includes the levelized FCM charge, which is expressed in $/MWh. UPPCO included the levelized FCM charge in its preferred bid to augment the competitiveness of the fixed price PPA with an FCM in relation to the other bid prices that do not include it. In other words, UPPCO's preferred bid price with an FCM is still one of the most competitive bids being evaluated. While the bids came back in

alignment with the scope of the RFP document, the pricing and information was such that UPPCO evaluated increasing the size of its energy and capacity purchases to 125 MW from the original 20 MW target. 2 T 47 – 48. With its preferred bid price identified, UPPCO ran an additional IRP modeling scenario to include a Business-As-Usual modeling run with 125 MW of a fixed price Solar PPA. As evidenced in Black & Veatch's Report in Section 10, the 125 MW Solar PPA came back with the least cost CPWC. 2 T 48.

2. RICE RFP

For its RICE facility, UPPCO sought to acquire 18 to 20 MW of natural gas-fired RICE generating facility with a COD commencing on or before June 1, 2022, to be located in UPPCO's established service territory within MISO Load Resource Zone 2 in Michigan. As such, this capacity can be met by simple cycle single or two engine generation in an enclosed facility. UPPCO structured the minimum requirements of the RFP to allow respondents flexibility to propose technical solutions to maximize overall financial benefit of the project. 2 T 45. See Exhibit A-24. For the RICE RFP, UPPCO used an approach similar to that used for the Solar RFP, including using WSP as the bid manager. 2 T 45-46.

As will be discussed in more detail later in this brief, UPPCO plans to locate the RICE unit in an area that will provide reliability benefits for the eastern portion of UPPCO's service territory. To evaluate siting for the proposed generation builds, UPPCO enlisted the services of Steigerwaldt Land Services to conduct a land study to identify appropriate properties. UPPCO evaluated properties near eight substations for both possible solar and RICE generation installation. With Steigerwaldt's assistance, UPPCO selected a location near an existing substation due to its eastern proximity, available electrical transmission connection, proximity to the natural gas transmission system, and available acreage. 2 T 164-165.

3. UPPCO Filed a Cost Update Following Receiving Bids in Response to the RICE RFP and Reaching an Insurance Settlement for the Portage CT.

On June 6, 2019, UPPCO filed the Supplemental Testimony of David R. Tripp, P.E., to provide a status/cost update concerning the RICE RFP. UPPCO received indicative bid pricing from two respondents. The two bids were similar in pricing, and both bidders indicated that additional engineering was needed before firm price estimates were possible. 2 T 169. Because it determined that more engineering was necessary before firm pricing would be available, UPPCO selected Bidder A to perform the engineering services and refine its pricing estimates. 2 T 655. UPPCO selected Bidder A because it has been involved with the engineering or construction of more than 14 similar completed RICE generating plants with installed capacity of over 1,000 MW and because it has a proven track record of engineering and design work with [redacted]. 2 T 655.

As part of the same cost update, UPPCO informed the parties that the Company had reached a settlement with its insurance provider concerning the Portage CT failure. The value of the insurance settlement is [redacted] if UPPCO builds a replacement unit. Key terms of the settlement include: (i) a $500,000 deductible, (ii) [redacted] will be dispersed to UPPCO from the insurance company upon consummation of the insurance settlement agreement, and (iii) the remaining [redacted] will be dispersed to UPPCO within two years of the date of the loss of the Portage unit, contingent upon the UPPCO providing proof of associated expenditures related to UPPCO's replacement unit. See Confidential Exhibit A-27. The RICE unit will be the replacement unit. UPPCO plans to reflect the insurance settlement monies, net of associated clean-up costs, including UPPCO labor, in a manner that offsets the cost of the 18 MW RICE unit as shown in Confidential Exhibit A-26. 2 T 658.

UPPCO proposes that the insurance proceeds from the Portage generator insurance settlement should be credited to the electric plant account charged with the cost of the damage.

Also, UPPCO believes that when the damaged property is subsequently retired, UPPCO would credit the appropriate account for accumulated provision for depreciation applicable to such property. Further, the cost of removal and the salvage shall be charged or credited, as appropriate, to such depreciation account. If UPPCO's proposed RICE unit is not approved in this docket, UPPCO intends to utilize the total value of the insurance proceeds, net of associated clean-up costs and associated labor, or approximately [redacted], toward repairing and/or refurbishing the 45-year old, oil-fired Portage CT.

Mr. Tripp concluded the cost update by revising the capital cost estimate for the RICE unit by (i) incorporating indicative pricing from the winning response to the RFP, (ii) adding transmission interconnection costs, and (iii) applying the insurance settlement. See Confidential Exhibit A-26; see also 2 T 172.

H. UPPCO'S Preferred Course of Action

Based on UPPCO's extensive outreach, analysis and modeling, as described above, the Company's PCA outlined in this section meets the Company's and its customers' energy and capacity needs through 2046 and is in the best interests of customers and the Company's service area. For its PCA, UPPCO proposes the following:

1. An Additional 7.6 MW of Capacity Resulted from Moving the Hoist and McClure Hydroelectric Facilities "In Front of the Meter".

This component of the PCA is discussed in Section III.D.1, *supra.* This change was included in Case No. U-20276, consequently this increased capacity was modeled as part of the BAU scenario in the Black & Veatch Report. 2 T 39-41

2. Increasing UPPCO's EWR Target to 1.5 %.

This component of the PCA is discussed in Section III.D.2, *supra.*

3. Executing a 125 MW Solar PPA ("Solar PPA").

The Solar PPA replaces a significant portion of the short-term market energy purchases that UPPCO would otherwise procure on an annual basis at some unknown future rate, at an economically beneficial fixed prices for 26 years. 2 T 82. As such, the Solar PPA provides a significant hedge against on-peak day-ahead market pricing, which would typically command a pricing premium against off-peak or nighttime contracts. 2 T 121. As shown in Confidential Revised Exhibit A-8, page 2, the expected customer savings from the Solar PPA are substantial: approximately [redacted]/MWh less than the current average PSCR rate and approximately [redacted] million per year.

The Solar PPA provides additional value as a market hedge. Currently, UPPCO is highly dependent on market energy purchases. As such, any fluctuation in that market pricing, regardless of whether the energy is acquired through reverse auction or from the Day-Ahead or Real-Time market, will yield a proportionate impact on the PSCR costs to UPPCO customers. The Company is continually looking to isolate its customers from the effects of unfavorable pricing conditions. Hourly solar generation profiles often align closely with market pricing trends. As such, the Company's proposal to enter into a long-term, fixed price PPA for a solar facility will tend to isolate the Company from the necessity of buying a significant amount of energy from, potentially, unfavorable spot-market energy prices. 2 T 122.

4. Providing a Financial Compensation Mechanism to Incentivize UPPCO to Enter a Long-Term Commitment Satisfying a Large Portion of Its Energy and Capacity Needs.

UPPCO is proposing an FCM in accordance with the MW Solar PPA in this proceeding because Solar PPA represents a long-term commitment to satisfy approximately 40% of UPPCO's total energy and approximately 55% of UPPCO's ZRCs. When evaluating long-term supply resources like the Solar PPA, the Company must decide between utility asset ownership

and contracting with a non-utility owner through a long-term PPA. By entering into a long-term obligation like the Solar PPA in lieu of constructing Company-owned generation, UPPCO is foregoing an opportunity to earn a rate of return for its investors. 2 T 57-58.

MCL 460.6t(15) provides:

> For power purchase agreements that a utility enters into after the effective date of the amendatory act that added this section with an entity that is not affiliated with that utility, the commission shall consider and may authorize a financial incentive for that utility that does not exceed the utility's weighted average cost of capital.

UPPCO proposes an FCM in Revised Exhibit A-7 as a needed and appropriate incentive for the Company to enter the long-term Solar PPA and achieve significant cost savings for its customers. UPPCO requests that the FCM be approved by the Commission in this proceeding for later consideration and recovery in the Company's next general rate case. 2 T 60.

5. Constructing an 18 - 20 MW RICE Unit to Begin Service in 2022 ("RICE 2022").

The RICE 2022 component of the PCA was selected by the Black & Veatch model. Revised Exhibit A-1, pages 50-51, explain some of the benefits associated with the construction of a relatively small RICE:

> There are a variety of natural gas-fired generating units on the market that serve different niches and functions. Based on UPPCO's size and needs, UPPCO would benefit most from a generator that is a modular, fast-start, back-up/peaking units such RICE that are currently being installed elsewhere in the upper peninsula by MBLP and UMERC.
>
> RICE units have been selected as the source of new generation in the upper peninsula for MBLP (3 x 16.7 MW units for a total of 50 MW) and UMERC (up 10 x 18 MW units for a total of 180 MW). While RICE units are more expensive to install than other small conventional generation, they are generally more efficient with a lower heat rate of 8,500 BUT/kWh, allowing the units to be dispatched with much greater economic frequency (46.2 percent of the time for the other upper peninsula examples).

Black & Veatch ultimately included the RICE unit in the PCA due because it was expected to provide additional operational flexibility and reliability for a marginal cost increase:

> Black & Veatch believes that the additional energy source variety and firm, quickly dispatchable generation from a 20 MW RICE unit would be a favorable tradeoff for a relatively higher CPWC than the BAU Solar PPA 125 without a RICE.
>
> Revised Exhibit A-1, page 116.

Mr. Stocking further explained the reliability and price hedging benefits of complementing a portfolio relying heavily upon non-dispatchable renewable energy with a small, quickly dispatchable resource like the RICE:

> Dispatchable units with expedient start-up times and quick ramping rates allow system operators to closely match the total system demand to the amount of resources available to meet this demand
>
> 2 T 125.
>
> ****
>
> [A]s evidenced by recent approvals to build new natural gas-fired, dispatchable generating resources in Michigan as well as elsewhere in the MISO footprint, these resources provide necessary redundant capacity to the growing volume of renewable energy generating facilities in MISO.
>
> 2 T 124.

UPPCO was then able to leverage the siting process to provide additional system reliability and power supply benefits for its customers. As Mr. Tripp explained:

> UPPCO selected a location near the [redacted] substation due to its eastern proximity, available electrical transmission connection, proximity to the natural gas transmission system, and available acreage.
>
> 2 T 164.

Mr. Stocking explained the additional reliability benefits expected to accrue from the siting of the RICE 2022 component of the PCA:

> Following the April 1, 2018 anchor strike that impacted ATC's inter-peninsular submarine cables at the Straits of Mackinac, MISO sought stakeholder input while deliberating MTEP 2018 ID No. 15145 (Mackinac – McGulpin 138kV Cable Replacement project). During these deliberations, ATC informed stakeholders of certain risks attributable to the loss of the remaining 138kV submarine circuit under several North American Electric Reliability Council (NERC) Transmission System Planning Performance (TPL) requirements. UPPCO believes the RICE project helps mitigate certain contingent loss-of-load risks that were articulated by ATC during the MTEP 2018 process.
>
> Additionally, MISO commissioned its Michigan Exploratory Transmission study on August 17, 2016, at the request of Governor Rick Snyder and the Michigan Agency for Energy. The study was completed to conduct a near and long-term regional evaluation of potential production cost savings, reliability and resource adequacy benefits of adding additional transmission and generation resources in the eastern portion of Michigan's Upper Peninsula and norther Lower Peninsula. This indicative study concluded, in part, that dispatchable, natural gas-fired generating resources located in the region would provide reliability benefits that were comparable to the transmission alternatives that were studied.
>
> 2 T 126 – 127.

Mr. Stocking further explained that, while the RICE 2022 project was sized to meet UPPCO's customer needs, the proposed location creates opportunities for expansion and future collaboration with other Load Serving Entities or Independent Power Producers to effectively mitigate reliability issues that may in exist in the central and eastern Upper Peninsula. 2 T 128.

6. Setting UPPCO's Requested "Avoided Cost" for Interaction with Qualified Facilities ("QF").

UPPCO's PURPA Avoided Cost was originally slated for review in a separate proceeding. Pursuant to the Order issued on September 28, 2017 in Case No. U-18094, UPPCO was scheduled to file its next PURPA review application by February 1, 2019. UPPCO filed a motion to extend the filing deadline for its PURPA review to accommodate its inclusion in the IRP filing. The Commission approved the Company's motion in its Order on February 7, 2019 in Case No. U-18094. 2 T 128.

PURPA Regulations (18 CFR 292.101(b)(6)) define avoided costs as the following:

> voided costs means the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself ***or purchase*** from another source." [emphasis added].

According to the definition of avoided costs above, and consistent with the Commission's directive in its previous PURPA avoided cost review, UPPCO proposes that the Company's avoided capacity cost should be set at a level equal to the Company's contracted capacity price at the time the PURPA contract is entered into, with an adjustment for effective load carrying capability applied to the QF. For energy payments, UPPCO's avoided cost should be based on the actual LMP at the time of delivery, or based on forecasted LMP, at the option of the QF. This calculation is the most efficient means to derive the true cost of the incremental energy and capacity that UPPCO would look to purchase to satisfy its total energy requirements, until such time that the Company's resource portfolio becomes substantially different than it is today. Since the Federal Energy Regulatory Commission ("FERC") acknowledges that the avoided costs can be based on the utility's costs to self-generate with incremental resources, or purchase from another source, it is appropriate to align the avoided cost set in this proceeding with the expected cost of the incremental energy and capacity that would be purchased by UPPCO, but for the purchase from the QF. 2 T 129 - 130.

Consistent with the outcome in Case No. U-18094, UPPCO proposes that capacity payments under the standard offer contract should be the avoided capacity cost should be equal to the contracted capacity cost in the year that the PURPA contract is entered into, adjusted for the effective load carrying capability that is applied to the QF. If the Commission determines that UPPCO has satisfied its requirement to demonstrate that it has adequate capacity to serve its requirements over a 10-year planning horizon, then the Company should not be obligated to purchase capacity from the QF. 2 T 131.

UPPCO also proposes that, consistent with Case No. U-18094, energy payments should be based on the hourly LMP at the time of delivery, or based on forecasted LMP, at the option of the QF. Similarly, the Standard Offer contract terms for five, 10, 15, and 20 years, at the option of the QF, should be based on the average forecasted LMP for each time horizon, respectively. Revised Exhibit A-16 contains the 20-year forecast of LMPs for use as the basis of the avoided energy cost. UPPCO's also proposes to set the QF standard offer cap at 500 kW. [10] This is consistent with other Michigan utilities of comparable size as UPPCO. 2 T 132.

As evidenced by the discussion of the Company's current reliance on purchased capacity and energy, it is clear that UPPCO's circumstances related to true avoided costs are largely similar to those that existed at the time of the Commission's September 28, 2017 Order in Case No. U-18094. Further, UPPCO contends that the biennial review schedule of PURPA avoided costs is intended to closely align PURPA avoided cost rates with the actual costs experienced by a Company at that point in time, thereby allowing for timely calibration of the avoided cost to changing market conditions, changes in the utilities resource portfolio, and any other potentially unexpected circumstances. 2 T 131.

UPPCO also proposes changes to the Company's Parallel Generation-Purchase Tariff as presented in Exhibit A-14. The proposed tariff meets the Federal Energy Regulatory Commission's requirements to comply with the Public Utilities Regulatory Policies Act because it allows a QF to sell energy and capacity to UPPCO at non-discriminatory rates that are set through a competitive bidding process, to interconnect with UPPCO and operate in parallel with established standards and other generating resource. The PG-4 tariff also provides the standard

[10] This value was changed to 550 kW in rebuttal to align with Staff's position.

offer tariff avoided cost rates at which UPPCO would pay the QF for delivered energy and capacity. 2 T 131.

I. The PCA Will Meet All of UPPCO's Customers' Capacity Needs for the Planning Period, Reduce Market Risk, and Provide Energy at a Lower Cost than the Current Status Quo.

1. The PCA Meets All Capacity Needs.

UPPCO's PCA will meet of the capacity needs for the Company's service territory beginning in 2022 when the Company will maintain a small capacity surplus. See Exhibit A-13. The reason for this is a product of the disparity between UPPCO's energy and capacity market exposure. Due to the large amount of the Company's peak demand requirements that are satisfied through demand response resources, UPPCO's overall capacity deficit is significantly less than its energy deficit. Moreover, due to the competitive pricing that resulted from the Company's RFP processes, UPPCO is looking to provide a long-term, low cost hedge against energy and capacity market volatility to the benefit of its PSCR customers. In any given year, excess capacity can be sold through contract or offered into the MISO Planning Resource Auction, providing additional benefit to UPPCO's PSCR customers. 2 T 126.

2. A Reasonable Revenue Requirement for the PCA Results from the Leveraging of Competitive Pricing for the PCA Components

Mr. Haehnel sponsored exhibits deriving the revenue requirement for the various PCA components and comparing them to the expected power supply cost savings:

- Revised Confidential Exhibit A-8 (GRH-8) Summary Inputs and Outputs
- Revised Confidential Exhibit A-9 (GRH-9) Revenue Requirement Summary
- Revised Confidential Exhibit A-10 (GRH-10) RICE 2022 Revenue Requirement
- Revised Confidential Exhibit A-11 (GRH-11) Solar PPA Revenue Requirement
- Exhibit A-12 (GRH-12) Hydro Capacity Revenue Requirement
- Revised Confidential Exhibit A-7 (GRH-7) PPA FCM

These exhibits demonstrate significant customer cost savings associated with the Solar PPA and the hydroelectric capacity improvements, and illustrate that the overall revenue requirement of for the PCA is very reasonable.

IV. OVERVIEW OF STAFF AND INTERVENOR POSITIONS

A. MPSC Staff

Staff generally supported all components of UPPCO's PCA. As Staff witness Paul Proudfoot stated:

> Staff recommends that the Commission find the Company's IRP meets the provisions of PA 341 of 2016 Section 6t(8), MCL 460.6t(8) and the Company's initial three years of its IRP is the most reasonable and prudent means of meeting the Company's energy and capacity needs. However, Staff is not recommending specific cost approval at this time. Therefore, Staff recommends the Commission require the Company to file and request approval for finalized costs from the electric generation facilities included in its PCA pursuant to PA 341 Section 6t(12), MCL 460.6t(12).
>
> 2 T 213.

Staff also made several additional recommendations to the Commission concerning revisions to this and/or future UPPCO IRPs, including:

- Increasing the Company's EWR target to 1.65% of total electric load for planning year 2020 and 1.75% for planning year 2021. The reasonableness and prudence of the change and its associated cost should be determined in the 2019 EWR plan case. 2 T 229 and 322.
- Granting explicit cost preapproval for the first three years of the Company's IRP and direct UPPCO to file a new IRP, with updated assumptions, within five years of the Commission's order in this case. *Id.*
- Denying UPPCO's request to establish an FCM for the Solar PPA based upon imputed debt and offering an alternative methodology that may be appropriate if the Commission deems an FCM appropriate. See, e.g. 2 T 398, 672, and 680 - 682.
- Denying UPPCO's request to establish a regulatory asset for IRP costs. 2 T 685.
- Making several directives concerning the filing of future IRPs, including, consideration of demand response [2 T 336] and storage [2 T 317 - 318], increasing public outreach [2 T 265 - 266], establishing a checklist for the Commission's IRP filing requirements [2 T

256 – 257; Exhibit S-2.2], making various revisions to peak load and energy sales forecast regressions [See 2 T 287], and providing a more robust transmission analysis [See 2 T 371 - 372].

- Utilizing a five-year planning horizon with respect to PURPA capacity to align PURPA planning with future IRP case. 2 T 382.
- Setting the Company's PURPA avoided capacity cost to the MISO Planning Resource Auction ("PRA") clearing price for each year that the contract is in place for times when the Company demonstrates that it does not have a persistent capacity need and making additional changes to the avoided energy cost MISO Locational Marginal Price ("LMP") pricing structure option. 2 T 383 – 384.
- Increasing the Company's proposed QF standard offer cap from 500 kW to 550 kW. 2 T 384.
- Recording the Portage CT insurance settlement as a regulatory liability. 2 T 231.
- Granting a waiver from certain filing requirements for the RICE RFP. 2 T 299.
- Directing the Company to file annual reports using the Staff Exhibit S-3 as template. 2 T 232.

Staff also recommended that UPPCO make certain revisions to its filing in its rebuttal case, including (i) filing an implementation plan for the PCA [2 T 249 - 250], (ii) seeking a waiver from the filing requirement for a cost of carbon analysis [2 T 254], and (iii) providing a format for future annual reports [see Exhibit S-3.0].

B. CARE

CARE witness Douglas Jester filed testimony and exhibits supporting most of the elements of UPPCO's PCA. Most notably, Mr. Jester supported the Solar PPA, stating:

> This proposal is based on competitive procurement that provided a good price, will reduce UPPCO's costs as compared to its reasonably anticipated alternative power supply costs, provide a long-term fixed price that reduces power supply cost risk, and significantly increase the share of renewable generation with which UPPCO supplies power for its customers.
>
> 2 T 409.

Mr. Jester stated that he did not support UPPCO's proposed FCM for the Solar PPA, but that he would support an FCM for the Solar PPA that was based upon applying a defined percentage that does not exceed UPPCO's authorized weighted average cost of capital ("WACC") to UPPCO's

annual payments under the Solar PPA. 2 T 427. Mr. Jester stated that he also supported UPPCO's proposed EWR target of 1.5% [2 T 432], supported UPPCO's proposal to move hydroelectric facilities "in front of the meter" [2 T 436], and supported UPPCO's PURPA avoided cost proposal [*id.*]. Mr. Jester supported the retirement of the Portage CT and UPPCO's requested treatment of the insurance settlement. 2 T 434 – 435. Mr. Jester did not, however, support the Company's proposal to replace the Portage CT with the construction of a 20 MW RICE unit in the eastern portion of UPPCO's service territory. 2 T 428. Mr. Jester acknowledged the reliability issues in UPPCO's service territory, but he favored further study and the possible implementation of a transmission solution with costs spread to other customers in addition to UPPCO's customers. 2 T 428 – 432.

C. Circle Power

Circle Power witness Christopher Moore submitted testimony and exhibits that principally objected to the consideration of wind power in the modeling used to predict the most cost-effective sources of new generation capacity, which resulted in UPPCO issuing its Solar RFP. See generally 2 T 500 – 511 and 513 to 514. Mr. Moore also stated that UPPCO should have better included existing QF projects, in particular two wind farm projects currently being pursued by Circle Power, when developing its IRP. See 2 T 497 – 500. Finally, Mr. Moore objected to UPPCO's PURPA avoided cost proposal because it did not use the UPPC.INTEGRATED load node for its LMP energy rate forecast. 2 T 511 – 512.

D. ABATE

ABATE witness Amanda Alderson submitted testimony and exhibits opposing all aspects of UPPCO's PCA, primarily claiming that more information/support was necessary to garner ABATE's support for any of the components. Ms. Alderson opposed the Solar PPA for a

number of reasons, including a preference for UPPCO's continued heavy reliance on market purchases. 2 T 465 – 466. Ms. Alderson also objected to UPPCO's cost analyses for the Solar PPA because they (i) included a benefit for the Renewable Energy Credits ("REC") associated with the Solar PPA, (ii) did not include a degradation factor for the solar array, (iii) did not take into consideration the LMP forecast at the UPPC.INTEGRATED node for replaced energy costs, and (iv) assumed constant capacity rates over a 25-year forecast period. 2 T 467 – 468. Ms. Alderson stated that additional sensitivity analyses were also needed for the Solar PPA. See 2 T 469 – 471.

Ms. Alderson also advocated evaluation of numerous alternative solutions to UPPCO's proposed 20 MW RICE unit, including (i) repairing/rebuilding the 45-year-old Portage CT, (ii) building a simply cycle combustion turbine, and (iii) regional transmission solutions. See 2 T 475 – 477. Ms. Alderson also opposed UPPCO's proposed FCM, questioned its necessity, and offered an alternate methodology for deriving an FCM, which she felt would be more appropriate. See 2 T 479 -485. Finally, Ms. Alderson opposed UPPCO's proposed target of 1.5% EWR, stating that the details and costs of the increased target must first be evaluated and determined in the Company's EWR plan case. 2 T 486 -489.

V. UPPCO'S REBUTTAL CASE

UPPCO's rebuttal case served two purposes. The first purpose was to respond to allegations and arguments made by Staff, CARE, Circle Power, and ABATE in their direct cases. The second purpose was to provide a cost update reflecting changes made in response to Staff/Intervenors as well as additional pricing updates for the Solar PPA and RICE 2022 components, in accordance with MCL 460.6t(7).

A. UPPCO's Rebuttal Testimony Showed Alignment with Staff and Incorporated Other Relevant Suggestions from ABATE and Circle Power.

Mr. Haehnel began his rebuttal by noting that Staff and UPPCO were in agreement with most of the major portions of the Company's PCA. Specifically, Mr. Haehnel noted complete agreement with Staff on the (i) Solar PPA, (ii) RICE 2022, (iii) retirement of the Portage CT, and (iv) Hydro Capacity upgrade. 2 T 88-89. He also noted several instances where UPPCO accepts recommendations from Staff's direct case:

- UPPCO accepted Staff's position and withdrew the Company's request to establish a regulatory asset for unrecovered IRP costs. 2 T 89.
- UPPCO accepted Staff's recommendations for future IRP filings, including providing all information necessary to show compliance with the IRP Filing Requirements in the Company's initial filing or else noting filing requirements that are not applicable or requesting waivers from specific filing requirements.
- As recommended by Staff, Mr. Tripp sponsored a PCA implementation plan as Exhibit A-32.
- UPPCO requested a waiver from Section XIX(i) of the IRP Filing Requirements, which requires a comparison of total projected carbon emissions under each scenario. 2 T 178.
- UPPCO adopted Staff's recommendations concerning its PURPA avoided cost and Standard Offer Tariff and incorporated them in its case. See 2 T 135 – 137.
- UPPCO also accepts Staff's proposed format for annual reports, as shown in Exhibit S-3.0.

1. UPPCO Used an Appropriate EWR Target for the IRP – Additional EWR Activities and Costs Should Be Considered in the EWR Plan Case

Mr. Haehnel testified that UPPCO disagreed with Staff's recommendation that the Company's EWR target should be increased. Mr. Haehnel noted that Staff's proposal would necessarily increase EWR costs, but Staff witness Mr. Banks did not quantify the additional costs. 2 T 88. Although the two parties disagree on the appropriate target, Mr. Haehnel noted that both UPPCO and Staff agree that the EWR costs represented in the IRP should be detailed in the Company's EWR Plan case for the 2020 and 2021 plan years. 2 T 88. Mr. Haehnel further testified that UPPCO filed testimony and exhibits in the Company's 2020 and 2021 EWR plan

Case No. U-20376 on July 1, 2019 providing detailed support in terms of activities and costs needed to meet the 1.5% EWR target. 2 T 95.

2. UPPCO Supplemented and Revised the Analyses of the Solar PPA to Address Several of the Intervenors' Comments

UPPCO accepted some of ABATE witness Alderson's suggestions concerning the solar PPA and refuted others. Mr. Haehnel refuted Ms. Alderson's criticism that the approximate $4.55 million value for RECs should not factor into the Solar PPA revenue requirement analysis by noting that RECs are fungible commodities, so UPPCO will be able to sell excess RECs after it satisfies its renewable energy portfolio requirements. 2 T 96. As Mr. Haehnel testified, one could argue whether this value should be labeled "REC cost savings" or "REC Benefits", but the value to UPPCO's customers is real and is properly reflected in UPPCO's cost analyses. 2 T 96. UPPCO accepted Ms. Alderson's recommendations, however, that UPPCO's cost analyses for the Solar PPA should reflect a 0.5% annual degradation factor for the solar array. Mr. Haehnel sponsored Revise Exhibit A-8, which, at line 29, included the degradation factor of minus-0.5% for the solar array in UPPCO's revenue requirement analyses. 2 T 96-97.

UPPCO also accepted Ms. Alderson's recommendation that data used to derive the value of energy purchases that would be offset by implementation of the PCA should be the same as that used for UPPCO's PURPA avoided cost proposal. 2 T 97. Mr. Haehnel sponsored Revised Exhibits A-8, A-10, A-11, and A-12 , which utilized the revised LMP forecast sponsored by Mr. Stocking as Revised Exhibit A-16. Mr. Haehnel then sponsored Exhibit A-33 and Exhibit A-34, which contain additional sensitivity analyses further demonstrating that the Solar PPA will provide long-term economic benefits to UPPCO customers under all foreseeable scenarios.

Exhibit A-33 examines the cost savings expected from the Solar PPA under a variety of capacity price scenarios, assuming the base LMP for energy stays constant. 2 T 606 – 607. Mr. Haehnel explained that these capacity price scenarios were reasonable because the base case

capacity price scenario premised upon 50% of UPPCO's Cost of New Entry ("CONE") is a common benchmark used in IRP proceedings. 2 T 607. Mr. Haehnel further testified that the lowest and highest capacity price scenarios reflected, respectively, were taken directly from Ms. Alderson's testimony. 2 T 607. As shown on line 8 Exhibit A-33, the Solar PPA will result in cost savings for UPPCO customers under all foreseeable capacity price scenarios. 2 T 608.

Mr. Haehnel then examined the effect of energy price on the economic benefits of the Solar PPA. Exhibit A-34 examines the cost savings expected from the Solar PPA under a variety of energy price scenarios, with a base case of the revised LMP forecast sponsored by Mr. Stocking as Revised Exhibit A-16. 2 T 608. Under all foreseeable energy price scenarios, the Solar PPA is still expected to provide significant cost savings to UPPCO's customers. See Exhibit A-34, line 8. As Mr. Haehnel testified:

> Even at the Lowest Capacity Price forecast, the Lowest LMP forecast produces long-term economic benefits.
>
> 2 T 609.

3. UPPCO's Proposed FCM Is Both Needed and Reasonable

In response to criticisms from Staff, CARE, and ABATE of the Company's use of the imputed debt methodology to derive the FCM, UPPCO reiterated that the Company's proposed methodology was reasonable given the Company's risk profile:

> As evidenced in Exhibit A-31 (DRT-10), UPPCO has signed a 26-year PPA for energy and capacity, and, as such, the Company has "debt-like" payment obligations for the term of the contract with the PPA Counterparty. The enumeration of these "debt-like" payment obligations is evidenced also in the Revised Exhibit A-7 (GRH-7), PPA FCM, at column (b) which is labeled PPA Payments.
>
> 2 T 96.

Mr. Haehnel sponsored Revised Exhibit A-7, which updates UPPCO's proposed FCM to reflect recent cost updates and the effects of UPPCO's recent rate case (U-20276), identifies

UPPCO's risk profile (see line 12), and includes the alternate "WACC multiplier" methodology discussed by Staff and CARE and accepted in Consumer Energy's recent IRP case (U-20165). See 2 T 89 -90. Mr. Haehnel testified that, although UPPCO was not acquiescing to use of the alternate methodology, comparison of the values derived by the two methodologies was useful. See 2 T 90. Mr. Haehnel testified that UPPCO believes that:

> [B]ased on the testimonies authored by CARE witness Mr. Douglas Jester and Staff witness Robert Nichols, both parties are amenable to an FCM in concept; however, both parties believe it should be determined utilizing a different methodology and lower value than the ones that UPPCO proposes.
>
> 2 T 94.

4. The RICE 2022 Component Will Provide Significant Reliability Benefits

UPPCO provided testimony rebutting criticisms from CARE regarding the cost of the RICE unit and ABATE regarding its cost and necessity. Mr. Haehnel presented additional sensitivity analyses in Exhibits A-33 and A-34, which considered the economic value of the RICE unit for UPPCO's customers under a variety of energy and capacity price scenarios. As Mr. Haehnel explained:

> Because UPPCO has not received firm EPC pricing yet and is still in the process of completing its early engineering and design phase work, UPPCO believes it is reasonable to perform sensitivities at these general levels (+25% and -10%) in order to demonstrate that UPPCO's total PCA, including the RICE unit at different capital cost sensitivities, still provides long-term economic value through projected levelized total customer savings.

UPPCO also responded to the potential alternative of a simple cycle CT proposed by ABATE witness Ms. Alderson. Mr. Stocking testified:

> The B&V modeling performed on behalf of the Company did include a simple-cycle CT as a resource option, which the model was able to select if it was 10 determined to be cost effective in any scenario run. Upon reviewing the results, it was noted that the

> CT resource option was not economically selected in any pertinent scenario.
>
> 2 T 142.

Mr. Stocking further testified that UPPCO expects that the increased efficiency of a RICE unit compared to a simple cycle CT will provide additional benefits for UPPCO's customers. See 2 T 142.

Regarding the reliability benefits of the RICE 2022 proposal, UPPCO began by acknowledging additional information set forth by Staff explaining and supporting the need for the project and the expected benefits:

> The Company has reviewed the studies cited by [Staff] witness Heidemann. It is the Company's understanding that the studies were commissioned to evaluate regional reliability concerns throughout the entire UP and northern Wisconsin, which become even more prevalent under certain contingency conditions (particularly, generation retirements). The Company's proposed RICE unit, a dispatchable resource, is meant to contribute toward a regional solution by providing localized voltage and reliability support, reduced system losses at peak and shoulder peak conditions and enhanced operational flexibility during planned maintenance outages. UPPCO has provided evidence of several examples of power quality issues measured at customer sites and aims to propose a solution to alleviate some of these observable events. Considering UPPCO's small size, and relatively small incremental capacity need, the Company believes that a larger solution, such as the solution identified by the MISO study, is not feasible for UPPCO. Simply put, UPPCO proposes to "right-size" the project providing value to its customers as directly as it can, rather than propose a larger project that aims to solve the larger reliability problems that exist, especially under contingency conditions.
>
> 2 T 139 – 140.

Mr. Stocking testified that UPPCO's RICE proposal is intended to benefit UPPCO's customers by meeting unique power quality concerns within UPPCO's service territory. 2 T 140. Mr. Stocking stated that UPPCO is aware of transmission projects planned for the eastern Upper Peninsula; however, these projects will not address all of the reliability problems in this area. 2

T 141 – 142. Furthermore, UPPCO's RICE proposal will not likely supplant the need for a regional transmission solution, but it should reduce UPPCO's customers cost exposure. 2 T 141. Mr. Stocking stated that UPPCO selected the RICE 2022 project because (i) it was the most cost-effective dispatchable technology, as determined by the Black & Veatch modeling (Revised Exhibit A-1), (ii) it will address power quality issues experienced by large customers on the eastern end of UPPCO's service territory, and (iii) it will help address limitations in the transmission system in the same area. 2 T 141 -142.

5. Response to Circle Power's Criticisms of QF involvement and Modeling Assumptions

a. UPPCO Incorporated All of the Circle Power Suggestions with Merit into the Company's Cost Update

UPPCO did amend its case to reflect certain suggestions/criticisms from Circle Power witness Christopher Moore where UPPCO believed the suggestions had merit. For example, Mr. Moore criticized UPPCO's energy price forecasts for not utilizing the UPPC.INTEGRATED node. As stated earlier in Section IIV.A.2, *supra*, UPPCO updated its cost energy price forecast, which incorporates inflation aligning with Mr. Moore's suggestion. See Revised Exhibit A-16 and 2 T 138. UPPCO also added a solar panel degradation factor of 0.5% annually to its cost modeling. See Revised Exhibit A-8. UPPCO did not reflect Mr. Moore's criticisms of 20% "owner's cost" construction cost uplift used in the Black & Veatch modeling nor did UPPCO accept Mr. Moore's claim that the cost of wind power is expected to decline at the same rate as the cost of solar power.

With respect to Mr. Moore's criticism of the 20% "owners cost" construction cost uplift, Black & Veatch witness Wenxiong Huang testified that this practice was reasonable and necessary based upon Black & Veatch's extensive experience with similar projects. See 2 T 184 – 184. Specifically, Mr. Huang testified that the 20% uplift was intended to address additional costs associated with (i) owner's development and project management, (ii) third party owner's

engineer oversite, (iii) environmental permitting studies and fees, (iv) land acquisition, and (v) site-specific interconnection facilities. 2 T 184. For these reasons the 20% uplift was not removed from the Black & Veatch modeling.

Similarly, Mr. Huang addressed Mr. Moore's assertions that wind power capacity factors and price trends were not properly incorporated in the Black & Veatch modeling. Mr. Huang testified that the values used were consistent with those commonly used for IRP planning purposes at the time that the Black & Veatch modeling was performed. See 2 T 184. Mr. Huang also introduced information showing that price trends for wind have become relatively flat, which is also in-line with Mr. Huang's own experience. 2 T 185. This data supports the assumptions used in the Black & Veatch modeling, so the modeling was not revised to incorporate Mr. Moore's assertions.

b. Circle Power Failed to Set Forth a Cost Effective Alternative to UPPCO's PCA in this Proceeding.

Mr. Haehnel testified that although Circle Power had access to all of the cost information considered by UPPCO in identifying its PCA, Circle Power failed to set forth an alternative proposal that would benefit UPPCO's customers. UPPCO has consistently communicated with Circle Power, and in fact, UPPCO representatives directly notified Circle Power about UPPCO's filed IRP in this docket. 2 T 103. As an intervenor in this proceeding, Circle Power was entitled under MCL 460.6t(6) to set forth an alternative proposal, but it did not. 2 T 103 – 104. Mr. Haehnel further testified that at the time that UPPCO filed its IRP, only one QF project was in the Company's interconnection queue. 2 T 104. This project was entitled "Scotia Wind L.L.C." and was backed by Circle Power. 2 T 104. Circle Power, however, withdrew the project from UPPCO's interconnection queue on May 15, 2019, and Circle Power does not currently have any projects for which it has submitted interconnection applications to UPPCO. 2 T 104.

Circle Power presented UPPCO with two PPAs for other Circle Power wind projects in July 2019. 2 T 105. These projects were not eligible for UPPCO's Standard Offer Tariff because each project was approximately 20 MW. 2 T 105. Nevertheless, Circle Power used the pricing from UPPCO's Standard Offer Tariff and instructed UPPCO to sign the PPAs. 2 T 105. UPPCO has not signed Circle Power's proposed PPAs, but Mr. Haehnel introduced them into the record as Exhibit A-35 and Exhibit A-36, so that they could properly be considered as alternatives to the components of UPPCO's PCA. 2 T 106.

Mr. Stocking addressed the cost-effectiveness of the wind PPAs proposed by Circle Power in comparison to the Solar PPA. Regarding energy pricing, Mr. Stocking stated:

> The proposed on-peak energy rate of each Circle Power draft PPA is $50.57 per MWh. This results in a premium above the Solar PPA of $15.05 per MWh in year one, and $3.34 per MWh in year 25.
>
> 2 T 143

Mr. Stocking also noted that Circle Power's proposed PPAs would require UPPCO to pay for any capacity received from each wind farm, while the Solar PPA provides all capacity associated with the solar installation at no additional charge. 2 T 143.

Mr. Stocking also addressed the value of the Circle Power proposed PPAs as a hedge against market purchases by comparing the pricing in the proposed PPAs against equivalent market purchase costs over the previous 9 years and provided his results:

REBUTTAL TABLE 1

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
CP Draft PPA Cost	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05	$6,038,533.05
Equivalent Market Purchase Cost	$5,251,262.51	$5,074,755.11	$4,572,164.09	$5,083,773.30	$6,456,753.89	$4,106,599.46	$3,851,768.11	$4,379,048.20	$4,683,390.59	$4,830,847.31
CP Contract Premium ($)	$ 787,270.55	$ 963,777.94	$1,466,368.97	$ 954,759.75	$ (418,220.84)	$1,931,933.59	$2,186,764.95	$1,659,484.85	$1,355,142.46	$1,207,685.74
CP Contract Premium (%)	*13.0%*	*16.0%*	*24.3%*	*15.8%*	*-6.9%*	*32.0%*	*36.2%*	*27.5%*	*22.4%*	*20.0%*

2 T 146.

Mr. Stocking found that if the PPAs proposed by Circle Power had been executed and in place since 2010, UPPCO's customers would have paid a price premium in comparison to market purchases all but one year during the 9 year period. 2 T 146. On average, these PPAs would have required UPPCO customers to pay energy costs that were 20% greater than what could have been procured using market purchases. 2 T 146. Thus Mr. Stocking concluded that the PPAs proposed by Circle Power would have very little value as a market hedge. 2 T 147. Mr. Stocking also found that the Solar PPA is more likely to provide power during periods of peak load, and the Circle Power wind projects would be more likely to provide power during off-peak times. 2 T 148. As such, the Solar PPA provides a better hedge against market pricing. 2 T 148.

B. After Incorporating Most of the Suggestions from Staff and Intervenors, UPPCO's Cost Update Continued to Demonstrate that the Company's Solar PPA and Hydroelectric Capacity Improvements Will Lower Energy Costs for UPPCO's Customers

1. UPPCO's Cost Update Provided Firm Pricing in an Executed Solar PPA and an Updated Cost Analysis Demonstrating Significant Value for UPPCO's Customers

The cost update portion of UPPCO's rebuttal case included submittal of the executed Solar PPA for approval in this case. See Confidential Exhibit A-31. Mr. Haehnel explained that certain pricing provisions from the winning response to the Solar RFP were modified during the course of the negotiations with the PPA Counterparty. 2 T 586. These changes affected (1) pricing, (2) UPPCO's right to purchase a certain portion of the solar installation after a period of years, and (3) the in-service date of a portion of the total contract capacity. See 2 T 586-587; see also Confidential Exhibit A-29. Mr. Haehnel sponsored Confidential Revised Exhibit A-11, updating the Solar PPA revenue requirement analysis to reflect the changes in Solar PPA contract terms. The bottom line, as Mr. Haehnel explained, is that the when taking into account

these changes, the Solar PPA continues to be a very good deal for UPPCO's customers.[11] See 2 T 587; see also Rebuttal Figure 2 at 2 T 588 (demonstrating that the cost of the Solar PPA continues to be lower than (i) the costs from UPPCO's current PSCR Plan Case No. U-20229, which were largely based upon market purchases and (ii) UPPCO's PURPA avoided cost from Case No. U-18094).

2. Updated Net Revenue Requirement, including Power Supply savings, for the RICE 2022, Solar PPA and Hydro Capacity Improvements Show that Energy Cost Savings Are Expected.

Mr. Haehnel also updated the overall revenue requirement analyses in Confidential Revised Exhibit A-8 to reflect several revised assumptions concerning the Solar PPA, including (i) utilizing a 0.5% degradation factor for the solar arrays as recommended by ABATE witness Alderson, (ii) increasing the number of ZRCs and capacity factor expected from the Solar PPA based on new data from the PPA Counter Party[12], and (iii) updating the FCM to reflect the new data using the UPPCO's proposed FCM methodology. See 2 T 589 – 590. He also updated Confidential Revised Exhibit A-10 (RICE Revenue Requirement) and Confidential Revised Exhibit A-8, respectively, to reflect (i) the RICE cost updates sponsored by Company witness Tripp in his supplemental testimony, including applying the Portage CT insurance settlement proceeds, and (ii) the effects of the Commission's May 23, 2019 Order Approving Settlement Agreement in Case No. U-20276 – UPPCO's recent general rate case. See 2 T 83 – 85. No changes were made to the cost estimates for the 1.5% EWR target or the increased hydroelectric

[11] The difference between the final net Solar PPA revenue requirement associated with the executed Solar PPA and the estimated revenue requirement in the Company's direct case was less than $200,000. See 2 T 591(comparing the [redacted] net revenue requirement for the Solar PPA as filed in the Company's direct case with the [redacted] net revenue requirement cost update for the Solar PPA filed in rebuttal in Confidential Revised Exhibit A-8).

[12] See Exhibit A-30.

capacity. See 2 T 85. Finally, Mr. Haehnel updated the power supply savings expected to result from implementation of the PCA. 2 T 594 – 595. Mr. Haehnel concluded the cost update portion of his Rebuttal Testimony by quantifying the expected annual power supply savings of $2.1 million due to implementation of UPPCO's proposal.

VI. INITIAL RESPONSE TO STAFF AND INTERVENORS

As an initial matter, UPPCO is pleased and encouraged by the MPSC Staff's alignment with and support for most of the key provisions of the PCA. UPPCO is similarly pleased and encouraged that CARE supports the majority of the Company's PCA. Furthermore, UPPCO incorporated numerous arguments and suggestions from ABATE and Circle Power into its rebuttal, and the associated cost update continues to project that UPPCO's customers will experience substantial cost savings as a result of the implementation of the PCA. Nevertheless, some disagreements remain with certain parties concerning (i) the EWR target, (ii) Solar PPA, (iii) FCM, and (iv) RICE 2022. The record in this case clearly supports the adoption of each of these components of the PCA as proposed by UPPCO.

A. UPPCO and Staff Largely Agree.

Following the revisions made in UPPCO's rebuttal case, the Company believes that it is in complete agreement with Staff concerning the Solar PPA, RICE 2022, hydroelectric capacity improvements, and PURPA avoided cost portions of the PCA. UPPCO further believes that only four issues remain in this case where UPPCO and Staff do not agree:

(1) whether the Solar PPA should be approved in this proceeding,
(2) the appropriate accounting treatment for the Portage CT insurance settlement,
(3) whether the EWR target should greater than the 1.5% proposed by UPPCO, and
(4) the proposed FCM for the Solar PPA.

The first issue is attributable to timing. As Mr. Haehnel testified in rebuttal, UPPCO disagrees with Staff witness Proudfoot's recommendation that UPPCO make a separate filing seeking MPSC approval of the Solar PPA. 2 T 92. Mr. Proudfoot's recommendation is understandable because the terms of the Solar PPA were still being negotiated, and were therefore subject to change, at the time that his testimony was filed. 2 T 92. Since that time, however, the Solar PPA has been executed. The final terms are no longer subject to change, and they are part of the record in this case. See Exhibit A-31. Therefore, UPPCO respectfully requests that the Commission approve the Solar PPA in this proceeding. See *id.* Because UPPCO's proposed accounting treatment is both a standard and accepted method, UPPCO also requests that Staff reconsider the proposed treatment of the insurance settlement for the Portage CT, as the insurance settlement is contingent upon construction of a replacement unit, and the RICE 2022 component of the PCA will satisfy this contingency. As early as 2020 and pursuant to the Portage CT insurance settlement, UPPCO plans to utilize, from a cash flow perspective, certain of these funds for its RICE procurement.

Thus, UPPCO believes that the only issues where there is substantive disagreement between the Company and Staff are the proposed EWR target and the proposed FCM for the Solar PPA. These issues will be discussed, *infra.*

B. CARE Also Supports the Majority of UPPCO'S PCA

UPPCO is similarly pleased and encouraged by CARE's support for the Solar PPA, UPPCO's proposed EWR target, the hydroelectric capacity improvements, and UPPCO's proposed PURPA avoided costs. UPPCO believes that the only issues where there is substantive disagreement between the Company and CARE are the proposed FCM for the Solar PPA and the RICE 2022 project. These issues will be discussed, *infra.*

C. 1.5% is the Appropriate EWR Target: Staff's Suggested Goals Are Not Supported by the Record in this Case

UPPCO selected what the Company believes to be an aggressive EWR target for use in the IRP process: a target that is 50% greater than the 1% EWR goal required by Public Act 295 of 2008, as amended, and 32% greater than the 1.14% EWR goal in UPPCO's current EWR plan from Case No. U-18265. 2 T 152. UPPCO believes the 1.5% EWR target is aggressive because most of the Company's existing EWR programs achieve efficiency gains through LED lightbulb replacements, but federal standards are changing such that LED lightbulb replacement programs will no longer count as an energy efficiency improvement beginning in 2021. See 2 T 152. Nevertheless, given its success in implementing EWR programs to date, UPPCO believes that the 1.5% target is achievable.

Staff is the only party to suggest that UPPCO's EWR target for the 2020 and 2021 EWR planning years is too low. UPPCO did not select a larger EWR target for its IRP because additional EWR activities were not selected by the Black & Veatch model as a cost-effective solution. 2 T 95. Notably, Staff did not set forth any cost information in this proceeding in support of a higher EWR target. UPPCO believes that the appropriate forum for deciding the Company's EWR planning target is the Company's EWR plan case. 2 T 95. UPPCO filed its 2020 and 2021 EWR plan in Case No. U-20376 on July 1, 2019. *Id.* Ultimately, however, UPPCO agrees with Staff witness Proudfoot that Staff's proposed EWR target should not affect approval of the other portions of UPPCO's PCA in in this case. 2 T 229.

D. The Solar PPA Will Benefit UPPCO's Customers and No Other Party Has Set forth a Viable Alternative

Although ABATE and Circle Power both opposed the Solar PPA, neither party offered a viable alternative that would benefit UPPCO's customers. ABATE effectively proposes that UPPCO should simply rely on market purchases – ignoring a cost-effective opportunity to

eliminate market risk in favor of simply betting that market prices will remain favorable for the foreseeable future. Continued reliance on market purchases is a less beneficial alternative that will increase customers' exposure to rate volatility caused by market fluctuations. Circle Power argues that the Black & Veatch modeling incorrectly favored solar projects over wind projects, but the contracts offered by Circle Power for wind projects would impose significantly higher costs upon UPPCO's customers than the solar PPA.

1. Continued Reliance on the Status Quo as Advocated by ABATE Is Not a Desirable Alternative.

ABATE questioned whether the Solar PPA pricing is beneficial compared to the pricing of UPPCO's current power supply portfolio, which relies heavily upon market purchases. See 2 T 464 – 466. ABATE further asserts that sensitivity analyses show that the Solar PPA will have no value as a hedge against market volatility. 2 T 470. These arguments lack merit because (i) the Solar PPA pricing is significantly lower than UPPCO's current average PSCR rate, which is heavily based upon market pricing, and (ii) the sensitivity analyses sponsored by Mr. Haehnel demonstrate the value of the Solar PPA under all foreseeable energy and capacity cost scenarios.

a. The Pricing of the Solar PPA Is Significantly Lower than Reliance on Market Purchases as Demonstrated by UPPCO's Current PSCR Factor.

As Ms. Alderson testified, UPPCO's current power supply portfolio is composed heavily of market purchases. See 2 T 465. Therefore, UPPCO's current average PSCR rate is representative of the cost of a power supply portfolio that UPPCO would be expected to obtain if energy and capacity markets remain consistent with current conditions. As demonstrated by Confidential Rebuttal Figure 2 in Mr. Haehnel's rebuttal testimony, the Solar PPA pricing, both with and without the proposed FCM, is less than UPPCO's current average PSCR rate:

2 T 587-588.

The fact that the Solar PPA's final pricing is significantly cheaper than UPPCO's current average PSCR rate indicates: (i) that UPPCO customers will experience a real reduction in power supply costs as a result of implementing the Solar PPA and (ii) that the Solar PPA pricing is cheaper than UPPCO would currently expect to obtain on the market.

b. In Addition to Favorable Pricing, the Solar PPA Has Significant Value as a Market Hedge.

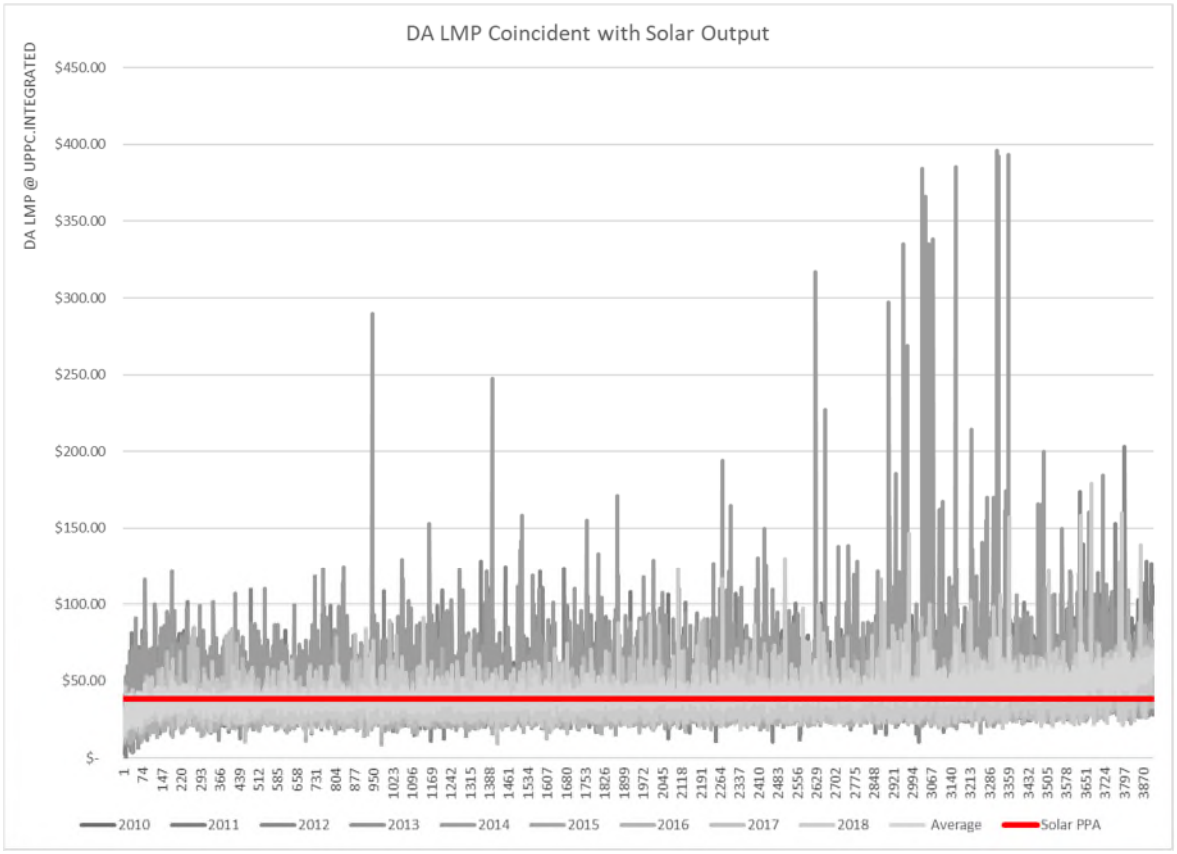
Because UPPCO's current power supply portfolio depends heavily upon market purchases, UPPCO's customers are exposed to price risk from market volatility. As ABATE witness, Ms. Alderson stated, energy market prices are extremely volatile:

> The savings due to the PPA are entirely predicated on future energy and capacity prices, which are volatile values and very difficult to predict over a 25-year future time horizon.
>
> 2 T 467.

The Solar PPA provides a natural hedge against the risk posed by market price increases:

> UPPCO is highly dependent on market energy purchases. As such, any fluctuation in that market pricing, regardless of whether the energy is acquired through reverse auction or from the Day-Ahead or Real-Time market, will yield a proportionate impact on the PSCR costs to UPPCO customers. The Company is continually looking to isolate its customers from the effects of unfavorable pricing conditions. Hourly solar generation profiles often align closely with market pricing trends. As such, the Company's proposal to enter into a long-term, fixed price PPA for a solar facility will tend to isolate the Company from the necessity of buying a significant amount of energy from, potentially, unfavorable spot-market energy prices.
>
> 2 T 122

The value of this hedge is illustrated by comparing the Solar PPA pricing with energy market pricing since 2010:



2 T 123.

As Mr. Stocking explained, this data does not mean that the Solar PPA pricing will always be lower than market prices, but it does show the risk of market pricing spikes that will be eliminated. See 2 T 123. The elimination of this risk of price volatility provides additional benefit to UPPCO's customers.

c. Additional Sensitivity Analyses Further Demonstrate that the Solar PPA Will Provide Benefit to UPPCO's Customers Under All Foreseeable Circumstances.

To further illustrate the customer benefits expected from the Solar PPA as a hedge against market risk, UPPCO sponsored Exhibit A-33 and Exhibit A-34, which contain additional sensitivity analyses analyzing the savings expected to be realized from the Solar PPA under a wide variety of energy and capacity market pricing scenarios. Exhibit A-33 examines the cost savings expected from the Solar PPA under a variety of capacity price scenarios, assuming the base LMP for energy stays constant. 2 T 606 – 607. The lowest and highest capacity price scenarios in Exhibit A-33 represent, respectively, the lowest and highest capacity prices in UPPCO's current power supply contracts, and the remaining scenarios were taken directly from ABATE witness Ms. Alderson's testimony. 2 T 607. As shown on line 8 of Exhibit A-33, the Solar PPA will result in cost savings for UPPCO customers under all foreseeable capacity price scenarios. 2 T 608.

Exhibit A-34 examines the cost savings expected from the Solar PPA under a variety of energy market price scenarios. 2 T 608. Under all foreseeable energy price scenarios, the Solar PPA is expected to provide significant cost savings to UPPCO's customers. See Exhibit A-34, line 8. As Mr. Haehnel testified:

> Even at the Lowest Capacity Price forecast, the Lowest LMP forecast produces long-term economic benefits.
>
> 2 T 609.

2. Circle Power's Criticisms of the Process Used to Identify the Solar PPA Are Unfounded.

a. The wind contracts proffered by Circle Power demonstrate that wind is not a cost-effective alternative to the solar PPA.

UPPCO issued the solar RFP because the Black & Veatch Report determined that solar would be a more cost-effective source of generation than other technologies, including wind. See Revised Exhibit A-1, pages 7-5 and 10-1 to 10-7. Circle Power has accused UPPCO of improperly addressing wind power in the IRP modeling and improperly excluding wind power from the Company's solar RFP. As a wind developer with projects located in the Upper Peninsula, Circle Power should be in an excellent position to offer PPAs with representative pricing for wind power. Circle Power presented UPPCO with two PPAs for other Circle Power wind projects in July 2019. 2 T 105; see also Exhibit A-35 and Exhibit A-36. As discussed *supra* in Section V.A.5., these PPAs offered pricing that was significantly higher than that included in the Solar PPA. Further analysis also demonstrated that the Circle Power PPAs offered very little value as a hedge against market risk. *Id.* The undesirable pricing in, and lack of customer benefits associated with, the Circle Power PPAs indicates that the analysis in the Black & Veatch report was correct.

b. Circle Power's Failure to Present a Cost-Effective Alternative Further Demonstrates the Value of the Solar PPA

As an intervenor in this proceeding, Circle Power had an opportunity to offer a cost-effective alternative for the Commission's consideration. MCL 460.6t(6) provides:

> This subsection does not limit the ability of any other person to submit to the commission an alternative proposal to any supply-side generation capacity resource included in the electric utility's integrated resource plan submitted under this section and to petition for and be granted leave to intervene in the contested case proceeding conducted under this section under the rules of practice and procedure of the commission.

Moreover, as an intervenor in this proceeding, Circle Power has been privy to all of the Solar RFP bidder pricing, as well as the final signed PPA with the Company's PPA Counterparty. With all of this information available to it, Circle Power could have crafted an alternative proposal that beat the Solar PPA – assuming such an alternative was possible. Circle Power's failure to offer a cost-effective alternative further demonstrates that the assumptions and results of the Black & Veatch modeling were correct. That Circle Power had all of the information needed to "beat" the winning bid and failed to do so, shows that a better alternative did not exist.

E. UPPCO's Proposed FCM Is Both Necessary And Reasonable

Act 341 permits the Commission to approve mechanisms which compensate utilities for entering into PPAs. Specifically, Section 6t(15); MCL 460.6t(15) provides:

> For power purchase agreements that a utility enters into after the effective date of the amendatory act that added this section with an entity that is not affiliated with that utility, the commission shall consider and may authorize a financial incentive for that utility that does not exceed the utility's weighted average cost of capital.

The Solar PPA represents a major, long-term commitment of UPPCO's financial resources under which the Company will forego earning a rate of return on a significant portion of its power supply portfolio. UPPCO has requested an FCM to counteract the negative credit impacts of the long-term commitment. This FCM represents a critical part of the Company's decision to execute the Solar PPA. So critical, in fact, that the Solar PPA contains a regulatory out clause under which UPPCO may terminate the agreement if the Commission does not approve an FCM. See Exhibit A-31, pages 26 – 28.

Many of the parties, including Staff, questioned whether UPPCO needed an FCM and objected to UPPCO's methodology for determining the FCM, which was based upon imputed debt. The Commission should approve UPPCO's request for an FCM, as proposed in Mr.

Haehnel's Direct Testimony and quantified in Confidential Revised Exhibit A-7, because it is both reasonable and necessary.

1. UPPCO Needs an FCM as an Incentive to Enter a Long-Term Financial Commitment, Which Could Otherwise Impact the Company's Access to and Cost of Credit.

Several parties have questioned whether UPPCO needs an FCM for the Solar PPA. Because power supply costs are passed to customers through the PSCR clause and because UPPCO currently has multiple contracts that are set to expire, these parties have suggested that an FCM for the Solar PPA is not appropriate. These parties fail to consider the magnitude of the financial commitment and the proportion of UPPCO's total power supply portfolio represented by the Solar PPA. The evidence in this case demonstrates that the FCM is needed and that the Solar PPA with an FCM will benefit UPPCO's customers.

A long-term PPA utilizes the equity capital of the Company and proper compensation is essential to a fair rate of return. The long-term PPA would not be possible without equity capital from the utility. 2 T 57. Without the credit worthiness of the utility, which is supported by equity capital, the long-term PPA provider would be unable to raise the appropriate capital to construct the generation project. *Id.* While long-term PPAs have the potential to add value to customers, without equity capital provided by investors, the realization of these benefits would not be possible.

Long-term PPAs also have an impact on a utility's ability to attract capital. 2 T 57. To the extent it owns generation assets, the utility raises debt and equity directly to fund the investment. In contrast, for assets operated under a long-term PPA, while the debt may not be raised directly by the utility, the financial support for the capital ultimately remains with the utility. 2 T 57. Capital raised by the PPA counter party is backed by an obligation of the utility, and therefore, can increase the cost of capital for the utility.

The Solar PPA is a 26-year commitment that will supply power satisfying approximately 40% of UPPCO's total energy and approximately 55% of UPPCO's total Zonal Resource Credits ("ZRCs") in 2025. 2 T 57&79. Like any PPA obligation, the Solar PPA will require fixed payments, which will reduce UPPCO's financial flexibility and increase the Company's risk of default. 2 T 57. The long-term PPA will rely upon the financial support provided by UPPCO's equity capital, which may impact UPPCO's credit. An FCM is appropriate and needed for the Solar PPA to offset and/or prevent these costs from being borne by customers and investors of the Company. If the Commission approves the Solar PPA without authorizing an FCM, UPPCO may terminate the contract.

2. UPPCO's proposed FCM is reasonable and supported by the record.

UPPCO proposed a method for deriving the FCM based upon negating the impacts of the imputed debt-like attributions of the Solar PPA. UPPCO's position in this case is in alignment with Moody's, its credit rating agency, whereby Moody's asserts on page 46 of Moody's Rating Methodology: Regulated Electric and Gas Utilities, dated June 23, 2017:

> When the accounting treatment of a PPA is a debt or lease equivalent (such that it is reported on the balance sheet, or disclosed as an operating lease and thus included in our adjusted debt calculation), we generally do not make adjustments to remove the PPA from the balance sheet. However, in relevant circumstances we consider making adjustment that impute a debt equivalent to PPAs that are off-balance sheet for accounting purposes. Regardless of whether we consider that a PPA warrants or does not warrant treatment as a debt obligation, we assess the totality of the impact of the PPA on the issuer's probability of default. Costs of a PPA that cannot be recovered in retail rates creates material risk, especially if they also cannot be recovered through market sales of power.

Exhibit AB-7, Moody's Investors Service Ratings Methodology, p 46.

UPPCO's proposed method in this case is premised upon maintaining a balanced capital structure, allowing incremental earnings to support the Company's credit and ensure a fair

return. 2 T 61. Under Accounting Standards Codification ("ASC") 842, which is effective for UPPCO beginning in January 2021, the accounting treatment for the Solar PPA has been determined to be an operating lease which will require imputing the corresponding debt and reporting it on UPPCO's balance sheet. As referenced in Moody's methodology, Moody's typically doesn't make adjustments to remove PPAs from the balance sheet when the accounting determination results in its inclusion. Therefore, if Moody's decides it will not exclude imputed debt obligations for UPPCO resulting from the impacts of the required accounting treatment on the Solar PPA, then UPPCO believes it is premature to agree to Staff's proposed methodology which does not support the imputed debt methodology. As Moody's approach will likely impute a liability/debt amount for UPPCO's PPA, UPPCO believes that any agreed upon FCM methodology should be calculated in alignment with that approach and required accounting treatment.

UPPCO's proposed incentive compensation mechanism would calculate the imputed debt of the PPA and allow the utility to earn compensation equal to the rate of return for the incremental equity used to the support the PPA 2 T 61. As Mr. Haehnel explained:

> The fixed charge would be calculated as follows:
>
> (a) Calculate the equity required to offset imputed debt for each year of the PPA. The imputed debt will equal the NPV of the PPA payments multiplied by 25% (PPA Imputed Debt = Required Equity Capital);
>
> (b) Multiply the required equity capital resulting from the calculation in a) by the Company's authorized ROE from its most recent general electric rate case for PPAs supported by non-renewable generation assets or the authorized ROE in its Renewable Energy Plan for PPAs supported by renewable generation assets; and
>
> (c) Gross up the results from the calculation in b) by the factor used for calculating the Company's revenue requirement in its most recent electric rate case.
>
> 2 T 60.

UPPCO believes that this proposal is reasonable because it is premised upon counteracting the negative effects on UPPCO's financial structure caused by the presence of a large, long-term PPA. 2 T 61. Implementation of this method will result in the FCM payments shown in Revised Exhibit A-7. The reasonableness of this method is further demonstrated by the fact that the FCM will decrease over time. Thus as the PPA obligation matures and becomes less of an encumbrance upon UPPCO's financial profile, so will the FCM decrease. 2 T 61. Most importantly, UPPCO believes that the proposed FCM is reasonable based upon the expected cost savings projected in Revised Exhibit A-8.

F. The RICE is a Cost-Effective Solution that Will Address UPPCO Reliability Issues

While Staff and UPPCO agree that the RICE 2022 component of the PCA should be approved in this proceeding, CARE and ABATE have objected to this project for different reasons. CARE acknowledges the reliability issues in UPPCO's service territory but advocates further study and the possible implementation of a transmission solution with costs spread to other customers in addition to UPPCO's customers. 2 T 428 – 432. Ms. Alderson also advocated evaluation of numerous alternative solutions to UPPCO's proposed 20 MW RICE unit, including (i) repairing/rebuilding the 45-year-old Portage CT, (ii) building a simply cycle combustion turbine, and (iii) regional transmission solutions. See 2 T 475 – 477.

1. Further Transmission Studies Will Not Address UPPCO's Need for Flexibility in Dispatch and Will Not Address Known Reliability and Power Quality Issues for UPPCO's Customers.

CARE and ABATE's opposition to the RICE understates the need *within* UPPCO's service territory for (i) additional flexibility in dispatch and (ii) addressing reliability and power quality issues for UPPCO's customers. The RICE 2022 project is not intended to address all of

the reliability issues in the eastern Upper Peninsula. The RICE 2022 project is intended, however, to address known and immediate problems for UPPCO customers:

> UPPCO has provided evidence of several examples of power quality issues measured at customer sites and aims to propose a solution to alleviate some of these observable events. Considering UPPCO's small size, and relatively small incremental capacity need, the Company believes that a larger solution, such as the solution identified by the MISO study, is not feasible for UPPCO. Simply put, UPPCO proposes to "right-size" the project providing value to its customers as directly as it can, rather than propose a larger project that aims to solve the larger reliability problems that exist, especially under contingency conditions.
>
> 2 T 139 – 140.

Correction of the known and current reliability problems for UPPCO customers mitigates immediate concerns for customers. Moreover, the proposed project site offers the opportunity for future collaboration with other Load Serving Entity ("LSE") or a QF, which could lead to cost-sharing among LSEs to address regional problems. 2 T 127.

2. Repairing/Rebuilding the 45-Year Old, Oil-Fired Portage CT *May* Prolong the Life of an Unreliable Generating Asset, But for an *Unknown* Term – and It Will Not Solve the Known Reliability Issues in the Eastern U.P.

ABATE advocates further study of a potential repair/rebuild of the Portage CT in lieu of the RICE 2022 component of the PCA. UPPCO disagrees with ABATE's proposal because UPPCO does not believe that repairing a 45-plus year old facility that is near the end of its useful life will provide benefit for its customers. As described in Section III.D, *supra*, UPPCO owns two oil-fired CTs (the Portage CT and the Gladstone CT), both of which are over 40 years old and nearing the end of their useful lives. The catastrophic failure of the Portage CT coupled with the near catastrophic failure and repair that occurred at the Gladstone CT demonstrate that these are not long-term, reliable sources of generating capacity for purposes of the Company's long-term IRP.

3. Construction of a Simple Cycle CT Is Not a Cost-Effective Solution.

UPPCO also responded to the potential alternative of a simple cycle CT proposed by ABATE witness Ms. Alderson by noting that the Simple Cycle CT was explicitly considered and rejected by the Black and Veatch model because the technology was not deemed cost effective. See 2 T 142. Moreover, UPPCO expects that the increased efficiency of a RICE unit compared to a simple cycle CT will provide additional benefits for UPPCO's customers. See 2 T 142. For these reasons, a simple cycle CT is also not a cost-effective solution.

VII. UPPCO'S PLAN, AS SUPPLEMENTED DURING DISCOVERY, BY STAFF'S TESTIMONY, AND IN REBUTTAL, MEETS ALL OF THE REQUIREMENTS OF ACT 342

Act 342 sets forth extensive requirements for the contents of an IRP: The Commission set forth all required IRP modeling scenarios and assumptions, requirements, instructions, and guidelines for utilities filing IRPs by issuing an Order dated November 21, 2017 in Case No. U-18418 approving the MIRPP. The Commission also issued an Order on December 20, 2017 in Case Nos. U-15896 *et al.,* which approved the Filing Requirements. These documents set forth all required IRP modeling scenarios and assumptions, requirements, instructions, and guidelines for utilities seeking relief pursuant to MCL 460.6t.

Mr. Haehnel testified that UPPCO believed it had met all of the Commission's filing requirements and sponsored Exhibit A-6 with cross-references between filing requirements and the Company's direct case. 2 T 53. Staff witness Ms. Schiller testified that she led a team of MPSC Staff reviewing each component of the Company's IRP filing with respect to the Filing Requirements. Team members located and reviewed documents provided by the Company, prepared questions to the Company when necessary, and summarized their findings regarding

whether each individual filing requirement was met. 2 T 242. Staff did not agree that UPPCO's initial filing met all of the Filing Requirements. 2 T 245.

Staff engaged in extensive discovery, serving 26 separate discovery requests with over 150 itemized requests for information over a three-month period. During discovery, at Staff's request, UPPCO updated Exhibit A-6 to include cross-references demonstrating where additional information satisfying various Filing Requirements was shared with the parties through discovery. Staff entered this information into the record as Exhibit S-2.1. Ms. Schiller summarized Staff's findings concerning the Filing Requirements in Exhibit S-2.0. Exhibit S-2.0 is a Staff-compiled checklist delineating each IRP Filing Requirement and stating whether the information was contained in UPPCO's initial filing, provided during discovery, or supplemented by Staff testimony and exhibits. 2 T 242. Staff ultimately concluded that all of the filing requirements had been met with the exception of two:

> Staff recommends that the Company file an implementation plan in accordance with IRP Filing Requirements Section XVI as an exhibit in the Company's rebuttal testimony.
>
> Staff recommends that the Company file a comparison of total projected carbon emissions under each scenario in accordance with IRP Filing Requirements Section XIX(i) as an exhibit in the Company's rebuttal testimony.
>
> 2 T 257.

In his rebuttal testimony, Mr. Tripp sponsored an implementation plan in accordance with the IRP filing requirements as Exhibit A-32. Mr. Tripp also explained that UPPCO is unable to provide comparative carbon emission percentages against its business as usual case because UPPCO's only meaningful carbon emissions from power generation are due to energy sourced from the MISO market. 2 T 177. UPPCO respectfully requested a waiver from this filing requirement in rebuttal. Assuming the Commission waives this requirement, UPPCO respectfully requests that the Commission find that its direct case - as supplemented during

discovery, by the Commission Staff, and in UPPCO's rebuttal case - meets the requirements of MCL 460.6t(5) and the Commission's IRP Filing Requirements.

VIII. CONCLUSION AND REQUEST FOR RELIEF

MCL 460.6t(8) sets forth the circumstances under which the Commission will find that an IRP should be approved. The following discussion sets forth each provision of the statute, immediately followed by the reasons for which UPPCO respectfully requests that the Commission make its respective finding.

> *(8) The commission shall approve the integrated resource plan under subsection (7) if the commission determines all of the following:*
>
> > *(a) The proposed integrated resource plan represents the most reasonable and prudent means of meeting the electric utility's energy and capacity needs. To determine whether the integrated resource plan is the most reasonable and prudent means of meeting energy and capacity needs, the commission shall consider whether the plan appropriately balances all of the following factors*

As described in Section III.G., *supra*, UPPCO's IRP consisted of extensive modeling, which selected UPPCO's PCA as the most reasonable and prudent, cost-effective alternative. The PCA greatly increases the portion of UPPCO's power supply which will be locally-sourced from renewable resources and significantly increases UPPCO's EWR target. The PCA provides an increased amount of renewable and reliable power without increasing costs to customers. The RICE 2022 component provides a valuable, dispatchable hedge, which will serve as a useful complement to the non-dispatchable, renewable components of the PCA. The location of the RICE 2022 component will help solve will solve existing reliability and power quality issues for UPPCO customers in the eastern portion of the Company's service territory. Moreover, the RICE 2022 and Solar PPA are consistent with UPPCO's stakeholders' expectations. As

evidenced through UPPCO's various stakeholder engagement sessions, stakeholders asserted their desire for a balanced portfolio of energy resources and renewable energy sources when asked where energy should come from in the future. Further, more than 79% of stakeholders both agreed (42%) and strongly agreed (37%) that generation resources should be located in the Upper Peninsula. UPPCO's RICE unit not only provides system "balance" by supplementing the intermittency of the energy production from the Solar PPA, the proposed RICE unit will be owned by UPPCO, serve UPPCO customers, and be located in the Upper Peninsula.[13]

(i) Resource adequacy and capacity to serve anticipated peak electric load, applicable planning reserve margin, and local clearing requirement.

As described in Exhibit A-13, implementation of the PCA will result in adequate capacity resources for UPPCO's service territory throughout the duration of the planning period. Furthermore, implementation of the PCA will eliminate UPPCO's current need to rely on the MISO PRA to obtain such capacity resources.

(ii) Compliance with applicable state and federal environmental regulations.

UPPCO represents that the PCA will comply with all applicable state and federal environmental regulations. UPPCO's plan relies largely upon existing hydroelectric facilities and the Solar PPA. Neither of these sources of generation will impose additional environmental requirements upon UPPCO. The Company has identified a state and federal air quality construction permit that will be required for the proposed RICE unit. UPPCO has prepared the

[13] See customer survey results in Section III.B., *supra*.

application for the permit, which will be files with the Michigan Department of Environment, Great Lakes, and Energy.

(iii) Competitive pricing.

The pricing of the major components of UPPCO's PCA – the Solar PPA and the RICE 2022 project – are the results of a competitive bidding. Exhibit A-19 is the solar RFP and Exhibit A-24 is the RICE RFP. The RFP process was administered by a third party whose recommendations are included in Exhibit A-20 (Solar) and Exhibit A-25 (RICE). Implementation of the PCA is expected to result in power supply cost savings when compared to the business as usual scenario.

(iv) Reliability.

The RICE 2022 component provides a valuable, dispatchable hedge, which will serve as a useful complement to the non-dispatchable, renewable components of the PCA. The location of the RICE 2022 component will help solve will solve existing reliability and power quality issues for UPPCO customers in the eastern portion of the Company's service territory.

(v) Commodity price risks.

The PCA greatly reduces market risk and exposure to price commodity risk because it will provide the majority of UPPCO's capacity and energy from renewable sources.

(vi) Diversity of generation supply.

UPPCO's PCA consists of a majority of clean, renewable hydroelectric and solar generation. The Portage CT is UPPCO's only fully dispatchable resource, and it is currently

slated to retire by 2022. The RICE 2022 project will provide a cleaner, dispatchable complement to UPPCO's renewable generation.

> *(vii) Whether the proposed levels of peak load reduction and energy waste reduction are reasonable and cost effective. Exceeding the renewable energy resources and energy waste reduction goal in section 1 of the clean and renewable energy and energy waste reduction act, 2008 PA 295, MCL 460.1001, by a utility shall not, in and of itself, be grounds for determining that the proposed levels of peak load reduction, renewable energy, and energy waste reduction are not reasonable and cost effective.*

The PCA significantly increases UPPCO's EWR target to 1.5% annually. Additionally, approximately 52% of the Company's total capacity requirement is currently served under either the Company's Real Time Market Pricing tariff or is otherwise interruptible.

> *(b) To the extent practicable, the construction or investment in a new or existing capacity resource in this state is completed using a workforce composed of residents of this state as determined by the commission.*

UPPCO is a Michigan-only utility with its headquarters located in the Upper Peninsula. UPPCO fully intends to use local workers to the greatest extent practicable. See Exhibit S-2.1, p. 29.

(c) The plan meets the requirements of subsection (5).

See Section IX, *supra*.

For the reasons discussed in this Initial Brief, and as set forth in the evidence presented by the Company, the Commission should approve the Company's PCA in its entirety, because the PCA represents the most reasonable and prudent means of meeting the Company's energy and capacity needs through 2045. Moreover, anything other than approval of the entire PCA will saddle UPPCO's customers with continued reliability issues in the Company's eastern service

territory, subject customers to unneeded market risk, and likely result in greater costs for power supply. As part of its approval of the PCA, the Company specifically requests the Commission to make the following determinations:

- Approve the Solar PPA as set forth in Confidential Exhibit A-31.
- Approve the Company's proposed FCM for the Solar PPA subject to rate recovery in UPPCO's next general rate case.
- Approve the construction of a new 20 MW RICE unit in the eastern portion of the Company's service territory as a replacement for the Portage CT unit.
- In conjunction with the approval of the RICE replacement, approve the retirement of the Portage CT unit and the Company's requested accounting treatment for the proceeds from the insurance payment following the catastrophic failure of the Portage CT
- Approve the Company's proposal to increase its target for EWR saving to 1.5% subject to cost analysis and approval in the Company's EWR plan case.
- Approve UPPCO's proposal to set its PURPA avoided cost rates at equivalent market-based avoided cost, as modified by Staff's proposal and accepted by the Company in rebuttal.
- Grant the Company such other relief as set forth in this Initial Brief and the Company's record evidence.

Respectfully submitted,

UPPER PENINSULA POWER COMPANY

Paul M. Collins

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