

I. Executive Summary

II. Introduction

- A. Governor's request: Review the supply, engineering, and deliverability of Michigan's natural gas, electricity and propane.
- B. Overarching goal: Ensure public health and safety by mitigating risks of energy supply or delivery disruptions due to equipment failure, extreme weather, security threats, and other factors, and limit impacts of an energy emergency should one occur.
- C. Impetus
 - 1. Extreme weather event – polar vortex
 - 2. Unplanned equipment failure
 - 3. Need to evaluate system vulnerabilities and energy emergency preparedness
- D. Scope of Assessment (per Governor Whitmer's letter)
 - 1. The Commission's current infrastructure planning criteria and methodologies around distribution, transmission, and generation (including contingency plans);
 - 2. Existing planning processes for electric and natural gas utilities and best practices for integration;
 - 3. Linkages and gaps between real-time operational reliability and infrastructure planning for long-term reliability;
 - 4. Demand response and mutual assurance protocols by natural gas utilities and opportunities for enhancement;
 - 5. Contingency risks, interdependencies, and vulnerabilities of supply and/or delivery disruptions from physical and/or cyber security threats as well as a rough cost estimate of potential enhancements;
 - 6. Adequacy of Commission rules addressing customer safety, reliability and resiliency, and utility notifications;
 - 7. Evaluation of the existing gas efficiency program; and
 - 8. Identification of areas or types of systems most at risk.
- E. Evaluation/Recommendation
 - 1. By July 1, 2019, complete initial report which evaluates if the electric/natural gas/propane systems are adequate to account for changing system conditions and extreme weather events and identifies recommendations to mitigate risk and ensure safety and reliable energy.
 - 2. Upon the final report, the Commission should direct the utilities to take appropriate action to address any shortfalls highlighted in the report including but not limited to recommendations around changes to energy planning criteria and approaches, regulatory review, and proposed oversight improvements.

III. Regulatory Oversight of Energy Planning and Infrastructure

- A. Electric
 - 1. Generation

- a. Integrated Resource Plan (IRP) and Certificate of Necessity (CON)
 - b. Capacity requirements and demonstrations – MPSC and regional transmission organizations (RTOs)
 - c. Infrastructure and operations and maintenance (O&M) expense prudence reviews through rate proceedings
 - d. Review of fuel supplies and purchased power arrangements to meet customer demand in Power Supply Cost Recovery proceedings
- 2. Transmission
 - a. Reliability and economic planning by transmission owners and at RTO level; planning criteria and RTO review role
 - b. Transmission siting/certificate of public convenience and necessity (CPCN) determinations
- 3. Distribution
 - a. 5-year infrastructure and maintenance plans
 - b. Infrastructure and O&M expense prudence reviews through rate proceedings
- B. Natural Gas
 - 1. Natural gas system planning
 - a. Storage
 - b. Compression
 - c. Transmission
 - d. Distribution
 - 2. Infrastructure and O&M expense prudence reviews through rate proceedings
 - 3. Review of fuel arrangements to meet customer demand in Gas Cost Recovery proceedings
- C. Propane
 - 1. Current (limited) regulatory regime
 - a. Siting
 - b. Safety oversight of liquid pipelines
 - c. Transportation regulations
 - d. Industry guidelines
 - 2. Price and Supply
 - 3. Storage Operations
 - a. Underground
 - b. Bulk
 - c. Customer

IV. System Risks, Interdependencies and Vulnerabilities

- A. Michigan's unique strengths - gas storage; access to electricity and gas markets; gas transmission capacity; Ludington pump station; diversity in power supplies; propane storage capacity and proximity to Sarnia; Ontario fractionator/refinery; electric demand response capabilities.
- B. Changing landscape of risks

DRAFT – Comments due February 19, 2019 in docket U-20464.

1. Inclement weather impacts and operational procedures for critical facilities
2. Fuel procurement
 - a. Generation diversity and interdependencies
 - b. Fuel supply sourcing and supply chain
3. Physical and cyber security
- C. Risk assessment of electric, natural gas, and propane systems
 1. Infrastructure
 - a. Asset conditions and performance
 - b. Interconnection limitations or constraints
 - c. Visibility and controls (e.g., Supervisory and Control Data Acquisition (SCADA))
 2. Investment trends and projections
 - a. Capital investments
 - i. Historical investments by industry and type
 - ii. Projected investments by industry and type
 - b. Operations and Maintenance
 - c. Clean energy requirements and drivers; emerging energy technologies
 - d. Propane industry mergers and acquisitions
 - e. Potential impacts of investments on reliability, operations, and energy supply and delivery risks
 3. Adequacy of MPSC rules and best practices related to customer safety, reliability, and resiliency; customer notifications
- D. Vulnerabilities
 1. Electric
 - a. Aging distribution infrastructure
 - b. Transmission Interconnections
 - c. Generation shift in supply and operational considerations across multiple timeframes and seasons
 - d. Interdependencies with natural gas home heating
 2. Natural Gas
 - a. System limitations
 - b. Infrastructure failures
 - c. Interconnections
 - d. System redundancy
 - e. Single source supplies
 3. Cyber and physical security
 - a. Policies and standards (e.g. requirements and guidance at local, state and federal levels across different sectors; jurisdictional responsibilities)
 - b. Staffing and expertise
 - c. Information sharing
 - d. Adaptability, scale of potential impacts
 4. Propane

- a. Driver shortages
- b. Infrastructure availability
- c. Export markets

V. Contingency Planning Methodologies and Assumptions

A. Electric

- 1. Resource adequacy – Loss of load expectation
- 2. Electric transmission – North American Electric Reliability Corporation (NERC)/RTO standards and transmission owner planning criteria
- 3. Electric distribution – Risk-based planning models

B. Natural Gas

- 1. Transmission
 - a. Distribution interconnections
 - b. Intrastate interconnections
 - c. Interstate interconnections
 - d. Peak design day
 - e. Contingency considerations
 - f. Effectiveness of modeling
- 2. Distribution
 - a. Planning and modeling
 - b. Contingency considerations
 - c. Effectiveness of modeling

C. Propane

- 1. Un-regulated marketplace
- 2. Anti-trust restraints limit the extent to which companies can share information with each other on pricing, supply, and production capabilities, thus complicating coordinated planning
- 3. National and regional coordination of supply monitoring and waiver requests
- 4. Public education and awareness

D. Load forecasting methodologies and risks

- 1. Evaluation of energy efficiency programs on consumption and peak demand
- 2. Changing customer behavior and technology adoption (e.g., electric vehicles) and forecasting risks

VI. Operational Practices of Energy Systems

A. Electric

- 1. Generation/Transmission (bulk power system)
 - a. Resource Adequacy
 - b. NERC Standards
 - c. RTO day-ahead/real-time – security constrained economic dispatch; emergency declaration levels and actions (including role of demand response)
- 2. Distribution

- a. MPSC Rules – Technical, Service Quality, and Customer Protection Standards, etc.
 - b. Distribution outage preparedness and response activities
 - c. Equipment failures and response
 - d. Technologies and distribution management practices that could affect system operations, reliability and resiliency
- B. Natural Gas
 - 1. Gas technical and safety standards
 - a. Performance-based and prescriptive standards
 - b. Onsite facility and operational inspections
 - c. Accident investigation and compliance actions
 - d. Interstate inspections
 - 2. Storage facility operations
- C. Propane
 - 1. Rail, road, pipeline and storage

VII. Energy Emergency Management

- A. Statutory authorities addressing energy emergencies including fuel waivers
- B. Roles and responsibilities
- C. Summary of emergency management procedures;
- D. Electric and natural gas emergency and curtailment procedures
 - 1. Transmission and distribution
 - 2. Notification procedures
 - 3. Mutual Assistance
- E. Demand Response
- F. Petroleum Shortage Response Plan
- G. Emergency management training and exercises
- H. Emergency Communications Plan
- I. Coordination with local emergency managers

VIII. Gaps in Existing Planning, Operational, and Emergency Response Processes

- A. Gaps in existing planning, operational and emergency response processes that may create safety, reliability, and resiliency challenges. Examples:
 - 1. Seasonal capacity construct at regional level
 - 2. Better integration of gas and electric planning functions recognizing interdependencies
 - 3. Work with Midcontinent Independent System Operation (MISO) and Federal Energy Regulatory Commission (FERC) to better align RTO retirement study process and generation interconnection queue process to be more nimble
 - 4. Long-term gas storage, transmission, and distribution infrastructure and maintenance plans requirement for distribution plans
 - 5. Role of emerging technologies to improve reliability and resiliency, e.g., energy storage, microgrids

B. Areas for improvement, opportunities for enhancement, and rough cost estimates

IX. Conclusions and Recommendations

A. System adequacy to account for changing conditions and extreme weather events

B. Recommendations to mitigate risk and ensure safe, reliable energy

C. Directive(s) to utilities for appropriate actions to address shortfalls

X. Appendices/References

PROOF OF SERVICE

STATE OF MICHIGAN)

Case No. U-20464

County of Ingham)

Michelle L. Conarton being duly sworn, deposes and says that on February 12, 2019 A.D. she served a copy of the attached **Request for Comments via e-mail transmission**, to the persons as shown on the attached service list.

Michelle L Conarton

Michelle L Conarton

Subscribed and sworn to before me
This 12 day of February, 2019

Lisa Felice
Notary Public, Eaton County
My Commission Expires April 15, 2020

U-20464 Special Distribution

Regulated Electric Utilities/ Electric Cooperatives

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