I&M-MI 2027 IRP

Technical Stakeholder Workshop #1

INDIANA MICHIGAN POWER

An AEP Company

Welcome & Introductions

I&M Leadership Team

Andrew Williamson | VP, Regulatory and Finance
David Lucas | VP, Generation Transformation
George Fee | Director, Regulatory Services
Regiana Sistevaris | Manager, Regulatory Services
Jon Walter | Manager, Regulatory Innovations

1898 Leadership Team

Brian Despard | Senior Project Manager

I&M IRP Planning Team

Christopher Johnson | VP, Integrated Resource Planning
Mohamed Abukaram | Director, Resource Planning Modeling Analysis
Brian Lakey | Director, Resource Planning Strategy
Christian Mitchell-Flores | Resource Planning Lead
Mark Sklar-Chik | Resource Planning Analyst Staff
Papa Yaw Owusu-Obeng | Resource Planning Analyst Principal

I&M Financial Planning & Analysis

Kayla Zellers | Director, Economic Forecasting
Abbe Sorrells | Forecasting Lead, Supply Forecasting

I&M New Project Development

Daniel Connors | Engineer Staff, New Project Development

Agenda

Time (EST)	Agenda Topic	Presenter(s)
1:00 – 1:20 PM	Welcome, Introductions, & Meeting Objectives	Brian Despard (1898 & Co.) George Fee
1:20 – 1:35 PM	IRP Process, Requirements, & Engagement	Christian Mitchell-Flores
1:35 – 1:55 PM	Planning Context & Going-In Capacity Position	George Fee Brian Lakey
1:55 – 2:20 PM	Load Forecast Assumptions & Methodology	Kayla Zellers
2:20 – 2:40 PM	Demand-Side Assumptions & Modeling Inputs	Jon Walter
2:40 – 2:50 PM	Break	
2:50 – 3:05 PM	Generation Resource Screening	Daniel Connors
3:05 – 3:25 PM	Resource Modeling Parameters	Christian Mitchell-Flores
3:25 – 3:55 PM	Fundamentals & Scenario Analysis IRP Proposed Scenarios	Abbe Sorrells Mark Sklar-Chik
3:55 – 4:10 PM	Objectives, Portfolio Performance Indicators & Metrics	Christian Mitchell-Flores
4:10 – 4:15 PM	Next Steps	Christian Mitchell-Flores
4:15 – 4:30 PM	Open Discussion, Final Questions, Action Items, Adjourn	Brian Despard (1898 & Co.)

Participation

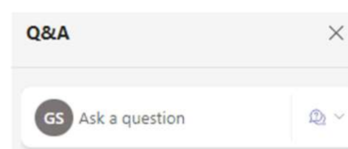
Participants joining today's meeting will be in a "listen-only" mode. Please use the "Raise" function to be recognized and unmuted.

During the presentation, please enter questions at any time into the Teams Q&A feature. Questions will be addressed after each section. At the end of the presentation, we will open up the floor for additional questions, thoughts, ideas, and suggestions.

All questions and answers will be logged and provided on the IRP website. Any questions not answered during the meeting will be answered after the meeting and provided in the Q&A log posted to the IRP website.

Questions, thoughts, ideas, and suggestion related to this meeting can be provided to I&MIRP@aep.com following this meeting.

Click the Q&A feature at the top of the Teams screen



Guidelines

- Please focus questions, thoughts, ideas, and suggestions to the IRP process and the content being discussed in this meeting. Time will be taken during this meeting to respond to questions.
- Please respect other participants and their views by not addressing other participants directly and not commenting on the views expressed by others.
- This meeting will not be recorded or transcribed.
- Any further questions or comments can be provided to I&MIRP@aep.com.

Meeting Objectives

- **Transparency:** Share 2027 IRP Objectives and Assumptions at the beginning of our process
- **Gather Feedback:** Provide a forum for productive stakeholder feedback

Website where you can send us comments

I&M welcomes stakeholder comments and input on key elements of the IRP process, including:

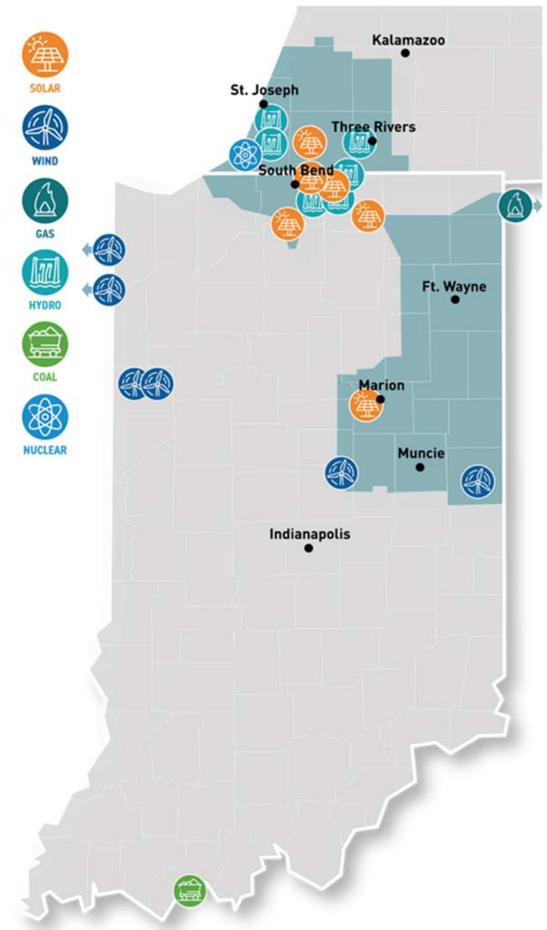
- Objectives & Requirements
- Planning Context and Capacity Need
- Load Forecast and Key Drivers
- Demand-Side Assumptions
- Supply-Side Resource Options
- Fundamental Assumptions
- Scenario Design
- Portfolio Performance Indicators

Indiana Michigan Power Company (I&M)

INDIANA MICHIGAN POWER
An AEP Company

- Indiana Michigan Power Company (I&M) headquartered in Fort Wayne, IN
- More than 618,000 retail customers in Michigan and Indiana
  - ~133,000 customers - MI
  - ~485,000 customers - IN
- I&M also serves wholesale customers which represents 9.1% of its load
- I&M participates in the PJM Regional Transmission Organization which establishes system reliability criteria

I&M is a unit of American Electric Power (NYSE: AEP), which is one of the largest electric utilities in the United States, delivering electricity to more than 5 million customers in 11 states.



Integrated Resource Plan Key Drivers

Planning Framework	Utilizing a State-Specific Planning Model
Existing Resource Considerations	Relicensing evaluation for Cook Nuclear Plant and select Hydroelectric Assets Planned retirement of Rockport Units 1 and 2 by December 31, 2028; Rockport 2 has operated as a merchant plant since June 1, 2025
Regulatory / Procurement Requirement	Requirement to submit a procurement plan for 72.8 MW of storage by December 31, 2029
Market Context	Dynamic Market Conditions Impacting New Generation Resources and Processes

Integrated Resource Planning Process

Phase 1: Objectives, Requirements & Performance Framework

- Define planning objectives & decision criteria
- Establish regulatory, reliability, and policy requirements
- Develop portfolio evaluation metrics

Phase 2: Inputs & Assumptions

- Planning context, existing system, and resource need
- Load forecast and key drivers
- Demand-side assumptions
- Supply-side resource screening and modeling assumptions
- Market fundamentals assumptions and future scenario inputs

Phase 3: Stakeholder Engagement & Input Integration

- Hybrid public meetings
- Technical workshops
- Stakeholder feedback on assumptions, scenarios, and metrics
- Public Outreach Report and documentation of input

Phase 4: Modeling, Optimization & Portfolio Development

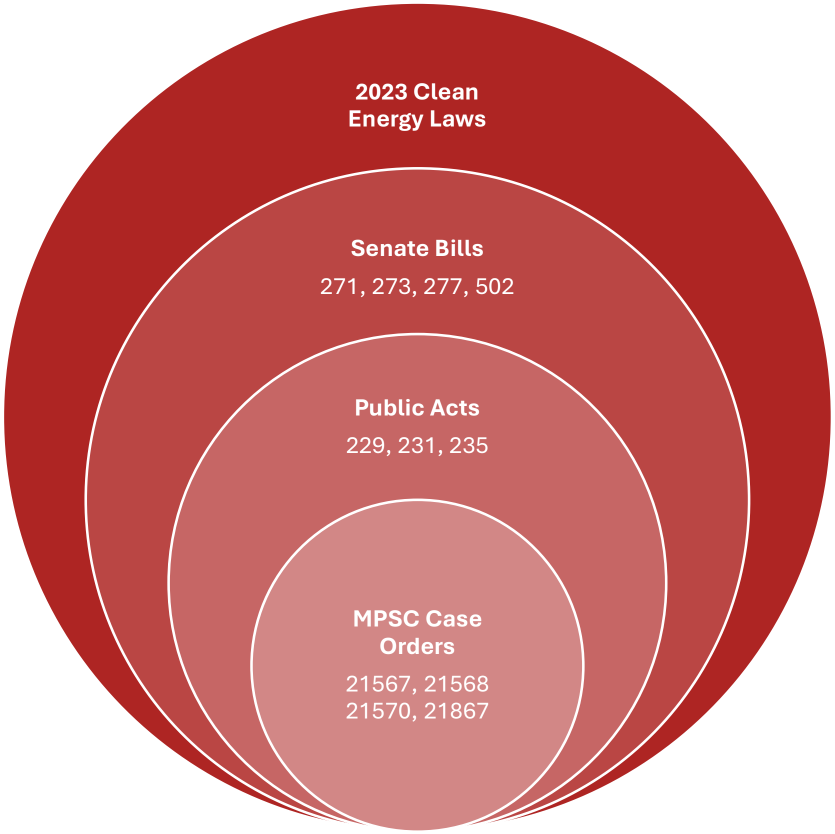
- Develop planning scenarios and sensitivities
- Optimize candidate resource portfolios subject to system and policy constraints
- Compare portfolios using scorecard & portfolio performance indicators

Phase 5: Risk Assessment & Testing

- Test candidate portfolios under alternative futures
- Assess risk, tradeoffs, and robustness
- Identify the Preferred Course of Action (PCA)

← **Stakeholder input informs assumptions, scenarios, and portfolio evaluation** →

Michigan's Clean Energy Laws: Implications for the IRP



Impact
Resource Requirement and Standards • Renewable Energy Standard: 50% by 2030, 60% by 2035 • Clean Energy Standard: 80% by 2035, 100% by 2040 • Energy Storage Target: I&M's allocated share of the 2,500 MW statewide requirement
Demand-Side Resource Standard Update • Energy Waste Reduction (EWR) Standard: 1.5% annual savings (goal of 2%) for electric utilities
New IRP Filing and Analytical Requirements • Demonstration of compliance with Clean Energy and Renewable Energy standards • Environmental Justice (EJ) impact analysis • GHG emissions long-term forecast for utility generation and purchases • Affordability and rate impact projections

Prior IRP Commitments & Considerations

Planning Assumptions

- Going-in position reflects the updated Rockport 2 agreement and progress toward implementing the prior preferred plan.

Demand-Side Planning

- EWR assumptions reflect the agreed path to 2% annual savings and related implementation expectations.

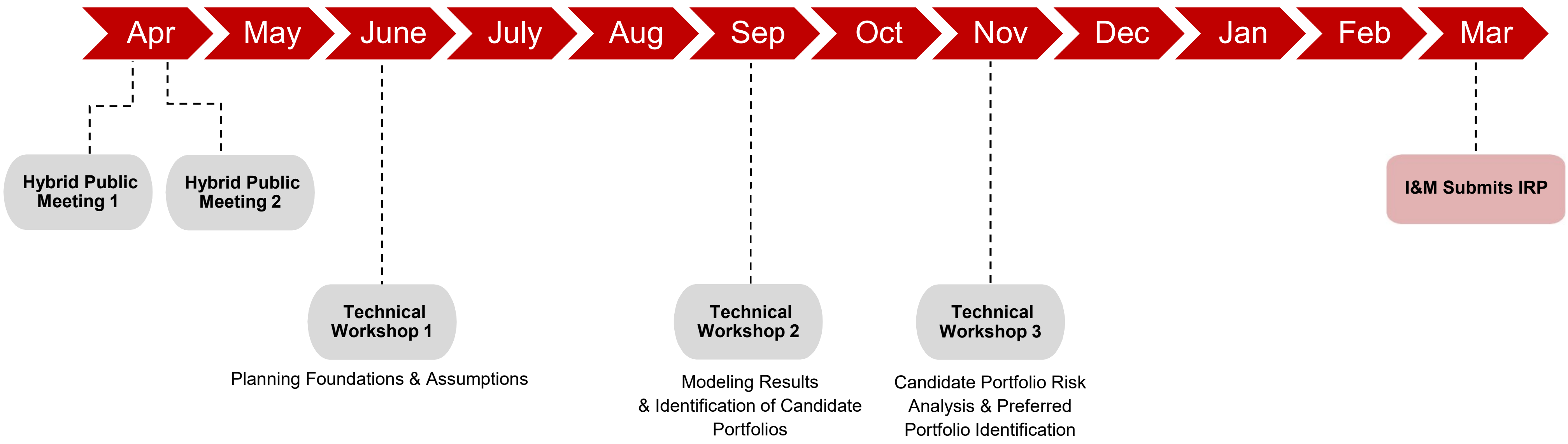
Resource Evaluation

- The IRP will evaluate whether continued operation through relicensing or retirement is the more reasonable and prudent outcome for the Cook Nuclear Plant at the end of its current license term and for hydro facilities with licenses expiring within the study period.

Transparency

- Settlement-related transparency provisions include stakeholder access to modeling tools, key files, and supporting workpapers for the IRP proceeding.

Stakeholder Engagement Timeline



Draft engagement timeline is provided for preliminary planning purposes.
All dates and activities are subject to change as I&M incorporates new information.

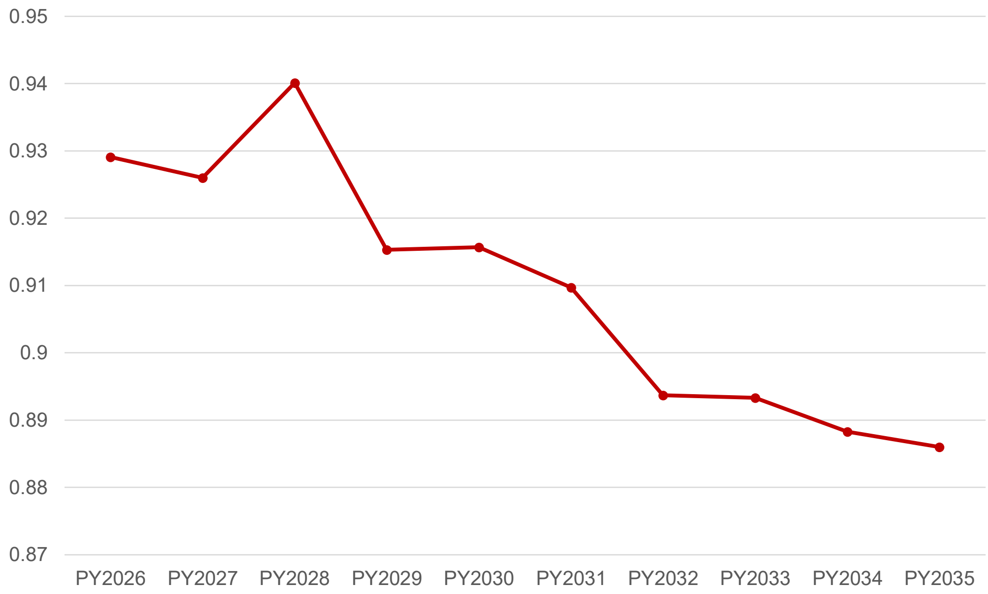
PJM Capacity Market Update

- I&M/AEP participates in the PJM RTO (Regional Transmission Organization)
- PJM's Capacity Market RPM (Reliability Pricing Model) is intended to secure future power supply to maintain reliability
  - I&M/AEP has elected to participate as an FRR (Fixed Resource Requirement aka Self-Supply) since the RPM was implemented in 2007
- PJM Capacity Prices have increased from ~$29/MW-Day to ~$330/MW-Day
  - Driven by conventional resource retirements, PJM Generation Interconnection Queue delays, and rapid load growth
- PJM's Delivery Year (DY) 27/28 BRA (Base Residual Auction) cleared at the administrative cap and ~6,000 MW short of the reliability target
  - I&M/AEP's DY 27/28 FRR submittal was compliant and as recently filed in U-21907 is forecasted to be so through DY 29/30

PJM Effective Load Carrying Capability (ELCC)

ELCC Class	PY2026	PY2027	PY2028	PY2029	PY2030	PY2031	PY2032	PY2033	PY2034	PY2035
Onshore Wind	38%	41%	34%	35%	34%	31%	26%	22%	20%	19%
Offshore Wind	64%	67%	60%	57%	53%	47%	38%	32%	28%	26%
Fixed-Tilt Solar	10%	7%	7%	6%	6%	6%	6%	6%	6%	6%
Tracking Solar	13%	8%	10%	7%	7%	7%	7%	7%	7%	7%
Landfill Intermittent	49%	48%	50%	51%	50%	50%	50%	50%	51%	51%
Hydro Intermittent	38%	39%	35%	37%	38%	39%	39%	38%	38%	38%
4-hr Storage	54%	58%	59%	42%	37%	30%	25%	25%	24%	23%
6-hr Storage	61%	67%	68%	52%	48%	41%	36%	36%	35%	33%
8-hr Storage	65%	70%	71%	58%	54%	49%	44%	45%	43%	42%
10-hr Storage	73%	78%	78%	68%	64%	59%	55%	56%	54%	53%
Demand Resource	72%	92%	91%	77%	74%	70%	68%	68%	67%	66%
Nuclear	95%	95%	96%	95%	95%	95%	95%	96%	95%	95%
Coal	85%	83%	85%	83%	83%	82%	81%	81%	80%	80%
Gas Combined Cycle	77%	74%	78%	75%	75%	76%	77%	78%	78%	78%
Gas CT	63%	61%	67%	62%	63%	64%	66%	68%	69%	70%
Gas CT Dual Fuel	79%	77%	79%	77%	77%	78%	80%	80%	80%	80%
Diesel Utility	93%	92%	93%	91%	91%	91%	91%	91%	91%	91%
Steam	75%	72%	75%	71%	71%	72%	72%	72%	72%	72%

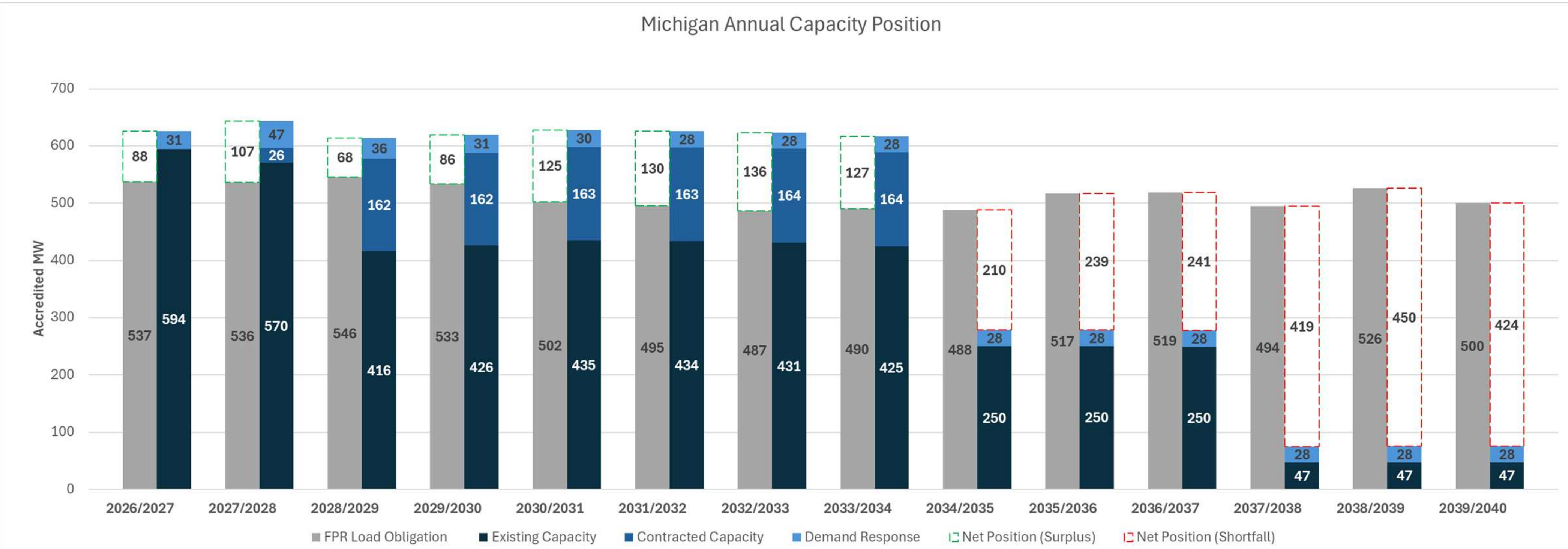
Forecast Pool Requirement (FPR)



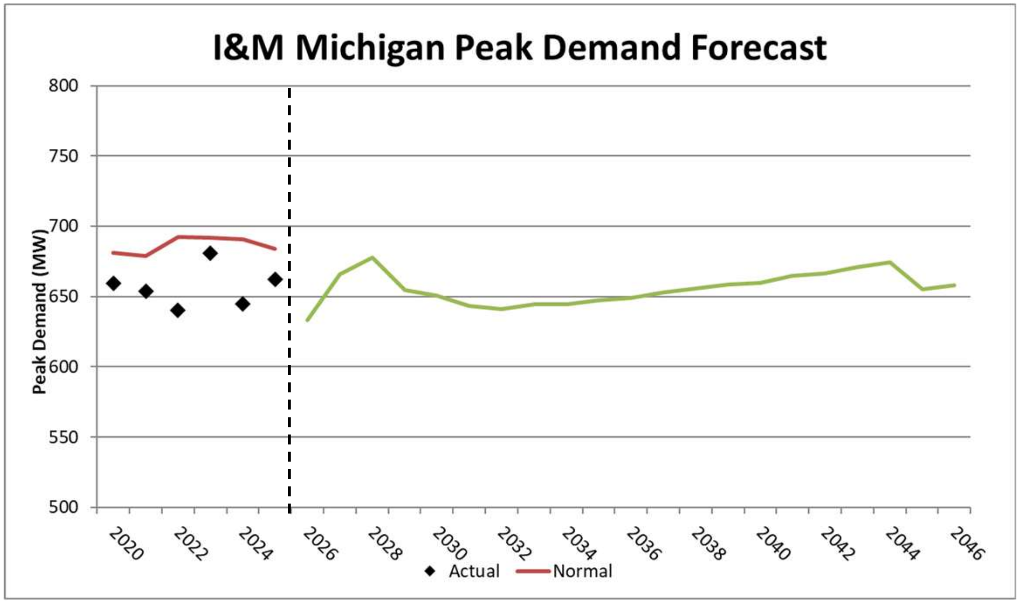
Year	FPR
PY2026	0.9291
PY2027	0.9260
PY2028	0.9401
PY2029	0.9153
PY2030	0.9157
PY2031	0.9097
PY2032	0.8937
PY2033	0.8933
PY2034	0.8883
PY2035	0.8860

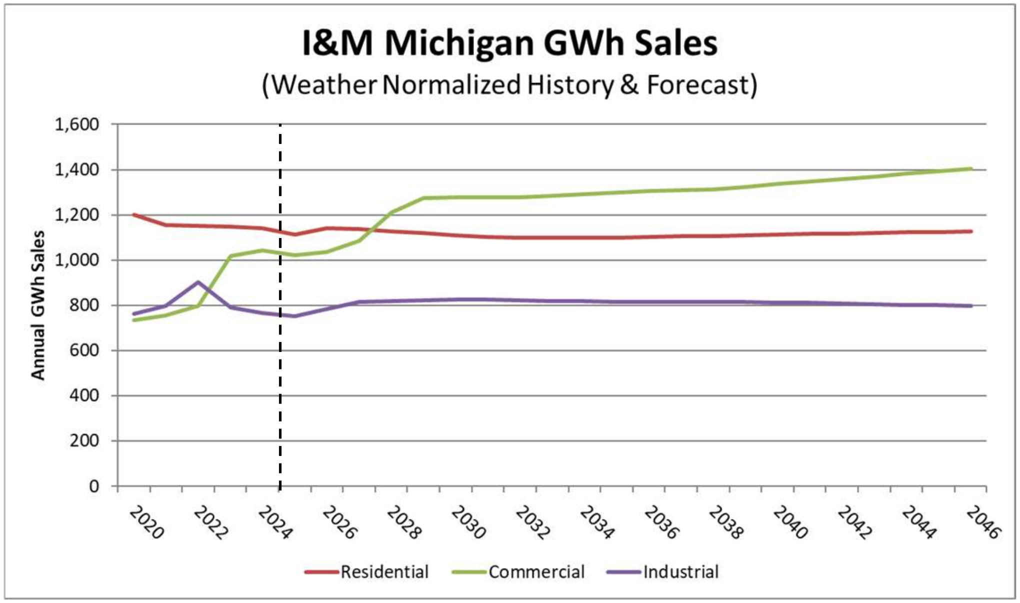
- PJM planning factor used to convert annual peak load into a required amount of accredited capacity.
- Is applied to the load forecast to establish the capacity obligation used in resource planning.
- Values vary by year based on PJM planning assumptions and then decline over time.
- The final available value is held constant for the remainder of Michigan's 20-year planning horizon.

Going-In Capacity Position



Peak Demand and Sales Forecast

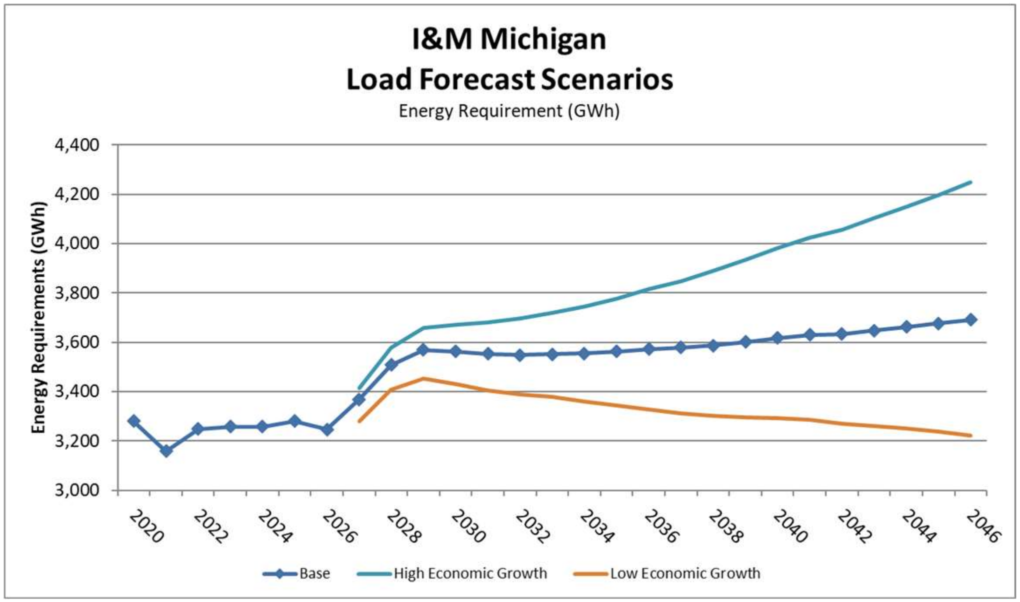


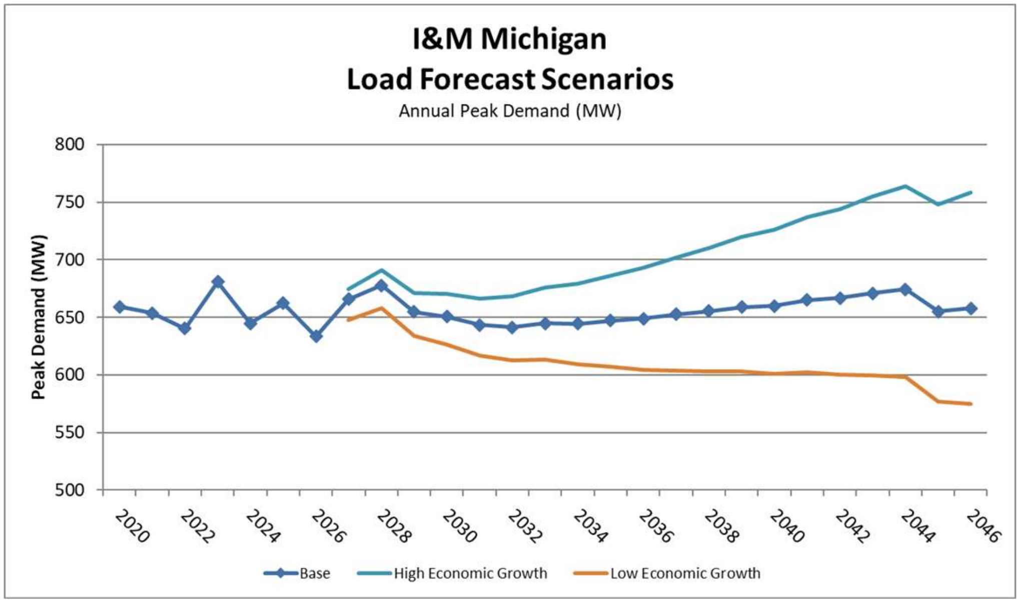


I&M – Michigan's Peak Demand forecast is relatively flat over the planning horizon with a Compound Annual Growth rate (CAGR) of +0.24% from 2026 to 2036.

The Commercial and Industrial classes grow throughout the planning horizon, while the residential class slightly declines. The Commercial class has a 10-year CAGR of +2.33% due to the addition of a new customer. The Industrial and Residential classes have 10-year CAGRs of +0.40% and -0.34%, respectively.

Load Forecast Scenarios



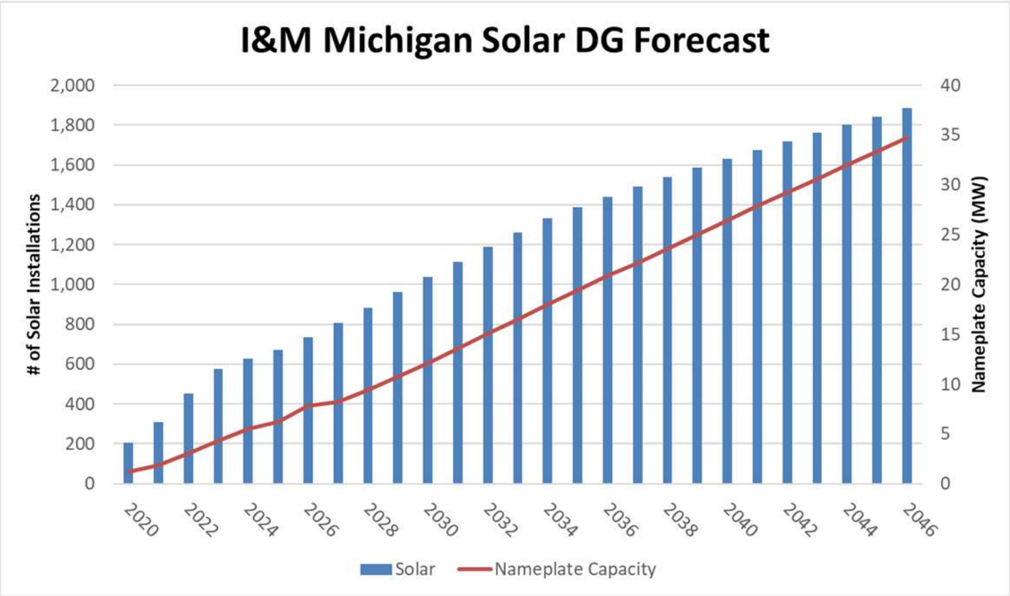


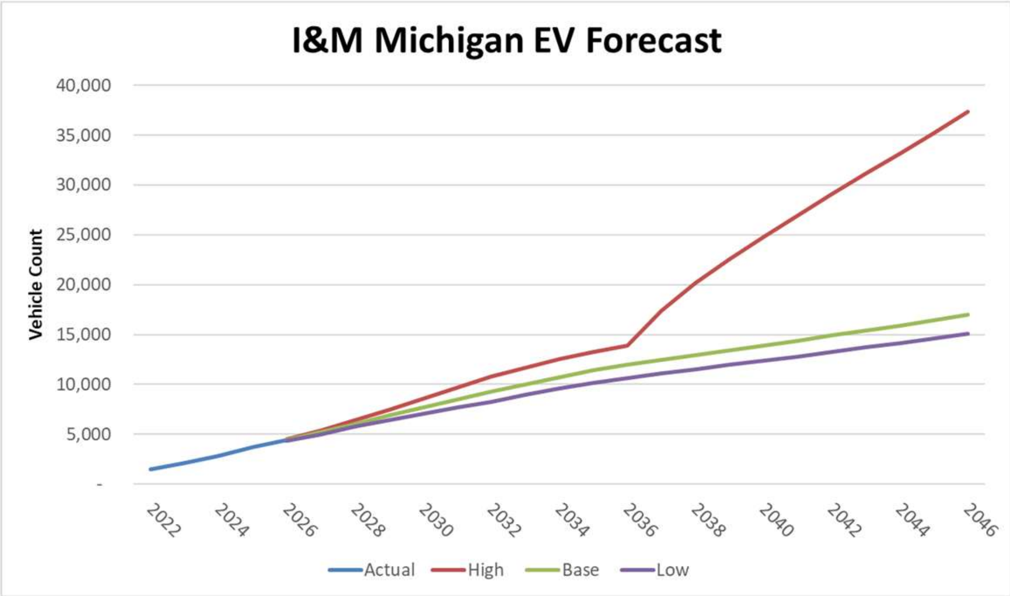
The **Base Forecast** represents moderate growth over the planning horizon, leading to a 10-year energy requirement CAGR of 0.96%.

The **High Economic Growth Forecast** deviates from the Base Forecast by 6.77%.

The **Low Economic Growth Forecast** deviates from the Base Forecast by -6.86%.

Electric Vehicle and Distributed Generation Forecast





At the end of 2025, there were nearly **670 customers** with Solar DG Installations amounting to **8 MW of nameplate capacity.**

The number of customer installations and nameplate capacity increases over the planning horizon with a nameplate capacity 10-year of CAGR of ~5%. The saturation of DG Customers in 2036 is 1.1%.

At the end of 2025, there were nearly **4000 EVs** within the Michigan footprint.

The Base EV Forecast increases over the planning horizon with an EV Count 10-year of CAGR of ~11%.

Energy Waste Reduction Inputs & Assumptions

- I&M IRP modeling inputs for Energy Waste Reduction (EWR) were developed using the Maximum Achievable Potential (MAP) from the MPSC's 2025 Energy Waste Reduction, Demand Response, and Efficient Electrification Statewide Potential Study (Statewide MPS)
  - Lower Peninsula (PJM) Region EWR data files from the Statewide MPS were used to develop EWR inputs used for IRP modeling
- EWR savings potential at the annual incremental 2% of retail sales level is considered a 'going-in' resource in IRP modeling, meaning this level of EWR savings is included in the IRP outcome regardless of modeling supply-side resource selection
- EWR savings potential exceeding the annual incremental 2% of retail sales level are offered into IRP modeling as selectable resources
  - EWR selectable resource #1: 2.01% of retail sales up to 2.17% of retail sales
  - EWR selectable resource #2: 2.17% of retail sales up to 2.50% of retail sales
- No IRP modeling constraints or restrictions were placed on EWR resources

Statewide MPS EWR Results for I&M

Michigan EWR Potential, Region: Lower Peninsula (PJM), Scenario: Maximum Achievable Potential

Electric Savings Summary

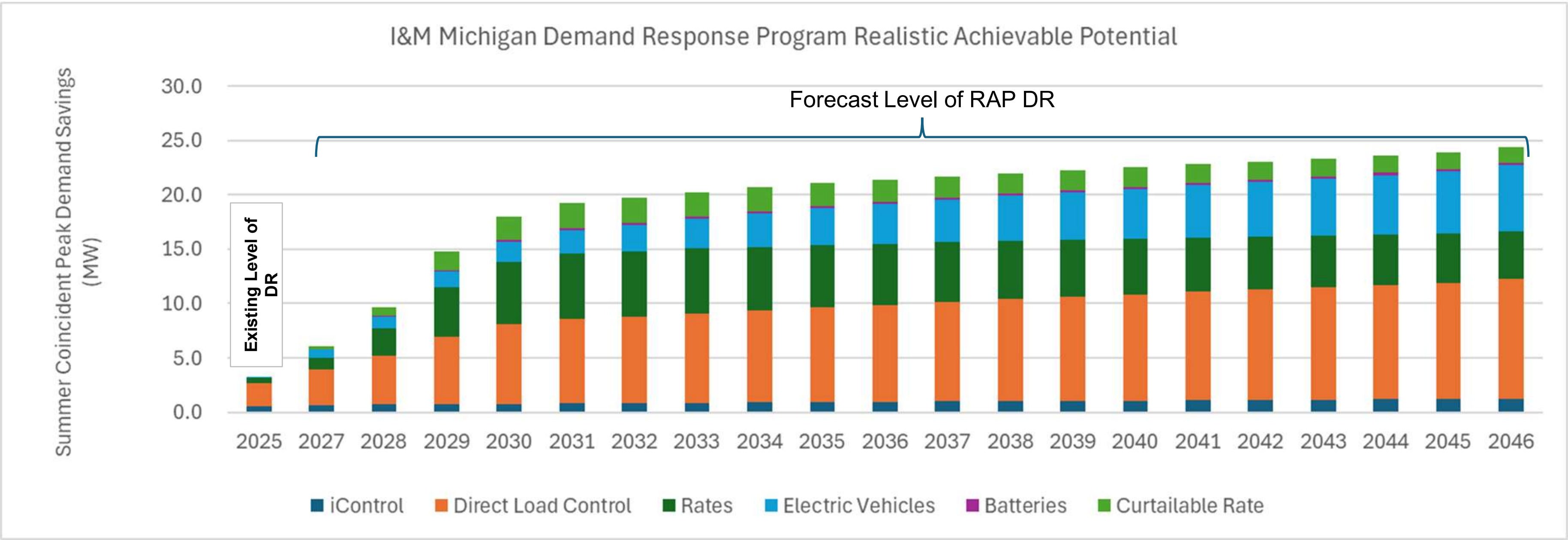
				Incremental Annual Savings																			
Fuel	Sector	Unit	Value	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Electric	Res	MWh	Savings	20,793	23,049	24,645	25,829	26,275	26,113	26,714	26,915	27,069	27,260	27,438	27,613	27,785	27,947	28,069	28,243	28,413	28,572	28,735	28,888
Electric	C&I	MWh	Savings	37,235	39,420	40,797	42,248	43,032	43,002	44,144	44,726	45,272	46,004	46,443	46,780	47,446	47,878	48,313	48,655	48,828	49,053	49,331	49,619
Electric	**Total**	**MWh**	**Savings**	**58,027**	**62,469**	**65,442**	**68,077**	**69,307**	**69,114**	**70,858**	**71,642**	**72,341**	**73,264**	**73,881**	**74,393**	**75,231**	**75,825**	**76,382**	**76,898**	**77,241**	**77,624**	**78,066**	**78,507**
Electric	Residential	MWh	Sales	1,145,664	1,146,695	1,144,281	1,151,592	1,149,738	1,132,300	1,154,045	1,157,664	1,159,236	1,161,975	1,165,547	1,169,094	1,172,547	1,176,082	1,177,867	1,180,574	1,183,579	1,187,848	1,193,011	1,198,107
Electric	C&I	MWh	Sales	1,809,479	1,819,568	1,821,416	1,842,976	1,848,026	1,826,694	1,857,965	1,867,507	1,875,421	1,890,882	1,896,281	1,899,841	1,916,618	1,924,454	1,932,455	1,945,907	1,952,607	1,961,386	1,972,320	1,983,716
Electric	**Total**	**MWh**	**Sales**	**2,955,143**	**2,966,263**	**2,965,697**	**2,994,568**	**2,997,764**	**2,958,994**	**3,012,010**	**3,025,171**	**3,034,657**	**3,052,857**	**3,061,828**	**3,068,935**	**3,089,165**	**3,100,536**	**3,110,322**	**3,126,481**	**3,136,186**	**3,149,234**	**3,165,331**	**3,181,823**
Electric	Residential	%	Savings as a Percent of Sales	1.8%	2.0%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Electric	C&I	%	Savings as a Percent of Sales	2.1%	2.2%	2.2%	2.3%	2.3%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Electric	**Total**	**%**	**Savings as a Percent of Sales**	**2.0%**	**2.1%**	**2.2%**	**2.3%**	**2.3%**	**2.3%**	**2.4%**	**2.4%**	**2.4%**	**2.4%**	**2.4%**	**2.4%**	**2.4%**	**2.4%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**

- The Maximum Achievable Potential from the Statewide Potential Study, Lower Peninsula Region (PJM), shows annual incremental savings potential increasing from 2.0% of retail sales in 2026 ramping to 2.5% by 2040.

- Residential, C&I, and Choice customers contribute to the savings potential.

Demand Response Potential

- I&M's 2025 Michigan Market Potential Study (I&M MPS) Realistic Achievable Potential (RAP) was used to identify Demand Response (DR) program potential for I&M IRP inputs.



DR potential Increases from ~ 6 MW in 2027 to ~ 25 MW by 2046.
Top 3 Programs in DR potential: 1. DLC (smart thermostat) 2. Rates (TOU, etc.) 3. EV (TOU, Load Shifting)

Demand Response Bundles

- DR Programs were assigned to different DR bundles (program groupings) according to the program type and cost profile.
- DR Realistic Achievable Potential (RAP) was used in IRP DR bundles.
- No further cost effectiveness screening beyond the typical MPS Economic Potential screening was applied to DR potentials during IRP DR bundle creation.
- No IRP modelling constraints or restrictions were placed on DR resources

Residential Bundles
Rates Low
Critical Peak Pricing (CPP)
Rates High
iControl (behavioral DR, PTR)
Time of Use (TOU)
DLC Low
Thermostat
Smart Water Heaters
Central Air Conditioner Cycling
DLC High
Room AC
Water Heater Switch
Smart Appliances
EV
EV Passive Charging
EV Active Charging
Batteries
Batteries

C&I Bundles
Rates Low
Critical Peak Pricing (CPP)
Curtailable Rate
Real Time Pricing
Rates High
Time of Use (TOU)
Peak Time Rebate (PTR)
DLC Low
Thermostat
Water Heater Switch
DLC High
Lighting
EV
EV Passive Charging
Batteries
Batteries

Distributed Energy Resource Inputs & Assumptions

I&M's Michigan MPS evaluated the following DER potential:

- Residential Solar Incentive Program Potential (25% Incentive & 50% Incentive)
- Commercial Solar Incentive Program Potential (25% Incentive & 50% Incentive)
- Residential Solar + Battery Potential (25% Incentive + DR Credits for Battery DR)
- Commercial Solar + Battery Potential (25% Incentive + DR Credits for Battery DR)
- Community Solar Program Potential (25% Incentive)
- Commercial Combined Heat & Power Potential (25% Incentive)
  - CHP technologies included reciprocating engines, combustion turbines, steam turbines, micro turbines and fuel cells

I&M's IRP DER Input Bundles include all MPS evaluated DER resources:

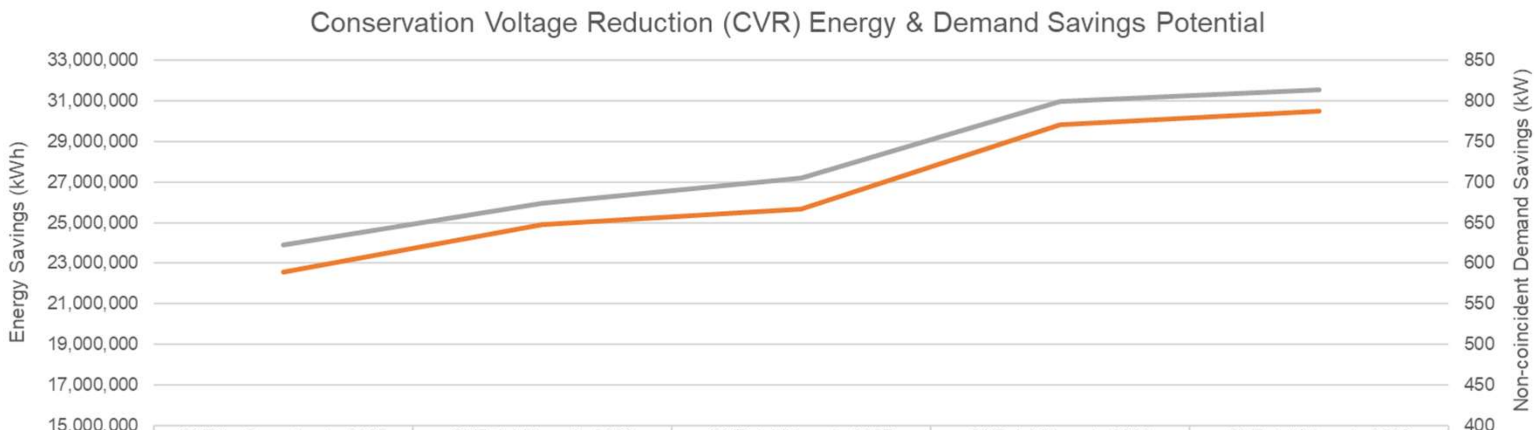
- Residential Solar: Base (25% Incentive) & High (50% Incentive)
- Commercial Solar: Base (25% Incentive) & High (50% Incentive)
- Residential Solar + Battery (25% Incentive + DR Credits for Battery DR)
- Commercial Solar + Battery (25% Incentive + DR Credits for Battery DR)
- Community Solar (25% Incentive)
- CHP (25% Incentive)

Virtual Power Plant Inputs & Assumptions

- I&M's Virtual Power Plant (VPP) program focuses on dispatchable (i.e., controllable) DER and DR resources.
- Since VPP is a control and monitoring IT resource (software platform), I&M applied VPP vendor platform costs (based on vendor platform capabilities) to the following DER and DR resource IRP input types:
    - Residential & Commercial Battery DR
    - Residential & Commercial DLC DR:
        - Commercial Lighting DLC
        - Residential Room AC DLC
        - Residential Smart Appliance DLC
        - Residential & Commercial Thermostat DLC
        - Residential Smart Water Heater DLC
    - Commercial Curtailable Rate
    - Residential iControl
- Other DER and DR resources were not included under VPP due to existing vendor control systems having similar functionality and were not assumed to transition to VPP for this IRP due to VPP cost uncertainty.

Conservation Voltage Reduction

- Conservation Voltage Reduction (CVR) is included in IRP modelling as a going-in resource.
- CVR potential energy and demand savings levels were determined from internal company benefit cost analysis and internal resource capability - only those distribution circuits forecasted to pass the benefit cost analysis were included in IRP modelling.



	CVR In Operation in 2025	CVR Additions in 2026	CVR Additions in 2027	CVR Additions in 2028	CVR Additions in 2029
Cumulative Energy Savings (kWh)	23,920,676	25,942,937	27,210,561	30,968,459	31,556,020
Cumulative Demand Savings (kW)	589	647	667	771	787

Short Break

Deliberate Screening Process Overview

Broad Pool of Resources

Screening-Level Evaluation

Detailed Assumptions for Modeled Resources

- Process begins with broad review of resource technologies
- Preliminary screening narrows the list based on commercial and technical feasibility; focus on best-in-class representative technology
- Cost and performance level assumptions are developed for technologies advancing into modeling
- Final modeling data set is determined based on jurisdiction-specific requirements

Technology Screening Considerations

Technology Identification	Preliminary Screening	Qualitative and Quantitative Screening
• Supply-side Generation Options • Energy Storage • Emerging and advanced technologies	• Technology maturity and commercial availability • Development timeline / lead times • Environmental Compliance • Supply Chain	• Scalability and Repeatability • Fuel availability • Regulatory Compatibility • Cost Assumptions • Performance Assumptions

Resource Options Considered

Technology	Emissions	Dispatchability	Cost	Maturity	Key Constraints
Wind	🟢	🔴	🟢	🟢	Weather dependent
Solar	🟢	🔴	🟢	🟢	Weather dependent
Hydro	🟢	🟡	🔴	🟢	Limited siting/permitting
Battery Energy Storage	🟢	🟡	🟡	🟢	Shifts energy instead of produces
Nuclear	🟢	🟢	🔴	🟢 / 🟡	Long lead times
Natural Gas	🔴	🟢	🟡	🟢	Fuel price exposure
Natural Gas w/ Carbon Capture & Storage	🟡	🟢	🔴	🟡	Infrastructure dependency

Generic Supply-Side Resource Options

Key Supply-Side Resource Option Assumptions						
Technology	**Case Description**	**First Available Year**	**Useful Life (yr)**	**Net Capacity (MW)**	**Typical NCF / Utilization**	**Heat Rate, HHV (Btu/kWh)**
Base Load						
Combustion Turbine - 2x1 Combined Cycle, Carbon Capture	Frame CT, H-Class, 95% Carbon Capture	2035	30	1,077	80%	7,250
SMR, Greenfield	1 x 300 MW BWR, FOAK	2033	60	300	90%	10,050
SMR, Greenfield	2 x 300 MW BWR, NOAK	2037	60	600	90%	10,050
Intermittent, Renewable and Energy Storage						
Onshore Wind, Eastern Region	6.0 MW WTG, 117-m HH	2029	30	198	30% - 35%	N/A
Solar PV	150 MWac / 200 MWdc	2029	30	150	22% - 28%	N/A
Solar PV + BESS	150MW PV, 50MW BESS	2030	30 PV 20 BESS	150 PV 50 BESS	22% - 28% PV 16.7% BESS	N/A
BESS; Li-Ion (4-hour)	50 MW / 200 MWh	2030	20	50	17%	N/A
BESS; Li-Ion (6-hour)	50 MW / 300 MWh	2032	20	50	25%	N/A
BESS; Li-Ion (8-hour)	50 MW / 400 MWh	2032	20	50	33%	N/A
BESS; Iron-Air (100-hour)	20 MW / 2,000 MWh	2035	20	20	15%	N/A

Resource Availability - RFP & PJM Queue

- Wind - Availability is limited in PJM and largely derived from projects outside of the AEP PJM zone. Modeled build limits are based on the practical availability of wind resources in the queue and limited wind responses observed in I&M RFPs.

- Storage - Few projects are available before 2029 as evidenced by recent RFPs, with opportunities expanding in later queue cycles.

- Solar - Build limits are based on insight from recent RFPs and the PJM queue.

- Removal of tax credits post 2029/30 will impact solar and wind availability and pricing.

Generic Supply-Side Build Constraints

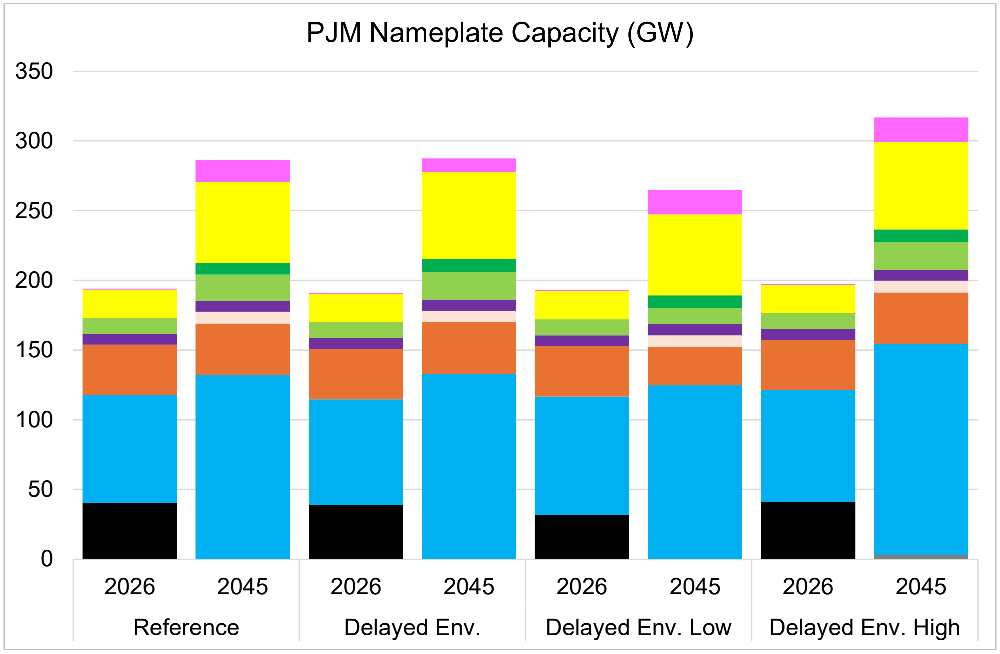
Key Supply-Side Resource Option Assumptions					
Technology	**Case Description**	**First Available Year**	**Useful Life (yr)**	**Block Size (Nameplate) (MW)**	**Annual Limits (MW/yr)**
Base Load					
Combustion Turbine - 2x1 Combined Cycle, Carbon Capture	Frame CT, H-Class, 95% Carbon Capture	2035	30	1,077	1,077
SMR, Greenfield	1 x 300 MW BWR, FOAK	2033	60	300	600
SMR, Greenfield	2 x 300 MW BWR, NOAK	2037	60	600	600
Intermittent, Renewable and Energy Storage					
Onshore Wind, Eastern Region	6.0 MW WTG, 117-m HH	2029	30	100	200
Solar PV	150 MWac / 200 MWdc	2029	30	100	400
Solar PV + BESS	150MW PV, 50MW BESS	2030	30 PV 20 BESS	150 MW 200 MWh	150 MW 200 MWh
BESS; Li-Ion (4-hour)	50 MW / 200 MWh	2030	20	50 MW / 200 MWh	2030/2031: 150 MW 2032+: 200 MW
BESS; Li-Ion (6-hour)	50 MW / 300 MWh	2032	20	50 MW / 300 MWh	2 x 50MW every 1 year
BESS; Li-Ion (8-hour)	50 MW / 400 MWh	2032	20	50 MW / 400 MWh	1 x 50MW every 1 year
BESS; Iron-Air (100-hour)	20 MW / 2,000 MWh	2035	20	5 MW / 500 MWh	1 x 5MW every 5 years

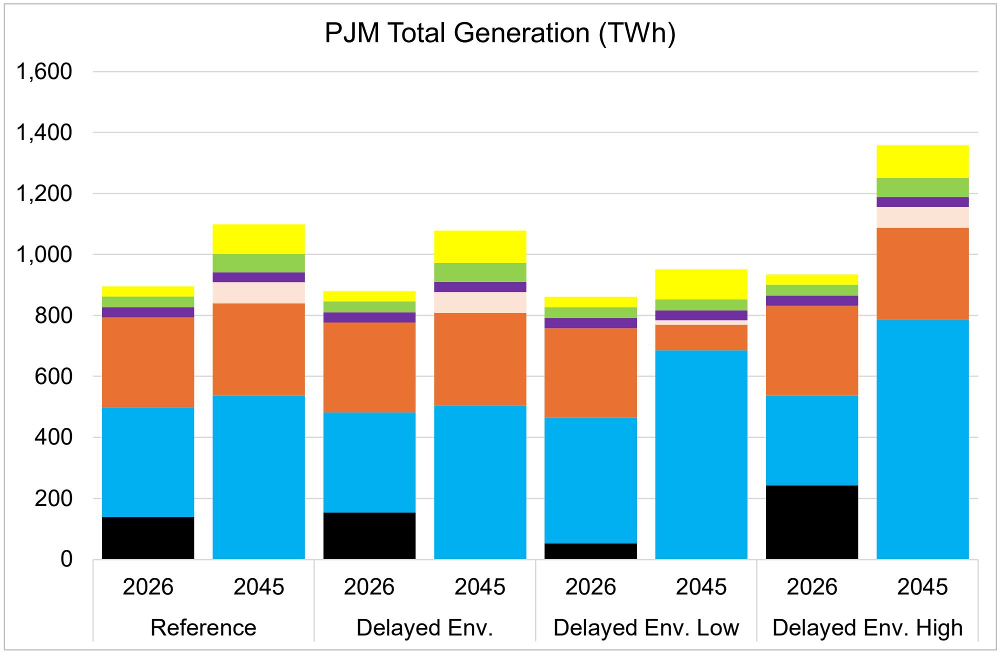
Fundamentals Scenario Information

Key Differences Between Reference & Delayed Environmental Scenarios	
Reference Scenario (Current Law)	**Delayed Environmental Scenario**
EPA 111(b) & 111(d) goes into effect in 2032 • Coal units retire • New gas units have annual capacity factor constraints	EPA 111(b) & 111(d) goes into effect in 2042
Modeled gas/solar/wind/storage begins in 2032	Modeled new builds begin in 2030 • 2030: Gas CT, Solar, Storage, Wind • 2031: Gas CC

- The Reference scenario represents strict adherence to current environmental laws and regulations, while the Delayed Environmental scenario assumes a delay in the implementation of certain laws and a streamlined interconnection queue.
- High and low sensitivities around the Delayed Environmental scenario are also presented based on alternative views of load growth and natural gas prices.

PJM Supply Mix Changes

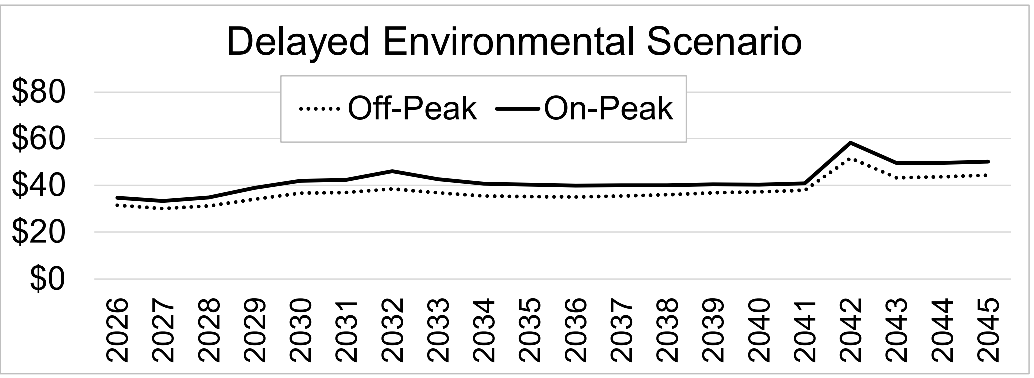


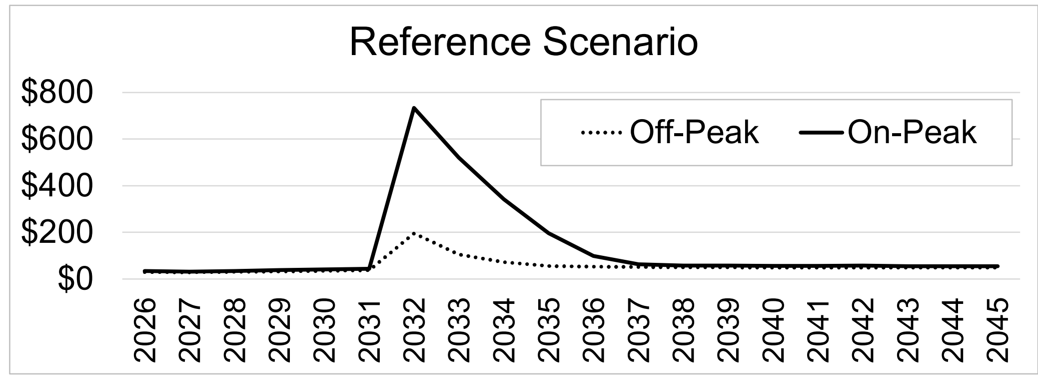


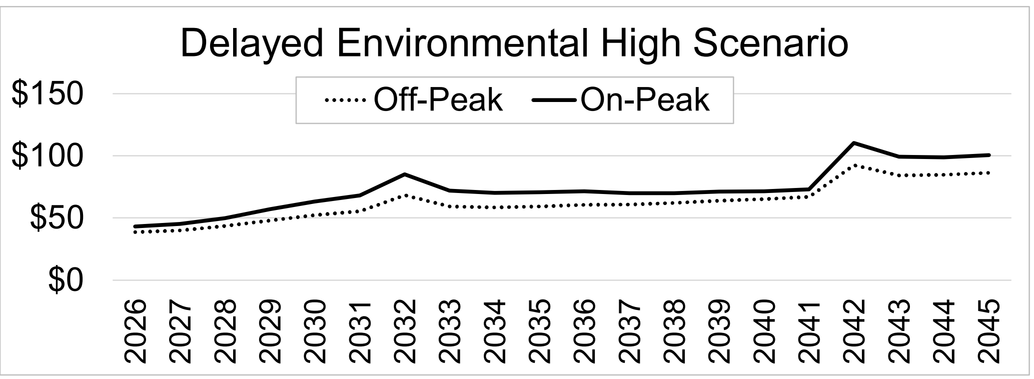
Coal Oil Gas Nuclear SMR Hydro Onshore Wind Offshore Wind Solar Storage

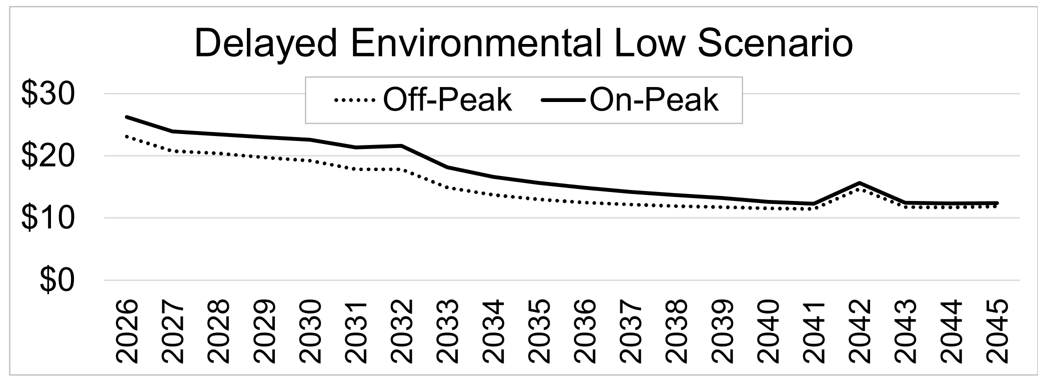
Coal is replaced primarily by natural gas, significant growth in solar generation

PJM AEP Hub Market Prices ($/MWh)



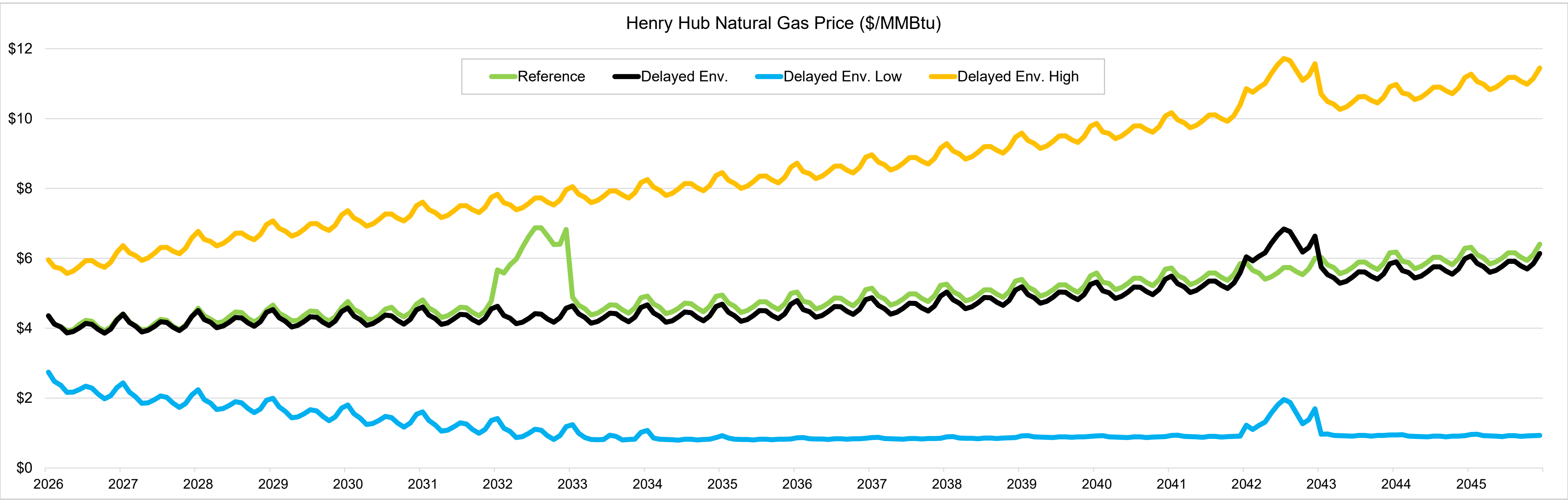






Rapid load growth pushes prices higher in the near term, prices spike when coal retires

Natural Gas Inputs



- In all four scenarios, gas prices spike when coal retires.
- Forecast assumes large consumption increases and corresponding production resiliency due to hyperscale load.

Proposed Scenarios

Scenario	Name	Fundamentals	Load Forecast
A	Delayed Environmental	Delayed Environmental	Base
B	Delayed High Economic Growth	Delayed High	High
C	Delayed Low Economic Growth	Delayed Low	Low
D	Environmental Policy	Current Law	Base

MI IRP Modeling Framework

Inputs

- Fuel and Market Assumptions
- Load Forecast
- Existing Resource Assumptions
- New Resource Cost & Performance

Constraints

- Reliability / Capacity Obligation
- Renewable Energy Requirements
- Clean Energy Requirements
- Storage Target
- License Expiration / Relicensing
- Operational Constraints

→

Optimization Model

PLEXOS

Capacity Expansion & Dispatch Model

Planning Horizon (20 years)

→

Output

Resource Plan

Dispatch
Resource Additions
Resource Retirements
Resource Relicensing
Market Purchases/Sales
System Cost
Reliability Metrics
Emissions

How Policy and Planning Requirements Are Represented

Policy and planning requirements are translated into key modeling constraints that guide portfolio selection in the IRP model.

Key Modeling Constraints:

- **Reliability:** Resulting portfolios must meet energy, peak demand, and capacity obligations.
- **Renewable Portfolio Standard / Clean Energy Standard:** The model enforces applicable policy targets over time.
- **Storage Target:** The model includes the applicable battery storage requirement.
- **License Expiration / Relicensing:** Units with expiring licenses are modeled with retire or relicense decision pathways and associated costs.

Subsequent Renewed Operating License Analysis

INDIANA MICHIGAN POWER
An AEP Company

Cook Nuclear Plant Relicensing Optimization

- Unit 1 Current License Expiration Q4 2034
- Unit 2 Current License Expiration Q4 2037
- Model will optimize the decision to retire or relicense while considering economics and reliability

Costs Considered in Cook Relicensing Analysis

- Estimated in 2025 Dollars.
- Subsequent License Renewal (SLR) Cost: $42.5M
- One-Time inspection Costs after SLR received: $40M
- Dry Cask Fuel Storage Pad Extension Cost: $172M (reflects assumed DOE reimbursement of certain costs)
- Capital Improvement Costs to support an additional 20 years of life: $250M
- On-Going Capital Costs (OGC) and Fixed Operations & Maintenance (FO&M) Cost schedules

Subsequent Renewed Operating License Analysis

Hydro Relicensing Optimization

- Elkhart Current License Expiration Q4 2030
- Mottville Current License Expiration Q4 2033
- Buchanan Current License Expiration Q4 2036
- Twin Branch Current License Expiration Q4 2036
- Model will optimize the decision to retire or relicense while considering economics and reliability.

Costs Considered in Hydro Relicensing Analysis

- Estimated in 2025 Dollars.
- License Renewal Costs: $1.5M for Elkhart, $1.2M for Mottville, $1.2M for Buchanan, $1.2M for Twin Branch
- Decommissioning Costs: $72M for Elkhart, $39M for Mottville, $84M for Buchanan, $106M for Twin Branch
- On-Going Capital Costs (OGC) and Fixed Operations & Maintenance (FO&M) Cost schedules

Proposed Portfolio Performance Indicators

Objective	Objective Description	Performance Indicator(s)	Metric(s) Description
Affordability & Cost-Effective Resource Planning	Ensure the selection of a cost-effective portfolio of supply-side and demand-side resources that minimizes long-term system costs while supporting affordable customer rates.	Net Present Value of Revenue Requirement	Discounted present value of total revenue requirements over the planning horizon
		Rate Impact	Estimated customer rate and bill impacts derived using the Affordability Methodology (Appendix 2) in the Revised Integrated Resource Plan Filing Requirements
Reliability, Resource Adequacy, & System Flexibility	Ensure the electric system can reliably serve customer demand by maintaining adequate planning reserves, managing market and operational risks, and selecting a balanced portfolio of flexible and dispatchable resources.	Planning Reserves	Average planning reserve margin relative to target reserve requirements over the planning horizon
		Energy Market Exposure	Net present value and average volume exposure of market purchases and sales over the planning horizon, expressed in both cost terms and as a percentage of load
		Portfolio Diversity and Resource Flexibility	Portfolio diversity measured using the Herfindahl-Hirschman Index (HHI), along with dispatchable capacity as a percentage of company peak load
Environmental Compliance & Stewardship	Promote resource planning that minimizes environmental impacts, supports compliance with applicable state and federal environmental requirements, and advances long-term environmental stewardship through reductions in air emissions.	Air Emissions	Comparison of annual and cumulative air emissions, including carbon dioxide (CO_2) and criteria pollutants (NO_x, SO_2)
Demand-Side Management Impacts	Quantify the contribution of modeled demand-side resources, including energy waste reduction and demand response, by evaluating annual and cumulative energy savings and associated peak demand reductions.	Annual and Cumulative Demand-Side Resource Savings	Incremental annual and cumulative energy savings (MWh) and peak demand reductions (MW) attributable to demand-side resources

IRP Technical Workshops Timeline

Inputs & Assumptions, Proposed Scenarios, Generation Resource Screening

Modeling Results & Identification of Candidate Portfolios

Candidate Portfolio Risk Analysis & Preferred Portfolio Identification

How to Participate & Stay Informed

Survey/Questionnaire

MI IRP Website

How to contact the MPSC

- **Mail** (be sure to include case number):
  Executive Secretary
  Michigan Public Service Commission
  P.O. Box 30221
  Lansing, Michigan 48909
- **E-mail:** mpscefilecases@michigan.gov


Questions?
INDIANA
MICHIGAN
POWER
An AEP Company