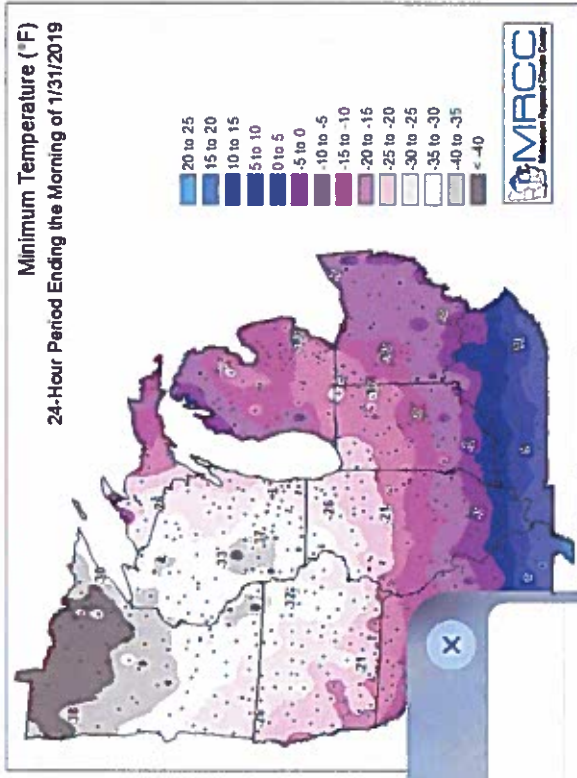


Michigan Public Service Commission 2019 Statewide Energy Assessment



Statewide Energy Assessment Impetus



EMERGENCY ALERTS

Emergency Alert
Due to extreme temps Consumers asks everyone to lower their heat to 65 or less through Fri

Settings



Photo Credit: Todd McInturf/Detroit News via AP

Photo Credit: Blake Clark/UPI

Charge from the Governor



Governor Whitmer requested that the Commission review the supply, engineering, and deliverability of Michigan's natural gas, electricity, and propane. The Governor requested that the Commission's review include the following:

- Commission's infrastructure planning criteria and methodologies for distribution, transmission, and generation
- Existing planning processes for electric and natural gas utilities and best practices for integration
- Linkages and gaps between real-time operational reliability and infrastructure planning for long-term reliability
- Demand response and mutual assurance protocols by natural gas utilities and opportunities for enhancement
- Contingency risks, interdependencies, and vulnerabilities of supply and/or delivery disruptions from physical or cyber security threats and rough cost estimates of potential enhancements
- Adequacy of Commission rules addressing customer safety, reliability and resiliency, and utility notifications
- Evaluation of existing gas efficiency programs
- Identification of area or types of systems most at risk

SEA Scope



The Statewide Energy Assessment investigated six separate sectors:

- Electric
- Natural Gas
- Propane
- Cybersecurity
- Physical Security
- Emergency Preparedness

SEA Process

- 1 Webpage
- 5 Work teams
- 36 Staff
- 40+ Stakeholders
- 40+ Stakeholder interviews/ meetings/calls

The screenshot shows the MPSC website with the following content:

LARA Public Service Commission
Department of Licensing and Regulatory Affairs

MPSC Home Contact Us Site Map MI gov

MPSC

MPSC Statewide Energy Assessment (SEA)

Michigan experienced historically extreme cold weather from January 29, 2019 to February 1, 2019 due to a polar vortex. During this time, Consumers Energy asked natural gas customers to reduce usage and lower thermostats after a fire at its largest natural gas storage facility. In addition, both Consumers Energy and DTE Electric were called upon to ask their electric customers to curtail electricity usage to respond to regional constraints in electricity production across the Midwest. These events prompted the Governor to send a letter requesting the Michigan Public Service Commission to undertake a statewide review of the supply, engineering, and deliverability of natural gas, electricity, and propane systems, as well as contingency planning related to those systems.

On February 7, 2019, the MPSC issued an order in case number U-20464 to implement the Governor's request. The initial report will be filed in the docket on July 1, 2019. Thereafter, and following examination of that initial report, the Commission will issue a final report by September 13, 2019. Interested parties will be given an opportunity to comment before the final report is issued.

Questions? Contact Lynn Beck

Sign up for the SEA email list for updates

SEA Workgroup Work plans: Electric, Natural Gas, Propane, Cyber & Physical Security, Emergency Preparedness

Sector Questions: Electric, Natural Gas, Propane, Emergency Management

Reports

Initial SEA report

Background

July 2, 2019: MPSC Staff presentation
MPSC Press release
SEA fact sheet
MPSC issued an order in case number U-20464 to implement the Governor's request
The Governor's Letter requesting MPSC conduct an Energy Assessment.

July 1, 2019
Feb 7, 2019
Feb 4, 2019

Tasks

Sep 13, 2019: Final SEA report due
Aug 9, 2019: Public comment deadline for the initial SEA
Mar - April, 2019: SEA workgroups, Meeting and data gathering
Mar 25, 2019: Target date for sector question responses
Mar 5, 2019: Staff issues final outline for Energy Assessment report
Feb 19, 2019: Comments on draft outline to Lynn Beck. Note: comments should be limited to the task at hand; should identify any essential information that the draft outline fails to include or contemplate, or areas that warrant clarification.
For information how to submit comments, please click here
Commission seeks comments on draft outline

Feb 12, 2019

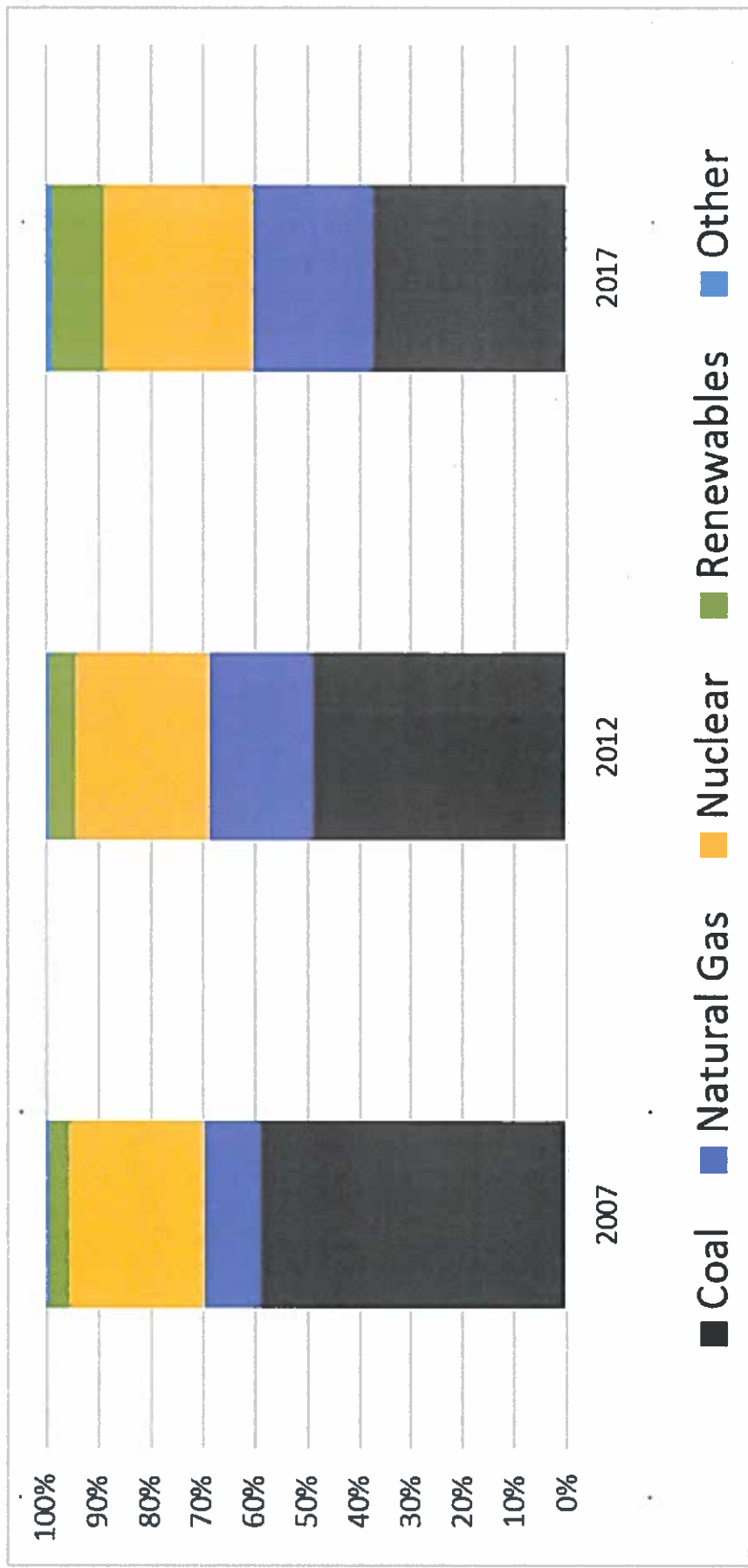
Navigation menu: About the MPSC, Consumer Information, Documents Library, E-Dockets, Low Income Energy Assistance, Energy Legislation, Electricity, Energy Waste Reduction, MPSC Scorecard, Natural Gas, Petroleum, Renewable Energy, Smart Grid, Telecommunications, Video/Cable



MI Energy Landscape - Electricity



Michigan's Evolving Net Generation Mix from 2007 - 2017

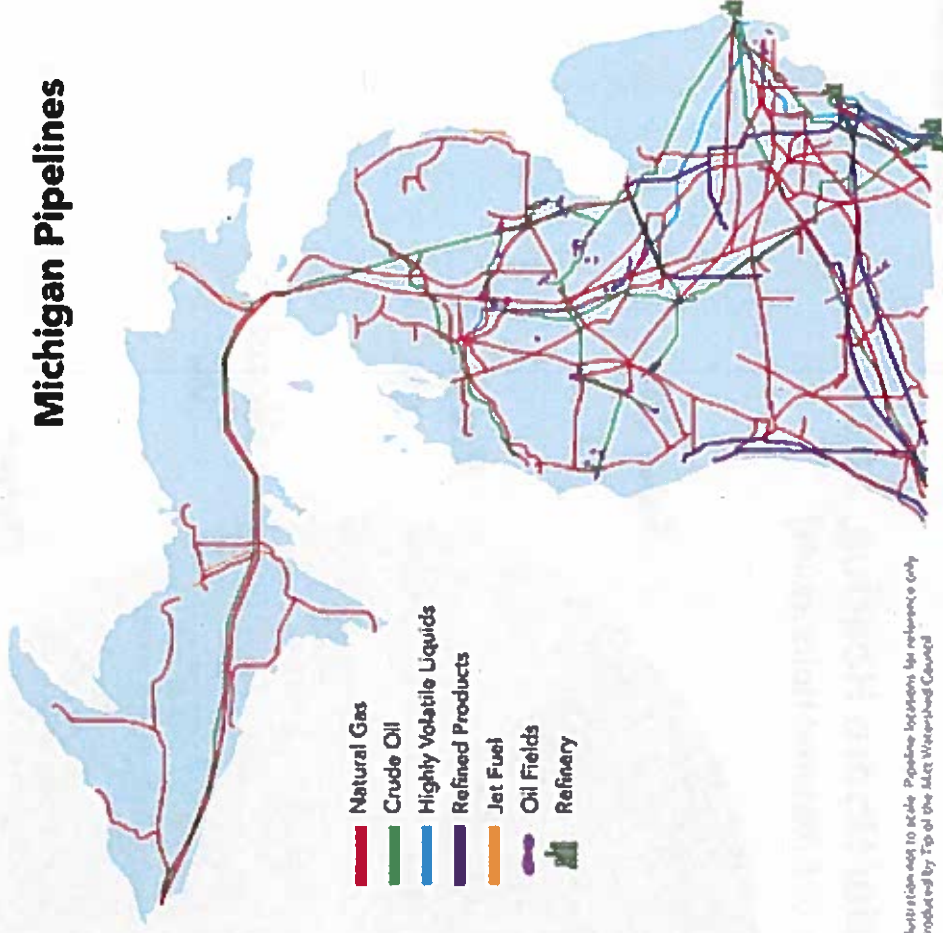


MI Energy Landscape – Natural Gas

Michigan's Natural Gas Infrastructure and Resources

- MI is #1 in the country for working gas storage capacity due to our unique geology
 - Michigan natural gas utilities operate 32 storage facilities with a gas capacity of 294 Bcf
- 9,215 miles of transmission main and regulated gathering lines
- 114,865 miles of distribution lines
- Access to diverse supplies through various pipelines including Canada, Rockies, Gulf Coast, and Eastern (Marcellus/Utica) production

Michigan Pipelines



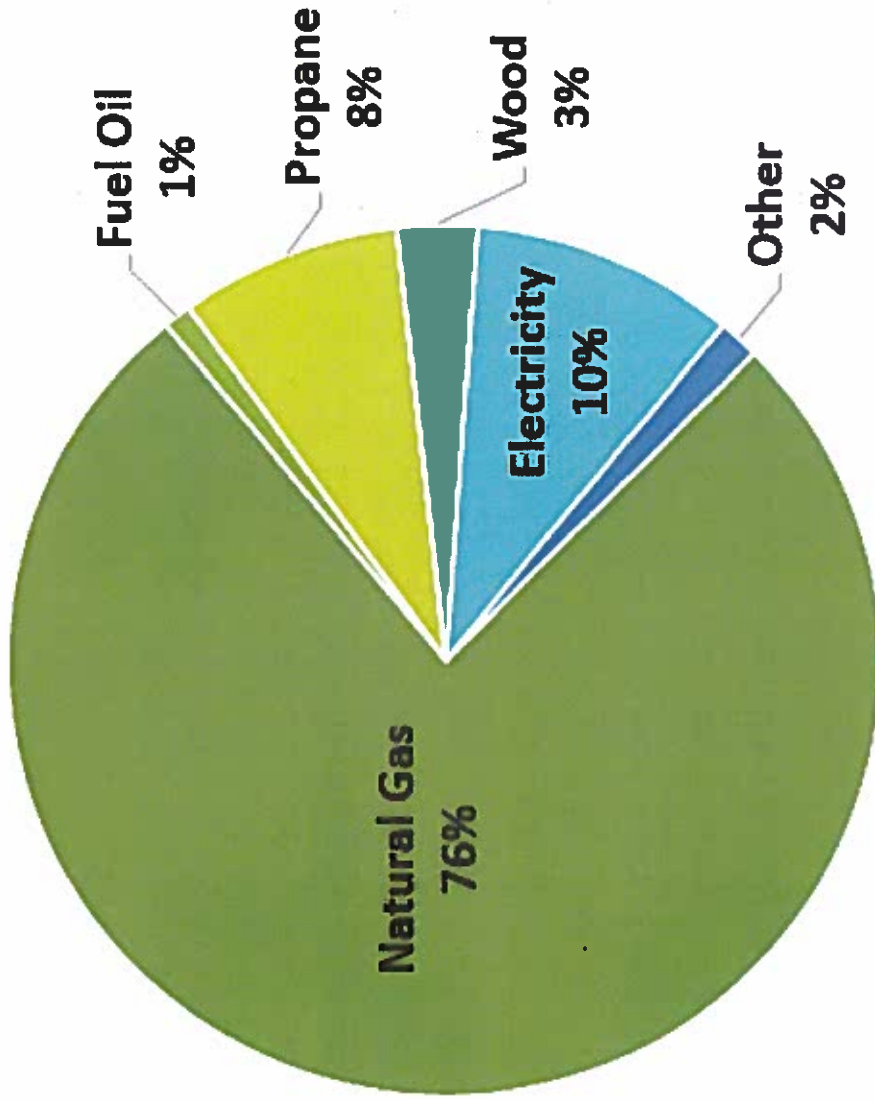
Michigan not to scale. Pipeline locations for reference only.
Produced by Tip of the Mitt Watershed Council

Map by Tip of the Mitt

MI Energy Landscape – Home Heating



Michigan Residential Home Heating, 2017
(Percentage Share of Estimated Households)

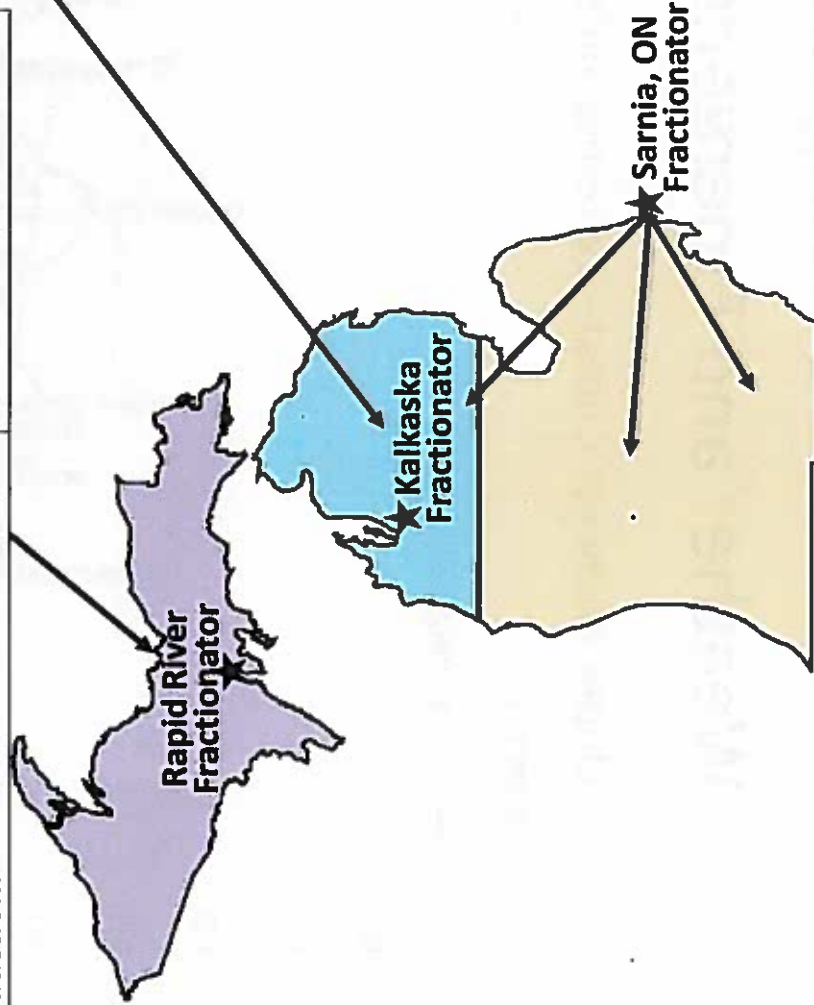


Source: U.S. Census Bureau, 2017 American Community Survey.
Other Includes: Coal or coke, Solar Energy, Other Fuels, and No Fuels.

MI Energy Landscape - Propane



U.P. Total Households:	123,995
U.P. Propane Households:	22,568
U.P. Annual Residential Propane Usage:	26,833,352 Gal.*
Rapid River Annual Propane Production:	30,660,000 Gal.*



Northern L.P. Total Households:	203,220
Northern L.P. Propane Households:	47,972
Northern L.P. Annual Residential Propane Usage:	57,038,708 Gal.
Kalkaska Annual Propane Production:	16,096,000 Gal.

Entire L.P. Total Households:	3,764,651
Entire L.P. Propane Households:	298,112
Entire L.P. Annual Residential Propane Usage:	354,455,168 Gal.
2018 Propane imports by Plains Midstream Canada and Pembina Midstream/Resources	273,546,000 Gal.
Sarnia, ON Annual Propane Production:	1,205,857,800 Gal.

Assumptions include: An annual household usage of 1,189 gallons, Kalkaska production rate of 1,050 bpd, Rapid River production rate of 2,000 bpd, and Sarnia production rate of 114,000 bpd (95% of maximum capacity and 69% of output consisting of propane)(See footnote 117)).

Sources: Energy Information Administration and American Community Survey.

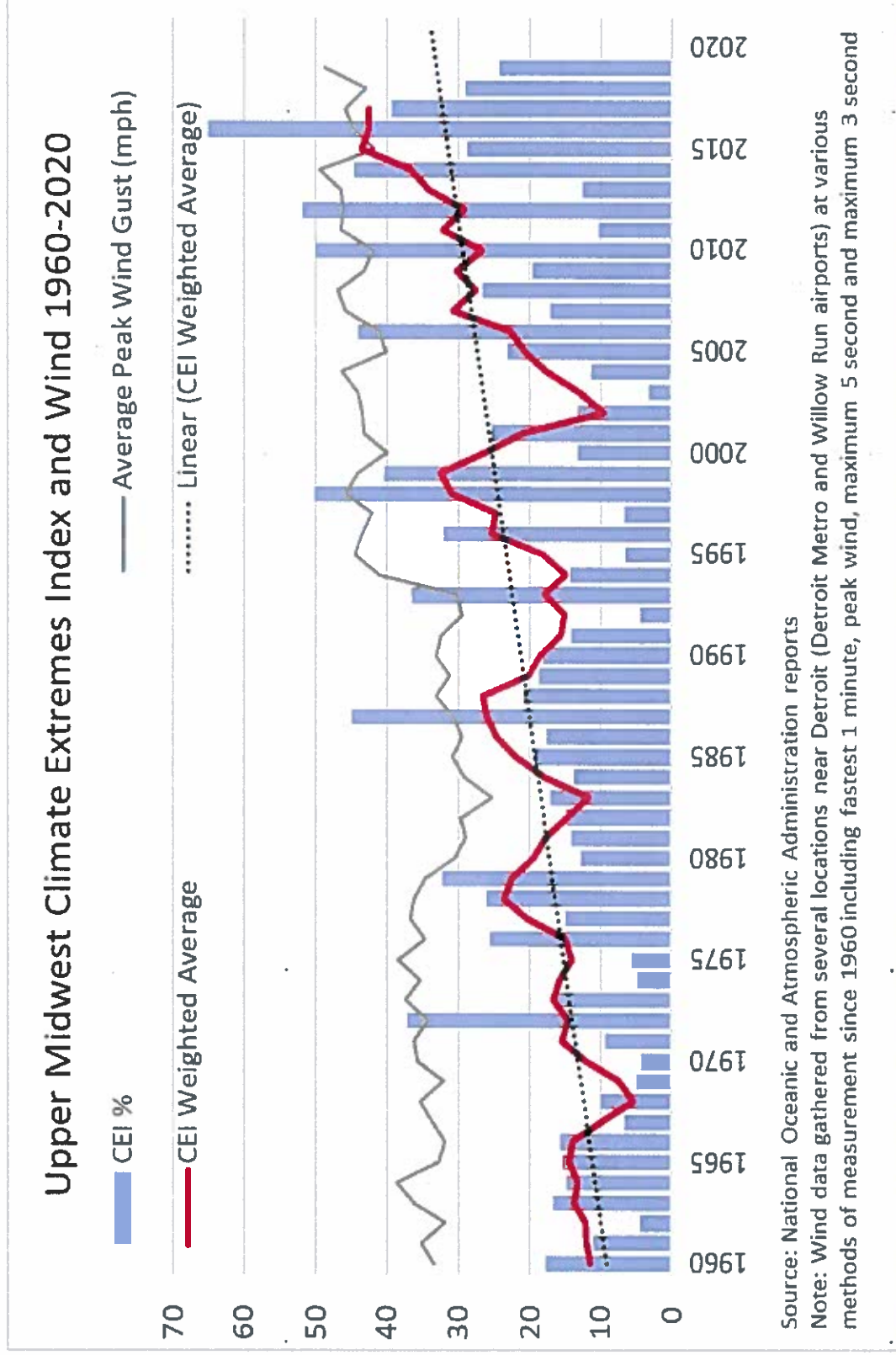
Notes: Sarnia Fractionator is jointly owned and operated by Plains Midstream and Pembina. Propane imports into Michigan may ultimately be consumed elsewhere.



The Changing Landscape Factors Driving Change



Weather and Emergency Events

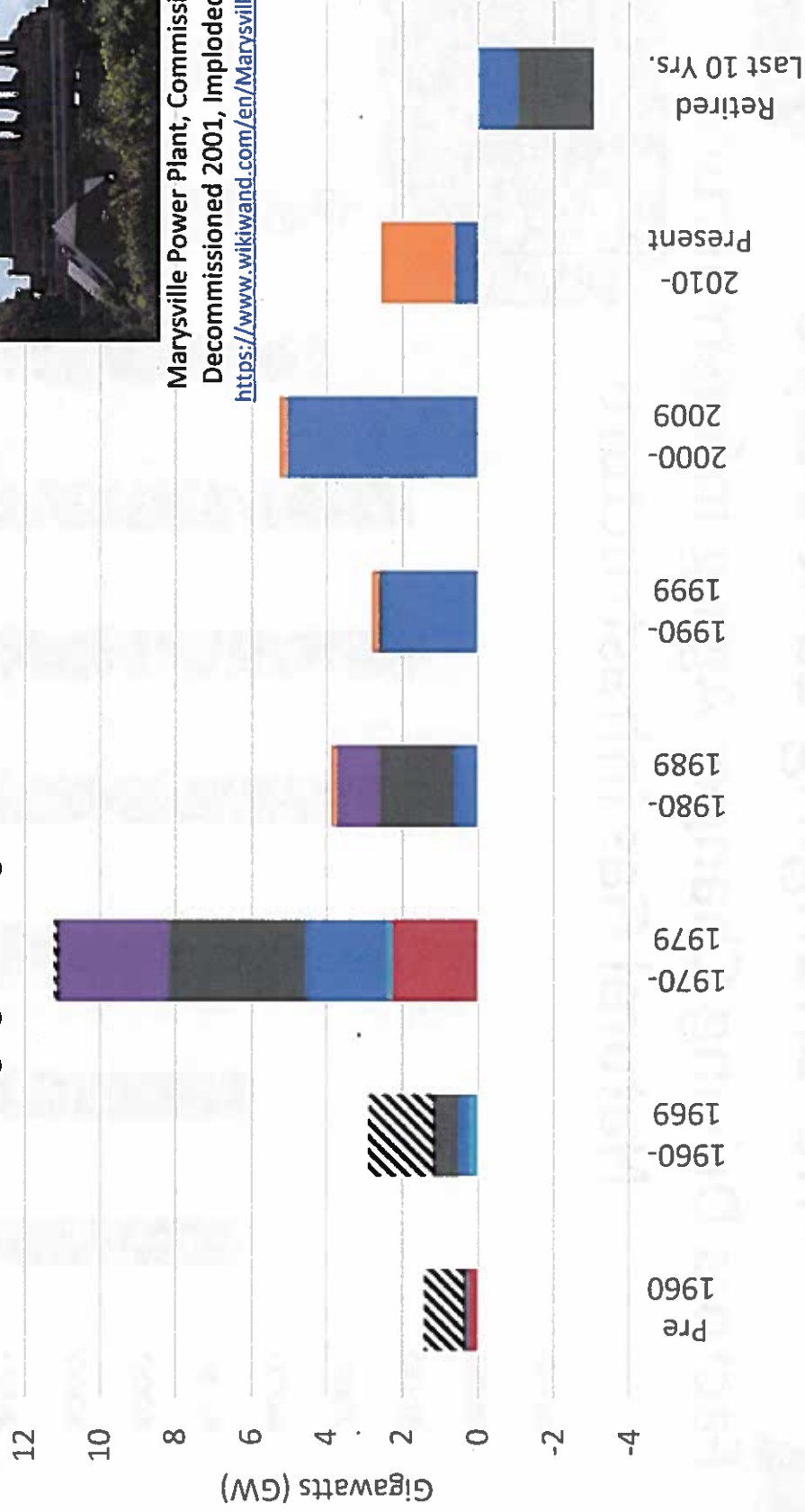


The Changing Landscape

Factors Driving Change: Aging Infrastructure

Electric Infrastructure

Aging electric generation assets: Year built



Marysville Power Plant, Commissioned 1922,
Decommissioned 2001, Imploded Nov. 2015
https://www.wikiwand.com/en/Marysville_Power_Plant



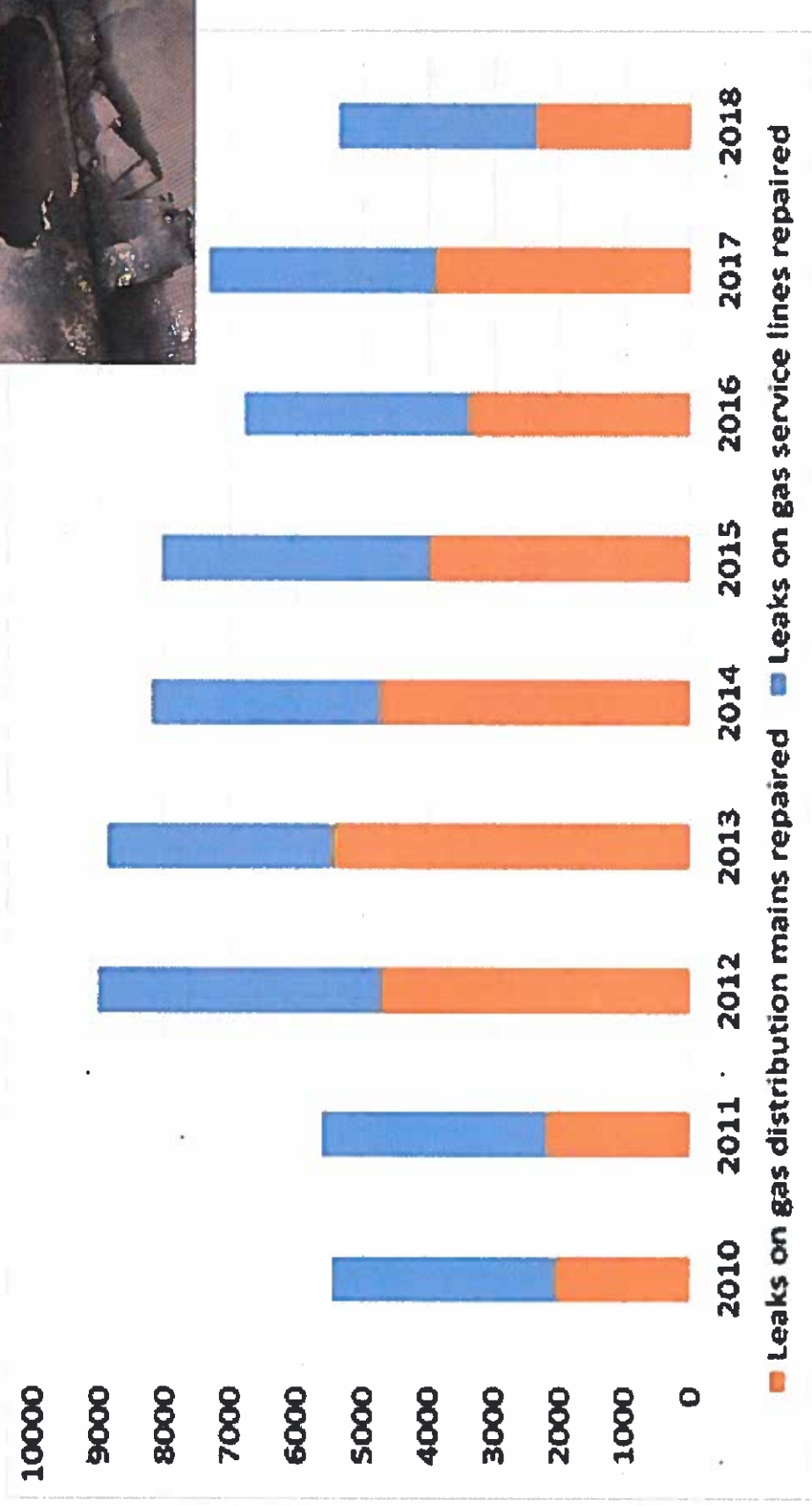


The Changing Landscape



Factors Driving Change: Aging Infrastructure

Natural Gas Infrastructure



Natural Gas lines, corrosion related repairs: 2010 - 2018



The Changing Landscape Factors Driving Change

Increasing Number and Severity of Cyber and Physical Attacks



<https://www.fireeye.com/cyber-map/threat-map.html>, June 25, 2019

SEA – Initial Assessment



- Systems are adequate to meet customer needs
- Unique assets help ensure reliable supply and delivery of energy
- Infrastructure is designed and operated to maintain energy supplies and deliver during emergency conditions
- Emergency events could have a high impact on the economy and well being of residents

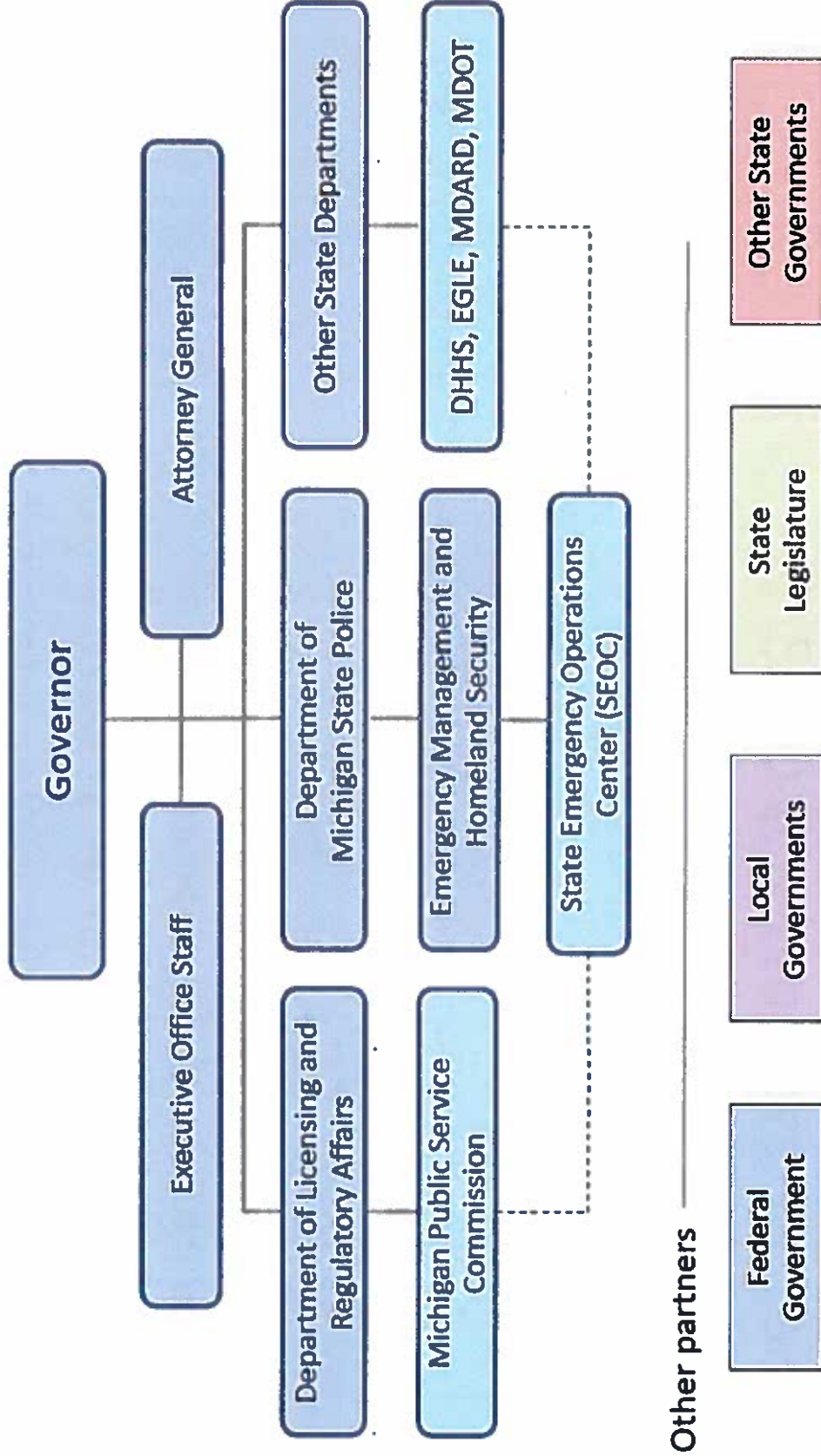
SEA Identified Vulnerabilities

- **Electric system (SEA Ch. 3.4)**
 - Aging assets and infrastructure; generation shift and operational considerations, natural gas and electric coordination; transmission connections
- **Natural gas system (SEA Ch. 4.3)**
 - System limitations; infrastructure failures; interconnections; system redundancy; single source supplies
- **Propane (SEA Ch. 5.4)**
 - Driver shortages; infrastructure availability; exports; propane market structure; extreme weather
- **Cyber and physical security (SEA Ch. 6.4)**
 - Security governance; implementation of cybersecurity controls; phishing; third-party risk; human capital

MI Energy Emergency Management



Michigan's Energy Emergency Organizational Structure



SEA Recommendations

The SEA makes 36 Recommendations which include, among others, programmatic improvements, Commission rulemakings, updating modeling and utility tariffs, additional training, improved reporting parameters, and stakeholder engagement.

The SEA also makes 14 Observations which include enhancements at the RTOs/ISOs, interagency/departmental consultations, programmatic development, infrastructure build out, and legislative action.

SEA High-Level Recommendations

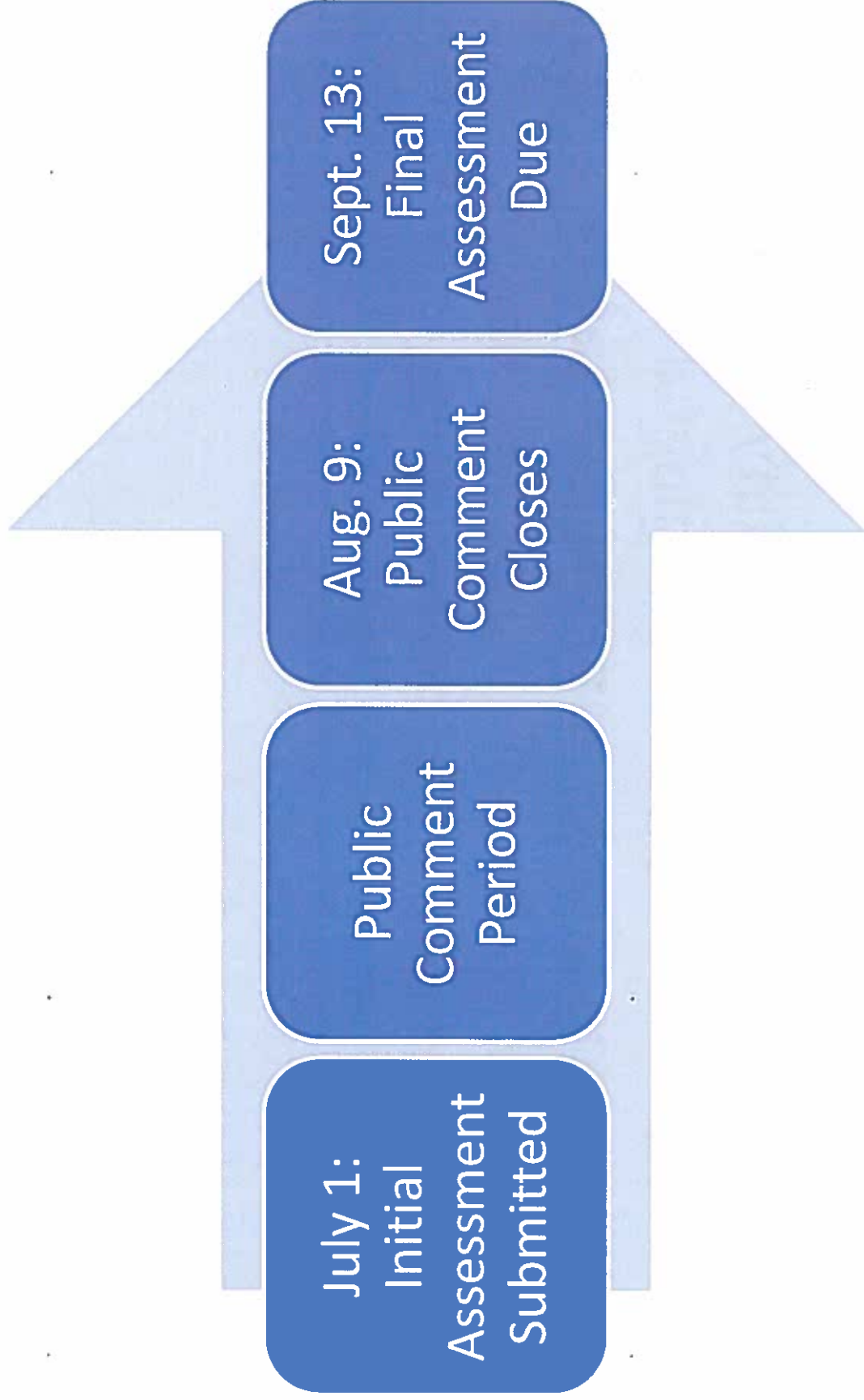


- Risk-based integrated natural gas planning
- Integrated electricity system planning
- Valuing resource diversity and resiliency
- Addressing gas-electric interdependencies
- Demand response improvements
- Emergency drills
- Cyber security standards for natural gas distribution utilities
- Propane contingency planning

SEA Observations

- Existing statute limits the ability of the Commission to impose meaningful penalties for non-compliance with the Gas Safety Standards, which may impact the health, safety, and welfare of MI residents.

SEA Next Steps



SEA Public Feedback

*The initial assessment is available for review in
Docket No. U-20464 and*

webpage: www.michigan.gov/energyassessment

Written Comments due by August 9:

- Email to mpscdockets@Michigan.gov
- Mail to MI Public Service Commission, PO Box 30221, Lansing, MI 48909

Oral Comments – two MPSC Commission meetings:

- July 18 @ 1:30 PM
- Aug. 8 @ 1:30 PM

Written Comments should reference the Statewide Energy Assessment, Docket No. U-20464.

