Founded in 1852
by Sidney Davy Miller

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January 29, 2026

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

Re: Upper Michigan Energy Resources Corporation
Case No. U-21976

Dear Ms. Felice:

Attached for electronic filing in the above-referenced case is Upper Michigan Energy Resources Corporation's Distribution System Plan for 2026 through 2030.

Please be advised that historical 2025 financial information is not-yet finalized and will be filed in this docket once completed and available for public review.

Should you have any questions or concerns, please advise.

Very truly yours,

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

Sherri A. Wellman

Digitally signed by: Sherri A. Wellman
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# Upper Michigan Energy Resources Corporation

# Distribution System Plan

**January 2026**

## Table of Contents

# 1. Executive Summary

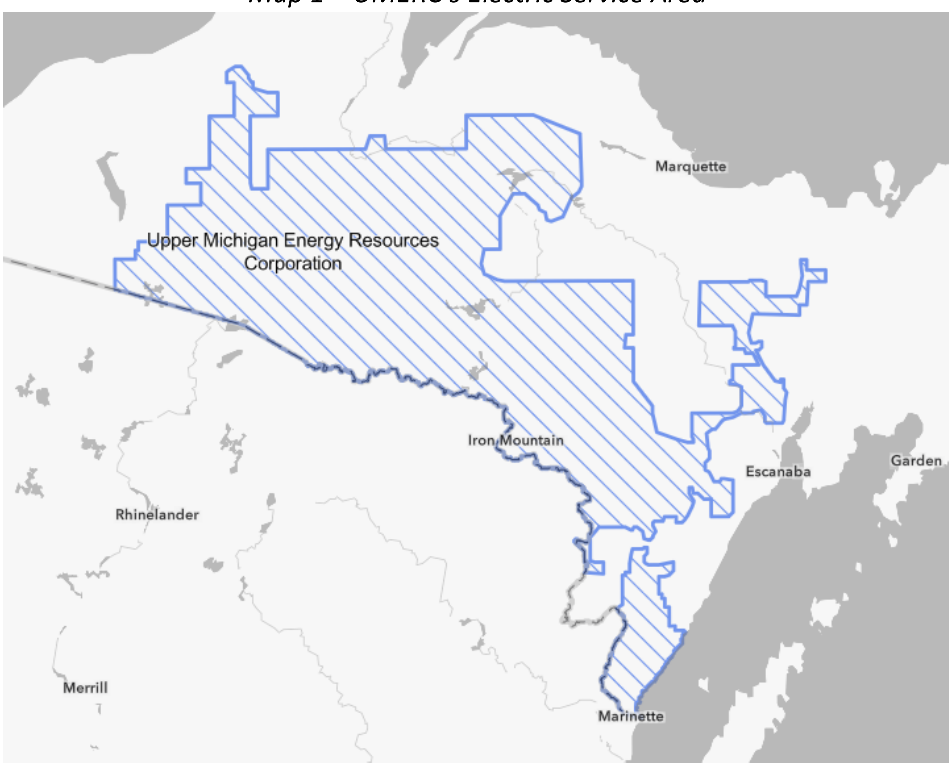
Upper Michigan Energy Resources Corporation ("UMERC") is a Michigan regulated electric and natural gas utility formed on January 1, 2017, through the consolidation of service areas previously managed by We Energies and Wisconsin Public Service. Located entirely in the Upper Peninsula of Michigan, UMERC, a subsidiary of WEC Energy Group ("WEC"), serves more than 42,000 energy customers (37,000 electric, 5,000 gas). WEC is one of the nation's leading energy companies, with the strategic vision, operational expertise and financial resources to meet the electricity and natural gas needs of customers across the Midwest.

UMERC provides retail electric service to the Michigan electric customers formerly served by Wisconsin Electric Power Company, doing business as We Energies, in the service areas located in the counties of:

| | | |
|---|---|---|
| Alger | Gogebic | Menominee |
| Baraga | Houghton | Ontonagon |
| Delta | Iron | |
| Dickinson | Marquette | |

UMERC also provides retail electric and natural gas service to Michigan customers formerly served by Wisconsin Public Service ("WPS") in Menominee County, Michigan.

*Map 1 – UMERC's Electric Service Area*




Electric Utility Service Areas of Michigan
Source: https://www.michigan.gov/mpsc/consumer/electricity/electric-utility-service-area-map

On October 10, 2024, the Michigan Public Service Commission ("Commission") approved a settlement agreement in Case No. U-21541 where the parties to the case agreed that UMERC would work with Staff and file a Distribution System Plan ("DSP") by January 30, 2026. This DSP complies with the orders in Case No's U-21541 and U-20147 and is UMERC's first filing of a DSP.

This DSP for UMERC is driven by three major factors. Much of the UMERC system was built in the 1970s and the 1890s. Average pole age is 42 years old and 20% of UMERC's substations are currently over 50 years old. Vegetation is the leading cause of outages where UMERC customers have experienced on average 2 outages per year with all outages considered.

The plan puts safety as the top priority for UMERC. Only two OSHA recordable incidents took place at UMERC during the past 5 years. Beyond the employees, UMERC also engages first responders, contractors, and customers to improve safety.

Line clearance is critical for achieving a reliable system for the heavily forested area that UMERC operates in. Increased costs to trim has presented a need to increase tree trimming funding levels to help meet our reliability goals.

Inspection and maintenance is done through a variety of programs that target age or specific type of construction that results in high historic failure rates. Thousands of ground mounted equipment, poles and other equipment is inspected each year and replaced or repaired as needed. Substations are inspected multiple times a year and preventable maintenance tasks are performed.

Improvements to the distribution system have been made through a variety of system improvement projects across the service area with reliability and resiliency improvements being the main focus. Aged substation assets have been renewed and the new Keel Ridge substation was added to improve the distribution system in Iron Mountain. This is deemed very important to the majority of our customers, as we have learned through our community outreach efforts.

UMERC is planning for a future that could include load growth from electrification, also for the need to be more reliable and resilient to meet the requirements of our customers. Construction standards have been modernized to allow for easier adoptions of new technologies and electrical loads such as electric vehicles. Underground lines will replace overhead lines in areas were vegetation is a significant concern for reliability.

# 2. Distribution System Overview

## 2.1. General Asset Health and Condition

The following information is provided to give a general overview of the composition of UMERC's electric distribution system, and show the approximate totals of some of the main components for voltages 7.2 kV through 24.9 kV. Please note that in addition to the following data in Table 1, there are roughly 900 miles of secondary conductors as well.

*Table 1 – Electric Distribution System Composition*

| Voltage (kV) | Voltage Code | Customers | Circuits | Direct Buried (miles) | Overhead (miles) | Total Circuit (miles) |
|---|---|---|---|---|---|---|
| 7.2 | M | 150 | 2 | 19 | 22 | 41 |
| 12.47 | F | 493 | 2 | 5 | 45 | 50 |
| 13.8 | H, W | 12,232 | 19 | 157 | 367 | 524 |
| 24.9 | Z | 25,758 | 39 | 733 | 1,810 | 2,543 |
| Total | | 38,633 | 62 | 914 | 2,244 | 3,158 |

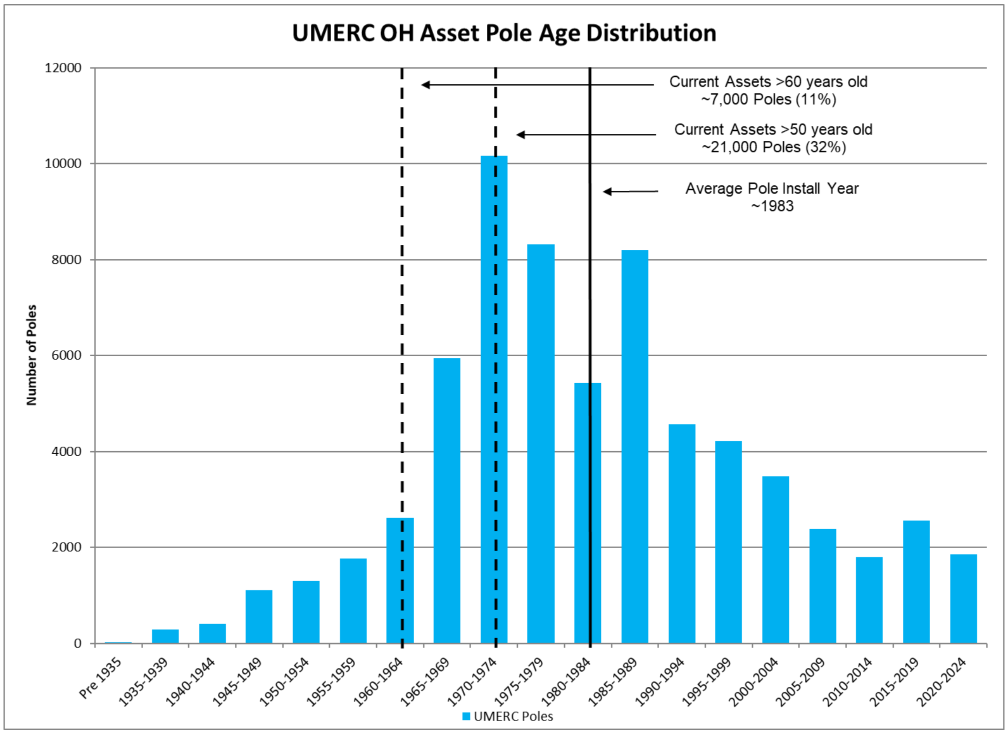
Table 2 provides general statistics related to UMERC's substations. UMERC has a total of 26 substations, with 36 substation transformers in Michigan. Some of these substations directly feed large customers. In these instances, the substations do not have any distribution lines associated with them. There are additional We Energies and WPS substations located in Wisconsin which also supply electrical energy to UMERC customers. As described in more detail in section 3.7.1, substation transformers are a critical component of the distribution system.

*Table 2 – Substations*

| Voltage (kV) | Substations | Transformers | Single Customer Substations |
|---|---|---|---|
| 4.16 | 2 | 3 | 2 |
| 12.47 | 1 | 1 | |
| 13.8 | 8 | 15 | 5 |
| 24.9 | 15 | 17 | |
| Total | 26 | 36 | 7 |

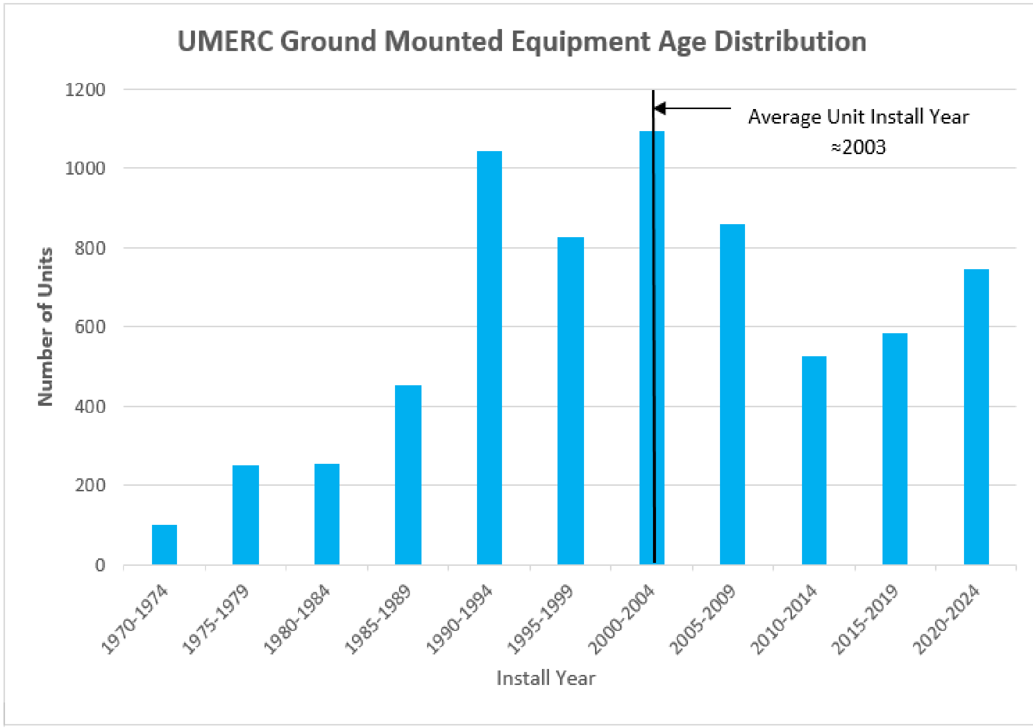
The UMERC overhead ("OH") distribution system is primarily comprised of about 66,000 wood poles that are, on average, 42 years old. Much of the UMERC electric OH system was built in the 1970s and 1980s, and will be in need of replacement in the coming years. The following image shows the pole age distribution for UMERC. Approximately 32 percent of all UMERC poles are more than 50 years old.

*Chart 1 – Overhead Asset Pole Age Distribution*



UMERC has approximately 6,800 ground mounted transformers, switchgear, pedestals, and junction boxes currently in service across its distribution system. The average installation year for this equipment is 2003. However, many of these units are now more than 40 years old with some exceeding 50 years, and may require replacement in the coming years. The following image shows the ground mounted equipment age distribution for UMERC.

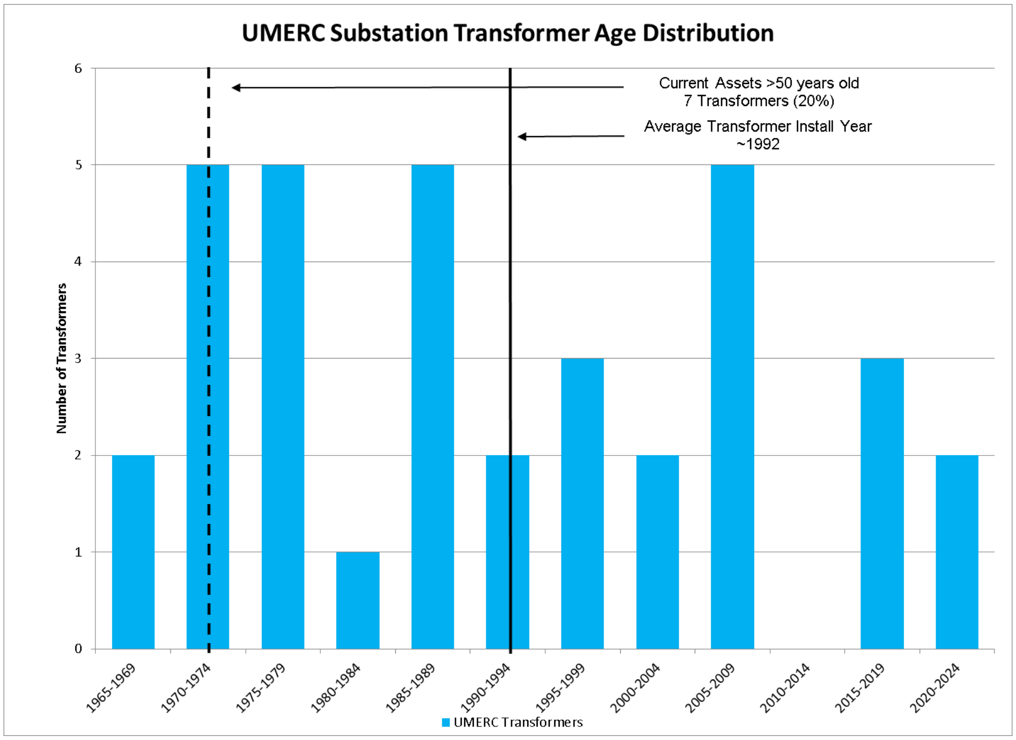
*Chart 2 – Ground Mounted Equipment Age*




Due to the aging infrastructure that makes up the UMERC distribution system (as shown in the graphs above), UMERC established several programs to further assess the state of its system and the assets supporting it. These inspection programs were designed to identify assets on the distribution system that are failing or at risk of failing in the near future. Complementary programs have also been established to best remediate the concerns identified during inspections, whether that be replacement, repair, or larger scale projects to rebuild the system.   These programs are discussed further in Section 2.5.3.

UMERC has 36 substation transformers on its distribution system. The average substation install year is 1992, and there are 7 substation transformers that are over 50 years old. The following image shows the breakdown of UMERC's substation transformers by installation year.

*Chart 3 – Substation Transformer Age*




## 2.2. Historical Reliability Metrics

UMERC uses industry standard reliability metrics based on the Institute of Electrical and Electronics Engineers ("IEEE") standard 1366-2012 IEEE Guide for Electric Power Distribution Reliability Indices. A sustained outage is an outage greater than five minutes in duration.

Table 3 below reports on the historical reliability metrics for All Events, which includes planned, unplanned, and transmission caused outages. The figures without Major Events are sourced from the same data but have outages occurring on Major Event days, as defined by IEEE 1366 2.5 beta method, removed. Removing Major Event days changes all indices but primarily impacts the duration-based indices, Customer Average Interruption Duration Index ("CAIDI") and System Average Interruption Duration Index ("SAIDI"), as the majority of UMERC's outage minutes occur during Major Event Days.

This can be seen in the SAIDI and CAIDI 2024 All Events metric. The SAIDI and CAIDI 2024 without Major Events are much closer to the 5 year average. The Major Event days that impacted the 2024 metrics will be discussed in more detail later in this section of UMERC's DSP.

*Table 3 – Historical Reliability Indices*

| Reliability Indices | Metric | 2024<br>All Events | 5 Yr. Ave.<br>All Events | 2024<br>w/o Major Events | 5 Yr. Ave<br>w/o Major Events |
|---|---|---|---|---|---|
| | **SAIFI** | 1.71 | 2.21 | 1.02 | 1.58 |
| | **CAIDI** | 632 | 340 | 213 | 162 |
| | **SAIDI** | 1082 | 751 | 218 | 256 |

*SAIFI (System Average Interruption Frequency Index)*

This metric tracks the number of times, on average, that a customer experiences a sustained interruption. It is calculated by dividing the number of Customer Interruptions (CI) by the number of customers served. A SAIFI of 1.0 means on average a customer would experience one interruption a year, while 0.50 would mean on average one interruption every two years.

*SAIDI (System Average Interruption Duration Index)*

This metric provides the average minutes of outage for all customers served. It is calculated by dividing the number of Customer Minutes of Interruption ("CMI") by the number of customers served by the system. A SAIDI of 60 minutes means that on average a customer would experience a total of one hour of interruption a year. This could be all at once or totaled over several interruptions.

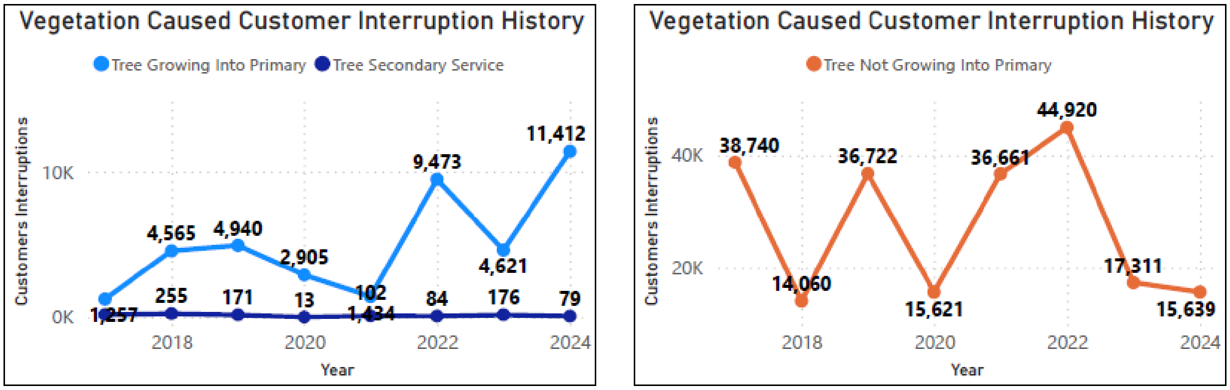
*CAIDI (Customer Average Interruption Duration Index)*

This metric provides the average minutes of outage for customers who experience an outage. It is calculated by dividing the number of Customer Minutes of Interruption (CMI) by the number of CI. A CAIDI of 100 minutes means that if a customer experiences an interruption, the average duration would be 100 minutes.

Historically, the leading cause of outages on UMERC's distribution system has been vegetation caused outages, and the leading cause of vegetation outages in UMERC service area is trees and limbs falling on the conductors from outside of the trim zone. The number of customers impacted over the past seven years can be seen by the vegetation cause in Charts 4 and 5, below.

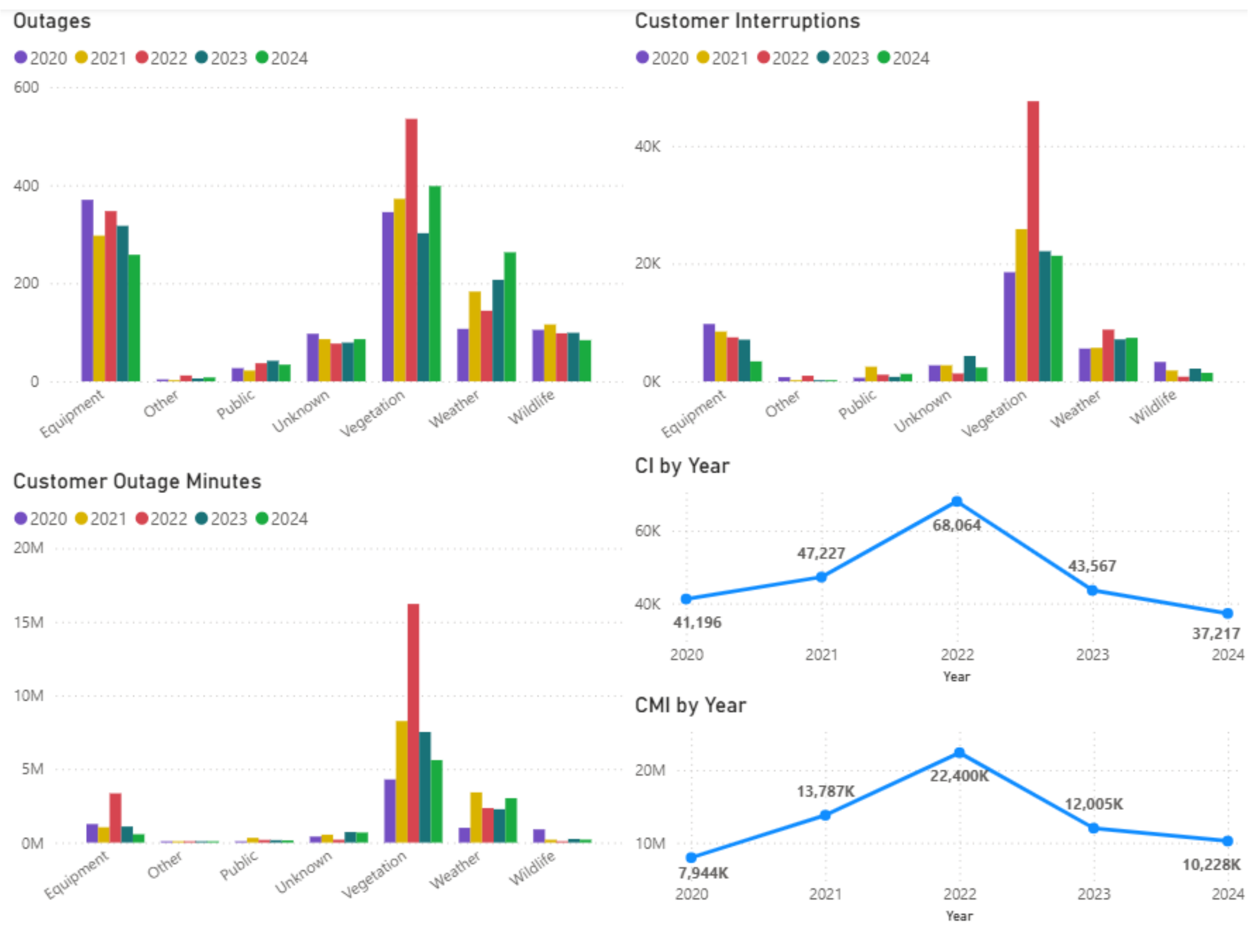
In 2022, UMERC modified how Vegetation caused outages were documented to better align practices with other WEC utilities. For the legacy We Energies service area, vegetation caused outages changed from the options of 1) Fallen Limb, 2) Fallen Tree, 3) Tree Growth and 4) Vine Growth to 1) Tree Growing Into Primary, 2) Tree Secondary Service and 3) Tree Not Growing Into Primary. This adjustment in classifications resulted in an increase in the Tree Growing Into Primary Customer Interruptions from a reporting perspective, as shown in the charts below.

*Chart 4 – Vegetation Caused Interruption History*




Though vegetation outages are the primary cause of outages in UMERC's service area, other causes contribute to outages, too, including Equipment, Public, Weather, Wildlife, Other, and Unknown. The following charts provide a five-year history of UMERC's distribution system outages by cause.

*Chart 5 – Outage Cause Categories*

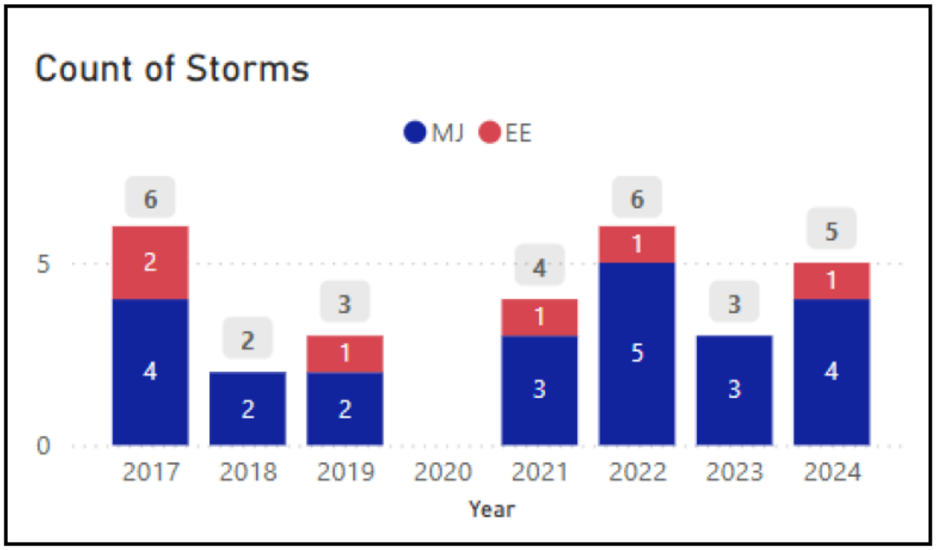


UMERC recognizes that vegetation has been, and will continue to be, the leading cause for Customer Interruptions and Customer Outage Minutes, and this DSP will discuss more about trimming plans later in the Forestry and Vegetation Management section.

Though there has been no singular outage event that has affected more than 10% of UMERC's customer base in Michigan, within the past five years, there have been days that have had more than 10% of the customer base interrupted. The next section of this DSP will explain how UMERC categorizes these days of higher outage activity.

Since the establishment of UMERC in 2017, there have been 23 recorded major storm events and six extraordinary events, as shown in Chart 6 below. These events can cause great damage to the distribution system, interrupting large quantities of customers and extending outage times.

*Chart 6 – UMERC Storm Count*



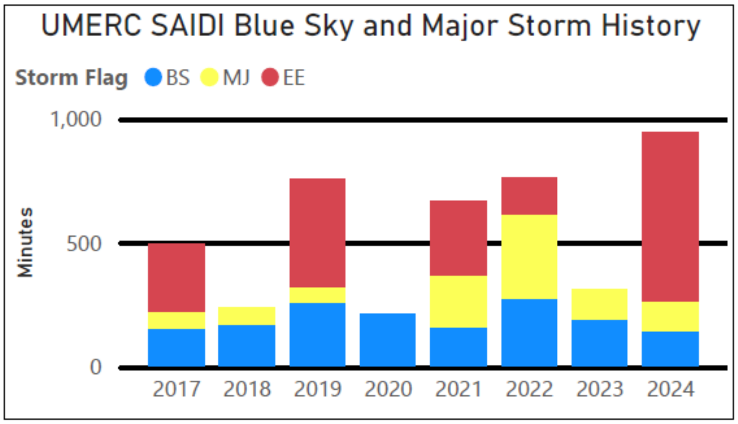

Classifying storms allows reliability performance to be evaluated for unusual events versus "blue sky" conditions. In particular, UMERC uses Major Storm CAIDI to assess operational performance, such as restoration and staffing practices and system resilience during significant weather events.

Since the company was formed in 2017, UMERC has classified a Major Storm as a weather event with at least 2,000 (roughly 5%) sustained and unplanned customer interruptions over a widespread geographic area. A Major Storm weather event begins in the hour when several, weather related, sustained outages occur and continues through the last hour that has several, weather related, sustained outages. Often this may not occur within a calendar day. A new Major Storm begins if enough time passes since the end of the previous Major Storm for the weather to return to normal operations.

Some weather events are so large that they are considered beyond the distribution system design basis or operational control. These are classified by UMERC as Extraordinary Events. Extraordinary Events are declared when severe weather conditions result in 8,000 (roughly 20%) or more unplanned and sustained customer interruptions, or for events of sufficient intensity to give rise to a state of emergency declaration by the local, state, or federal government.

Please note that the SAIDI presented in Chart 7 below is an internally tacked SAIDI metric, and does not include planned and transmission caused events. This is why the SAIDI All Events value in the Historical Reliability Indices table may not match.

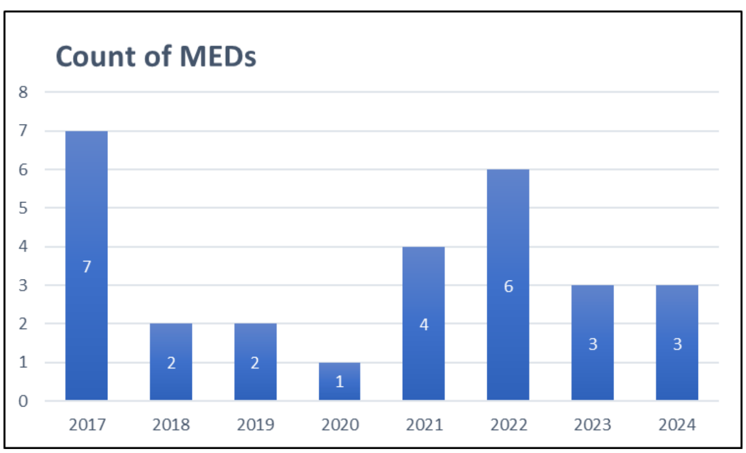
*Chart 7 – Duration contribution to SAIDI during Blue Sky, Major Storm, and Extraordinary Event Days*




On April 2, 2024, UMERC's service area experienced an extraordinary snow and wind weather event that interrupted over 15,000 customers (nearly 40% of the customer base), consisting of roughly 180 outages with an average duration of 1,710 minutes. This is the highest CAIDI weather event that UMERC has experienced since formation in 2017. As described earlier, this weather event substantially impacted the SAIDI and CAIDI 2024 All Events Reliability Indices. All three of the major event days of 2024 occurred during this storm event and the days of restoration that followed.

IEEE Major Event Day (MED) is another common method for defining storms. A MED is a calendar day in which the daily SAIDI exceeds a statistical threshold. UMERC uses this method for reporting when required for benchmarking surveys or industry initiatives.

*Chart 8 – MED History*



## 2.3. Safety and Health

### Safety and health

Safety is UMERC's top priority, reinforced by targeted programs, goals, and engagement with employees and the public. Our unwillingness to view injuries as inevitable is an important part of our cultural platform, an ongoing safety commitment referred to as "Target Zero." We are committed to accountability by speaking up regarding safety concerns, followed up by learning through the capturing, implementation and sharing of safety learnings.

Our Executive Safety Committee ("ESC") directs our safety strategy and works to support consistency and best practices. The committee provides a forum to evaluate safety performance and risk more holistically, including sponsorship of new programs and strengthening policy. Management and represented employees work together to identify risks and prevent injuries, including joint safety action teams. Management provides daily safety information, and implements safety programs and evaluates outcomes. Field employees have a variety of tools available to identify and manage risks, follow rules and procedures, and speak up about safety issues.

Supporting the ESC are a variety of teams / efforts that are focused on increasing engagement, addressing risks and reducing injuries. These include the Excellence in Safety Team that guide leader field observation visibility and hazard control mechanisms, especially for the prevention of significant incidents and fatalities (SIFs). Safety plans are designed for a consistent approach toward mental, physical and / or vehicle equipment readiness that addresses area risks. Finally, Local 2150, the International Brotherhood of Electrical workers, have safety liaisons who provide direct feedback to employees regarding work behaviors, as well as summaries of safety issues and other opportunities to management.

**Safety goals and risk management**

In addition to measuring lagging indicators, we set goals around measurable leading indicators, which guide injury-prevention activities such as field inspections. UMERC monitors Days Away, Restricted or Transferred ("DART"), lost-time and OSHA-recordable incidents. In the past 5 years, UMERC has only two OSHA-recordable incidents, and both occurred in 2021. In 2024, UMERC began tracking preventable vehicle collisions to support active management with establishment of improvement goals and plans to drive continuous improvement and risk reduction.

Safety leading-indicator goals include:

- **Observation programs** — to identify and address at-risk behaviors, while also reinforcing positive behaviors in addition to the peer observation program.
- **Near miss / unsafe condition (NMUC) program** — to report high-impact near-miss events and unsafe conditions that relate to seasonal risks and/or have a high potential for significant injury or fatality. We respond to action items and communicate results to employees.

### Risk evaluation

UMERC is working with industry allies for use of standardized classifications to help manage risk and share findings as leading indicators. Incidents that have potential for, or result in, a SIF event are evaluated to determine the need for formal investigation. This in turn helps maintain compliance with procedures and engages workers in improvement opportunities.

Safety evaluates incident trends to identify hazards that are most prominent at different times of the year, and leaders communicate these risks to employees. We evaluate all incident types (injuries, vehicle damage, and NMUCs) for their potential or actual severity, thus offering high-impact risk reduction and improvement opportunities.

### Ergonomic enhancements

The most common injuries continue to be strains and sprains. Safety teams analyze tools, equipment and job techniques based on ergonomics to prevent such injuries. Handbooks and videos are used to demonstrate proper tool use, and stretching and strengthening programs also are available to employees.

### Employee health and wellness

We provide various benefits and resources that promote healthy living, both at work and at home. We encourage employees to receive preventive examinations, take time off when needed, use remote work options as appropriate and proactively care for their health including the use of the employee assistance program. Also offered are wellness programs that facilitate health screenings, host health challenges for individuals and teams, and provide other resources to encourage employees to prioritize their mental and physical health.

### Public safety

UMERC supports public safety throughout our operations and in our communities. The safety of our employees and the public is our priority as we build and operate electric distribution lines and facilities. Included are programs to manage the risk of wildfire and other electric system incidents to de-energize and / or isolate impacted areas. We proactively share safety information with a variety of audiences, including students, teachers, families, contractors, first responders and customers.

### Contractor safety

Construction contractors are a key audience. UMERC reaches out annually to provide needed instruction on working safely around energy facilities, including safety digging information (e.g., 811). Furthermore, we hold pre-construction meetings that focus on safety practices. Contractors are provided with safety program expectations to reinforce the importance of performing work safely on company property without unnecessary risks. In many instances, each prospective contractor’s safety performance is reviewed before awarding contracts.

**First responders**

UMERC works closely with first responders, including public safety agencies, police and fire departments, rescue services, emergency government representatives and public officials. They need to know how to reach and work safely with us during emergencies.

**Customers**

Customers receive energy safety information through a variety of channels, including our bill inserts, direct mail, email, company websites, paid advertising and social media. Annual campaigns address the importance of safe digging, preparing for the possibility of power outages, and how to identify and report a natural gas leak, among others.

**Supporting first responders in our communities**

Each year, the Rewarding Responders Grant program awards up to $2,000 per agency to help fire, police and emergency medical service agencies purchase lifesaving equipment or important training for their members.

## 2.4. Historical O&M and Capital Spending

Table 1 in Appendix 2 shows the capital spend for UMERC over the prior 5 year period from 2021 through 2025 by spending category. Categories like New Services and Facility Relocation are reactive based on the requests we get during a given year. Inspection and Maintenance can vary based on inspection results that we received from the most recent inspections.

Table 3 in Appendix 2 shows the operations and maintenance ("O&M") spend for UMERC for the prior 5 year period from 2021 through 2025 by FERC Account, including Electric Design, Substations and Field Operations. UMERC's specific operations and programs are described in more detail in Section 2.5 of this DSP.

## 2.5. Operations and Programs

### 2.5.1. Line clearing / vegetation management

Much of the UMERC service area is covered in high-density forest which makes vegetation management a critical part of UMERC's reliability plan for the area.

Line Clearance is key to reliability for all utilities, especially for utilities that have facilities in heavily forested areas. The most effective way to positively impact reliability at the best value for the customer is through an effective cycle based trimming program.

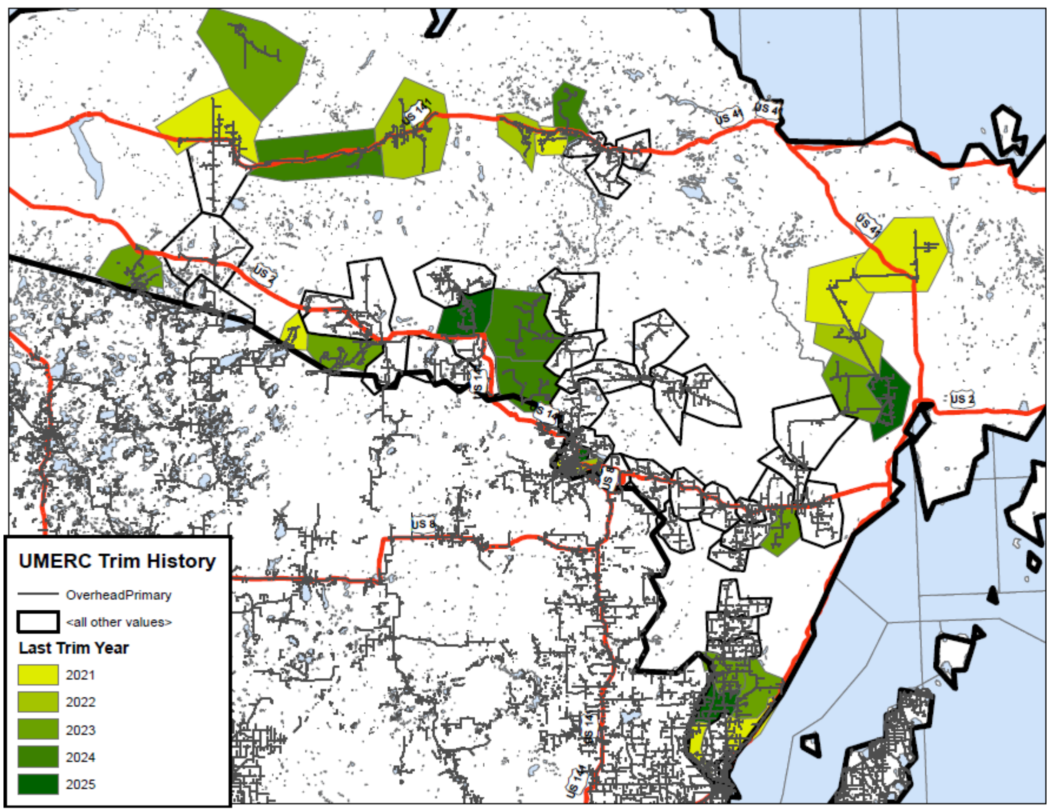
To evaluate the effectiveness of its line clearance program, and as described in more detail earlier in Section 2.2 this report, UMERC tracks tree related outages (no matter the weather condition) across three categories: 1) Tree Growing into Primary, 2) Tree not Growing into Primary and 3) Service / Secondary outages. Outages categorized as Tree Growing into Primary can be significantly reduced through the implementation of a systematic and appropriate tree trim cycle. Outages categorized as Tree not Growing into Primary are primarily influenced by proactive hazard tree mitigation efforts and the effects of weather on structural weaknesses in trees. Due to the many ways which a tree can fail, accurate prediction of tree-related failures is extremely difficult without complete removal of all trees within a 100 foot radius, an approach that is both prohibitively expensive and legally challenging.

UMERC's line clearance specification varies by tree species to account for the different growth rates across species. The pruning specification has a minimum requirement of 10' of clearance for fast regrowth species, and 6' for slow regrowth species. All species, however, have a 20' overhang removed to prevent the majority of the overhanging branches from causing an outage. If this specification is maintained at the appropriate cycle length based on tree species and closeness of the nearest structure limb / trunk to the primary, the tree growing into outages will have a minimum impact. The specification also calls for dead or dying trees within 30' of the nearest primary that could impact the primary to be trimmed so it will no longer potentially contact the primary. This has been and will continue to be a large issue in UMERC's service area due to the insects and diseases such as Oak Wilt, Emerald Ash Bore, Spruce Bud Worm and many others. This has the largest impact on non-growing outages for investment spent if maintained on a 3-4 year cycle. Open wire secondary is trimmed to have 5' clearance for fast regrowth and 3' clearance for slow regrowth species. All other overhead conductors are trimmed to eliminate any deflection due to their lower voltage and covering, which minimize tree contact outages.

The costs of doing trimming in the UMERC service area has increased 60% from 2019 to date. Refer to Appendix 3 for more information.

The following map shows UMERC's line clearance work over the prior 5 years.

*Map 2 – Historical Line Clearance*




To implement a 4 year pruning cycle in urban areas (requiring approximately 53 miles per year) and a 7 year cycle in rural areas (requiring approximately 293 miles per year), supplemented by mid-cycle hazard tree mitigation every 3 to 4 years (approximately 294 miles per year), the line clearance program would require an annual budget of $2.5 to $3 million over a 5 year period. This is an increase of approximately $1.5 to $2 million dollars over today's annual spend on vegetation management for UMERC.

This funding level would enable the vegetation management team to complete initial pruning of overgrown vegetation and removal of fast-growing brush beneath primary lines. Subsequently, it would support maintenance on an effective, recurring cycle, stabilizing long-term costs and improving system reliability.

### 2.5.2. Storm response and restoration

Storm response and customer restoration efforts at UMERC are completed through identified roles and responsibilities before, during and after a storm event involving customer power outages. This effort includes the use of outage prediction software that is installed in electric meters and across the distribution system, as well as other operating and safety procedures. Procedures identify employee responsibilities in major roles including training material for each employee or outside crews working on UMERC's infrastructure.

UMERC's customer are encouraged to report and check the status of their power outage at the hyperlinks below depending on the legacy electric distribution company providing service to them – the data is refreshed regularly based on updates received from company emergency responders as soon as information is available. Another way customers can stay informed is through a smart device app that can be installed on electronic devices such as tablets or smartphones.

https://www.we-energies.com/outagesummary/view/outagegrid

https://www.wisconsinpublicservice.com/outagesummary/view/outagegrid

### 2.5.3. Inspection and Maintenance - Distribution Lines

#### 2.5.3.1. Introduction

UMERC manages asset health through a number of methods. System wide programs are typically managed by asset type. The asset-based programs maintain assets based on an aged-based cycle or by targeting a specific type or construction that has high historic failure rates. Specific asset programs are discussed in more detail in the following sections.

#### 2.5.3.2. Ground Mounted Equipment

UMERC manages the health of its underground distribution system through a six-year cycle of ground mounted equipment ("GME") inspections. GME includes the pad mounted transformers, switchgear, junction boxes and pedestals that are devices installed as access point to the underground distribution system. These inspections identify corrosion, enclosure damage and other condition issues that could impact reliability or safety. At UMERC, 6,800 units are inspected on a six year cycle. Inspectors check for corrosion, oil leaks and other security issues. These inspections cover transformers, switchgear, junction boxes and pedestals. Inspectors complete minor repairs in the field as needed, such as patching openings or replacing locks. In 2025, 18 units were repaired through the corrective maintenance program. When equipment is beyond repair, it is removed from service and replaced. Replacements are often due to oil leaks and surface rust on the unit. In 2025, 5 units were replaced through the GME replacement program. The UMERC GME replacement program also serves as an emergent response for any units that fail during the year, ensuring deteriorated equipment is promptly removed from service. Many of the GME units in service today were installed during the same period as the underground cables they are connected to, as reflected in the asset age chart in Section 2.1. As these assets age, both the equipment and the cables experience similar degradation, including insulation breakdown, corrosion and moisture intrusion. The GME inspection and replacement programs work in coordination with the cable replacement program to address these age related reliability concerns. By evaluating and replacing GME and cable together, we help ensure the underground system remains reliable and capable of meeting future operational needs.

#### 2.5.3.3. Line Capacitor Banks

At UMERC, the Line Capacitor Bank Replacement Program is an emergent failure focused program. Units are replaced based on crew reporting of unit failure or other conditions affecting power factor correction. In 2023 and 2024, a total of 3 capacitor banks were replaced as part of the UMERC Capacitor Bank Replacement Program due to unit failure.

#### 2.5.3.4. Line Reclosers

At UMERC, line reclosers are inspected annually as a part of the company wide Line Recloser Counts Program. During these inspections, the number of operations since the previous inspection are recorded and compared against the previous years' counts. For applicable units, the control battery is replaced during the inspection, if it has reached end of life. The condition of the units and any maintenance concerns are recorded during these visits. Based on these inspections, line recloser maintenance and replacement work requests are created. Line reclosers are also replaced emergently based on failures or other conditions that create reliability concerns. In 2023 and 2024, a total of 4 line reclosers were replaced as a part of the UMERC Line Recloser Replacement Program based on the annual counts and emergent failures.

#### 2.5.3.5. Pole Inspections

At UMERC, pole inspections are completed on a 13 year cycle. This inspection cycle amounts to roughly an average of 5,000 poles being inspected each year. During inspections, poles are generally excavated, sounded, and bored to check for ground line decay. Poles are also visually inspected to check for any other conditions that may be signs of compromised structural integrity. In 2023 and 2024, a total of 8,212 poles were inspected as a part of the UMERC Pole Life Extension Program. Based on pole conditions, ground wire is repaired, high voltage signs are replaced, and guy markers are replaced to reflect current standards during the inspection visit. The poles are also generally treated during these inspections to prevent any further decay. In 2023 and 2024, a total of 4,957 poles were treated as a part of the UMERC Pole Life Extension Program. Based on the inspections, it is determined whether these poles have sufficient structural integrity to support the overhead distribution system. If the poles do not, they are tagged and recommended for either replacement or reinforcement with a steel truss. Poles can also be replaced outside of the inspection based replacements due to emergent concerns communicated by crews. In 2023 and 2024, a total of 187 poles were replaced, 125 originating from inspection results and 62 from emergent concerns, as a part of the UMERC Pole Replacement Program, and 165 poles were reinforced as a part of the UMERC Poles Life Extension Program.

#### 2.5.3.6. Porcelain Cutout and Arrester Replacement

UMERC also employs a porcelain cutout and arrester replacement program, which began in 2023, to remove porcelain cutout and arrester from the overhead distribution system and replace them with polymer. The aging porcelain is seen as a reliability concern due to the frequent failure of these devices and reduction in efficacy of porcelain when it fails and cracks. UMERC is working to replace all porcelain on the overhead distribution system and is completing the work by feeder. Feeders are prioritized based on previous years' reliability metrics as well as cutout and arrester outage occurrences. In 2023 and 2024, a total of 3,115 poles were remediated as a part of the porcelain cutout and arrester replacement program. We estimate that there are roughly 8,500 remaining poles with porcelain remaining on the system that we aim to replace with polymer cutouts and arresters over the next 5-10 years.

#### 2.5.3.7. Cable Replacement

We Energies and WPS have operated cable replacement programs since the early 2000s, while UMERCs program began in 2017 with the company's formation. UMERC's aged cable replacement program aims to reduce the risks of underground outages and service interruptions. The program targets older primary distribution cable, much of which was installed in the 1970s and 1980s and is unjacketed, leaving the concentric neutrals exposed to moisture. Overtime, this exposure leads to corrosion, weakening the cable until it slowly deteriorates and ultimately fails. Projects each year are prioritized using a scoring process that considers outage history, cable age, and customer impact.
Investments ensure that aging primary cable is systematically retired and replaced, reducing the likelihood of increased customer outages and improving overall system reliability. Cable replacement totals vary year to year, and are driven primarily by the increasing age of the remaining unjacketed cable and rising costs for materials and labor. As older cable continues to deteriorate, more segments are identified for replacement to maintain system reliability. In addition, higher costs for construction, contracting and restoration have contributed to the increased program spend totals in recent years.
In 2024, UMERC replaced 5.6 miles of aging cable following 10 cable related outages in the last three years, impacting 144 customers. The 2025 aged cable replacement program targeted 7 projects totaling 3.9 miles of cable, impacting 105 customers and 13 cable outages in the last three years. The cable replacement program will continue in 2026 to replace additional aging cable.

#### 2.5.3.8. Inspection and Maintenance Distribution Line Budget

Due to the recent introduction of several of these programs, many of which took place in 2023, the budget has grown to reflect the effort to maintain the distribution system. The establishment of a regular inspection cycles and the subsequent system maintenance due to inspection results have played a large part in this. The current regular pole inspection cycle was established 2023 and the current UMERC budget funded GME inspection cycle was established in 2025. The subsequent pole reinforcement and replacement programs to address the findings of the inspection program have also increased the budget since 2023. Another major driver in the UMERC budget increase after 2022 has been the introduction of the proactive Porcelain Cutout and Arrester Replacement Program, which began in 2023 and has ramped up in the past two years. This program is seen as a reliability priority due to the frequent failure of these devices when manufactured with porcelain. Emergent device replacement budgets are also being established to address the aging devices on the UMERC system, though this is a smaller driver of budget increase. Historical Capital spend for Distribution Line Inspection & Maintenance and Cable Replacement can be seen on Appendix 2, Table 1. The growth of this budget can largely be attributed to these programs and the growing emphasis on maintaining the aging distribution infrastructure at UMERC.

By combining condition based prioritization with planned annual projects, UMERC continues to strengthen its underground system while leaving room to address any emergent failures that arise during the year. Forecasted Capital spend for these programs can be seen on Appendix 2, Table 2.

### 2.5.4. Substation Inspections and Maintenance

#### 2.5.4.1. Substation Inspection and Maintenance Programs

Regular inspection of substation assets is critical to maintaining a safe and reliable substation. UMERC substations are inspected a minimum of every quarter by substation personnel. These inspections include a visual inspection of a wide range of items. The substation batteries are also inspected on a regular basis. Civil equipment, which includes evaluating the condition of concrete foundations, steel structures and other similar items is either inspected annually or as part of the regular substation inspections. Other inspection tasks include an infra-red (IR) scan of the substation equipment to check for overheating, and inspections of safety equipment. At locations where fire extinguishers are kept, the fire extinguishers are inspected quarterly and once a year are inspected by an offsite qualified contractor and exchanged if needed. The results of the inspections are tracked and any deficiencies are noted in a maintenance database.

In addition to the inspection tasks, there are a number of planned preventative maintenance tasks that are performed to track or maintain the health of the substation equipment. Examples of planned maintenance include the testing of various safety and switching equipment stored at the station, tests on the power transformer oil to monitor the health of the transformers, battery testing, seasonal weatherization tasks, relay and SCADA equipment testing, and fixed cycle change-outs of small control batteries. There are additional preventative maintenance tasks that are opportunity based because they depend on taking equipment out of service.

#### 2.5.4.2. Substation Maintenance Processes

Substation Maintenance is based on a regular schedule, the results of the substation inspections, on-line monitoring, or on other observations made at the substation. Substation maintenance is tracked in a database. Protective relay maintenance is tracked in a separate database which also tracks relay settings. Planned maintenance is auto-generated based on pre-determined intervals (time or condition) established in the databases. Emergent tasks ("corrective" maintenance) are manually generated at a time an issue is identified. This includes condition based maintenance driven by inspections, on-line monitoring or planned maintenance tasks. The maintenance database allow for easy tracking of the status of both planned and corrective maintenance items.

Some maintenance tasks are more critical in terms of the impacts they may have on customers' service. In addition, available funding and resources to support maintenance tasks are limited. As such, a prioritization process is employed to determine which tasks have the greatest impact in preventing outages and maintaining safety. Factors for prioritization can include the equipment type, equipment function, regulatory or legal requirements, customer impact, and the status of the distribution system. Planned maintenance, including inspections, is done to ensure the equipment is operating within acceptable parameters. If issues are noted during planned maintenance, a corrective maintenance task is created to address the problem. This allows these emergent items to be prioritized and addressed proactively before they become an unplanned issue. An unplanned event occurs when equipment takes itself out of service or the equipment is taken out of service just prior to suspected failure. These events have a higher risk of taking customers out of service, and causing significant damage to the equipment and nearby equipment. They also tend to be more expensive repairs. While not all unplanned events can be prevented, having a well-funded planned maintenance strategy in place can greatly reduce the risk.

One of the most difficult decisions regarding implementation of a Maintenance Strategy is to determine when a piece of equipment should be retired and replaced as opposed to being repaired. Serviceable life of equipment is defined as the amount of time that a piece of equipment has been in-service when it is determined that the remaining present worth cost or life cycle cost to maintain and operate an existing piece of equipment now and into the future is equal to or greater than replacement life cycle cost. There are many conditions that determine the serviceable life of substation equipment, and these are used to determine if replacement is a better long term value.

Appendix 2 Table 3 shows the O&M spend for UMERC for the past 5 years.

## 2.6. Distribution System and Substation Improvements

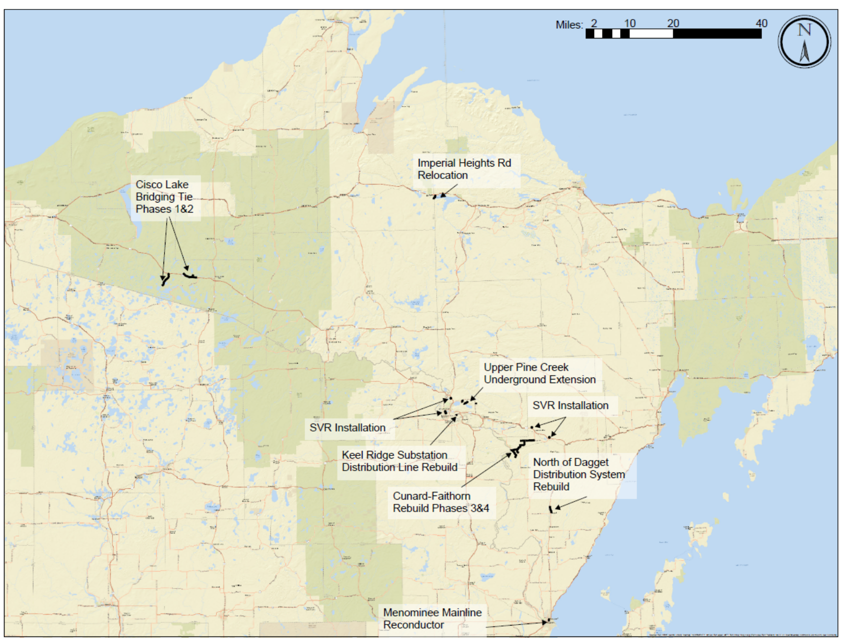
The following sections provide an overview of UMERC's recent distribution system and substation improvements.

### 2.6.1. System Improvement Investments

Current distribution system investments include System Improvement projects. These projects are selected to make significant improvements to the distribution system. See Scenario Planning section 3.3 of this report for additional details about project selection. The Historical capital spend is shown in Appendix 2 on Table 1. The O&M spend associated with system improvement work is shown in Appendix 2 on Table 3.

Listed below are the specific major System Improvement completed in 2024 and 2025. Below is also a map that shows where these projects are located.

*Map 3 – Distribution System Improvements*



*Cunard-Faithorn Rebuild Phase 3 and 4*

A large investment has been made for the distribution systems serving the towns of Cunard and Faithorn. The system is served out of a substation in Powers Michigan and is a radial line out to these areas since it is at the end of the UMERC service territory. This area was served from stepdown transformers and was a 13.8kV delta distribution system. The facilities, which were at end of life, were rebuilt to convert to one of UMERC's standard 24.9kV system. This project improved the capacity and voltage profile in the area. The project also was able to relocate hard to access cross country lines which will improve reliability.

*Cisco Lake Bridging Tie Phases 1 and 2*

There is a large concentration of lakes northwest of Land O Lakes Wisconsin in Michigan that are a big reliability risk to our Michigan customers. Aged facilities cross these lakes over the water and if a pole fails or a wire comes down, there is a risk of a very long outage until power can be restored due to the accessibility. An investment has started to bring another source to this area so power can be restored from the north side of the lakes. This should greatly reduce outage lengths for failures in this area by providing a switching before restoring option.

*Supervisory Vacuum Recloser Installations*

Five locations were chosen in UMERC to install new supervisory vacuum reclosers ("SVR") on UMERC feeders. These reclosers limit the amount of customers impacted by outages and reduce the amount of line that needs to be patrolled to find the outage cause. Locations selected were on distribution systems off of Armory, Bass Lake, Aragon, and Powers substations.

*Upper Pine Creek Underground Extension*

In the area of Upper Pine Creek Rd in Iron Mountain there is a difficult to access cross country line. As an alternative to rebuilding the aged cross country line, underground facilities were extended to reroute power to this area so the cross country line could be retired.

*Menominee Mainline Reconductor*

Today's mainline standards call for 336 ACSR conductor size to get help maximize the capacity from the distribution systems. This project is replacing 1970s vintage 4/0 ACSR cable and rebuilding to today's standards. This additional capacity would be required from this line during some loss of transformer contingencies.

*North of Dagget Distribution System Rebuild*

The distribution system out of Ingalls substation going north of the town of Dagget is 1920s vintage and at the end of life. This project will rebuild the 1.5 miles of line to our current standards and remove old copper wires that is likely to lead to failures due to condition.

*Imperial Heights Rd Relocation*

A cross country line going south out of the town of Michigamme has experience many outages in the past for the roughly 120 customers served on this line. The line does not follow the road and is exposed to trees on both sides of the line. The line was rebuilt on Imperial Heights Rd to current system standards and will provided the downstream customer with a much improved reliability experience.

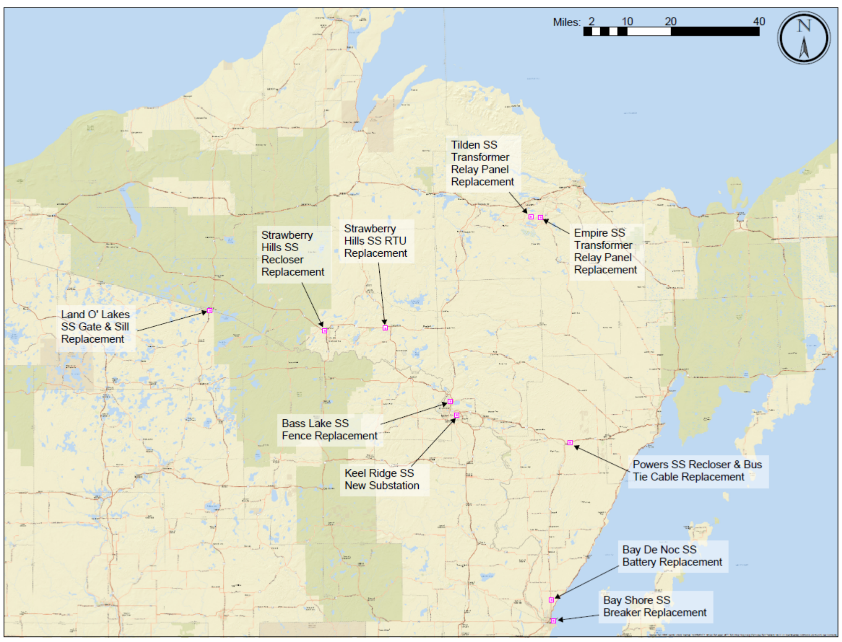
*Keel Ridge Substation Distribution Line Rebuild*

With the construction of the new Keel Ridge substation in Iron Mountain, line rebuilds are required to get the full capacity of the lines that this substation can provide. The new mainlines surround the station will be built to our current 3 phase mainline standards. Load can be shifted to the new station and these lines can also be used to restore power to the surrounding areas during an emergency power outage situation.

### 2.6.2. Substation Investments

In addition to investments made in the distribution system, there were a number of large projects in the Substation areas. These include both improvements to existing facilities and a new substation. The historical capital spend is shown on Appendix 2 Table 1. In 2025, the construction of the new Keel Ridge SS greatly impacted the Substation related capital budgets. The majority of the Inspection Maintenance Station capital budget was transferred to the Substations – New & Additions budget to support the large project. These budgets will return to a more normal funding level in 2026.

*Map 4 – Substation Improvements*




*Strawberry Hills SS Recloser Replacement (SSNA project, carryover from 2023 into 2024)*

The Strawberry Hills reclosers on three line positions were replaced. The older reclosers were manufactured in 1980, and were replaced due to age. Newer reclosers of the same model were installed, allowing the existing mounting frames, controls and other assets to be re-used.

*Tilden SS Transformer Relay Panel replacements (SSNA project, project timeframe from 2023 to 2025)*

Due to an ATC relay project at Tilden SS, the existing transformer relaying was evaluated. It was determined it should be modernized, by replacing the electromechanical relays and legacy lockouts with known operability issues to microprocessor based relays and more reliable lockout relays. The work spanned multiple years due to coordination with ATC and the customer on outages.

*Powers SS Recloser Replacement and bus tie cable replacement (SSNA project, 2024)*

The Powers reclosers on three line positions were replaced due to age, as well as the bus tie cables. New recloser types and recloser controls were added to improve line protection. The bus tie cable was replaced due to recent failures that indicated that equipment had reached the end of its useful life.

*Empire SS Transformer Relay Panel replacements (SSNA project, 2024)*

Due to an ATC relay project at Empire SS, the existing transformer relaying was evaluated. It was determined it should be modernized, by replacing the electromechanical relays and legacy lockouts with known operability issues to microprocessor based relays and more reliable lockout relays. The relays were only replaced on the two transformers that are currently active at Empire.

*Crystal Falls SS RTU Replacement (SSNA project, 2024)*

The Remote Terminal Unit (RTU) and radio was replaced, a new Human Machine Interface (HMI) added, and a permanent mobile transformer connection point for feeder 53, which feeds the town of Crystal Falls, was established. The RTU and radio was older equipment that needed to be replaced due to age. The HMI allows for improved remote operation and easier switching operations. The town of Crystal Falls has a different voltage than that of the We Energies distribution system in the area, so no bridging is available. The permanent mobile transformer connection point for feeder 53 will allow for planned work at the station to not require an outage to the town.

*Bay de Noc SS Battery Replacement (SSNA project, 2024)*

The substation battery was replaced due to age. Substation batteries provide critical power to operate key components of the system, even when the substation is out of power. A new safety switch was also added.

*Land o Lakes Gate and Gate Sill Replacement (IM-Stations, 2024)*

At Land o Lakes, the gate was identified as being in poor condition. Substation gates provide a critical defense to stop the public from accessing the station. The gate and gate sill (concrete support for the gate) was replaced with new.

*Bass Lake SS Fence Replacement (IM-Stations, 2024)*

At Bass Lake, the fence was identified as being in poor condition. Substation fences provide a critical defense to stop the public from accessing the station. The fence, gate, and gate sill were replaced with new.

*Bay Shore SS Breaker Replacement (SSNA project, carryover from 2024 into 2025)*

The Bay Shore breaker was an older style oil circuit breaker that had reached the end of its useful life. It was replaced with a newer type of breaker, along with new protective relaying, to provide more reliable protection for this line. Older insulators that are prone to breaking were also replaced.

*Keel Ridge SS New Substation (SSNA project, carryover from 2024 into 2025)*

Keel Ridge SS is a new 69kV-13.8kV substation, located in Breitung Township, MI. The station will initially have one transformer, and will allow for up to four distribution feeders to serve customers. The station is designed so an additional transformer and distribution feeders can be added in the future. The new station will support continued load growth in the Iron Mountain area and provide load relief to other substations in the area. It will also provide bridging support to nearby substations for planned or unplanned work.

## 2.7. Resource Challenges

UMERC has faced challenges with material supply over the last few years. Our supply chain group continues to work with the material suppliers to share our needs and discuss current lead times. While long lead time materials have presented some challenges and forced more advanced planning, they are accounted for in the existing project schedule. Currently there are minimal impacts to the work plan related to material supplies. At this time manpower has not been an issue for UMERC.

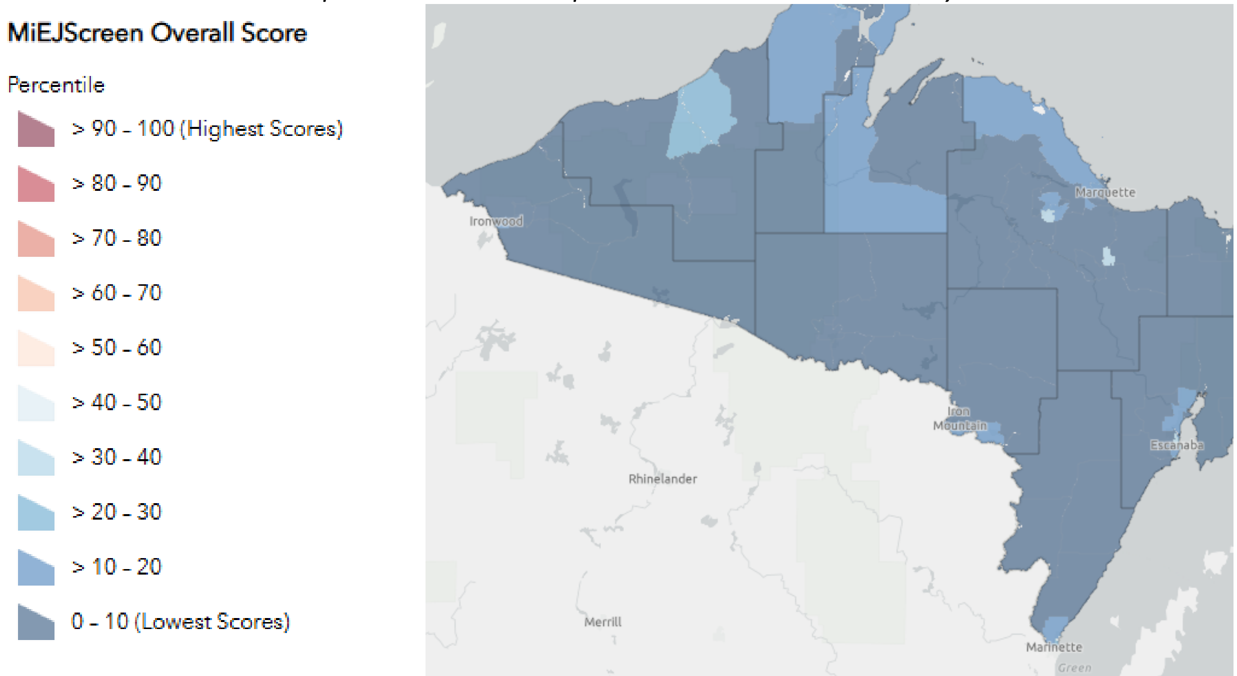
We recognize that some of UMERC's DSP must be reactive to new condition information and new outage events. There are some permits that may be required for projects that can significantly delay the construction schedule for a project which is a challenge when trying to address urgent issues. Environmental permits have forced some projects into specific months of the year. National Forest Service permits require 1 to 2 years review process after the design is complete. Railroad permits can also add months to the construction timeline when they are required. These permitting challenges have delayed many of our projects from their desired construction timelines.

## 2.8. Environmental Justice Mapping Analysis

UMERC is committed to ensuring that its distribution system is reliable and resilient across its entire service area. Our environmental justice analysis starts with the identification of environmental justice communities by using the Michigan Department of Environment, Great Lakes, and Energy's ("EGLE") Michigan Environmental Justice Screening Tool ("MiEJScreen").

The following map provides a visual of the MIEJScreen Overall Score for the communities across the Upper Peninsula of Michigan, where UMERC provides electric service.

*Map 5 – MiEJScreen map near UMERC's service territory*




Within UMERC's service territory, there are three census tracts with a MiEJScreen Overall Score greater than 20, including:

- 26109930600 located in Menominee County
- 26109960700 located in Menominee County
- 26131970200 located in Ontonagon County

The following table provides a normalized rank of UMERC's feeders within these census tracts, using the CI and CMI of other census tracts located inside UMERC's service territory.

*Table 4 – Census Tracks within UMERC's service territory MiEJScreen Overall Score greater than 20*

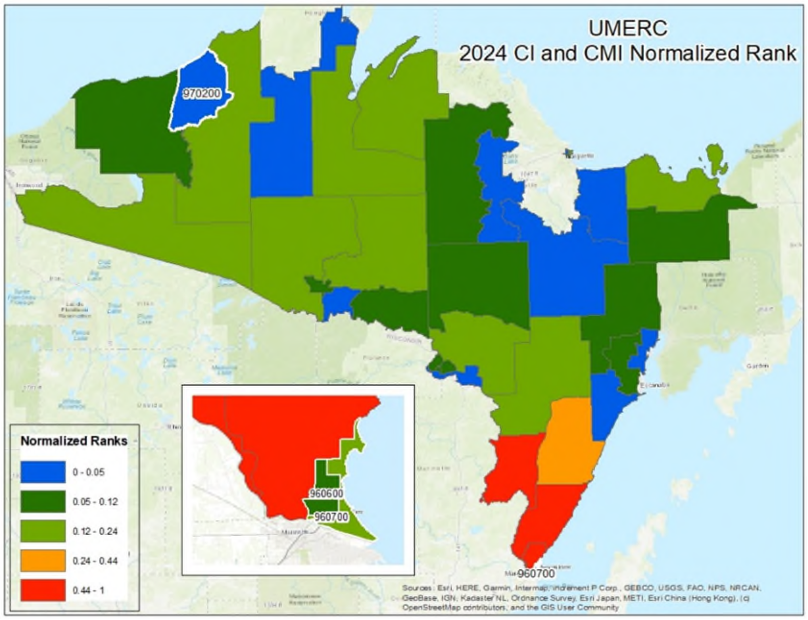
| Census Tract | General Area | MiEJScreen Score | Feeder(s) | Normalized Rank |
|---|---|---|---|---|
| 26109960600 | Menominee | 27 | 2NS241, 30A241 | 0.030 |
| 26109960700 | Menominee | 48 | BDN241, 2NS241, 30A241, 30A242 | 0.112 |
| 26131970200 | Ontonagon | 20 | MSS52 | 0.001 |

Normalized rank helps UMERC determine a list of "worst performing feeders" annually, and is calculated as follows:

Normalized Rank = [(CMI/CMI MAX) * 0.5 + (CI/CI MAX) * 0.5] where MAX = the maximum value of CMI or CI for all census tracts.

The following map provides a visual for demonstrating how these census tracts rank among all census tracts within the UMERC service territory. Using this ranking it is easy to see that in 2024 the reliability performance of the three specific census tracts identified above compared to others within the service territory was quite good.

*Map 6 – Normalized Ranking of all census tracks within UMERC Service Territory*




# 3. Distribution System Planning

## 3.1. Stakeholder Engagement

Community engagement is a focus of the DSP process, ensuring customers and other stakeholders are able to provide input along the way. UMERC engaged the public in a number of ways, including in-person and hybrid open houses on November 18, 2025 and November 19, 2025, a 15-question survey, and a dedicated DSP website where interested stakeholders can learn more about UMERC's DSP.

### 3.1.1. Open Houses

UMERC hosted four open houses across November 18, 2025 and November 19, 2025 where interested stakeholders could join an interactive discussion in-person or virtually with UMERC regarding its DSP.

A total of eleven members of the public attended the four open house sessions hosted by UMERC. While customers expressed interest in learning more about UMERC's plans, reliability and vegetation management was a key topic of discussion. More information about UMERC's work related to reliability and vegetation management can be found in Section 2.2 and 2.5 of this report.

### 3.1.2. Customer Survey

UMERC also conducted a customer survey in the fall of 2025 to gather valuable feedback from its customers across its service area. This survey was available online, via UMERC's DSP webpage, as well as in paper form at each of UMERC's open houses. A copy of the survey is provided in Appendix 4. Overall, UMERC received 235 surveys.

**How satisfied are you with the consistency of your electric service to meet your energy needs over the past 12 months?**

| Description | Responses | Percent |
|---|---|---|
| 5- Very satisfied | 131 | 56.7% |
| 4 | 63 | 27.3% |
| 3 | 27 | 11.7% |
| 2 | 9 | 3.9% |
| 1 - Not at all satisfied | 1 | 0.4% |

**How concerned are you about UMERC's ability to provide enough power to meet growing energy demands in your community?**

| Description | Responses | Percent |
|---|---|---|
| 5 - Very concerned | 11 | 4.8% |
| 4 | 26 | 11.3% |
| 3 | 51 | 22.1% |
| 2 | 54 | 23.4% |
| 1 - Not at all concerned | 89 | 38.5% |

**How important is it for UMERC to prioritize grid upgrades in areas prone to frequent outages?**

| Description | Responses | Percent |
|---|---|---|
| 5 - Very important | 134 | 58.3% |
| 4 | 53 | 23.0% |
| 3 | 31 | 13.5% |
| 2 | 7 | 3.0% |
| 1 - Not at all important | 5 | 2.2% |

**How important is it for UMERC to balance grid improvements with keeping rates affordable?**

| Description | Responses | Percent |
|---|---|---|
| 5 - Very important | 168 | 73.0% |
| 4 | 32 | 13.9% |
| 3 | 23 | 10.0% |
| 2 | 4 | 1.7% |
| 1 - Not at all important | 3 | 1.3% |

**Compared to your current energy costs, over the next 5 years, how much extra, on average, would you be willing to pay to increase UMERC's resiliency during extreme weather events?**

| Description | Responses | Percent |
|---|---|---|
| Other | 26 | 11.5% |
| 0% more | 86 | 37.9% |
| 5% more | 69 | 30.4% |
| 10% more | 42 | 18.5% |
| 15% more | 4 | 1.8% |

**Do you believe UMERC provides equitable deliverability of power across all areas in its service region?**

| Description | Responses | Percent |
|---|---|---|
| Yes | 189 | 83.6% |
| No | 37 | 16.4% |

**What is the most important factor for you in improving electric reliability?**

| Description | Responses | Percent |
|---|---|---|
| Bill impact | 52 | 23.1% |
| Faster restoration | 34 | 15.1% |
| New technologies, such as smart grid components | 31 | 13.8% |
| Power outage communications | 11 | 4.9% |
| Storm resilience | 78 | 34.7% |
| Vegetation management | 19 | 8.4% |

The survey results highlight a mix of strengths and opportunities for UMERC's distribution system. UMERC's review of the survey results demonstrated that its customers value storm resilience, the cost of providing service and restoration time.

### 3.2. Load Forecasting

Load projections are the documents that the Planning Engineers put together to prepare their load forecasting data. New data from the most recent summer about substation loading is compared against historical data so that predictive loading can be more accurately projected out for the next five years.

These load projections include all distribution substations, transformers, lines and feeders. Load projections may also include specific details about large industrial customers that are served directly from the transmission system, where applicable. UMERC uses historical data to prepare load projections with emphasis given to trends established within the previous 3 to 5 years, contributing factors requiring input from others, such as anticipated new customers and developments, as well as engineering judgment.

Current year summer peak load data is gathered for each substation, transformer, line and feeder during the fall timeframe. Winter peak load data may be necessary if the substation is historically, or is anticipated to be, winter critical. Line and feeder peaks are provided in a per phase format when available. Peak load data may/may not be coincident as different areas may peak at different times depending on the nature of the load in that given area.

The peak load data is weather normalized, where possible. Weather normalizing is the process of adjusting substation peak demands for variations in summer peak producing weather from year to year. Substation peak demands caused by an unusually hot summer should not be misinterpreted as load growth. Conversely, unusually cool summers should not be misinterpreted as a load reduction.

Load projections are extrapolations of the present year weather-normalized peak load data, with the actual growth rate applied, then modified by future load transfers, new substations or other future work that will affect loading. Projected overloads are flagged for Planning Engineer review for solutions to the overload. Summer demand projections are necessary for a minimum of 5 years. Winter projections may be necessary if the substation is historically, or is anticipated to be, winter critical.

## 3.3. Scenario Planning

The following sections describe additional scenarios considered by UMERC as part of its distribution system planning process.

### 3.3.1. Contingency Planning

The distribution system is built to handle the loss of the single most expensive piece of equipment on the system, which is the substation transformer. During an event, the first option is to transfer the load to another substation transformer, either manually or automatically. However, some parts of the distribution system are not built to be able to transfer load to another substation transformer. In those cases, there is a mobile substation transformer identified that can be brought to the substation site to restore the load.

Recently, there has been an increase in the amount of underground facilities that are being installed because of cable technology improving, and also the cost is becoming more comparable to overhead construction costs. Guidelines are used to assist engineering in determining when a looped configuration should be installed to enhance contingency reliability. These guidelines consider factors such as the number of customers served, type of customers (e.g., residential, commercial or critical facilities), number of transformers involved, and practical and economic considerations. Benefits of a loop include improved service reliability through redundancy, reduced outage duration and greater resilience of the distribution system.

### 3.3.2. Load Growth and Electrification

UMERC's distribution system planning process monitors load growth trends to enable a design and build of the system that is capable of handling anticipated load growth. Refer to Section 3.2 of this report for specific details of the load forecasting process. If or when significant electrification growth occurs on the distribution system due to electric vehicles or other technologies and equipment, patterns in load data will be used along with other information collected through other processes, such as new service applications, to predict needs for additional capacity.

Requests to connect Distributed Energy Resources ("DER") are studied on a case by case basis. Any distribution system changes necessary to accommodate a new DER interconnection are shared with the requesting customer. These distribution system changes are then appropriately billed to the customer if they decide to move forward with their project. Refer to Section 3.11 for more information on UMERC's interconnection process for DER.

## 3.4. Distribution Line Project Prioritization

Progress toward UMERC's goals to improve reliability and resiliency, maintain adequate voltage and capacity, and to renew aged facilities is determined through the prioritization process. In any given budget year, Area Electric Distribution Planning Engineers typically propose more worthwhile projects than can be funded with available resources. UMERC's System Improvement Project Prioritization ensures that projects proposed are ranked in descending order of importance, making best use of limited resources. This ranking is established through a collaborative discussion and challenge process, during which the Planning Engineers compare project specific problems / solutions under the guidance of the Engineering Supervisor – Distribution Planning. This ranking of individual projects against each other also considers overall system goals such as strategic renewal / substation retirement in order to achieve a balance of the types of projects included within any given year, and to ensure movement toward longer term goals.

All relevant information for the prioritization is prepared in a spreadsheet to aid in the discussion. Reliability information is gathered for each project to understand the problem or to understand potential additional benefits of the project. Age and condition information is documented on the spreadsheet to help understand the problem and help drive asset renewal toward the older parts of the system where it is likely needed the most. Every project has the opportunity to improve reliability and to renew equipment beyond their life expectancy so this information is required for all projects during the prioritization discussion.

As the resident experts, the Planning Engineering group is most qualified to probe, evaluate, and rank projects against each other. A representative from operations support engineering also attends the meeting to provide electric operating insights and affirmation of projects and problems. A representative from Reliability attends as well to provide input regarding past reliability concerns. Projects are ranked in descending order until the total of estimated costs reach a limit based on the budget dollars expected to be available.

Discussion centers on comparing projects with similar area rankings. Each Planning Engineer discusses their project with the benefit of the power point presentation developed for that project. A consensus is reached regarding how a group of projects relate to each other and a system rank is assigned to each project based on that. In making these comparisons, the comparative information provided for each project should be used to determine which problems are more serious. As previously stated, it is essential that all such information be available to make comparison possible. If a project solves multiple problems, that should be apparent in the comparative information. The Planning Engineer sponsoring a project should discuss any interrelationships between projects or how a project fits into a long range plan.

## 3.5. UMERC's Five Year Plan

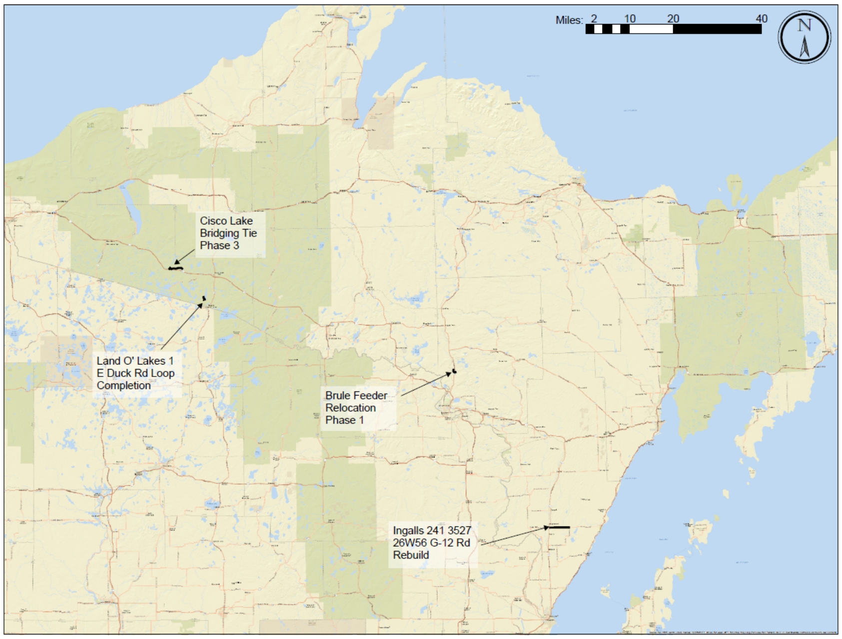
### 3.5.1. System Improvement Future Budgets

As much of UMERC's distribution system approaches end of life, there is a need to increase the investments in system improvement projects. Projected budget spend is outlined in Appendix 2 on table 2.  Specific projects plans are listed in the upcoming sections where known.  2028 and beyond system improvement work plans are selected closer to the construction year in order to take in the best recent reliability data and to be able to react quickly to concerns around issues like voltage and capacity.

### 3.5.2. 2026 Distribution Work Plan

The following projects are included in UMERC's 2026 distribution work plan.

*Map 7 – 2026 Distribution Work Plan*




*Cisco Lake Bridging Tie Phase 3, Old US 2*

This project was started to improve concerns with numerous water crossings in an area with many lakes. This area is located around the Wisconsin and Michigan border between Boulder Junction Wisconsin and Watersmeed Michigan.  This area is currently radial fed from a circuit out of Land O Lakes substation.  There is no alternative distribution feed for these customers around the lakes.  This was deem a high risk for long outages due to the inaccessibility of the current distribution line assets.  A mainline tie started with a rebuild on Cisco Lake Rd to US-2 which was the first phase of the project.  The second phase started the rebuild out of Watersmeed substation on US-2 to mainline 3 phase standards.  Phase 3, which is part of the 2026 work plan, will finish the rebuild on US-2 and complete the mainline tie between phase 1 and phase 2.

*Brule Feeder Relocation Phase 1*

Approximately 150 UMERC customers are fed off of a small power generation substation transformer at the Brule Hydro facility.  Brule Hydro will be rebuilding their substation and the small power generation substation transformer will be removed at this time.  The UMERC engineering team went through a best value planning analysis with the different options including building a new distribution system substation transformer and feeder at Brule.  It was determined we could more effectively invest a similar amount of dollars into rebuilding parts of the distribution system and extending lines from nearby substations to feed these 150 UMERC customers. This will be the first, of an expected three phases, to build the distribution system needed to move these customers to the adjacent substations.

*Ingalls 241 3527 26W56 G-12 Rd Rebuild*

This pole line originally built in the 1940s and 1950s with small copperweld wire and is in need of replacement due to the age and condition. This line will be rebuilt as an overhead line with our current construction standards and will benefit over 190 UMERC customers.

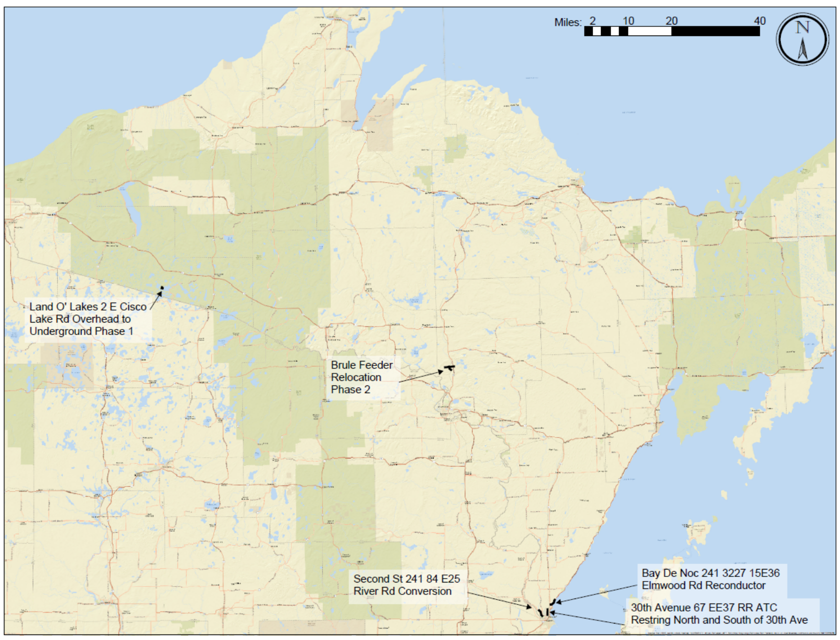
*Land O Lakes 1 E Duck Rd Loop Completion*

This project will connect existing radial underground lines together. One of these taps serves 29 customers and other tap serves 17 customers. Looping in these two systems together will increase reliability for the 46 customers by providing a quick method for power restoration when an outage occurs. This will bring this area up to our current design criteria which recommends an underground loop for reliability improvement in these situations.

### 3.5.3. 2027 Distribution Work Plan

The following projects are included in UMERC's 2027 distribution work plan.

*Map 8 – 2027 Distribution Work Plan*




*Brule Feeder Relocation Phase 2*

Approximately 150 UMERC customers are fed off of a small power generation substation transformer at the Brule Hydro facility. Brule Hydro will be rebuilding their substation and the small power generation substation transformer will be removed at this time. The company went through a best value planning analysis with the different options including building a distribution system substation transfer and feeder at Brule. It was determined we could more affectively invest a similar amount of dollars into rebuilding parts of the distribution system and extending lines from nearby substations to feed these

150 UMERC customers.  This will be the second of an expected three phases to build the distribution system needed to move these customers to the adjacent substations.

*30th Avenue 67 EE37 RR ATC Restring North of 30th Ave*

American Transmission Company is planning on rebuilding their transmission structures that UMERC distribution system is attached to during 2027.  This created an opportunity to rewire the existing mainline to our current conductor standards and increase the capacity on the line.  Completing this work at any other time would result in higher costs associated with completing work next to a railroad.

*30th Avenue 67 BB47 RR ATC Restringing South of 30th Ave*

American Transmission Company is planning on rebuilding their transmission structures that UMERC distribution system is attached to during 2027.  This created an opportunity to rewire the existing mainline to our current conductor standards and increase the capacity on the line.  Completing this work at any other time would result in higher costs associated with completing work next to a railroad.

*Bay De Noc 241 3227 15E36 Elmwood Rd Reconductor*

This small rebuild project was selected to increase the capacity on the Bay De Noc feeder that supports 1126 customers.  The small cost required brings the mainline up to our current standard and allows more capacity to connect future loads and to support other feeders during contingency situations.  This also provides a reliability improvement to these customers and additional customers who could have their power restored using this feeder during an emergency.

*Second St 241 84 E25 River Rd Conversion*

Over 50% of the poles in this area are 50 years old or older.  We have seen about two outages per year as well in this area.  This system improvement project will renew our assets in this area and improve reliability for the 111 customers impacted by the project.

*Land O Lakes 2 E Cisco Lake Rd OH to UG Phase 1*

57% of the poles in this area are 50 years old or older.  We have seen five outages in the past 3 years in this area impacting 15 customers.  This project would convert the overhead system to an underground system.  This will renew our aged assets and also have a big impact on the reliability for this customers.

### 3.6. 3-10 Year Distribution Plan and Investment Priorities

*Strawberry Hill 61 Basswood Rd OH to UG*

76% of poles in this are area 50 years old or older.  We have seen seven outages in the past 3 years in this project area impacting 21 customers.  Part of this overhead line goes cross country and does not follow the road.  This area would be rebuilt as underground along the road which will remove the old assets and improve the reliability and accessibility of this line.

*Land O Lakes 2 E Cisco Lake Rd OH to UG Phase 2*

This is the continuation of Phase 1 that is planned for 2027.  57% of the poles in this area are 50 years old or older.  We have seen five outages in the past 3 years in this area impacting 15 customers.  This project would convert the overhead system to an underground system. This will renew our aged assets and also have a big impact on the reliability for this customers.

*Cornell 2 27.5 Rd OH to UG*

90% of the poles in this area are 40 years old or older. This line has seen five outages in the past three years. Given the age of the assets and the amount of outages seen on this line, this is a proposed overhead to underground project. The new underground system will allow the aged overhead assets to be removed and improve the reliability for 27 customers.

*Sagola 61 M-95 OH to UG Conversion*

This cross country overhead line is aged to the point where 67% of the poles are 50 years old or older. There have been four outages on this line in the past three years impacting 48 customers each time. This proposed project would rebuild the system as an underground system and convert to new design standard 24.9kV voltage. The end result brings the system to current standards, improves reliability, and retires assets at the end of their designed life.

*Sagola 61 Sturgeon Rd OH to UG*

This cross country overhead line is aged to the point where 78% of the poles are 40 years old or older. There have been four outages on this line in the past three years impacting 96 customers each time. This proposed project would rebuild the system as an underground system with the end result improving reliability and retires assets at the end of their designed life.

*Bay De Noc 241 Elmwood Rd (M-35)*

This line as experienced frequent outages affecting 665 customers. We have seen nine outages in the past 3 years on this line. This proposed project would improve the reliability for over 600 of our UMERC customers.

*Land O Lakes 1 Misery Bay Rd OH to UG*

This cross country overhead line is aged to the point where 93% of the poles are 40 years old or older. There have been three outages on this line in the past three years impacting 20 customers each time. This proposed project would rebuild the system as an underground system with the end result improving reliability and retires assets at the end of their designed life.

*Brule Phase 3*

Approximately 150 UMERC customers are fed off of a small power generation substation transformer at the Brule Hydro facility. Brule Hydro will be rebuilding their substation and the small power generation substation transformer will be removed at this time. The company went through a best value planning analysis with the different options including building a distribution system substation transfer and feeder at Brule. It was determined we could more affectively invest a similar amount of dollars into rebuilding parts of the distribution system and extending lines from nearby substations to feed these 150 UMERC customers. This will be the final of an expected three phases to build the distribution system needed to move these customers to the adjacent substations.

*Cornell 13kV to 24.9kV Substation Conversion*

There is a desire to rebuild the line assets off of Cornell 13kV substation to 24.9kV standards. The main driver is anticipated to be the need to replace the substation transformer and also provide asset renewal for aged assets off of this substation.

## 3.7. Substation Asset Renewal Prioritization

While there are many beneficial projects for the UMERC area, there is not enough funding in a given year to address every project. Asset Renewal plays a key role in the substation prioritization process to make sure the highest priority tasks are addressed. The asset renewal strategy incorporates a condition assessment of major substation assets to determine equipment health, and forms the decision matrix for maintenance vs. capital replacements and supports a "life cycle replacement" program. Due to the long lead time of some substation equipment, project prioritization currently takes place approximately two years before the projects take place. These are some of the key equipment that is part of the Asset Strategy Process used to prioritize substation work.

### 3.7.1. Power Transformers

Substation Power Transformers are the key component of the substation. They take high voltage, typically 138kV or 69kV, and drop it down to a lower voltage that is used on the distribution feeders. These transformers have long lead times, and are the most expensive assets in the substation. Transformer health can be monitored through a variety of methods, with newer transformers having more sophisticated systems. One method is oil sampling and analysis which is used on all the transformers and is built into the prioritization method for Substation Transformers. Other criteria include age, and the physical condition of the transformer, as well as any other known issues with that particular transformer or the particular manufacturer or vintage of transformer.

A fleet of spare transformers and mobile transformers are also maintained. Spare transformers can be used for unplanned events that damage a transformer to the point where it needs to be replaced in an accelerated manner. Mobile transformers are portable, and are used to support customer load on a temporary basis, for either maintenance work or unplanned events. At UMERC, there is mobile SS book with detailed instructions on how to attach a mobile substation at each location where they may be used.

| Total | Minimum Age | Maximum Age | Average Age |
|---|---|---|---|
| 36 | 2 | 58 | 32.7 |

### 3.7.2. Circuit Switchers

Circuit switchers are used at some UMERC stations for transformer high side protection and isolation. They are replaced based on age, condition, and known issues with certain types or vintages of circuit switcher.

| Total | Minimum Age | Maximum Age | Average Age |
|---|---|---|---|
| 8 | 3 | 30 | 16.8 |

### 3.7.3. Circuit Breakers

Circuit Breakers are used at some UMERC stations for transformer high side protection and isolation, and also for distribution feeder protection and isolation. Transformer high side breakers are outdoor breakers. Breakers supporting distribution feeders can be either outdoor or indoor. Both outdoor and indoor breakers are prioritized based on age, condition, and any known issues with certain types or vintages of breakers.

| Total | Minimum Age | Maximum Age | Average Age | Outdoor | Indoor |
|---|---|---|---|---|---|
| 36 | 16 | 34 | 21.2 | 5 | 31 |

### 3.7.4. Reclosers

Reclosers are used primarily as protective and isolation devices for the distribution feeders leaving a substation. Recloser replacements are prioritized based on age, control type, and model of recloser.

| Total | Minimum Age | Maximum Age | Average Age |
|---|---|---|---|
| 35 | 1 | 21 | 7.2 |

### 3.7.5. Remote Terminal Units

Remote Terminal Units ("RTUs") are present in most UMERC substations. The RTUs support Supervisory Control and Data Acquisition ("SCADA") to remotely monitor and operate substation equipment along with locally providing consolidated control and visibility of this equipment through associated human machine interfaces ("HMI") within the substation. RTUs and their associated equipment are replaced in coordination with larger substation asset renewal projects and through targeted RTU replacements to address equipment obsolescence and minimize failures.

| Total | Minimum Age | Maximum Age | Average Age |
|---|---|---|---|
| 25 | 1 | 30 | 9 |

### 3.7.6. Protective Relaying

UMERC stations have a wide variety of protective relaying. Protective relaying can include various schemes to detect and isolate faults on a substation bus, at the substation transformer, or on individual distribution feeders exiting the substation. The existing protection schemes are evaluated to see if additional schemes are needed, or if upgrades are needed. In many cases, electromechanical relays are replaced with microprocessor based protective relays.

UMERC is standardizing on a microprocessor based SEL-651R control for all new recloser installations. Batteries on the controls are changed out on a 4 year cycle.

| **Equipment** | **Electronic*** | **Electro-mechanical*** | **Lockout Relays** |
|---|---|---|---|
| Transformer | 29 | | 13 |
| Bus | 7 | 3 | 5 |
| Feeder | 53 | 25 | |

*Per three phases (3 single phase devices counted as one device)

| **Other protective devices** | Count* |
|---|---|
| High voltage fusing | 16 |

*Per three phases (3 single phase devices counted as one device)

### 3.7.7. Switchgear

Substation switchgear is a metal building that encloses medium voltage buswork and indoor circuit breakers. It typically contains the transformer lower voltage circuit breaker, multiple feeder breakers, and if applicable to the station layout, a bus tie connecting one bus section to an adjacent bus section. It also may contain an auxiliary transformer for supplying low voltage AC power to the station. It frequently has an attached control area where other station equipment can also be housed, including protective relaying and substation batteries. There is a switchgear evaluation team that determines the replacement priority for the substation switchgear bus sections.

| Total Busses | Minimum Age | Maximum Age | Average Age |
|---|---|---|---|
| 6 | 19 | 58 | 35.5 |

#### 3.7.8. Structures and Civil Equipment

There are many different styles and vintages of substation structures. Substation structures supporting equipment are frequently made of wood poles or steel structures on concrete foundations. There are also non-supporting civil structures. Fences or walls keep the public out of the substation. Many stations also have control houses or switchgear which contains an indoor space for equipment such as RTUs, protective relaying, and equipment storage.

The condition of the structures is evaluated at least annually by the substation personnel as part of the civil inspection. The condition is also evaluated when replacing equipment that relies on the structure for support.

#### 3.7.9. Communication Infrastructure

Substation communications are being replaced as part of a larger initiative to upgrade SCADA communications across the UMERC service area. These upgrades will ensure that all SCADA enabled distribution and substation equipment can reliably communicate back to central dispatchers to quickly respond to alarms or operations to minimize outage durations. The new communication equipment will allow for higher capacity to support future device installations and improve visibility and control of the UMERC electric grid.

### 3.8. Substation Plan and Investment Priorities for 2025-2030.

Due to competing priorities in a given budget year, larger substation projects, such as Keel Ridge and Armory, are constructed across multiple years. This allows for other critical UMERC projects elsewhere on the system to also be addressed.

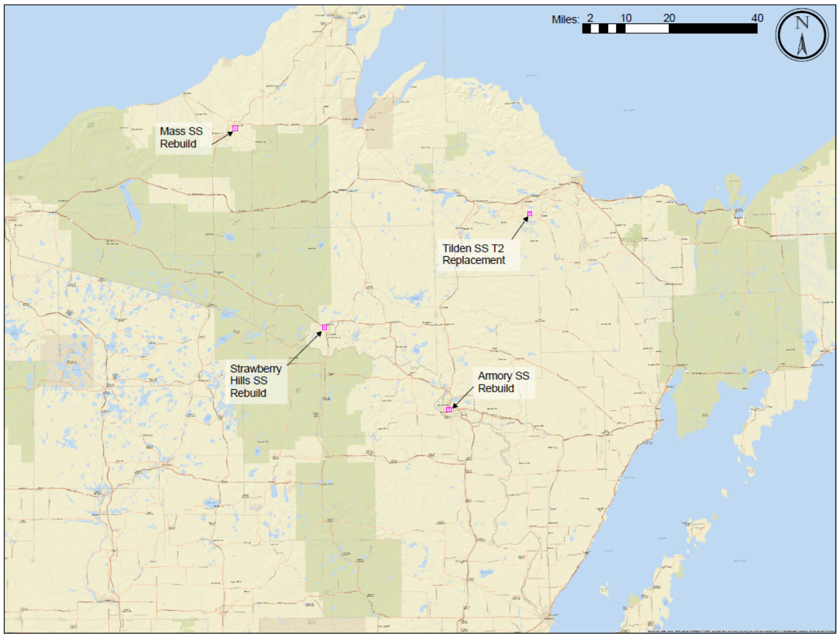
In 2024, construction started on the new Keel Ridge SS, located in Breitung Township, MI. The station will initially have one 69kV-13.8kV transformer, and will allow for four distribution feeders to exit the substation to serve customers. The station is designed so an additional transformer and distribution feeders can be added in the future. The station will be complete towards the end of 2025.

Within the next five years, these are the substation projects under discussion or in the initial planning stages:

- Strawberry Hill substation will be rebuilt due to age and condition. This is an older wood pole station with one transformer and three reclosers. The rebuilt station will have new structures and reclosers, and a newer transformer that was previously used at a different UMERC location.
- At Tilden SS, T2 will be replaced due to age.
- Armory SS rebuild is planned due to age and condition. Both switchgear bus sections will be replaced, and at least one transformer. Other assets will be scoped out for replacement as part of the project as well.

- Mass SS transformer will be replaced due to age. Currently, the station has three single phase transformers with separate regulators for voltage regulation. These will be replaced with a new three phase transformer with a load tap changer integral to the transformer for voltage regulation.

*Map 9 – Substation Plan and Investments*




## 3.9. Operations and Programs

This section outlines key updates and ongoing initiatives in UMERC's operations and programs to enhance system reliability and resiliency, and prepare for evolving customer demands.

### 3.9.1. Updated Secondary Transformer System Guidelines

There is concern for secondary system design with the addition of electric vehicle charging at homes. These relatively large load increases on the secondary systems could result in low voltage for the customers or capacity overloads of equipment. In preparation for widespread adoption of electric vehicles, UMERC changed its secondary system assumptions. Now built into the assumptions is one 14kW EV charger for every 4 customers. This applies to new service designs and rebuilds of existing systems and should significantly reduce required modifications to the secondary systems to support the new electric vehicle loads.

### 3.9.2. Top Feeder Program (TFP)

Since its inception, TFP has been a key program to improve reliability of UMERC's worst performing circuits on the distribution system. As discussed earlier in this report in section 2.8 Environmental Justice Mapping Analysis as a "Normalized Rank" to find "worst performing feeders", circuits are selected annually based on outage frequency (SAIFI) and outage duration (SAIDI), along with input from Operations, Customer Service, and Area Reliability Managers. Annually, the TFP focuses on analyzing reliability performance and outage causes, conducting field patrols to identify improvements and design issues, and completing field remediation and targeted line clearance prior to storm season.

## 3.10. Resilience Programs

In 2025 UMERC adopted new system resiliency guidelines intended to provide a stronger and more reliable system for three phase overhead construction, particularity areas prone to galloping or cascading pole line failures due to wind events.

System resiliency poles are used to prevent cascading pole line failures due to conductor galloping or wind events. These fiber glass poles are used in tangent applications for overhead three phase construction where cascading pole problems have occurred in the past, or where there is potential to experience cascading failures in the future. These events are most common on rural three phase overhead construction especially in open areas with probable wind exposure.

Regardless of exposure to transverse winds, pole requirements were enhance to ensure a higher level of system resiliency for all pole lines. A minimum of a 40' class 5 pole is required for single phase construction and a 45' class 3 pole is required for three phase construction.

To improve overhead system mechanical coordination and to minimize structure damage, reduced strength fiberglass crossarms are being used instead of full-strength crossarms. When large falling trees strike overhead distribution lines, the tangent cross arm should break first and prevent pole damage, which will reduce restoration times.

## 3.11. Grid Modernization Efforts

This section outlines key updates and ongoing initiatives in UMERC's grid modernization efforts to enhance system reliability and resiliency, and prepare for evolving customer demands.

### 3.11.1. Distributed Energy Resources

UMERC currently has 99 participants in its Category 1 and 2 DG programs. Of these, 61 customers are enrolled in the Category 1 Legacy Net Metering tariff with a total aggregate capacity of 526 kW. There are 8 customers enrolled in the Category 2 Legacy Net Metering tariff with a total aggregate capacity of 185 kW. There are 30 customers enrolled in the new DG-1 tariff, all of which are Category 1, with a total aggregate capacity of 173 kW.

UMERC continues to monitor and consider the use of battery storage, including electric vehicle batteries, as a way to improve distribution system reliability. Battery storage could come be from utility-scale batteries or independent developers or from the batteries of privately-owned electric vehicles ("EVs").

At this time, UMERC has not engaged electric vehicle owners to sell EV stored battery energy back to UMERC. However, UMERC will continue to consider the potential role and uses of electric vehicle batteries as a way to improve system reliability.

### 3.11.2. Interconnection Processes

UMERC allows customers to interconnect a DER capable of exporting active power to the distribution system. Procedures for the interconnection of DER to the UMERC Distribution System are available at www.uppermichiganenergy.com pursuant to MI Rule 460.922 (Rule 22) available at https://ars.apps.lara.state.mi.us/AdminCode/DownloadAdminCodeFile?FileName=R%20460.901a%20to%20R%20460.1026.pdf.

A generator used in an automatic or manual transfer scheme in which electrical load is transferred between the UMERC Distribution System and the generator, but never paralleled with the UMERC Distribution System is not considered to be a DER. Such a generator must have an approved transfer switch installed by a qualified electrician so that the generator and UMERC's service conductors cannot be paralleled.

DER projects are separated into the following levels depending on the kW rating:

- Level 1 – certified project 20 kW or less
- Level 2 – certified project more than 20 kW and not more than 150 kW
- Level 3 – not certified projects 150 kW or less, or a project more than 150 kW and not more than 550 kW
- Level 4 – project more than 550 kW and not more than 1 MW
- Level 5 – project more than 1 MW

The project review track will vary depending on the project level and type and the tracks are listed below:

- Non-Export Track review
- Fast Track review
- Study Track review

DG customers are required to take service under an existing tariff. The rules applicable to a DG installation are dependent upon the size of the project and can be found on UMERC's website at https://www.uppermichiganenergy.com/rates/rates.htm.

### 3.11.3. Distributed Generation Tariffs

The following tariffs for each class of DG are located on UMERC's website at the pages indicated below.

#### 3.11.3.1. UMERC Legacy We Energies and WPS Rate Zone

| | |
|---|---|
| DISTRIBUTED GENERATION PROGRAM - DG-1 | D-62.10 |

#### 3.11.3.2. UMERC Legacy We Energies Rate Zone

| | |
|---|---|
| CUSTOMER GENERATING SYSTEMS – NET METERING PROGRAM 20kW OR LESS RATE - CGS Category 1 (closed to new customers) | D-53.00 |
| CUSTOMER GENERATING SYSTEMS – MODIFIED NET METERING PROGRAM OVER 20kW-150kW – RATE CGS Category 2 (closed to new customers) | D-55.00 |
| CUSTOMER GENERATING SYSTEMS OVER 150 kW RATE CGS Large (closed to new customers) | D-58.00 |
| PARALLEL GENERATION-PURCHASE PG-2M-STANDARD OFFER | D-60.01 |
| PARALLEL GENERATION-PURCHASE PG-3M | D-60.04 |
| PARALLEL GENERATION-PURCHASE PG-4M | D-60.06 |
| CUSTOMER GENERATING SYSTEMS – METHANE DIGESTORS - CGS Biogas (closed to new customers) | D-61.00 |

#### 3.11.3.3. UMERC Legacy WPS Rate Zone

| | |
|---|---|
| PARALLEL GENERATION-NET METERING PROGRAM PG-1M (Closed to New Customers) | D-137.00 |
| PARALLEL GENERATION – MODIFIED NET METERING PROGRAM PG-1AM (Closed to New Customers) | D-139.00 |
| PARALLEL GENERATION – METHANE DIGESTERS PG-1BM (Closed to New Customers) | D-141.00 |
| PARALLEL GENERATION-PURCHASE BY WPSC-STANDARD OFFER PG-2M | D-143.00 |
| PARALLEL GENERATION-PURCHASE BY WPSC PG-3M | D-145.00 |
| PARALLEL GENERATION-PURCHASE BY WPSC PG-4M | D-147.00 |

### 3.11.4. Non-Wires Alternatives

UMERC continues to monitor the opportunities within the industry to utilize new technologies to serve our electric customers. Developments such as battery storage and microgrid technology are becoming more robust and could present new solutions for distribution problems. At this time the cost of such technologies has not reached a point where it has presented enough value for the planning and deployment at UMERC.

### 3.11.5. Rebuilds / Hardening / Conversions

As UMERC pursues rebuilding parts of its system, at the end of its designed life, there is opportunity to rebuild this in a way that provides additional improvements. 24.9kV is the standard voltage for much of UMERC distribution system. The Iron Mountain area's standard voltage is 13.8kV. There will be opportunities to standardize the system as it is rebuilt. New bridging ties can be created between different substation transformers. The amount of different equipment needed to maintain the distribution system could be simplified and reduced resulting in lower costs. Raising the voltage also provides additional capacity on the line and improved voltage profiles that will better serve additional load due to electrification and also accommodate more generation from Distribution Energy Resources.

### 3.11.6. Undergrounding

#### 3.11.6.1. Overhead to Underground Conversions

Since most of the UMERC overhead system is approaching the end of its designed life, there are decisions that need to be made for how to design the system for the next life span. Throughout the past 20 years the cost of building an underground system has become closer to the price to build an overhead system. Customer's expectations on reliability have also increased during this time. An underground system will typically come with a higher initial cost but can also come up with lower maintenance cost throughout the life span of the system. Less vegetation management costs are needed with an underground system. Less outages occur on underground systems compared to overhead systems in high density forest areas. This improves reliability and saves on maintenance costs for restoring outages during blue sky events and major storms.

### 3.11.7. Electrification

#### 3.11.7.1. Introduction

There are a growing number of technologies that are broadly described as electrification. UMERC approaches to individual topics are listed in the sections below.

#### 3.11.7.2. Electric Vehicles

Supporting customer access to electric vehicle charging is important to us. We collaborated with the Wisconsin Department of Transportation (WisDOT) and Michigan Department of Transportation (MDOT) to support the development of the states' plans to distribute National Electric Vehicle Infrastructure (NEVI) funds.

#### 3.11.7.3. Heat pumps, air-source

Electrification has been discussed in our industry as a possible means of reducing methane emissions from the use of natural gas. At this time, given the state of the technology and the specific conditions of our service areas, we see more potential in other options for reducing methane emissions. Full-home electrification is significantly more costly than natural gas heating in our region, and currently appears to demonstrate no net reduction in methane consumption due to seasonal demands for power generation.

### 3.11.8. Other Technologies and Infrastructure

UMERC continues to take opportunities to use new and better technologies to better serve our customers and keep the costs to deliver energy down.

#### 3.11.8.1. Energy Delivery Program

Through a multiyear Energy Delivery Program, we are implementing new capabilities and standard processes for customer service, operations, work management and field operations. Improvements are underway for our outage management, geographic information system, and work and asset management systems, as well as implementations of new capabilities through advanced distribution management systems and GPS as-built drawing tools. Using common systems and processes reduces costs, provides greater flexibility and enhances the consistent delivery of exceptional service to customers.

#### 3.11.8.2. Advance Metering Infrastructure

Advanced metering infrastructure (AMI) technology — now our company standard — creates two-way communication between the customer sited meter and our billing system, and provides up-to-date electric meter reading for billing, outage monitoring and other diagnostics. UMERC began its transition to AMI in 2020 and has achieved 100% deployment across its electric service area.

Find out more about UMERC's AMI technology.

#### 3.11.8.3. Distributed Energy Management Systems

DERMS or a Distributed Energy Management System is an industry term that describes a operation software tool that can be used to monitor and control a system of distribution connected energy resources such as: generation, storage, and loads. As part of the Energy Delivery Program listed above there is development of new tools to get additional visibility as more resources are added to the distribution grid. In the UMERC service area there are hydroelectric facilities that have been connected to the distribution system for many decades. Those resources are effectively managed though existing generation control software.

## 3.12. Forecasted Reliability Metrics and Targeted Goals

UMERC tracks reliability performance across three main indices and establishes annual targets for each. Key performance indicators at UMERC are SAIFI, SAIDI and CAIDI. Goals are set to monitor distribution system health and the effectiveness of restoration practices in order to minimize customer outages and promote customer satisfaction.  The main focus is preventing outages from occurring and therefore SAIFI is the primary reliability metric at UMERC.  SAIDI is a secondary goal, focusing on minimizing the duration of the outage and the effects it has on customers. In order to monitor the performance in efficiently restoring customers when outages do occur, UMERC tracks and sets goals for both Blue Sky and Major Storm CAIDI.  Below are the 2025 goals set for each reliability metric. Note: annual goals are established excluding extraordinary events (EE).  Extraordinary Events (EE) are declared when severe weather conditions result in 8,000, roughly 20%, or more unplanned and sustained customer interruptions, or for events of sufficient intensity to give rise to a state of emergency declaration by the local, state, or federal government.

| **Reliability Metric (excluding EE)** | **Target** |
|---|---|
| SAIFI | 1.10 |
| SAIDI | 200 minutes |
| Blue Sky CAIDI | 200 minutes |
| Major Storm CAIDI | 360 minutes |

In addition, to these system performance metrics, UMERC continues to focus on customer specific reliability metrics. A key initiative is reduce Blue Sky CAIDI.  Weekly outage review calls are conducted to identify opportunities for improvement and share best practices.  Weekly DEMI (Devices Experiencing Multiple Interruptions) reports are published to highlight areas in need of potential targeted remediation.  Performance to customer centric metrics such as CEMI (Customers Experiencing Multiple Interruptions) and CELID (Customers Experiencing Long Interruption Duration) are also tracked annually to identify specific areas for reliability improvement.  Below are annual thresholds that UMERC tracks for each metric:

| Reliability Metric | Target |
|---|---|
| CEMI | CEMI3:  Identifies customers experiencing 3+ unplanned, sustained outages in  12-months |
| CELID | CELID8:  Identifies customers experiencing 8+ hours of total outage duration from unplanned, sustained outages in 12-months |

With future long-term investment in the distribution system, UMERC will focus on improving future performance in SAIFI, SAIDI and CAIDI to first or second quartile performance.

### 3.13. Forecasted O&M and Capital Spend Projections

UMERC’s five year forecasted O&M and capital spend projects are included in Appendix 2, Tables 1 through 4. Please note that, UMERC prepares a three-year financial forecast. A 2.5% annual escalation was applied thereafter.

### 3.14. Hosting Capacity Analysis

On December 5, 2025 in Case No. U-21976, the Commission granted UMERC a limited waiver stating that the waiver of the Hosting Capacity Analysis requirement, as related to the Company’s upcoming distribution system plan (DSP) filing, is granted only for purposes of the upcoming DSP filing due January 30, 2026.

### 3.15. Conclusions

This UMERC DSP for 2026 through 2030 focuses on several key areas to enhance the distribution system, ensuring safe and reliable service for customers. UMERC has the strategy to make the distribution system more reliable and resilient with updated construction standards, targeted overhead to underground projects and an inspection and maintenance plan that proactively address aged assets. UMERC's DSP prepares for a future with additional loads due to new technologies and electrification, and prepares to connect an increasing number of distribution connected generators to the lines. With the right funding levels for these programs, including vegetation management, we can continue to make investments in the system to work toward our customer's expectations for reliability, resiliency and available capacity to meet their electricity demands.

# 4. Appendix

**List of Appendices**

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Table: 1

**Historical Capital Spend**

| Description | 2021 | 2022 | 2023 | 2024 | 2025* |
|---|---|---|---|---|---|
| New Services | $2,996,728 | $3,490,155 | $3,893,655 | $3,684,527 | |
| System Maintenance | $911,174 | $1,013,968 | $1,011,524 | $831,493 | |
| Inspection-Maintenance - Lines | $164,496 | $124,459 | $804,122 | $1,828,365 | |
| Inspection Maintenance - Stations | $428,477 | $191,935 | $136,163 | $360,448 | |
| System Improvement | $2,050,651 | $1,824,003 | $1,351,830 | $1,699,035 | |
| System Reliability Programs | $51,166 | $39,311 | $74,687 | $57,447 | |
| Cable Replacement | $111,785 | $411,108 | $431,330 | $1,166,231 | |
| Facility Relocation | $111,785 | $266,025 | $482,974 | $319,506 | |
| Transformers | $477,139 | $809,880 | $343,133 | $1,263,926 | |
| Substations – New & Additions | $1,762,931 | $2,675,524 | $3,001,636 | $3,533,238 | |
| **Total** | **$9,066,332** | **$10,846,368** | **$11,531,054** | **$14,744,216** | |

*Historical 2025 financial information is still being finalized at the time of this filing, and will be filed in this docket once completed and available for public review

Appendix: 2

Table 2:

**Forecasted Capital Spend**

| Description | 2026 | 2027 | 2028 | 2029* | 2030* |
|---|---|---|---|---|---|
| New Services | $3,660,000 | $3,769,393 | $3,879,372 | $3,976,356 | $4,075,765 |
| System Maintenance | $986,000 | $1,016,026 | $1,046,025 | $1,072,176 | $1,098,980 |
| Inspection-Maintenance - Lines | $1,501,532 | $1,537,599 | $1,572,962 | $1,612,286 | $1,652,593 |
| Inspection Maintenance - Stations | $519,048 | $534,612 | $550,650 | $564,416 | $578,527 |
| System Improvement | $4,000,000 | $4,100,000 | $4,750,000 | $4,868,750 | $4,990,469 |
| System Reliability Programs | $103,605 | $106,061 | $109,242 | $111,973 | $114,772 |
| Cable Replacement | $1,205,324 | $1,230,045 | $1,258,335 | $1,289,793 | $1,322,038 |
| Facility Relocation | $516,081 | $528,159 | $540,302 | $553,810 | $567,655 |
| Transformers | $636,540 | $655,636 | $675,305 | $692,188 | $709,492 |
| Substations – New & Additions | $3,500,000 | $3,999,694 | $4,091,680 | $4,193,972 | $4,298,821 |
| **Total** | **$16,628,130** | **$17,477,225** | **$18,473,873** | **$18,935,720** | **$19,409,113** |

* UMERC prepares a three-year financial forecast. A 2.5% annual escalation was applied thereafter.

Appendix: 2

Table: 3

**Historical O&M**

| **Description** | **2021** | **2022** | **2023** | **2024** | **2025*** |
|---|---|---|---|---|---|
| 580 Operations Supervision & Engineering | $10,798 | $10,120 | $1,419 | $2,929 | |
| 581 Load Dispatching | $93,010 | $103,164 | $98,989 | $90,179 | |
| 582 Station Expenses | $67,706 | $55,953 | $91,660 | $34,709 | |
| 583 Overhead Line Expenses | $667,965 | $737,380 | $719,086 | $783,815 | |
| 584 Underground Line Expenses | $81,210 | $68,451 | $87,195 | $70,366 | |
| 585 Street Lighting & Signal System Expenses | $91,208 | $100,410 | $103,088 | $73,174 | |
| 586 Meter Expenses | $88,582 | $97,938 | $100,311 | $91,828 | |
| 588 Miscellaneous Distribution Expenses | $235,087 | $275,771 | $343,706 | $481,936 | |
| 590 Maintenance Supervision & Engineering | $374 | $799 | $865 | $886 | |
| 591 Maintenance of Structures | $6,144 | $5,256 | $1,939 | $3,340 | |
| 592 Maintenance Of Station Equipment | $141,479 | $234,369 | $171,045 | $101,228 | |
| 593 Maintenance Of Overhead Lines | $1,698,351 | $3,193,183 | $2,385,123 | $2,394,885 | |
| 594 Maintenance Of Underground Lines | $84,619 | $98,288 | $222,697 | $184,628 | |
| 595 Maintenance Of Line Transformers | $17 | $3,750 | $1,160 | $1,199 | |
| 596 Maintenance Of Street Lighting & Signal Systems | $78,179 | $79,929 | $92,338 | $65,747 | |
| **Total** | **$3,344,728** | **$5,064,760** | **$4,420,622** | **$4,380,848** | |

*Historical 2025 financial information is still being finalized at the time of this filing, and will be filed in this docket once completed and available for public review

Appendix: 2

Table: 4

**Forecasted O&M**

| Description | 2026 | 2027 | 2028 | 2029* | 2030* |
|---|---|---|---|---|---|
| 580 Operations Supervision & Engineering | $17,433 | $3,533 | $3,624 | $3,715 | $3,807 |
| 581 Load Dispatching | $101,667 | $115,695 | $116,064 | $118,966 | $121,940 |
| 583 Overhead Line Expenses | $764,713 | $824,626 | $869,708 | $891,451 | $913,737 |
| 584 Underground Line Expenses | $41,411 | $43,408 | $45,566 | $46,705 | $47,873 |
| 585 Street Lighting & Signal System Expenses | $24,693 | $25,097 | $25,416 | $26,051 | $26,703 |
| 586 Meter Expenses | $84,897 | $88,286 | $115,138 | $118,016 | $120,967 |
| 588 Miscellaneous Distribution Expenses | $425,600 | $438,315 | $450,763 | $462,032 | $473,583 |
| 590 Maintenance Supervision & Engineering | $863 | $885 | $905 | $928 | $951 |
| 592 Maintenance Of Station Equipment | $320,875 | $331,356 | $338,875 | $347,347 | $356,031 |
| 593 Maintenance Of Overhead Lines | $2,354,675 | $2,384,295 | $2,430,010 | $2,490,760 | $2,553,029 |
| 594 Maintenance Of Underground Lines | $136,979 | $147,294 | $152,214 | $156,019 | $159,920 |
| 595 Maintenance Of Line Transformers | $107,588 | $110,333 | $113,255 | $116,086 | $118,989 |
| 596 Maintenance Of Street Lighting & Signal Systems | $24,693 | $25,097 | $25,415 | $26,050 | $26,702 |
| **Total** | **$4,406,087** | **$4,538,220** | **$4,686,952** | **$4,804,126** | **$4,924,229** |

* UMERC prepares a three-year financial forecast. A 2.5% annual escalation was applied thereafter.

Appendix: 3

Table: 1

Line Clearance Spend by Year

| Year | Spend |
|---|---|
| 2021 | $934,000 |
| 2022 | $1,536,000 |
| 2023 | $827,000 |
| 2024 | $846,000 |
| 2025 | $898,000 |

UPPER MICHIGAN ENERGY RESOURCES

# UMERC Distribution System Plan Survey

Upper Michigan Energy Resources (UMERC) was formed in 2017 to serve energy customers in the Upper Peninsula of Michigan. UMERC is preparing to file with the Michigan Public Service Commission (MPSC) a required distribution system plan (DSP), which will address how UMERC will best evaluate necessary investments to its distribution system. The MPSC has established four overarching electric distribution system objectives for distribution planning: safety, reliability and resiliency, cost-effectiveness and affordability, and accessibility. Part of this process includes seeking feedback from customers and stakeholders on what your input, ideas or potential solutions may include.

Thank you for your willingness to share your opinions. This survey should take about five minutes to complete.

**1. Which type of customer are you?**

O UMERC residential

O UMERC commercial/industrial

O I am not a UMERC customer

O Other (please specify) ______________________________

**2. How long have you been a customer of UMERC?**

O Less than 1 year

O 1 to 5 years

O Over 5 years

**3. Do you live in a suburban or rural area?**

O Suburban

O Rural

4. **Do you feel that your household or business has sufficient electric power to meet your daily needs?**

O Yes
O No

(Optional) please explain

______________________________________________________________________

5. **How satisfied are you with the consistency of your electric service to meet your energy needs over the past 12 months?**

| 1 = Not satisfied | 2 = Somewhat dissatisfied | 3 = Satisfied | 4 = Somewhat satisfied | 5 = Very satisfied |
|---|---|---|---|---|
| O | O | O | O | O |

6. **Approximately how many outages has your home or business experienced over the past 12 months?**

O 0
O 1
O 2
O 3
O More than 3

7. **How concerned are you about UMERC's ability to provide enough power to meet growing energy demands in your community?**

| 1 = Not at all concerned | 2 | 3 = Concerned | 4 | 5 = Very concerned |
|---|---|---|---|---|
| O | O | O | O | O |

8. **How important is it for UMERC to prioritize grid upgrades in areas prone to frequent outages?**

| 1 = Not at all important | 2 | 3 = Important | 4 | 5 = Very important |
|---|---|---|---|---|
| O | O | O | O | O |

9. **How important is it for UMERC to balance grid improvements with keeping rates affordable?**

| 1 = Not at all important | 2 | 3 = Important | 4 | 5 = Very important |
|---|---|---|---|---|
| O | O | O | O | O |

10. **Have you ever had to limit your electricity use due to concerns about cost?**

O Yes

O No

(Optional) please explain

_______________________________________________

11. **Compared to your current energy costs, over the next 5 years, how much extra, on average, would you be willing to pay to increase UMERC's resiliency during extreme weather events?**

O I would not be willing to pay more

O 5% more

O 10% more

O 15% more

O Other (please specify) ________________________________

12. **Do you believe UMERC provides equitable deliverability of power across all areas in its service region?**

O Yes

O No

(Optional) please explain

_______________________________________________

13. **How confident are you that UMERC can meet future power demands as more customers adopt electric-intensive technologies, such as electric vehicles, heat pumps or water heaters?**

| 1 = Not at all confident | 2 | 3 = Confident | 4 | 5 = Very confident |
|---|---|---|---|---|
| O | O | O | O | O |

**14. What is the most important factor for you in improving electric reliability?**

- O Billing impact
- O Power outage communications
- O Faster restoration
- O Storm resilience
- O Vegetation management
- O New technologies, such as smart grid components

**15. Do you have any specific questions, concerns or suggestions about UMERC's reliability or future grid planning? Please share any of your recent experiences with UMERC.**

_______________________________________________________________________________

*Optional:* Please provide your name, address and organization, if applicable. UMERC will use this information only to analyze survey results and will not use this information to contact you.

Name _______________________________________________

Organization _______________________________________________

Address _______________________________________________

City/Town _______________________________________________

State _____________ ZIP/Postal Code __________________________

Please provide any comments, questions, or concerns relating to UMERC's distribution system plan.

*Thank you for completing this survey. UMERC values your feedback.*