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March 22, 2021

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

RE: In the matter of the application of **DTE ELECTRIC COMPANY** for authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority
MPSC Case No. U-20561

Dear Ms. Felice:

Attached for electronic filing in the above captioned matter is DTE Electric Company's DTE Five-Year Information Technology (IT) Plan for 2021-2025.

Very truly yours,

Andrea E. Hayden

Digitally signed by Andrea E. Hayden
Date: 2021.03.22 12:44:37 -04'00'

Andrea E. Hayden

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Attachment

DOCUMENT CONTENTS

SECTION 1 – INTRODUCTION

In DTE Electric Company's Case No U-20561 order issued on May 8, 2020, the Commission acknowledged that information technology (IT) is advancing at a rapid pace and systems need to be modernized to support adequate service to the company's customers. The Commission also presented a path by which DTE could develop a comprehensive IT Plan that holistically and strategically would assess IT needs, solutions, risk management, security, and decision-making approaches to support customer needs and operational and business functions into the future.

The Commission expects the plan would include but not be limited to:

1) a description of the types of projects that fall into each IT system area
2) descriptions of current and expected needs or challenges supported by data
3) strategic goals/plans
4) how strategic goals/plans address the identified current and expected needs or challenges
5) details of the expected Company direction for solutions, such as cloud-based versus on-premises solutions
6) plans on futureproofing that address expected developments and anticipate customer needs with increased DERs, energy management, and innovative rate offerings, and that mitigate issues such as duplication and obsolescence of investments
7) projected three-year capital and O&M spend along with identification of any areas of uncertainty in cost projections
8) risk management and mitigation strategies, including financial, operational, and security risks
9) decision-making criteria and controls for project identification, selection, and implementation
10) discussion of accounting treatment, metrics, and incentives to better align the utility's interests with maximizing customer benefit and successful implementation of the plan

Furthermore, in DTE Gas Company' Case No. U-20642, the Commission approved a settlement agreement where DTE Gas agreed to participate in DTE Electric's meetings to develop a comprehensive IT Plan.

DTE Five-Year Information Technology (IT) Plan for 2021-2025

DTE[1] is pleased to present the company's Five-Year IT Plan for 2021-2025. With this IT Plan, the Commission, staff, and other interested stakeholders will be better able to review future rate case requests through the lens of how specific IT decisions and investments align with this strategic five-year IT Plan.

As DTE remains focused on the value IT brings to customers, the company recognizes that the rate of change in IT continues to increase. This plan represents DTE's strategy to leverage and deploy affordable IT assets over the next five years as DTE remains responsive and flexible to customer needs, emerging technology trends, and industry shifts.

This five-year IT Plan brings DTE's vision for IT to life through detailed investment plans and descriptions of the company's full lifecycle IT approach to ensure cost control and to maximize the useful and effective life of each IT asset.

With this as the context, a summary of the investment motivations that drive DTE's Five-Year IT Plan is presented next.

[1] Unless otherwise noted, "DTE," "the Company," and "business units" refer to the DTE enterprise as a whole; DTE Gas Company and DTE Electric Company are specifically designated as appropriate.

SECTION 2 – INVESTMENT MOTIVATIONS

DTE's vision across both its electric and gas utilities is to be a partner for Michigan, its communities, and customers in providing safe, reliable, low-cost energy as DTE achieves carbon reduction goals.

DTE's vision for IT is to achieve the above business goals, enable customer affordability, and deliver value faster to customers and communities by removing process, human, and technology friction, improving efficiency, and reducing barriers using IT. The Company will achieve this vision through strategic, prioritized IT investment plans; appropriate metrics and measures; and increased transparency with stakeholders.

DTE Electric's and DTE Gas' overall goals help establish the key investment motivations which focus on customer and employee security, reliability and resiliency of IT assets, customer experience, and customer affordability. The next sections describe each of these investment motivations in more detail.

2.A. CUSTOMER AND EMPLOYEE SECURITY

The first motivation for IT investment is to enhance DTE's overall security position and deliver facility, mobile, and system access and control solutions that advance physical and cybersecurity posture throughout the company's infrastructure.

As security threats continue to target critical infrastructure assets and become increasingly more sophisticated over time, DTE must likewise continuously mature its capabilities and preparedness to respond.

DTE's focus and due diligence on security operations, risks, and program maturity are driving forces that ensure DTE provides its customers with safe, secure, and reliable energy products and services.

The investments in this space drive maturing DTE's security and supply chain processes and capabilities to align with the Company's security controls supported by National Institute of Standards and Technology (NIST) security standards, the highest appropriate Cybersecurity

Capability Maturity Model (C2M2) maturity levels, and North American Electric Reliability Corporation Critical Infrastructure Protection (NERC CIP).

To provide greater security for employees, vendors, and visitors, additional investments will ensure that the Company has centralized security access control to DTE locations and systems that link physical access control to the company's sites and systems.

2.B. RELIABILITY AND RESILIENCY OF IT ASSETS

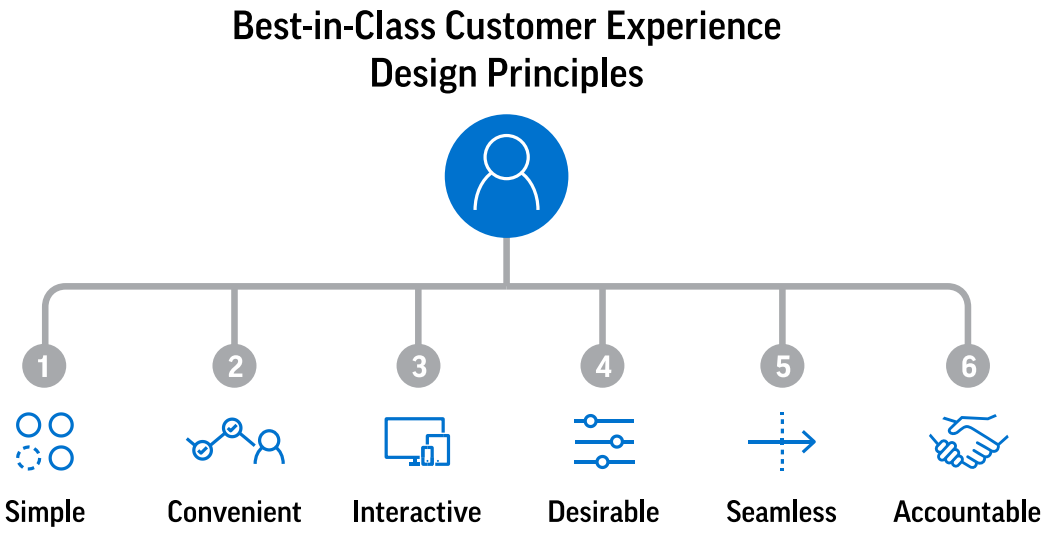
The second motivation for IT investment is to ensure the reliability and resiliency of DTE's IT assets, allowing the company's systems and solutions to operate continuously without interruption. DTE's vision is to have the right connections between IT networks to serve business needs and ensure operational stability. One key element of this is pervasive, automated monitoring which provides immediate visibility into IT asset health to detect and resolve problems before they impact operations without manual intervention.

Ongoing investment in system, hardware, software, and component maintenance must occur to keep IT assets healthy and ensure that DTE's customers, employees, and partners derive continuous value without interruption or unnecessary risk. Failing to maintain IT critical systems in a robust manner risks negatively impacting business operations, service reliability, and/or customer experience.

2.C. CUSTOMER EXPERIENCE

The third motivation for IT investment is to enhance the customer experience. DTE has identified, through benchmarking of utility and non-utility service providers and retailers, six Best-in-Class (BIC) customer experience design principles that are necessary to create excellent transactional journeys.

The six Best-in-Class Customer Experience design principles are:



1. **Simple** – Straightforward processes, making it easy to do business; clean layouts, intuitive designs, and easy to find functionalities for digital channels; and simple explanations (from customer representatives (CRs) and on the web) for common technical issues
2. **Convenient**– Support capabilities for multiple customer interaction channels (self-service for simple tasks, CRs for complex ones); a wide variety of services and products quickly available; and easily accessible content and quick to get answers (either self-serve or CRs)
3. **Interactive** – Cross-channel interactive options, e.g., when jumping from online to Interactive Voice Response (IVR) or CR; customer-generated support functions (i.e., reviews, tips); and links to several channels (e.g., web and social, or CRs directing to future self-serve)
4. **Desirable** – Personalization, both tailoring/customization of digital, and CRs knowing the customer's profile/history; enjoyable, engaging experiences, e.g., "sticky" digital content or positive call center experiences; and relevant products and services readily available

5. **Seamless** – Consistency across all touchpoints, whether web, mobile, IVR, CR, etc.; process transparency and access to on-demand information (e.g., move-in/move-out (MIMO), outages); and consistency with other brand activities
6. **Accountable** – Closed loops for issue resolution on key processes, both in call center and digital channels; tracking and transparency for customer issues and interactions; and timely resolution of customer inquiries (e.g., first time)

DTE is using journey maps to identify gaps in the customer experience versus the above BIC principles, which together with other benchmarking, voice-of-the-customer ("VOC"), and customer focus group ("CFG") data is providing DTE insight into customer expectations and customer dissatisfiers, and they identify where in a customer's journeys exist the most significant design and process gaps and opportunities.

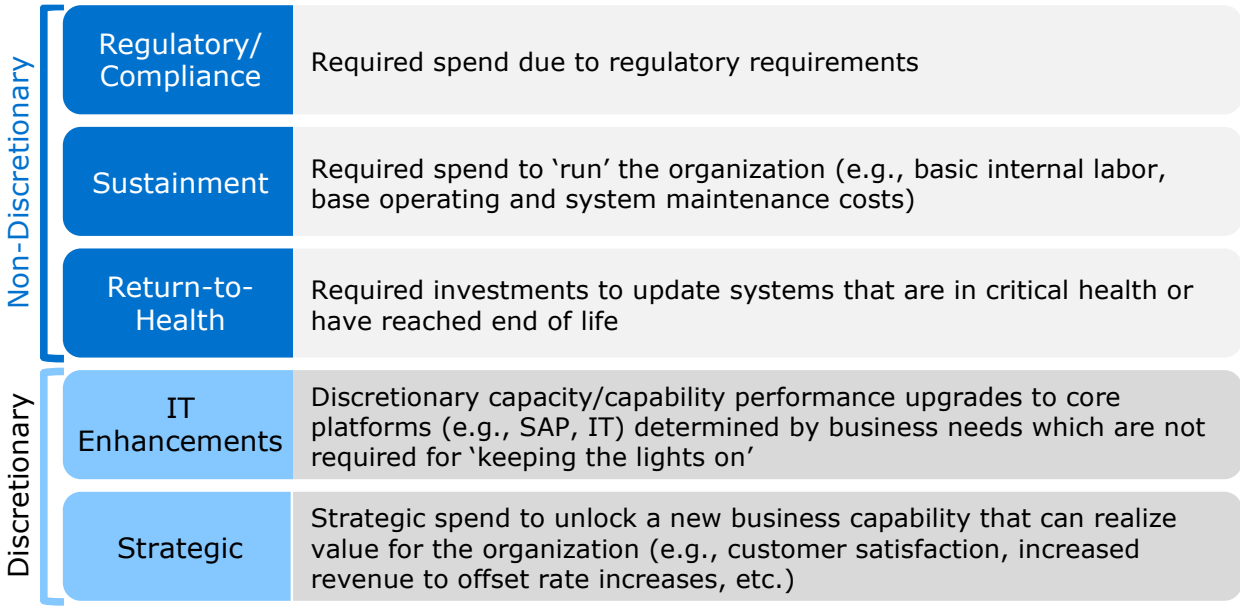
2.D. CUSTOMER AFFORDABILITY

The fourth and final motivation for IT investment is to help manage customer affordability. Investments that drive internal process improvements and/or IT asset efficiencies (e.g., getting more for the dollar spent) help reduce ongoing expenses and/or prevent costly outages, repairs, and replacements.

The Company also provides information, resources, and support to better inform customers of how to manage their energy consumption and potentially reduce their bills, such as providing specific information about rate options that better match customers' usage patterns that help customers save money. Rebates, promotions, energy efficiency programs, tutorial videos, step-by-step tips, and other options (all of which are funded outside of this IT plan) are introduced and offered through IT solutions to lower customers' bills.

SECTION 3 – INVESTMENT CATEGORIES

The IT investments driven by the four motivations described above are categorized into one of five investment categories, summarized in the table below.



DTE's Ordered Sequence (top to bottom) of IT Investment Category Priorities

When an investment covers multiple categories, the dominant category is selected for the whole. For example, the Company's recent Customer 360 program was overwhelmingly Strategic in nature, yet it included some attention to Return-to-Health and IT Enhancements also.

3.A. REGULATORY AND COMPLIANCE

Investments captured in the "Regulatory and Compliance" category represent non-discretionary spending that is required due to regulatory requirements.

Besides the Michigan Public Service Commission (MPSC), other regulatory agencies that can trigger Regulatory and Compliance projects include (but are not limited to) the North American Electric Reliability Corp (NERC). NERC, the Federal Energy Regulatory Commission (FERC), the Nuclear Regulatory Commission (NRC) and the Transportation Security Administration's (TSA) Oil and Natural Gas Pipeline Security standards (API 1164).

Investments within this category generally include system patching, security configuration of assets, management of evidence, and audit data and log files in support of ensuring customer and employee security and the reliability and resiliency of IT assets.

Maintaining compliance is a recurring expense, as IT requires continuous maintenance to protect DTE and the company's customers from security compromise and penalties, adversely affecting customer experience and customer affordability.

3.B. SUSTAINMENT

The "Sustainment" category covers the non-discretionary spend, usually O&M, required to "run" the organization (e.g., base internal labor, base operate maintenance cost, etc.).

Sustainment investments cover ongoing required activities for applying patches, data adjustments, performance tuning, administrative activities (data archiving, certificate expiration), and improvements that reduce manual effort. A large portion of sustainment also includes triage, tracking, and resolution of issues reported by end users.

This type of system maintenance covers fixing functional software errors (corrective maintenance) and periodic upgrades to underlying infrastructure (adaptive maintenance) in support of ensuring the reliability and resiliency of IT assets.

Insufficient investment within the sustainment category would result in the degradation and unplanned failure of IT hardware assets, lack of vendor support for out-of-date IT software assets, not providing or supporting business needs and regulatory compliance, and adversely affecting customer experience.

3.C. RETURN-TO-HEALTH

The "Return-to-Health" category represents non-discretionary spend, usually capital, to update systems which are in critical health or end-of-life, defined as the following:

- **Critical health** indicates, via monitoring, observation, or end-user experience, that an asset is trending towards failure and requires intervention

- **End-of-Life** indicates IT assets that have reached the end of serviceable life, and without replacement will cause a failure of the hardware and interruption of service to users

Typical investments in this category include replacing equipment that has reached end of life, performing software upgrades and performance tuning, upgrading dependent applications, upgrading technical services (database, IT network), and upgrading security in support of restoring the reliability and resiliency of IT assets.

In some cases, the degree of investment that would be required to restore an existing IT asset to full health often exceeds the cost of replacement with modern, progressive solutions that are well-positioned for the future and would adversely affect customer affordability.

Failing to invest adequately within the return-to-health category will result in IT hardware assets failing, network connectivity and data issues, and inoperable software. These would cause unplanned outages that delay or halt customer transactions and/or work being performed in the field, negatively impacting customer experience.

3.D. IT ENHANCEMENTS

The "IT Enhancements" investment category covers discretionary-type capacity and/or capability upgrades to existing core IT platforms (e.g., work and asset management, customer website and mobile app, etc.).

While these investments may not be strictly necessary to "keep the lights on," they are oftentimes needed to keep pace with customer expectations related to service quality and/or the industry. They may also be focused on improving internal operations, resulting in an improved customer experience and/or cost savings.

Typical investments in this space include adding new features and capabilities to an existing platform; improving reliability and efficiencies by consolidating somewhat redundant systems together; and deploying improved hardware assets that provide more capabilities and/or operate more efficiently, contributing to customer affordability.

Failing to make these investments, especially over a prolonged period of time, would risk poor customer experiences and degraded business operations as existing IT assets would eventually fail to satisfy the growing needs of DTE's customers, degrading customer experience.

3.E. STRATEGIC

The "Strategic" investment category covers discretionary type spend that is generally tied to introducing a new service or capability. While the previous "IT Enhancement" category generally focuses on incremental improvements to existing systems, investments falling into the "Strategic" category are generally linked to new solutions or systems targeted to improve customer experience and customer affordability.

Investments in this category are aimed at driving significant value for the organization (e.g., improved customer satisfaction, robust work and asset management capabilities, etc.).

Examples include: enhancing the customer experience with IVR technology, improved customer mobile app experience, expanding the Company's enterprise data and analytics platforms and processes to previously un- or under-supported parts of the business, automating IT system configuration, maintenance, restoration, etc., to redeploy employee productivity elsewhere, deploying new solutions like MIGreenPower that provide additional capabilities for DTE's customers and new revenue opportunities for the company, and applying innovation where work is performed to introduce capabilities and efficiencies that otherwise would not be achievable.

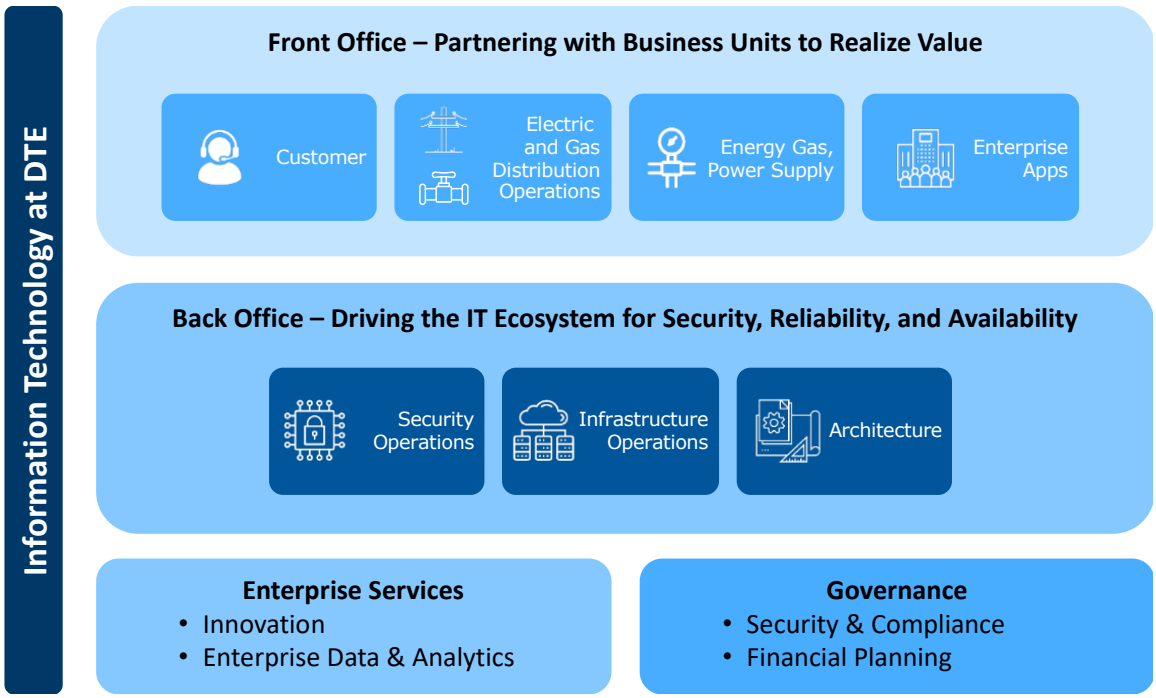
Underinvestment within this category would ultimately stagnate the Company's ability to remain a leader in the industry and in the communities where DTE lives and serves. Without strategic investments that materially "move the needle," DTE risks being left stagnant while progress and innovation that benefit customers continue in the industry.

SECTION 4 – IT INVESTMENT IDENTIFICATION, SELECTION, AND DELIVERY

Information Technology at DTE

The following framework illustrates the way the IT organization delivers value to customers, internal business partners, and each other within IT. It represents a service-oriented approach that is focused on customer value and business enablement.

- **Front Office** has the primary responsibility of facing off to DTE's internal business partners; they own the relationship - building it and maintaining it in a way to that allows IT to become a trusted and valued partner
- **Back Office** works in service to the Front Office and the partnership between the two groups is key to the success of the model; they are responsible for the foundation of the IT organization and drive the IT ecosystem for security, reliability, and availability
- **Enterprise Services** and **Governance** are additional components of the framework that enable business acceleration and improve overall IT performance



Information Technology at DTE

Emerging Customer and Business Needs

DTE's approach to IT investment identification, selection and delivery leverages the company's robust budgeting and planning process, recognizing that the company operates on a limited capital budget.

As such, DTE may need to adjust or re-sequence a scheduled high priority item based on other emerging needs that are of even higher priority. In any given year there is more necessary and prioritized work than the department can execute because of budget constraints. The Company makes these difficult decisions by considering and comparing the thresholds for tolerance in both business processes, manual work arounds, and customer needs.

In addition to its budgeting and planning processes, DTE uses a series of technology principles that inform investment decisions, applies a well-proven risk identification and mitigation approach, executes IT projects, and leverages industry-leading techniques for innovation. These are elaborated in more detail in the subsequent sections below.

4.A. BUDGETING AND PLANNING PROCESSES

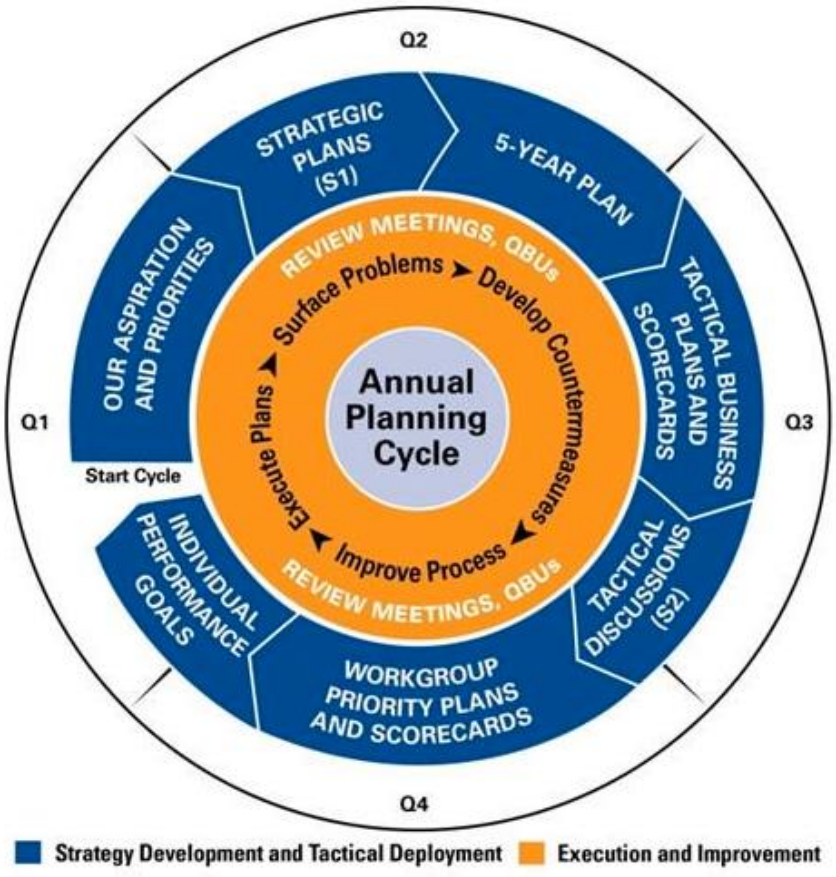
This IT Plan lays out the strategic vision, overall spend levels, and specific IT projects over a five-year period. With the IT Plan in place, DTE's budgeting and planning approach for its IT assets takes an approach like its electric and gas assets, with three key elements:

- **Annual Planning Cycle** – This enterprise process determines where specific, targeted investments will be focused based on near-term priorities and current conditions over a rolling three-year time, discussed in more detail below
- **License Cost Management** – This discipline is used to oversee the cost of maintaining annual vendor support for deployed technologies
- **Accounting Treatment** – This approach ensures the appropriate form of depreciation or amortization is used depending on the type of investment

4.A.i. Annual Planning Cycle

DTE's Annual Planning Cycle (APC) is how the company refines its investment strategies, establishes financial targets, and sanctions work. This approach also applies to IT investments.

Within the APC, the DTE business units (BUs) from Electric, Gas, and corporate support come together to review, prioritize, and authorize the next year of information technology investments, aligned with the assigned Capital targets.



DTE's Annual Planning Cycle

Specifically, the DTE's IT plans are proposed, prioritized, and completed through the Annual Planning Cycle in three steps:

- **Identify** – Investment needs are identified through long-term strategic planning, five-year plans, business unit areas of focus, and more tactical discussions focusing on the upcoming 12-18 months; each portfolio is responsible for understanding their business unit's needs, priorities, technology investments, and ability to execute projects, and present their investment plan to determine individual portfolio funding, balanced across the entire IT organization.

- **Prioritize** – The prioritization of work is done in partnership among business units to prioritize and align IT needs, aligned with the health of IT assets, vendor product roadmaps, and business capability model assessments; these form the business cases, in conjunction with technology asset health and once funding levels are established for each business unit at the organization level, IT categorizes these investments across the portfolios into one of the following categories (further explained in greater detail in Section 3 – Investment Categories, above):
    1. Regulatory/Compliance
    2. Sustainment
    3. Return-to-Health
    4. IT Enhancements
    5. Strategic
- **Deliver** – Approaches to how DTE delivers IT solutions and business value include the traditional waterfall approach and progressive methodologies like Agile and DevOps;[2] DTE also leverages internal delivery and integration partners to provide solutions that meet the scaling needs of the company

IT Investment Approvals

The IT process within the APC to gather sign-off and approval for investments from leadership begins with a business case that outlines the investment. IT's business relationship managers (BRMs) work with the business unit, vendors (where applicable), and IT subject matter experts to document the requirements of the proposed investment in the IT business case.

The business case documents the project category according to the four prioritized motivations above, including customer experience and customer affordability, as well the current state, problem opportunity, key objectives and assumptions, impacts, risks, alternatives considered, and dependencies. The business case also establishes the cost estimation for the investment by detailing the amount of time and project activities that are required to execute the development and implementation of the investment.

[2] The Agile and DevOps approaches are defined in Appendix IV – Glossary and Definition of Terms

For an investment to be approved, the business case must go through a review and approval process whereby multiple parties are required to provide any relevant input and ultimately approve the investment for funding.

Business cases are reviewed to ensure they address expected business and technology developments and anticipate future customer needs, while mitigating potential issues like unplanned duplication and unforeseen obsolescence of IT investments. Only approved business cases are included in Rate Cases.

Technology Investment Committee (TIC)

The Technology Investment Committee (TIC), comprised of Vice-Presidents and above from across the Company, is responsible for stewarding technology investments for the company and affirming those investments provide customer benefits and are appropriately prioritized.

As noted above, DTE may need to re-sequence scope or an entire project to manage cost constraints. When this is needed, and subsequently approved by DTE leadership, the action is never an indication that the project or scope is no longer necessary; rather this reflects the realistic operations required and work that is possible with finite resources.

4.A.ii. Alternatives Analysis Approach

DTE has adopted a Platform Strategy for most of its technology decisions over the last several years, as reflected in recent rate cases. One of the important aspects of that decision, beyond ease of integration, is there are now inherent cost-benefits that inform making consistent investment decisions within the selected, established, and maintained IT platforms.

Multiple technology solutions are always available when considering investments in areas like asset enhancement, capability adjustment, or workload management. Each new investment decision includes consideration for standard alternatives including moving the investment into the Cloud, foregoing or delaying the investment, or looking outside of the platform for an alternative that has an advantage for DTE's customers or the business unit.

Standard alternatives for consideration in each business case are:

- **"Do Nothing"** – Take no action within this period and defer the activity to a future period; the projects in this plan are at the forefront of the Company's multi-year,

prioritized list of activities to ensure that assets remain functional, or security vulnerabilities are addressed

- **Revert to a Manual Process** – Perform the process manually rather than update or replace the existing system, which would introduce challenges including:
    - *Too many required interconnections* between a wide array of groups, processes, and technology solutions for manual effort to be a tenable or practical alternative
    - *Extended dependence on manual workarounds* that have already been adapted over time as the Company prioritized other needs in the business unit and has now reached the limit of what it can do to effectively maintain the asset
- **Select a Different, Competitive, or Complementary Technology** – Choose a different replacement instead of continuing with the existing solution; this alternative is advised in certain instances where the existing solution was custom written in-house, and no viable enhancement path was available
    - The *cost, time, and organizational change management* associated with switching to a new product often exceeds the costs associated with upgrading existing products, without enough additional benefits to justify the expense
    - As such, *DTE rarely selects this option* especially in circumstances where the company has already invested in a multi-year effort

4.A.iii. License Cost Management

DTE's license cost management approach is designed to negotiate the best possible price point to keep costs low and optimize value. This process is overseen by the License Management and Maintenance (LMM) team, serving as the liaison between the Requestor, Supply Chain, and Legal in the procurement of software, hardware, and consulting services.

The process includes negotiations, Request for Proposals (RFPs) as needed, purchase shopping cart creation, and invoice payment. The team also oversees the reoccurring O&M for each Vendor that software and hardware is purchased and is renewed annually. Additional negotiations may be necessary if costs have increased, and the team remains directly involved with any Vendor Audits.

Specific processes and actions designed to maximize the value per dollar and positively benefit customer affordability, include:

- Develop and implement long term strategies applicable to given supply category(s) designed to promote ongoing improvements in cost and quality outcomes
- Study market trends, acquiring and assessing market intelligence, conducting and applying benchmarking/competitive assessments, and developing and continually assessing procurement strategies
- Create and maintain strategic sourcing plans and long-term strategies designed to generate ongoing savings, including contracting methodologies, industry best practices, internal process improvement, and value-added services from suppliers
- Cultivate and build internal and external alliances and partnerships with customers and suppliers to achieve ongoing cost reductions, continuous improvements, and best practices
- Monitor supplier performance as demonstrated in reporting from the Supplier Evaluation System and acts proactively on that data
- Lead innovative and creative cross-functional teams to develop and implement cost-effective procurement strategies

4.A.iv. Accounting Treatment

Similar to other utility assets like utility trucks, power plants, and distribution network, DTE's IT assets receive a consistent accounting treatment approach:

- **Hardware** – Depreciated over five or eight years, depending on the type; for example, computers, monitors, and printers are five-year assets, while IT network routers and storage servers are eight-year assets
- **Software** – Amortized based on efforts to identify software bundling opportunities to optimize cost, reduce or eliminate redundant systems, and optimize vendor software lifecycles based on the type of software; for example, DTE's work dispatching system is a five-year asset
- **Cloud Investments** – Capitalized when the investment has a 3+ year term (paid up-front) and may be fully licensed and hosted internally but DTE chooses to leverage the vendor's cloud implementation instead

Approach to funding capital IT investments

Capital IT assets and investments that are used exclusively by DTE Gas (not used by the Electric business) are funded 100% by DTE Gas. Capital IT assets and investments that are used exclusively by DTE Electric and corporate support groups (not used by the Gas business) are funded 100% by the Electric business.

Capital IT assets and investments that are considered "shared" (used by both DTE Gas and DTE Electric) are funded by DTE Electric, and the DTE Gas and non-regulated affiliates are charged for their share of the usage.

The shared asset charge is comprised of a "return on" at DTE Electric's authorized rate of return and "return of" amortization. The CSG is comprised of the administrative and corporate staff functions as well as Customer Service.

4.B. ENTERPRISE TECHNOLOGY PRINCIPLES

DTE has established a set of technology principles because they (a) focus DTE on cost-effective solutions that drive service reliability, customer affordability, and customer excellence; they (b) ensure DTE maximizes the use of the IT assets while delivering on what is needed for the future; and they (c) endure as long-lasting enablers while the specifics change over time.

These technology principles are:

- **Utility-Grade Solutions** – With a preference for proven industry solutions, DTE builds and operates technology that is robust and can operate at utility scale which improves service reliability, improves productivity, and reduces costs
- **Technology Platforms** – DTE prefers proven, market-leading technology suites that provide pre-integrated applications and a healthy third-party vendor ecosystem for IT assets that are healthy, reliable, and supportable
- **Benchmark Driven** – DTE leverages trusted partners to capture current performance, target future-state levels, and enables the company to drive forward with fact-based plans to optimize IT performance and drive down costs
- **Fast Follower** – DTE purposely follows trends to avoid inefficient spend and wasted cost of discovery, while continuing to balance the adoption of technology
- **Operational Excellence** – A strong security and operational foundation is critical to DTE's ability to effectively manage risk as technology becomes more highly utilized, ensuring IT remains efficient and cost-effective
- **Long-Term Vision, Actionable Plans** – DTE balances its IT investments to support a longer-term vision of safety, reliability, and durability and can also be realistically applied in the short term for immediate value
- **Applied Innovation** – Where the path forward is unclear, DTE uses new approaches to address business challenges that cannot be solved with traditional approaches to shorten the time it takes to deliver value
- **Cloud Smart –** DTE prefers secure, vendor-supported cloud solutions when they have been proven by the market with a clear difference in capability, providing advantages for operations and maintain regulatory compliance

4.B.i Cloud Smart Guidance

Cloud adoption provides both transformational and opportunistic benefits for DTE including cost management flexibility, avoidance of technology obsolescence, scalability, and new capability innovation.

- **Transition Conservatively** – The Company will embrace cloud adoption with a conservative approach, focusing on transitioning to vendor-based cloud platforms and developing new applications natively in the cloud
- **Transition Opportunistically** – DTE will phase out legacy applications and identify high-return opportunities for cloud deployment
- **Transition Over Time** – The Company is not pursuing a "lift and shift" strategy, in which systems and applications are moved to the cloud in bulk

With these principles in place, and their associated controls and processes in use, DTE is positioned to future-proof its IT assets, minimize unintentional duplication, and limit the replacement of assets before they reach the identified end of useful life.

4.B.ii. Asset Lifecycles and Refresh Rates

DTE's IT assets are maintained to an appropriate level of health to ensure reliability, availability, and cost-effectiveness over their full expected lifecycle. The company has defined standards and policies that govern IT replacement and maintenance decisions. These decisions are informed by several dimensions, including asset reliability, security profile and vulnerabilities, availability of vendor support, and risk of business disruption.

Hardware replacement and maintenance decisions are driven by a defined asset lifecycle, based on asset class. This includes servers, network equipment, and end-user assets such as laptops and PCs. A percentage of these hardware assets are replaced each year to mitigate any business disruption due to unexpected asset failure.

Software applications are categorized into Critical, Key, and Standard, defined below. Maintenance and replacement decisions for Critical and Key assets are prioritized to ensure continued vendor support and continued application of security patches.

- **Critical** – Applications where downtime results in risk of catastrophic impact to people, local economy, or business viability; potentially including loss of life, or loss of more

than $10 million if application is down for more than a 30-day period; typically, these require continuous availability with no downtime allowed for maintenance

- **Key** – Applications where downtime results in risk of potential injury, exposure to an unsafe environment, significant customer dissatisfaction, or significant financial impact to DTE, potentially including losses of $1 million to $9 million if an application is down for more than a 30-day period; typically, these require high availability, where planned downtime is acceptable but unplanned downtime can have significant impact
- **Standard** – Applications where downtime does not result in risk of potential injury, exposure to an unsafe environment, significant customer dissatisfaction, or significant financial impact to DTE

Maintenance and replacement decisions for Standard assets are more discretionary and affected by available funding. In this case, risk is accepted by both business and IT stakeholders to delay maintenance or replacement, as the risk to business operations is tolerable.

APC investment categories include Return-to-Health that focuses on asset health, ensuring that these initiatives are prioritized prudently. The overall IT budget is designed with funding targets to ensure maintenance.

Appendix I provides further details on DTE standards and policies that govern or inform IT asset replacement and maintenance decisions (e.g., asset refresh cycles, software and firmware version currency, minimum acceptable levels of risk, etc., and regulatory compliance).

4.C. RISK IDENTIFICATION AND MITIGATION

This section highlights three aspects of risk identification and mitigation: (1) IT cyber risk management; (2) IT project risk management; and (3) IT asset risk management.

4.C.i. IT Cyber Risk Management

DTE's cybersecurity is managed through a multi-layer, risk-based approach for security assurance, compliance regimen, and controlling partner risk, thereby ensuring DTE's operations are safe, secure, and reliable for the company's customers.

The Company's security strategy is to enhance DTE's overall security position and deliver facility, mobile, and system access and control solutions to advance DTE's physical and cybersecurity posture throughout the company's infrastructure.

- **Continuously Mature** – As security threats continue to target critical infrastructure assets and become increasingly more sophisticated over time, DTE must likewise continuously mature the company's capability and preparedness to respond
- **Meticulously Operate** – DTE's focus and due diligence on security operations, risks, and program maturity are driving forces that ensure that company's customers are provided with safe, secure, and reliable energy products and services

The strategic goals later in this document drive maturing DTE's security and supply chain processes and capabilities to align with the company's security controls supported by NIST security standards, the highest appropriate C2M2 maturity levels, and NERC CIP.

4.C.ii. IT Project Risk Management

DTE's Major Enterprise Projects (MEP) organization serves as the central Project Management Organization, by planning and executing projects and strategic initiatives, and by increasing the company's project management maturity.

MEP oversees a management process for controlling the investment of resources in an asset where investments are made through execution of a project. MEP provides:

- Project planning expertise, including establishing project cost and schedule control baselines
- Project cost performance measurement
- Schedule and scope measurement against the project plans
- Corrective, mitigation, and/or improvement actions, as appropriate through forecasting and further planning activity

The purpose of the IT project risk management discipline is to identify risks, complete qualitative/quantitative analysis of risks, develop risk response strategies and to monitor/control risks that may impact a project during the execution of the project. A formal MEP Risk Management Plan and Risk Register will aid in the response planning and mitigation of risks reducing the likelihood and impact of such events.

The Project Manager is ultimately accountable for ensuring that the MEP Risk Management process is carried out; however, everyone involved with the project has a role to play in this process.

The MEP Risk Management process is performed throughout the life cycle of a program/project to ensure that risks are continually identified, evaluated, addressed, and monitored.

1. An initial risk scan is conducted to identify potential risks that may impact the project
2. Recurring risk reviews and updates are performed throughout life of project, no less than monthly
3. Financial analyst and schedulers complete and manage financial analysis and scheduler analysis sections of the program's risk register when scores exceed established thresholds
4. Risk owners manage assigned risks and provide updates throughout the project execution

4.C.iii. IT Asset Risk Management

DTE's IT organization has several practices to ensure IT assets are suitable for operation and are positioned to remain effective in future years. These practices include:

1. **Conduct Due Diligence in Several Ways** – DTE conducts benchmark surveys with utility peers as well as other analyst services such as Gartner and Forrester; this due diligence is completed to ensure vendor viability and stability, which drives the selection of IT assets that are mature, have viable vendor support, and a healthy supplier ecosystem
2. **Execute on an IT Platform Strategy** – DTE's IT Platform strategy supports minimizing duplication as well as future-proofing assets, where core modules of a platform are evaluated first, followed by certified party bolt-ons, and lastly third-party or custom solutions; by embracing DTE's platforms and fully leveraging them, the company can minimize duplication and redundancy of systems that perform similar functions
3. **Work Within a Robust Supply Chain Review Process** – When any OEM contracts expire or support is no longer available from the original vendor, DTE will contract with third-party suppliers that support a breadth of hardware models and components; these actions have allowed DTE to operate assets longer than the original manufacturer support period, as extended support is procured through third parties, and allows DTE to source discontinued parts to keep outdated systems operational, thereby limiting risk to business operations and avoiding costs to continually replace functioning assets

4.D. IT PROJECT EXECUTION

This section describes (a) types of IT work, and (b) how IT work is staffed and sourced.

4.D.i. Types of IT Work

In general, performing IT work is organized in five general types: programs, projects, initiatives, rapid experiments, and sustainment.

- **IT Programs** – Programs are collections of multiple IT projects and are staffed with employees and service providers to complete the work and deliver business value and provide necessary subject matter expertise and leadership to keep the program focused on desired outcomes. Benchmarking identifies the industry leaders in the relevant domains, and the procurement process scores service providers against selection criteria and secures the provider best positioned to deliver success
- **IT Projects** – Projects are generally staffed with employees and service providers, sourced through a Request For Proposal (RFP), to complete the work and deliver IT assets and business value. Those projects that are aimed at extending an existing capability are sourced through a Statement of Work (SOW) and require project management discipline and oversight
- **IT Initiatives** – Initiatives are generally staffed with employees and service providers to complete the work and deliver business value. Initiatives are aimed at asset health and are sourced through an RFP to identify and select the right service provider. Initiatives that are aimed at extending an existing capability are sourced through a SOW and have IT discipline and oversight
- **IT Rapid Experiments** – Experiments are staffed with employees plus, as needed, specialized service providers to deliver knowledge, confidence, and business value
- **IT Sustainment** – Ongoing work is provided by employees and/or service provider(s) through a Master Service Agreement by purchasing capacity of specific skill sets to support specified systems. Benchmarking identifies industry skill leaders in operational support (e.g., IT help desk) and contracts are multi-year to maximize savings and provide flexibility for expansion. Major and minor releases are categorized by priority and fulfilled per the SLA with minimal employee oversight

4.D.ii. Sourcing IT Work

DTE executes its IT projects through a combination of DTE employees, service providers, and managed services. The approach to staff a particular initiative is based on a view to the overall portfolio work.

The factors that are used to determine how it is sourced could include things like current allocation of existing resources and the priority of new work vs. in-flight initiatives; the skill sets of resources, which impacts whether or not the Company goes to market; and given a project's size and complexity, some efforts require vendor and consultant integrators.

DTE employees may be sourced from internal business unit and IT resources to best align the appropriate domain and technical skills to the tasks at hand.

Service providers are:

- Technology vendors that deliver solutions
- Governed by scope defined in a SOW that specifies the technical and business outcomes to be achieved
- System integrators that take responsibility as a "general contractor" to coordinate the efforts of multiple service providers
- Cost-controlled by leveraging on- and off-shore models

Managed services are:

- Technology vendors that deliver services and run operations
- Commissioned with scope that is contractually defined as fixed annual capacity
- Able to provide capacity for specific skill sets for a given system
- Cost-controlled by leveraging on- and off-shore models

4.E. INNOVATION

4.E.i. Definition of Innovation

Innovation is the act of creating value by doing new things. DTE's innovation program is funded within the Shared IT portfolio, described in more detail in Section 5 – IT Investment Portfolios, below.

To address customer and business challenges that cannot be solved with traditional approaches, DTE applies innovation to:

- Deliver rapid value with shorter development cycles and time to value
- Boost reliability by expanding how DTE services and maintains the company's IT assets
- Accelerate access to decision-making tools for customer and employee use
- Gain new insights by thinking differently about pressing business challenges
- Nurture an innovative culture at DTE to embrace positive change

By applying innovation to business challenges, DTE makes better technology decisions by conducting hands-on experiments that are fast, inexpensive, and focused on a specific need.

For example, when the COVID-19 health crisis emerged in early 2020, DTE rapidly applied innovation to provide onsite health screening systems for the Fermi power plant, quickly enabled over 5,000 employees to work from home, deployed safe processes and supporting systems for employees to retrieve personal items and appropriate company-owned equipment from their work location, and more.

Pilots and Innovation

The definition of a pilot is that "[a] pilot is a limited duration experiment or program to determine the impact of a measure, integrated solution, or new business relationship on one or more outcomes of interest."[3]

Pilot initiatives are intended to understand the potential customer and business value of a particular approach or solution, whereas innovation and rapid experiments are intended to understand what potential approaches or solutions may be worth considering. Put another way,

[3] The definition of a pilot comes from Case U-20645, filing U-20645-0013 on Feb. 4, 2021, page 7

innovation and rapid experiments result in knowledge and confidence that a promising approach or solution would be suitable for pursuing as a pilot.

4.E.ii. How DTE Scans for Innovation Opportunities

Innovative ideas may come from nearly anywhere and almost at any time, and DTE's innovation approach is tuned in to a variety of pathways and sources of potential value. Ideas may enter the innovation pipeline from any of these and more:

- Employee and leader ideas, based on their experience at the point of activity
- Benchmarking studies from trusted sources like McKinsey, Accenture, Gartner, Forrester, and utility industry-specific groups and consortiums
- Trusted third-party partners and vendors, who are often able to bring new perspectives into the utility industry domain
- Memberships, partnerships, special interest groups, and more that focus on domains that are relevant to DTE's customers and business operations

4.E.iii. Approach to Enabling Innovation

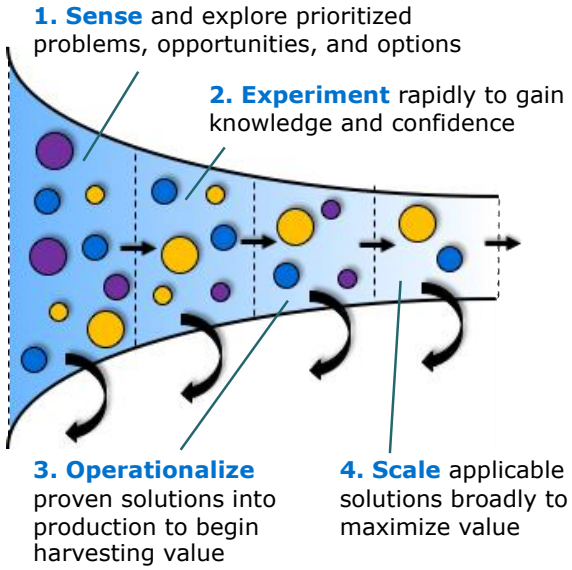
To drive rapid, game-changing value, DTE uses an industry-standard innovation process and pipeline that in 2019 alone yielded $8.1 million in savings for the company.

The pipeline is a controlled way to thoughtfully welcome any and all ideas, and through analysis and experimentation, find and focus on those that add the most value rapidly.

DTE's innovation pipeline has four key stages:

1. **Sense** – Identify and explore prioritized problems, opportunities, and options
2. **Experiment** – Investigate rapidly to gain knowledge and confidence
3. **Operationalize** – Deploy proven solutions into production to begin harvesting value
4. **Scale** – Deploy applicable solutions more broadly to maximize value

DTE's innovation pipeline is visualized in the following illustration:



DTE's Four-Stage Innovation Pipeline

Projects and initiatives that proceed through the innovation pipeline are funded and tracked through the appropriate business units and IT portfolios.

SECTION 5 – IT INVESTMENT PORTFOLIOS

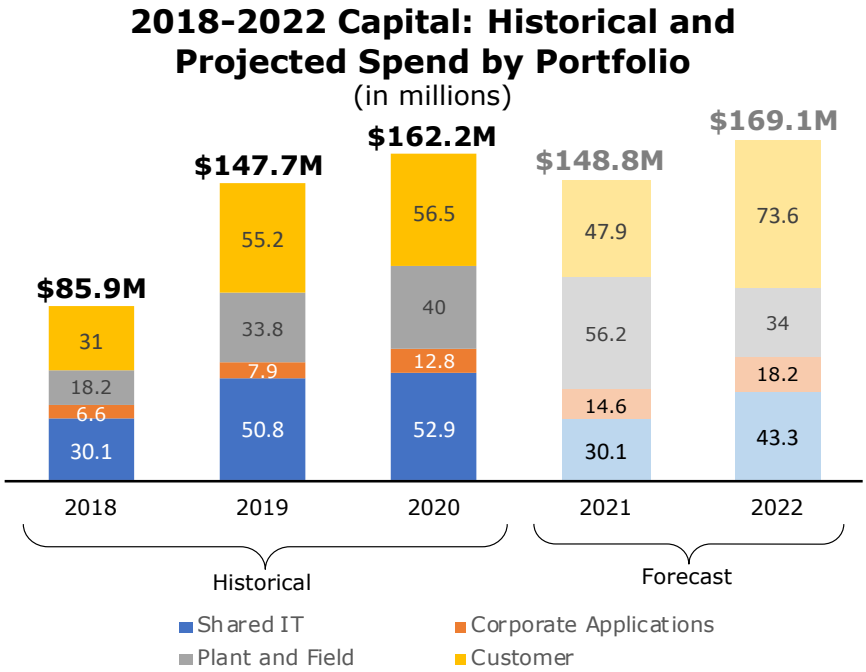
To better translate DTE's investment plans into operational terms, IT allocates investments into one of four IT portfolios. These portfolios loosely align with DTE business units and help the company ensure that potential IT work contributes to achieving business goals and priorities. The four IT portfolios are:

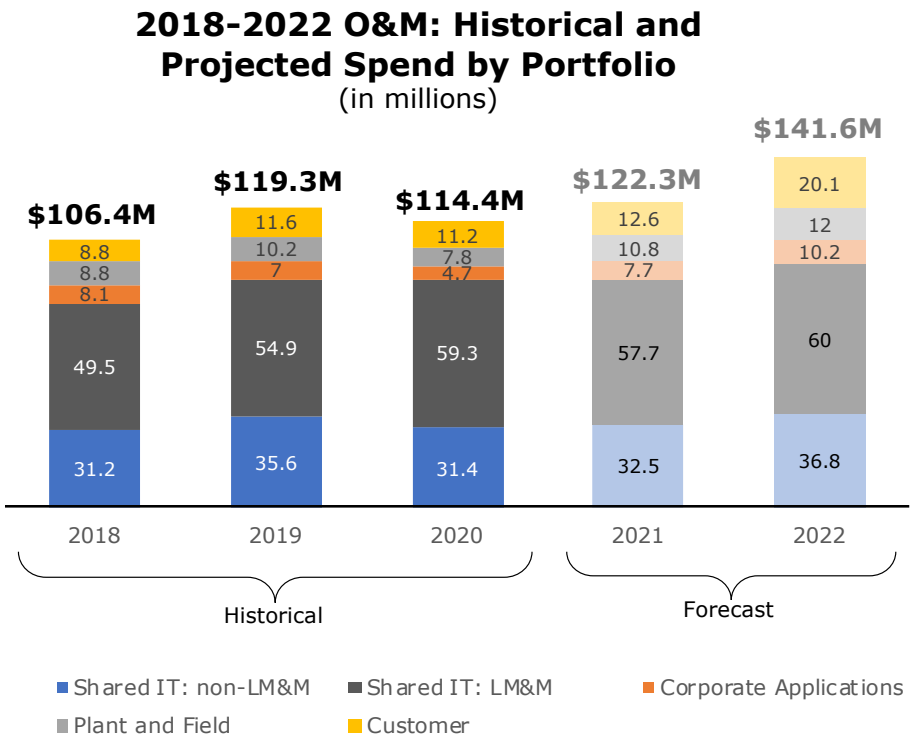
- **Shared IT**
- **Corporate Applications**
- **Plant and Field**
- **Customer**

These portfolios are defined in the subsequent sub-sections, after highlighting the total historical and forward-looking investments.

Portfolio Spend as a Percentage of Total IT Spend

The following charts illustrate the magnitude of spend for a given IT portfolio as a percentage of total IT spend. Separate charts are included for Capital and O&M.





From an O&M perspective, IT-related license management and maintenance (LM&M) is defined and described in Section 4.A. – Budgeting and Planning Processes, above. The costs associated with LM&M reflect ongoing commitments that DTE has made with third parties and is identified in the above chart to clarify its proportion of overall O&M spend.

5.A. SHARED IT

The Shared IT portfolio supports the enterprise by establishing the physical and security foundation required by the other portfolios, along with Company-wide support for cybersecurity, innovation, and enterprise data and analytics.

The Company depends on Shared IT for:

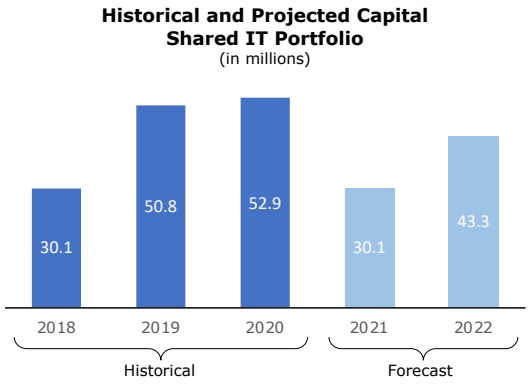
- **Physical Architecture** – The physical architecture of the infrastructure meets the needs and are prepared for the annual growth demands
- **Security** – The infrastructure assets meet the security requirements of DTE and the company's customers

- **Redundancy** – Appropriate redundancy is in place to ensure the continuous operation of the application hosting assets and their connective networks
- **Innovation** – Cost-effectively explore new ideas and tapping into the collective knowledge of employees

To provide the Company with a reliable, resilient IT foundation, this portfolio ensures:

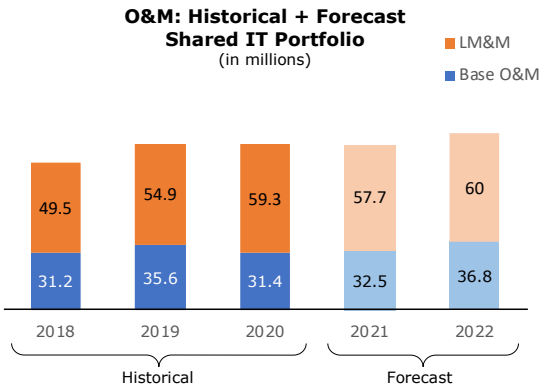
- **Efficiency** – DTE can design and implement solutions that prepare the company for future technology and continuously improves asset efficiency, reduces ongoing costs, and reduces the need for "hands-on" management
- **Resiliency** – Processes to manage the Company's infrastructure are continually enhanced to prepare for and implement automation and self-healing solutions that will better respond to customer needs, improved efficiency, and reduced expenditures
- **Ingenuity** – Innovation, the act of creating value by doing new things, is encouraged; especially in these pandemic times, the need to innovate is clearer than ever as DTE explores ways to consider new ideas that may not have been possible in the past

Historical and Projected Spend



$133.8 million Capital (33.8%) over 2018-2020

$73.4 million Capital (23.1%) for 2021-2022



$261.9 million O&M (77.0%) over 2018-2020

$187.0 million O&M (70.9%) for 2021-2022

5.B. CORPORATE APPLICATIONS

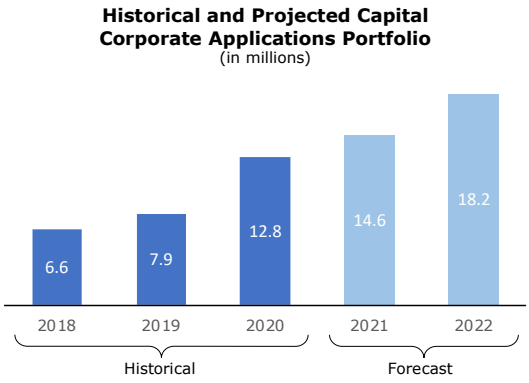
The Corporate Application portfolio encompasses assets used by the enterprise to execute critical internal business functions. It supports business units such as Human Resources, Finance and Controller, Legal, Supply Chain and Facilities, and IT assets used by the entire enterprise.

Customer and business needs that this portfolio supports include:

- **Business Process** – The business processes that DTE's assets enable include time and attendance, learning administration, employee onboarding/offboarding, payroll, financial accounting, month-end/year-end close and reconciliation, tax, legal, purchasing, fleet and fuel management, environmental management, and collaboration
- **Enterprise Platforms** – The business processes exist inside multiple platforms that the Corporate Applications portfolio supports. Platforms within the portfolio include SAP Enterprise Resource Planning system (ERP) (Human Resources, Finance and Supply Chain management) and Employee Collaboration (Microsoft Office, SharePoint, Teams, OneDrive, and PowerBI)

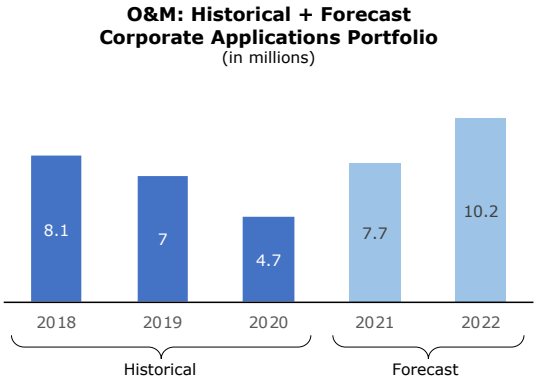
With these needs met, the portfolio ensures that DTE's employees can work effectively from anywhere, at any time.

Historical and Projected Spend



$27.3 million Capital (6.9%) over 2018-2020

$32.8 million Capital (10.3%) for 2021-2022



$19.8 million O&M (5.8%) over 2018-2020

$17.9 million O&M (6.8%) for 2021-2022

5.C. PLANT AND FIELD

The Plant and Field portfolio includes the IT assets required to provide DTE's customers with safe, reliable, and affordable energy. This encompasses assets that enable efficient operations in the field, including at the company's electric generation facilities.

This portfolio supports multiple lines of business. The technology services, systems improvements, and reliability are helping DTE meet its commitments to the company's customers.

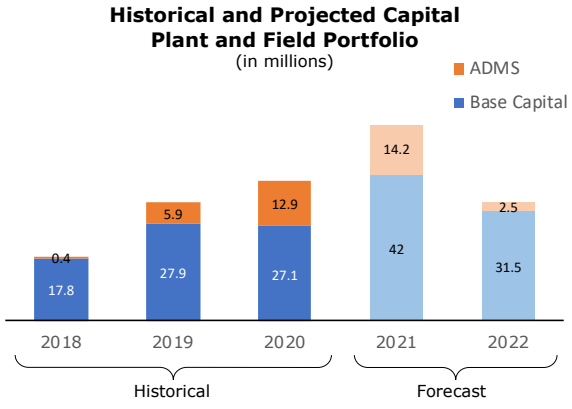
The ways in which this portfolio supports DTE's customers include:

- **Delivery** – Enable improved Automated Grid management by implementing DTE's Suite of ADMS tools
- **Safety** – Implementation and adherence of gas leak response processes to ensure the safety of DTE's customers in a gas leak situation. DTE continues to work towards top decile leak response, and then execute best practices to immediately secure the jobsite to keep the company's customers safe. DTE has built resiliency into Gas Leak Response systems to ensure that the company is able to dispatch field crews in a timely manner. Additionally, improved features of the Corrosion Database Application will provide real-time integration with work management and geospatial databases to provide real-time data on cathodic protection and corrosion control of the Gas pipeline facilities
- **Safety and Integrity** – Enable tracking and traceability of DTE Gas plastic pipeline components (pipe, fittings, joints) used for gas installations and repairs to comply with the Pipeline and Hazardous Materials Safety Administration's (PHMSA) Notice of Proposed Rule Making (NPRM) - Plastic Pipe Rule
- **Security** – Address security vulnerabilities through security patch cycles and monitor and operate the production environment for each business unit to ensure high system availability
- **Communication** – Provide elevated levels of customer communication for both emergency and planned system interruptions using DTE's communications initiatives that seek to positively confirm work with the company's customers. The inception of this capability into the outage restoration transaction in 2020, expansion of that capability to multiple channels in 2021 along with the inclusion of planned work will significantly

improve customer awareness of these events as well as allow them to provide direct feedback to DTE on its efforts and improving overall satisfaction

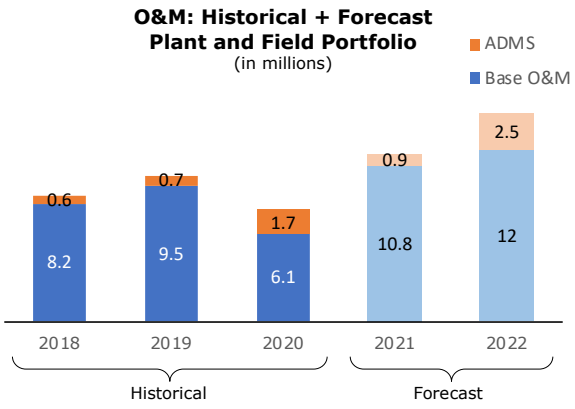
- **Visibility** – Improve visibility to Grid system data for analytics and prevention
- **Increased Control** – Enhance field force operational intelligence and control by implementing ADMS and its integration to an updated field management system. These systems and their integration will afford field supervisors and dispatchers to exercise a higher level of control of DTE's field assets
- **Work Management** – The new industry leading Field Service Management solution, ClickSoft, will replace the end-of-life ServiceSuite application and allow DTE to consolidate multiple disparate applications into a more common, robust, and fully integrated scheduling, appointment, and dispatch system across Distribution Operations and Gas Operations. This will enable increased operational efficiencies in dispatch and crew management, real-time status at the point of activity, predictive traffic with live traffic using integrated Google Maps, increased focus on honoring customer commitments, reduced system maintenance, and increased uptime due to SaaS in the cloud. Furthermore, transforming DTE's work management platforms upgraded geospatial platforms will allow the company to have centralized work management for Power Supply, Electric Distribution, and Gas Operations. This will improve asset lifecycle management, preventive maintenance, work planning, design, and execution

Historical and Projected Spend



$92.0 million Capital (23.2%) over 2018-2020

$90.2 million Capital (28.4%) for 2021-2022



$26.8 million O&M (7.9%) over 2018-2020

$26.2 million O&M (9.9%) for 2021-2022

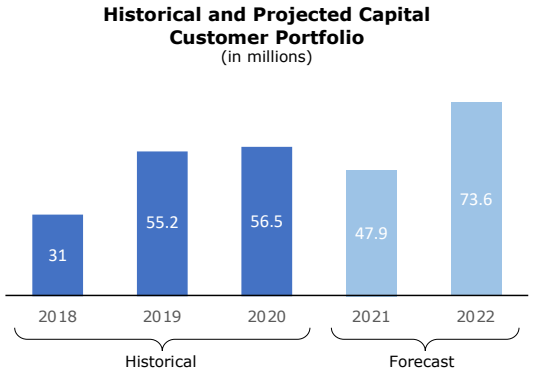
5.D. CUSTOMER

The Customer portfolio includes assets that support customer transactions (e.g., new customer setup, billing, payments, collections, etc.) as well as the customer experience across all channels (e.g., web, mobile, call center, etc.).

This portfolio delivers and operates technology systems for DTE's customers and employees that do the following:

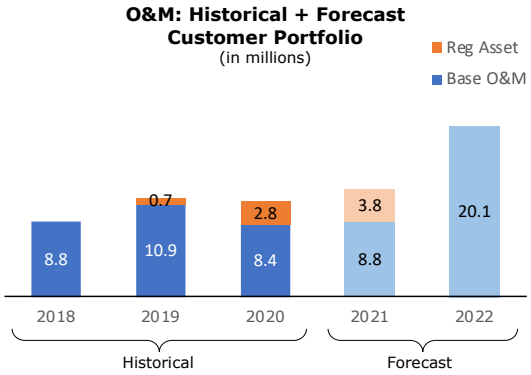
- **Improve User Experience** – Enable DTE's digital experience aspirations, prioritizing "speed-to-value" by frequently and continually delivering features and capabilities
- **Increase Employee Productivity** – Improve the technology systems that allow DTE's employees to be more productive by having less manual system interactions which will enable them to be more focused on high-impact priorities for the company's customers
- **Improve System Usability** – Ensure these technology systems are intuitive and easy to use, and proactively measure and address the experience of passive customers
- **Enable Cybersecurity** – Reinforce these technology systems to remain secure, stable, scalable, and available to ensure customers can access what they need, when they need it; with these IT systems in place, this portfolio ensures that DTE serves the company's customers' varying needs and expectations are served in a way that works well for both customers and DTE's employees

Historical and Projected Spend



$142.7 million Capital (36.1%) over 2018-2020

$121.5 million Capital (38.2%) for 2021-2022



$31.6 million O&M (9.3%) over 2018-2020

$32.7 million O&M (12.4%) for 2021-2022

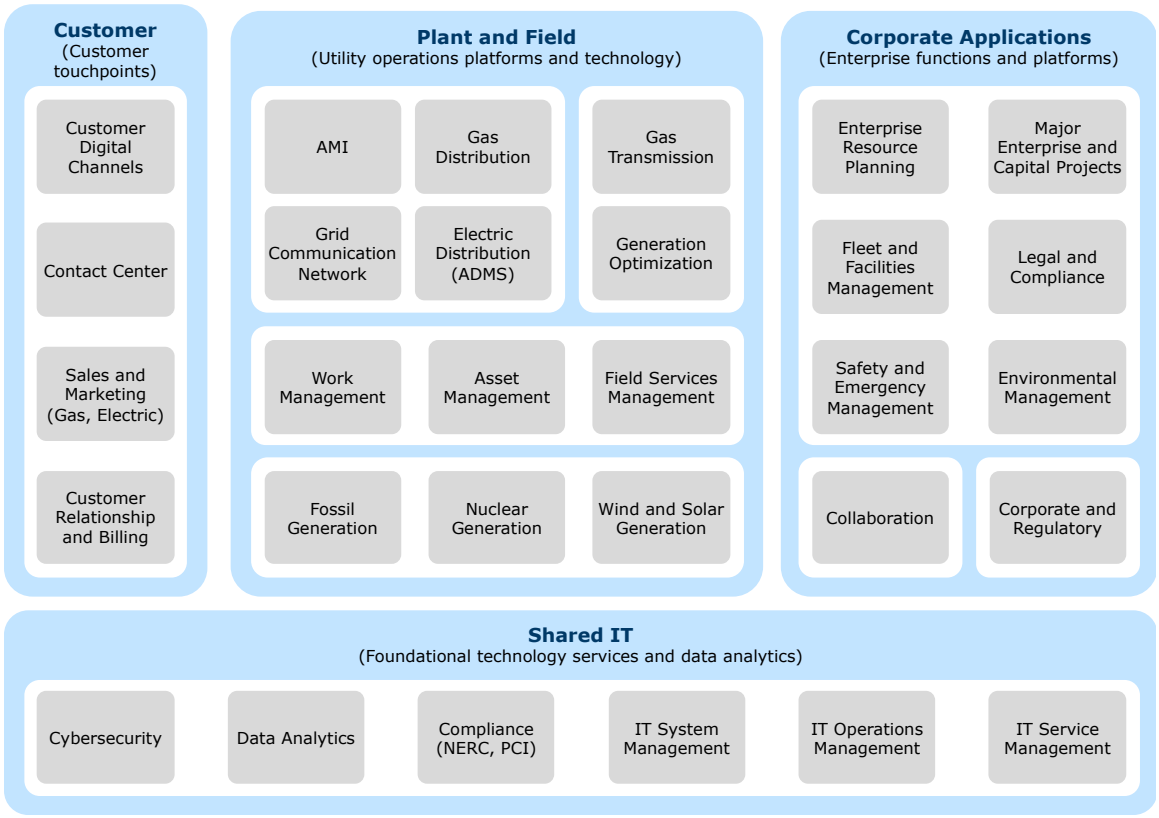
SECTION 6 – IT INVESTMENT PLANS BY PORTFOLIO

As outlined above, DTE's IT work is organized into four IT portfolios. Each portfolio brings together multiple related IT assets, both hardware and software, that work together to achieve utility business functions (grid management, customer billing, power generation, etc.).

As noted in the previous section, the four IT Portfolios are:

1. **Shared IT**
2. **Corporate Applications**
3. **Plant and Field**
4. **Customer**

The four IT portfolios comprise the DTE's Technology Asset and Platform landscape.



Technology Asset and Platform Landscape

DTE's Corporate Priorities

Each of the following sections begins with a discussion of the strategic business and IT goals that the IT portfolio supports. This alignment to goals is two-fold in nature, as the IT investments are targeted to satisfy both DTE corporate priorities and specific IT asset goals and priorities.

Since funding is not available to perform every proposed investment, the Company budgets and plans for the highest-priority IT initiatives to maximize the value and benefit realized per dollar invested. This is explained in more detail in Section 4.A. – Budgeting and Planning Processes, above.

Tracking and Reporting IT Metrics

DTE measures and inspects IT performance with a comprehensive Best Operated Scorecard (BOS) that contains a suite of IT cost and performance metrics. This scorecard is used to manage active IT work, along with day-to-day operations and insights into system performance.

- **Focus on Continuous Improvement** – The scorecard features metrics that are inspected weekly at the IT department and portfolio level and at the executive level, where the focus is to identify and address areas of improvement to better support its customers
- **Focus on Ease of Usability** – An interactive BOS application is used by DTE leadership to see and interact with performance data about DTE's IT assets, projects, portfolios, and financial investments, and a detailed weekly report is also provided

DTE's IT metrics came from benchmarking utility industry IT organizations and the broader spectrum of best-operated IT organizations, and from adapting standard utility industry metrics like Customer Average Interruption Duration Index (CAIDI) for use with IT assets.

Specific metrics for each IT portfolio are included in the following designated sub-sections, and defined in Appendix V – Metric Definitions, below.

6.A. SHARED IT

As introduced in Section 5 – IT Investment Portfolios, above, the Shared IT portfolio provides the foundational IT assets, both hardware and software, that support the Company's customer service and utility operations. From data centers to cloud platforms, and from end-user devices to corporate networks, DTE depends on Shared IT to provide customers with safe, secure, reliable services.

This section focuses on the strategic goals, current state, needs, challenges, metrics, projects, and investments for the Shared IT assets that provide the IT foundation for DTE.

6.A.i. Strategic Goals

DTE's Shared IT goals are aligned with customer expectations, business unit drivers, and the current state of the company's assets. As noted in earlier sections, the goal of having secure, reliable, and resilient IT assets is a key investment motivation and drives the Shared IT portfolio's Sustainment and Return-to-Health investment categories.

Goals for Shared IT Assets

The strategic goals for the Shared IT portfolio are:

1. **Secure Data, Applications, and Infrastructure**
    - Ensuring the security of DTE's IT resources is paramount and includes preventing hacks and compromises, as well as protecting sensitive business data
2. **Maintain Asset Health and Remove Unhealthy, Risky Assets**
    - To avoid outages that may occur due to IT component failure, security flaws, incompatibility with newer components, and inability to get supplier support, it is essential that DTE maintains the health of its IT assets throughout their lifecycle
3. **Improve the Operational Resiliency of IT Assets and Systems**

To proactively detect and prevent IT asset failures that disrupt business operations, efforts must be made to extend and improve system monitoring capabilities and reduce system downtime

4. **Modernize and Transform the Technology Foundation**
    - To deliver systems and tools that customers and employees need, DTE will opportunistically phase out legacy systems that require manual labor to support

and manage and move to a modern technology foundation to build on automation, reduce support, and increase resiliency

5. **Apply Innovation to Address Unconventional Challenges**
    - The Innovation category, as introduced in Section 4.E. – Innovation, above, is distinctly different from the other categories and is contained within Shared IT because it applies to all portfolios; as such, innovation initiatives will be funded by the sponsoring business units and/or IT portfolios

6.A.ii. Current State, Needs, and Challenges

The current state, needs, and challenges of the Shared IT portfolio varies based on the specific goal and are enumerated below. What these have in common is the intent to maintain a healthy, secure, resilient, and cost-effective technology foundation.

Assessment of Goal 1: Secure Data, Applications, and Infrastructure

DTE vigilantly maintains its cybersecurity position, as reflected in portfolio metrics below. The Company has been effective in applying tools and processes to identify and prevent security incidents, but new security threats emerge at a rapid pace; as such, the need for continued focus and investment in information security capabilities is paramount.

As a recent example, in Fall 2020, energy companies began observing Ransom Denial of Service (RDoS) attacks. These attacks are extortion-based (ransom) attempts to bring down servers and disrupt Internet-based activity of the target Company.

Today's rapidly evolving cyber landscape creates unprecedented challenges. Achieving a safe, secure, and resilient cyber environment demands that the company continue to invest, improve, and refine cyber tools and processes to maintain an effective security posture.

As noted in Section 3 – Investment Categories, above, a lack of investments in the Company cyber assets would put the customers' and company's data, networks, and business operations at significant risk, potentially exposing the company to data breaches, interrupted service, billing errors, and more.

DTE's IT assets and processes need to remain compliant with several regulations and compliance mandates, including Payment Card Industry, NERC Critical Infrastructure Protection (CIP), and SOX. The ever-changing threat landscape often requires additional security measures to be implemented to protect cyber assets, which is often challenging, as cyber threat actors

continue to develop sophisticated tactics to carry out cyberattacks to steal data and disrupt business operations. These requirements drive the need for tools, technologies, controls, monitors, and audit records to maintain and provide evidence of compliance.

Assessment of Goal 2: Maintain Asset Health and Remove Unhealthy, Risky Assets

Keeping IT assets healthy plays an important role in the operational effectiveness of the Company, the physical safety of DTE's workforce and customers, and the protection of customers' data using up-to-date cybersecurity systems. Unhealthy assets reduce the Company's ability to react to opportunities, increase cyber risk, and increase the cost of future systems and operations.

Balancing affordability and IT asset health is an important part of the Company's IT governance process. DTE's asset health position has improved over the past five years through a dedicated and disciplined investment.

Areas that are **current** include:

- DTE's endpoint fleet (PCs, workstations, laptops) is in alignment with asset lifecycle
- Core network switches are within health targets
- Central storage, SAN switches, load balancers, and backup solutions are aged longer than target lifecycle

Areas that require **additional focus** include:

- Network and telecom assets (routers, wireless access points, microwave radio units) in plants, remote sites, and the general office campus are operated longer than target lifecycle
- A portion of DTE's server technology assets require replacing in order to be vendor supported going forward
- Some of the Uninterruptible Power Supply devices for the Company's data center are overdue for replacement

Technology vendor and market changes, as well as business priorities and balancing affordability, have resulted in many obsolete systems still being used for operations. In some cases, a vendor has discontinued support for a product and there is no straightforward path for

DTE to return the asset to health without a major conversion or replacement investment. Additionally, multi-year requirements for data retention have necessitated keeping aged, obsolete components operating to support potential legal or records retention inquiries.

There is a need to have people and skills to support all these technologies. It can be increasingly difficult to find staff or service providers with the capability, knowledge, interest, and tools to support outdated legacy technologies as well as modern technologies.

Assessment of Goal 3: Improve the Operational Resiliency of IT Assets and Systems

Although many individual IT assets are healthy, the overall resiliency of IT systems is behind the norms and expectations of modern IT infrastructure. Many IT assets were engineered and implemented to accommodate transaction and data volume from years ago and cannot sustain continued volumes and growth rates.

As business needs for situational awareness of the distribution grid and gas networks increase, there is a resulting imperative to capture data over an expansive geography and transmit it to DTE applications and systems without degrading performance and affecting customers and business operations.

This demand is apparent in the growth of leased, pay per use and privately owned fiber, cellular and microwave technologies. As more devices are deployed and the field network continues to expand, there is an increased need for resiliency, performance, maintenance, installation, repair, and support.

An additional gap is the lack of full component redundancy. Though much progress has been made, affordability tradeoffs have resulted in instances where single components remain in operation. This lack of redundancy at all levels causes any performance of maintenance activities to interrupt a service or require downtime.

Furthermore, when these components fail, operations are interrupted while the company acquires or reallocates resources to perform the function. In many cases it takes significant human intervention to restore a component, as those components were not fully engineered and automated for quick failover or parallel operations.

DTE, like many utilities, lags the IT resiliency of other industries such as ecommerce. The resiliency of the Company's IT infrastructure is improving as continued investments are

made to engineer solutions for higher levels of resiliency, yet DTE still lags in its ability to offer a fully resilient, redundant technology stack that can sustain uninterrupted operations.

Assessment of Goal 4: Modernize and Transform the Technology Foundation

DTE depends on IT to provide safe, reliable, seamless customer experiences, and affordable electricity, and those needs only continue to increase. The Company's IT ecosystem has grown and transformed meaningfully to enable business units to meet their strategic goals. The pace of technology change is increasing, and new security threats have emerged.

As such, modernization and transformation of that IT ecosystem is being done opportunistically. The approach is not to start at the beginning and upgrade or replace every IT asset. Rather, as the Company makes its IT assets healthy, and as IT assets come to their scheduled end of life, DTE has strategic opportunities to modernize and transform IT assets.

The post-COVID work environment is necessitating significant changes to how existing enterprise technology foundations have been engineered and deployed, including the Company's "Future of Where We Work" initiative. This includes changing the network topology and how the perimeter cybersecurity is implemented, as well as how to trust, manage, and authenticate devices that need to access DTE systems from non-DTE locations.

Specific needs and challenges include:

- Efforts that support customer- and employee-driven technologies need to be applied at the "point of activity" where customers interact with DTE and where employees perform their work
- Technology is pervasive in the business environment today and the ongoing growth in the number of smart devices, Internet of Things (IoT) devices, and employee mobile devices amplifies the need to access DTE systems and resources
- As more processes are digitized and becoming paperless, there is growth in data storage needs, as well as data backup and data recovery investments, resulting in the need for continued expansion and demand in network capacity, continued investment in tools to secure these devices, as well as IT support labor for maintenance and repair
- The Company's Data Analytics Platform needs to provide employees with accurate data and powerful tools to make thorough, fact-based decisions and the platform needs fixes, updates, and enhancements added throughout the year

- DTE's IT Services Platform, including cloud management, asset and configuration data, identity management, and related core IT services, must continue to ensure that the company's information technology foundation operates smoothly and reliably for employees and customers; the cloud platform needs new releases up to two times per year, while on-premise components need annual maintenance and major upgrades every three-to-five years

Assessment of Goal 5: Apply Innovation to Address Unconventional Challenges

To continue to provide affordable services and advance the Company, DTE must continually looks at opportunities to experiment with different technologies, on a small scale, in a secure environment.

As noted in Section 4.E. – Innovation, above, the Company distinguishes between rapid experiments, intended to better understand the challenge and narrow down potential options, from pilots, intended to deploy a particular solution to determine if it is actually viable.

DTE needs to continue modest investments in targeted innovation opportunities to exploit modern technology and employ out-of-the-box thinking that will generate and unlock new value. The intent of the applied innovation program is to explore an idea to see if it will work and add value; several dynamics exist as DTE seeks to apply innovation strategically:

- The technology landscape continues to evolve and mature, and what was once innovative soon becomes a commodity offering; the challenge is to identify and exploit ideas and technologies while differentiating and financial advantages exist, thereby bringing value to DTE customers and the company far earlier than would otherwise be achievable
- Modestly funding the innovation program is effective, as each business unit is asked to provide "seed funding" to experiment on specific ideas; while a small amount is allocated to fund base innovation operations, each business unit must reallocate funds to pursue an experiment. This drives a shared risk behavior that avoids waste while exploring new ways to improve existing operations and propose entirely new approaches
- Customers depend on DTE to "keep the lights on" and "keep the gas flowing," which are core to powering the progress of society; innovation is a way to thoughtfully explore "out of the box" ideas in controlled, focused ways that might yield tremendous benefits

6.A.iii. Key Metrics

Key metrics used to monitor and improve IT assets and systems (e.g., customer website, customer mobile app, grid AMI, Maximo, SCADA, ESRI, data center operations, network and telecom devices, etc.) include:

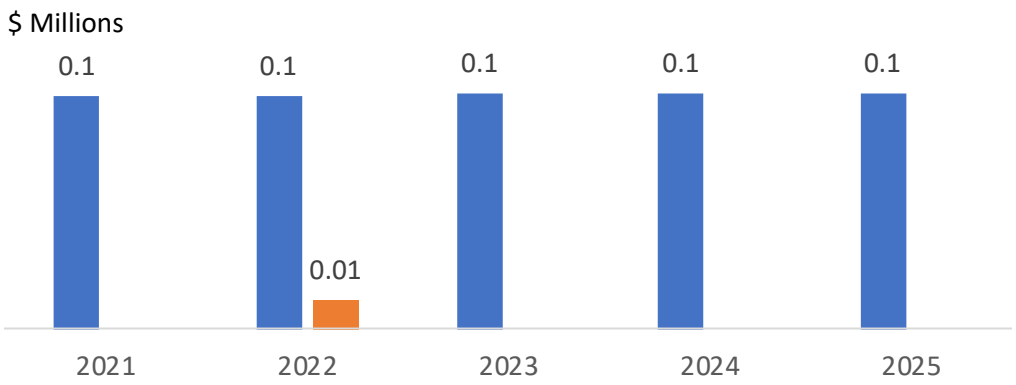
- ITS Key Asset Availability (% uptime)
- Unplanned Outage: Infrastructure Operations (Frequency)
    - These metrics indicate the degree to which systems and equipment are available for business use, and the speed in which outages (planned or unplanned) are resolved and are tracked consistent with the Security and Compliance planned and unplanned outages, above.
- 1st Level Support – First Contact Resolution (%)
    - This metric reflects the degree to which the IT Help Desk provides a successful resolution to an inquiry or request for help the first time, and is consistent with customer service metrics of the same kind
- Cyber Incidents Prevented (%)
    - This metric reflects the number of cyber incidents that were identified and prevented from harming customer experiences and DTE's business operations, data, and IT assets
- Security Events (Frequency)
    - This metric tracks the number of significant security events identified that have caused significant disruption/damage to DTE

Metric Name	2020 Actual	Aspiration
ITS Key Asset Availability (% uptime)	99.88	99.90
Unplanned Outage: Infrastructure Operations (Frequency)	17.00	0.12
1st Level Support – First Contact Resolution (%)	92.10	90.00
Cyber Incidents Prevented (%)	*Private*	*Private*
Security Events (Frequency)	*Private*	*Private*

6.A.iv. 2021-2025 Project Lists and Investment Assumptions

The following tables present the proposed investments for this portfolio consolidated per investment category. The following tables present the total amounts DTE plans to invest consolidated by investment category. Also identified are a subset of projects expected to have a total capital investment of $5 million or greater. Further detail on these projects is captured within Appendix II – Further Detail of High-Priority IT Projects.

Investment Category	**Regulatory/Compliance**
Scope[1]	Investments in this category are required to satisfy MPSC standards and other industry regulations and compliance requirements.
2021-25 Total Capital	$0.4M

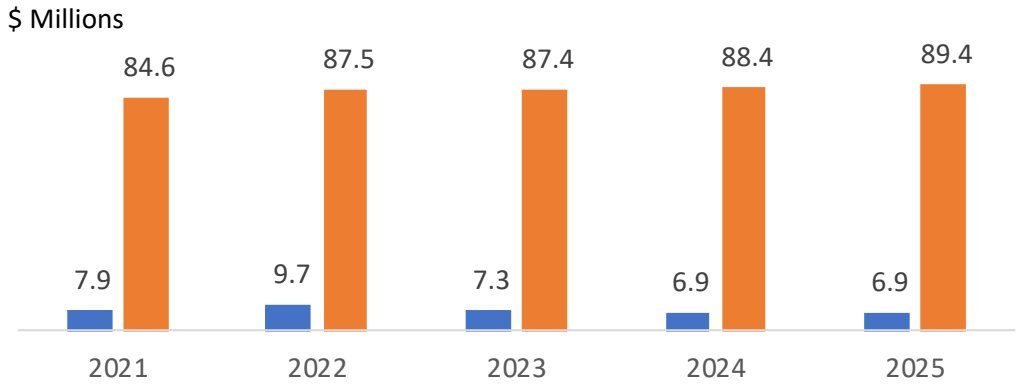


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	0.1	0.1	0.1	0.1	0.1
O&M	-	0.01	-	-	-

Notes	*1. Details for projects exceeding $5M Capital spend are included in Appendix II.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Sustainment**
Scope[1]	Investments in this category include all Capital and O&M spend that addresses base IT operations, systems sustainment, and cybersecurity risk management and response, including the software and hardware license and maintenance contract costs (67% of Shared IT Sustainment O&M).
2021-25 Total Capital	$38.7M

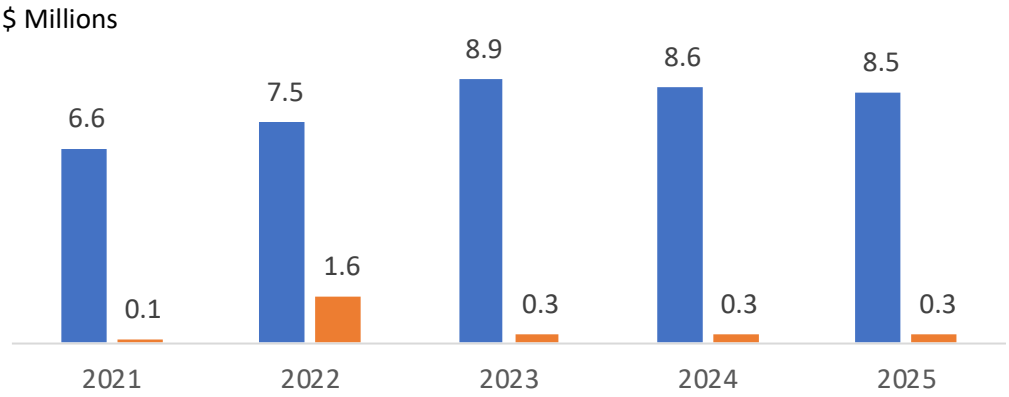


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	7.9	9.7	7.3	6.9	6.9
O&M[2,3]	84.6	87.5	87.4	88.4	89.4

Notes

1. *Details for projects exceeding $5M Capital spend are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *Includes software and hardware license and maintenance contracts ($299.3 million over five years, 67% of Sustainment O&M)*

Investment Category	Return to Health
Scope[1]	Investments in this category include all Capital and O&M spend focused on restoring and maintaining IT asset health. This includes projects such as telephony communications, external application access management, and addressing security infrastructure components that will reach the end of their useful life.
2021-25 Total Capital	$40.0M

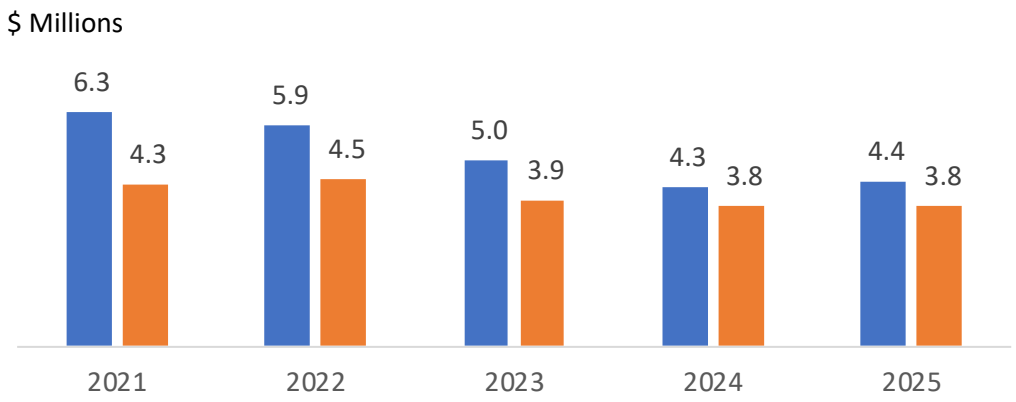


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	6.6	7.5	8.9	8.6	8.5
O&M[2]	0.1	1.6	0.3	0.3	0.3

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**IT Enhancements**
Projects[1]	▪ Wide Area Network Multi-Protocol Line Switching (WAN MPLS) redesign ▪ GRC Tool Expansion for Regulatory Assets ▪ Enterprise Data Analytics (EDA)
2021-25 Total Capital	$26.0M



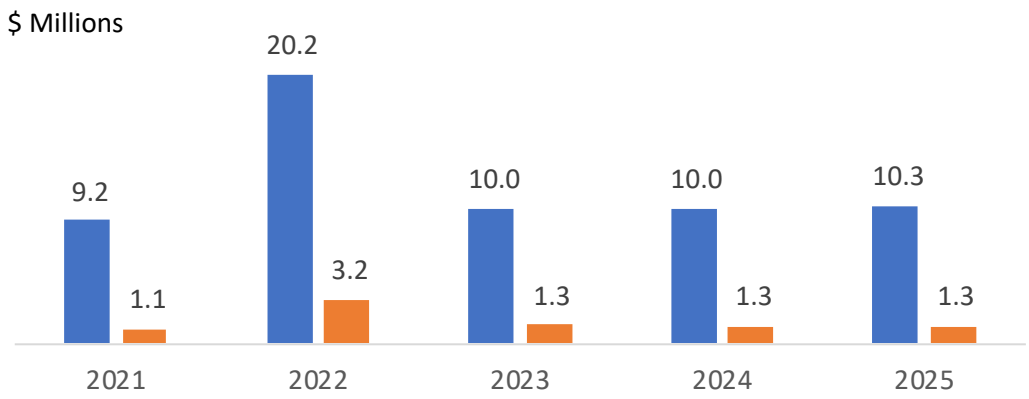
	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	6.3	5.9	5.0	4.3	4.4
O&M[2]	4.3	4.5	3.9	3.8	3.8

Notes

1. *Listed projects are a subset that exceed $2M in Capital spend. Details for these projects are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *Enterprise data analytics O&M spend of $15.8M and capital investment of $7.5M from 2021-2025 is included above*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Strategic**
Projects[1]	▪ IT Service Management Tool (implementing new modules to enable software asset management, cloud insights and management, and IT business management for additional functional areas)
2021-25 Total Capital	$59.7M



	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	9.2	20.2[3]	10.0	10.0	10.3
O&M[2]	1.1	3.2	1.3	1.3	1.3

Notes

1. *Listed projects are a subset that exceed $5M in Capital spend. Details for these projects are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *The increase in 2022 Capital spend is driven primarily by three projects:*
   a. *Private Cloud Transformation ($4M)*
   b. *Cybersecurity for OT ($2M)*
   c. *FWWW Security ($1.9M)*

6.A.v. Benefits to Customers

The investments in Shared IT assets as proposed in this plan provide benefits to both DTE customers and the company's ability to provide exceptional service to customers. This section highlights four categories of benefits to customers: (1) safety, (2) IT productivity, (3) operations reliability, and (4) system resiliency.

1. **Safety** – The shared IT assets are the digital backbone to ensure that customers and employees are safe, especially in outage situations, wire down events, gas leaks, and the like. A reliable network is necessary to ensure communications with police, fire, EMS, and other first responders and to ensure that energy distribution data is gathered in real time so that DTE has situational awareness and control of DTE's plant, substation, and field assets, thereby protecting customers and communities.

   Cyberattacks may significantly disrupt electric and gas service, so DTE's cybersecurity tools are applied broadly across the company to ensure all data and systems are protected from malicious attacks. This protects the data, IT systems, and utility assets that customers and communities rely on.

   Providing multiple communication paths to employees in the field using cellular, Wi-Fi, and radio ensures that employees may be contacted at any time and can respond to customer or energy emergencies as quickly as possible. Employees are equipped with endpoint devices such as mobile phones, tablets and ruggedized computers that enable them to quickly respond to events, having the necessary data, maps, procedures and tools in their possession.

2. **IT Productivity** – The Company over the next five years plans to introduce and expand capital IT assets, each of which adds to the growing needs of maintaining and supporting DTE's IT infrastructure. Yet DTE plans to maintain relatively flat year over year operational expense to operate this expanding fleet of capital IT assets. This is depicted in the opening portion of Section 7 – Aggregate Five-Year IT Plan, below.

The demand for additional operational expense will be offset by productivity gains and enhancements. By expanding the usage of the IT Services Platform and digitizing IT processes for technology planning, technology delivery, and service management, DTE will realize improved employee productivity by eliminating manual handoffs and automating repetitive tasks that have been handled inconsistently via email.

Managing infrastructure using automation via scripting and orchestration tools will provide additional time savings, where the automation can complete the required steps much faster than an employee could perform. IT productivity will also be improved by retiring redundant technology components and eliminating the need to maintain multiple similar solutions, such as consolidating on a single corporate identity management platform.

3. **Operations Reliability** – DTE is deploying an increasingly intelligent, digital grid – controlled by digital technologies rather than analog circuitry and electro-mechanical controls; this requires the integration of operational and information technologies (OT/IT) and security such as increased network segmentation and pervasive monitoring of all infrastructure components.

   DTE plans to continue upgrading existing shared IT assets and deploy new ones to improve reliability and security, and to maintain uninterrupted operations. These include cloud services and technologies that provide higher levels of redundancy at a cost-effective price as well as expansion of DTE data networks to ensure timely gathering and analysis of data form digital devices on the grid.

   Investments in automated provisioning of compute and disk resources reduce any operations disruption as a result of application failure, as needed recovery infrastructure can be deployed quickly. While investments in automated technologies are required, it is imperative for personnel to be able to communicate reliably at all times, which drives the investment and modernization of the telephony infrastructure.

Investments in endpoint device management and security ensure that service orders, gas leaks, and electric emergency orders can be sent to field personnel as quickly, reliably, and securely as possible, thus providing more timely service to customers.

4. **System Resiliency** – On average, customer-related IT asset outages affect over 12,000 customers per hour and over 3,000 payment transactions per hour. To minimize these types of impacts, improved system resiliency depends on communication networks, data, and timely analysis that places additional demands on IT. Planned improvements for efficiency and resiliency by implementing modern compute architectures and pervasive automation.

   Benefits include reduced interruption, less downtime, and increased ability to process the larger amounts of data being captured. As operational technology systems and networks are increasingly connected to IT networks over time, this is important so data can be transmitted and analyzed faster and acted upon in a timely manner to ensure prolonged asset life and avoid energy system disruption. Cybersecurity tools must also be continuously applied to data and systems are protected from malicious attacks that could disrupt the system.

6.B. CORPORATE APPLICATIONS

6.B.i. Strategic Goals

Investments in the Corporate Applications IT portfolio enable DTE's employees to work effectively from anywhere and provide the ability to automate processes at the point of activity. This provides employees with easy-to-use, reliable, and streamlined tools to perform their work in ways that drive costs down and focus on efficiently serving DTE's customers.

Goals for Corporate Applications IT Assets

Key goals for the DTE's Corporate Applications IT assets are:

1. **Ensure Operational Excellence**
    - Ensure a reliable foundation for Core Enterprise (i.e., enterprise resource planning, supplier resource management, employee training and performance, etc.) assets and systems so that the enterprise can continue to operate efficiently; this portfolio focuses on increasing business functionality through the modernization and transformation of Core Enterprise assets and systems
2. **Ensure Employee Safety and Data Security**
    - The safety and security of the DTE's customers, employees, and partners is the company's top priority; this portfolio focuses on supporting the company's employees and strives to ensure their safety while protecting IT asset and data security
3. **Enable DTE Employees to be Highly Engaged and Productive**
    - The Company's employees are fundamental to providing safe, reliable energy products and services to customers; this portfolio provides engaging IT tools and productivity enhancements to DTE's workforce

6.B.ii. Current State, Needs, and Challenges

Like other asset operators, DTE understands and addresses the challenges and needs of maintaining IT assets. For the health of the IT platform and assets within the Corporate

Application portfolio, DTE strives to continue maintenance levels and appropriate cost-effective investments to keep technology assets and platforms healthy.

Additionally, DTE focuses on delivering new capabilities to the business units and/or automate key business processes that are currently executed manually to continually drive improvements to core business processes.

Assessment of Goal 1: Ensure Operational Excellence

The current state of assets within the Corporate Applications portfolio is varied. Most applications are healthy and functioning as intended, however due to the growth of data, changes in operating environments, and changes to business processes, investments are made to ensure these assets continue to function, remain available and healthy, and deliver on business unit expectations.

The Core Enterprise Resource Planning (ERP) platform, while stable, will require an upgrade moving the platform to the cloud before support at DTE locations is discontinued.

Other applications within the portfolio are not stable (i.e., time entry for field employees, invoice payment processing) as they are several years and versions out of support and cause delays in the field along with requiring ITS technical resources to frequently intervene and reboot these assets causing business unit interruptions, manual labor, and additional cost to support.

Additionally, these assets have no mitigation path in the event of a critical failure introducing unacceptable risks to key business unit processes.

Corporate Applications needs to invest in deploying application assets that do not currently exist in the portfolio to deliver new capabilities to the business units and/or automate key business processes that are currently executed manually. Those processes currently require FTEs whose focus will shift to delivering operational excellence in other areas of the business once automation is realized.

With many investments on the roadmap within this portfolio, an overarching challenge is the difficulty in predicting the exact operational changes that will take place throughout the course of each year. Data within systems is growing exponentially which requires proactive investments to cover critical memory upgrades, increases to database availability, and infrastructure upgrades.

Changes to key business unit processes also occur throughout the year which require updates and enhancements to IT assets, along with vendor-provided security patches and other maintenance updates.

The exact volume of work is unknown; however, DTE proactively plans investments to ensure the company's systems deliver key functionality as intended. The ERP Platform drives business operations, unifies, and streamlines information flow to minimize overhead and reduce costs, and requires annual maintenance updates and major upgrades every five-to-seven years.

Assessment of Goal 2: Ensure Employee Safety and Data Security

The current state of the data security and employee safety assets within the Corporate Applications portfolio require investment in application assets to make improvements to how hazard and occupational health is managed for the Company.

The current state does not provide required business process functionality for key performance indicators, streamlined input of near miss-good catch input, safety alerts, or incorporated incident/accident information.

Another key business process which the current asset does not provide is the ability to outline the anatomy of an event and drive better understanding and identification of root causes of safety incidents which drives the business requirement of mitigating strategies required to prevent recurrence.

Finally, the current state does not hold all relevant safety information within a single system posing challenges to provide effectual and mandatory safety reports.

Assessment of Goal 3: Enable DTE Employees to be Highly Engaged and Productive

With many investments on the roadmap within this portfolio, an overarching challenge is the difficulty in predicting the exact operational changes that will take place throughout the course of each year. The need to deliver new functionality to advance business unit goals takes shape in the form of investments to automate manual processes, improve business functionality, improve business unit KPI performance, and improve user experience.

The current state of assets within the Corporate Applications that drive highly engaged employees are centered within the Human Resources (HR) business function. The current

functionality of these assets delivers employee onboarding processes which are complex, timely, and require manual intervention.

An additional challenge for employees is the lack of easily accessible HR information which currently requires the consumption of HR resources to provide answers to frequently requested information and a simple way to report, record and approve time.

The current assets do not provide a consolidated view of compensation management data requiring the use of multiple systems to effect compensation management and the time, effort and cost to support.

Specific needs and challenges for IT assets include:

- DTE's safe worker observation application, in alignment with the company's enterprise goals of best safety performance in the industry, requires enhancements to provide additional functionality to expand and improve the company's safety posture and ensure that employees remain safe
- Development and enhancement of collaboration systems and tools is one of the foundational items to employee engagement, an increased sense of belonging, inclusion, and social connection, fosters a growth mindset around learning and development, and positions DTE's workforce for the "Future of Where We Work"
- Implementation of system upgrades and integrations across HR information system platforms with shared service, compensation, and workforce time and attendance modules, and increased automation of administrative tasks are needed to enhance and streamline the employee experience, accelerate the transformation of front-line leader roles, and allow DTE Energy an opportunity to improve business operations and support for customers
- The Collaboration Platform which enables DTE to connect, engage, and work together to deliver customer benefits; requires an annual update to continue to support an increasingly mobile workforce and deliver improved capabilities such as a focus on knowledge and idea sharing, capture of employee knowledge and business process automation, and to close the gap between Corporate's and Field's use of collaboration and automation tools
- DTE's IT Services Platform ensures that the company's information technology foundation operates smoothly and reliably for employees and customers; the Cloud

platform receives new releases up to two times per year, while on-premise components need annual maintenance and major upgrades every three- to- five years

6.B.iii. Key Metrics

Key Metrics for Goal 1: Ensure Operational Excellence

Key metrics that measure Corporate Applications' focus on Ensuring Operational Excellence include:

Metric Name	2020 Actual	Aspiration
Unplanned Outage – Corporate Apps. Frequency (Count / Time)	0.02	0.02
Unplanned Outage: Corporate Applications (Duration) (mins)	9.73	9.50
Planned Outage: Corporate Applications (Frequency) (qty.)	26	12
Planned Outage: Corporate Applications (Duration) (mins)	7,860	4,500
Core ERP Lifecycle Compliance (%)	12.5	13.75
Reduce Primavera Security Vulnerabilities	57	28
Month-End Close Cycle Time (working days)	4.5	4.25
Compliance with Regulatory Reporting (%)	Baselining	100
Post-Close Journal Entries in Power Plan (qty.)	3	1
Supply Chain Metrics Suite A. Cost per Purchase Order (PO) B. Warehouse Cost per Transaction C. Savings of 6% or more of total managed spend while enabling DTE's capital plan execution	A. 2nd Quartile B. 1st Quartile C. 1st Quartile	A. 1st Quartile B. Top Decile C. Top Decile

Key Metrics for Goal 2: Ensure Employee Safety and Data Security

Key metrics that measure Corporate Applications' focus on Ensuring the Safety and Security of DTE's Employees include:

Metric Name	2020 Actual	Aspiration
Best Operated Safety Performance utilizing the following KPI's: A. OSHA Rate B. DART Rate C. CPMM Rate	 A. 0.40 B. 0.23 C. 5.20	 A. 0.40 B. 0.30 C. 5.00
Employer Health Opportunity Assessment Score	558	700

Key Metrics for Goal 3: Enable DTE Employees to be Highly Engaged and Productive

Key metrics that measure Corporate Applications' focus on Enabling DTE Employees to be Highly Engaged and Productive include:

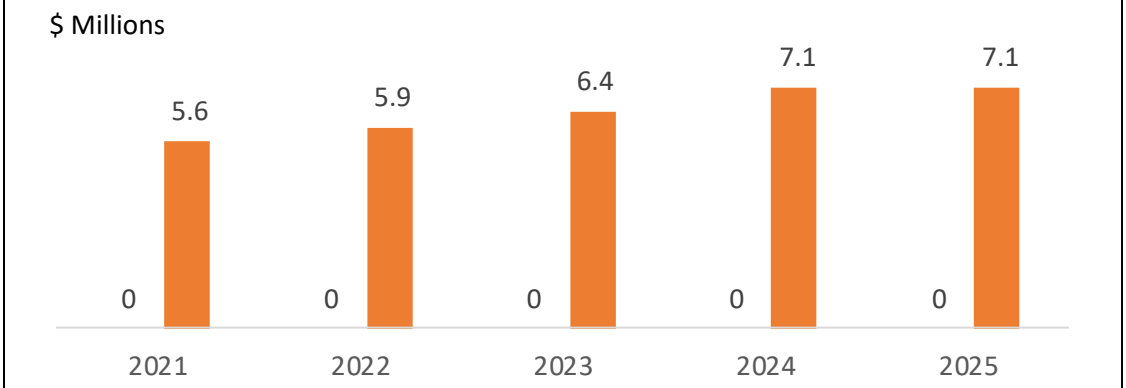
Metric Name	2020 Actual	Aspiration
Gallup Grand Mean Score	4.36	Top Decile

Specific details about the definition, interpretation, and relevance of these metrics are included in Appendix V – Metric Definitions, below.

6.B.iv. 2021-2025 Project Lists and Investment Assumptions

The following tables present the proposed investments for this portfolio consolidated per investment category. Details about each project are included in a separate attachment (see Appendix II – Further Detail of High-Priority IT Projects).

Investment Category	**Sustainment**
Scope[1]	Investments in this category include all Capital and O&M spend that addresses base IT operations, systems sustainment, and cybersecurity risk management and response.
2021-25 Total Capital	$0

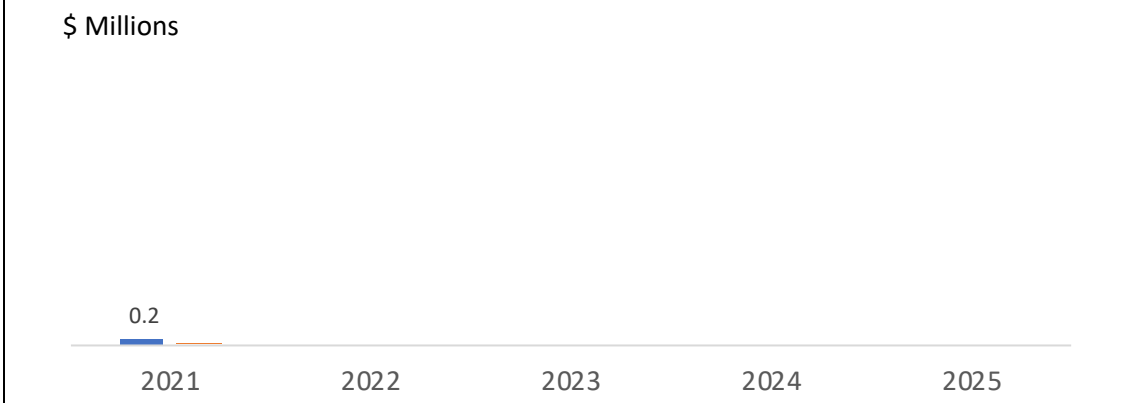


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	-	-	-	-	-
O&M[2]	5.6	5.9	6.4	7.1	7.1

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Return to Health**
Scope[1]	Investments in this category include all Capital and O&M spend focused on restoring and maintaining IT asset health. This includes projects such as the end-of-life financial statement reconciliation system and ERP data analytics tools.
2021-25 Total Capital	$0.2M

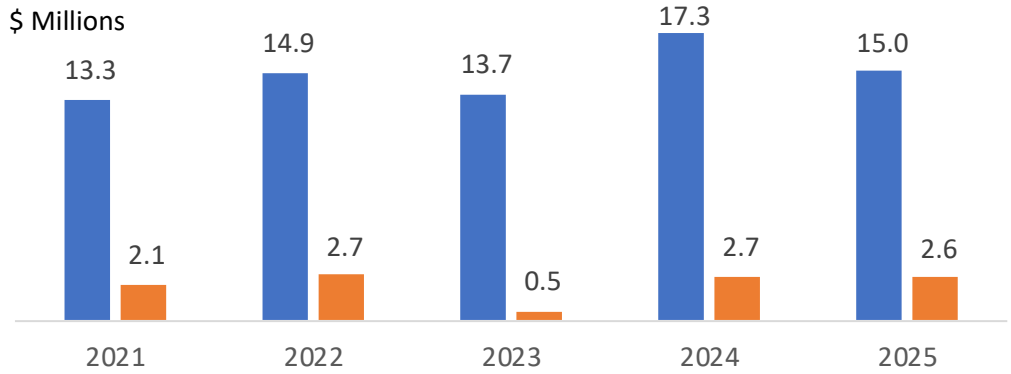


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	0.2	-	-	-	-
O&M[2]	-	-	-	-	-

Notes	
	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.*
	2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**IT Enhancements**
Projects[1]	▪ S4 HANA / Simple Finance ▪ SuccessFactors Program ▪ Time Entry
2021-25 Total Capital	$74.3M

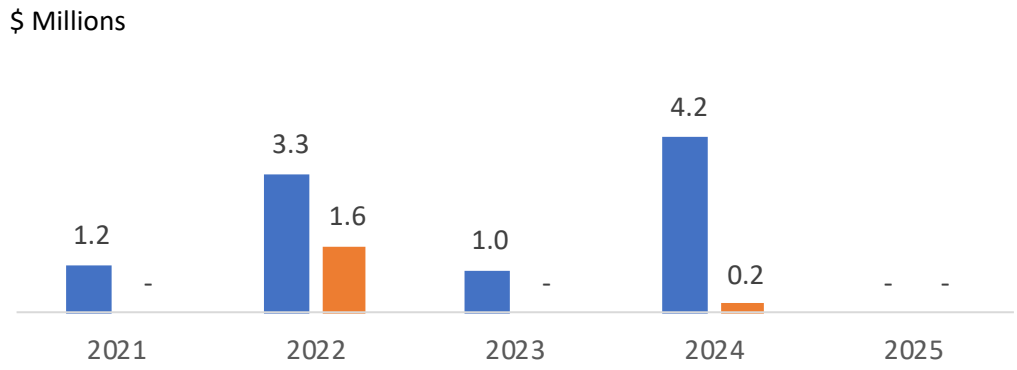


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	13.3	14.9	13.7	17.3	15.0
O&M[2]	2.1	2.7	0.5	2.7	2.6

Notes

1. *Listed projects are a subset that exceed $5M in Capital spend. Details for these projects are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

Investment Category	Strategic
Projects[1]	▪ Purchase to Pay (P2P)
2021-25 Total Capital	$9.7M



	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	1.2	3.3	1.0	4.2	-
O&M[2]	-	1.6	-	0.2	-

Notes	1. *Listed projects are a subset that exceed $5M in Capital spend. Details for these projects are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

6.B.v. Benefits to Customers

The investments in Corporate Applications IT assets as proposed in this plan provide benefits to both DTE customers and the company's ability to provide exceptional service to customers. This section highlights five categories of benefits to customers: (1) safety, (2) affordability, (3) IT productivity, (4) system resiliency, and (5) customer experience.

1. **Safety** – With the use of technology, DTE can monitor and trend overall safety compliance. Early detection of potential safety compliance gaps enables the company to quickly put corrective actions in place to reduce the potential of employee injuries (OSHA, DART rates) and improve communication and delivery of safety data to

employees and suppliers. Reduced employee injuries also help to drive reduced associated worker compensation costs.

2. **Affordability** – The increasing complexity of environmental regulations and requirements requires IT solutions and tools to monitor, track, and report the Company's environmental performance. Effective technology solutions assist DTE employees to achieve these requirements and to reduce the risk of non-compliance events that can be costly in terms of remediating environmental damage, legal actions, fines, and penalties.

   DTE's Human Resources function continues to invest in the ERP and SuccessFactors platform that will drive improvements to HR performance, including improved user-experience, cycle-time, and reporting automation which will result in productivity savings that enable employees to focus on other higher value-add activities.

   The Finance organization at DTE is undergoing investment in technology to address performance degradation and lack of vendor support that renders the assets expensive to maintain. These investments will alleviate technical concerns while delivering improved functionality and greater employee productivity. Business process cycle time will reduce, and employees will be able to focus on other value-add activities.

   In addition, IT solutions to assist with environmental compliance are critical to reduce the risk of non-compliance and the cost of energy affordable for customers. DTE also sees increased supplier cost savings through better analytics of cost, performance, etc. All of this will help to drive affordability for the customer.

3. **IT Productivity** – IT solutions help improve the productivity of the IT organization by automating or enhancing machine learning of environmental compliance tasks that have historically been performed manually and without full enterprise-wide data integration.

   The productivity gains allow employees to focus on areas of highest importance with the overall goal of reducing risks of non-compliance that could negatively impact the cost to

operate. More automation through a cloud-based solution will drive greater productivity and allow DTE to redirect employees to focus on other strategic initiatives.

4. **System Resiliency** – This portfolio implements improvements in critical system infrastructure, processes, and critical system monitors designed to improve the availability of enterprise-wide applications and/or improves system resiliency. This investment in system resiliency includes ensuring that critical and key systems are running on supported versions at every infrastructure layer to prevent asset failure.

   As an example, a critical asset within the portfolio experienced 49 unplanned outages in 2020; investment in the portfolio will increase availability and system resiliency reducing the number of outages by 80%. Investments in system resiliency is important to DTE customers as it ensures the company maintains reliable service to customers.

5. **Customer Experience** – DTE aspires for more than utility industry leadership in customer service, and that can only be supported by a culture that embraces the customer experience in all work the company performs. DTE's investments in Corporate Applications IT assets addresses activities across five key focus areas: training, internal collaboration, people systems, leader alignment, and communication.

   The Company knows that any realized success within service excellence and customer experience is largely based on the safety, health and well-being, and engagement of DTE employees, and that these elements serve as critical tenets to further this important work with employees on behalf of customers.

   These are highly inter-dependent and are approached with similar and focused rigor. DTE strives to positively impact employee mindset, make well-being "contagious" and, through the care shown for employee health and well-being, foster trust and engagement. By providing employees with timely availability of materials and services related to outages, services that are restored faster leads to increased customer satisfaction.

6.C. PLANT AND FIELD

IT must provide the platform and capabilities to manage the complexities of more dynamic electric and gas networks through additional monitoring, control, analytics, and automation.

For electric generation and distribution, this includes advanced grid management applications like ADMS, modern grid communication networks, and distributed energy tools like Distributed Energy Resource Management Systems (DERMS), as well as spatial-based and time-based analytics.

For the gas system, this includes advanced work and resource management capabilities, advanced methane leak detection and prioritization capabilities, advanced asset records management capabilities, and other systems that ensure the DTE's gas network continues to operate in a safe, reliable, and efficient manner.

This section is organized into (a) Electric Distribution IT Assets; (b) Power Supply IT Assets; and (c) Gas Operations IT Assets.

6.C.I. ELECTRIC DISTRIBUTION IT ASSETS

Strategic Goals

Electric Distribution operates across a large service territory, serving over 2.2 million customers with over 600 substations and thousands of miles of distribution lines managed from a central System Operations Center (SOC). Distribution with the help of supporting software, must continue to integrate new streams of data and information in near real-time to better serve customers' request for data about their energy usage and to leverage that data to increase reliability and manage distribution operations.

Distribution's long-term planning efforts include integrating new technologies like EVs, DERs, and storage, which will ultimately result in a modernized, more reliable and resilient, higher capacity, more flexible grid.

Meanwhile, planning engineers leverage all available information to identify grid needs, develop forecasts, analyze trends, inform investment strategies, and ensure that the grid and its operators are prepared to meet evolving customer needs and expectations.

Finally, field crews can leverage mobile technology to more efficiently interface with grid operators and distribution engineers to assess the situation and determine the best path forward as they are more likely to use this information to interface with others. This improves operational efficiencies and keeps customers and employees safe. To ensure the technology approach remains aligned with business objectives, the technology roadmap for Electric Distribution focuses on the key business objectives:

- **Operate the Grid Safely** – Ensure employees consistently display the proper behaviors to safely operate and maintain the grid and minimize operational risks and challenges – target top decile industry performance
- **Service Excellence** – Build a culture of service using the communication, collaboration, leadership, and recognition enablers to ensure all internal and external transactions deliver on DTE's Service Keys – Safe, Caring, Dependable, and Efficient
- **Work Management** – Create and implement a well-defined process for all strategic and emergent work among all asset families to ensure the safe and efficient work execution
- **Distribution System Reliability** – Achieve the Company's "Best Operated" and aspirational reliability targets (SAIDI ex MED, CEMI6)
- **Capital Efficiency and Work Productivity** – Continue to focus on Capital Cost Efficiency for both planned and reactive work
- **Grid of the Future and New Technology** – Develop a flexible grid to serve the ever-evolving needs of customers, through upgrades, system monitoring and automation

To deliver on those business objectives, the technology investments for Electric Distribution focus on six goals – mobility, work management and scheduling, asset management, DER, grid management, and maintaining asset health and removing unhealthy, risky assets.

Goals for Electric Distribution IT Assets

Key goals for the DTE's Electric Distribution IT assets are:

1. **Improve Productivity of Employees through Mobile Technology**
    - The first goal is to provide seamless transitions between online and offline operations using mobile applications and devices and to provide integrated workflows between the control room, back office, field leaders, and field crews
    - *Supports the Drive Operational Excellence across the Enterprise, Deliver 95th Percentile Employee Engagement, and Deepen the Culture of Service corporate goals*
2. **Deliver Best-In-Class Work Management and Scheduling**
    - The second goal is that work management is to be BIC in the "Initiate, Plan, Schedule, Execute, Close" (IPSEC) model of workflow, ensuring the highest level of safe, efficient, and reliable grid management and operations
    - *Supports the Drive Operational Excellence across the Enterprise and Close the NPS Gap to BIC corporate goals*
3. **Drive Top Quartile DO Asset Management**
    - The third goal is to enable rapid decision making and improve service delivery with an improved understanding of asset performance by aggregating and analyzing current and historical operational and geospatial data to assess and visualize asset health
    - *Supports the Drive Operational Excellence across the Enterprise corporate goal*
4. **Expand Distributed Energy Resource Management**
    - The fourth goal is to deliver the ability to safely and securely manage and orchestrate DERs to achieve network and economic optimization across the grid, improve grid reliability, ensure power quality, and enable ancillary services
    - *Supports the Drive Operational Excellence across the Enterprise, Mitigate Enterprise and Operational Risks, and Deepen the Culture of Service corporate goals*
5. **Modernize Grid Management**
    - The fifth goal is that operators, dispatchers, planning engineers, and supervisors act in a coordinated manner accessing real-time, as-built, and as-operated

representation of network information that underpins sensing and control for efficient, safe, and reliable management of grid operations – ADMS is a key component of this goal

- *Supports the Drive Operational Excellence across the Enterprise, Deliver Best-in-Industry Safety Performance, and Mitigate Enterprise and Operational Risks corporate goals*

6. **Maintain Asset Health and Update Less Reliable IT Assets**
    - The sixth goal is to govern the lifecycle of DTE's IT assets to avoid outages that may occur due to IT component failure, security flaws, incompatibility with newer components, and inability to get supplier support
    - *Supports the Mitigate Enterprise and Operational Risks corporate goal*

Current State, Needs, and Challenges

DTE's Electric Distribution platform is the technology engine for providing safe, reliable, and affordable electricity products to the company's customers. To deliver on that, the platform focuses on six key areas – mobility, work management and scheduling, asset management, DERM, grid management, and sustainment.

Assessment of Goal 1: Improve Productivity of Employees through Mobile Technology

Mobile technology allows collecting and distributing data at the point of activity through mobile devices, across all personas, and use cases. Mobile capabilities include both devices and applications that are engineered for mobile access and usage. Applications include dispatch, work execution and forms digitization, location tracking, route navigation, analytics, and secure file sharing.

To deliver on the opportunities and business value that mobility will offer to DTE, it is important to understand the current state of those assets and to clearly highlight the future investments in this area in a planful way. Today, the mobile technology deployed for the Electric Company is sufficient to handle the needs of DTE's existing systems and pre-Covid working model.

DTE is actively investing to improve and upgrade the level of mobile technology available to the field force as new systems come online in coordination with the company's ADMS roll out and its associated capabilities.

Additionally, with the onset of the pandemic Distribution Operations has accelerated plans to deploy more capable technology into the field with an emphasis on system offerings that provide the front-line workers and leaders the flexibility of remaining in the field for extended periods without having system constraints that require them to return to the service centers or to congregate as frequently as was needed in the past. Even after the pandemic, these new skills and processes will continue to drive efficiency.

- The implementation and upgrades to DTE's grid operating systems, such as ADMS, Mapping and AMI investments, demand expanded device capabilities as the new investments take the company beyond the capabilities of the currently deployed technologies. While the existing mobility computing fleet has served DTE well up until now, it is no longer sufficient, without additional investment, to meet the future needs of the company's workforce.
- Mobility is ultimately most useful when DTE uses it to maximize the amount of time that workers can remain mobile and more often be on site where the actual work is to occur. Deploying technology that securely and effectively increases on-site time is a key priority in this area. Deployment of up-to-date systems and equipment improves the efficiency and value of DTE's service delivery, and to realize this value the company will need ongoing investments to operate and replace field equipment as new capabilities are delivered by system and hardware partners.
- As Electric Distribution deploys more of DTE's system tools into the hands of the field force and outside of the company's facilities, DTE remains responsible for all the regulations and compliance mandates that govern the company's usage of both operating data and the customers data which is held in trust. These include Payment Card Industry, grid operating information, and any interconnection with NERC or SOX systems. DTE's mobile strategy must contemplate and comprehend all these requirements even as the company moves employee point of presence out to vehicles and the mobile workforce.
- The move to more mobility-based systems presents an ever-changing threat landscape often requiring additional security measures to be implemented. It also needs to account

for a wider variety of device types and use cases than ever before. Concurrently, mobility exposes DTE's systems to different forms of possible exploitation even while it offers better ways of serving the company's customers and as a result heightened security vigilance is a part of DTE's mobility expansion. DTE will ensure that mobility enhances daily work by providing timely and accurate information, as well as allowing quick and easy capture of critical data in the field (including photos, markups, and videos.)

- Deploy optimized task-based mobile-first applications and general-purpose apps, and mobile access to all enterprise systems and documents.
- Better track the time that field workers spend during work orders and other scenarios

Assessment of Goal 2: Deliver Best-In-Class Work Management and Scheduling

Work management includes scheduled and unscheduled work, work order creation, resource scheduling, and work execution for DTE employees, vendors, and third-party crews. This includes job planning, labor, material, tools, and services for both large, complex work efforts and smaller short-term jobs. Upon completion, work must be audited and verified to reconcile time capture and payment.

Very similar to DTE's mobility systems, Electric Distribution employs a platform of tools and systems centered around Maximo to enable effective work management. The core Maximo system requires an upgrade to the current version, in anticipation of moving portions of the platform to the Cloud before support of the existing system is discontinued in late 2021. Investments are already underway to return this platform to health, improve stability, and prepare it for modernization over the next three years, including working to provide each major business area that uses the platform its own asset. This will decrease operational complexity and align each asset more directly with the business outcomes of that area.

- DTE's currently deployed system is several version upgrades behind the industry standard and will go out of support in October of 2021, which would result in increased operational fragility until replaced
- A project is active to return this to a supported, on-premise version, by Q4 2021
- The current system version limits the ability to utilize the mobile aspects, making it more difficult to take advantage of operational efficiencies in the field

- The existing production implementation has all business units using a single system which imposes operating requirements on all business units when only one unit has that requirement – decision in generation impact distribution and vice versa. As the system moves to the Cloud platform, each business unit will have its own implementation and will only be affected by its specific operational needs, functions, security requirements, and schedules which will improve efficiency and our ability to incorporate change
- A future move to Cloud versions of the product is gated by the current state of the system which is hampering flexibility and potential improvements in value creation

Assessment of Goal 3: Drive Top Quartile DO Asset Management

The overall goal of effectively managing assets is to minimize the total cost of ownership and operations while delivering desired service levels. This includes maintaining access to accurate digital data about the asset, algorithms to process and analyze data, and visual context of asset location and condition. Asset management includes managing the full lifecycle of an asset, engineering, and financial management, as well as linking spatial information to an asset.

Distribution Operations is an asset intensive operation and as such relies heavily on the capabilities of its Asset Management systems. Several of these systems are common to both Work Management and Asset Management with Maximo and ESRI Mapping systems sitting at the core of this capability.

- Both currently deployed systems are several version upgrades behind the industry standard and will go out of support in October of 2021 which would result in increased operational fragility until replaced
- Projects are active to return them to a supported on-premise version by Q4 2021
- Key investments in DTE's ADMS landscape will have a foundational reliance on the business processes, data, and workflows from these systems as they are all part of an integrated whole that must be operationally robust and available to get the maximum value from the combined systems
- Many of the key improvements to service reliability and outage restoration that both DTE customers and regulators are expecting are tied to bringing these systems back to health and sustaining them at their most up-to-date and capable levels

- In the case of DTE's mapping system, the company is currently placing demands on this system that exceed its original design limitations making the upgrade that is underway even more critical
- Investment is required to enable or take full advantage of DTE's centralized asset data repository with a 360-degree view of assets including master, transactional, and performance data. This would include the capability to fully link and deliver supporting documents such as asset manuals and engineering drawings to the field workers digitally
- The current system has differing levels of capability to manage asset processes online, offline, and via mobile activities requiring investment to digitally deliver the highest service levels to the mobile workforce
- Investment is required to improve the timeliness of asset updates from the field and support for map centric asset management
- Investment is needed to improve the system's ability to track labor, materials, and tool charges by all asset types and linear measures in a fully automated fashion that reduces/eliminates manual errors and delays

As part of DTE's ongoing technology plan all these systems are in the process of being upgraded to both return them to health and to expand their capability in conjunction with the ADMS investment. With the implementation of ADMS, Click Field management for Electric Field Operations, the Maximo version upgrade, and the ESRI upgrade over the next three years, systems will be both up-to-date and able to support the anticipated business outcomes.

Assessment of Goal 4: Expand Distributed Energy Resource Management

DERMS provide the ability to model, visualize, connect to, and manage all types of DERs, such as renewables, microgrids, and behind the meter customer-owned generation assets. This includes utility owned as well as corporate and residential level DER, as well as demand response programs. DERMS technology provides a centralized hub for all DER information and the ability to manage interconnections and orchestrate controllable and non-controllable DER, via centralized control or management at the grid edge.

Distributed Energy and the need to incorporate it into utility operations has changed rapidly in recent years driven by major technology advances within the marketplace, significantly accelerated investment in this portion of the energy sector, and growing consumer

and legislative attention to its promise. It is expected that DERs are expected to continue to grow rapidly, and DERMS is needed to support their integration and maintain grid stability. Within Electric Distribution Operations today, the existing DERMS capability is provided by a collection of both emerging and legacy systems. DTE is currently in the process of implementing a significant investment in this area through the ADMS program that will see much of the legacy system landscape upgraded or replaced with modern systems. This is a crucial investment for DTE and will be fully implemented over the next 24 months. This will dramatically improve the overall health and capability of the Company's DERMS technology landscape.

With many of the required technologies undergoing transformation and investment at DTE, much of this capability will be net new and at the beginning of its useful expected lifecycle. Challenges here will largely be those of adopting and integrating these processes and systems.

Electric Distribution will leverage DERMS technology to:

- Expand sensing and controlling capabilities of grid operations while improving power quality
- Provide visibility of DER on the grid and dynamic control of DER assets to respond to load or reduce generation regardless of ownership
- Improve operations team visibility into customer and demand response programs
- Manage the grid impact of renewables including solar
- Analysis of adoption of DER for marketing, customer service, and Integrated Resource Planning (IRP) with coordinated data sets
- Identify what demand response programs customers are signed up for and visualize customer-owned DERs (EVs, batteries) on maps and data sets

Assessment of Goal 5: Modernize Grid Management

Grid management includes the full suite of distribution management applications, including advanced metering infrastructure, distribution automation, outage response, and advanced control toolsets. Mature grid management enables distribution operators to model and manage the distribution network, monitor and control the power system, manage planned and unplanned outages, and analyze and optimize the quality and reliability of the network.

In this area Electric Distribution also relies upon an existing platform of systems to deliver superior operating results and contribute to DTE's commitments surrounding power quality/reliability and Safety.

- The existing communications infrastructure that DTE relies upon to monitor and manage the grid in real time will require additional investment as new or expanded use cases and data requirements are identified which surpass the systems current implementation
- The Advanced Metering System and its associated infrastructure are operationally stable, however with new use cases, they are being relied upon to provide operational data beyond their original design specifications. Initially deployed as a daily usage collection system and given its success, AMI is now relied upon provide additional information at a much higher intra-day frequency. DTE is investing in this system to bring this deployment to a more real-time data network to meet both current and future demands. This will be a significant long-term effort.
- The existing outage management and field workforce management systems are operationally stable and will remain so until replaced as part of the ADMS program over the next 18 months bringing them to full health at that time
- DTE's existing control system is operationally stable and in the process of being migrated to the new ADMS system over the next 18 months
- DTE's existing control room and its supporting infrastructure are operationally stable and will be migrated to the company's new facility and systems in accordance with the ADMS plan
- Once migrated this collection of systems and capabilities will be dramatically improved from current state and will be technically current

Assessment of Goal 6: Maintain Asset Health and Remove Unhealthy, Risky Assets

Electric Distribution utilizes a very large array of technology assets both in IT and operational technology (OT). Over the last several decades the differentiation between these two types of technologies have blurred as they have essentially merged into one overall tool set as the underlying components align. Today, meters, switches, reclosers, and many other devices deployed in the field are as much a computing endpoint as are network routers, network

switches, MDT's, and tablets. There is nowhere in the Company where this is truer than in Electric Distribution.

Keeping technology assets healthy plays an important role in the operational effectiveness of DTE, the situational awareness about how our infrastructure interacts with DTE's customers and workforce, and the protection of customers' data using up-to-date cybersecurity systems. Unhealthy assets reduce DTE's ability to react to opportunities, increase cyber risk, and increase the cost of future systems and operations.

Within Electric Distribution this challenge is further complicated by the fact that there are significant business outcomes that rely upon systems that have not been moved into an industry standardized platform, either based on timing or on the availability of specific key features that are required before that move can be made. These existing systems are also aging beyond DTE's ability to support or update them.

There has been a concerted effort by the current leadership teams to comprehend these needs and move the functionality of those systems into the Company's centralized platforms wherever possible but there is a material backlog of work still to be done there.
Taken collectively, the overall asset health of technology employed by, or on the behalf of, Electric Distribution is lagging, yet dedicated investment decisions made over the last five years have reversed the aging trend with multiple systems either in the process of being replaced or are on the five-year roadmap for replacement.

Taken collectively, the overall asset health of technology employed on the behalf of Electric Distribution is lagging, often due to aging. In response, a series of dedicated investment decisions made over the last five years have reversed the aging trend with multiple systems either in the process of being replaced or are on the five-year roadmap for replacement.

- DTE's endpoint assets (PCs, workstations, laptops) are in alignment with existing asset lifecycle standards, however there is a concerted effort underway to supply the field with additional endpoints which represent additional emergent investments
- DTE's mapping, field force management, and outage management systems are operationally stable yet are end-of-life and in the process of being updated in conjunction with ADMS
- DTE's substation systems are operationally stable and on a managed schedule for replacement

- Ongoing multi-year investments in fiber and other communications system upgrades are underway but not yet fully implemented/functional
- DTE's Supervisory Control and Data Acquisition System (SCADA) is up to date
- DTE's conversion of locally created operational support systems are catalogued with conversion targets, upgrades, or replacements incorporated into the Electric Distribution capital plan. This effort is ongoing

As in other areas within DTE, the technology market changes and shifts in business priorities have resulted in many obsolete systems remaining in service for DO operations past the point where a replacement was needed. In some cases, a vendor has discontinued support for a product and there is no straightforward path for DTE to return the asset to health without a major conversion or replacement investment. Additionally, multi-year requirements for data retention have necessitated keeping aged, obsolete components operating to support potential legal or records retention inquiries.

There is a need to have people and skills to support all these technologies. It can be increasingly difficult, and costly, to find staff or service providers with the capability, knowledge, interest, and tools to support outdated legacy technologies as well as modern technologies.

Key Metrics for Goal 1: Improve Productivity of Employees through Mobile Technology

Key metrics that measure Plant and Field's focus on Improve Productivity of Employees through Mobile Technology include:

Metric Name	2020 Actual	Aspiration
New Service Installation Factor	93	≥ 90

Key Metrics for Goal 2: Deliver Best-In-Class Work Management and Scheduling

Key metrics that measure Plant and Field's focus on Deliver Best-In-Class Work Management and Scheduling include:

Metric Name	2020 Actual	Aspiration
New Service Installation Factor (%)	93	≥ 90

Key Metrics for Goal 3: Drive Top Quartile Asset Management

Key metrics that measure Plant and Field's focus on Drive Top Quartile Asset Management include:

Metric Name	2020 Actual	Aspiration
CEMI6 (%)	1.81	1.25
Meter Reading Factor (%)	99	≥ 85

Key Metrics for Goal 4: Expand DERMs

Key metrics that measure Plant and Field's focus on Expand DERM include:

Metric Name	2020 Actual	Aspiration
System Modernization Index	0.69	*Baselining*

Key Metrics for Goal 5: Modernize Grid Management

Key metrics that measure Plant and Field's focus on Modernize Grid Management include:

Metric Name	2020 Actual	Aspiration
SAIDI (excluding MED)	149	97
CAIDI (excluding MEDs)	140	95

Key Metrics for Goal 6: Maintain Asset Health and Remove Unhealthy, Risky Assets

Key metrics that measure Plant and Field's focus on Maintaining Asset Health and Remove Unhealthy, Risky Assets include:

Metric Name	2020 Actual	Aspiration
Key Critical System Availability (%)	99.88	99.95
Planned Outage Frequency (qty.)	24.00	26.00
Planned Outage Duration (minutes)	1440.00	1200.00
Unplanned Outage Frequency (qty.)	13.00	6.00
Unplanned Outage Duration (minutes)	3612.00	1440

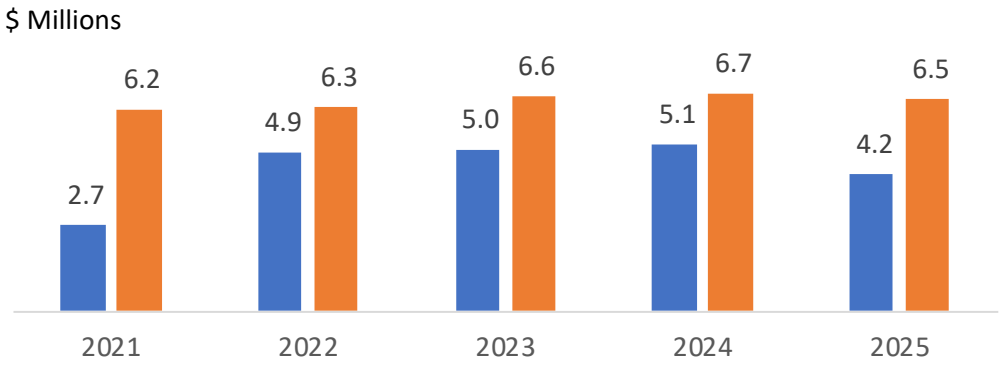
2021-2025 Project Lists and Investment Assumptions

The following tables present the proposed investments for this portfolio consolidated per investment category. The following tables present the total amounts DTE plans to invest consolidated by investment category.

Also identified are a subset of projects expected to have a total capital investment of $5 million or greater. Further detail on these projects is captured within Appendix II – Further Detail of High-Priority IT Projects.

Investments specifically for Gas IT assets are included in the Gas IT section, below.

Investment Category	**Sustainment - Electric**
Scope[1]	Investments in this category include all Capital and O&M spend that addresses base IT operations and systems sustainment and performance.
2021-25 Total Capital	$21.9M

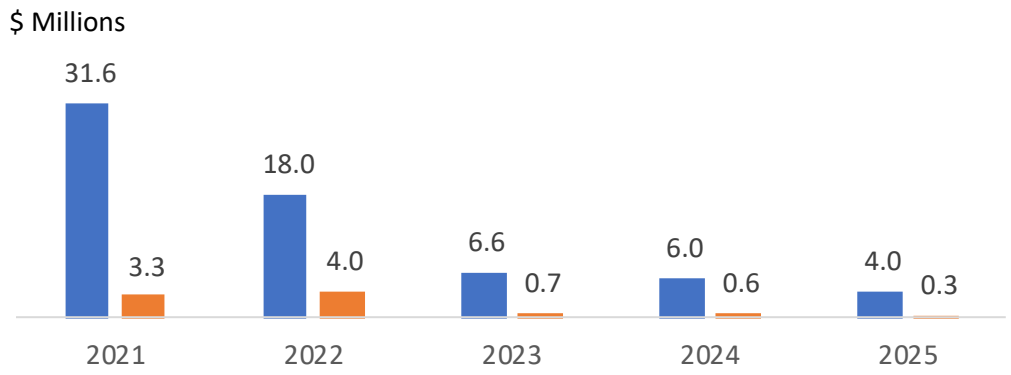


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	2.7	4.9	5.0	5.1	4.2
O&M[2]	6.2	6.3	6.6	6.7	6.5

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Return to Health**
Scope[1]	Investments in this category include all Capital and O&M spend focused on restoring and maintaining IT asset health. This includes assets such as network assets, DERMS IT assets, and overall IT asset lifecycle management for Plant and Field.
2021-25 Total Capital	$66.1M



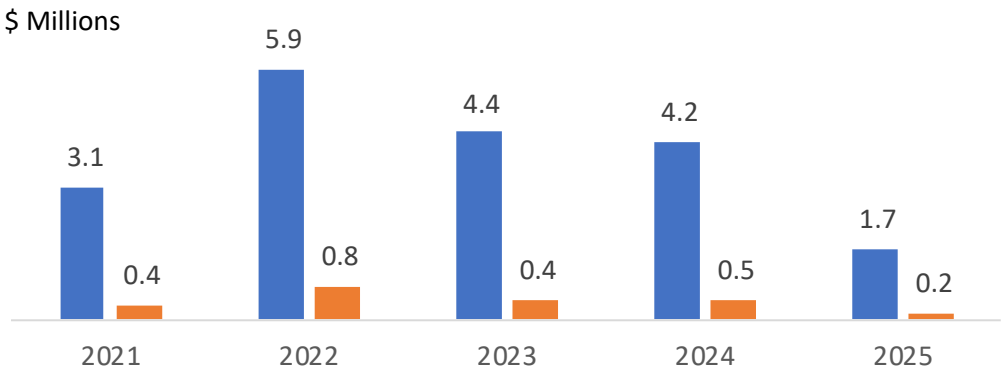
	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	31.6[3]	18.0[3]	6.6	6.0	4.0
O&M[2]	3.3	4.0	0.7	0.6	0.3

Notes

1. *Details for projects exceeding $5M Capital spend are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *The increase in 2021-22 Capital spend is driven primarily by four projects:*
   a. *Meter Data Management Hardware and Software ($17.8M)*
   b. *YR2 I2R Replacement: ETS/CECO to Maximo / Document and Records Management – Nuclear ($9.1M)*
   c. *SOC Radio Replacement ($9M)*
   d. *Click Field Service Management ($6.3M)*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**IT Enhancements**
Projects[1]	▪ Maximo Transformation
2021-25 Total Capital	$19.2M

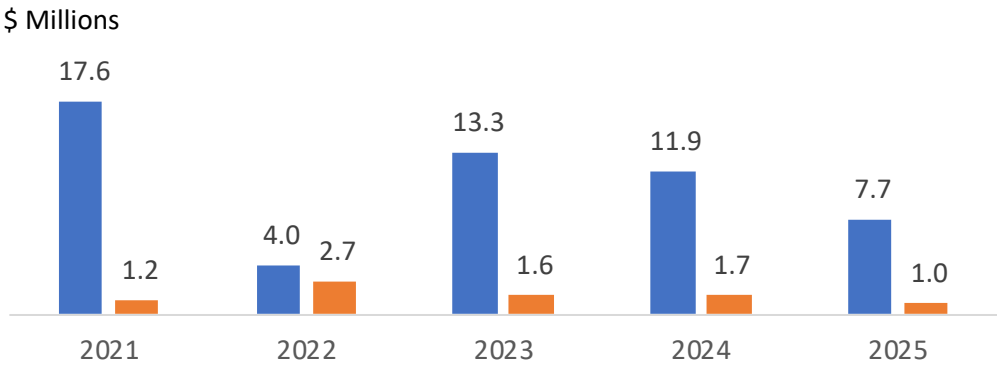


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	3.1	5.9	4.4	4.2	1.7
O&M[2]	0.4	0.8	0.4	0.5	0.2

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Strategic**
Projects[1]	▪ Maximo Cloud Migration ▪ Advanced Rate Management
2021-25 Total Capital	$54.5M



	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	17.6[3]	4.0	13.3[4]	11.9[4]	7.7[4]
O&M[2]	1.2	2.7	1.6	1.7	1.0

Notes

1. *Details for projects exceeding $5M Capital spend are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *The increase in 2021 Capital spend is driven primarily by one project:*
   a. *ADMS – NMS Phase 2 ($14.2M)*
4. *The increase in 2023-25 Capital spend is driven primarily by four projects:*
   a. *Maximo Cloud Migration ($9.4M)*
   b. *Advanced Rate Management ($4.8M)*
   c. *Loading Allocation Analytics ($2.8M)*

Electric Distribution IT Asset Investment Benefits to Customers

1. **Safety** – Investments in Wire Down Detection and SCADA Remote Access will assist in minimizing operational risks and challenges by ensuring the burden of safety to the public is shifted from customers to DTE employees and/or systems and for employees by ensuring employees return home the way they came into work.

2. **Affordability** – Investments in AMI, chat bots, drones, and vendor invoicing will assist in achieving cost targets for both planned and reactive work through the optimization of unit costs and crew efficiency and the reduction of trouble volume. This will drive efficiency by aligning employees on a set of common goals and a work plan which will ultimately enable the ability to execute field work timely to meet customers' expectations as well as deliver accurate bills from improvements in the read rate of AMI.

3. **IT Productivity** – Technology Investments within the DO IT portfolio – specifically investments in mapping technology, outage management, and advanced meter infrastructure – will allow resources to be moved from supporting older systems to working on like customer notifications Closed Loop initiatives or building additional functionality into DTE's New Business and Construction systems.

   This will bring faster and more accurate notifications to customers about outages and enable them to take advantage of new offerings like being able to self-service payments when subscribing to new services or constructing new properties and connecting them to the grid.

4. **Operations Reliability** – Investments in SCADA Everywhere and Grid and Substation Automation will assist in achieving reliability targets for SAIDI by continuing to execute the five-year distribution plan that will significantly improve DTE customers' power quality and reliability experience by reducing frequency and duration of outages.

5. **System Resiliency** – DTE's investments in the ADMS system, specifically the Outage Management System (OMS), will retire several aging portions of the existing OMS that

account for 50% of the existing unplanned outages for that solution. These systems most often experience failures during high volume scenarios such as major weather events.

When these systems are unavailable, DTE is less capable of providing timely restoration estimates, efficiently assign field resources where needed, or maintain the level of situational awareness that is required to coordinate major restoration efforts. Maintaining and improving the resiliency of these systems is important to customers, since customers depend on accurate information to best plan their own actions and decisions as they respond to outages and customer safety issues.

6. **Customer Experience** – Investments in Electronic Payments for New Electric Service, Outage Restoration Tracking, and CRM for Planners will assist in ensuring cooperation exists between departments allowing processes to function optimally so that customers will have access to timely, accurate, and fully transparent information across all areas of electric distribution.

7. **Clean Energy** – Investments in DERMS, EV Analytics, and CR/VVO will assist in delivering tools, services and analytics to analyze distribution circuits for energy saving opportunities related to the reduction of system voltage and validation and simulation of results for long term monitoring of the system and realization of energy savings.

6.C.II. POWER SUPPLY IT ASSETS

Power Supply, comprising DTE's fleet of generation assets, is committed to providing safe, reliable, and affordable power. The Power Supply IT infrastructure is aging, obsolete, and constrained. To deliver on DTE Electric's commitments, IT solutions are needed in three key areas of power supply – regulatory compliance, work management, and document control.

Strategic Goals

DTE's Power Supply generates electricity to serve 2.2 million customers in southeastern Michigan. With approximately 12,000 megawatts of generating capacity, DTE uses coal, nuclear fuel, natural gas, hydroelectric pumped storage, and renewable resources to generate its electrical output.

Power plant staff and supporting business units leverage IT solutions to ensure safe, efficient, reliable, and compliant generation production and market operations in the Midcontinent Independent System Operator (MISO) markets.

Goals for Power Supply IT Assets

DTE's Power Supply will target IT solutions to achieve the following goals to maintain and improve its power supply operations:

1. **Ensure Regulatory Compliance**
    - The first goal is to ensure the Company complies with updated requirements from regulatory agencies, such as NRC, FERC, and NERC
2. **Optimize Work Management Efficiency**
    - The second goal is to minimize operator burden and maximize efficient use of resources in the planning and execution of maintenance activities at generating facilities to support the generation of safe, reliable, and affordable power for DTE Electric customers
3. **Improve Document Management Capabilities**
    - The third goal is to support more efficient document file management, provide better access to Company records, and maintain regulatory compliance by replacing outdated and obsolete file systems with digital records management

Assessment of Goal 1: Ensure Regulatory Compliance

Several work processes need to be better sustained by vendor software. For example, software is available to communicate to interruptible rate customers when a load event occurs that requires their usage to be curtailed directly by DTE.

As the customer and DTE may incur high-market penalties for failure to perform during these events, a reliable, automated process is needed. Additionally, other sustainable solutions by vendor software will be implemented, such as Generating Availability Data System (GADS) reporting of generator availability.

The IT infrastructure at the Fermi 2 Power Plant is aging, obsolete, and constrained. DTE Electric meets Fermi 2's regulatory requirements to ensure nuclear safety; however, additional IT investments are required at Fermi 2 to maintain or improve IT asset availability and to align with nuclear-industry standards for improving operational focus.

The Engineering Management portion of the Integrity Integration Resources (I2R) suite that provides engineering change and configuration management for the Nuclear Power Station, as required by Nuclear Regulatory Commission (NRC) regulation 10CFR50 Appendix B associated with Plant Design, Configuration Control, and Quality Assurance record keeping and retention, needs further investment to ensure ongoing compliance.

Assessment of Goal 2: Optimize Work Management Efficiency

DTE needs to reduce operator burden and support more efficient plant maintenance and operations and network connectivity needs to be expanded at power plants.

Additionally, mobile applications must be deployed to support the ability to update work orders, access design information, capture equipment state, and interact with the safety tagging system.

Server operating system upgrades must be applied to maintain security and vendor support, ensure continued availability, and not incur increased O&M costs. These include database and server memory upgrades to create and maintain a scalable environment and middleware application version upgrades that are required to maintain support and take advantage of new features as they are released.

Assessment of Goal 3: Improve Document Management Capabilities

To ensure regulatory compliance and continued access of DTE's documents, Power Supply needs to replace end-of-life records management systems with an upgrade to the industry standard platform which will provide additional benefits, such as a supported interface to the work management system, the elimination of physical files, the ability to search for documentation, and the ability to associate documents with equipment and location. This will decrease time needed to find key documentation and ensure work is being performed against the latest configurations and safety standards.

Additional business capabilities will be implemented on the upgraded platform including workflow automation to streamline work effort to maintain documentation, increase integration to work management processes such as capture of photos and videos at point of activity, expand digitization of currently physical documents, enhance and automate the Company's record retention processes to ensure compliance and reduce manual work effort, and integrate collaboration functions to enable coordination of document updates and ensure access to latest information.

Furthermore, the Document Records Management System portion of the I2R suite, used to manage Fermi Nuclear Records Management and to maintain compliance with the latest NRC Regulatory Guides, remains compliant but must be updated for continued high-quality operation.

Key Metrics for Goal 1: Ensure Regulatory Compliance

Key metrics that measure regulatory compliance include:

Metric Name	2020 Actual	Aspiration
NRC Action Matrix	Column 1	Column 1

Key Metrics for Goal 2: Optimize Work Management Efficiency

Key metrics that measure work management efficiency include:

Metric Name	2020 Actual	Aspiration
Critical PM Compliance (# of work orders completed) (%)	10,467	100
Fossil Generation Random Outage Factor (%)	5.5	Top Decile
Nuclear Operational Focus	80.2	91.0
Nuclear Work Management Index	93	100

Key Metrics for Goal 3: Improve Document Management Capabilities

Key metrics that are affected by document management capability include:

Metric Name	2020 Actual	Aspiration
OSHA Rate	0.39	0.40
Key and critical application unplanned outage duration (minutes)	1,759.92	Top Decile
Key and critical application unplanned outage frequency (qty.)	18	Top Decile
Network health stability and availability (count)	1,497.96	Top Decile

Key Metrics for Goal 4: Ensure MIGreenPower sales targets are achieved

Key metrics that measure MIGreenPower sales success include:

Metric Name	2020 Actual	Aspiration
Residential enrollments (# of customers)	12,000	100,000
Small business enrollments (# of enrollments)	140	400
Total MWh enrolled in MIGreenPower program (MWh)	600,000	2,500,000

Consistent with providing IT platforms to support nuclear safety at the Fermi 2 Power Plant, IT measures (1) Key and critical application unplanned outage duration, (2) key and critical application unplanned outage frequency and (3) network health stability and availability.

Power Generation IT Asset Investment Benefits to Customers

1. **Safety** – In an effort to safeguard of its employees, DTE is making advancements by integrating its IT systems to ensure work at power plants is being performed consistent with the latest safety standards. IT system investments ensure protective tagging and configuration control are maintained at industry standard to ensure safe and reliable operations of DTE's power generation plants.

2. **Affordability** – IT investments in the MIGreenPower program will allow for new product development, which will allow for higher sales opportunities for the MIGreenPower program overall. These higher sales will increase both the number of customers enrolled in the program as well as the amount of MWh in which they are enrolled for, which leads to incremental revenue opportunities. These revenue opportunities are borne only by the customers who enroll in the MIGreenPower program itself, so the average rate payer is not impacted at all.

3. **IT Productivity** – To minimize labor requirements related to the operation and maintenance of its power plants, DTE is leveraging plant networks and deploying apps to maximize workforce efficiency. Investments in industry-standard IT systems reduces operator burden and improves compliance with regulatory requirements.

4. **Operations Reliability** – Investments in industry-standard IT systems reduces operator burden and allows for more reliable control of the plant during operations and maintenance. By moving applications into the field to the point of activity at power plants, DTE is shortening the time required to update work orders and the safety tagging system, minimizing the length of electric generating unit outages.

   Minimizing outage length results in generating units being more available to economically generate for the benefit of the customer. Additionally, DTE IT investment allows the power plants to execute and monitor reliability-related preventative maintenance.

5. **System Resiliency** – In support of a resilient bulk electric system during an emergency event, the Company is deploying load interruption solutions that ensure compliance with emergency procedures and tariffs.

6. **Clean Energy** – While DTE has consistently met the legislative mandates prescribed by PA 295 and PA 342, the MIGreenPower program provides an additional avenue for customers to reduce their carbon footprint by allowing customers to attribute a percentage of their electrical usage to renewable projects in the State of Michigan.

   Thus far the program has been very successful with 25,000 residential customers, 250 small business customers, and upwards of 20 large business customers enrolled in the program, with the expectation that those figures will grow considerably in the coming years. In 2020 alone, the enrollments in the program had the environmental impact of taking 7,000 vehicles off the road for an entire year, and that figure will increase in the coming years as new IT projects are designed and implemented to help customers enroll in the program.

6.C.III. GAS OPERATIONS IT ASSETS

The vision for DTE Gas is to deliver safe and reliable natural gas service with customer excellence and to maintain that service in an affordable and environmentally responsible way for generations of Michiganders to come. The Company currently deploys a wide range of IT assets that support achieving this vision; replacements or enhancements of some of these assets, and the additions of others, will enable further progress.

Goals for Gas Operations IT Assets

DTE Gas intends to leverage a variety of IT assets to support the company's goals to deliver operational and customer excellence, affordably and in an environmentally responsible manner.

1. **Ensure Safe, Reliable Gas Delivery**
    - Gas Operations will deploy IT assets to find leaks and prioritize their remediation, thereby ensuring that the IT assets supporting safe and reliable gas delivery offer advanced identification, prioritization, and mitigation of risks
    - This includes deploying IT tools that enable asset mapping, records management, and tracking and traceability; knowing the precise location and exact specifications of underground assets (such as the maximum allowable operating pressures), is critical to providing safe and reliable gas service
2. **Achieve Customer Excellence**
    - Gas Operations' IT assets must support the ability to provide customers with a suite of products and services that they value and the ability to reach customers via their preferred channel of communication with a high level of service quality
    - DTE Gas, like the rest of DTE, is committed to providing customers with a caring, excellent service experience; while much of this goal is supported by IT assets that serve all customers, DTE Gas has several unique touchpoints with customers where the IT assets reside within the Gas Operations portfolio
3. **Enable Customer Affordability**
    - Gas IT assets must provide visibility into the volume and type of work across the Gas business, the availability and productivity of human resources, the progress

of the Company's large-scale projects, and to automate manual work where possible to improve efficiency and reduce errors

- Efficient operations will continue to be critical as DTE looks to deliver on its commitment to customer affordability; a wide variety of IT assets support the company's efficient operations, from workforce management to business analytics software

4. **Drive Environmental Responsibility**
    - IT tools must be deployed to help identify and remediate sources of emissions within the Gas system and to allow DTE to offer clean energy solutions, like Natural Gas Balance, on a voluntary basis to customers in support of achieving the company's goal of achieving net zero carbon by 2050

Today, DTE Gas utilizes several IT assets to support the company's strategic goals. Some of these assets may need replacement or enhancement to allow the Company to continue its journey towards its aspiration of becoming the best-operated energy company in North America. In other areas of DTE's business, the company currently operates in a more manual fashion with less or no assistance from IT assets. DTE Gas' IT investment plan will allow the company to resolve some of the key challenges and limitations of existing IT tools and/or manual approaches.

Assessment of Goal 1: Ensure Safe, Reliable Gas Delivery

Today, the Company's gas leak identification process is highly manual. Employees survey pipelines with hand-held leak detection equipment with a lower sensitivity compared to newer technology options. Moreover, the manual nature of the leak survey process leaves it open to human performance gaps.

DTE's current technology is not capable of quantifying methane emissions, which is increasingly important as the company works to minimize the environmental impact of fugitive methane emissions. New tools will allow DTE to identify and prioritize high-emissions locations for responsible remediation action. The Picarro IT asset investment targets these gaps.

DTE's asset mapping, records management, and tracking and traceability capabilities includes multiple systems, many of which are manual or are not integrated, increasing cost

through lost efficiency. Over the last three years, DTE Gas has been implementing tools to enable digital asset mapping at the point of activity in the field; user feedback identified important enhancement opportunities to improve usability and efficiency.

Records are stored in a mix of paper and electronic form, across multiple locations, leading to version control risk, inconsistent and/or incomplete data, and re-work. Some records are stored in desktop-based databases that are no longer supported. Tracking capabilities for some key Gas assets are significantly limited and currently highly manual; meters, for example, have no tracking capabilities in the existing systems to follow this inventory after receipt to final installation.

Finally, the ability to track and trace pipeline components is a new proposed requirement from the Pipeline and Hazardous Materials Safety Administration (PHMSA) and DTE currently has no system in place to enable this important safety effort should the requirement be issued.

Assessment of Goal 2: Achieve Customer Excellence

DTE Gas reaches out to approximately 250,000 customers each year to schedule company-generated work that is critical to safe, reliable service and to meet regulatory requirements and commitments.

At the end of 2019, DTE Gas implemented a new cloud-based outbound calling solution, NICE inContact, to replace the previously end-of-life and unsupported dialer. Following its stabilization in 2020, the Company has identified opportunities to realize further value from this product with enhancements to the quality and sentiment monitoring function and improving communication with customers via email and SMS text messaging.

Assessment of Goal 3: Enable Customer Affordability

Using field teams efficiently and productively is one of the most important levers that DTE Gas must manage to support ongoing affordability for customers. Today, DTE uses an end-of-life and outdated software to dispatch field work, ServiceSuite. This product will be replaced with ClickSoft to support continued efficiencies in work management. This contributes not only to affordability but also to improvements in a wide variety of operational results for safety and customer satisfaction, such as leak response time and appointment adherence.

In other areas, processes that are largely manual today offer a prime opportunity for the Company to enhance customer affordability through automation and the efficient use of technology. A significant opportunity exists in the Gas Renewal Program in which scheduling, cost management, and reporting is housed across many spreadsheets that are ripe for consolidation into a more centralized and automated project management tool.

As DTE Gas works to adopt new practices for safety, compliance, and customer satisfaction, as well as to enhance the company's existing work processes, many of the outdated, end-of-life, manual, and inefficient technology tools must be replaced or improved.

Assessment of Goal 4: Drive Environmental Responsibility

DTE Gas has committed to reducing emissions in the company's product lifecycle through partnerships with suppliers, operational improvements and equipment upgrades on systems, and voluntary offerings to the company's customers.

First, this requires an ability to accurately measure emissions. As described in the section on safe and reliable service above, DTE currently identify leaks (a methane emission source) via a manual leak survey approach; investment in technology to better identify leaks, particularly super-emitters, will help the company more quickly remediate and eliminate these emissions.

Offering customers voluntary emissions reduction programs, including Natural Gas Balance, is part of the broader goal described in the Customer portfolio, below, and requires the right IT solutions and platforms to enable communication, enrollment, and billing.

Key Metrics

DTE Gas measures performance on the goals described above with several key metrics. IT investments are one piece of the puzzle that will enable DTE to continue making progress on the journey to improve performance on these metrics. Key metrics include:

Key Metrics for Gas Operations Goal 1: Ensure Safe, Reliable Gas Delivery

Key metrics to ensure the safe and reliable delivery of gas service include:

Metric Name	2020 Actual	Aspiration
Emergency Leak Response Time (minutes)	21.6	20.6
Maximum Allowable Operating Pressure (MAOP) Record Defects Remediated (%)	0	100
Leak Backlog (qty.)	2,090	564
Gas Compression Reliability (%)	99.5	99.0

Key Metrics for Gas Operations Goal 2: Achieve Customer Excellence

Key metrics that measure MPSC Complaint and Customer Commitments include:

Metric Name	2020 Actual	Aspiration
DTE Gas MPSC Complaints (number of complaints)	142	127
Customer Time Commitment Met (%)	95.1	97.0
Net Promoter Score – Gas Safety and Reliability Index	57	Baselining

Key Metrics for Gas Operations Goal 3: Enable Customer Affordability

Key metrics that measure O&M/customer and Capital efficiency savings include:

Metric Name	2020 Actual	Aspiration
Distribution O&M ($/per customer benchmarking performance)	Top decile	Top decile
Capital efficiency ($ annual savings)	$13.8M	$13.8M

Key Metrics for Gas Operations Goal 4: Drive Environmental Responsibility

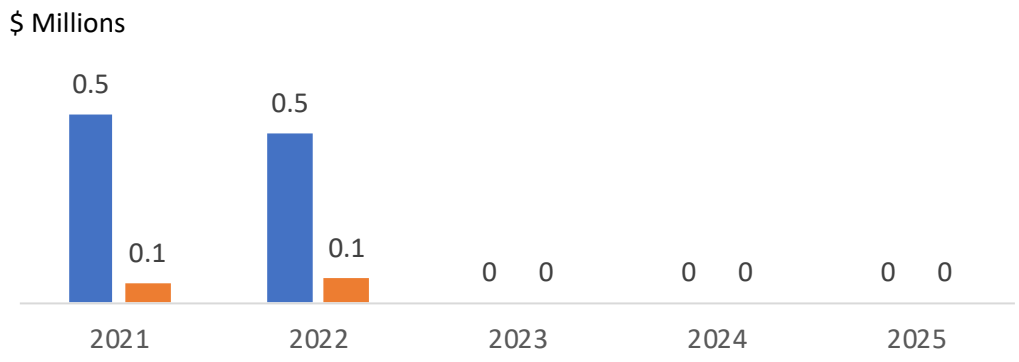
Key metric that measures the companies carbon footprint include:

Metric Name	2020 Actual	Aspiration
CO2e emissions (metric tons)	750,000	600,000

2021-2025 Project Lists and Investment Assumptions

The following tables present the proposed investments for Gas IT assets in particular. Project lists and investment assumptions for IT assets shared by the Gas and Electric business are included in the tables above.

Investment Category	**Regulatory/Compliance - Gas**
Scope[1]	Investments in this category are required to satisfy MPSC standards and other industry regulations and compliance requirements.
2021-25 Total Capital	$1.0M

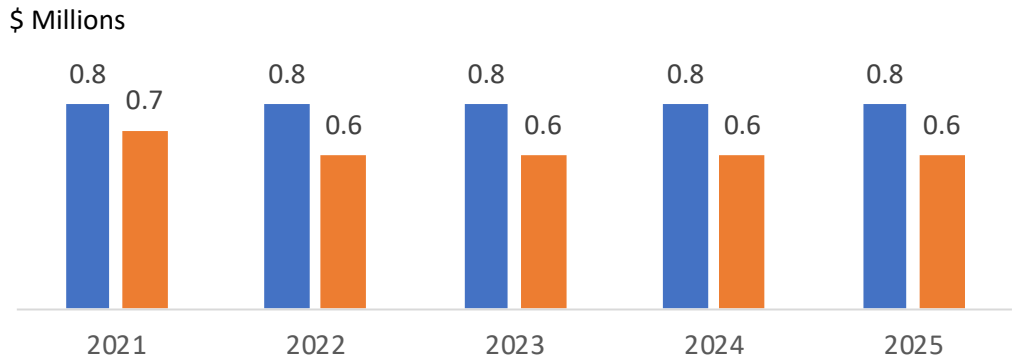


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	0.5	0.5	-	-	-
O&M[2]	0.1	0.1	-	-	-

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Sustainment - Gas**
Scope[1]	Investments in this category include all Capital and O&M spend that addresses base IT operations and systems sustainment and performance.
2021-25 Total Capital	$4.0M



	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	0.8	0.8	0.8	0.8	0.8
O&M[2]	0.7	0.6	0.6	0.6	0.6

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

Gas Operations IT Asset Investment Benefits to Customers

1. **Safety** – Investments in various IT systems help the Company locate and identify underground operating assets and make safe operating condition parameters easily accessible for employees, which ultimately reduces the risk of a safety event occurring on the Gas system that could endanger customers and the broader communities served. Investments in workforce management systems that help DTE respond quickly to incidents that do occur (such as a gas leak) enable employees to serve customers safely in their time of greatest need.

2. **Affordability** – IT investments allow DTE Gas to work more efficiently and to be more productive in the field. These investments also help the Company install, operate, and maintain capital assets, such as distribution pipelines and gas compressors, more efficiently which can prolong the useful life of the Gas assets. In each of these examples, IT investments help to mitigate increases to customer bills.

3. **Operations Reliability** – With utility operations around the state organized to serve a wide variety of needs (customer and company-driven) and a variety of timeframes (from planned, long-term work to urgent emergency response), a highly effective workforce management system is a key enabler. With IT investments in this area, customers will see better appointment availability and time commitments met, faster leak response times, and less need for return visits or other re-work.

4. **Customer Experience** – Many customers' interactions with DTE Gas are primarily through the enterprise-wide customer service platform, such as speaking to a phone representative or viewing their account information online; customer IT investments benefit Gas customers as such. In addition, DTE Gas interacts with customers through its Outbound Call Center organization that schedules company-generated work. Gas IT investment plans include enhancements to the outbound calling tools and adding text message and e-mail functionality, to better communicate with customers. Customers indicate they want more options to reach the Company, and these investments will deliver that.

5. **Clean Energy** – Many DTE Gas customers and communities have indicated that reducing emissions is important for them. They have shared with DTE that they are looking to take action in their daily lives to reduce their own and their communities' emissions from energy use. Investments that support DTE Gas' voluntary offerings to customers will make this easier for them, allowing them to offset their end-user emissions as part of their DTE service. This will in turn help DTE deliver on its goal to reduce natural gas emissions across all aspects of the natural gas value chain (internal to DTE Gas as well as upstream and downstream of daily operations).

6.D. CUSTOMER

6.D.i. Strategic Goals

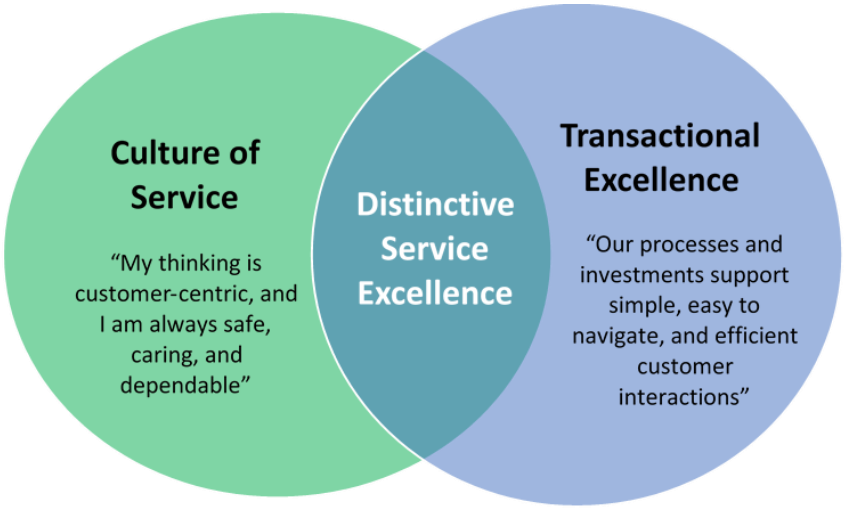
Customer expectations about how they interact with their service and retail providers have been evolving for years. More and more often, customers are comparing their DTE experiences to their experiences with other providers, many of which are providing what customers would consider a distinctive level of service.

Customers expect to be able to simply, reliably, securely, and seamlessly transact with DTE just like they do with their other providers, and to be able to complete their transactions at the time of their choosing, in their preferred service channel (phone, website, mobile, social media) and using their preferred method of communication (email, text, phone, social media).

Customers also expect to have their order, inquiry or request addressed on the first contact with DTE, for DTE to understand their needs and provide clear information and instructions, and for DTE to follow through on its commitments. Additionally, customers are becoming more interested in, and more informed about, energy conservation and clean energy, with a demand for products and programs that support their ability to reduce their energy usage and to support renewable energy programs.

In this context, DTE has established the goal of providing "Distinctive Service Excellence" to customers and will deliver that through the intersection of a "Culture of Service" and "Transactional Excellence."

Employees across DTE are being asked to strengthen their service mindset and to have a strong emotional connection to caring for the customer, and to use this Culture of Service lens to develop solutions, processes, and policies that align with customer expectations and that deliver Transactional Excellence in the form of relevant, desirable, simple, transparent, and easy to navigate customer experiences.



Distinctive Service Excellence at DTE

Goals for Customer IT Assets

DTE has identified a set of strategic goals for Customer IT assets, and the associated portfolio of capital investments, that align with DTE's desire to deliver distinctive levels of service and that support established DTE corporate "Customer" and "Community" goals and objectives.

1. **Deliver BIC Voice and Digital Service Channel Experiences**
    - The first goal for DTE is to provide customers the ability to perform a variety of satisfying transactions across multiple service channels (live agent, DTE Web, IVR, DTE Mobile App, Social Media) in a manner than aligns with the identified BIC customer experience design attributes (Section 2.C. – Customer Experience, above) and allows customers to interact with DTE when they want and in their service channel of choice.

2. **Proactively Monitor and Manage Customer Transactions**
    - The second goal for DTE is to actively monitor and manage customer transactions, providing them with a clear understanding of requirements and expectations, full visibility into the status of their order or request, and proactive notifications and status updates along the way in the customer's preferred

communication method (text, email, phone); DTE should be able to "walk" the customer through the process as necessary to ensure an effective and satisfying customer experience.

3. **Reform the Collection Experience**
    - The third goal is for DTE to provide satisfying payment solutions and experiences for those customers who have difficulty paying their bills, with DTE implementing policies and processes that mitigate the accumulation of excessive levels of customer arrears, that provide access and clear pathways to available energy assistance dollars, and that create targeted, relevant, and personalized solutions to different customer segments.

4. **Develop Customer-Centric Rate Products and Programs**
    - The fourth goal is for DTE to provide customers access to billing programs, rate products, and other solutions that provide them more visibility into, and put them more in control of, their energy usage and that satisfy their desire to support renewable energy projects and reduce their carbon footprint.

5. **Expand Data Analytics Capabilities**
    - The fifth goal is for DTE to use data analytics to deepen the company's understanding of customer profiles, preferences, contact history, and behaviors, and to leverage this data to create customer segmentation models that can be used to improve operational effectiveness and to create more effective, efficient, and personal customer experiences across transactions and service channels.

6.D.ii Current State, Needs, and Challenges

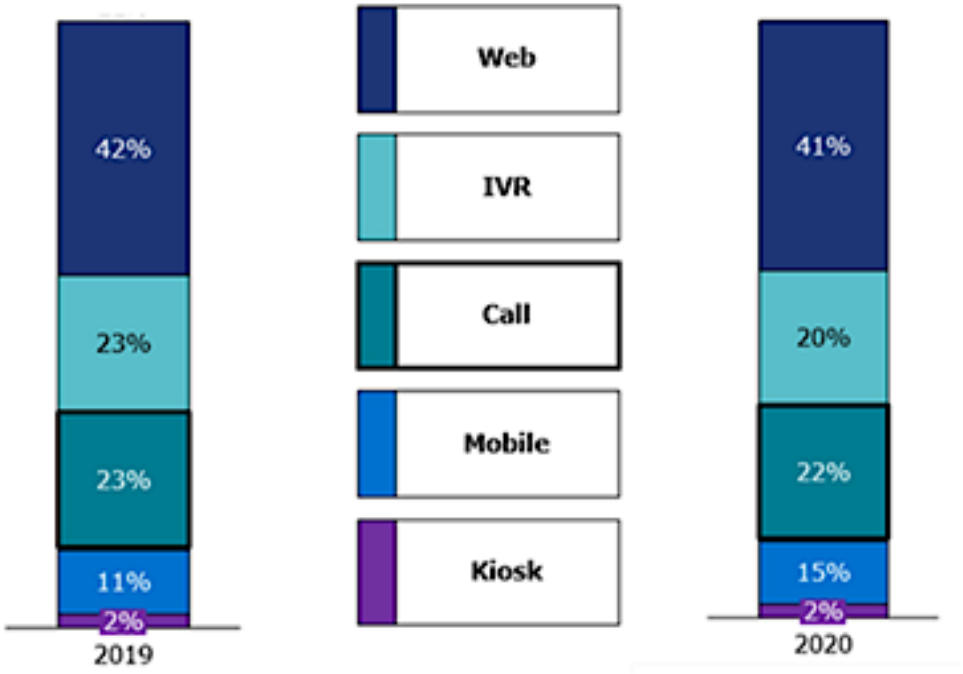
Foundational to the delivery of distinctive levels of customer service, is an understanding of those gaps and challenges that are currently preventing DTE from effectively and efficiently meeting customer needs and satisfying their expectations.

To that end, DTE has identified a number of gaps, challenges, and opportunities for improvement across customer transactions and service channels, and has captured and consolidated them here:

- Simple and convenient self-serve options not available for all interactions
- Customer interactions are not always seamless across service channels
- Inability for customers to view and track status of orders and inquiries
- Limited use of customer segmentation to personalize the experience
- Limited use of proactive and closed-loop customer communications
- Lack of targeted solutions and relevant information for payment plan customers
- Limited interactive self-service analysis tools for customers

Assessment of Goal 1: Deliver BIC Voice and Digital Service Channel Experiences

While DTE is continuing to invest in its call center assets and the live agent customer experience, the company recognizes that nearly 80% of total DTE customer interactions are through a self-service channel, with the Web and IVR being the primary self-service channels that customers use to interact with the company.



Total DTE Customer Interactions – 2019/2020

In recognition of the expanded customer adoption of self-service channels, investments in Customer IT assets over the next three to five years are heavily focused on the self-service experience, and include the following goals and objectives:

- Enhance existing self-service solutions and transactions
- Expand the number of available self-service transactions
- Leverage technology to create new self-service solutions and experiences
- Provide self-service experiences that are on par with identified BIC providers

DTE will continue to sustain the DTE Mobile App and kiosks and will continue to enhance and expand its social media presence. However, the bulk of the investments in Customer IT assets will focus on the transformation of the Web (including mobile Web) and IVR channels, which is where over 60% of DTE's total customer interactions occur. And while customers report high levels of satisfaction (CSAT) with the Web (81%) and IVR (82%), there are several known gaps and identified opportunities for improvement.

For example, customers can use the Web and IVR to:

- Obtain account information, make payments, and report/track outages (Web + IVR)
- Compare prior period usage, temperatures, and number of billing days (Web only)
- Process start, stop, and transfer service requests – a.k.a. as MIMO (Web only)
- Enroll in BWB, FDD, eBill, and AutoPay programs (Web only)
- Enroll in renewable programs – e.g., MIGP Wind/Solar and CleanVision Gas (Web only)

As evidenced from the above list, while the Web provides customers with the ability to self-serve for a variety of transactions, the IVR is limited to simple billing inquiries (e.g., balance updates and bill amount due), payments, and outage reporting and status updates. And neither the Web or IVR provide self-service solutions for collection customer transactions or a means for customers to effectively analyze their monthly usage, charges, and bill amounts.

Additionally, several gaps and opportunities for improvement have been identified across existing Web and IVR self-service solutions, which are limiting "customer engagement and completion rates" in these channels, which result in increased volumes of calls to the call center and a corresponding increase in the cost of serving these customers. Web and IVR customer engagement rates are defined as the percentage of the time customers are choosing to use the

Web or IVR to perform a transaction, and completion rates are defined as the percentage of the time these customers successfully complete the transaction in Web and IVR.

For example, MIMO Web engagement rates for 2020 were 19%, which implies that only 19% of the time customers attempted to perform their MIMO transaction on the Web. Additionally, only 59% of these customers were able to complete their transaction on the Web and without having to follow up with a live agent. For other key transactions (e.g., Billing, Payment, Outage) self-service engagement rates average over 80% and completion rates are close to 90%, which indicates significant gaps and opportunities for improvement exist to improve the MIMO Web experience and increase engagement and completion rates.

To address all of the identified gaps and opportunities for improvement in the Web and IVR channels, DTE is targeting capital investments in Customer IT assets that will:

- Expand Web and IVR self-service solutions to include collection transactions – e.g., shutoff protection plan enrollment, promise to pay holds, restores
- Remediate system defects and enhance Web MIMO process flows and features to increase MIMO Web adoption and completion rates
- Implement Virtual Agent and Chatbot technologies in the Web and IVR to create new self-service alternatives and customer experiences – e.g., stop and start service, high bill analysis, promise to pay holds
- Leverage Speech Analytics and Natural Language Processing in the IVR to better identify customers and their reason for the call, which will deepen DTE's understanding of the company's customers and allow for intelligent call routing of customers to the appropriate service alternative (i.e., live agent, Virtual Agent, Chatbot)

Assessment of Goal 2: Proactively Monitor and Manage Customer Transactions

Customer experiences are not defined by individual moments of service within a transaction, they are defined by customer "journeys" which consists of all the activities and interactions required to complete a customer's order or request. How effectively DTE manages these activities and interactions impacts how the customer "feels" about this journey, with the sum total of these feelings defining the customer's experience.

Customer journeys can be complicated and frustrating, especially for those transactions with multiple pathways, connections, handoffs, and required field activity. Customer journeys

can be especially frustrating if expectations and requirements are not clearly communicated, if customers and the employees that serve them don't have visibility into the journey, and if there is an absence of proactive communications and regular status updates for customers.

DTE has created a framework for creating customer journeys that address these pitfalls and challenges, and the company is using the term "Closed Loop" to describe this framework and the manner in which customer journeys are designed, managed, and monitored to provide a distinctive level so service and customer experience.

Supporting this framework is a set of established Closed Loop "guiding principles", which are provided here, and that are intended to bring consistency to the manner in which customer journeys are designed and managed, regardless of the type of transaction or in which service channel the customer chooses to perform the transaction:

- Create processes/policies that support "in-the-moment" resolution whenever possible
- Provide clear expectations when follow-up activities are necessary
- Create visibility for customers and employees into "moments-that-matter" in the journey
- Create the ability to "walk" customers out of trouble spots in the journey
- Confirm with customers that the journey is complete and that they are satisfied
- Centrally manage and monitor customer journeys to support all of the above

In 2020, DTE successfully designed, developed, tested, and implemented a Closed Loop MIMO customer journey, which has resulted in significant improvements in the MIMO experience, as evidenced by increased transactional satisfaction survey scores (CSAT) and an increase in the percent of customers who indicate that their MIMO request was handled on the first contact with DTE (FCR).

Closed Loop restoration notification processes have also been implemented in the Outage transaction, with a focus on customer confirmation that their power has been restored, with learnings from this effort being expanded to other areas of the outage process (e.g., planned outages).

DTE is allocating investment dollars in 2021 and 2022 to continue to enhance the MIMO and Outage Closed Loop customer journeys, and to design, build, and implement Closed Loop customer journey for Collection and Billing transactions, and is leveraging lessons learned from those process changes and technology solutions that were implemented for MIMO and Outage.

Assessment of Goal 3: Reform the Collection Experience

Unfortunately, many DTE customers often find themselves in situations where, frequently for reasons beyond their control, they have difficulty covering their expenses and paying for the monthly utility bills.

To assist these most vulnerable customers, DTE must create payment plan solutions that minimize the ongoing accumulation of past due account balances, that provide easy access to the application of energy assistance funding, and that avoids the required disconnection of these customers for non-payment.

To that end, DTE is prioritizing investments in Customer IT assets that will reform the Collection customer experience by:

- Enhancing and modifying those processes and policies that are known contributors to the ongoing accumulation of past due balances and customer arrears
- Providing clear pathways to the receipt and application of energy assistance dollars
- Creating new payment programs that will better serve customers, with increased flexibility and the improved allocation of energy assistance dollars – e.g., COVID Emergency Rental Assistance and (CERA) and Payment Stability Program (PSP)
- Leveraging data analytics and machine learning to segment customers according to their propensity to pay, and using these models to provide targeted payment plan solutions
- Creating Closed Loop Collection customer journeys, with a focus on the noticing process, payment plan enrollments and management, and the restore process

Assessment of Goal 4: Develop Customer-Centric Rate Products and Programs

Customers expect to be offered a variety of products and solutions that will allow them to be more aware of and in control of their energy usage, that will lower their monthly utility costs, and that satisfies their desire to contribute to a cleaner environment. DTE must continue to actively promote its energy efficiency and voluntary renewable programs, and the company must continue to develop new rate products and programs that satisfy these customer expectations.

To that end, IT investments in the Customer portfolio include the ongoing expansion and enhancement of current energy optimization and voluntary renewable programs, as well as the development of new products and programs that will provide customers additional opportunities to save money and that support the development of renewable energy resources.

Examples of some of the recently developed and planned program offerings include:

- Advanced Customer Pricing Pilot (ACPP) – *piloting "shift-and-save" rates*
- Time-of-Use (TOU) rate – *leveraging learnings from the ACPP pilot*
- New PrePay program – *customers pay in advance for their energy usage*
- New MIGP Fixed Price program – *more affordable fixed price renewable option*
- CleanVision Natural Gas Balance program – *carbon offsets and renewable gas program*

Assessment of Goal 5: Expand Data Analytics Capabilities

Customers have come to expect that the service providers with which they interact should already have a great deal of knowledge about who they are, what programs they are enrolled in, what products they have viewed or purchased, their preferred communication and payment methods, and what other programs or products might be of interest or value to them.

To satisfy these expectations, more and more companies are using data analytics to create a deeper understanding of customers, customer profiles and preferences, and customer segments, and are using this advanced knowledge of the customer to design and develop relevant products and solutions, and to create personalized, satisfying, and distinctive customer experiences.

To keep pace with these customer expectations, and to provide more distinctive customer experiences, DTE is investing in advanced data analytics capabilities that will deepen the company's understanding of customers and customer behaviors, more effectively process customer orders and resolve customer inquiries and requests, and segment customers in a way that provides for targeted, relevant, and personalized solutions, processes, and communications.

Unlocking the value of analytics to create these distinctive experiences requires investments in:

- Analytics engines that provide easier and faster access to high quality data
- Enhanced data platforms that more effectively capture and store customer profiles
- Customer segmentation and predictive machine learning models

The near-term focus of the application of enhanced data analytics for DTE will be in the previously identified segmentation of Collection customers, as previously referenced as one of the investment priorities supporting Goal 3: Reforming the Collection Experience.

DTE will be able to use the insights from the segmentation of Collection customers to create a propensity to pay model that can be updated weekly based on the most recently available customer data. This model can then be used to design and apply the most appropriate payment plan solutions, treatments, and communications to the most appropriate customer segments, with the goal of helping customers stay current and avoid painful and costly collection initiatives.

Additional analytics use case opportunities will be identified and developed across all customer transactions, with the goal of informing the design of Customer IT portfolio projects and enabling the achievement of aspirational targets for those metrics identified across the other customer goals.

6.D.iii. Key Metrics

When prioritizing investments in Customer IT assets, projects targeted for inclusion in the Customer IT portfolio are evaluated and assessed through the APC process to determine:

- If they address mandatory regulatory or other compliance requirements
- Their alignment to strategic customer and DTE corporate goals
- Which identified gaps, needs, opportunities, and challenges they address
- The estimated capital cost, O&M cost to achieve, and trailing O&M costs
- The expected impact of each project on desired customer and business outcomes

Key metrics for the Customer portfolio are organized by goal as follows:

Key Metrics for Goal 1: Deliver BIC Voice and Digital Service Channel Experiences

Metric Name	2020 Actual	Aspiration
Self-Service Customer Satisfaction (% CSAT customer survey results)	84	90
Self-Service Engagement (% of transactions attempted in self-serve channel)	53	75
Self-Service Completion (% of attempted self-service transactions completed)	89	95
Cumulative Call Volume Reductions (vs. 2020 baseline)	Baseline	1.2M
Cumulative O&M Savings (vs. 2020 baseline)	Baseline	$7M

Key Metrics for Goal 2: Proactively Monitor and Manage Customer Transactions

Metric Name	2020 Actual	Aspiration
Overall Net Promoter Score (NPS) (%) - Transactional	N/A	55
Overall First Contact Resolution (FCR) (%) - Transactional	83	FCR
Overall Customer Complaints (MPSC Complaints) – Total DTE	1,657	1,335

Key Metrics for Goal 3: Reform the Collection Experience

Metric Name	2020 Actual	Aspiration
Energy Assistance Program Enrollment – LSP Enrollment	16,306	40,000
SER Payments Processed – available funds allocated to customers (%)	100	100*
Customer Past Due Balances – Arrears	$168.1M	$94M

** Available funding is based on fiscal year federal and state LIHEAP allocations*

Key Metrics for Goal 4: Develop Customer-Centric Rate Products and Programs

Metric Name	2020 Actual	Aspiration
Advanced Customer Pricing Pilot (ACPP) enrollments	N/A	10,000
PrePay Customer Enrollments	N/A	100,000
CleanVision Program enrollments (over five years)	N/A	15,000

† *Reference Section 6.C.iii. – Power Supply IT Assets, above, for MIGP program key metrics*

Key Metrics for Goal 5: Expand Data Analytics Capabilities

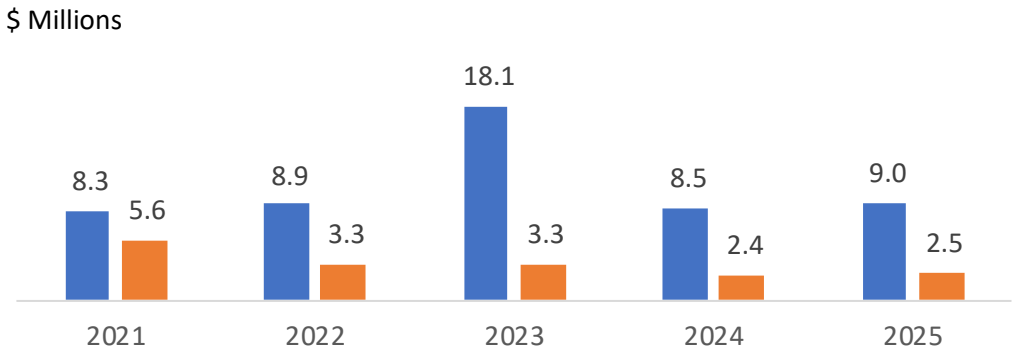
Metric Name	2020 Actual	Aspiration
Number of Analytics Use Cases Implemented	N/A	10-15‡

‡ *Total implemented over five years*

6.D.iv. 2021-2025 Project Lists and Investment Assumptions

The following tables present the proposed investments for this portfolio consolidated per investment category. The following tables present the total amounts DTE plans to invest consolidated by investment category. Also identified are a subset of projects expected to have a total capital investment of $5 million or greater. Further detail on these projects is captured within Appendix II – Further Detail of High-Priority IT Projects.

Investment Category	**Regulatory/Compliance**
Scope[1]	Investments in this category are required to satisfy MPSC standards and other industry regulations and compliance requirements, including green energy programs and customer payment management.
2021-25 Total Capital	$52.8M



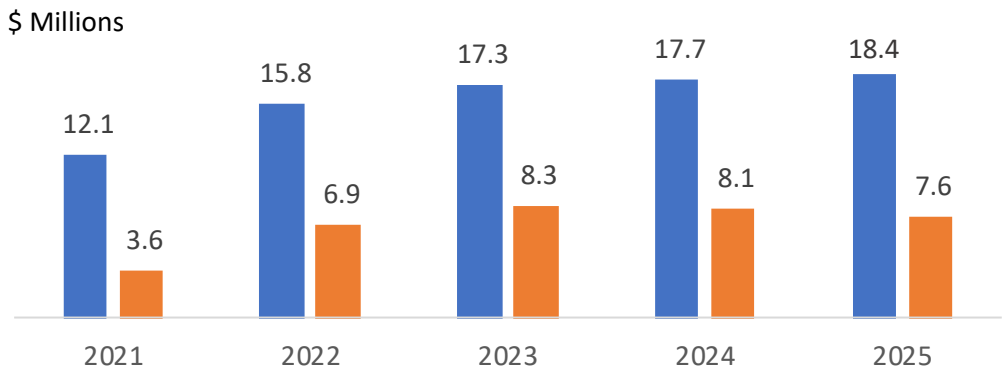
	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	8.3	8.9	18.1[3]	8.5	9.0
O&M[2]	5.6	3.3	3.3	2.4	2.5

Notes

1. *Details for projects exceeding $5M Capital spend are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *The increase in 2023 Capital spend is driven primarily by one project:*
   a. *Rate Calculator / Bill Simulator ($10M)*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Sustainment**
Scope[1]	Investments in this category include all Capital and O&M spend that addresses base IT operations, systems sustainment, and minor enhancements to customer interactive systems and experience.
2021-25 Total Capital	$81.3M

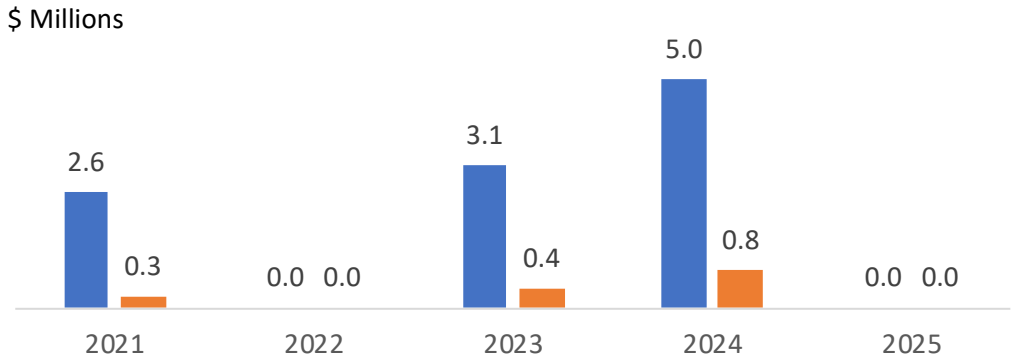


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	12.1	15.8	17.3	17.7	18.4
O&M[2]	3.6	6.9	8.3	8.1	7.6

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Return to Health**
Scope[1]	Investments in this category include all Capital and O&M spend focused on restoring and maintaining IT asset health. This includes assets such as Electronic Data Interchange replatforming, customer bill printing system health, and rebuilding the low-income customer web platform.
2021-25 Total Capital	$10.7M

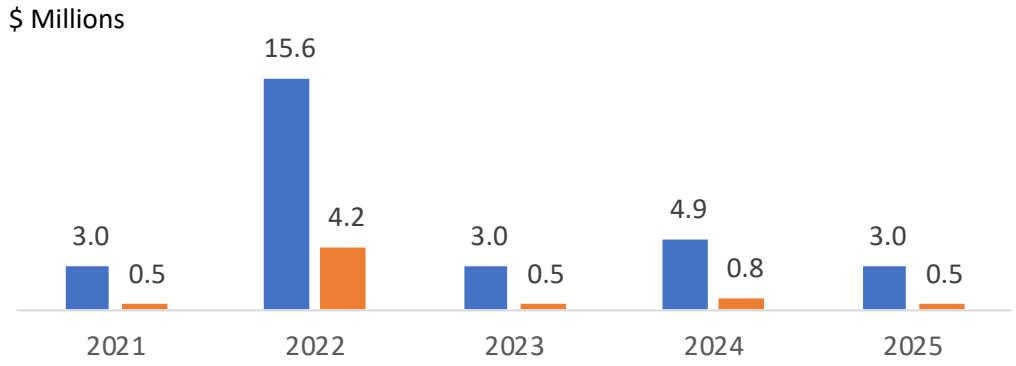


	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	2.6	-	3.1	5.0	-
O&M[2]	0.3	-	0.4	0.8	-

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**IT Enhancements**
Projects[1]	▪ AA use cases - Development (Advanced analytics for customer data) ▪ Customer Experience Suite
2021-25 Total Capital	$29.5M



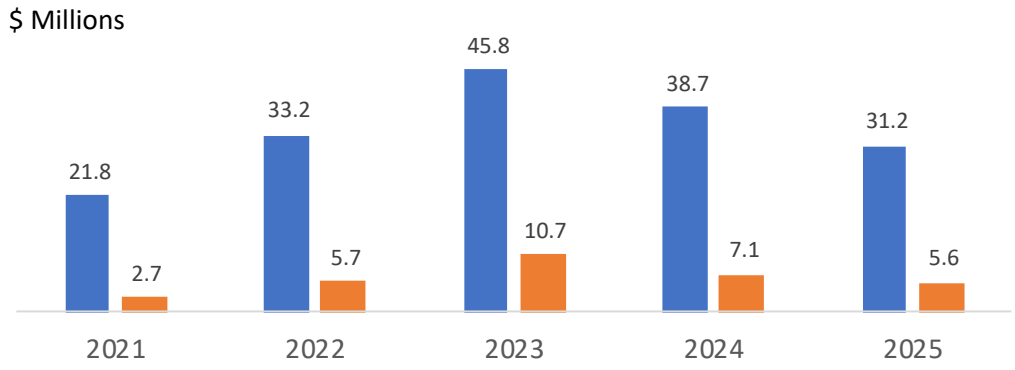
	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	3.0	15.6[3]	3.0	4.9	3.0
O&M[2]	0.5	4.2	0.5	0.8	0.5

Notes

1. *Details for projects exceeding $5M Capital spend are included in Appendix II.*
2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*
3. *The increase in 2022 Capital spend is driven primarily by four projects:*
   a. *Customer Experience Suite ($3.1M)*
   b. *API Integration – Security Gateway & API Layer ($2.3M)*
   c. *Platform Integration - Platform Integration Component / SAP Integration Bus (2.3M)*
   d. *CRM – Customer Profile & Preference ($2.1M)*

DTE Five-Year Information Technology (IT) Plan for 2021-2025

Investment Category	**Strategic**
Projects[1]	▪ Renewables and Demand Response programs ▪ Customer Journey Maintenance ▪ Digital Transactional Experience ▪ Digital Channels Transformation Program ▪ Expanded Customer Journey Transformation ▪ SAP Enhancement Program ▪ System Support ▪ Treasury, Credential on File ▪ Customer Order Closed Loop Expansion ▪ PrePay / Structural Payment Reform ▪ S4 HANA Cloud Migration
2021-25 Total Capital	$170.8M



	Forecast		*Projection*		
	2021	**2022**	**2023**	**2024**	**2025**
Capital	21.8	33.2	45.8	38.7	31.2
O&M[2]	2.7	5.7	10.7	7.1	5.6

Notes	1. *Details for projects exceeding $5M Capital spend are included in Appendix II.* 2. *Annual O&M may vary between 2021 and 2025 due to timing of capital projects and does not include potential cost savings that could be realized from these projects.*

6.D.v. Benefits to Customers

The investments in Customer IT assets as proposed in this plan provide benefits to both DTE customers and the company's ability to provide exceptional service to customers. This section highlights four categories of customer benefits across the overall portfolio: (1) safety, (2) affordability, (3) customer experience, and (4) clean energy.

1. **Safety** – Investments in the Customer IT Portfolio will ensure that customers can reliably and securely interact in their channel of choice, at the time of their choosing, and in a way that provides them the confidence that DTE will protect their personal information and safely complete their request.

   This is especially important for customers who are providing information for the purposes of validating their identity or providing credit or debit card information. Additionally, customers who are reporting an electric outage, gas leak, or whose request requires a field visit need to know that DTE will safely manage these requests.

2. **Affordability** – Investments in the Customer IT Portfolio will (a) expand self-service alternatives for customers, thereby reducing the need for customers to interact through the more expensive live agent channel; (b) reduce the need for customers to call back to check on the status of an order or request; (c) reform the collection process to minimize the accumulation of customer arrears; and (d) leverage customer segmentation and data analytics to improve operational efficiencies and reduce costs.

   In aggregate over the next five years, it is expected that these investments will eliminate a total of 1.2 million calls to the contact center, will reduce Company O&M expense by $7 million, and will reduce customer arrears from $168 million to $94 million.

3. **Customer Experience** – Investments in the Customer IT Portfolio will create simple, convenient, and seamless customer experiences, which is what customers have come to expect from their service providers. DTE will incorporate best-in-class (BIC) customer experience design attributes into customer journeys and will invest in projects that will

enable and create those experiences with a focus on voice and digital self-service channels, "closed loop" customer communications, a reforming of the collection experience, and the use of data analytics to target the right solution, to the right customer, in the right channel.

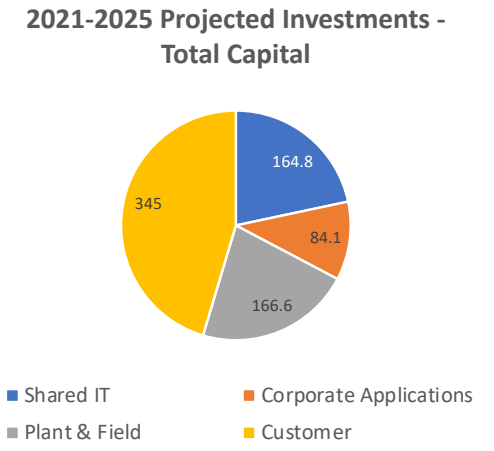
In aggregate over the next five years, it is expected that these investments will increase transactional first contact resolution and transactional net promoter scores.

4. **Clean Energy** – Customers are becoming more interested in, and more informed about, energy conservation and clean energy, with a demand for products and solutions that support their ability to reduce energy usage and to support renewable energy programs.

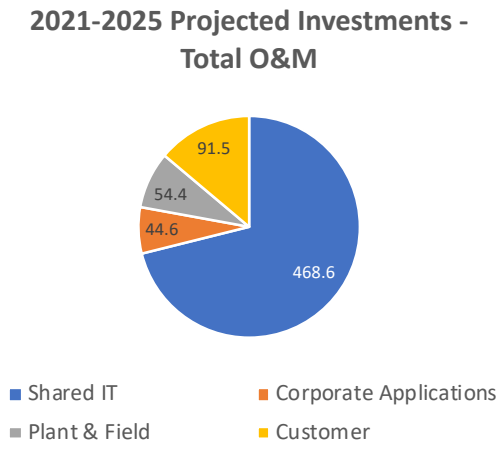
   As such, the Customer IT portfolio includes investments in rate products to help customers reduce their energy usage (e.g., Time-of-Use, PrePay) and programs that support reduced greenhouse gas emissions (e.g., MIGP fixed price products, CleanVision Natural Gas).

SECTION 7 – AGGREGATE FIVE-YEAR IT PLAN

In all, DTE's Five-Year IT Plan calls for $760.4 million in Capital spend and $659.1 million in O&M spend for 2021-2025, as shown in the following charts.



$760.4 million Capital for 2021-2025

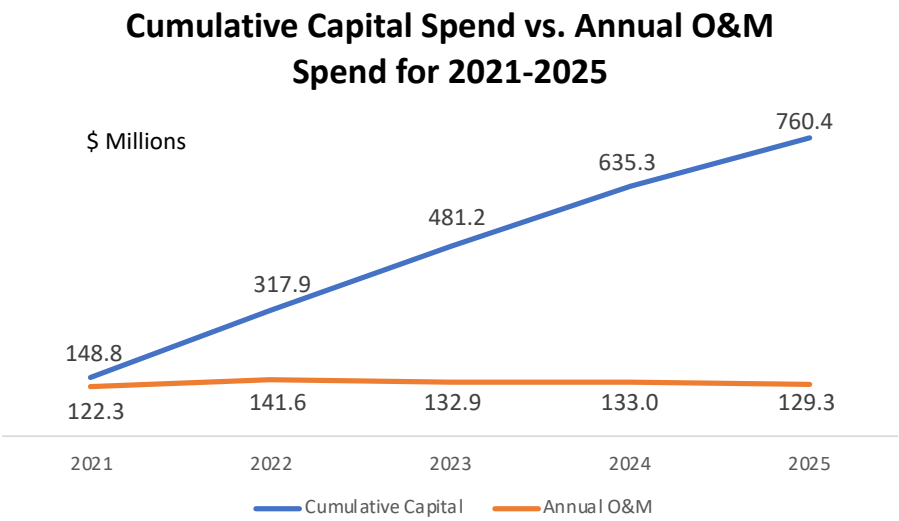


$659.1 million O&M for 2021-2025

As noted in Section 6 – IT Investment Plans by Portfolio, above, the anticipated spend to deploy and enhance Capital IT assets adds to the growing pressure on affordably operating and supporting DTE's IT landscape. However, DTE plans to maintain relatively flat year over year operational expenses by offsetting these pressures with productivity gains, automation, and process enhancements.

Of note, 45 percent of overall O&M spend ($299.3 million) is on software and hardware licenses and maintenance contracts. This spend, along with all Sustainment spend in Shared IT, is closely managed and the incremental pressures from Capital investments are largely offset through ongoing gains in IT productivity.

The following chart shows the year over year O&M compared to the cumulative Capital investments to deploy new and enhanced IT assets for the Company.



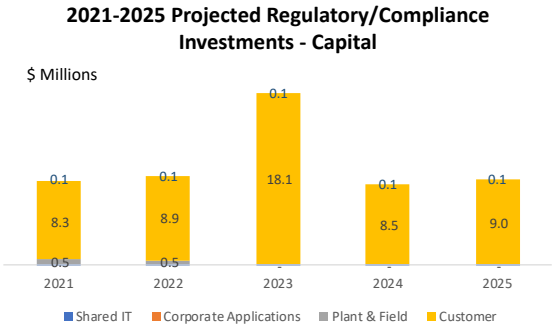
Annual O&M is relatively flat while the portfolio of Capital IT assets grows over time.

The balance of this section provides financial totals for each of the five key IT investment categories, as defined in Section 3 – Investment Categories, above: Regulatory and Compliance, Sustainment, Return-to-Health, IT Enhancements, and Strategic.

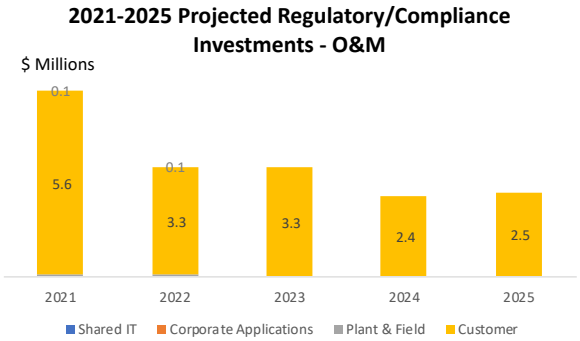
7.A. PORTFOLIO FINANCIALS BY INVESTMENT CATEGORY

The following views provide a comprehensive view of the projected IT investments in each category, covering both Capital and O&M for the next five years. Collectively they represent the entirety of DTE's planned IT investments for 2021-25.

7.A.i. Regulatory and Compliance

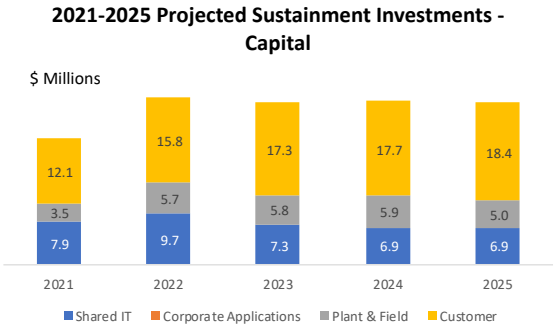


$54.2 million Capital (7.1%) for 2021-2025

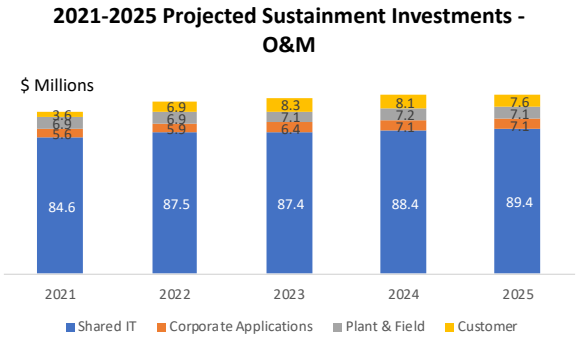


$17.2 million O&M (2.6%) for 2021-2025

7.A.ii. Sustainment

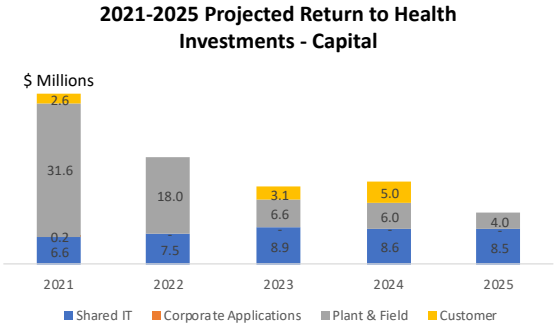


$145.9 million Capital (19.2%) for 2021-2025

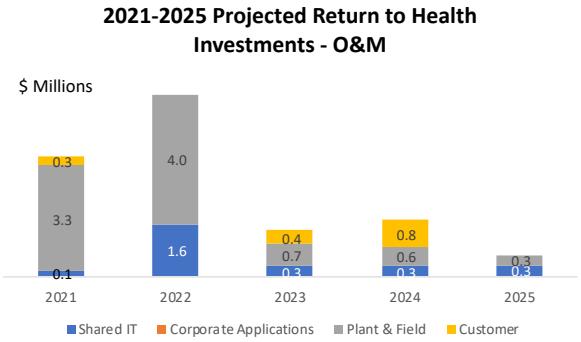


$539.2 million O&M (81.8%) for 2021-2025

7.A.iii. Return-To-Health

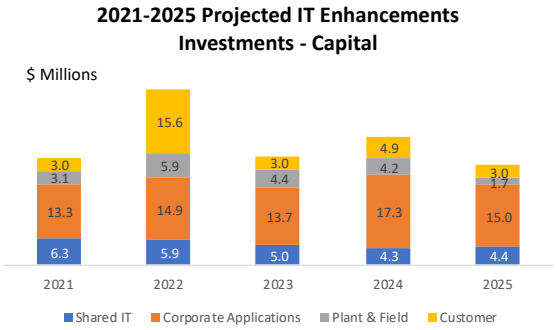


$117.0 million Capital (15.4%) for 2021-2025

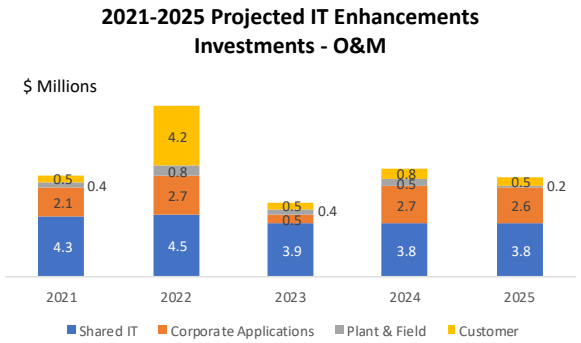


$13.0 million O&M (2.0%) for 2021-2025

7.A.iv. IT Enhancements

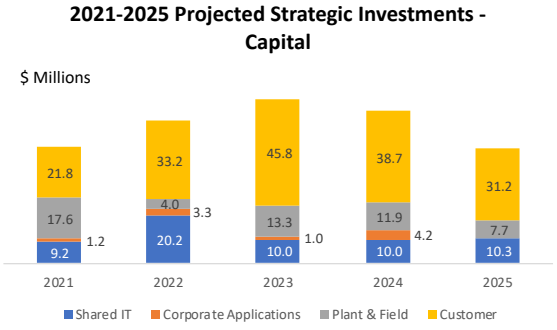


$148.9 million Capital (19.6%) for 2021-2025

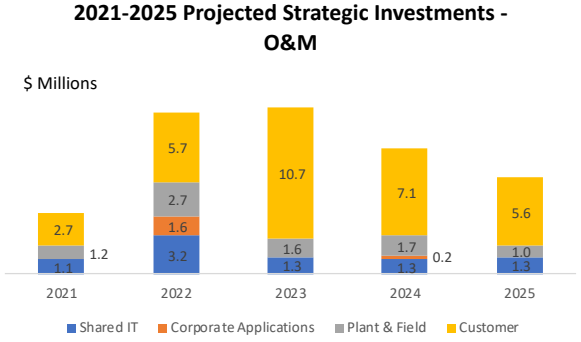


$39.7 million O&M (6.0%) for 2021-2025

7.A.v. Strategic



$294.5 million Capital (38.7%) for 2021-2025



$50.0 million O&M (7.6%) for 2021-2025

7.B. BENEFITS TO CUSTOMERS

DTE's Five-Year IT Plan focuses the company's planned IT investments on initiatives and IT assets that enable benefits to customers. These investments include enhanced customer experience through self-service channels, and empowering customers to make smart decisions on energy usage, billing, and payment. Customer experiences will be driven by end-to-end journeys that leverage advanced analytics and modern communication platforms to better engage them.

The Company will maintain its cybersecurity posture with strong investments in cybersecurity, accelerate its cloud adoption, and strengthen its advanced meter infrastructure (AMI) networks to enable a high-performing grid with improved customer experience.

Additionally, IT investments will boost renewable generation capabilities, environmental safety and pipeline integrity, increased customer adoption of greener Gas products, and increased customer affordability through IT-driven employee productivity and process optimization.

Affordability-boosting productivity will be enabled through expanded digital collaboration, revamped time and attendance applications, a highly enabled digital field workforce, and enhanced employee health and safety driven by IT investments.

Financial savings presented in the Five-Year IT Plan contribute to the overall O&M savings previously highlighted in DTE Gas rate case U-20940.

Customer Benefit Categories

As detailed in Section 6 – IT Investment Plans by Portfolio, above, DTE assesses its discretionary IT investments in terms of seven core benefits. These benefit categories are:

1. **Safety** – The degree to which an IT investment contributes to improving core safety metrics as defined by the business (e.g., OSHA recordables, gas leak severity or frequency, cybersecurity incidents, etc.).

   IT asset investments in 2021-2025 in the Plant and Field (Distribution Operations, Power Supply, and Gas Operations), Customer, Corporate Applications, and Shared IT portfolios are projected to contribute approx. 5-10% improvement in customer and employee safety metrics.

2. **Affordability** – The estimated range of annual hard savings to be achieved by the initiative that will provide information, resources, and support to better inform customers of how to manage their energy consumption and potentially reduce their bills, and/or reduce ongoing expenses and/or prevent costly outages, repairs, and equipment replacements, helping address affordability challenges.

   IT asset investments in 2021-2025 in the Customer, Corporate Applications, and Plant and Field (Distribution Operations, Power Supply, and Gas Operations) portfolios are projected to contribute approximately $50-$100 million in cumulative affordability benefits.

3. **IT Productivity** – The amount of time, measured in estimated FTEs, that is freed up to refocus on other, emergent and/or higher priority work that would otherwise go unaddressed or be performed through incremental labor costs.

   IT asset investments in 2021-2025 in the Shared IT, Corporate Applications, and Plant and Field (Distribution Operations and Power Supply) portfolios are projected to enable approx. 30 FTEs/year (over 60,000 hours/year) to address additional business challenges and IT work.

4. **Operations Reliability** – The extent to which an IT investment brings improvements to SAIDI performance or emergency gas leak response time.

   IT asset investments in 2021-2025 in the Plant and Field (Distribution Operations, Power Supply, and Gas Operations) and Shared IT portfolios are projected to contribute a 100-to-150-minute improvement in SAIDI, and approx. 1-to-2-minute improvement in gas network emergency leak response time.

5. **System Resiliency** – The degree that an IT investment improves availability or outage frequency for at least one critical system within six months of production implementation.

IT asset investments in 2021-2025 in the Plant and Field (Distribution Operations and Power Supply), Shared IT, and Corporate Applications portfolios are projected to contribute up to 20% improvement in system resiliency.

6. **Customer Experience** – The estimated positive increase in Net Promoter Score (NPS) because of the IT investment.

   IT asset investments in 2021-2025 in the Customer, Corporate Applications, and Plant and Field (Distribution Operations and Gas Operations) portfolios are projected to contribute an approx. 5-to-15-point improvement in customer experience (NPS).

7. **Clean Energy** – The extent to which the company's greenhouse gas (GHG) emissions is reduced because of the IT investment.

   IT asset investments in 2021-2025 mainly support the development, deployment, and enhancement of customer programs which target GHG emissions reductions. These customer programs, which are supported by IT investments in the Customer and Plant and Field portfolios, are projected to contribute an approx. 5-10% reduction in GHG emissions.

SECTION 8 – CLOSING STATEMENT

With this plan, DTE reaffirms its commitment to delivering customer value by ensuring that cost-effective IT are focused on achieving business priorities.

DTE's customers are why the company is here

- DTE's customers deserve and expect safe, affordable, reliable power services from DTE, and in turn, DTE's IT must drive the company's digital engine with cost-effective, secure, and reliable solutions and tools
- DTE's IT investments are focused on advancing business goals and priorities that deliver customer value, and the company's technology approach is built on sturdy principles that will continue through future rate cases

DTE's employees make it happen

- DTE's 400+ IT employees are highly engaged, even amidst the pandemic, and continue to yield high Gallup and other engagement scores as they focus on serving customers
- The Company's leadership team is proud of the progress DTE has made in delivering value to stakeholders, and remains hyper focused on customer rate transparency and affordability as employees work to continuously improve

DTE's Five-Year IT Plan guides the way

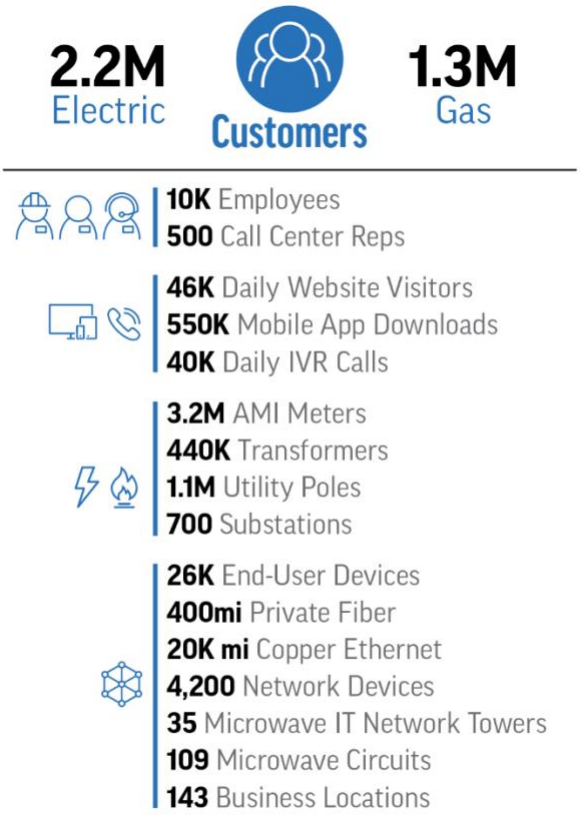
- This plan will guide and support future rate cases, testimony, and customer issue resolutions as the Company secures, operates, and applies IT-based solutions for customer value and business operations in strategic, cost-effective ways
- The plan will be reviewed and refined over time to remain responsive to customers' needs and to the emerging industry, regulatory, and technology trends that benefit customers and the Company

Thank you for reviewing DTE's Five-Year IT Plan. The intent is for this document to be informative and beneficial, and the company welcomes comments and questions. DTE looks forward to a collaborative future together.

APPENDIX I – IT ASSET OVERVIEW AND HEALTH ASSESSMENT

DTE's technology infrastructure consists of hardware, software, and communications networks support all facets of the operations. This also includes business and field communications networks enable voice, data, electric grid communication, and wireless communications. Hardware includes compute and storage, endpoints, printers, and mobile devices.

This technology serves as a critical backbone for every facet of DTE's business and customer operations. DTE operates a variety of IT assets that support the entire company to deliver customer value, continuously manage the health of IT assets to ensure safe, reliable, and affordable service, and minimize and manage outages and time to repair.



More broadly, the suite of IT infrastructure and operations assets includes:

Compute	Network	Endpoints	Data Center	Monitoring
Servers	Cabling	Laptops	Racks	Network and Compute Reporting Applications
Server Operating Systems	Wireless Access Points	Personal Computers	Uninterruptable Power Supplies	Reporting Agents
Databases	Switches	Monitors	Power Distribution Units	
Database Schemas	Routers	Keyboards and Mice	Fire Suppression Devices	
Database Operating Systems	Telephony	Desktop/Laptop Operating Systems		
Load Balancers		Patching Automation		
Application Layer Operating Systems		Citrix Interfaces		
Storage Arrays		Application Packages		
Backup Assets				

The number of DTE's technology assets is growing which influences the time and money needed to manage their health, and technology lifecycles are getting shorter as the pace of technology innovation is accelerating. DTE's asset health lifecycles are defined by vendor partners' end of life roadmaps and support models and dictate and inform the company's IT investments.

The vision for technology platform and asset health

- Redundant and resilient IT systems operate continuously without interruption, with the right links between IT networks to serve business needs and operational stability
- Pervasive, automated monitoring provides immediate visibility into asset health to detect and resolve problems automatically before they impact operations
- Prudent, cost-effective technology platforms and IT assets have the needed capacity and remain scalable and adaptable to changing business demand and usage patterns
- Leverage the full and useful life of the Company's IT investments to ensure that the efficiency and the affordably of the technology solutions is maximized

Five-year target states

- DTE's Utility Operations platforms equip employees with easy-to-use, reliable, and streamlined tools to perform their work in ways that drive down costs and focus on efficiently serving customers
- The productivity tools provided by DTE's enterprise platforms equip employees to collaborate on customer needs, make fact-based decisions, swiftly perform corporate processes, and prudently leverage cost-effective technology
- DTE's IT network platforms ensure that secure data and IT systems are reliably available wherever and whenever it is needed, in accordance with IT needs and corporate policies
- With the endpoint and compute devices that DTE employees use, and the servers and data storage capabilities that power them, the company's teams are reliably able to access data and systems securely wherever they perform their work

APPENDIX II – FURTHER DETAIL OF HIGH-PRIORITY IT PROJECTS

This section presents the list of IT investments, at or over $5 million each, that are planned for 2021-2025 several of which are discussed in this Five-Year IT Plan document.

The project details, provided in MS Excel spreadsheet format, include:

- Portfolio
- Project Name
- Spend Category
- Project Description and Need
- Goal and Rationale
- Spend (Capital and O&M) by Year (2021-2025)
- Total Spend (Capital and O&M)

Portfolio	Project Name	Spend Category	Project Description and Need	Goal and Rationale	2021 O&M	2021 Capital	2022 O&M	2022 Capital	2023 O&M	2023 Capital	2024 O&M	2024 Capital	2025 O&M	2025 Capital	2021-2025 Total O&M ($M)	2021-2025 Total Capex ($M)	2021-2025 Total Spend ($M)
Corporate Applications	S4 Hana / SimpleFinance	IT Enhancements	The assets that support Finance (SAP ERP Central Component, PowerPlan, Prodagio, SAP BPC, SAP BW) provide functionality to execute financial transactions and processes such as accounts payable, month-end close, depreciation and unitization, financial reporting, expense and capital allocations. The assets are healthy, with the exception of Prodagio, and functioning as designed. As the year progresses, changes to business processes and/or the operating environment will require DTE to proactively plan for, and execute necessary updates and upgrades to maintain asset health and deliver increased functionality to the business. Prodagio is unstable and requires multiple re-boots per month to keep it functioning which causes considerable disruption to business unit processes. The asset is also lacking key functionality which the business unit is currently performing manually. Prodagio is scheduled to be upgraded in 2022.	The goal is to improve the estimation of the number of updates, upgrades, and enhancements that will be required due to changes in business processes and operating environments. As the exact volume of work is unknown, the investment is based on the previous years' work level. With Prodagio, the business unit goal is to address the missing key functionality such as uploading multiple invoices into the system and the ability to check signature authority, leading to manual work which is sub-optimizing business unit processes. This project will mitigate changes to business process and perform necessary upgrades, updates, and enhancements which will enable DTE to ensure these assets will continue to function as intended and deliver additional value to business units.							1.000	5.000	1.000	6.100	2.000	11.100	13.100
Corporate Applications	SuccessFactors Program	IT Enhancements	The SuccessFactors program includes multiple project line items: SuccessFactors Comp, SuccessFactors EC Shared Services, and SuccessFactors Health and Safety. SAP ERP Central Component (ECC) is the existing asset DTE is operating and it will be replaced with the SuccessFactors Compensation (Comp) module that is not yet implemented. The business unit requires an integrated system to effectively manage compensation packages and their associated costs in alignment with performance. The current on-premise compensation module in SAP is highly customized, difficult to use, and costly to maintain. In addition to these challenges, the current SAP solution does not offer an easy view of data across business process elements causing errors and delays. SuccessFactors Employee Central (EC) Shared Services is a new implementation and not an existing asset. The business unit requires a solution to aid in providing support to employees with questions regarding various topics in HR, such as training, benefits, time off, etc. The business unit is disparately managing requests for information manually across the organization which is consuming organizational resources needed for organizational improvements. The implementation and investment in the SAP Health & Safety module will replace the current asset, which is SAP ECC. The SAP ECC module is healthy and functioning as intended, however it does not provide the business with real-time reporting from an integrated asset which contains both hazard, occupational health, and employee records. By	The goal of implementing the SuccessFactors Program is to drive operational excellence and safety performance. The SuccessFactors Comp module will provide improved business functionality by enabling a simple and easy view to all data required for compensation management. Additionally, the module is part of DTE's platform strategy which will reduce the amount of time, effort, and cost needed to support compensation management. Investment in the SuccessFactors EC Shared Services module will support the implementation of a web-based solution where employees can access all relevant Human Resources (HR) data and receive answers to questions without having to consume HR organizational resources. This will increase DTE's HR employee's productivity by freeing them up to focus on business process improvements. The investment in the SAP Health & Safety module will provide the business unit with the ability to manage hazards and occupational health records alongside employee records. This implementation will centralize the process, reducing the amount of time to produce mandatory safety reports.	0.000	2.650	1.086	6.600	0.075	0.500					1.161	9.750	10.941
Corporate Applications	Time Entry	IT Enhancements	The SAP CATS application is healthy and functioning as intended. The asset, however, lacks key functionality and features which require manual data entry on behalf of the business unit (Human Resources.) DTE is currently maintaining continuity between a 13-year-old SAP legacy time entry system and an SAP Human Resources SuccessFactors cloud-based system. Because of the difference in technology, data must be continually monitored and synchronized between the two applications. Continuing down this path long term makes maintaining consistency between the two systems problematic. In addition, the business unit is manually managing overtime data and time entry data for the Enterprise, as the current system does not offer automated processes.	The goal of this implementation is to drive operational excellence across the enterprise. The implementation of the SAP Time Management application by Kronos will provide mobile time collection and approval, time evaluation, time off management, premium calculations, holiday calendars, labor allocation, work schedule capabilities and reporting analytics, which does not exist in the SAP CATS system. Additionally, these key business functions are automated and synchronized with the SuccessFactors system which eliminates the need for manual work and monitoring and synchronizing for ITS support staff.			0.250	1.240		3.900					0.250	6.640	6.890
Corporate Applications	Purchase To Pay (P2P)	Strategic	This asset enables the process lifecycle (from procurement to payment) for materials and services acquired by DTE and it will be at its end-of-life in 2021, at which time it will be unsupported by the vendor. In order to continue to support the procurement to pay processes, this asset must be upgraded to the newest SAP provided solution, which is a cloud-based solution. The challenge is that this project will take approximately 24 months to plan, design, and implement.	The goal of this project is aimed at driving operational excellence to meet the Company's financial objectives. This project will invest in upgrading the asset, according to vendor specifications, and will transfer functionality to a cloud-based solution which will ensure the asset is fully supported by the vendor.		1.150	1.163	3.300		1.000	0.200	4.200			1.763	9.650	11.413
Customer	15. Other - System support	Strategic	The System Support project will enable teams that implement back-end solutions (e.g., CRM upgrade). This project will entail work on both product delivery and maintenance and is a mix of cost to achieve and cost to maintain.	The goal of the System support project is to enable the back end support team which directly supports the customer journey teams.					0.022	1.387	0.512	2.774	0.512	2.774	1.047	6.934	7.980
Customer	4A use cases - Development	IT Enhancements	The 4A use cases - Development project will support the creation and implementation of predictive models that leverage segmentation to target relevant and personalized solutions for DTE's customers. The need for this project is critical to ensure that DTE can deliver on the promises to the company's customers and it will also drive operational efficiencies and effectiveness.	The goal of the 4A use cases - Development project is to build enhanced systems that will provide customers additional options during their transaction journey. This project will enable DTE to offer more solutions to customers that work for their unique situations. The insights DTE will be able to extract from the predictive models created during this project will allow the company to design specific products and services for specific customer segments, which will maximize customer satisfaction, increase customer affordability, and minimize costs and process inefficiencies.			0.504	2.987	0.504	2.987	0.504	2.987	0.504	2.987	2.016	11.948	13.964
Customer	ACPP Full Implementation (post-pilot)	Regulatory / Compliance	The ACPP full implementation project will adjust the time of use rates to accommodate the offering to all customers. The capability for enabling time-use rates for all customers exists on the asset, but adjustments need to be applied in order to implement it.	The goal of the ACPP full implementation project is to adjust the time of use rates to accommodate the offering to all customers.			1.907	1.952							1.907	1.952	7.859
Customer	ACPP Rate Calculator / Bill Simulator	Regulatory / Compliance	The ACPP Rate Calculator project will enable tools that can provide customers with the capability to complete rate comparisons and bill simulations. The need for this project arises out of a mandate provided by the Commission, to all utilities, that entails providing a tool to customers to compare rates and simulate bills which will allow them to make better energy choices. The capability currently does not exist on the asset and will need to be added.	The goal of the ACPP Rate Calculator project is add the capability to DTE's billing system that provides customers the ability to do rate comparison and bill simulation which will allow them to make better energy choices. DTE must do this in order to stay compliant with regulations.					0.968	10.095					0.968	10.095	11.064

DTE Five-Year IT Investment Details (embedded attachment)

Portfolio	Project Name	Spend Category	Project Description and Need	Goal and Rationale	2021 O&M	2021 Capital	2022 O&M	2022 Capital	2023 O&M	2023 Capital	2024 O&M	2024 Capital	2025 O&M	2025 Capital	2021-2025 Total O&M ($M)	2021-2025 Total Capex ($M)	2021-2025 Total Spend ($M)
Corporate Applications	S4 Hana / Simple Finance	IT Enhancements	The assets that support Finance (SAP ERP Central Component, PowerPlan, Prodagio, SAP BPC, SAP BW) provide functionality to execute financial transactions and processes such as accounts payable, month-end close, depreciation and unitization, financial reporting, expense and capital allocations. The assets are healthy, with the exception of Prodagio, and functioning as designed. As the year progresses, changes to business processes and/or the operating environment will require DTE to proactively plan for, and execute necessary updates and upgrades to maintain asset health and deliver increased functionality to the business. Prodagio is unstable and requires multiple re-boots per month to keep it functioning which causes considerable disruption to business unit processes. The asset is also lacking key functionality which the business unit is currently performing manually. Prodagio is scheduled to be upgraded in 2022.	The goal is to improve the estimation of the number of updates, upgrades, and enhancements that will be required due to changes in business processes and operating environments. As the exact volume of work is unknown, the investment is based on the previous years' work level. With Prodagio, the business unit goal is to address the missing key functionality such as uploading multiple invoices into the system and the ability to check signature authority, leading to manual work which is sub-optimizing business unit processes. This project will mitigate changes to business process and perform necessary upgrades, updates, and enhancements which will enable DTE to ensure these assets will continue to function as intended and deliver additional value to business units.							1.000	5.000	1.000	6.100	2.000	11.100	13.100
Corporate Applications	SuccessFactors Program	IT Enhancements	The SuccessFactors program includes multiple project line items: SuccessFactors Comp, SuccessFactors EC Shared Services, and SuccessFactors Health and Safety. SAP ERP Central Component (ECC) is the existing asset DTE is operating and it will be replaced with the SuccessFactors Compensation (Comp) module that is not yet implemented. The business unit requires an integrated system to effectively manage compensation packages and their associated costs in alignment with performance. The current on-premise compensation module in SAP is highly customized, difficult to use, and costly to maintain. In addition to these challenges, the current SAP solution does not offer an easy view of data across business process elements causing errors and delays. SuccessFactors Employee Central (EC) Shared Services is a new implementation and not an existing asset. The business unit requires a solution to aid in providing support to employees with questions regarding various topics in HR, such as training, benefits, time off, etc. The business unit is disparately managing requests for information manually across the organization which	The goal of implementing the SuccessFactors Program is to drive operational excellence and safety performance. The SuccessFactors Comp module will provide improved business functionality by enabling a simple and easy view to all data required for compensation management. Additionally, the module is part of DTE's platform strategy which will reduce the amount of time, effort, and cost needed to support compensation management. Investment in the SuccessFactors EC Shared Services module will support the implementation of a web-based solution where employees can access all relevant Human Resources (HR) data and receive answers to questions without having to consume HR organizational resources. This will increase DTE's HR employee's productivity by freeing them up to focus on business process improvements. The investment in the SAP Health and Safety module will provide the business unit with the ability to manage hazards and occupational health records alongside employee records. This	0.030	2.650	1.086	6.600	0.075	0.500					1.191	9.750	10.941
Corporate Applications	Time Entry	IT Enhancements	The SAP CATS application is healthy and functioning as intended. The asset, however, lacks key functionality and features which require manual data entry on behalf of the business unit (Human Resources.) DTE is currently maintaining continuity between a 13-year-old SAP legacy time entry system and an SAP Human Resources SuccessFactors cloud-based system. Because of the differences in technology, data must be continually monitored and synchronized between the two applications. Continuing down this path long term makes maintaining consistency between the two systems problematic. In addition, the business unit is manually managing overtime data and time entry data for the Enterprise, as the current system does not offer automated processes.	The goal of this implementation is to drive operational excellence across the enterprise. The implementation of the SAP Time Management application by Kronos will provide mobile time collection and approval, time evaluation, time off management, premium calculations, holiday calendars, labor allocation, work schedule capabilities and reporting analytics, which does not exist in the SAP CATS system. Additionally, these key business functions are automated and synchronized with the SuccessFactors system which eliminates the need for manual work and monitoring and synchronizing for ITS support staff.			0.250	1.240		3.900		1.500			0.250	6.640	6.890
Corporate Applications	Purchase To Pay (P2P)	Strategic	This asset enables the process lifecycle (from procurement to payment) for materials and services acquired by DTE and it will be at its end-of-life in 2025, at which time it will be unsupported by the vendor. In order to continue to support the procurement to pay processes, this asset must be upgraded to the newest SAP provided solution, which is a cloud-based solution. The challenge is that this project will take approximately 24 months to plan, design, and implement.	The goal of this project is aimed at driving operational excellence to meet the Company's financial objectives. This project will invest in upgrading the asset, according to vendor specifications, and will transfer functionality to a cloud-based solution which will ensure the asset is fully supported by the vendor.		1.150	1.563	3.300		1.000	0.200	4.200			1.763	9.650	11.413
Customer	15. Other - System support	Strategic	The System Support project will enable teams that implement back-end solutions (e.g., CRM upgrade). This project will entail work on both product delivery and maintenance and is a mix of cost to achieve and cost to maintain.	The goal of the System support project is to enable the back end support team which directly supports the customer journey teams.					0.022	1.387	0.512	2.774	0.512	2.774	1.047	6.934	7.980
Customer	AA use cases - Development	IT Enhancements	The AA use cases - Development project will support the creation and implementation of predictive models that leverage segmentation to target relevant and personalized solutions for DTE's customers. The need for this project is critical to ensure that DTE can deliver on the promises to the company's customers and it will also drive operational efficiencies and effectiveness.	The goal of the AA use cases - Development project is to build enhanced systems that will provide customers additional options during their transaction journey. This project will enable DTE to offer more solutions to customers that work for their unique situations. The insights DTE will be able to extract from the predictive models created during this project will allow the company to design specific products and services for specific customer segments, which will maximize customer satisfaction, increase customer affordability, and minimize costs and process inefficiencies.			0.504	2.987	0.504	2.987	0.504	2.987	0.504	2.987	2.016	11.948	13.964

Portfolio	Project Name	Spend Category	Project Description and Need	Goal and Rationale	2021 O&M	2021 Capital	2022 O&M	2022 Capital	2023 O&M	2023 Capital	2024 O&M	2024 Capital	2025 O&M	2025 Capital	2021-2025 Total O&M ($M)	2021-2025 Total Capex ($M)	2021-2025 Total Spend ($M)
Customer	ACPP Full Implementation (post-pilot)	Regulatory / Compliance	The ACPP Full Implementation project will adjust the time of use rates to accommodate the offering to all customers. The capability for enabling time use rates for all customers exists on the asset, but adjustments need to be applied in order to implement it.	The goal of the ACPP Full Implementation project is to adjust the time of use rates to accommodate the offering to all customers.			1.907	5.952							1.907	5.952	7.859
Customer	Rate Calculator / Bill Simulator	Regulatory / Compliance	The Rate Calculator / Bill Simulator project will enable tools that can provide customers with the capability to complete rate comparisons and bill simulations. The need for this project arises out of a mandate provided by the Commission, to all utilities, that entails providing a tool to customers to compare rates and simulate bills which will allow them to make better energy choices. The capability currently does not exist on the asset and will need to be added.	The goal of the Rate Calculator / Bill Simulator project is add the capability to DTE's billing system that provides customers the ability to do rate comparison and bill simulation which will allow them to make better energy choices. DTE must do this in order to stay compliant with regulations.					0.968	10.095					0.968	10.095	11.064
Customer	Customer Experience Suite	IT Enhancements	The Customer Experience Suite platform will support ongoing enhancements to DTE's customer experience on the web by providing a foundation to publish content in a more reliable and scalable way, providing customers with more personal, contextual, and engaging information, while improving the pace of delivery and the management of updates to the front-end customer experience. This platform enables product teams to update and manage customer-facing content in a timely manner. It also allows DTE to deliver relevant content at scale to assist in driving customer engagement. The current web content management system, is not supported by the vendor and requires two to four hours of time from multiple information technology staff members to make minor updates to website. This unsupported platform poses a high risk for DTE's ability to maintain a web channel for the company's customers.	The goal of updating the Customer Experience Suite is to increase DTE's customers' web experiences and interactions while also driving operational excellence across the enterprise. By updating to a modern and supported platform, it allows DTE to provide a more robust user experience while removing the risk of being on an unsupported platform.	0.350	2.530	1.250	3.138							1.600	5.668	7.268
Customer	Customer Order Closed Loop Expansion	Strategic	The Customer Order Closed Loop asset is currently healthy but needs to account for new capabilities for customer interactions. This project will support the enhancements and maintenance of capabilities that provide timely and specific actions to customers on their transaction journey.	The goal of this project is to expand the options that customers have on their transaction journey. Investments will support the execution of the enhancements and maintenance to the systems that enable these capabilities.	0.250	2.560	0.264	0.628	0.290	0.690	0.290	0.759	0.290	0.835	1.385	5.472	6.857
Customer	Digital Channels Transformation Program	Strategic	The Digital Channels Transformation Program includes two project line items: Channels - Web and Channels - Mobile Application. The current web platform is an unsupported version of the IBM WebSphere Portal. While DTE has made measurable investments to improve the digital web and mobile customer channels and begin moving to the cloud, these digital platforms are aging, run on fragmented technologies, and in some cases, are unsupported technology platforms. The core DTE website runs on a platform (IBM WebSphere Portal) that is unsupported and no longer owned by the original supplier (IBM). This presents an operational risk to the channel and could lead to the inability to serve DTE customers through the web channel. The current mobile applications are built on a codebase from 2013/2014, which is becoming increasingly less compliant with recent versions of Android and iOS. These mobile applications have benefitted from functional enhancements, however the foundational codebases for both applications are aging and outdated. Apple and Google continue to regularly enhance and improve mobile phone application platforms, releasing new major versions at least yearly, but the aging DTE mobile	For the web channel, DTE will invest to construct a healthy and supported foundational web platform, built on modern cloud-based technologies. Investment in the mobile application channel will return the current assets back to health by evaluating, selecting, and building a modern mobile application platform.			0.360	2.134	1.296	7.681	0.360	2.134			2.016	11.949	13.965
Customer	Digital Transactional Experience	Strategic	The Digital Transactional Experience project will enable agile delivery and incremental improvements for customer transactions on the web such as billing, usage, payments, outage, program enrollment, collections, and MIMO. The outage application is already built and the team continues to maintain, update, and implement new features to the asset. However, the MIMO application is in the process of a redesign and collections does not have any existing self-service capabilities on the customer channels for use. As customer needs change and grow, projects like this are critical to maximizing customer satisfaction.	The goal of the Digital Transactional Experience project is twofold. It will not only support the agile product teams that are responsible for building the customer experience for key transactions in the customer channels, but it will also improve self-service capabilities on the web to increase customer engagement and completion rates. Currently, collections does not have any existing self-service capabilities on the customer channels for use. This proejct includes critical work to ensure DTE can deliver on the company's promise to customers.	0.620	6.450	0.773	6.325	0.221	1.807	0.662	5.422	0.221	1.807	2.497	21.811	24.308
Customer	EDI Replatforming (Customer)	Return-to-Health	The EDI Replatforming project will entail moving the platform to a supported technology stack to enable a redesign of the EDI bills and payments to customers. The current asset has reached end-of-life and must be replaced. Large customers' bills and payments from EDI make up a large portion of DTE revenue and need to be operationally stable and reliable.	The goal of the EDI Replatforming project is to enable customers to receive EDI bills with no interruptions. Moving to a more stable and reliable platform will increase efficiencies and decrease interruptions to customers.					0.420	3.138	0.540	3.200			0.960	6.338	7.298

Portfolio	Project Name	Spend Category	Project Description and Need	Goal and Rationale	2021 O&M	2021 Capital	2022 O&M	2022 Capital	2023 O&M	2023 Capital	2024 O&M	2024 Capital	2025 O&M	2025 Capital	2021-2025 Total O&M ($M)	2021-2025 Total Capex ($M)	2021-2025 Total Spend ($M)
Customer	Other - Journey maintenance (Product maintenance teams)	Strategic	The Journey Maintenance project will implement and enhance the digital customer experience for customer transactions including billing, usage, payments, outage, program enrollment, collections, and MIMO. This is a new implementation, which will scale the existing product teams. As customer needs change and grow, projects like this are critical to maximizing customer satisfaction.	The goal of the Journey Maintenance project is to support the product maintenance teams in ensuring DTE can deliver on the company's promise to customers. The product maintenance teams support the experience built by the transformation teams. Maintenance teams ensure the customer focused metrics stay on track by monitoring the customer experience, addressing defects, and adding minor enhancements.					0.414	3.389	0.593	4.857	1.063	8.697	2.070	16.943	19.013
Customer	PrePay	Strategic	The PrePay project will enable a new business capability for DTE that will benefit the company's customers. PrePay is an electronic billing option for residential customers that allows them to prepay their bill. Enabling this capability will help customers to control their energy usage and eliminate monthly “high bill” surprises.	The goal of the PrePay project is to enable the PrePay module in the core CR&B platform. This will expose the capability to self-service channels for customers and provide them with additional options during their transaction journey. This project will enable DTE to offer more solutions to customers that work for their unique situations.	0.470	5.100									0.470	5.100	5.570
Customer	Renewables and Demand Response programs (2022-2025)	Strategic	The Renewables and Demand response program will implement adaptations to customer systems to provide customers the ability to enroll in and use renewable programs that DTE offers. The current state of the asset is healthy but must accommodate for changing customer needs and new capabilities.	The goal of the Renewables and Demand response program is to enable renewables capabilities for customers to enroll in and use. System modifications will accommodate these capabilities so customers can enroll in and use the renewables programs available.			0.700	4.393	0.700	4.393	0.700	4.393	0.700	4.393	2.800	17.570	20.370
Customer	S4 HANA Cloud Migration	Strategic	The asset is built on the SAP platform and is healthy in its current state, but future needs must account for upgrades and end-of-life software cycles. The S4 Hana Cloud Migration project will evaluate the customer landscape and complete the migration to a supported SAP software. SAP has published end-of-life software that the CR&B system is built on which causes the need for DTE to plan and migrate to the new version.	The CR&B system is the core billing system for DTE and caters to the needs of both residential and commercial customers. The goal of the S4 Hana Cloud Migration project is to migrate to a supported SAP software with minimal disruptions to DTE's customers.							0.400	2.510	0.400	2.510	0.800	5.020	5.820
Customer	SAP Enhancement Program	Strategic	The SAP Enhancement Program includes two project line items: SAP Stacks, Packs and SAP Core Product Upgrades. The current state of the SAP Stacks, Packs application is healthy at this time, but as the year progresses, the operating environment will change. In order to keep it working DTE must proactively plan for and execute necessary updates and upgrades. SAP releases periodic bug fixes and enhancements in their software in packages called “stacks and packs” for customers to apply for operational stability and functional stability. The SAP Stacks, Packs project will match the issues DTE systems are encountering with SAP releases and apply the appropriate stacks and packs software in lower environments and then validate and migrate it to production. The current state of the SAP Core Product application is healthy at this time, but as the year progresses, the operating environment will change. In order to keep it working DTE must proactively plan for and execute necessary updates and upgrades. SAP releases software upgrades with additional capabilities called enhancement packs which provide business value. This project will plan and apply the appropriate	The goal of the SAP Enhancement Program is to ensure operational stability of the core billing system for DTE that caters to needs for both residential and commercial customers. As the year progresses, the operating environment will change. In order to keep it working DTE must proactively plan for and execute necessary updates and upgrades to ensure no interruptions.			0.691	5.773	0.180	1.067	0.180	1.067	0.180	1.067	1.231	8.974	10.205
Customer	Treasury, Credential on File	Strategic	This project will implement modifications to DTE's payment systems. Visa and Mastercard have mandated and introduced Credential on File to authenticate customer and merchant-initiated transactions. This means that DTE must now obtain cardholder consent before storing card details for future use and they must be flagged at the time of the first authorization by submitting the “credentials on file” field in requests. DTE must also flag any subsequent payments that are utilizing previously stored credentials, by including the credentials on file field in the requests. This project will facilitate these payment system updates.	The goal of this project is to gain compliance with new Visa and Mastercard mandates that have introduced Credential on File to authenticate customer and merchant-initiated transactions. DTE must make these updates in order to stay compliant.			0.375	2.125			0.300	1.700	0.300	1.700	0.975	5.525	6.500
Plant and Field	Meter Data Management Hardware and Software	Return-to-Health	The EIServer-MDM/EUDM application supports critical meter usage data aggregation and billing determinant calculation operations that feed DTE's CR&B billing system and supports the invoicing of 4500+ key industrial and commercial DTE Electric customers. This application is twelve years old and operating on an unsupported vendor application. This project focuses on the construction and delivery of a new solution using supported vendor technology and architecture designs adopted across the utility industry.	Meter usage data for primary industrial and commercial customers will be consolidated onto the IEE-MDM (Meter Data Management) repository where residential meter usage data is stored. Usage data aggregation and billing determinant operations for the primary C&I meters will be integrated onto the SAP CR&B and EDM applications. Key billing functions will operate primarily under a single product platform. This solution is intended to provide long-term operational stability, strategic platform and architectural alignment, and DTE and vendor supported technologies. Using strategically aligned products (ESB/AMI/CR&B and ADLS(EDA)), C&I billing operations will benefit from the capability offerings (analytics, reporting, operational management) built into this consolidated platform for the foreseeable future.		7.800	0.410	10.000							0.410	17.800	18.210

Portfolio	Project Name	Spend Category	Project Description and Need	Goal and Rationale	2021 O&M	2021 Capital	2022 O&M	2022 Capital	2023 O&M	2023 Capital	2024 O&M	2024 Capital	2025 O&M	2025 Capital	2021-2025 Total O&M ($M)	2021-2025 Total Capex ($M)	2021-2025 Total Spend ($M)
Plant and Field	YR2 I2R Replacement: ETS/CECO to Maximo / Document and Records Management-Nuclear	Return-to-Health	The current asset is at its end-of-life and is unsupported. Being that it is end-of-life, the asset poses the potential risk of loss of regulatory compliance, document storage and recovery, and regulatory storage of all Q records for equipment and components. This project will enable the storage and retrieval of documents and records in accordance with regulatory compliance for document and records management and engineering management.	The goal of replacing the existing I2R system will alleviate the risk of loss of availability as well as ensure the continued regulatory compliance for both documents and records management as well as the engineering management functions. This is critical to staying compliant with industry regulations.	0.160	6.100	1.450	3.000							1.610	9.100	10.710
Plant and Field	SOC Radio Replacement	Return-to-Health	DTE Distribution Operations uses radios as their primary communication method for daily operations between dispatchers and field crews. The current radio system is over 25 years old, obsolete, and has reached its end-of-life. Replacement parts are no longer available, and the current configuration has limited functionality. In the Michigan thumb area, crews need to change radio channels based on geographical location in order to communicate. This could pose a safety issue for the north area field crews. The old system is VHF which limits the capabilities needed for daily operations.	The goal of the SOC Radio Replacement project is to replace the outdated VHF radio system with a solution that can provide both VHF and digital communication methods. The goal is to purchase new radios and not new consoles. This new system should help improve the ease of operations and address safety concerns for operating in the Michigan thumb service territory.	0.159	7.445	0.340	1.600							0.499	9.045	9.544
Plant and Field	Click field services management	Return-To-Health	The current work management system, Service Suite, is end-of-life. As it is end-of-life there is a lack of support and the vendor can no longer provide enhancements or defect remediations and will no longer invest in ensuring product stability. Maintaining end-of-life systems for this server-based product requires a forced, planned outage each month to address system performance risk or concerns. Failing to take this planned monthly outage would result in an unexpected disruption to the business (an unplanned outage) which instead requires a system reboot. Annually, the planned outages cost between $10,000 and $15,000 but could be completely discontinued with a move to the ClickSoft product. Furthermore, the current security posture with Service Suite creates risk. As the product is no longer supported, DTE cannot provide patches to increase cybersecurity for the company's assets as new threats emerge. If the system fails or is inaccessible due to cyberattack, DTE would jeopardize the live field dispatch of all 1,842 employees who rely on the dispatching and management system. DTE's work management system needs to be stable and	The goal of implementing the ClickSoft Field Service Management product is to ensure stability and efficiency in the work management system. ClickSoft is cloud-based and enables configuration within the product as opposed to on the server, which eliminates the need for the costly end-of-life equipment supporting the server-based Service Suite. Changes, if needed, would be possible again, improving DTE's previously discussed security posture as well as the reliability of information for the company's field workers – all contributing to timely reaction to gas leaks, outages, and all other needs in the field. This investment and all the provided efficiencies will therefore ensure the timely scheduling and deployment of DTE field resources, in turn allowing the company to serve our customers faster and with increased efficiency.	2.400	4.517	1.700	1.757			0.110	0.750			4.210	7.024	11.234
Plant and Field	Maximo Transformation	IT Enhancements	The Maximo Transformation Project will begin in 2022 and continue through 2023 to accomplish several objectives. The transformation project will allow the DTE to segregate the existing Asset Management system into multiple instances of the platform.	The Maximo Transformation project is important to DTE and customers because it will allow each of the business units that use the platform to make improvements to processes and features within the system without negatively impacting other user groups. Each business unit will be able to implement only those features needed for their operations without having to account for competing needs from other users. With only one instance, all units are required to operate at the level of the most restrictive consuming unit. This leads to additional costs, timing constraints, and a general lack of agility for individual groups.			0.750	5.725							0.750	5.725	6.475
Plant and Field	Maximo Cloud Migration	Strategic	The Maximo Cloud Migration project is the second phase of the Maximo Transformation project and will continue in 2023 to accomplish several objectives. The transformation project will allow DTE to segregate the existing Asset Management system into multiple instances of the Platform.	The Maximo Transformation project is important to DTE and customers because it will allow each of the business units that use the platform to make improvements to processes and features within the system without negatively impacting other user groups. Each business unit will be able to implement only those features needed for their operations without having to account for competing needs from other users. With only one instance, all units are required to operate at the level of the most restrictive consuming unit. This leads to additional costs, timing constraints, and a general lack of agility for individual groups.					1.000	7.900			0.220	1.500	1.220	9.400	10.620
Plant and Field	Advanced Rate Management	Strategic	This program does not yet exist and would be a new implementation. The program would provide new options for customers to supply their own energy with DER and participate actively in the grid. It will not support static tariffs as needs and constraints will be dynamic and dependent on available energy.	The goal of this project is aimed at providing new options to DTE customers for supplying their own energy and actively participating in the grid. It would enable an optimization of rate products for customers, decrease customer costs, and increase revenue for the company. Furthermore, it would allow DTE to assess rate fit for the company's customers' load behavior, enable the generation of virtual rate calculations, and provide verification of proposed rate behavior and its economic impact on DTE and the company's customers.							0.710	2.380	0.360	2.370	1.070	4.750	5.820

Portfolio	Project Name	Spend Category	Project Description and Need	Goal and Rationale	2021 O&M	2021 Capital	2022 O&M	2022 Capital	2023 O&M	2023 Capital	2024 O&M	2024 Capital	2025 O&M	2025 Capital	2021-2025 Total O&M ($M)	2021-2025 Total Capex ($M)	2021-2025 Total Spend ($M)
Plant and Field	ADMS – NMS Phase 2	Strategic	The Advanced Distribution Management Systems - Network Model System (ADMS-NMS) is a software platform that supports the full suite of distribution management and optimization. The platform includes functions that automate outage restoration and optimize the performance of the distribution grid. The asset at DTE is current and supported, but grid modernization has brought much higher requirements on the tools and analytics used to plan, operate, and manage the electric grid. Due to the increases in volume, velocity, and granularity of the data needed to support the planning tools, DTE Electric needs to continuously improve the network model systems to enhance detailed modeling and better support data flows for systems of record that provide historical, as-built, and future scenario-based network models. In addition to the tools, models, and interfaces required to meet network model needs for operations and planning, advanced analytics must also be leveraged to ensure data integrity. This platform is critical to electric operations at DTE and must be improved, maintained, updated, and supported accordingly in order to deliver on the company's promise to its customers.	The goal of the ADMS – NMS project is to provide DTE Electric with the foundation needed to deploy advanced grid simulations and analytics called for by the evolving distribution network. Grid modernization has brought much higher requirements on the tools and analytics used to plan, operate, and manage the electric grid. This project will enable DTE Electric to detect and correct connectivity for AC Network customers and automate customer connectivity corrections (reducing manual work.)	0.900	14.200	2.500	2.500							3.400	16.700	20.100
Shared IT	PBX (Private Branch Exchange) Replacement	Return-to-Health	The Private Branch Exchange (PBX) Replacement project will enable seamless telephony communication on a robust, reliable, scalable, and secure initiation protocol platform. This is a multi-year effort and there are remaining sites still on the legacy platform for PBX and telephony circuits that need to be moved as they are not scalable and have no redundancy. There is a need to complete the transformation for the remaining sites to a robust reliable, scalable, and secure Session Initiation Protocol (SIP) platform to enable seamless telephony communication.	The goal of the PBX Replacement project is to enable seamless telephony communication by building redundancy, providing on-demand capacity, and upgrading the legacy telephony circuits to Session Initiation Protocol (SIP) based circuits. Upgrading to SIP-based circuits will provide a key benefit of efficiently migrating remote DTE sites into Microsoft Teams Calling.	0.140	1.400			0.309	1.544	0.309	1.621	0.340	1.500	1.098	6.064	7.162
Shared IT	IT Service Management Tool	Strategic	The IT Service Management Tool improves process efficiencies for the information technology business. Currently, DTE does not have a tool that centralizes this function, and it is currently being performed manually through a combination of Excel and Word documents that are not linked together. The business unit requires process efficiencies and automation to increase productivity within Information Technology Services (ITS) and to minimize the opportunity for potential errors by linking currently separate documents and activities together.	The goal of implementing the IT Business Management module in ServiceNow is to add integrated workflows to improve process efficiencies and effectiveness. This project will improve process efficiency for the IT business in areas such as software licensing, contract management, Annual Planning Cycle (APC), and project execution.	0.090	0.880	0.282	1.750	0.300	1.500	0.300	1.500	0.300	1.500	1.272	7.130	8.402

APPENDIX III – RECONCILIATION WITH THE FEB. 2020 DTE GAS RATE CASE

Shown below is a reconciliation between DTE Gas Rate Case U-20940 and this Five-Year IT Plan for Gas Information Technology Capital Expenditures and Shared Information Technology Capital Expenditures (IT Corporate Support and Customer Service).

Variances in Shared Capital Expenditures are due to Enterprise Data Analytics and Innovation, in which 2021 and 2022 forecasted spend was not included in the Gas Rate Case.

All remaining variances between the Five-Year IT Plan and the Gas Rate Case are due to Electric Information Technology investments.

Capital Expenditures - Gas Information Technology

($, millions)

	(a)	(b)	(c)					
Line No.	**Description**	**12 mos. ending 12/31/2021**	**12 mos. ending 12/31/2022**	**Case**	**Exhibit**	**Schedule**	**Line No.**	**Witness**
1	Gas Information Technology - Gas Rate Case	$ 11.2	$ 7.5	U-20940	A-12	B5.4	8	J. J. Busby
2	Gas Information Technology - IT 5-Year Plan	11.2	7.5					
3	**Variance H/(L) than Gas Rate Case**	**$ -**	**$ -**					

Information Technology (IT) Corporate Support & Customer Service Shared Capital Expenditures at DTE Electric

($, millions)

	(a)	(b)	(c)					
Line No.	**Description**	**12 mos. Ending 12/31/2021**	**12 mos. Ending 12/31/2022**	**Case**	**Exhibit**	**Schedule**	**Line No.**	**Witness**
4	IT Corporate Support Shared Capital - Gas Rate Case	$ 59.7	$ 94.7	U-20940	A-13	C5.13	10	J. J. Busby
5	IT Customer Service Shared Capital - Gas Rate Case	18.5	37.4	U-20940	A-13	C5.14	8	A. M. Pizzuti
6	**Subtotal IT Corporate Support and IT Customer Service Shared Capital - Gas Rate Case**	**$ 78.2**	**$ 132.1**					
7	IT Corporate Support & IT Customer Service Shared Capital - 5-Year Plan	82.6	135.8	N/A	N/A	N/A	N/A	N/A
8	**Variance H/(L) than Gas Rate Case**	**$ 4.4**[1]	**$ 3.7**[2]					

Reconciliation between DTE Gas Rate Case U-20940 and this Five-Year IT Plan

Figure 1 of 2

Capital Expenditures - Electric Information Technology

Capital Expenditures at DTE Electric

($, millions)

Line No.	(a) Description	(b) 12 mos. Ending 12/31/2021	(c) 12 mos. Ending 12/31/2022	Case	Exhibit	Schedule	Line No.	Witness
9	Electric IT - 5-Year Plan	$ 54.9[1]	$ 25.8[2]	N/A	N/A	N/A	N/A	N/A

Capital Expenditures - Total Information Technology

Capital Expenditures at DTE Electric & DTE Gas

($, millions)

Line No.	(a) Description	(b) 12 mos. Ending 12/31/2021	(c) 12 mos. Ending 12/31/2022	Case	Exhibit	Schedule	Line No.	Witness
10	Total IT Capital Expenditures - Gas Rate Case	$ 89.5	$ 139.6	U-20940	various	various	various	various
11	Total IT Capital Expenditures - 5-Year Plan	148.8	169.1					
12	**Variance H/(L) than Gas Rate Case**	**$ 59.3**[1]	**$ 29.5**[2]					

1. $59.3M 2021 variance between the Gas Rate Case and IT 5-year Plan equals the $4.4M variance noted in line 8 related to Enterprise Data Analytics and Innovation spend excluded from the Gas Rate Case, plus $54.9M Electric IT capital expenditures noted in line 9

2. $29.5M 2022 variance between the Gas Rate Case and IT 5-year Plan equals the $3.7M variance noted in line 8 related to Enterprise Data Analytics and Innovation spend excluded from the Gas Rate Case, plus $29.5M Electric IT capital expenditures noted in line 9

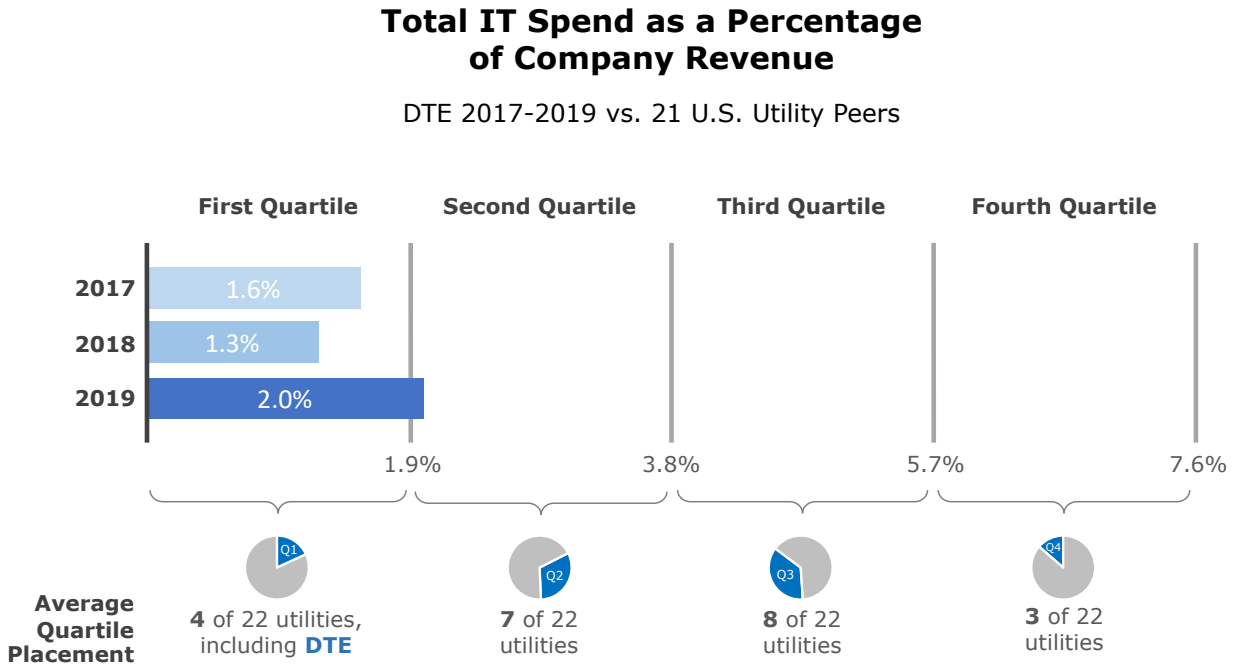
Reconciliation between DTE Gas Rate Case U-20940 and this Five-Year IT Plan

Figure 2 of 2

APPENDIX IV – IT SPEND BENCHMARK

DTE recently performed a three-year IT spend benchmark against 21 other utility companies in the continental U.S., including peers in size and geography. The focus of the benchmark was on the amount of IT spend as a percentage of overall Company revenue covering 2017, 2018, and 2019.

The Company compares favorably, placing in the first quartile in lowest spend as a percentage of revenue. The following chart provides DTE results and quartile specifics.



Total IT Spend as a Percentage of Company Revenue, 2017-2019

APPENDIX V – METRIC DEFINITIONS

The following metrics are referenced in the document (especially in Section 6 – IT Investment Plans by Portfolio, above) and are compiled and detailed below.

The information for each metric includes:

- Metric name
- Brief definition and description
- How the metric is calculated
- Scale (how it's assessed)
- How the target, aspiration, True North, etc. is established
- If the metric is a DTE standard or an Industry standard metric

For brevity, the following codes are used to consolidate how a given metric's targets, aspirations, True North, etc. are established. Each metric has at least one establishment approach, and several metrics are set with multiple approaches in concert.

Code	How the Target/Aspiration/True North is Established
A	**Executive Decision** – To achieve leadership goals based on past and current performance, cost pressures, and/or competing demands with other metrics
B	**Industry Standard** – To achieve an industry standard metric definition that has specified a clear target, aspiration, and/or True North
C	**Top Quartile** – To achieve Top Quartile performance in a recognized benchmark, industry standard, etc.
D	**Top Decile** – To achieve Top Decile performance in a recognized benchmark, industry standard, etc.
E	**Continuous Improvement** – To improve future performance over recent/prior performance in a well-defined, incremental manner
F	**Corporate Priority** – To achieve a goal or priority that was defined at the corporate level and/or in a leader's (e.g., Director/VP) Priority Plan

The following metrics are described in the subsequent tables, below.

▪ 1st Level Support – First Contact Resolution (%)	▪ Net Promoter Score – Gas Safety and Reliability Index
▪ CAIDI Excluding MEDs	▪ Network health stability and availability (count)
▪ Capital efficiency ($ annual savings)	▪ New Service Installation Factor
▪ CEMI	▪ NRC Action Matrix
▪ CO2e emissions (metric tons)	▪ Nuclear Operational Focus
▪	▪ Nuclear Work Management Index
▪ Core ERP Lifecycle Compliance (%)	▪ Order Fill Rate
▪ Cost per Purchase Order (PO)	▪ OSHA Rate
▪ CPMM Rate	▪ Overall Customer Complaints (MPSC Complaints) – Total DTE
▪ Critical PM Compliance (# of work orders completed)	▪ Overall First Contact Resolution (FCR) (%) – Transactional
▪ Cumulative Call Volume Reductions (vs. 2020 baseline)	▪ Overall Net Promoter Score (NPS) – Transactional
▪ Cumulative O&M Savings (vs. 2020 baseline)	▪ Planned Outage: Corporate Applications (Duration) (mins)
▪ Customer Past Due Balances – Total Active Arrears	▪ Planned Outage: Corporate Applications (Frequency) (qty.)
▪ Customer Time Commitment Met (%)	▪ Planned Outage: Plant and Field (Duration) (mins)
▪ Cyber Incidents Prevented	▪ Planned Outage: Plant and Field (Frequency) (qty.)
▪ DART Rate	▪ PO Cycle Time for both Material and Services
▪ Distribution O&M ($ / customer)	▪ Post-Close Journal Entries in Power Plan (qty.)
▪ Diversity Spend per Year	▪ Reduce Primavera Security Vulnerabilities
▪ DTE Gas MPSC Complaints (number of complaints)	▪ Residential enrollments (# of customers)
▪ Emergency Funds Available to Customer – SER Funding	▪ SAIDI Excluding MEDs
▪ Emergency Leak Response Time (minutes)	▪ SAIFI Excluding MEDs
▪ Employer Health Opportunity Assessment Score	▪ Savings of 6% or more of total managed spend while enabling DTE's capital plan execution
▪ Energy Assistance Program Enrollment – LSP Enrollment	▪ Security Events (qty.)

▪ Environmental Reporting and Compliance	▪ Self-Service Completion (% of attempted self-service transactions completed)
▪ Fossil Generation Random Outage Factor	▪ Self-Service Customer Satisfaction (% CSAT customer survey results)
▪ Gallup Grand Mean Score	▪ Self-Service Engagement (% of transactions attempted in self-serve channel)
▪ Gas Compression Reliability (%)	▪ Small business enrollments (# of enrollments)
▪ Inventory per MW	▪ Total MWh enrolled in MIGreenPower program (MWh)
▪ Inventory Turns	▪ Unplanned Outage – Corporate Apps. Frequency (Count / Time)
▪ ITS Key Asset Availability (% uptime)	▪ Unplanned Outage – Customer Channel Frequency (Count / Time)
▪ Key and critical application unplanned outage duration (minutes)	▪ Unplanned Outage – Employee Systems Frequency (Count / Time)
▪ Key and critical application unplanned outage frequency (qty.)	▪ Unplanned Outage – Infrastructure Ops Frequency (Count / Time)
▪ Leak Backlog (qty.)	▪ Unplanned Outage – Plant and Field Frequency (Count / Time)
▪ Managed Spend per Procurement Employee	▪ Unplanned Outage – Security/Compliance Frequency (Count / Time)
▪ Maximum Allowable Operating Pressure (MAOP) Record Defects	▪ Unplanned Outage – Corporate Applications (Duration)
▪ Meter Reading Factor	▪ Unplanned Outage – Plant and Field (Duration)
▪ Month-End Close Cycle Time (working days)	▪ Warehouse Cost per Transaction

Metric Name	1st Level Support – First Contact Resolution (%)
Brief Definition and Description	FCR is the percent of voice calls resolved upon the initial contact with a customer. First-call completion applies when the first person the customer reaches fulfills the request, provides the information or resolves the incident. Warm transfers, service dispatch and callbacks should be considered second or greater contact. **Definitions**: **Incident** is defined as 'An unplanned interruption to an IT Service or a reduction in the quality of an IT Service' **Request** is defined as 'A request from a fellow employee for information, or advice, or for a standard change or for access to an IT Service'
How the Metric is Calculated	FCR is calculated as the sum of the number of total tickets resolved within the first call divided by the number of tickets that were resolvable on first call for a specified time period.
Scale (how it's assessed, etc.)	Higher percentage is better
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	CAIDI Excluding MEDs
Brief Definition and Description	Customer Average Interruption Duration Index is the average outage duration that any given customer would experience excluding Major Event Days
How the Metric is Calculated	
Scale (how it's assessed, etc.)	Lower is better
How the target, aspiration, True North, etc. is established	B – Industry Standard
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Capital efficiency ($ annual savings)
Brief Definition and Description	Capital Efficiency measures the timeliness (schedule) and effectiveness (cost) of capital expenditures. The overall goal of capital efficiency analysis is to understand if capital projects are completing a specific work scope within a specific schedule and for the lowest cost possible.
How the Metric is Calculated	Each capital project is assigned a timetable (schedule) for implementation and a budget (cost). Capital projects create savings by either completing a project ahead of schedule and/or below budget. Similar or comparable projects executed in the past provide a basis for the baseline schedule and budget.
Scale (how it's assessed, etc.)	Earned Value, Schedule Performance Index (SPI), Cost Performance Index (CPI)
How the target, aspiration, True North, etc. is established	F – Corporate Priority
DTE Standard or Industry Standard?	Industry Standard

Metric Name	CEMI
Brief Definition and Description	Customers Experiencing Multiple Interruptions
How the Metric is Calculated	Count
Scale (how it's assessed, etc.)	Lower is better
How the target, aspiration, True North, etc. is established	B – Industry Standard
DTE Standard or Industry Standard?	Industry Standard

Metric Name	CO2e emissions (metric tons)
Brief Definition and Description	The carbon dioxide equivalent of the greenhouse gas emissions which arise from DTE Gas distribution operations, whether related to fugitive methane leaks along the system or combustion-related emissions from the compressor stations.
How the Metric is Calculated	The environmental team calculates and reports CO2e emissions using guidance and formulas from the U.S. EPA based on the infrastructure type (e.g., steel v. plastic piping) and system detail (e.g., miles of pipeline).
Scale (how it's assessed, etc.)	DTE has a net zero goal for CO2e emissions by 2050 with intervals and interim targets along the way. Actions are underway through new technologies, main replacement and operational improvements to lower the amount of CO2e emissions each year. The lower emissions reported and incurred leads to improved environmental conditions for the area.
How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Core ERP Lifecycle Compliance (%)
Brief Definition and Description	The percentage of applications in the Core ERP platform that are on the most up to date versions of the software
How the Metric is Calculated	The calculation is: Number of Applications on the Most Recent Version --- Total Number of Application in the Platform
Scale (how it's assessed, etc.)	Higher % is better
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	Cost per Purchase Order (PO)
Brief Definition and Description	The labor cost for each procurement transaction (POs, Change Orders and Standalone POs, includes Text Reqs).
How the Metric is Calculated	Total Supply Chain Labor Cost, excluding overheads (Purchasing Employees only) / All PO transactions processed for given period (includes auto-release transactions; excludes change orders and PO closures). This metrics is a measure of cost efficiency.
Scale (how it's assessed, etc.)	Actual less than or meeting the target is good

How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**CPMM Rate**
Brief Definition and Description	Vehicle accidents consist of preventable and non-preventable accidents. Preventable accident – A preventable accident includes employees that may have fully complied with the law, the employee failed to exercise every available precaution to prevent the accident. This is irrespective of whether or not there is property damage or personal injury, the extent of loss of injury, to whom it occurred and the location of the accident. Non-preventable accident – A non-preventable accident include where the employee exercised every reasonable precaution to prevent the accident, including anticipating the hazard and applying the appropriate defensive driving procedures. This would include: - Vehicle struck while stationary in a traffic lane - Vehicle struck in rear bumper while stopped or proceeding in a traffic lane
How the Metric is Calculated	Rate: # of Vehicle accidents (Preventable / Non-preventable) / Total miles driven.
Scale (how it's assessed, etc.)	Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	C – Top Quartile
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Critical PM Compliance (# of work orders completed)**
Brief Definition and Description	This measures the ability of DTE to complete scheduled preventative maintenance at its power plants.
How the Metric is Calculated	The number of work orders completed is counted.
Scale (how it's assessed, etc.)	Higher is better
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**Cumulative Call Volume Reductions (vs. 2020 baseline)**
Brief Definition and Description	Represents the cumulative reduction in calls handled by live agents in the contact center over the five-year period from 2021 through 2025.
How the Metric is Calculated	Calls to the contact center are monitored in real-time on a daily basis through the workforce management system and are reported weekly in the operational review meetings. Over the course of the year, the volume of these calls is compared to the year-to-date volume in the prior year.
Scale (how it's assessed, etc.)	DTE call volumes are compared to industry benchmarks to determine gaps to top quartile, top decile, and BIC. Annual targets are established based on the impact of projects and initiatives intended to continuously improve the metric and narrow those gaps.

How the target, aspiration, True North, etc. is established	A – Executive Decision, B – Industry Standard, C – Top Quartile, D – Top Quartile, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**Cumulative O&M Savings (vs. 2020 baseline)**
Brief Definition and Description	Represents the cumulative reduction in O&M expense over the five-year period from 2021 through 2025.
How the Metric is Calculated	The Controllers organization calculates and reports O&M expense on a weekly, monthly, quarterly, and annual basis.
Scale (how it's assessed, etc.)	Each year customer service O&M targets are established based on DTE budget allocations, industry standards, and an assessment of those projects and initiatives that are designed to reduce O&M expense.
How the target, aspiration, True North, etc. is established	A – Executive Decision, B – Industry Standard, C – Top Quartile, D – Top Quartile, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**Customer Past Due Balances – Total Active Arrears**
Brief Definition and Description	The total amount of accumulated customer past due balances that have not yet been written off (i.e., active).
How the Metric is Calculated	The Controllers organization calculates and reports active customer arrears weekly into aging buckets (i.e., 0-30 days, 31-60 days, 61-90 days, > 90 days).
Scale (how it's assessed, etc.)	The goal is to minimize the level of active customer arrears through optimization of energy assistance funding and investments in projects and initiatives intended to mitigate increased customer arrears balances.
How the target, aspiration, True North, etc. is established	A – Executive Decision, F – Corporate Priority
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**Customer Time Commitment Met (%)**
Brief Definition and Description	This measures the ability of DTE Gas ability to meet commitments to the customers to be on time with agreed-upon appointments times.
How the Metric is Calculated	This measures orders with a committed date and time slot for completion. For these orders check the last time arrived versus the time window and want date, which determines whether the commitment is met or not. The total number of met commitments divided by all eligible appointments give the percentage appointments met on time or the Time Commitment Met percentage.
Scale (how it's assessed, etc.)	A higher Time Commitment Met % is better than lower. This metric has weekly targets varying by workload volume, higher priority work and holidays.
How the target, aspiration, True North, etc. is established	F – Corporate Priority
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Cyber Incidents Prevented
Brief Definition and Description	This measures the effectiveness of DTE's security infrastructure in thwarting attempts by malicious actors attempting to plant malware on DTE assets.
How the Metric is Calculated	*Private*
Scale (how it's assessed, etc.)	Higher Percentage is better
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	DART Rate
Brief Definition and Description	Injury resulting in employee fatality, days away from work, restricted work or transfer to another job; subset of OSHA.
How the Metric is Calculated	Rate: # of DART injuries * 200,000/total hours worked.
Scale (how it's assessed, etc.)	Follow the requirements outlined in the OSHA Standard 1904-Reporting and Recording Occupational Injuries. Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	G – To achieve Best in the Industry performance in a recognized benchmark, industry standard, etc.
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Distribution O&M ($ / customer)
Brief Definition and Description	These are the expenses in connection with operating the gas distribution system. It includes expenses in connection with load dispatching, compressor stations, mains and services, regulator stations, meters and house regulators, etc. It does not include maintenance, meter reading, customer service, or sales and administrative expenses.
How the Metric is Calculated	Total Distribution O&M expense divided by total DTE Gas customers.
Scale (how it's assessed, etc.)	DTE Gas sets targets by operating group. Annual targets are measured weekly. A lower cost per customer value is favorable; higher cost per customer value is worse.
How the target, aspiration, True North, etc. is established	C – Top Quartile, D – Top Decile
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Diversity Spend per Year
Brief Definition and Description	The total dollars of SCM managed spend where the purchased goods or services are provided by certified diverse businesses as defined by the SCM Supplier Diversity team.
How the Metric is Calculated	Sum of all Tier 1 and Tier 2 diversity (managed) spend where the purchased goods or services are provided by certified diverse businesses as defined by the SCM Supplier Diversity team.

Scale (how it's assessed, etc.)	Actual greater than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement, F – Corporate Priority
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**DTE Gas MPSC Complaints (number of complaints)**
Brief Definition and Description	This measures the number of customer complaints made to the MPSC customer division related to DTE Gas work, over the course of a year.
How the Metric is Calculated	All complaints against DTE are routed to an internal team that investigates and assigns the complaints to a business unit/department based on root cause. This metric is the number of complaints that are attributed to DTE Gas.
Scale (how it's assessed, etc.)	Weekly targets are established. Below target reflects favorable performance (fewer complaints); above target reflects unfavorable performance (more complaints).
How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**Emergency Funds Available to Customer – SER Funding**
Brief Definition and Description	Represents funding made available to customers from the State Emergency Relief crises intervention program administered by MDHSS.
How the Metric is Calculated	Available funding for state utilities is determined at the beginning of each year, with DTE then establishing targets for its forecasted share of the funding based on historical trends.
Scale (how it's assessed, etc.)	The goal is to allocate DTE's share of the funding to customers in the current fiscal year.
How the target, aspiration, True North, etc. is established	A – Executive Decision, F – Corporate Priority
Is this industry standard benchmarkable (Y/N)?	Industry Standard – relative to other nationwide utilities

Metric Name	**Emergency Leak Response Time (minutes)**
Brief Definition and Description	This measures the speed of DTE's response to emergency gas leaks. DTE strives to respond to gas leaks in less than 30 minutes. A quick response to leak calls may help prevent an emergency incident such as a buildup of gas to flammable levels, an ignition, etc.
How the Metric is Calculated	For every leak, response time is calculated as the elapsed time from receipt of emergency leak call by DTE Gas to assigned technician indicating arrival on-site at location of reported leak (which can be verified by vehicle GPS data). The average leak response time for the year is the sum of all leak response times divided by the number of leak calls.
Scale (how it's assessed, etc.)	DTE Gas sets targets for leak response time by station and by week (to reflect seasonal variations in leak volume and drive time). A lower leak response time is better; higher (or slower) is worse.
How the target, aspiration, True North, etc. is established	C – Top Quartile, D – Top Decile

DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Employer Health Opportunity Assessment Score**
Brief Definition and Description	The Employer Health Opportunity Assessment Score (EHOA) is a leading indicator, top-down assessment, which measures the culture of well-being maturity at the enterprise level.
How the Metric is Calculated	The EHOA score is calculated by assessing elements within a 3-step process which yields a comprehensive assessment that tabulates out to a single metric of 1,000. The culture of health benchmark is 700 and DTE sets annual targets per the five-year roadmap. Measure actual to target, and the DTE area of focus is to mitigate any gaps.
Scale (how it's assessed, etc.)	The 10 best practices have a maximum score of 1,000 with each having varied maximum scores: 1. Leadership support and management alignment: 100 2. Well-being strategic plan: 50 3. Health supportive environment: 100 4. Well-being onsite activities: 100 5. Health and wellness across continuum: 200 6. Data-driven approach: 100 7. Marketing and communication: 100 8. Incentives and benefits design: 100 9. Engagement and navigation: 100 10. Vendor management/strategic partnerships: 50
How the target, aspiration, True North, etc. is established	C – Top Quartile, F – Corporate Priority
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Energy Assistance Program Enrollment – LSP Enrollment**
Brief Definition and Description	A measure of the total number of customers enrolled in the Low-Income Self Sufficiency (LSP) program.
How the Metric is Calculated	Calculated weekly as a "net" enrollment number, which accounts for the number of customers who unenroll from the program.
Scale (how it's assessed, etc.)	The goal is to maximize the number of new enrollments each year in a manner that utilizes all available fiscal year funding.
How the target, aspiration, True North, etc. is established	A – Executive Decision, F – Corporate Priority
Is this industry standard benchmarkable (Y/N)?	Industry Standard – similar programs at other Michigan utilities

Metric Name	**Environmental Reporting and Compliance**
Brief Definition and Description	Business unit specific measures of compliance with environmental regulatory and reporting requirements across air, water, land and related environmental areas.
How the Metric is Calculated	Performance across key environmental requirements for each business unit is measured and compared to targets based on historical performance.
Scale (how it's assessed, etc.)	Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	E – Continuous Improvement

DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Fossil Generation Random Outage Factor**
Brief Definition and Description	This measures the % of time a generating unit is in an unplanned outage or derate.
How the Metric is Calculated	The calculation is: Unplanned Outage Hours ---------- Total Period Hours
Scale (how it's assessed, etc.)	Lower is better
How the target, aspiration, True North, etc. is established	D – Top Decile
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Gallup Grand Mean Score**
Brief Definition and Description	The Gallup Grand Mean score is the overall average, on a 5-point scale, of all of the Gallup questions (Q12).
How the Metric is Calculated	Employees respond to the traditional and custom questions on Gallup's 5-point scale on an annual basis.
Scale (how it's assessed, etc.)	The Grand Mean score is derived from a 5-point scale; 5.00 is the highest possible average for the Grand Mean and 1.00 is the lowest possible average.
How the target, aspiration, True North, etc. is established	B – Industry Standard, D – Top Decile
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Gas Compression Reliability (%)**
Brief Definition and Description	The percentage of compression horsepower that operates on a given day when deemed necessary by Gas Control.
How the Metric is Calculated	Specific unit HP run for a given day / Specific unit HP requested for a given day.
Scale (how it's assessed, etc.)	A percentage is calculated for each day and days are then added together to produce weekly / monthly / annual percentage figures
How the target, aspiration, True North, etc. is established	F – Corporate Priority
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**Inventory per MW**
Brief Definition and Description	Inventory value ($) per nameplate generation capacity (reported separately for coal generation (limestone excluded) and nuclear generation).
How the Metric is Calculated	Inventory Value / Total Generation Capacity.
Scale (how it's assessed, etc.)	Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Inventory Turns
Brief Definition and Description	Inventory Turnover (turns) is a ratio showing how many times a company's inventory is replaced over the course of a year.
How the Metric is Calculated	This value is calculated by dividing net issues minus returns by the average twelve months (rolling) inventory value.
Scale (how it's assessed, etc.)	Actual greater than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	ITS Key Asset Availability (% uptime)
Brief Definition and Description	System Availability is the probability that a system will work as required when required during the period of a mission. Availability accounts for non-operational periods associated with reliability, maintenance, and logistics. Key attributes are an interruption or degraded service where the system becomes unusable and/or there is substantive impact to critical operations during required hours of operation, for any duration of time where there is major or significant impact.
How the Metric is Calculated	IT Key Asset Availability Measure can be calculated by first determining number of minutes of unplanned outage. Weekly Calculation = [((number of minutes in a week [w] * number of assets [a]) – (number of scheduled maintenance outage minutes in weeks [s]) – (number of unplanned outage minutes from an unexpected outage [u1] + number of unplanned outage minutes from a scheduled maintenance beyond maintenance window [u2])]/ [(number of minutes in a week [w] * number of assets [a]) – number of scheduled maintenance outage minutes in a week [s])].
Scale (how it's assessed, etc.)	Higher percentage is better
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	Key and critical application unplanned outage duration (minutes)
Brief Definition and Description	Measure of key and critical application outage times.
How the Metric is Calculated	Summation of minutes assigned to key and critical application outages.
Scale (how it's assessed, etc.)	0 is best performance
How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	DTE Standard

Metric Name	Key and critical application unplanned outage frequency (qty.)
Brief Definition and Description	Number of key and critical application unplanned outages.
How the Metric is Calculated	Summation of the number of key and critical application unplanned outages.
Scale (how it's assessed, etc.)	0 is best performance
How the target, aspiration, True North, etc. is established	A – Executive Decision
Is this industry standard benchmarkable (Y/N)?	DTE Standard

Metric Name	Leak Backlog (qty.)
Brief Definition and Description	This measures the number of open non-hazardous leaks within DTE Gas territory. DTE Gas strives to keep the backlog below 1,500 open leaks at year-end. Repairing open non-hazardous leaks improves customer safety & reliability as well as reducing lost gas.
How the Metric is Calculated	Data is refreshed and published weekly reflecting the number of open non-hazardous gas leaks. The backlog fluctuates throughout the year but generally peaks during the annual leak survey and then decreases as backlog leaks are worked through the remainder of the year. Open non-hazardous leaks at YE represent the YE leak backlog.
Scale (how it's assessed, etc.)	DTE Gas sets an annual year-end leak backlog for the overall state. A lower year-end leak backlog is better; higher is worse.
How the target, aspiration, True North, etc. is established	C – Top Quartile
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Managed Spend per Procurement Employee
Brief Definition and Description	An efficiency and productivity measure based on the average value of Procurement Transactions per Procurement Employee.
How the Metric is Calculated	Calculated by dividing the total Purchasing spend by total number of FTE Purchasing employees that handle shopping cart/PO transactions, including contractor employees.
Scale (how it's assessed, etc.)	Actual greater than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Maximum Allowable Operating Pressure (MAOP) Record Defects Remediated (%)
Brief Definition and Description	The percent of transmission high population miles with traceable, verifiable and complete (TVC) pressure test records defects remediated.
How the Metric is Calculated	Just over five miles of the transmission system has been identified to have record defects. As defects are remediated, the percentage of the ~ five miles of the system with defects remediated will increase.

Scale (how it's assessed, etc.)	Projects are planned for upcoming years that will remediate specific increments of system mileage. As those projects are completed, the amount of system mileage remediated will be incrementally increase.
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**Meter Reading Factor**
Brief Definition and Description	Percent of meters read within the billing period
How the Metric is Calculated	
Scale (how it's assessed, etc.)	Higher is better
How the target, aspiration, True North, etc. is established	B – Industry Standard
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Month-End Close Cycle Time (working days)**
Brief Definition and Description	Month-End Close Cycle Time (working days)
How the Metric is Calculated	Number of workdays to close the financial books and records of DTE Energy.
Scale (how it's assessed, etc.)	Add the number of workdays to close the financial books and records (starts at the beginning of the month (Workday 1) and ends when all journal entries and IT processing has been completed (Workday 4.5). Target = 4.5 workdays
How the target, aspiration, True North, etc. is established	Assessed monthly Close completed on time for the month. Yes = Good, No = Bad
DTE Standard or Industry Standard?	E – Continuous Improvement, F – Corporate Priority

Metric Name	**Net Promoter Score – Gas Safety and Reliability Index**
Brief Definition and Description	Measures the satisfaction of the customer's relationship with DTE Gas as it relates to three Safety and Reliability measures by asking them to rate DTE on a scale of 0 to 10.
How the Metric is Calculated	Promotors – Detractors = NPS ▪ Promoters are those who rate DTE a 9 or a 10 ▪ Detractors are those who rate DTE a 0 – 6 ▪ Passives are those who rate DTE a 7 or 8
Scale (how it's assessed, etc.)	NPS is assessed on a scale of -100 to +100
How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Net Promoter Score – Gas Safety and Reliability Index**
Brief Definition and Description	Measures the satisfaction of the customer's relationship with DTE Gas as it relates to three Safety and Reliability measures by asking them to rate DTE on a scale of 0 to 10.
How the Metric is Calculated	Promotors – Detractors = NPS ▪ Promoters are those who rate DTE a 9 or a 10

	▪ Detractors are those who rate DTE a 0 – 6 ▪ Passives are those who rate DTE a 7 or 8
Scale (how it's assessed, etc.)	NPS is assessed on a scale of -100 to +100
How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Network health stability and availability (count)**
Brief Definition and Description	Number of network stability and availability events.
How the Metric is Calculated	Summation of number of network stability and availability events.
Scale (how it's assessed, etc.)	0 is best performance
How the target, aspiration, True North, etc. is established	A – Executive Decision
Is this industry standard benchmarkable (Y/N)?	DTE Standard

Metric Name	**New Service Installation Factor**
Brief Definition and Description	Percent of new services installed within 15 days
How the Metric is Calculated	
Scale (how it's assessed, etc.)	Higher is better
How the target, aspiration, True North, etc. is established	F – Corporate Priority
DTE Standard or Industry Standard?	No

Metric Name	**NRC Action Matrix**
Brief Definition and Description	The assessment program collects information from Nuclear Regulatory Commission (NRC) inspections and performance indicators (PIs) in order to enable the agency to arrive at objective conclusions about the licensee's safety performance. The Action Matrix reflects overall plant performance.
How the Metric is Calculated	Based on this assessment information, the Nuclear Regulatory Commission (NRC) determines the appropriate level of agency response, including supplemental inspection and pertinent regulatory actions ranging from management meetings up to and including orders for plant shutdown.
Scale (how it's assessed, etc.)	Graded using five Columns or performance. Column 1 is "Licensee Response" and represents baseline NRC oversight. Column 5 is "Unacceptable Performance" and represents an agency-wide response.
How the target, aspiration, True North, etc. is established	B – Industry Standard
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Nuclear Operational Focus**
Brief Definition and Description	Weighted index with emphasis on managing challenges to operating the plant safely.
How the Metric is Calculated	Weighted index with emphasis on managing challenges to operating the plant safely and factors measures such as component mispositioning events and loss of shutdown cooling events.
Scale (how it's assessed, etc.)	Weighted index ranging from 0 -100 with 100 being best achievable.

How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Nuclear Work Management Index**
Brief Definition and Description	Weighted index with focus on online work.
How the Metric is Calculated	Weighted index with focus on online work and factors measures such as critical scope survival, execution of safety system outages and late preventative maintenance activities.
Scale (how it's assessed, etc.)	Weighted index ranging from 0 -100 with 100 being best achievable.
How the target, aspiration, True North, etc. is established	A – Executive Decision
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**Order Fill Rate**
Brief Definition and Description	For Distribution Operations, this is the ratio of STO lines receipted to lines ordered. For Gas Operations, this is the ratio of reservation lines issued to reservation lines ordered.
How the Metric is Calculated	Number of material lines filled in full / total material lines ordered.
Scale (how it's assessed, etc.)	Actual greater than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**OSHA Rate**
Brief Definition and Description	Injury resulting in employee fatality, days away from work, restricted work or transfer to another job, medical treatment beyond first aid.
How the Metric is Calculated	# of OSHA injuries * 200,000/total hours worked
Scale (how it's assessed, etc.)	Follow the requirements outlined in the OSHA Standard 1904-Reporting and Recording Occupational Injuries. Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	G – To achieve Best in the Industry performance in a recognized benchmark, industry standard, etc.
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Overall Customer Complaints (MPSC Complaints) – Total DTE**
Brief Definition and Description	A measure of the number of customers who contact the Michigan Public Service Commission (MPSC) to file a complaint related to DTE.
How the Metric is Calculated	Complaints are logged and reported in real-time daily (M-F), as provided to DTE by the MPSC through the established customer complaint process.
Scale (how it's assessed, etc.)	The goal is to continuously reduce complaints year-over-year, with targets established on an annual basis based on prior year actuals, and the expected impact of known projects and initiatives intended to address the root cause of customer complaints.

How the target, aspiration, True North, etc. is established	A – Executive Decision, B – Industry Standard, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**Overall First Contact Resolution (FCR) (%) – Transactional**
Brief Definition and Description	Measures of customers perceptions of how many contacts it took for DTE to complete their request or inquiry.
How the Metric is Calculated	Customers are surveyed and asked if DTE was able to complete their interaction on the first contact (Yes/No). If the customer indicates No, they are asked to indicate how many times it did take for DTE to resolve their request or inquiry. FCR is calculated as the % of customers surveyed who indicate that Yes, DTE was able to complete their request or inquiry on the first contact.
Scale (how it's assessed, etc.)	DTE FCR is compared to industry benchmarks to determine gaps to top quartile, top decile, and BIC. Annual targets are established based on the impact of projects and initiatives intended to continuously improve the metric and narrow those gaps.
How the target, aspiration, True North, etc. is established	A – Executive Decision, B – Industry Standard, C – Top Quartile, D – Top Quartile, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**Overall Net Promoter Score (NPS) – Transactional**
Brief Definition and Description	Is a measure of the likelihood of customers to recommend DTE to others as one of their preferred service providers.
How the Metric is Calculated	Customers are surveyed and asked to rate their likelihood of recommending DTE on a scale of 0-10. Those who respond with a 9 or 10 are considered promoters, while those who respond with a 0-6 are detractors. The different between the promoters and detractors is the NPS score, which is calculated for each transaction – *Move-In/Move-Out, Billing, Payment, Outage, Collection* – and then averaged to provide an overall transactional NPS as follows: ▪ Transaction NPS = (% promoters - % detractors) * 100 ▪ Overall NPS = average of NPS for each transaction
Scale (how it's assessed, etc.)	DTE NPS is compared to industry benchmarks to determine gaps to top quartile, top decile, and BIC. Annual targets are established based on the impact of projects and initiatives intended to continuously improve the metric and narrow those gaps.
How the target, aspiration, True North, etc. is established	A – Executive Decision, B – Industry Standard, C – Top Quartile, D – Top Quartile, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	▪ **Planned Outage: Corporate Applications (Duration) (mins)** ▪ **Planned Outage: Plant and Field (Duration) (mins)**
Brief Definition and Description	This measures the amount of time that a system is planned to be unavailable for business use.

How the Metric is Calculated	The calculation is a measurement of the time that a system is planned to be unavailable.
Scale (how it's assessed, etc.)	Actual meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	▪ **Planned Outage: Corporate Applications (Frequency) (qty.)** ▪ **Planned Outage: Plant and Field (Frequency) (qty.)**
Brief Definition and Description	This measures the number of times that a system is planned to be unavailable for business use.
How the Metric is Calculated	The calculation is a count of occurrences of planned system unavailability.
Scale (how it's assessed, etc.)	Actual meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**PO Cycle Time for both Material and Services**
Brief Definition and Description	The internal lead time required to process a purchase requisition. This includes all types of PO's and change orders, (single buys and blanket order development) but excludes releases.
How the Metric is Calculated	Average calendar days between requisition approval date and PO approval date.
Scale (how it's assessed, etc.)	Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Post-Close Journal Entries in Power Plan (qty.)**
Brief Definition and Description	Post Close Journal Entries for Power Plan (Post close journal entries occur when an error is identified in DTE's Financial Statements after Workday 3.0.).
How the Metric is Calculated	Access the Controller's Organization Post Close Entry Access database and count the Power Plan entries.
Scale (how it's assessed, etc.)	Assessed monthly Good = No Power Plan Post Close Entry, Bad= Post Close Entry
How the target, aspiration, True North, etc. is established	E – Continuous Improvement, F – Corporate Priority
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Reduce Primavera Security Vulnerabilities**
Brief Definition and Description	This measures the number of open security vulnerabilities detected on the Primavera system.
How the Metric is Calculated	Number of security vulnerabilities in a Red state in comparison to baseline of 57. The calculation is:

	Number of Red security vulnerabilities --- 57 (baseline value)
Scale (how it's assessed, etc.)	Non-PCI Severity 5 ▪ Bad: If exceeds 6 weeks PCI Severity 1-3 ▪ Bad: if exceeds 17 weeks PCI Severity 4 & 5 ▪ Bad: if exceeds 4 weeks External Severity 5 ▪ Bad: if exceeds 6 weeks
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	**Residential enrollments (# of customers)**
Brief Definition and Description	This metric is simply the absolute number of DTE residential customers that are enrolled at any percentage in DTE's MIGreenPower program.
How the Metric is Calculated	There is no calculation; this is simply the summation of the number of residential customers enrolled.
Scale (how it's assessed, etc.)	It is assessed as part of the pre-ORM scorecard, which is reviewed by DTE Electric senior leadership on a weekly basis.
How the target, aspiration, True North, etc. is established	B – Industry Standard
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**SAIDI Excluding MEDs**
Brief Definition and Description	System Average Interruption Duration Index is the average outage duration for each customer served excluding Major Event Days
How the Metric is Calculated	
Scale (how it's assessed, etc.)	Lower is better
How the target, aspiration, True North, etc. is established	B – Industry Standard
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**SAIFI Excluding MEDs**
Brief Definition and Description	System Average Interruption Frequency Index is the average number of interruptions that a customer would experience excluding Major Event Days
How the Metric is Calculated	
Scale (how it's assessed, etc.)	Lower is better
How the target, aspiration, True North, etc. is established	B – Industry Standard
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Savings of 6% or more of total managed spend while enabling DTE's capital plan execution
Brief Definition and Description	The percentage of realized savings compared to total SCM Managed Spend.
How the Metric is Calculated	Total Sourcing Savings (realized) including rebates ÷ Total Managed Spend.
Scale (how it's assessed, etc.)	Actual greater than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	Security Events (qty.)
Brief Definition and Description	The total number of security events discovered.
How the Metric is Calculated	*Private*
Scale (how it's assessed, etc.)	Lower number is better
How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	Self-Service Completion (% of attempted self-service transactions completed)
Brief Definition and Description	Represents the percent of the time that a customer is able to successfully complete their attempted self-service interaction.
How the Metric is Calculated	It is calculated for each transaction for which a self-service alternative is available. For example: $\frac{\text{Number of payments completed in a self-service channel}}{\text{Total number of self-service payment attempts}}$ The overall self-service completion rate is the average of the calculated completion rate for each transaction – *e.g., payments, outage, move-in/move-out, billing, etc.*
Scale (how it's assessed, etc.)	The goal of course would be to have 100% completion rates for every self-service channel. However, many variables can impact the ability of a customer to successfully complete their self-service interaction – *e.g., system defects, processes and policies, customer behavior, etc.* Invest in projects and initiatives designed to reduce any system defects and improve the ease with which customers can navigate the self-service channels to continuously improve this metric.
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	DTE Standard

Metric Name	Self-Service Customer Satisfaction (% CSAT customer survey results)
Brief Definition and Description	Customers completing an interaction in a self-service channel are surveyed and asked to rate their experience in that channel. Their responses across all self-service channels are averaged to calculate the overall level of self-service customer satisfaction.
How the Metric is Calculated	Customers are surveyed at the completion of their self-service interaction and are asked to rate their experience on a scale of 1-10. Channel satisfaction is determined as the percentage of customers who rate their experience an 8, 9, or 10.
Scale (how it's assessed, etc.)	DTE performance is compared to industry benchmarks to determine gaps to top quartile, top decile, and BIC. Annual targets are established based on the impact of projects and initiatives intended to continuously improve the metric and narrow those gaps.
How the target, aspiration, True North, etc. is established	B – Industry Standard, C – Top Quartile, D – Top Quartile, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	Self-Service Engagement (% of transactions attempted in self-serve channel)
Brief Definition and Description	Represents the percent of the time that customers are choosing to interact in a self-service channel for those transactions for which a self-service alternative is available.
How the Metric is Calculated	It is calculated for each transaction for which a self-service alternative is available. For example: Number of payments attempted in a self-service channel Total number of payment attempts (self-service channel + live agent) The overall self-service engagement rate is the average of the calculated engagement rate for each transaction – *e.g., payments, outage, move-in/move-out, billing, etc.*
Scale (how it's assessed, etc.)	Customers expect to be able to interact in the channel of their choosing, with more and more customers choosing to interact in a self-service channel. Invest in projects and initiatives that create satisfying and attractive self-service alternatives for customers, with the goal of shifting even more customers to these lower cost self-service options.
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement
Is this industry standard benchmarkable (Y/N)?	DTE Standard

Metric Name	Small Business Enrollments (# of enrollments)
Brief Definition and Description	This metric is simply the absolute number of DTE small business customers that are enrolled at any percentage in DTE's MIGreenPower program.
How the Metric is Calculated	There is no calculation; this is simply the summation of the number of small business customers enrolled.
Scale (how it's assessed, etc.)	It is assessed as part of the pre-ORM scorecard, which is reviewed by DTE Electric senior leadership on a weekly basis.
How the target, aspiration, True North, etc. is established	B – Industry Standard

Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	**Total MWh enrolled in MIGreenPower program (MWh)**
Brief Definition and Description	This metric reflects the total number of MWh enrolled in the program by DTE's residential, small business, and large business customers.
How the Metric is Calculated	This metric is the summation of the MWhs enrolled by DTE's residential, small business, and large business customers.
Scale (how it's assessed, etc.)	It is assessed as part of the pre-ORM scorecard, which is reviewed by DTE Electric senior leadership on a weekly basis.
How the target, aspiration, True North, etc. is established	B – Industry Standard
Is this industry standard benchmarkable (Y/N)?	Industry Standard

Metric Name	▪ **Unplanned Outage – Customer Channel Frequency (Count / Time)** ▪ **Unplanned Outage – Employee Systems Frequency (Count / Time)** ▪ **Unplanned Outage – Corporate Apps. Frequency (Count / Time)** ▪ **Unplanned Outage – Plant and Field Frequency (Count / Time)** ▪ **Unplanned Outage – Infrastructure Ops Frequency (Count / Time)** ▪ **Unplanned Outage – Security/Compliance Frequency (Count / Time)**
Brief Definition and Description	An unplanned outage is defined as any event that causes an interruption or degradation of service to the end user that occurs without one week of advanced notification. Key attributes are: ▪ During any time of day (24 hours 7 days a week) ▪ Any duration of time ▪ Regardless of asset availability to user (i.e., if there is a backup system that provides availability to the users, the unplanned outage should still be counted) ▪ Complete or partial loss of function ▪ Includes unplanned outages due to infrastructure availability such as network, disk and servers Note: An unplanned outage must also be considered when any of the following occurs: ▪ The duration of a planned outage was longer than scheduled. For this case, the portion of the outage that went beyond the scheduled time period needs to be included as an unplanned outage event. ▪ A planned outage was not taken. ▪ If a planned outage was not performed at the designated maintenance window (time period). This metric is calculated and reported for Critical and Key portfolio assets
How the Metric is Calculated	Weekly Actual: Count the total number of unplanned outages for the full week, one week prior to the current Monday. Year-To-Date (YTD): Sum of the weekly actual divided by the number of weeks to date.
Scale (how it's assessed, etc.)	Lower number is better

How the target, aspiration, True North, etc. is established	E – Continuous Improvement
DTE Standard or Industry Standard?	DTE Standard

Metric Name	▪ **Unplanned Outage: Corporate Applications (Duration)** ▪ **Unplanned Outage: Plant and Field (Duration)**
Brief Definition and Description	This measures the amount of time that a system is unexpectedly unavailable for business use during core support hours.
How the Metric is Calculated	The calculation is a measurement of the time that a system is unexpectedly unavailable.
Scale (how it's assessed, etc.)	Lower number is better
How the target, aspiration, True North, etc. is established	A – Executive Decision, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

Metric Name	**Warehouse Cost per Transaction**
Brief Definition and Description	An efficiency measure of total operating cost (excluding overheads) per unique SAP transaction completed (issues, returns, and receipts) per Business Unit, for a specified time period.
How the Metric is Calculated	Total Operating Cost / Total SAP Transactions.
Scale (how it's assessed, etc.)	Actual less than or meeting the target is good
How the target, aspiration, True North, etc. is established	A – Executive Decision, C – Top Quartile, E – Continuous Improvement
DTE Standard or Industry Standard?	Industry Standard

APPENDIX VI – GLOSSARY AND DEFINITION OF TERMS

The following terms from within the Five-Year IT Plan document are defined here for context and clarity. DTE-specific items are *italicized*.

Term	Definition
ADMS	Advanced Distribution Management System – The software platform that supports the full suite of distribution management and optimization. An ADMS includes functions that automate outage restoration and optimize the performance of the distribution grid. ADMS functions being developed for electric utilities include fault location, isolation, and restoration; volt/volt-ampere reactive optimization; conservation through voltage reduction; peak demand management; and support for microgrids and electric vehicles
Agile	A timeboxed, iterative approach to software delivery that builds software incrementally from the start of the project, instead of trying to deliver it all at once near the end
AGW	Agency Website
AI	Artificial Intelligence – Intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animal
AMI	Advanced Metering Infrastructure – An integrated system of smart meters, communications networks, and data management systems that enables two-way communication between utilities and customers through the meter
APC	Annual Planning Cycle – The annual process DTE undergoes to decide which projects to fund based on the strategic and financial goals of the company
BCF	Billion cubic feet of gas
BCSI	Bulk Electric System Critical System Information
Benchmarkable	From which a benchmark (standard metric) can be derived
BES	Bulk Electric System

Best-in-Breed Solution	The strategy of selecting the best product that will meet all your business requirements. With this approach, your business will select the best system—typically in its referenced niche or category—and it will perform a specialized function better than an integrated system. Enterprises often purchase software from different vendors to obtain the best-of-breed offering for each application area. For example, enterprises may purchase a human-resource package from one vendor and an accounting package from another
Best-in-Class Technologies	Best-in-class is defined as the superior product within a category of hardware or software. It does not necessarily mean best product overall, however. For example, the best-in-class product in a low-priced category may be inferior to the best product on the market, which could sell for much more
BRM	IT Business Relationship Management – DTE's IT Business Relationship Management (BRM) is a formal approach to understanding, defining, and supporting the company's internal IT business activities, adopted from ITIL
BWB	BudgetWise Billing – a DTE program that enables customers to pay their annual energy bill in equal monthly installments to avoid the seasonal ups and downs of their natural gas and electric bills.
BYOD	Bring Your Own Device refers to the trend of employees using personal devices to connect to their organizational networks and access work-related systems and potentially sensitive or confidential data. Personal devices could include smartphones, personal computers, tablets, or USB drives
C2M2	The Cybersecurity Capability Maturity Model (C2M2) is a U.S. Department of Energy (DOE) program enabling voluntary, consistent measurement of the maturity of an organization's cybersecurity capabilities. No assessment data is collected by the Department. The model is publicly available and can be downloaded now

CAD	Computer-aided design is the use of computers to aid in the creation, modification, analysis, or optimization of a design. CAD software is used to increase the productivity of the designer, improve the quality of design, improve communications through documentation, and to create a database for manufacturing
CAIDI	Customer Average Interruption Duration Index
Capitalizable	To capitalize is to record a cost or expense on the balance sheet for the purposes of delaying full recognition of the expense. In finance, capitalization is a quantitative assessment of a firm's capital structure. When used this way, it sometimes also means to monetize
CCA	Cloud Computing Arrangement – Hosting arrangements are those that allow customers access to, and use of, software products on an as-needed basis without possession of the software
CEP	Cyber Excellence Plan
Certified Bolt-Ons	An application that provides capabilities that complement those of the platform which are underwritten by the platform and bolt-on vendors to work in harmony throughout the lifecycle of the platform
CIP	Critical Infrastructure Protection – A concept that relates to the preparedness and response to serious incidents that involve the critical infrastructure of a region or nation. The American Presidential directive PDD-63 of May 1998 set up a national program of "Critical Infrastructure Protection"
CMS	Content Management System – A computer software used to manage the creation and modification of digital content. CMSs are typically used for enterprise content management and web content management
Core Modules	A Core Module is a module that provides the basic and fundamental capabilities and features of a software application
COTS	Commercial Off the Shelf – Commercial off-the-shelf or commercially available off-the-shelf products are packaged solutions which are then

	adapted to satisfy the needs of the purchasing organization, rather than the commissioning of custom-made, or bespoke, solutions
CR&B	Customer Relations and Billing
CRM	Customer Relationship Management – Customer relationship management is one of many different approaches that allow a company to manage and analyze its own interactions with its past, current, and potential customers
CSDC	Cybersecurity Defense Center
DB	Database
DERs	Distributed Energy Resources – electric generation units (typically in the range of 3 kW to 50 MW) located within the electric distribution system at or near the end user
DERMS	Distributed Energy Resource Management System – A platform which helps distribution system operators manage the customer-generated power that is added into the electric grid
DevOps	DevOps is a set of practices that combines software development and IT operations. It represents a change in IT culture, focusing on rapid IT service delivery through the adoption of agile, lean practices in the context of a system-oriented approach. DevOps implementations utilize technology — especially automation tools that can leverage an increasingly programmable and dynamic infrastructure from a life cycle perspective
DHS	Department of Homeland Security
DIMP	Distribution Integrity Management Pipeline
Discretionary Investment	Discretionary investment management is a form of investment management in which buy and sell decisions are made by a portfolio manager or investment counselor for the client's account. The term "discretionary" refers to the fact that investment decisions are made at the portfolio manager's discretion
DLP	Data Leakage Prevention – Data loss prevention software that detects potential data breaches/data ex-filtration transmissions and prevents them

	by monitoring, detecting, and blocking sensitive data while in use, in motion, and at rest
DMS	Distribution Management System – A system of computer-aided tools used by operators of electric utility grids capable of collecting, organizing, displaying, and analyzing real-time or near real-time electric distribution system
DNS	Domain Name System – The Domain Name System is a hierarchical and decentralized naming system for computers, services, or other resources connected to the Internet or a private network. It associates various information with domain names assigned to each of the participating entities. The DNS is the phonebook of the Internet. Humans access information online through domain names, like google.com Web browsers interact through Internet Protocol (IP) addresses. DNS translates domain names to IP addresses so browsers can load Internet resources
DOD	Department of Defense
EDI	Electronic Data Interchange – Electronic data interchange is the concept of businesses electronically communicating information that was traditionally communicated on paper, such as purchase orders and invoices
EEI	Edison Electric Institute
EGMS	Energy Gas Management System
EMM	Enterprise Mobility Management – A set of processes and technology focused on managing mobile devices, wireless networks, and other mobile computing services
EMS	Energy Management System – A system of computer-aided tools used by operators of electric utility grids to monitor, control, and optimize the performance of the generation or transmission system
Endpoint	Endpoints are devices such as tablets, laptops, and desktop computers, that employees use to access DTE's secure information, systems, and platforms
EOL	End of Life

EPRI	Electric Power Research Institute – EPRI conducts research, development, and demonstration projects for the benefit of the public in the United States and internationally. As an independent, nonprofit organization for public interest energy and environmental research, EPRI focuses on electricity generation, delivery, and use in collaboration with the electricity sector, its stakeholders, and others to enhance the quality of life by making electric power safe, reliable, affordable, and environmentally responsible
ERP	Enterprise Resources Planning
ESB	Enterprise Service Bus
eSCADA	eSCADA is a specific product name of a GE SCADA system for wind parks
ESG	Environmental, Social, and Governance
eSOMS	Electronic Shift Operations Management Solution, a specific software product from Hitachi/ABB
ESRI	Environmental System Research Institute – An international supplier of geographic information system software, web GIS and geodatabase management applications.
FCC	Federal Communications Commission – regulates interstate and international communications by radio, television, wire, satellite and cable in all 50 states, the District of Columbia, and U.S. territories
FDD	Flexible Due Date – a free service from DTE that allows customers to schedule the due date of their DTE energy bill each month
FERC	The Federal Energy Regulatory Commission – A United States federal agency that regulates the transmission and wholesale sale of electricity and natural gas in interstate commerce and regulates the transportation of oil by pipeline in interstate commerce.
Fermi	The Enrico *Fermi* Nuclear Generation Station, the Company's nuclear power plant on the shore of Lake Erie near Monroe, in Frenchtown Charter Township, Michigan

IT Enhancement Investment	A discretionary investment that improves usability or functionality of an existing asset but is not required to "keep the lights on" at this time
GADS	Generating Availability Data System – a mandatory industry program for conventional generating units that are 20 MW and larger
GDU	Gas Delivery Unit
GIS	Geospatial Information System – A conceptualized framework that provides the ability to capture and analyze spatial and geographic data. DTE uses ESRI for this capability; see ESRI
GMS	Generation Management Systems – A system of computer-aided tools used by electric generation operators to remotely monitor, dispatch, and control generation units to meet the demands of the customers on the electric distribution network
GPS	Global Positioning System – A satellite-based radio navigation system owned by the United States government and operated by the United States Space Force
GRAT	Gas Reconnect, Alteration, and Termination
GRC	Governance Risk and Compliance – A term covering an organization's approach across these three practices: Governance, Risk Management, and Compliance
Greenfield	Greenfield describes a software project that is developed from scratch rather than built from an existing component. It is often contrasted with "brownfield," which describes software built from an existing program
GRMI	Greater Michigan
I2R	Integrity Integration Resources
IaaS	Infrastructure as a Service
IAM	Identity and Access Management – Framework of policies and technologies for ensuring that the proper people in an enterprise have the appropriate access to technology resources

Initiatives	Efforts managed within a portfolio having minimal cross-functional business effort
INPO	Institute of Nuclear Power Operations
Insourced	To perform (a task or function) in-house or within their own company
Interoperability	The ability of computer systems or software to exchange and make use of information
IPS	Information Protection and Security – DTE's IT Security organization
IRP	Integrated Resource Planning
ITC	ITC Holdings, ITC Transmission – ITC Transmission was founded in 1999 as International Transmission Co., a subsidiary of Detroit Edison, charged in the ownership, operation, and maintenance of Detroit Edison's transmission system. In 2003, DTE sold the subsidiary to ITC Holdings Corp.
ITIL	Information Technology Infrastructure Library
IVR	Interactive Voice Response – Technology that allows humans to interact with a computer-operated phone system by using voice and touch-tone keypads
LACS	Logical Access Control System: Tools and protocols used for identification, authentication, authorization, and accountability in computer information systems
LM&M	License Management and Maintenance – Maintaining the proper licenses and user agreements for your technology such as, maintaining updated and affordable software and equipment licenses
MAOP	Maximum Allowable Operating Pressure
Market-Leading Platform	Marketing-leading platforms have the highest percentage of total sales revenue of a specific market. Market leaders dominates the market by influencing the customer loyalty towards it, distribution, pricing, etc.
MDMS	Meter Data Management System

MDT	Mobile Data Terminal – A ruggedized laptop used by field service personal sometimes mounted inside a vehicle
Microsoft Azure	Microsoft Azure is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through Microsoft-managed data centers
MIGP	MIGreenPower – a program that offers eligible electric customers simple and affordable renewable energy programs supporting DTE Energy's wind and solar projects
MIMO	Move in, Move out
MISO	Midcontinent Independent System Operator
MPSC	Michigan Public Service Commission
NERC	North American Electric Reliability Corporation
NERC-CIP	North American Electric Reliability Corporation Critical Infrastructure Protection: is a set of requirements designed to secure the assets required for operating North America's bulk electric system
NIST	National Institute of Standards and Technology – A physical sciences laboratory and a non-regulatory agency of the United States Department of Commerce. Its mission is to promote innovation and industrial competitiveness
NPS	Net Promoter Score – measures customer experience and predicts business growth. This proven metric provides the core measurement for customer experience management programs around the world.
NRC	Nuclear Regulatory Commission – An independent agency of the United States government tasked with protecting public health and safety related to nuclear energy
OMS	Outage Management System – A system of computer-aided tools used by electric distribution systems to detect and locate faults and assist in restoration of power

OT	Operational technology – Hardware and software that detects or causes a change, through the direct monitoring and/or control of industrial equipment, assets, processes, and events
Outsourced	A business practice of hiring a party outside a company to perform services and create goods that traditionally were performed in-house by the company's own employees and staff
PaaS	Platform as a Service – A category of cloud computing services that provides a platform allowing customers to develop, run, and manage apps without the complexity of building and maintaining the infrastructure typically needed
PBX	A telephone system within an enterprise that switches calls between users on local lines, while enabling all users to share a certain number of external phone lines, private branch exchange
PCI	The Payment Card Industry is an information security standard for organizations that handle branded credit cards
Penetration Testing	An ethical hacking practice of testing a computer hardware, network, or application to find security vulnerabilities that an attacker could exploit
PHMSA	Pipeline and Hazardous Materials Safety Administration
Picarro	A company and suite of products for gas leak detection
Pilot	The definition of a pilot, as defined in Case U-20645, filing U-20645-0013 on Feb. 4, 2021, page 7, is that "[a] pilot is a limited duration experiment or program to determine the impact of a measure, integrated solution, or new business relationship on one or more outcomes of interest."
Platform	Platform – An IT Platform brings together best-in-class technologies using core platform modules, certified bolt-ons, and third-party applications. Platforms provide technology asset health, increased agility at lower cost, and interoperability
PMIS	Project Management Information System – A suite of software tools to support project management including scheduling, task management, approvals, and status

Programs	A collection of projects that are large efforts with changes across multiple business units
Projects	Collaborative undertakings that are carefully planned to achieve a specific goal
Rapid Experiment	Rapid experiments are intended to understand what potential approaches or solutions may be worth considering. Put another way, rapid experiments result in knowledge and confidence that a promising approach or solution would be suitable for pursuing as a pilot.
Regulatory / Compliance	The investment is required to meet a legal and/or regulatory obligation for the company and is considered a high-priority investment
Return-to-Health	High-priority investments which are required to return an asset to health to address business process or security risks. These are sub-categorized into Critical, Standard, and Invest
SaaS	Software-as-a-Service – A software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted
SAP	Multinational software corporation that makes enterprise software to manage business operations and customer relations
SAP ERP	Created by SAP, a market leading enterprise software company, SAP ERP is an enterprise resource planning software suite that incorporates key business functions of an organization
SCADA	Supervisory Control and Data Acquisition System – a system of software and hardware elements that allow industrial organizations to control industrial processes locally or at remote location
SEP	Security Excellence Program
SLA	Service Level Agreement – A commitment between a service provider and a client. Certain aspects of the service – quality, availability, responsibilities – are agreed between the service provider and the service user
SMS	Short Message Service is a text messaging service component of most telephone, Internet, and mobile device systems

SOC	Security Operation Center
SOW	Statement of Work – the narrative description of a project's work requirement. It defines project-specific activities, deliverables, and timelines for a vendor providing services to the client
SOX	Sarbanes-Oxley refers to the annual audit in which a public company is obligated to provide proof of accurate, data-secured financial reporting
SRM	Supplier Relationship Management – the systematic approach to evaluating vendors that supply goods, materials, and services to an organization, determining each supplier's contribution to success and developing strategies to improve their performance
Stage 1 - Sense	*Stage 1* of DTE's innovation pipeline, where prioritized problems, opportunities, and options are explored
Stage 2 - Experiment	*Stage 2* of DTE's innovation pipeline, where rapid experiments are performed to gain knowledge and confidence
Stage 3 - Operationalize	*Stage 3* of DTE's innovation pipeline, where proven solutions are deployed into production to begin harvesting value
Stage 4 - Scale	*Stage 4* of DTE's innovation pipeline, where applicable solutions are deployed more broadly to maximize value
Standard-ization	Standardization is the process of implementing technical standards based on the consensus of different parties that include firms, users, interest groups, standards organizations, and governments
Strategic	A discretionary investment that generates a new value-creating asset or enables a new capability for the company
Sustainment	Investments which are required to keep DTE Energy's systems and assets operational at their current level of health. Also, a process of maintaining IT assets over time by ensuring systems continue to provide business value
Systems of Engagement	Systems that are built with the customer in mind

Systems of Intelligence	Systems that leverage data and information from multiple systems to optimize and transform processes
Systems of Record	Systems that host processes and support compliance, efficiency, and standardization
Tele-communications	The transmission of information by various types of technologies over wire, radio, optical or other electromagnetic systems
Third-Party Applications	A software application that was developed by someone (a person, or a company) other than the original vendor of the platform
TIC	Technology Investment Committee, the cross-functional executive team that reviews, approves, and governs IT investments
TSA	Transportation Security Administration
Vendor	A commercial organization that acquires or develops software to sell to the end user
WAM	Work and Asset Management – A suite of software tools used to track asset state and plan work around maintenance, repair, and operations of assets
Waterfall	Waterfall project management entails mapping out a project into distinct, sequential phases, with each new phase beginning only when the prior phase has been completed. The waterfall system is the most traditional method for managing a project, with team members working in a linear fashion towards a set end goal.