STATEWIDE ENERGY ASSESSMENT



Michigan's 2019 Statewide Energy Assessment

2-year Implementation Update

A combination of extreme weather and energy emergency events during January 30 – 31, 2019 challenged the natural gas and electricity systems in Michigan. Though service was maintained, Michigan's energy supply and delivery systems were strained due to the extreme weather event dubbed Polar Vortex 19, during which temperatures dropped below -25° Fahrenheit.

The extreme weather caused historically high demand for both electricity and natural gas. At the same time, on the morning of January 30, a fire ignited at Consumers Energy's Ray Compressor station, the utility's largest natural gas storage facility, causing deliverability issues for natural gas during this period of extraordinarily high demand.

In response to these overlapping emergencies, Michigan utilities requested conservation measures and the State Emergency Operations Center put out a broad public appeal to all residents to conserve natural gas.

Within days, Governor Gretchen Whitmer called upon the Michigan Public Service Commission to evaluate whether the design of the electric, natural gas, and propane delivery systems are adequate to account for changing conditions and extreme weather events. Additionally, the Governor asked the MPSC to provide recommendations regarding how to best mitigate risk on the energy system. The MPSC delivered the final Statewide Energy Assessment (SEA) on September 11, 2019.

The SEA identified recommendations in the areas of electricity systems, natural gas systems, propane access, cyber and physical security, and emergency management. Many of the recommendations are being addressed through the MI Power Grid Initiative.

While the COVID 19 pandemic hit Michigan 6 months after the release of the SEA and complicated some implementation efforts, the pandemic has also emphasized the importance of the planning process and robust response strategies that are a part of the SEA.

The MPSC has continued to work throughout the pandemic to address the SEA's recommendations to improve the system resiliency of Michigan's energy systems and infrastructure.

Status of recommendations are as follows:

18 Completed

Work is completed & the recommendation has been implemented.

5 17 Ongoing

Work has begun on the recommendation; however, the recommendation includes opportunities for continuous evaluation & improvement with no completion point envisioned.

22 In Progress

Work has begun on the recommendation, but is not yet complete.

2 Needs Action

Work has not yet begun on the recommendation but is expected to begin before the end of 2021.



Electricity Measuring Progress









Work has not yet begun on the recommendation but is expected to begin before the end of 2021.

Ongoing

Work has begun on the recommendation; however, the recommendation includes opportunities for continuous evaluation & improvement with no completion point envisioned.

Progress Update

Recommendation

E-1.1

Review Demand Response tariffs for consistency and clarity to ensure customers understand their obligations during emergency events, including notifications and penalty provisions.



Align retail Demand Response tariffs with wholesale markets and emergency operations.



E-1.3

Review and test Demand Response resources and communications to ensure ability to respond when called upon.

Staff led a stakeholder workgroup per Commission order in Case No. U-20628 to address Demand Response tariff issues. In an October 2020 order, the Commission adopted several of the workgroup's recommendations and directed the utilities to file updated Demand Response Tariffs in accordance

All utilities have filed either tariff changes or filed that no revisions were needed except Northern States Power Company (NSP) (who requested an extension) and Alpena Power Company (who is expected to make a filing soon indicating no revisions are necessary).

- UMERC Case No. U-21037
- UPPCO Case No. U-20628
- DTE Case No. U-21042
- Consumers Energy Case No. U-21038

with those recommendations by April 1, 2021.

- I&M Case No. U-21036
- NSP Extension Case No. U-20628

MI Power Grid Demand Response webpage



E-2

Ensure that electric generators provide Regional Transmission Operators (RTO) with all operating characteristics and improve generator startup performance during emergencies.

This is an ongoing effort through MISO's Resource Availability and Need (RAN) initiative for all generators in MISO.

Additionally, in Aug. 2021, the Federal Energy Regulatory Commission approved standards requiring generation owners to provide RTO's cold weather operating parameters by 2023.



E-4

Establish a workgroup to recommend changes to the Commission's Service Quality and Reliability Rules as well as the Technical Standards for Electric Service.

Establish a workgroup to update the

Commission's Interconnection Rules.

Staff led three stakeholder workgroups per Commission orders to revise these rulesets:

Service Quality and Reliability Rules

- Case No. U-20629
- MI Power Grid webpage

Technical Standards for Electric Service

- Case No. U-20630
- MI Power Grid webpage

Interconnection Rules

- Case No. U-20344
- MI Power Grid webpage

The workgroups have filed reports recommending updates to the identified rule sets. Authorization from the MI Office of Administrative Hearings and Rules has been received to initiate the formal rulemaking process for all three rulesets.

Additionally, revisions to the Customer Standards and Billing Practices for Electric and Natural Gas Service are being revised in tandem with these three rulesets to ensure consistency.



Better align electric distribution plans with Integrated Resource Plans (IRP) with consideration given to Distributed Energy Resources (DER), reliability, and increased utilization of intermittent resources.

Staff led a stakeholder workgroup per Commission order in Case No. Case No. U-20633 to review generation diversity and resiliency issues. A Staff report (appendices) was issued on May 27, 2021.

A Commission order is expected to be issued responding to the Staff report in the near future.



E-6

Quantify the value of generation diversity in

Additional progress update information continued on next page.



Electricity

Cont. Measuring Progress



Work has begun on the recommendation; however,

the recommendation includes opportunities for continuous evaluation & improvement with no

Ongoing

completion point envisioned.



In Progress

Work has begun on the recommendation, but is not yet complete.



Work has not yet begun on the recommendation but is expected to begin before the end of 2021.



Statu	Recommendation	Progress Update
	E-7 Quantify the value of resilience, particularly for DERs.	Additionally, <u>phase 3 of the Advanced Planning MI Power Grid (MPG)</u> initiative is expected to launch in late 2021 and will continue through the first half of 2022. Through this MPG workgroup, these recommendations may become further explored and refined for potential inclusion in the MI IRP Planning Parameters and IRP filing requirements that will be issued in 2022. The Commission also addressed these recommendations in the distribution planning docket, MPSC <u>Case No. U-20147</u> .
	E-8.1 Better accommodate transmission alternatives in utility Integrated Resource Plans (IRPs).	
	E-8.2 Investigate opportunities to expand Michigan's Capacity Import Limit (CIL) to aid with resource adequacy and reliability as	A formal request for CIL/CEL (Capacity Export Limit) study was made to MISO in 2019 and MPSC Staff worked closely with MISO to engage Michigan stakeholders in the study. The study's scope included 3 scenarios and MISO conducted modeling and reviewed alternatives for each.
	aging plants retire.	The <u>CIL/CEL study</u> was issued in June 2021. Through this study, a methodology change for calculating the CIL was identified that increased Michigan's Zone 7 CIL from 3,200 MW to 5,278 MW for the 2021 planning year thereby increasing the amount of electricity Michigan generators can import from outside Zone 7. The study also identified existing alternatives to further increase Michigan's Zone 7 CIL to 6,466 MW which will be evaluated in future MISO Transmission Expansion Planning cycles.

Measuring Observations

Statu	s Recommendation	Progress Update
5	E-9 Improve data sharing between utilities, staff, other market participants and RTOs in order to operate the system with increased DERs.	This effort is coordinated through the RTO stakeholder processes and is ongoing. MPSC staff are leading the effort to coordinate input from Michigan utilities and stakeholders related to draft RTO requirements for compliance with FERC Order 2222 for DER aggregation where data access and sharing is key.
	E-10 Discuss coordination issues with EGLE including options to address conflicts that arise when electric generators reach air emission limitations at the same time as RTO emergencies require increased electricity production from these same facilities.	Staff has held meetings with EGLE and with generation operators. Options for addressing these conflicting regulatory requirements include utilizing an Energy Emergency declaration from the Governor as a force majeure event that might permit increased emissions levels. The MPSC is initiating discussions with EGLE regarding appropriate protocols to utilize during declared energy emergencies.
	E-11 Create a seasonal capacity construct to supplement the current single peak capacity model.	A seasonal capacity construct is under development at MISO and Staff will continue to engage in this process.
	E-12 Generator interconnection queue improvements.	Generation interconnection queue improvements are under development at MISO and Staff will continue to engage in this process.
	E-13 MISO's process should more carefully consider non-transmission alternatives.	Staff is monitoring process at MISO related to the consideration of non-transmission alternatives.

Natural Gas **Measuring Progress**



In Progress Work has begun on the



recommendation, but is not yet complete.



Work has not yet begun on the recommendation but is expected to begin before the end of 2021.

Ongoing

Work has begun on the recommendation; however, the recommendation includes opportunities for continuous evaluation & improvement with no completion point envisioned.

Progress Update

Recommendation



G-1

Enhance Safety Management Systems to support and prioritize safety programs.



Incorporate probabilistic risk models into evaluations of investment prioritization.



Work with utilities to incorporate equipment and facility outages into risk models.



Conduct analyses to evaluate increasing the number of remote shutoff valves.



and these issues are continually evolving. Ongoing steps include:

- Meetings on safety management systems will continue between MPSC Staff and Natural Gas Utilities.
- The top risks to the system change every year. These risks are reviewed and ranked annually.
- Consumers Energy and DTE Gas separately conducted tabletop exercises in September and October 2020 to simulate an energy emergency during the winter heating season. These exercises will be conducted annually.
- Utilities will conduct ongoing analyses into the incorporation of additional remote shutoff valves as they develop infrastructure.

Utilities should consider contingency options for resilience at key facilities. Staff should consider these options as well as more resilient design day plans.



G-5

Utilities should consider the diversity of supply sources and propose investments to increase reliability. They should also consider diversification of supply through GCR plans and reconciliations.

Contingency and resilience options were discussed in workgroups established by Commission order in Case No. U-20631.

Utilities have taken several steps toward improving resilience and increasing supply diversity including:

- Filing Act 9 applications requesting approvals for new pipelines to add additional paths of supply and provide contingency options for key facilities.
- Including requests for resiliency focused capital investments in recent rate cases.
- Including contingency options and more resilient design day plans in recent Gas Cost Recovery (GCR) plan cases.
- Including supply diversification in all GCR plan cases.

Natural Gas Cont. Measuring Progress



In Progress Work has begun on the recommendation, but is not yet



Needs Action

complete



Work has not yet begun on the recommendation but is expected to begin before the end of 2021.



Status

G-6

Develop solutions that mitigate the risk of outages, improve flexibility and accommodate demand growth.

Recommendation



Convene a workgroup to facilitate the development of mutual assistance agreements.



Convene a workgroup to facilitate the development of transmission contingency planning.



Ongoing

completion point envisioned.

The Commission initiated the staff-led workgroups in Case No. U-20631.

Work has begun on the recommendation; however,

the recommendation includes opportunities for continuous evaluation & improvement with no

- Staff issued its report with recommendations on mutual assistance for gas utilities on March 31, 2020.
- Staff issued its report with recommendations on transmission contingency planning on March 31, 2021.

These workgroups also discussed solutions that mitigate the risk of outages and improve the system.

The Commission issued an order on May 13, 2021, accepting Staff's reports; adopting many recommendations therein; and adopting the alternative recommendations related to transmission contingency planning. The following recommendations were adopted:

- Natural gas utilities should enter into mutual aid agreements.
- Natural gas utilities should adopt an Incident Command System to create a unified sense of process and chain of command allowing for more effective and efficient resolution of incidents.
- Evaluate and propose new interconnections to improve resilience.
- Additional longer-term recommendations include an ongoing annual workgroup to discuss emergent issues.

Additionally, the Commission directed Natural gas utilities to periodically test emergency management processes and allow MPSC Staff to witness the test in lieu of any requirement to file confidential contingency plans. The Commission also directed staff to form a workgroup to assess the interoperability between gas and electric utilities and file a status report on March 31, 2022.



Review the potential for natural gas demand response programs and encourage the development or expansion of natural gas demand response programs.

Staff has met with utilities to discuss and develop natural gas demand response programs. Additionally, utilities which have filed natural gas rate cases following the September 11, 2019 release of the SEA, have included testimony focused on proposed natural gas demand response programs. Proposals are currently pending in open DTE Gas and MGU rate cases related these programs. Consumers Energy Gas received approval for its natural gas demand response program in September 2020 in Case No. U-20650.

Measuring Observations

Recommendation

Progress Update



G-10

Michigan statute limits the ability of the MPSC to assess meaningful penalties for non-compliance with Michigan natural gas safety standards and may impact the health, safety, and welfare of Michigan residents.

The Commission is working with Legislative partners to develop and adopt legislation bringing Michigan statute into alignment with Federal law governing penalties for non-compliance with applicable gas safety standards.

Propane Measuring Progress







to begin before the end of 2021.



Ongoing

Work has begun on the recommendation; however, the recommendation includes opportunities for continuous evaluation & improvement with no completion point envisioned.

Progress Update Status Recommendation P-1 MPSC Staff continues to solicit market information from propane suppliers Staff should continue to solicit market and has developed an annual retail propane survey. The annual survey is information from propane suppliers and reviewed and edited prior to each release to help clarify requests and create an annual retail propane survey. improve data quality. A recurring annual press release is issued during the mid-late summer MPSC should continue public education encouraging customers to take advantage of pre-buy and price lock-in efforts to promote the use of pre-buy and strategies. price lock-in purchase strategies. Summer 2021 release

Measuring Observations

MGC	18uttily upstryations	
Statu	s Recommendation	Progress Update
	P-3 Formal contingency plans needed for supply and delivery of propane.	In March 2021, the Administration issued the <u>Michigan Propane Security Plan</u> identifying strategies to ensure the availability of propane throughout the state. Additionally, a decision matrix is expected to be used in conjunction with the Petroleum Shortage Response Plans which will help to improve coordination and response efforts during market disruptions.
	P-4 Conduct an analysis considering alternatives to current supply, import, and utilization of propane including an examination of rail and trucks to supply Rapid River, options for importing propane into the Upper Peninsula, extension of natural gas infrastructure for home heating, use of electric heat sources and heat pumps, and targeted Energy Waste Reduction programs for propane customers.	Staff supported the UP Energy Task Force and Public Sector Consultants in the development of their "Analysis of Propane Supply Alternatives for Michigan" report. Additionally, Staff has been active in conversations related to the Michigan Department of Transportation's (MDOT) U.P. Rail Study which is examining potential improvements to the rail network to facilitate increased shipments of propane.
5	P-5 Work with owners and operators of critical petroleum assets to ensure availability of Natural Gas Liquids (NGL) and propane.	Staff has been engaged in active outreach to NGL and propane suppliers to monitor the availability of NGLs and propane for MI customers and proactively address any potential supply disruptions. Staff has also been in active conversations regarding increasing storage utilization and the potential establishment of a Strategic Propane Reserve.
	P-6 Petroleum prime suppliers should provide Staff with form EIA-782C to more accurately account for inflow and outflow of propane supply/storage.	The Commission is working with Legislative partners to develop and adopt legislation to better enable and ensure the sharing of this information with the Commission.
	P-7 The State of MI should support the development of a HAZMAT Driver Training Program to help supply the propane market with properly trained and qualified transport drivers, potentially in partnership with the Michigan Propane Gas Association.	Commission Staff are identifying State and private sector partners with whom to work to develop the recommended training program.

Propane

Cont. Measuring Observations





Work has begun on the recommendation; however, the recommendation includes opportunities for continuous evaluation & improvement with no completion point envisioned.





Needs Action

Work has not yet begun on the recommendation but is expected to begin before the end of 2021.

Progress Update Recommendation Commission Staff continues to explore opportunities for the increased P-8.1 utilization of Appalachian Basin NGLs and is actively engaging industry Study the feasibility of increased utilization participants. of Appalachian Basin NGLs and purity propane supplies in conjunction with additional in-state geological storage and fractionation capacity to diversify fuel sourcing. P-8.2 MDOT has provided grants to expand track capacity and unloading capabilities in both Escanaba and Kincheloe. Additionally, the Governor's FY Study the feasibility of additional rail and 2022 Budget Recommendation included a recommendation for 10 million storage infrastructure buildout near the dollars for MDOT's Rail Economic Development Program and 5 million Rapid River, Michigan fractionation facility to dollars for the development of propane storage tanks near rail enhance resilience, including the potential infrastructure. Finally, MDOT's UP Rail Study is expected to explore this use of the existing Michigan Economic issue in more detail. Development Corporation's Freight Economic Development Program to offset 50% of the cost of a rail spur to serve the Rapid River facility.



Cyber & Physical Security

Measuring Progress



Work has begun on the recommendation; however,

the recommendation includes opportunities for continuous evaluation & improvement with no

completion point envisioned.

In Progress Work has begun on the



recommendation, but is not yet complete

to begin before the end of 2021.

Work has not yet begun on the recommendation but is expected

Progress Update Recommendation



S-1

Include cybersecurity standards and reporting for natural gas distribution systems under MPSC jurisdiction through proposed amendments to the Gas Technical Standards.

Revisions to the Technical Standard for Gas Service in 2020 included cybersecurity standards and reporting requirements.



Continue to evaluate existing Commission rules and utility data privacy tariffs for opportunities to enhance the protection of customer data and the cybersecurity of electric distribution infrastructure.



Require electric and natural gas utilities to conduct annual self-assessments of cyber capabilities.



Ensure utilities categorize physical and cyber incident types and severities and make clear the internal and external notifications that will take place based upon the identified categories.



Require utilities to run simulated phishing campaigns at least quarterly and include all employee levels in these tests.

As part of the Commission's MI Power Grid initiative, additional updates to the Technical Standards for Electric Service have been recommended in the Staff report filed in MPSC Case No. U-20630. These updates include:

- A requirement that the utilities conduct annual self-assessments of cyber capabilities;
- A requirement that the utilities maintain a cybersecurity incident response plan;
- A requirement to conduct quarterly cyber threat simulations, such as phishing campaigns.

The Staff plans to incorporate these and other security requirements in the next revision of the Technical Standards for Electric Service.

The MPG Customer Education and Participation workgroup, launched in February 2021, has further explored how additional access to energy data by customers and third parties can allow ratepayers to be more active, responsive, and dynamic participants in the energy system while appropriately maintaining data privacy safeguards. Staff will file a report with recommendations in February 2022.

A review of system data access is planned in conjunction with the grid integration study requested of the Commission in Senate Resolution 143 of 2020 to be completed by the end of 2022.



S-4

Encourage utilities to pursue the close coordination of operational technology (OT), information technology (IT), and physical security operations, and centralize security functions.

Staff engages with the utilities through annual cybersecurity reports and emphasizes the importance of these recommendations in those annual meetings with each utility. Staff continues to monitor the utilities' progress in these areas and may recommend inclusion of these recommendations in future MPSC rules updates if necessary.



Encourage utilities to regularly audit operational technology environments for internet-facing systems.



Encourage utilities to require multifactor authentication to remotely access OT assets.



S-5

Encourage utilities to develop and track metrics to assess cybersecurity performance.

Staff is working with Consumers Energy and DTE to develop additional cybersecurity and IT data streams and metrics for incorporation into their multi-year IT and Security plans.



S-10

Encourage utilities to adopt industry best practices in mitigating threats from phishing and other IT threats, perform a cost-benefit analysis for top critical infrastructure and systems (CIS) security controls, and take appropriate steps to implement additional controls.

Recent updates to the Technical Standards for Electric Service and Technical Standards for Gas Service require the utilities to implement additional measures to prevent unauthorized use of data and to protect information infrastructure. Staff is also using the annual cybersecurity review process to ensure continuous security improvement. Finally, Staff is working with Consumers Energy and DTE to ensure the inclusion of costbenefit information for proposed security investments in rate case proceedings before the Commission.



Page 8 of 10

Emergency Management

Measuring Progress



In Progress Work has begun on the recommendation, but is not yet



Needs Action recommendation but is expected

to begin before the end of 2021.

complete



Ongoing

Work has begun on the recommendation; however, the recommendation includes opportunities for continuous evaluation & improvement with no completion point envisioned.

		 ansumer tips on safety and other highly tr
tatus	Recommendation	Progress Update



EM-1.1

Provide timely and consistent energy emergency communications to the public.

Consumer tips on safety and other highly trafficked issues are being redesigned and will be released at appropriate times throughout the year. The Communication section of the Energy Assurance Plan has been updated to reflect this new approach.

Two meetings have been held to brainstorm ideas for the pre-written drafts of emergency messaging. Drafting will commence shortly.



EM-1.2

Develop drafts of energy emergency messaging for use in the event of an energy emergency.

Staff is meeting internally to develop pre-written drafts of emergency messaging including press releases and social media messages for rapid dissemination in the event of an energy emergency. Drafts are expected to be completed in the Fall of 2021.



Provide an emergency contact list to energy providers and RTOs on an annual basis.

Staff has developed an emergency contact list which will be distributed in the Fall of 2021.



EM-2

Develop standardized utility communications to the MPSC regarding electric and natural gas emergencies for use by investor-owned utilities and co-operative utilities.

Staff created outage reporting requirements for electric providers which have been distributed to utilities.



EM-3

Expand upon traditional drills to include emergency drills that also focus on curtailment and demand response procedures.

Michigan utilities have refocused some of their drills to address this issue. We believe these drills will occur annually and will include curtailment and demand response scenarios.



FM-4

Convene a workgroup on NG curtailment procedures to prioritize residential heating above NG use for electric generation when appropriate.

A collaborative was convened to examine issues related to natural gas tariff curtailment procedures and the Staff report is available in Case No. U-20632. An order regarding the proposed tariff revisions was issued on September 9, 2021.



EM-5

The MPSC should work with State Police, RTOs, gas and electric utilities, and the Governor's office to conduct exercises related to critical decision making during catastrophic energy events where sustaining natural gas and electricity service may be in conflict.

Staff plans to engage the exercise planning experts at MSP to begin the research and planning process for such an exercise. The goal is to have a state or regional exercise focusing on high impact scenarios including extreme cold that stresses the natural gas system and the electricity system at the same time.



EM-6

Staff should plan workforce development activities for Commissioners and Staff related to energy emergency preparedness. The MPSC has increased the number of Staff that are trained in the Michigan Critical Incident Management System (MiCIMS) and FEMA incident command system. Additionally, on-call weekend coverage related to energy emergency preparedness and monitoring has expanded to include additional staff.

Emergency Management

Cont. Measuring Progress



In Progress Work has begun on the recommendation, but is not yet complete.



Needs Action Work has not yet begun on the

recommendation but is expected

to begin before the end of 2021.

Ongoing	
Work has begun on the recommendation; however,	
the recommendation includes opportunities for	
continuous evaluation & improvement with no	

completion point envisioned.

Status	Recommendation	Progress Update
	EM-7 Update the Michigan Energy Assurance Plan and the Petroleum Shortage Response Plan on a bi-annual basis.	Updates are underway for both the Energy Assurance Plan and Petroleum Shortage Response Plan and Staff will institute a two-year update schedule following the completion of the current updates.
%	EM-8 Staff should facilitate a workgroup to address potential gaps in petroleum fuel supply and delivery with the Michigan State Police, terminal owners, as well as other stakeholders.	Staff expects this workgroup to commence in late 2021.

Measuring Observations

Status	Recommendation	Progress Update
	EM-9 Large utilities (including investor owned and co-operative utilities) should adopt the Incident Command System (ICS) to better align with federal and state emergency responders.	Staff has confirmed that most larger utilities have adopted the ICS structure. Staff will continue to monitor the adoption of the ICS structure via annual security meetings.
	EM-10 Encourage municipal electric providers and/or the MI Municipal Electric Association (MMEA) follow the same outage reporting standards as regulated utilities for coordination with the MPSC and Michigan State Police during energy emergencies.	Outreach and coordination has increased with MMEA and members. The President of MMEA has received training and access to MiCIMS to facilitate self-reporting of significant municipal electrical outages.
	EM-11 Legislation is needed to provide protection of critical energy infrastructure information.	The Commission is working with the MI Legislature to develop and adopt legislation to ensure the Commission's ability to protect Critical Energy Infrastructure Information.