POWER SUPPLY
STRATEGIC PLANNING

2026 Integrated Resource Plan (IRP) Update

Stakeholder Working Group Session #1

November 18, 2025

ZEELAND
Board of Public Works

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Opening Remarks and Introductions

Andrew Boatright

General Manager

Zeeland Board of Public Works

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Why Are We Here Today?

2026 IRP – Stakeholder Working Group Session #1 Discussions

- BPW Customer Survey Results
- Major Assumptions for the IRP Process
- Begin Collaboration

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Welcome

Stewart Ramsay

Meeting Facilitator

nFront Consulting LLC

Agenda

- Safety and Meeting Guidelines
- Overview of BPW, Customer Survey Results, and Utility Industry Challenges
- Overview of IRP Assumptions
- Collaboration and Next Steps

Safety and Meeting Guidelines

Safety

- Exits
- Muster Point: East Side of Church Street
- AED Location
- Dial “911” in Event of an Emergency

Principles to Guide Today’s Session

- Respectful Dialogue
- Questions and Comments are Public
- Transparency of Questions and Answers
- Refer to list of “Commonly Used Terms” at End of Presentation

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Overview of BPW, Customer Survey Results, and Utility Industry Challenges

Robert Mulder

Electric Power Supply and Market Operations Manager

Zeeland Board of Public Works

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Our Vision and Mission

Who We Are

The Zeeland Board of Public Works (BPW) is a municipally owned electric and water utility serving the City of Zeeland and it's surrounding community.

Our Vision

The Zeeland Board of Public Works will be a key contributor to the community's quality of life and long-term success.

Our Mission

The Zeeland Board of Public Works will deliver customer-focused, superior electric and water utility services that are reliable, safe, responsible, and cost-competitive.

Current Operations

- BPW has been a municipally owned and operated electric utility since 1935.
- BPW serves over 7,000 electric and 3,500 water customers within the City and neighboring townships.
- Annual energy requirements exceed 450,000 MWh with a peak load exceeding 90 MW.
- Ranked as the 4th largest municipal utility in Michigan based on annual energy sales.
- Proud members of:

American Water Works Association

AMERICAN PUBLIC POWER ASSOCIATION

MPPA Michigan Public Power Agency

MICHIGAN MUNICIPAL ELECTRIC ASSOCIATION MMEA

Customer Survey: October 2025

Process

- Surveys were mailed to customers, accessible from the BPW's website and promoted on Social Media.
- Responses were collected through October 31, 2025.
- The survey was *Not* administered using a scientific process or statistically representative sample set.

Results

- 226 Survey Responses with Respondents Self-Identifying As:
  - Residential Customers: 99%
  - City Residents: 54%
  - Zeeland/Holland Twp's: 96%
  - Commercial Customers: 1%
  - Non-City Residents: 46%
  - Non-Twp. Residents: 4%

Customer Survey: October 2025

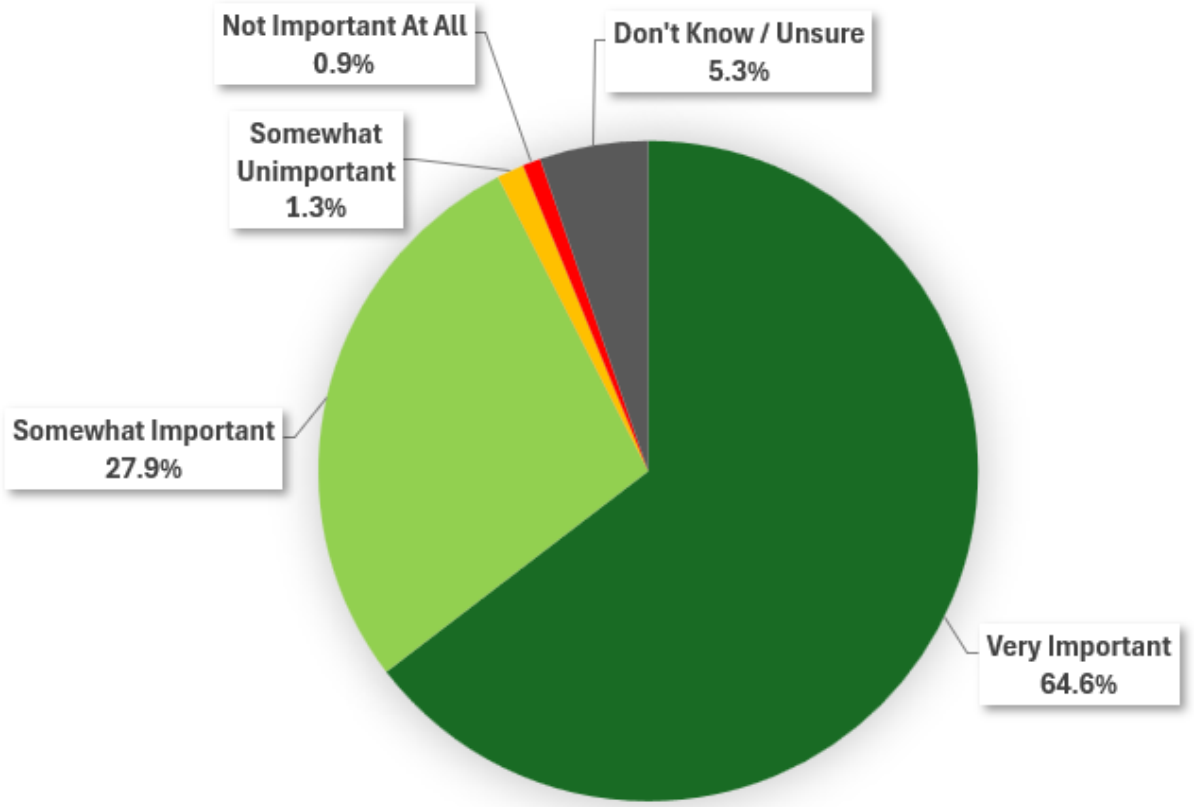
Results *(continued)*

- A high level of value is placed on community ownership of utilities.
- Top Priorities – As Ranked by Customers:
    1. Reliability
    2. Rates / Affordability
    3. Customer Service
    4. Fiscal Responsibility
    5. Renewable Energy & Decarbonization
- Strong support for maintaining and expanding on-system natural gas-fired generation capacity.

Customer Survey Results

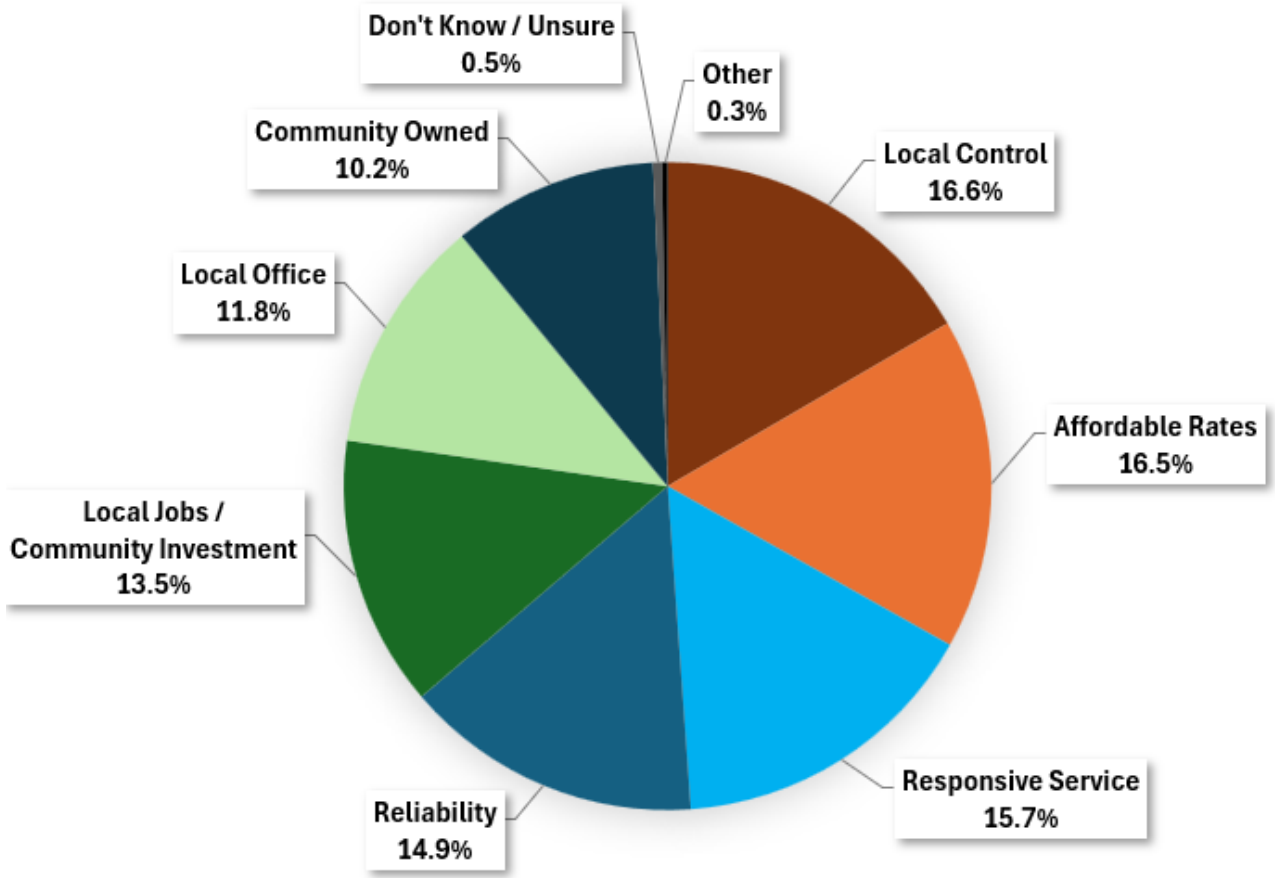
Community Value of Public Power Utilities

Perceived Importance of Community Ownership



Very or Somewhat Important: 92.5%

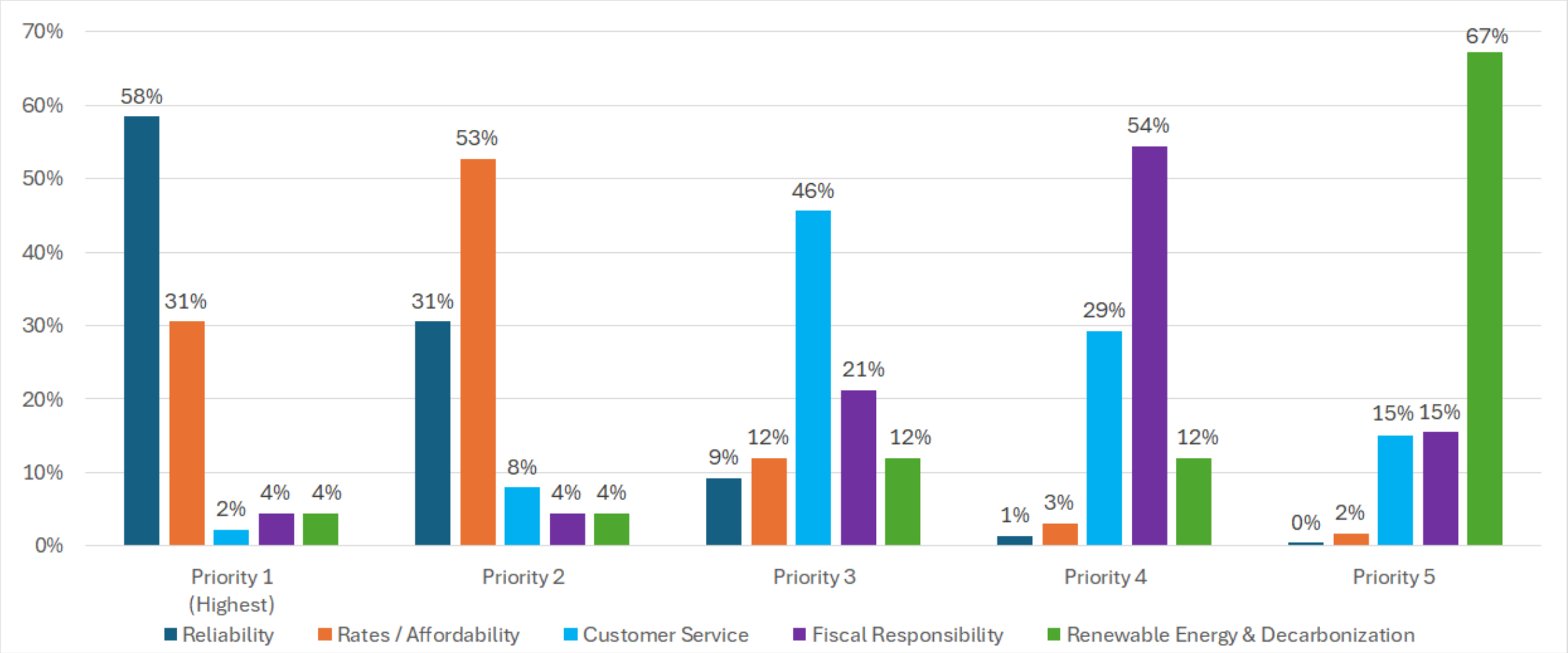
Perceived Benefits For Customers



- *October 2025 Survey Results Based on 226 Responses*

Customer Survey Results

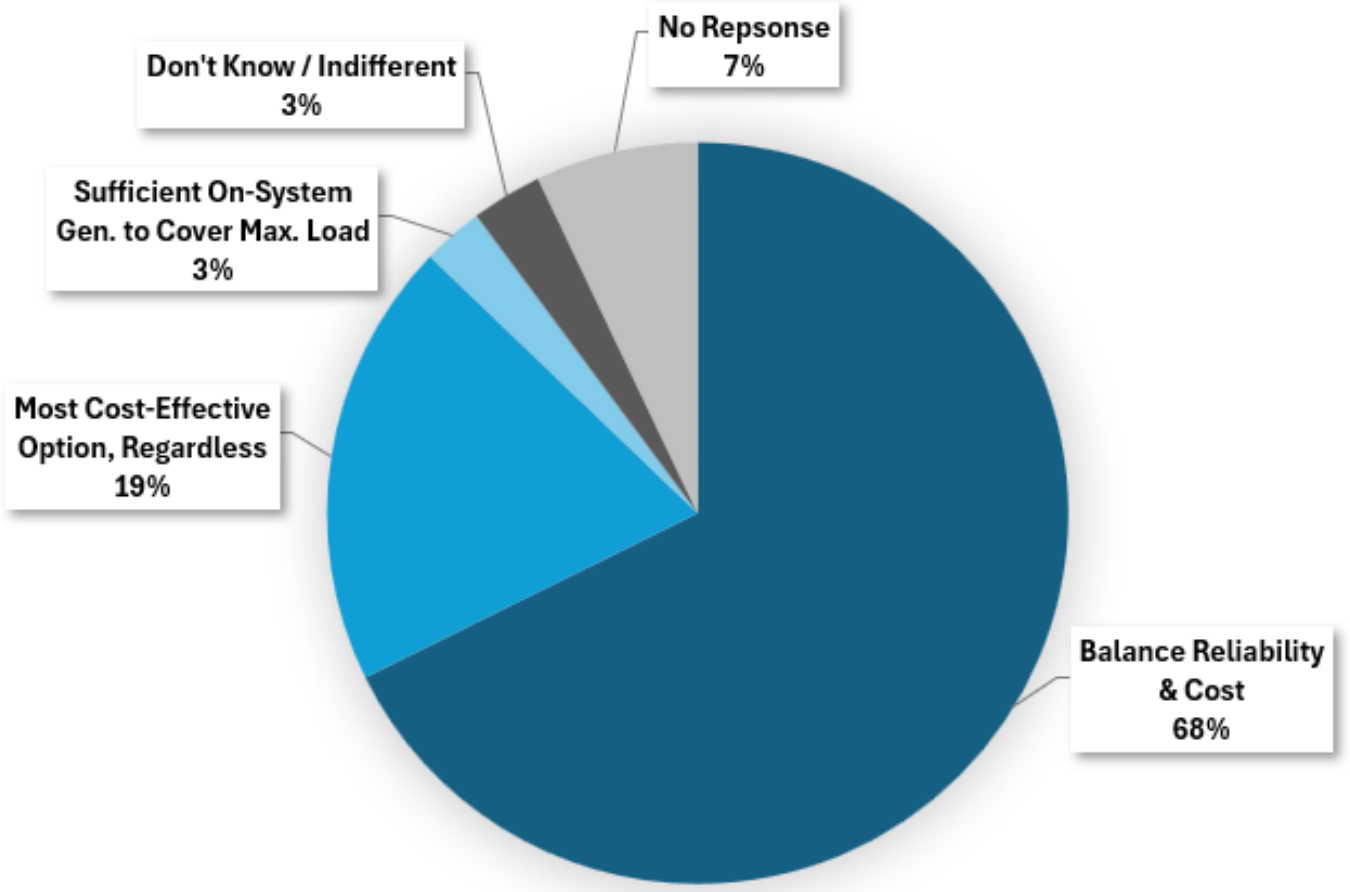
Customer Priorities: Electric Utility Service



- *October 2025 Survey Results Based on 226 Responses*

Customer Survey Results

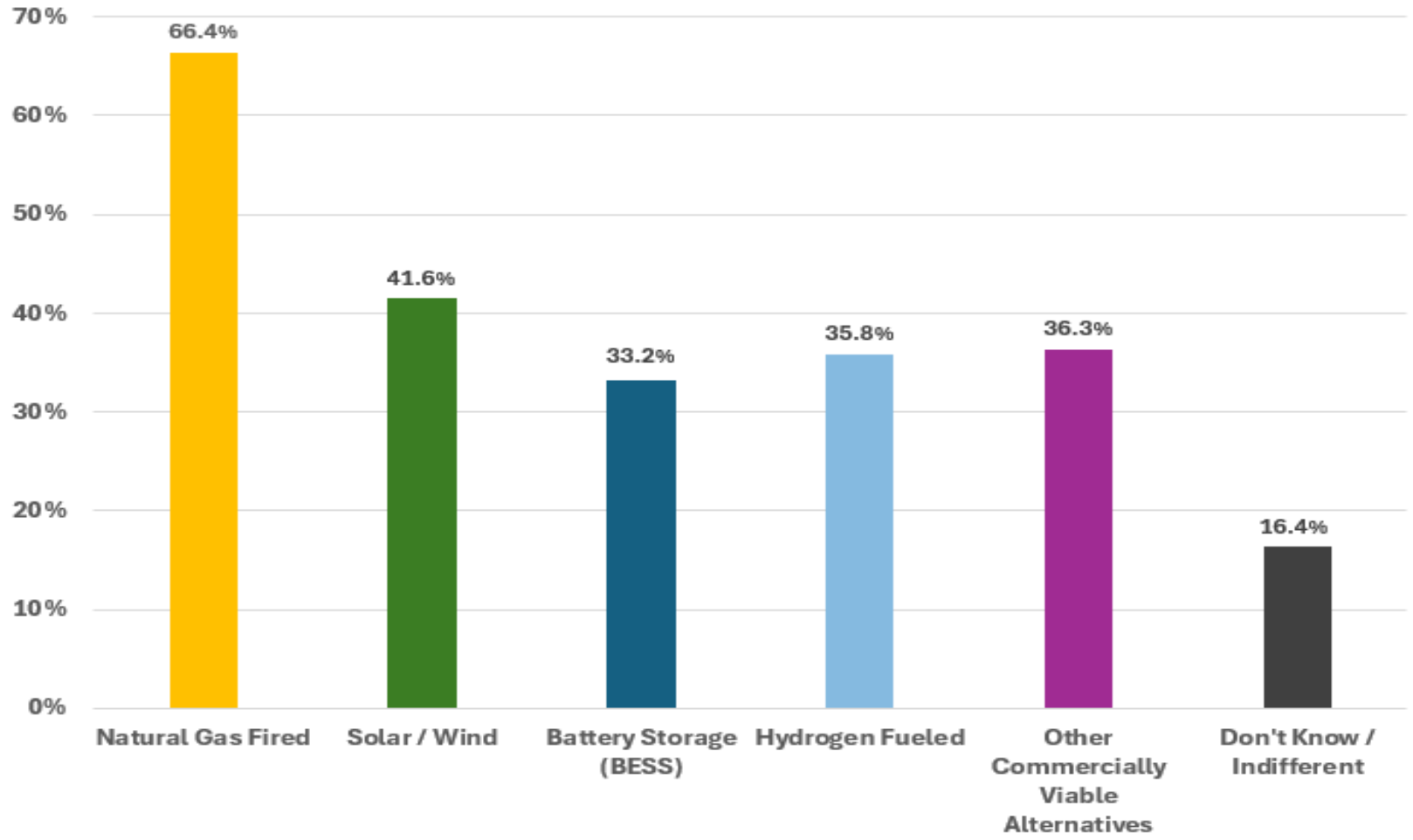
On-System Generation: Perceived Value & Scale



- *October 2025 Survey Results Based on 226 Responses*

Customer Survey Results

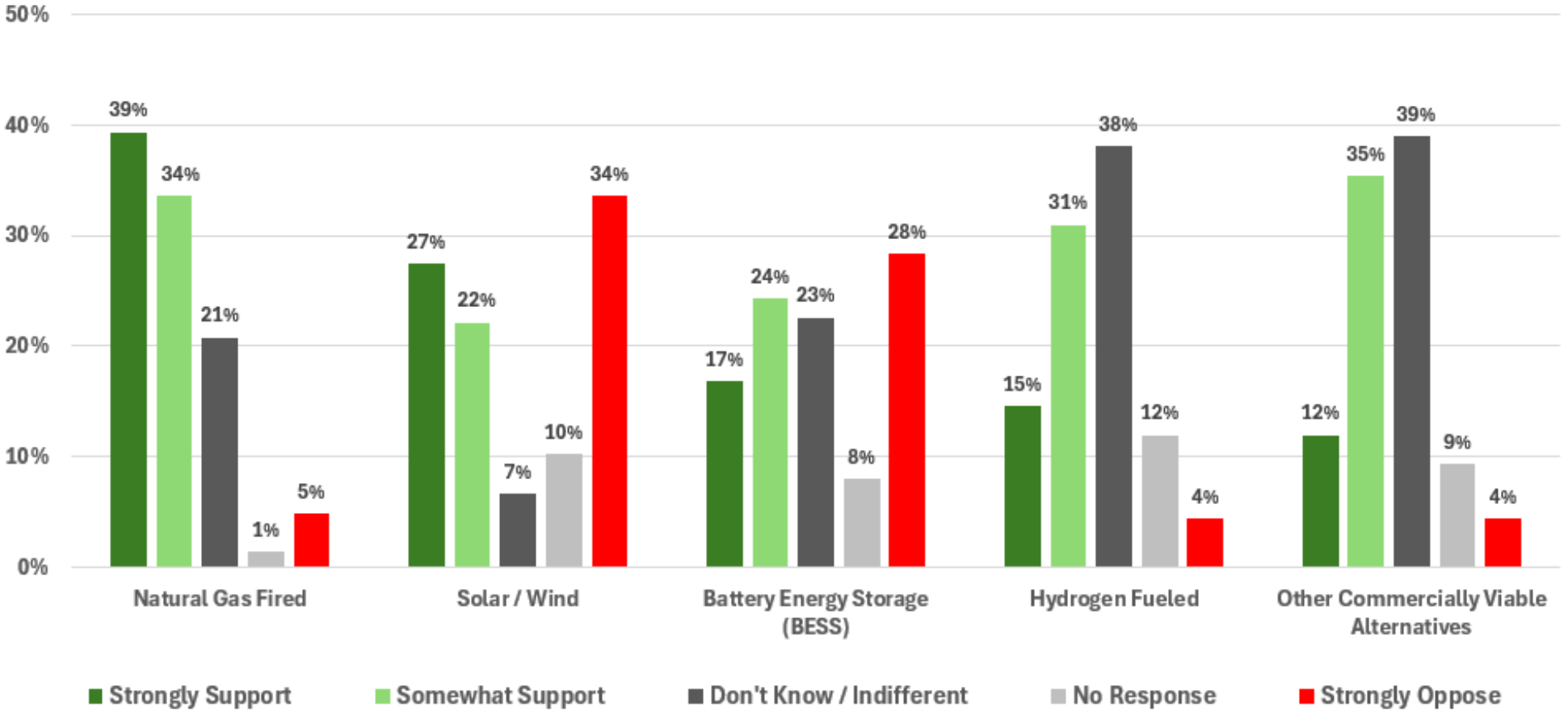
Generation Technologies: General Support



- *October 2025 Survey Results Based on 226 Responses*

Customer Survey Results

Generation Technologies: Support For Local Community Installation

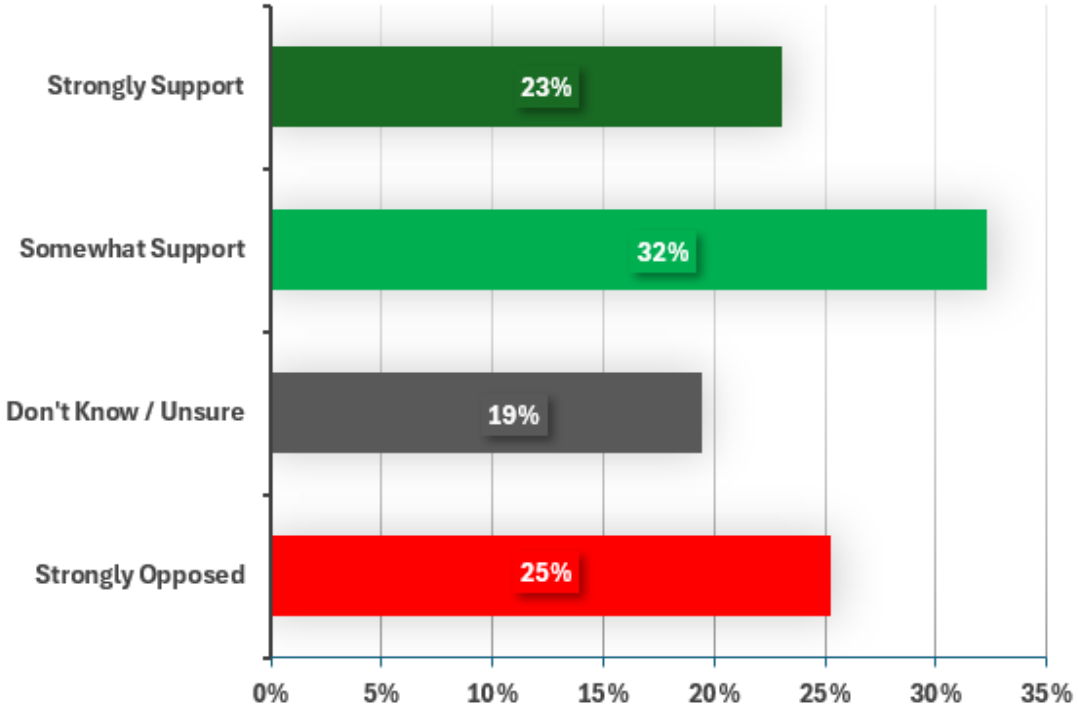


- *October 2025 Survey Results Based on 226 Responses*

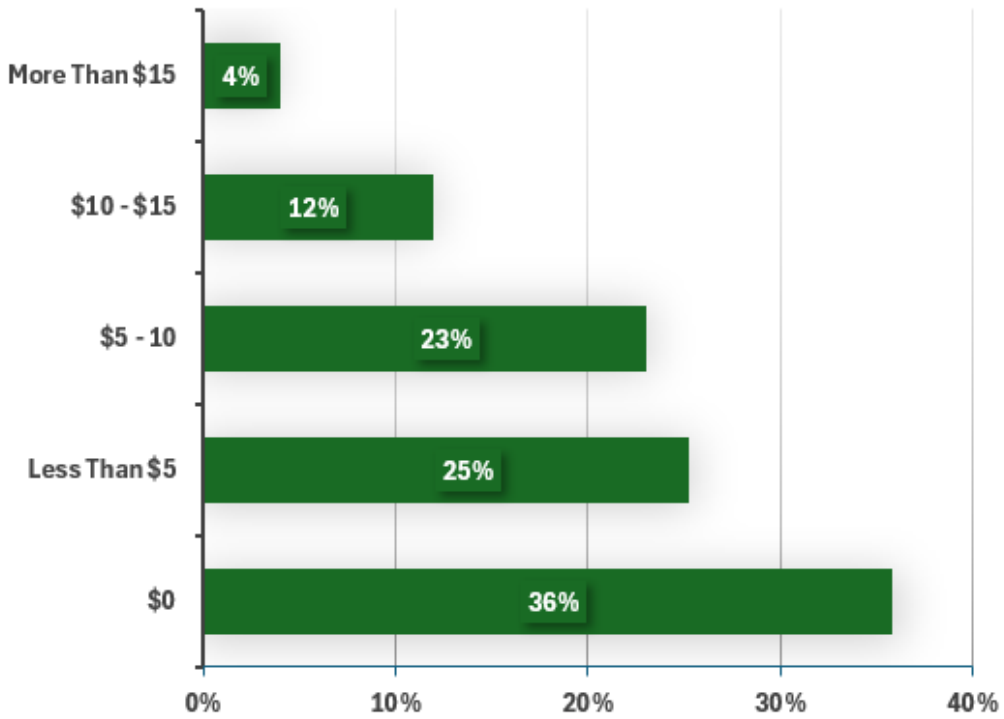
Customer Survey Results

Renewable Energy & Decarbonization Goals

Support For Accelerating These Goals



Willingness to Pay Higher Electric Bills



- *October 2025 Survey Results Based on 226 Responses*

Utility Industry Challenges

Projected Load Growth

- The community continues to thrive with significant load growth projected
- Aging on-system generation assets and the need for additional resources

Capacity Market Constraints

- The capacity market is constrained and expected to tighten, elevating pricing
  - Retirement of large baseload resources
  - Increased demand (electrification, data centers, artificial intelligence, etc.)
- Zeeland anticipates additional capacity will be needed beginning around 2030

The Energy Transition & Intermittent Resources

- Solar, wind, and short-duration Battery Energy Storage Systems (BESS) are replacing conventional generation and do not provide the same level of accredited capacity

Utility Industry Challenges *(continued)*

Generation Development Barriers

- Electric generation capacity is increasingly difficult to build
- Wholesale grid-connected generation projects in particular

Evolving Markets & Customer Expectations

- Increasing transmission costs
- Customer driven decarbonization & sustainability goals
- Electrification: Buildings, electric vehicle proliferation, vehicle-to-grid, etc.

Regulatory Requirements

- Recent changes at the State level (PA235 of 2023)
  - MI Renewable Energy Standard Requirements
  - MI Clean Energy Standard Requirements

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Overview of IRP Assumptions

Brad Kushner

Project Manager

nFront Consulting LLC

nFront Consulting

Power Supply Basics: Energy & Capacity

Energy

Electricity that is produced and consumed over a period of time, measured in units of kilowatt-hours (kWh) or megawatt-hours (MWh).

Capacity

The rated output of an electric generator measured in kilowatts (kW) or megawatts (MW).

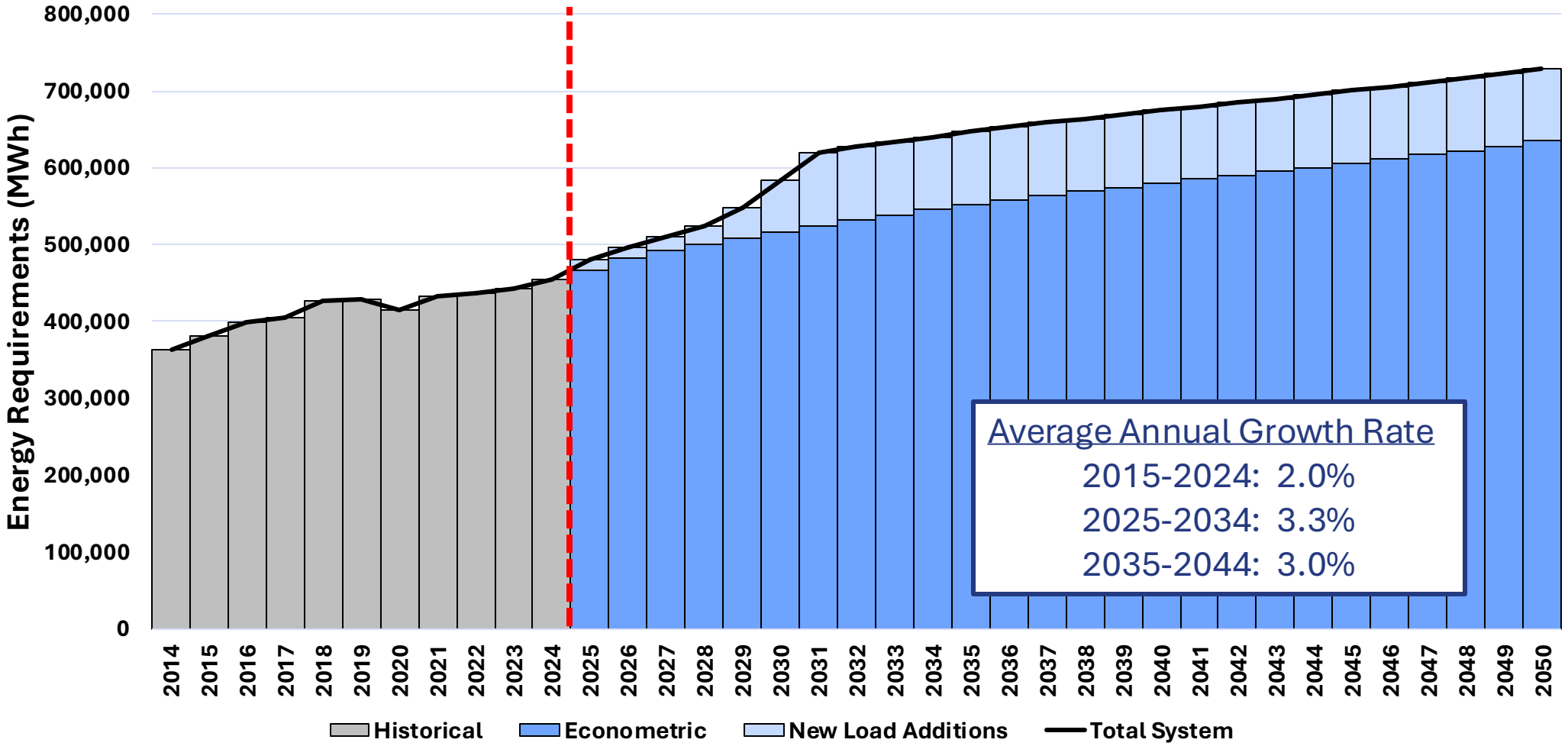
- To meet **Midcontinent Independent System Operator (MISO)** ***Resource Adequacy*** requirements, utilities must own or have rights to sufficient generating capacity to meet their projected peak demand plus an established reserve margin, a value referred to as the ***Planning Reserve Margin Requirement*** **(PRMR)**.
- MISO requires utilities have sufficient capacity to meet their annual PRMR.
- Michigan requires utilities have 95% of their forecasted PRMR secured four years in advance.

Economic and Financial Parameters

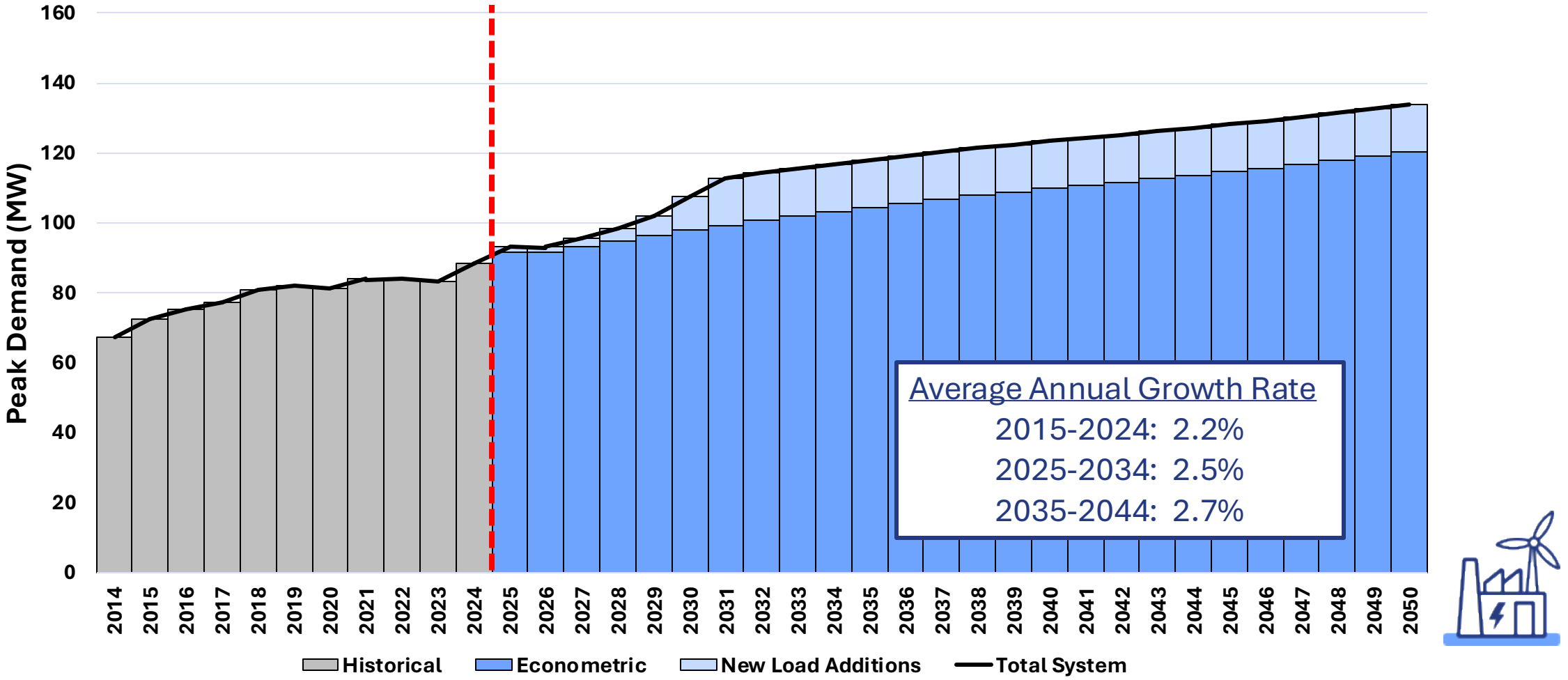
Assumption	Annual Rate	Relevance
Bond Rate for New Capital	5.0%	Bond rate to finance the capital cost associated with new resource options
Interest During Construction Rate	5.0%	Estimate of interest costs during the construction phase for new resource options
Zeeland Discount Rate	5.0%	Discount future cash flows to current dollars
Escalation Rate	2.5%	Escalates costs assumptions from current basis dollars to nominal dollars
General Inflation Rate	2.5%	Convert values in real dollars to nominal dollars and vice versa

Preliminary and subject to change.

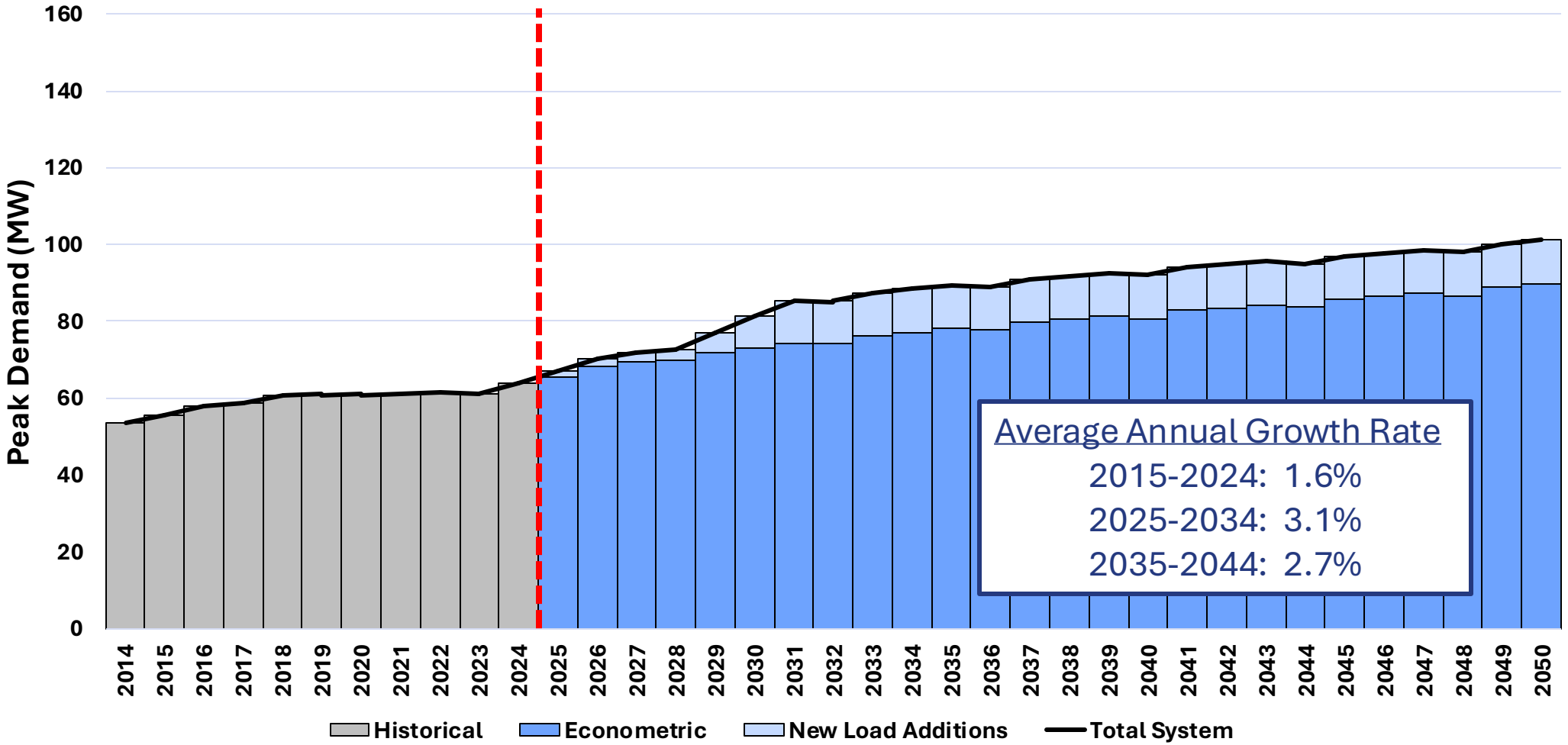
Load Forecast – Energy Requirements



Load Forecast – Peak Demand (Summer)



Load Forecast – Winter Peak Demand



Power Supply: On-System Generation

Washington Ave. Generation Facility

- Seven (7) R.I.C.E. Units *(1.0 MW – 6.0 MW Units)*
- Natural Gas / Diesel Fired
- 22.2 MW Total

Riley Generation Facility

- Five (5) R.I.C.E. Units *(2.0 MW each)*
- Natural Gas Fired
- 10.0 MW Total

West Washington Generation Facility

- Two (2) R.I.C.E. Units *(1.0 MW each)*
- Natural Gas Fired
- 2.0 MW Total

R.I.C.E.: Reciprocating Internal Combustion Engines

Power Supply: Jointly-Owned Generation

DTE Energy's Belle River Power Plant

- Zeeland BPW Share: 11.58 MW (MPPA Project)
- 2 Units; Converting from Coal to Natural Gas

  Unit 1: Fall 2025 Unit 2: Fall 2026
- Date of Commercial Service: 1984 & 1985
- St. Clair County, MI

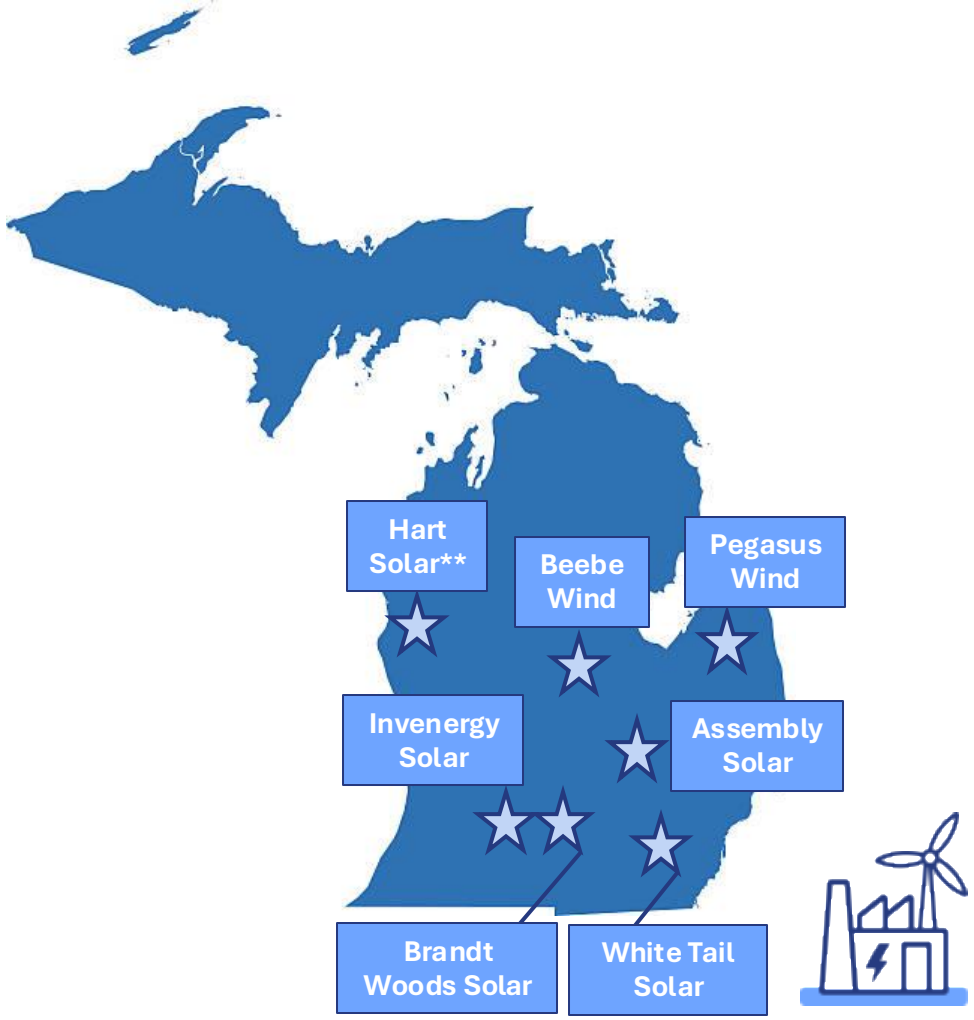
AMP Freemont Energy Center (AFEC)

- Zeeland BPW Share: 7.06 MW (MPPA Project)
- 2 Units, Natural Gas (Combined Cycle)
- Date of Commercial Service: 2012
- Freemont, OH (Located in PJM RTO)

Power Supply: Purchase Power Agreements

Project	Location	Zeeland BPW Share (Nameplate MW)	Expiration Date
Beebe Wind	Ithaca, MI	2.3	Dec-34
Pegasus Wind	Caro, MI	12.2	Dec-39
Assembly Solar (Ph 1)	Shiawassee County, MI	6.4	Dec-45
Assembly Solar (Ph 2)	Shiawassee County, MI	7.8	Dec-46
Invenergy Solar	Calhoun County, MI	8.0	Apr-48
Brandt Woods Solar	Calhoun County, MI	2.9	May-45
White Tail Solar	Washtenaw County, MI	2.8	Sep-45
Hart Solar**	Oceana County, MI	5.6	Dec-46

** Under Construction



MISO Planning Criteria

Seasonal Planning Reserve Margin

Season	UCAP Basis (%)
Winter	18.4%
Spring	25.3%
Summer	7.9%
Fall	14.9%

New Resource Capacity Accreditation*

Technology Type	Winter (%)	Spring (%)	Summer (%)	Fall (%)
Coal	90%	90%	91%	91%
Natural Gas Steam Turbine	90%	91%	89%	87%
Natural Gas Combined Cycle	95%	94%	95%	93%
Natural Gas Combustion Turbine	66%	84%	89%	87%
Reciprocating Internal Combustion Engine (RICE)	75%	76%	82%	68%
Solar PV	5%	50%	50%	50%
Wind	29%	25%	21%	31%

**Seasonal capacity accreditation to be based on actual performance after 3 years of operation; IRP will reflect applicable values for Zeeland BPW's existing resources, which may differ from the values shown herein.*

Michigan Public Act 235 (PA 235)

Utility Compliance Requirements

PA 235 Requirement	Compliance
Renewable Portfolio Standard (RPS)	15% through 2029 50% by 2030 60% by 2035
Clean Energy Standard (CES)	80% by 2035 100% by 2040
Energy Storage Target*	2,500 MW by 2030

PA 235 Compliant Resources by Technology

Technology	Renewable Energy	Clean Energy
Biomass	Yes	Yes
Landfill Gas	Yes	Yes
Hydro	No	Yes
Solar	Yes	Yes
Wind	Yes	Yes
Nuclear	No	Yes
NG with 90% CCS	No	Yes

- Renewable Energy Credits (RECs) owned by customers that represent at least 25% of a utilities peak load ***may*** be utilized by the utility to meet the REC requirements of PA 235.

**Requirement for Michigan rate-regulated utilities in aggregate; not applicable to municipal utilities such as Zeeland BPW.*

Michigan Public Act 235 (PA 235)

Michigan Public Act 235 could require utilities to base new resource decisions on more than just meeting load requirements at the lowest cost

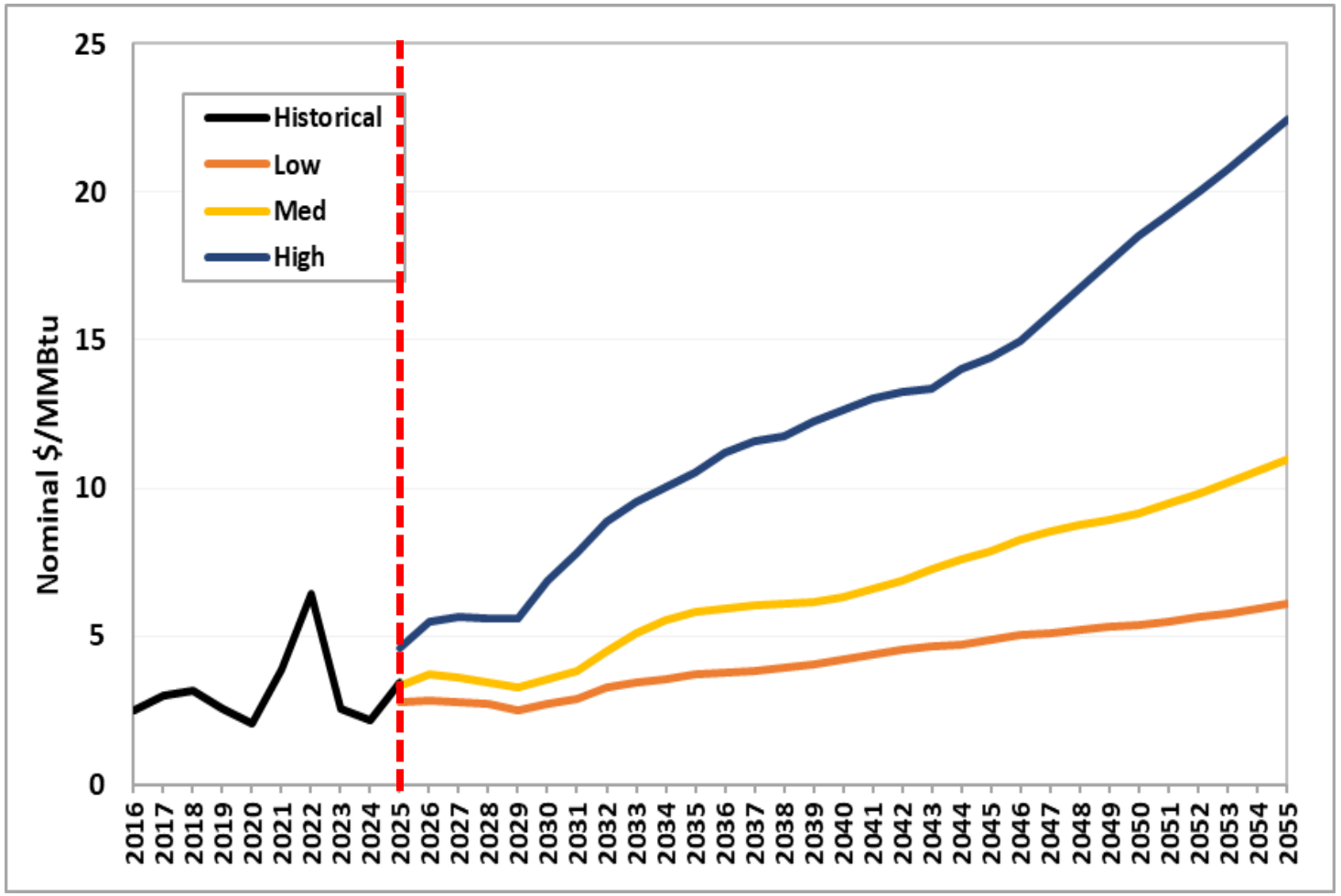
IRP Planning Scenario	New Resource Addition	
	Resource Type	Resource Timing
Prior to PA 235	Achieving the most economical resource portfolio to reliably serve load is the primary driver for the selection of new resource technologies and fuel types	Capacity requirements are the primary driver for timing of new resource additions
PA 235	Compliance with the PA 235 requirements to meet the Renewable Portfolio Standard and the Clean Energy Standard: • ***Anticipated*** to become a primary driver for the type and timing of new resource additions. • Increases the ***potential*** of excess capacity relative to reserve margin requirements.	

Tax Credit Considerations (representative information)

Technology Type	Maximum Tax Credits	Considerations
Solar PV	PTC of $27.50/MWh* for first 10 years of operation -or- ITC of 30%	Online by December 31, 2027, unless under construction before July 4, 2026
Wind	PTC of $27.50/MWh* for first 10 years of operation -or- ITC of 30%	Online by December 31, 2027, unless under construction before July 4, 2026
BESS	ITC of 30%	Tax Credits phase out over 2034 through 2036, based on construction start date
Nuclear	ITC of 30%	Tax Credits phase out over 2034 through 2036, based on construction start date
NG with 90% CCS	PTC of $85/metric ton* for first 10 years of operation -or-	Must be under construction by 2032
	ITC of 30%	Tax Credits phase out over 2034 through 2036, based on construction start date

**Based on 2022 dollars*

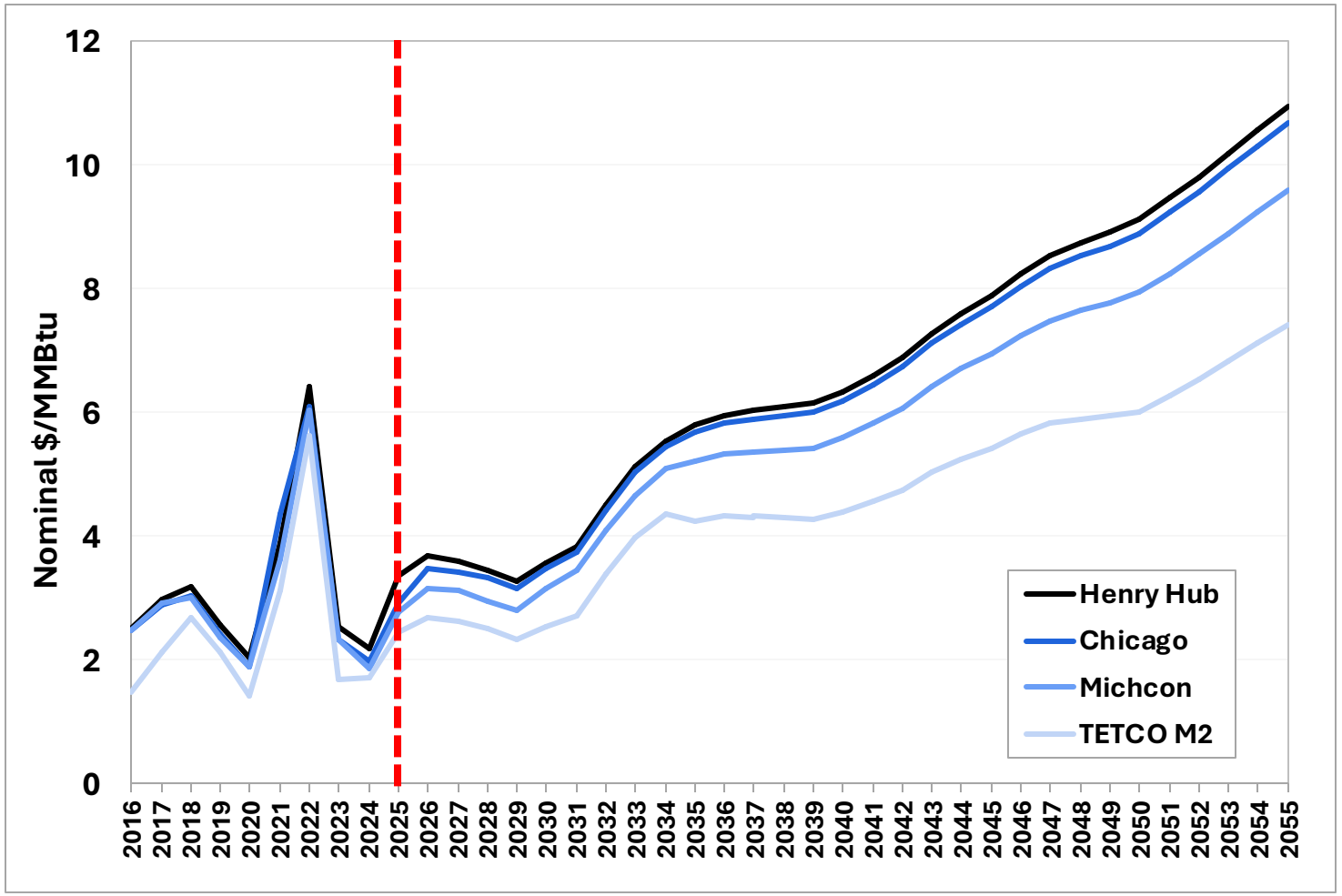
Natural Gas - Henry Hub Price Forecast



Forecast Development

- Fundamental long-term price forecast from EIA 2025 AEO
- NG prices for 2025-2029 based on NYMEX forward prices
- Monthly price patterns developed from NYMEX forward prices
- Low and High prices derived from AEO High/Low NG and Oil Technology cases

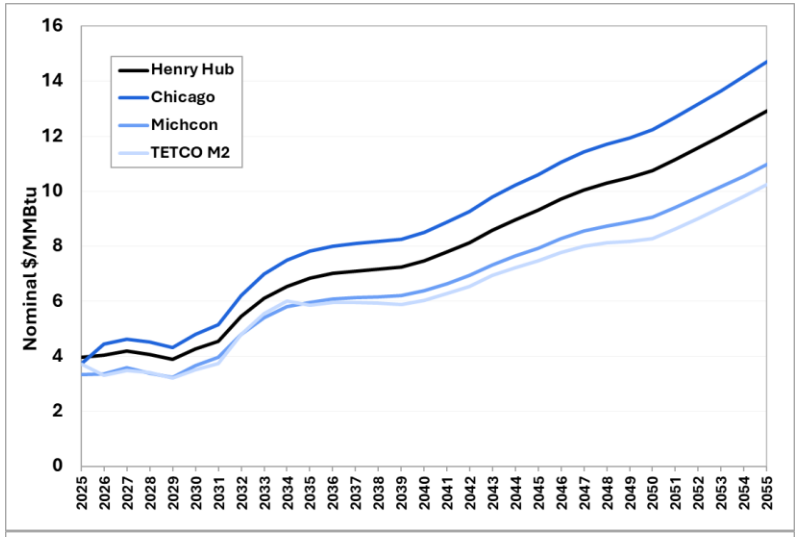
Natural Gas - Hub Price Forecast



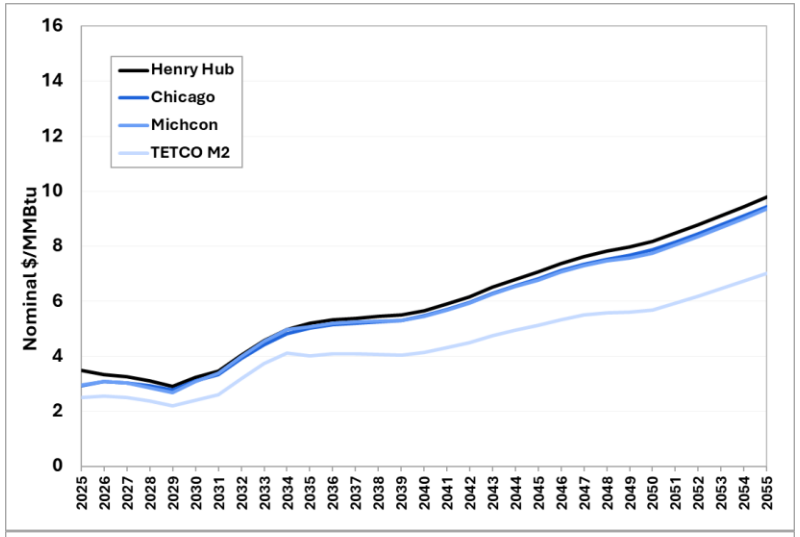
NG Hub	Resources
Chicago Citygate	Zeeland Local Resources (Existing & Potential New Resources)
MichCon	Belle River Potential New Resources
TETCO M2	AMP Freemont

Natural Gas - Hub Price Forecast - Seasonal

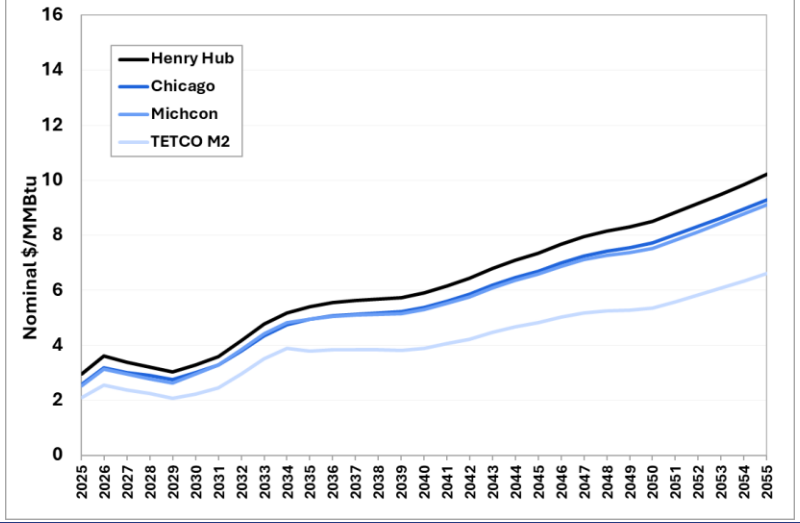
Winter



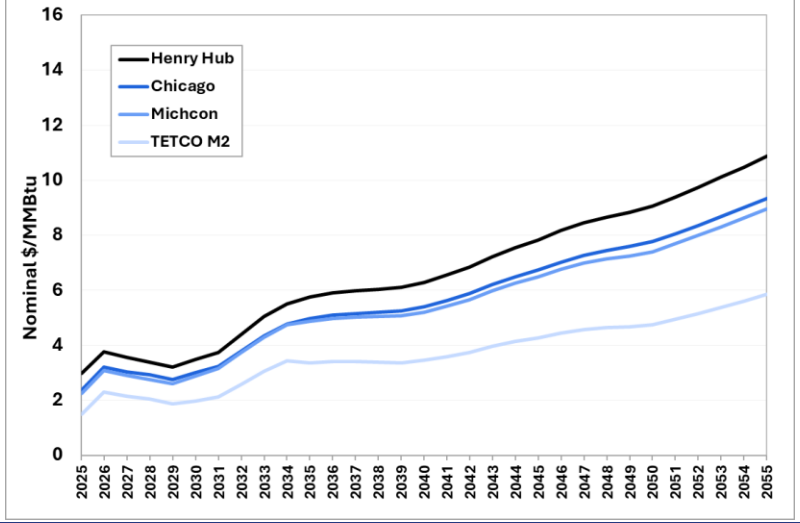
Spring



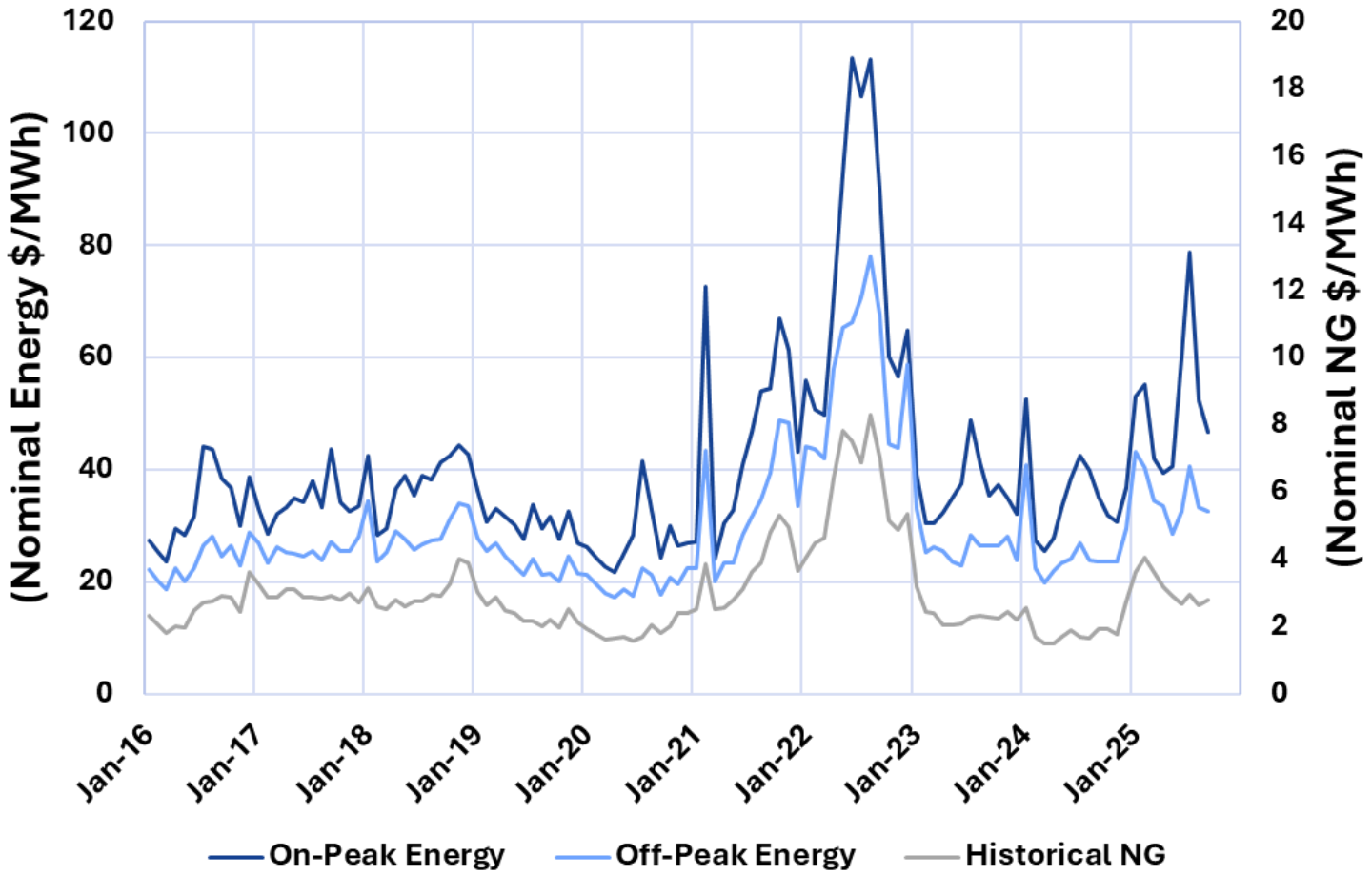
Summer



Fall



Market Model - Price Projections



The IRP will utilize a MISO zonal market price forecast for use in evaluation of resource portfolios

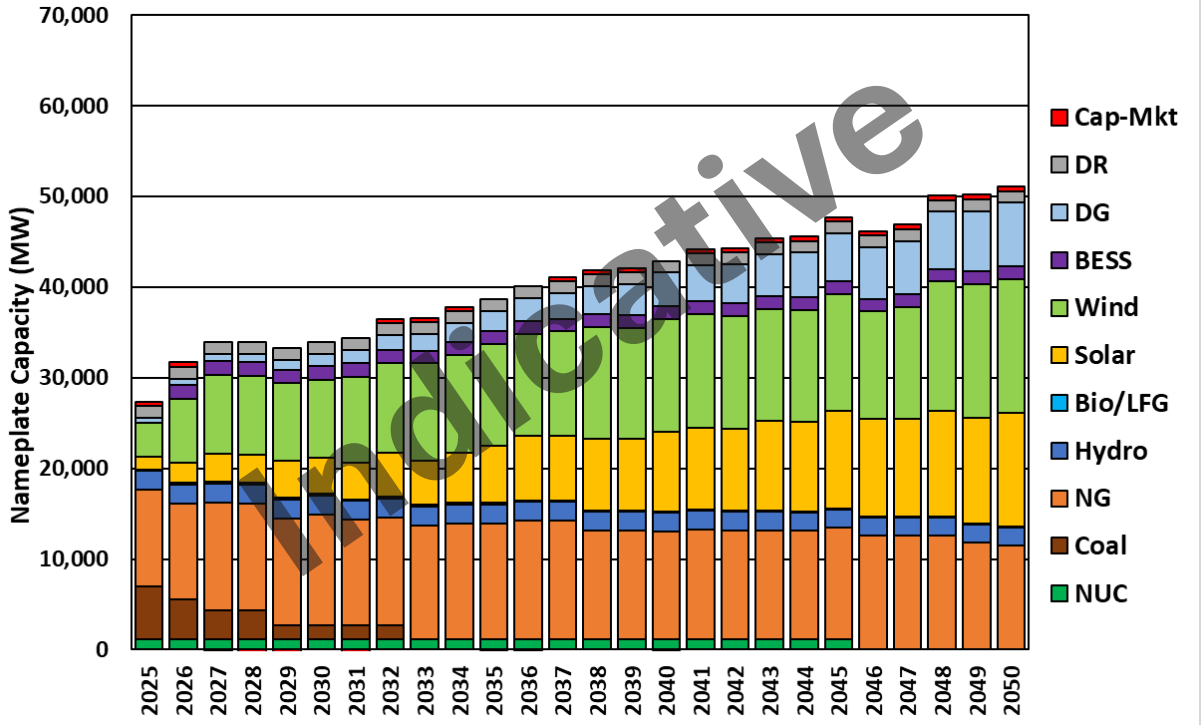
- Market price forecast will be based on an optimization simulation and hourly production simulations of the MISO region over the study period
- Assumptions for MISO planning criteria, IRA tax credits, new resource option characteristics and fuel prices are generally consistent throughout the IRP

Market Model – Resource Mix

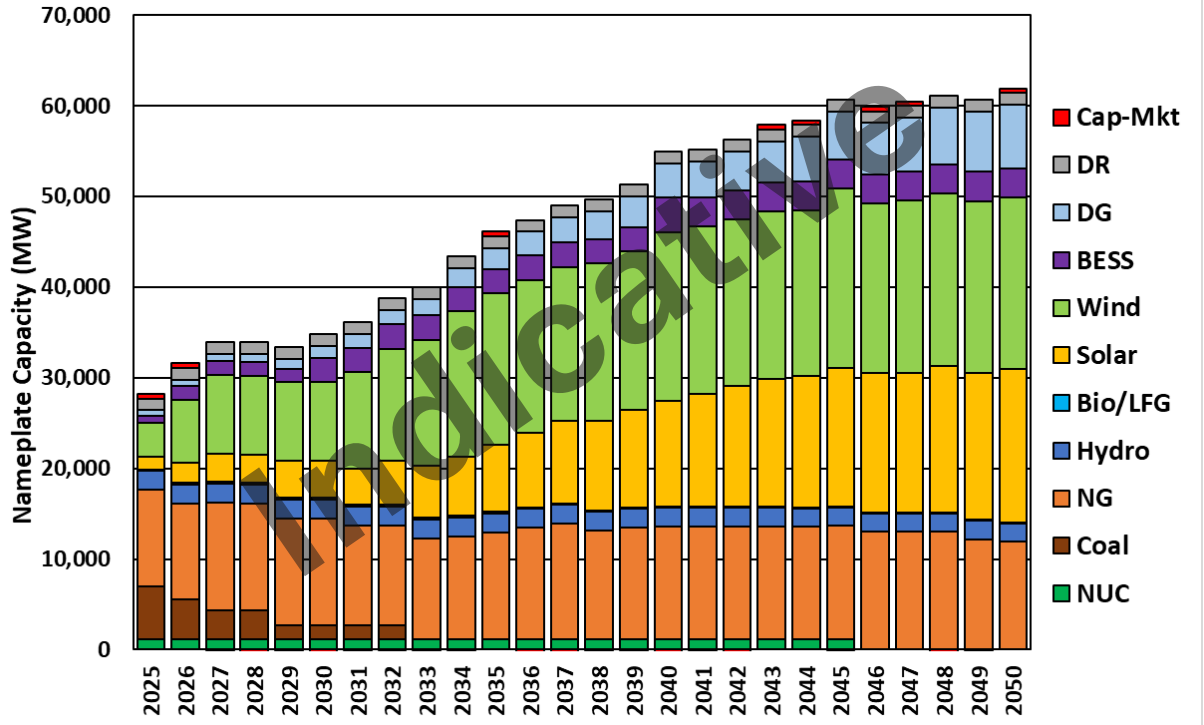
Representative Resource Capacity Mix for MISO Zone 7 (MISO MI)

(for illustration purposes only; not directly related to IRP analysis)

No PA 235 Considerations



PA 235



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Collaboration and Next Steps

Stewart Ramsay

Meeting Facilitator

nFront Consulting LLC

2026 IRP Stakeholder Meetings

SWG Meeting #1

November 18, 2025

- Discussion of Major Assumptions

SWG Meeting #2

January 8, 2026

- Structure of IRP Analysis
  - Power supply portfolios
  - Sensitivity evaluations
- Evaluation Criteria

SWG Meeting #3

February 19, 2026

- Review Stakeholder Feedback
- Final IRP Assumptions
- IRP Results
  - Power supply portfolios
  - Sensitivity evaluations

Moving Forward - Stakeholder Expectations

- Review meeting material
- Raise questions or concerns regarding the analysis
- Bring insights and suggestions to the discussions

Meeting content and dates may be adjusted to reflect further discussions needed with stakeholders. The outline above is our starting point.

Stakeholder process will provide transparency throughout the IRP process and allow Zeeland to learn what is important to our customers.

In Closing…

Questions and comments can be sent to:

irp@zeelandbpw.com

Meeting summary and other materials will be posted and made available at:

https://zeelandbpw.com/power-plan/

ZEELAND Board of Public Works

nFront Consulting

Any questions we haven't answered today?

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We would like to hear from you about your experience at this session.

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Commonly Used Terms

Abbreviation	Definition
AEO	Annual Energy Outlook
CCS	Carbon Capture Sequestration
EIA	Energy Information Administration
ITC	Investment Tax Credit
MISO	Midcontinent Independent System Operator
NG	Natural Gas
NGCC	Natural Gas Combined Cycle
NYMEX	New York Mercantile Exchange
PA 235	Public Act 235 (State of Michigan)
PTC	Production Tax Credit
PV	Photovoltaic
REC	Renewable Energy Credit
UCAP	Unforced Capacity