aes Indiana

2025 Integrated Resource Plan

(IRP)

Volume II

October 31, 2025

2025 IRP

Attachment 1-1

(AES Indiana's Non-Technical Summary)

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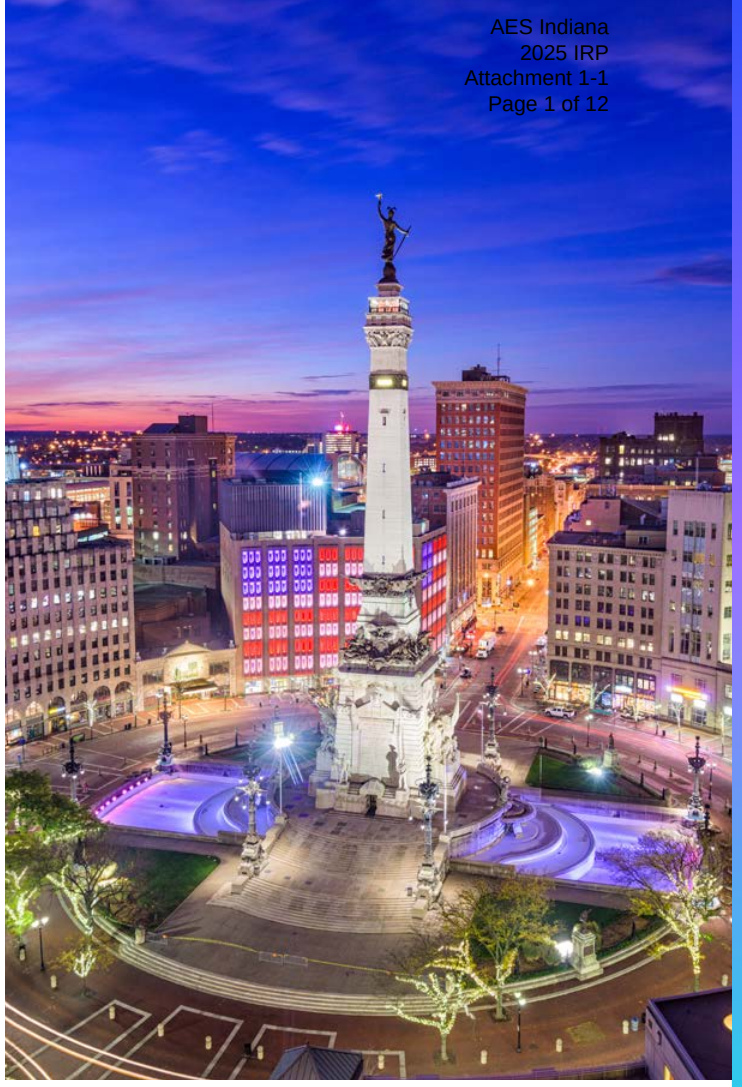
2025 Integrated Resource Plan

(IRP)

Non-Technical Summary

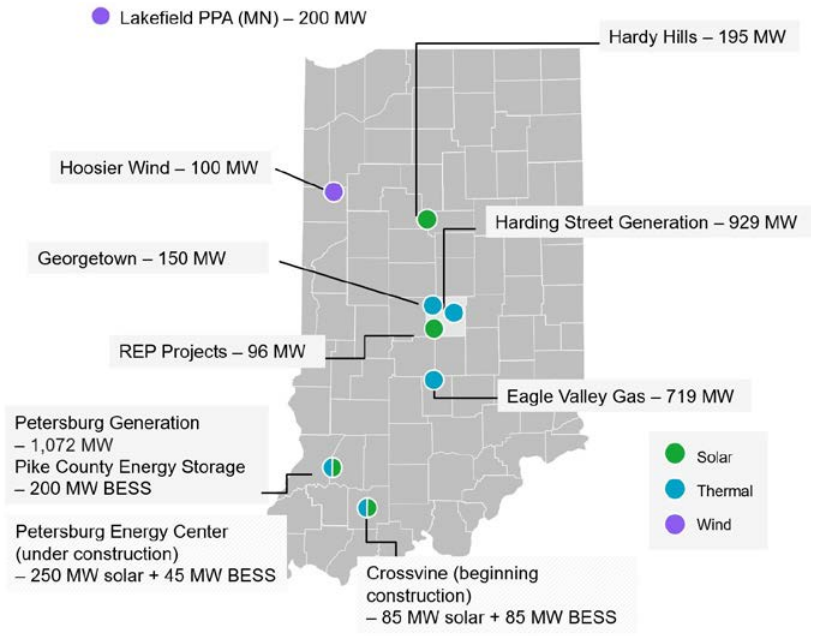


Background

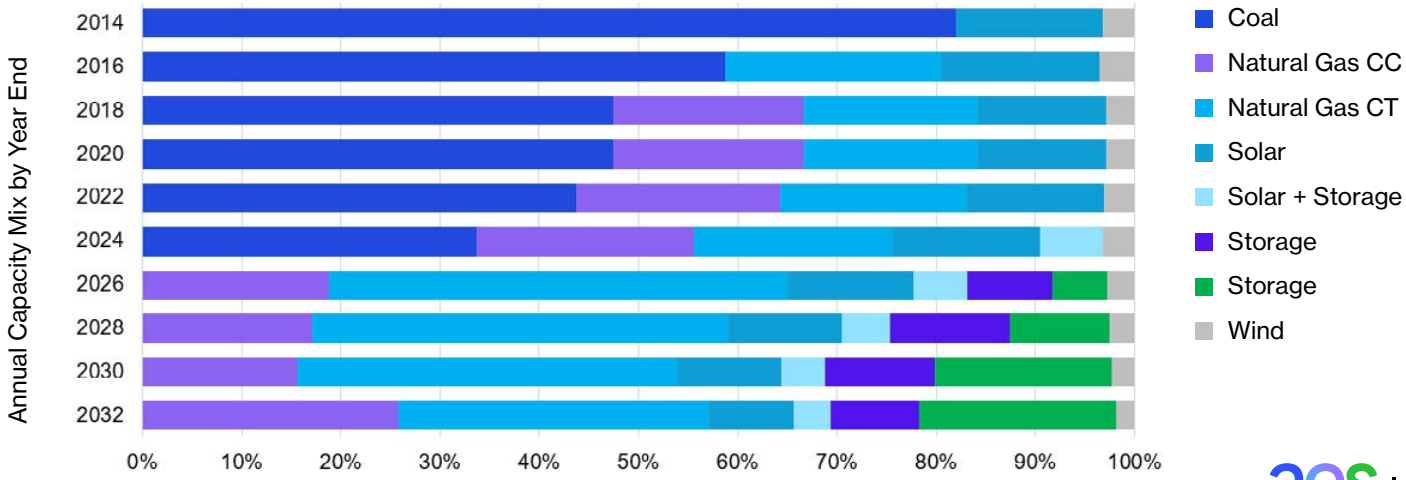
AES Indiana generates, transmits, distributes, and sells electricity to approximately 531,000 retail customers in Indianapolis and neighboring areas up to 40 miles from Indianapolis. AES Indiana's service area covers about 528 square miles. AES Indiana is subject to the regulatory authority of the Indiana Utility Regulatory Commission ("IURC") and the Federal Energy Regulatory Commission ("FERC"). AES Indiana fully participates in the electricity markets managed by the Midcontinent Independent System Operator ("MISO"). AES Indiana is a transmission company member of Reliability First ("RF"). RF is one of eight Regional Reliability Councils under the North American Reliability Corporation ("NERC"), which has been designated as the Electric Reliability Organization under the Energy Policy Act of 2005.

Every three years, AES Indiana submits an Integrated Resource Plan ("IRP") to the IURC in accordance with the provisions in the Indiana Administrative Code ("IAC") (IAC 170 4-7) to describe expected electrical load requirements, potential risks, possible future scenarios, and defines a preferred resource portfolio to meet those requirements over a forward-looking 20-year study period based upon analysis of all factors. This process includes extensive collaboration with stakeholders known as a "Public Advisory" process.

The IRP is viewed as a guide for future resource decisions made at a snapshot in time. Resource decisions, particularly those beyond the five-year horizon, are subject to change based on future analyses and regulatory filings. Any new resource additions, including supply-side and demand-side resources, may require regulatory approval.



Annual Capacity Mix



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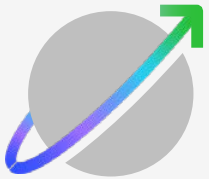
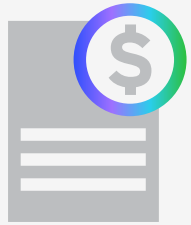
The future of energy is here

AES Indiana is powering an energy transition with a balanced and diverse energy mix with grid capacity, stability, and resiliency.

Reliability



Affordability



Sustainability

Preferred Resource Portfolio and Short-Term Action Plan

AES Indiana's 2025 Integrated Resource Plan was developed in unprecedented times. Because of the rise of large-load customers including data centers, AES Indiana is presenting two preferred portfolios.

- A no data center portfolio designed to service native load growth
- A data center portfolio that will allow AES Indiana to serve data centers should they commit to locating within the AES service territory.

At this time, AES Indiana is experiencing interest from large loads to locate within the AES service territory; AES Indiana has an obligation to serve within its territory, so needs to be prepared to support new loads that want to interconnect into the system. If those new large loads were to locate within the AES Indiana service territory, AES Indiana would have to install additional resources. However, if the loads go elsewhere, then AES Indiana would not install additional resources. As such, AES Indiana created the two portfolios: one to show what is needed no matter the large load integration, and the other to identify what other resources would have to come online to support these large loads. Resource selection will be subject to large load contracting, availability, and cost-benefit analysis.

AES Indiana's Preferred Resource Portfolios and Short-Term Action Plan will:

No data center portfolio

- 118 MW of demand response and energy efficiency by 2028 and 285 MW by 2032

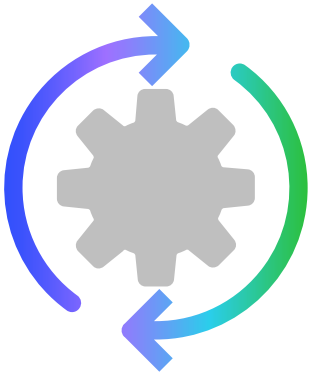
Mid data center portfolio

- Battery storage (40 MW by 2032 and up to additional 820 MW by 2032 if a large-load customer is contracted)
- Natural gas (up to 700 MW if a large-load customer is contracted) by 2032

In our 2025 IRP, several key themes shaped the way AES Indiana approached the development of its preferred plans and supporting analysis:

Long-term planning:

Prepares for the calibration of potential large-load customers with a combination of demand response, energy efficiency, natural gas generation and battery storage

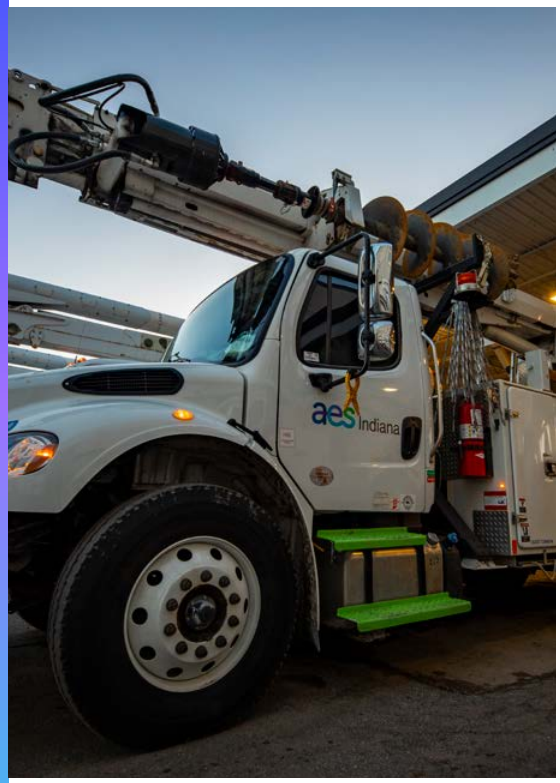


Flexibility and adaptability:

Meets potential new sources of load growth in the AES Indiana service territory while still planning to meet the needs of all AES Indiana customers

Risk and opportunity:

Considers fuel price volatility, regulatory changes, and demand fluctuations



IRP Objective

AES Indiana's 2025 Integrated Resource Plan (IRP) charts a path to best meet the energy needs of our customers for the next 20 years, and it is updated every three years. In Indiana, we have a robust, longstanding framework of the IRP process to ensure our future plans are aligned with the five pillars that are the foundation of our state's energy policy. These pillars include reliability, resilience, stability, affordability, and environmental sustainability. The 2025 plan reflects the increasing demand within the electric industry, the changing needs and behaviors of our customers, and evolving energy pillars and market rules.

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IRP Process

Every three years, AES Indiana submits and Integrated Resource Plan to the IURC in accordance with Indiana Code (IAC 170 4-7). The IRP describes expected electrical load requirements, discusses potential risks, and possible future scenarios. The IRP defines a preferred resource portfolio, or two in the 2025 IRP, to meet those requirements over a forward looking 20-year study period based on analysis of all factors. This process includes extensive collaboration with stakeholders known as the "Public Advisory" process.

Public Advisory Process

AES Indiana hosted four (4) public advisory meetings and four (4) technical meetings to discuss the IRP process with interested parties and solicit feedback from stakeholders. The meeting agendas from each meeting are highlighted here. For all meeting notes, presentations and other materials, see AES Indiana's IRP webpage at aesindiana.com/integrated-resource-plan. AES Indiana incorporated feedback from stakeholders to shape the scenarios, develop metrics, and clarify the data presented. Stakeholder and public input process. Public advisory meetings were held virtually via Microsoft Teams and attended by stakeholders, AES Indiana employees and members of the public.

Public Advisory Meeting #1
January 29, 2025

Materials covered: Overview of IRP process, review of existing AES Indiana resources, load related assumptions

Public Advisory Meeting #2
July 24, 2025

Materials covered: All price assumptions, introduce 2025 IRP analysis portfolio framework, IRP analysis scorecard, reliability analysis

Public Advisory Meeting #3
September 10, 2025

Materials covered: Preliminary results presented

Public Advisory Meeting #4
October 22, 2025

Materials covered: Preferred resource portfolios presented and short term action plan announced

2025 IRP Framework

AES Indiana utilized a portfolio matrix scenario framework that evaluated 4 different levels of large load integration across four unique worldviews, or scenarios.

The four levels of large load integration included the following:

1. No additional load
2. 500 MW by 2035
3. 1,500 MW by 2035
4. 2,500 MW by 2035

The four levels of large load integration were optimized in a model to select new resources in the following scenarios:

1. Reference Case – Today's inflationary markets and environmental policies
2. Gas Infrastructure Challenges – Higher natural gas prices
3. High Regulatory: Environmental – A return to tax credits under the Inflation Reduction Act and restrictions on new natural gas operations under the proposed EPA 111 rules. Higher costs for thermal resources. Higher load as electrification increases. Higher EV and distributed solar adoption
4. Stable Markets Scenario – Capital costs for new resources, natural gas prices, and load decline as markets revert to pre-pandemic trends

This created 16 different portfolios, or resource mixes. Portfolios were run through the scenarios, generating 64 unique model runs.

2025 IRP Candidate Portfolios: Cumulative New Installed Capacity through 2035

		DR	EE	Storage	Gas CCGT	Gas Peaking	Solar	Wind
No Data Center Load	Reference Case Portfolio	223	191	100	0	0	0	0
	Gas Infrastructure Portfolio	223	191	100	0	0	0	0
	High Regulatory Portfolio	223	191	120	0	0	25	900
	Stable Markets Portfolio	87	191	0	0	0	0	0
Low Data Center Load (500 MW)	Reference Case Portfolio	218	191	420	0	480	0	0
	Gas Infrastructure Portfolio	218	191	160	700	0	0	0
	High Regulatory Portfolio	223	191	780	0	0	350	1,350
	Stable Markets Portfolio	218	191	120	0	480	50	0
Mid Data Center Load (1,500 MW)	Reference Case Portfolio	200	191	860	700	480	0	0
	Gas Infrastructure Portfolio	223	191	380	1,400	108	50	0
	High Regulatory Portfolio	223	191	1,840	0	0	1,050	2,750
	Stable Markets Portfolio	223	191	720	0	960	100	0
High Data Center Load (2,500 MW)	Reference Case Portfolio	218	191	640	2,100	294	0	0
	Gas Infrastructure Portfolio	223	191	620	2,800	0	25	0
	High Regulatory Portfolio	223	191	2,480	0	480	1,225	2,800
	Stable Markets Portfolio	218	191	960	700	1,440	100	0

Scorecard Evaluation and Results Summary

AES Indiana created a Scorecard to help evaluate portfolio performance. The Scorecard categories were based on the Five Pillars of Electric Service, as defined by the 21st Century Energy Policy Development Task Force to include affordability, reliability, stability, resiliency, and environmental sustainability. AES Indiana also included metrics for risk and opportunity.

		AFFORDABILITY				RELIABILITY, RESILIENCY, AND STABILITY					RISK & OPPORTUNITY				ENVIRONMENTAL	
Data Center Case	Portfolio	10-Year Levelized Supply Cost	25-Year Supply Cost	10-Year PVRR	25-Year PVRR	Market Purchases + Sales	25-yr energy purchases, % of load	25-yr energy sales, % of load	Dispatchable Capacity, Percent of Peak (2035)	Dispatchable FIRM Capacity , Percent of Peak (2035)	Opportunity (Mean - P5)	Risk (P95-Mean)	Enviro. Scenario Risk	Avg. % Difference from Optimal	Total CO2 Emissions (25-yr)	Carbon Intensity (25-yr avg.)
	Units →	$2026/MWh	$2026/MWh	2026$MM	2026$MM	%	%	%	%	%	%	%	2026$MM	%	Million Tons	lb/MWh
No Data Center Load	Reference Case	$149	$161	$5,126	$10,092	26%	16%	10%	111%	90%	17%	18%	$234	0%	147	772
	Gas Infrastructure Challenges	$149	$162	$5,154	$10,161	21%	13%	8%	111%	90%	17%	18%	$237	4%	146	766
	High Regulatory: Environmental	$156	$188	$5,906	$15,455	25%	11%	14%	111%	91%	7%	9%	$0	52%	99	523
	Stable Markets Scenario	$149	$161	$5,126	$10,070	27%	18%	9%	111%	90%	17%	19%	$57	0%	153	805
Low Data Center	Reference Case	$144	$151	$5,985	$12,654	23%	15%	8%	121%	99%	14%	18%	$239	3%	183	806
	Gas Infrastructure Challenges	$148	$153	$6,400	$13,047	21%	11%	10%	118%	98%	12%	15%	$970	7%	177	777
	High Regulatory: Environmental	$153	$180	$7,099	$19,827	26%	12%	14%	117%	96%	6%	8%	$0	53%	111	486
	Stable Markets Scenario	$145	$151	$6,020	$12,699	23%	15%	8%	119%	97%	15%	18%	$196	1%	194	854
Mid Data Center	Reference Case	$138	$139	$7,971	$18,187	17%	12%	5%	122%	102%	11%	16%	$658	3%	247	812
	Gas Infrastructure Challenges	$139	$140	$8,220	$18,499	17%	10%	7%	117%	99%	11%	15%	$1,217	6%	232	763
	High Regulatory: Environmental	$151	$174	$10,236	$30,040	21%	10%	11%	118%	98%	4%	6%	$0	60%	117	384
	Stable Markets Scenario	$138	$139	$7,967	$18,266	17%	12%	4%	121%	100%	12%	18%	$209	2%	278	914
High Data Center	Reference Case	$134	$132	$9,975	$23,754	15%	10%	5%	118%	102%	11%	15%	$1,434	3%	295	779
	Gas Infrastructure Challenges	$135	$133	$10,132	$24,032	14%	8%	7%	125%	109%	10%	14%	$1,851	5%	292	770
	High Regulatory: Environmental	$145	$164	$12,246	$37,871	18%	10%	8%	120%	99%	4%	7%	$0	52%	149	394
	Stable Markets Scenario	$134	$133	$9,959	$23,990	14%	10%	4%	133%	112%	11%	16%	$590	2%	333	879

Short-Term Action Plans for Preferred Portfolios

		2027	2028	2029	2030	2031	2032
Demand Response	No Data Center Load	44	61	107	130	144	152
	Mid DC Load	44	61	105	124	133	138
Energy Efficiency	No Data Center Load	34	57	78	98	116	133
	Mid DC Load	34	57	78	98	116	133
Battery Storage	No Data Center Load		20	20	20	20	40
	Mid DC Load		200	360	580	860	860
Gas CCGT	No Data Center Load						
	Mid DC Load						700
Gas CT	No Data Center Load						
	Mid DC Load						
Gas Reciprocating Engines	No Data Center Load						
	Mid DC Load						
Solar	No Data Center Load						
	Mid DC Load						
Wind	No Data Center Load						
	Mid DC Load						
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)
	Mid DC Load	2	34	49	48	(0)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44
	Mid DC Load	23	(43)	22	49	48	(50)

Affordability

For the first time, AES Indiana showed two distinct affordability metrics on its scorecard: the present value revenue requirements and a levelized supply cost. While the first metric shows the incremental investment required for each portfolio, discounted over time, the second metric looks at costs spread over load. The more new load on the AES system, the greater the investment required. However, that investment is spread over more sales, which can create downward pressure on total system costs.

Reliability, Resiliency, and Stability

The portfolios were designed to meet capacity and energy reliability requirements. Furthermore, Quanta conducted reliability analysis, which affirmed the reliability of the portfolios.

Risk & Opportunities

AES Indiana hired ACES to conduct stochastic modeling to evaluate risks and opportunities across varying energy prices, gas prices, loads, and renewable output. The Preferred Portfolios balanced risks across these various factors.

Sustainability

The carbon intensity of the preferred portfolios decline over time.

2025 Integrated Resource Plan (IRP)

AES Indiana
One Monument Circle, Indianapolis, Indiana 46204

www.aesindiana.com

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2025 IRP

Attachment 1-2

(AES Indiana's Public Advisory Meeting Presentations)

2025 Integrated Resource Plan (IRP)

Public Advisory Meeting #1

January 29, 2025

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Agenda and introductions

Stewart Ramsay, Managing Executive, Vanry & Associates

Agenda

Time	Topic	Speakers
Morning **Starting at 10:00 AM**	Safety Message and Virtual Meeting Protocol	Claire Rice, Senior Director, Corporate Affairs & Impact, AES Indiana
	Welcome and Overview of AES Indiana	Brandi Davis-Handy, President, AES Indiana
	Overview of IRP & Resource Planning Model	Erik Miller, Director, Resource Planning, AES Indiana
	2022 IRP Recap	Erik Miller, Director, Resource Planning, AES Indiana
	Overview of Existing Resources and Replacement Resource Options	Erik Miller, Director, Resource Planning, AES Indiana
Break 11:45 AM – 12:15 PM	Lunch	
Afternoon **Starting at 12:15 PM**	Data Center Potential	Erik Miller, Director, Resource Planning, AES Indiana
	Baseline Energy and Peak Forecast	Mike Russo, Forecast Consultant, Itron
	Electric Vehicle (EV) and Solar PV Forecasts	Woody Zhu, EV & PV Modeling Forecasting, Carnegie Mellon University
	DSM Market Potential Study Introduction	Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates
	Final Q&A and Next Steps	

IRP team introductions

AES IRP Leadership Team

Brandi Davis-Handy, President, AES Indiana
Guga Garavaglia, Chief Financial Officer, AES US Utilities
Patrick Maguire, Senior Director, Commercial, AES US Utilities

AES Indiana IRP Planning Team

Erik Miller, Director, Resource Planning, AES Indiana
Ryan Yang, Load Forecasting Analyst, AES Indiana
Michael Hardie, Resource Planning Analyst, AES Indiana
Brent Selvidge, Engineer, AES Indiana
Quintin Thompson, DSM Research Analyst, AES Indiana
Chad Rogers, Director, Regulatory Affairs, AES Indiana
Claire Rice, Senior Director of Corporate Affairs and Impact, AES Indiana

AES Indiana IRP Partners

Eric Fox, Director, Forecasting Solutions, Itron
Mike Russo, Forecast Consultant, Itron
Woody Zhu, Assistant Professor of Data Analytics, Carnegie Mellon University
Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates
Jacob Thomas, Project Manager, GDS Associates
Hisham Othman, Senior Vice President, Quanta Technologies
Christina Owens, Director, Resource Planning, ACES
Will Vance, Director, Capacity Markets and Fundamental Analysis, ACES
Stewart Ramsey, Managing Executive, Vanry & Associates

AES Indiana Legal Team

Nick Grimmer, Indiana Regulatory Counsel, AES Indiana
Teresa Morton Nyhart, Counsel, Taft Law

Virtual meeting protocols and safety

Claire Rice, Senior Director, Corporate Affairs and Impact, AES Indiana

Safety message for virtual meetings

Space heater safety tips

- → Always place a space heater on a hard, level surface.
- → Keep your heater at least three feet away from anything flammable.
- → Never leave a space heater running when a room is unoccupied.
- → Only plug your space heater directly into a wall outlet. Never use an extension cord or power strip.
- → Don’t place space heaters under desks or areas with little ventilation.

Virtual meeting protocol

Questions

→ Your candid feedback and input is an integral part to the IRP process.

→ Questions or feedback will be taken at the end of each section.

→ Feel free to submit a question in the chat function at any time and we will ensure those questions are addressed.

Audio

→ All lines are muted upon entry.

→ For those using audio via Teams, you can unmute by selecting the microphone icon.

→ If you are dialed in from a phone, press *6 to unmute.

Video

→ Video is not required; however, if your camera is on, please refrain from distractions.

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Welcome & overview of AES Indiana

Brandi Davis-Handy, President, AES Indiana

The future of energy is here.

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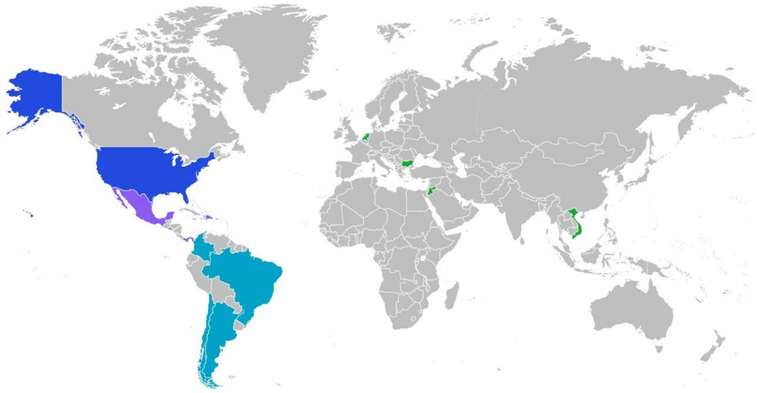
AES overview: Global Scale



36,740 MW

Gross MW in operation*

*25,159 proportional MW (gross MW multiplied by AES' equity ownership percentage).

3,978 MW

Generation capacity under construction or with signed PPAs

$45 billion

Total assets owned & managed

4 Continents

12 Countries

6 Utility companies

2.6 million

Customers served

9,600 people

Our global workforce

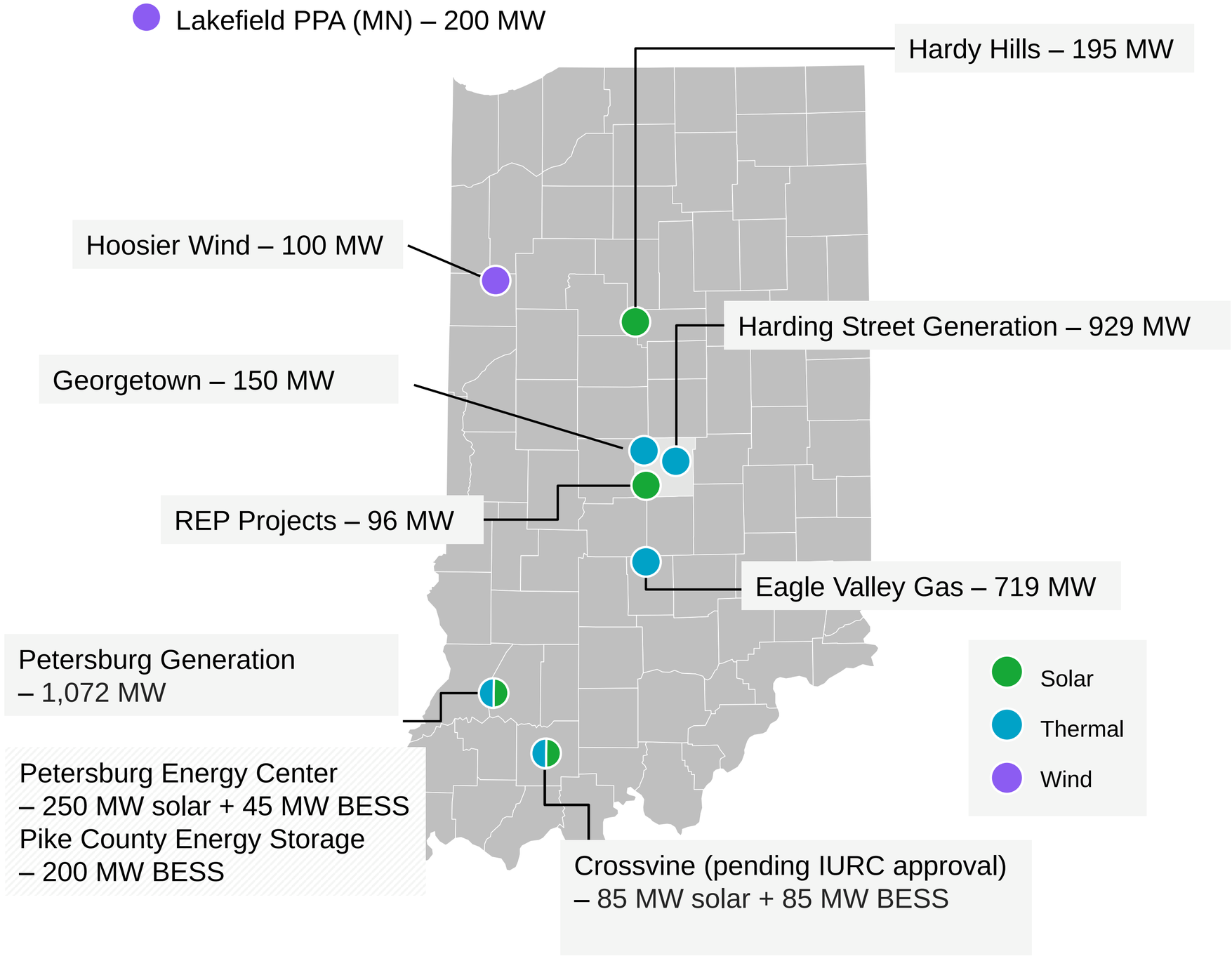
Recognized for our commitment to sustainability

AES Indiana

528
square miles

530,000
customers

3,956
MW of Generation



AES Indiana overview: Local impact

Customer centricity

Create exceptional customer-focused experiences

Economic and community development

Community investments improving quality of life

Sustainability

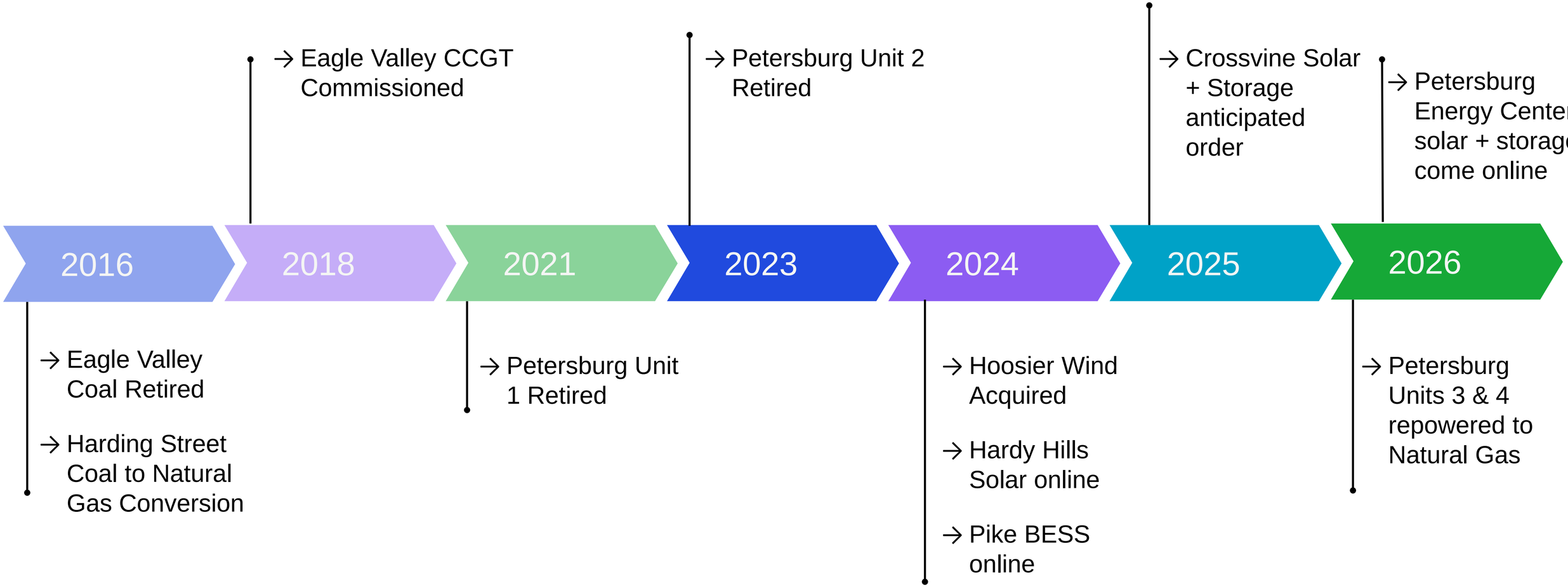
Transforming to cleaner, greener technologies

Reliability

Modernizing our grid

Accelerating the future of energy, together

Accelerating our Energy Transition



Overview of IRP & resource planning model

Erik Miller, Director, Resource Planning, AES Indiana

What is an Integrated Resource Plan?

Integrated Resource Plan (IRP) in Indiana > 170 IAC 4-7-2

→ 20-year look at how AES Indiana will serve load

→ Submitted every three years

→ Plan created with stakeholder input

→ Modeling and analysis culminates in a preferred resource portfolio and a short-term action plan

What is a preferred resource portfolio?

→ The term ‘preferred resource portfolio’ means the utility's selected long term supply-side and demand-side resource mix that safely, reliably, efficiently, and cost-effectively meets the electric system demand, taking cost, risk, and uncertainty into consideration.” IAC 4-7-1-1-cc

Stakeholders are critical to the process.

AES Indiana is committed to providing an engaging and collaborative IRP process for its stakeholders:

→ **Five Public Advisory Meetings** for stakeholders to engage throughout the process

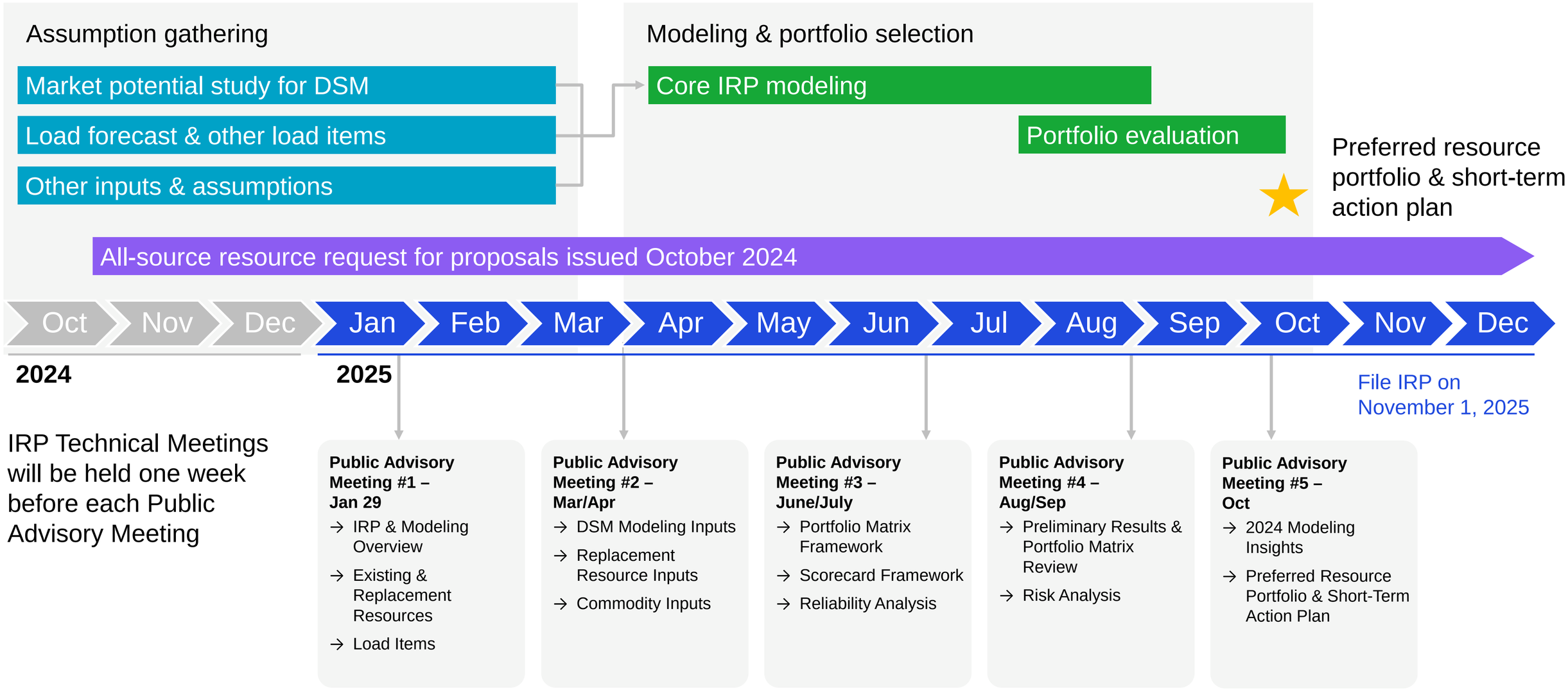
→ **Five Technical Meetings** available to stakeholders with nondisclosure agreements (NDA) for deeper analytics discussion

→ **Planning documents and modeling materials** will be shared with stakeholders with NDAs upon request

→ After full consideration of stakeholder input, the **Preferred Resource Portfolio** will be announced in Q4 of 2025.

IRP rules link: http://iac.iga.in.gov/iac/iac_title?iact=170&iaca=&submit=+Go Article 4. 170 IAC 4-7-2

2025 IRP Timeline



2025 IRP Process Roadmap

Assumption Gathering

Load Forecast
- → Itron SAE Modeling Approach
- → Base, High and Low Load Scenarios
- → Customer EV & DG Scenarios

DSM Market Potential Study
- → End Use Analysis of Efficiencies
- → Develop Tech, Economic & Achievable Potentials
- → Create DSM Inputs for EnCompass

Costs for New Resources
- → RFP issued October 2024
- → RFP Results used to inform new Resource Costs

Other Inputs & Assumptions
- → Discount Rate
- → Commodity Prices
- → MISO Resource Accreditation & PRMs
- → Modeling Parameters & Constraints

Distribution System Plan
- → Circuit Level Analysis
- → Assess EV, DG & DER Impacts
- → Non-wires Alternatives

Modeling & Portfolio Selection

Capacity Expansion Modeling
- → Portfolio Optimization & Retirement and Replacement Analysis

Production Cost Modeling, Stochastic Analysis & PVRR
- → Portfolio Dispatch Analysis & calculation of PVRR
- → Risk Analysis

Portfolio Evaluation & Scorecard
- → Evaluation of the Scorecard & the Five Pillars
- → Identify Preferred Resource Portfolio

2025 IRP Contributors:

- → **ACES** – Stochastic Analysis & Fundamental Market Curves
- → **GDS** – DSM Market Potential Study
- → **Itron** – Load Forecasting
- → **Carnegie Mellon University** – Customer Electric Vehicle & Solar Forecasts
- → **Quanta** – Reliability Analysis

IRP Submitted Nov. 1, 2025

IRP-related Filings
- → Certificate of Public Convenience and Necessity (CPCN)
- → Demand Side Management Plan

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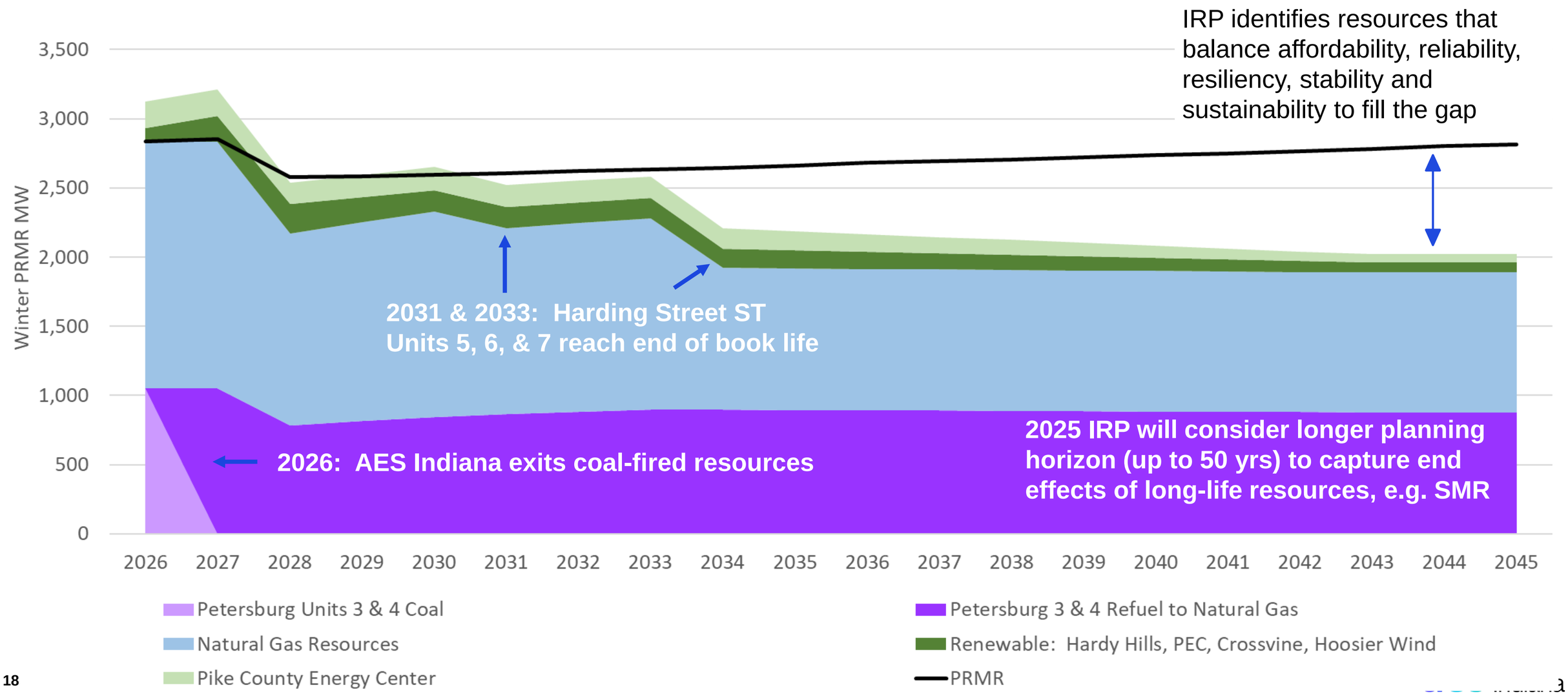
How exactly does IRP modeling work?

We are using the “Five Pillars” to identify resources to fill in any generation shortfalls that we have during the planning period.



IRP scorecard analysis & components

Scorecard that evaluates the portfolios using the Five Pillars of Utility Electric Service to select the Preferred Resource Portfolio

→ Scorecard analysis will be performed on the Base Case set of portfolios

→ Scorecard categories align with the Five Pillars of Utility Electric Service as required by statute
- Affordability
- Environmental Sustainability
- Reliability
- Resiliency
- Stability

→ Additional categories that measure the Risk & Opportunity and Economic Impact included to comply with IURC rules

→ Scorecard evaluation used to select the Preferred Resource Portfolio and Short Term Action Plan

Category	Metric	Description
Affordability	30- to 50-yr PVRR & 10-yr PVRR	Longer planning period to capture end effects from long life tech (SMR)
Environmental Sustainability	CO2 emissions	Total CO_2 emissions over planning period
	SO2 emissions	Total SO_2 emissions over planning period
	NOx emissions	Total NOx emissions over planning period
	Water user	Total water use over planning period
	Coal Combustion Products (CCP)	Total CCP emissions over planning period
	Clean energy progress	% of clean energy in portfolio by 2024
Reliability, Resiliency & Stability	Reliability score	Quanta Technology will perform reliability analysis on candidate portfolios
Risk & Opportunity	General cost opportunity **Stochastic analysis**	P5 (Mean – P5)
	General cost risk **Stochastic analysis**	P95 (P95 – Mean)
	Market exposure	20-yr sales & purchases
Economic impact	TBD	TBD

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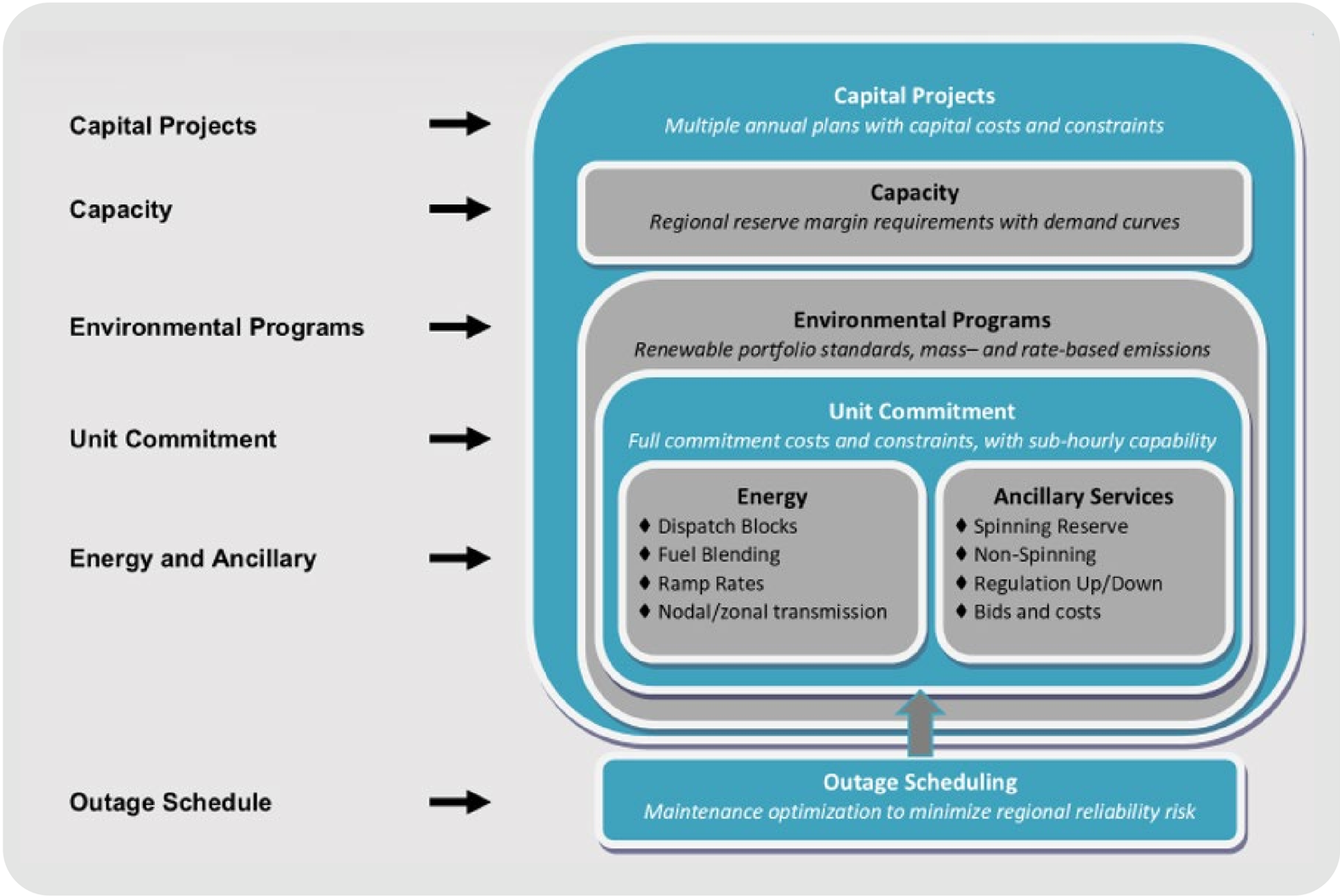
EnCompass Overview

- → EnCompass models thermal, renewable, storage, nuclear and load resources with hourly granularity.
- → Model will be used for capacity expansion analysis to make long-term resource decisions based on scenario input assumptions.
- → EnCompass will calculate the present value revenue requirement of each portfolio.
- → Through the use of stochastic analysis, EnCompass will be used to understand the risk associated with portfolios.

Encompass power planning software



Advantages of EnCompass

Key Advantages of Utilizing EnCompass

- → Quick run times
  - → Allows for robust scenario analysis
  - → Provides expedient model feedback
- → Straightforward capacity expansion
  - → Deterministic capacity expansion allows for more intuitive cause and effect results
- → User control of modeling parameters
  - → MIP Stop Basis is a user input for capacity expansion
  - → Stochastic draws can be specified by user
- → Model Transparency
  - → Complete models can be fully shared with other EnCompass users
  - → Spreadsheet files can be shared with non-users

2022 IRP recap

Erik Miller, Director, Resource Planning, AES Indiana

2022 IRP – Short-term action plan

AES Indiana's short-term action plan balances reliability, affordability and sustainability by:

Repowering coal-fired generation

Repowering coal-fired generation in 2025/2026 after repowering Petersburg Units 3 and 4 to natural gas

Adding renewable generation

Add renewable generation for capacity and energy, which includes:

- → 200 MW ICAP of battery energy storage at Petersburg to fill winter capacity position in 2025
- → Additional wind and solar as energy replacement for Petersburg

Implementing 3-year DSM action plan

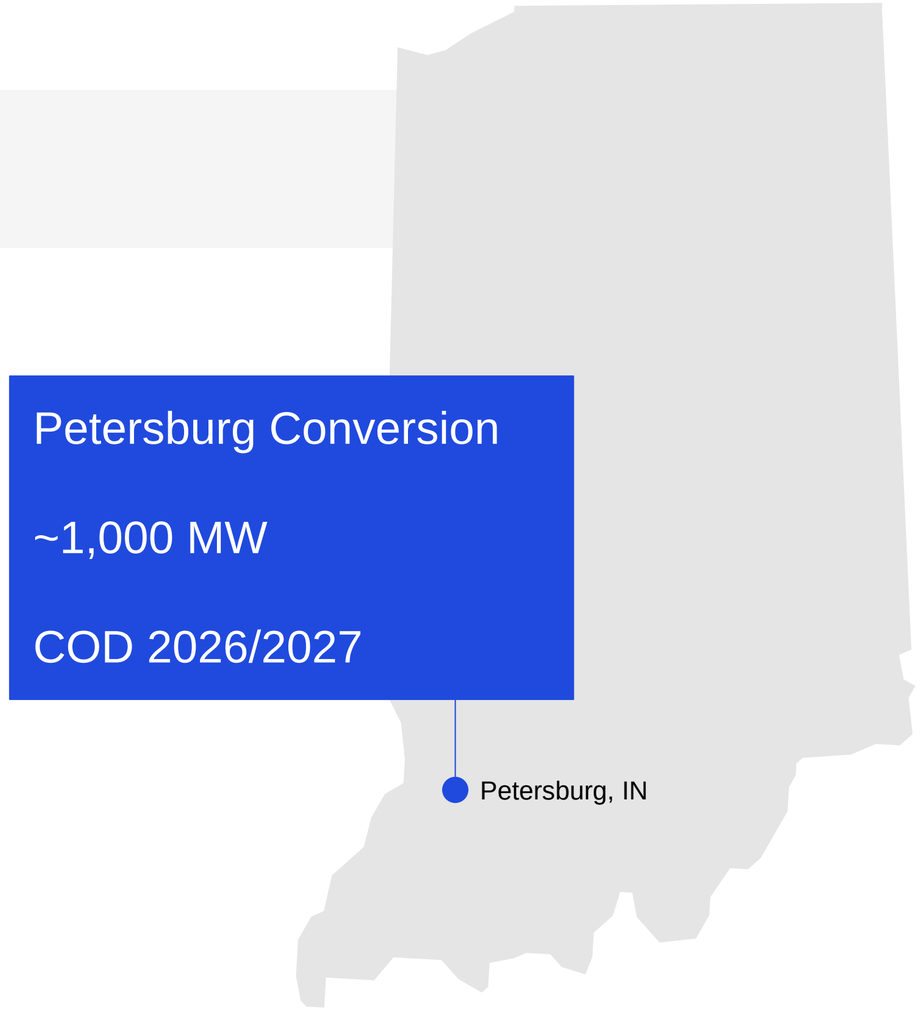
Implementing three-year DSM action plan that targets an annual average of 130,000 – 134,000 MWh of energy efficiency (approximately 1.1% of 2021 sales) and three-year total of 53 MW summer peak impacts of demand response

Petersburg repowering of Units 3 & 4

Project Information

- → Type: Steam turbine units repowered from coal-fired to gas-fired operation
- → Size: Approximately 1,000 MW of capacity maintained
- → COD: Unit 3 in 2026 first half, Unit 4 in 2026 second half
- → Location: Petersburg, IN
- → Project Manager: Internal with EPC contractor

Repowering Petersburg Units 3 & 4 from coal- to gas-fired operation will maintain the capacity value of units.



Pike County Battery Energy Storage System

Project Information

→ Type: Battery Energy Storage System (BESS)

→ Size: 800 MWhac BESS (200 MWac, 4-hour discharge power capacity)

→ COD: 2025

→ Location: Pike County, IN

→ Developer: Internal with EPC contractor

Pike County BESS will initially contribute 190 MW of capacity in each season to AES Indiana's portfolio.

Crossvine Solar + BESS

Project Information

→ Type: Solar and battery energy storage facility

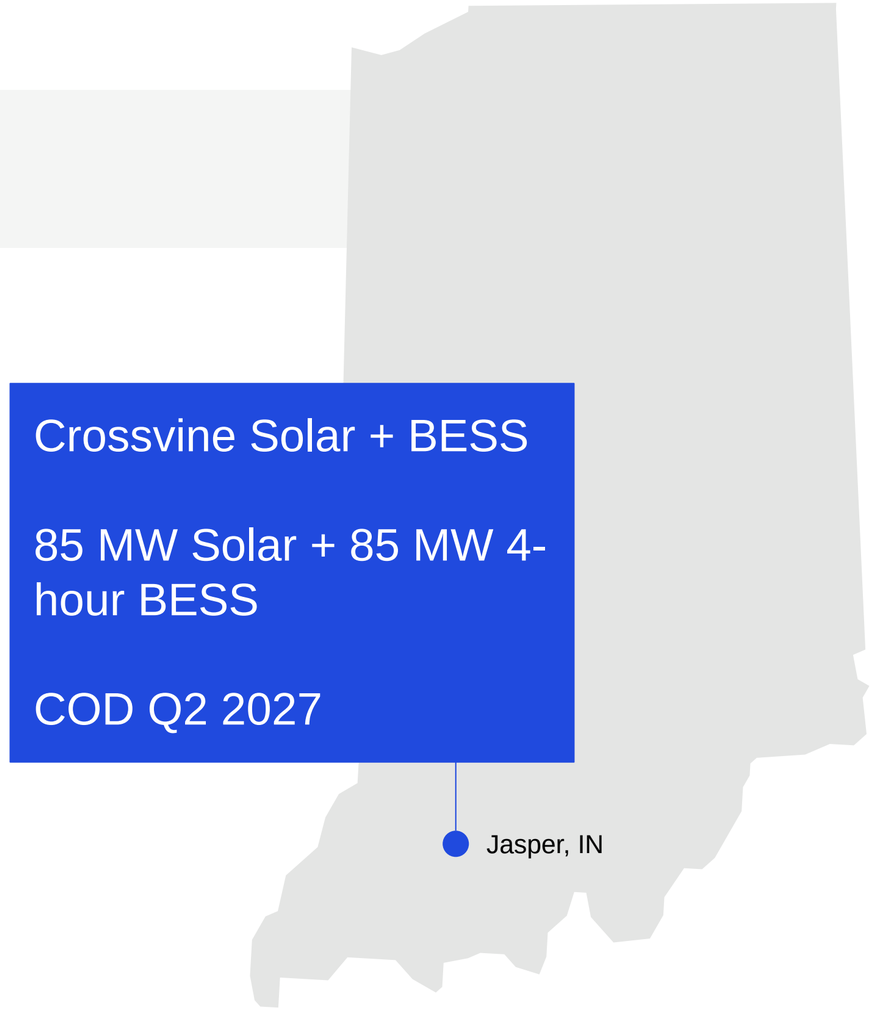
→ Size: 85 MWac ICAP coupled with a 340 MWh DC battery energy storage system (85 MWac, 4-hour discharge power capacity)

→ COD: Q2 2027

→ Location: Dubois County, IN

→ Developer: BP Lightsource

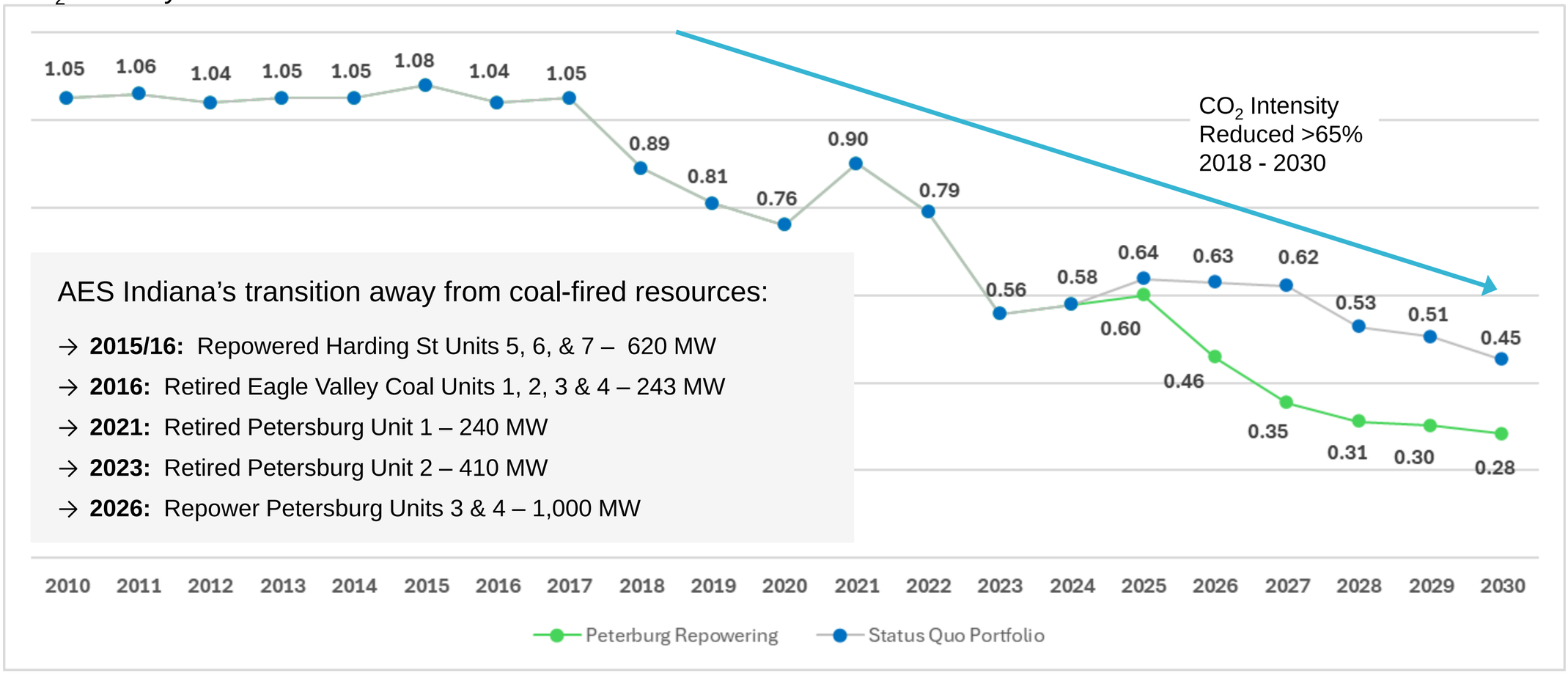
Crossvine will initially contribute 80 MW of winter capacity to AES Indiana's portfolio.



Portfolio changes will reduce carbon intensity by over 65% by 2030.

After repowering Petersburg Units 3 & 4 in 2026, AES Indiana will no longer have coal-fired resources in its fleet.

CO_2 intensity associated with AES Indiana fleet emissions



AES Indiana's transition away from coal-fired resources:

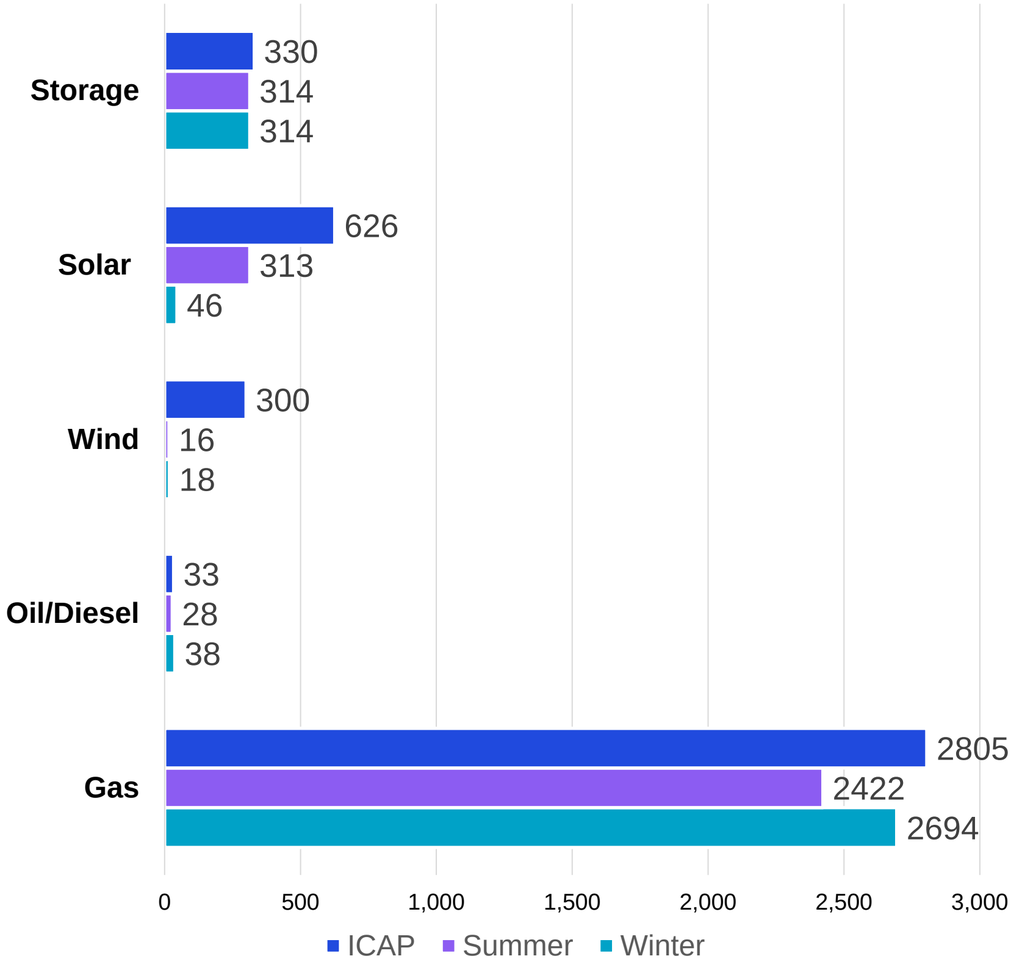
- → **2015/16:** Repowered Harding St Units 5, 6, & 7 – 620 MW
- → **2016:** Retired Eagle Valley Coal Units 1, 2, 3 & 4 – 243 MW
- → **2021:** Retired Petersburg Unit 1 – 240 MW
- → **2023:** Retired Petersburg Unit 2 – 410 MW
- → **2026:** Repower Petersburg Units 3 & 4 – 1,000 MW

Overview of existing resources

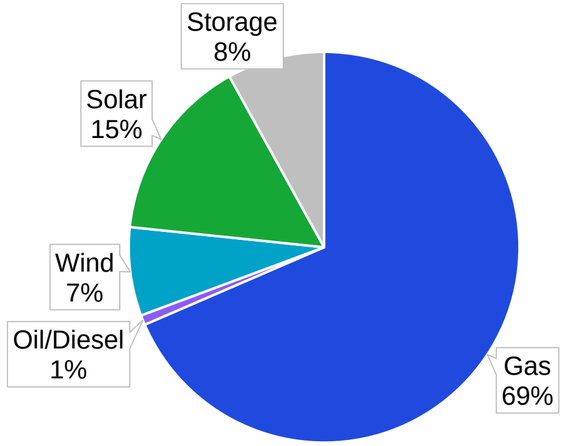
Erik Miller, Director, Resource Planning, AES Indiana

AES Indiana current generation mix

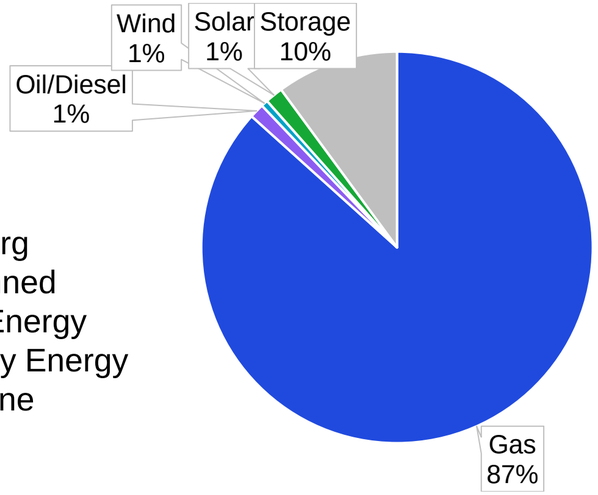
Resources – ICAP, Summer & Winter Accreditation (MW)*



ICAP (MW)*



Winter Accreditation (MW)*



***Includes Petersburg Repowering & planned generation: Pete Energy Center, Pike County Energy Storage, & Crossvine**

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Petersburg 3 & 4 repowering

- **Petersburg Units 3 & 4** will be repowered from using coal to using natural gas for fuel during 2026; Unit 3 repowering in the first half 2026 and Unit 4 repowering in second half.
- **MISO capacity accreditation** of the repowered units is expected to remain approximately one-for-one post conversion.
- Table includes estimated accreditation using current MISO methodology and does not reflect future accreditation changes from MISO.

Coal Units	Technology	ICAP (MW)	Summer Accreditation (MW)	Winter Accreditation (MW)	In-Service Year	Estimated Last Year In-Service
Petersburg						
Pete ST 3 Coal	Coal ST (2025)	532	465	526	1977	2026
Pete ST 4 Coal	Coal ST (2025)	538	466	524	1986	2026
Pete ST 3 Gas	Gas Steam Turbine (Conversion in 2026)	532	465*	526*	1977	2042
Pete ST 4 Gas	Gas Steam Turbine (Conversion in 2026)	538	466*	524*	1986	2042
	Total Gas:	1070	931	1050		
	Total Coal:	1070	931	1050		

*Capacity accreditation expected to improve slightly after repowering due to improvement in auxiliary load of the units.

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Existing gas resources

	ICAP (MW)	Summer (MW)	Winter (MW)
CCGT	682	667	556
CT	436	414	511
ST	1688	1342	1627

→ Table includes estimated accreditation using current MISO methodology and does not reflect future accreditation changes from MISO.

Gas Units	Technology	ICAP (MW)	Summer Accreditation (MW)	Winter Accreditation (MW)	In-Service Year	Estimated Last Year In-Service
Eagle Valley						
EV CCGT	Combined Cycle Gas Turbine	682	667	656	2018	2055
Harding Street						
HS ST 5	Gas Steam Turbine	96	80	106	1958	2030
HS ST 6	Gas Steam Turbine	102	96	77	1961	2030
HS ST 7	Gas Steam Turbine	420	236	395	1973	2033
HS CT 4	Combustion Turbine	73	70	77	1994	2044
HS CT 5	Combustion Turbine	75	69	85	1995	2045
HS CT 6	Combustion Turbine	146	142	178	2002	2052
HS GT1 & GT2	Oil/Diesel	33	28	38	1973	TBD
Georgetown						
GTOWN GT1	Combustion Turbine	72	69	86	2000	2050
GTOWN GT4	Combustion Turbine	69	65	86	2001	2052
	Total Gas:	2805	2422	2694		
	Total Oil:	33	28	38		

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Existing & planned renewable resources

Renewables & BESS	Technology	ICAP (MW)	Summer Accreditation (MW)	Winter Accreditation (MW)	In-Service Year	Estimated Last Year In-Service
Hardy Hills Solar						
Hardy Hills Solar	Solar	195	98	10	2023	TBD
Petersburg Energy Center Solar + Storage						
PEC Solar	Solar + BESS	250	125	13	2025	TBD
PEC BESS	Solar + BESS	180 MWh, 45 MW 4-hr	43	43	2025	TBD
Pike County Energy Storage						
Pike County BESS	BESS	800 MWh, 200 MW 4-hr	190	190	2025	TBD
Crossvine Solar + BESS						
Crossvine Solar	Solar	85	43	4	2027	TBD
Crossvine BESS	BESS	340 MWh, 85 MW 4-hr	81	81	2027	TBD
Hoosier Wind						
Hoosier Wind (IN)	Wind	100	16	18	2011	2031
PPAs						
Lakefield Wind (MN)	PPA	200	0	0	2009	2029
Rate (REP Solar)	PPA	96	48	19	Varies	Varies
	Total:	**1256**	**1034**	**833**		

- → **Lakefield Wind** has no firm transmission and therefore receives no capacity credit from MISO to AES
- → **Rate REP solar** receives no capacity credit from MISO; rather it serves as a reduction to load in the PRA
- → **UCAP values** are based on current MISO capacity credit levels for renewable resources. These values will likely fall over time as renewable penetration increases within MISO.
- → Table includes estimated accreditation using current MISO methodology and does not reflect future accreditation changes from MISO.

ICAP (MW)	ICAP (MW)	Summer (MW)	Winter (MW)
Wind	300	16	18
Solar	626	313	46
Storage	330	330	330

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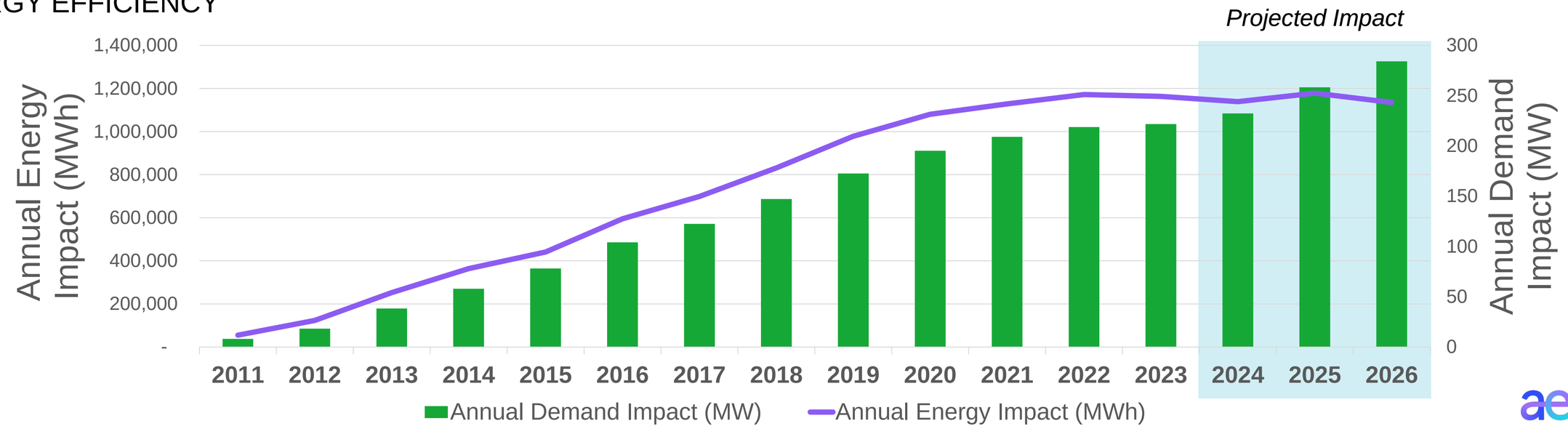
Existing DSM Resources

DEMAND RESPONSE

Load Modifying Resources	24-25 Summer Capacity Value (MW)
Air Conditioner Load Management (ACLM)	43.1
Rider 17	1.8
Rider 14	8.9

- → Avg annual incremental program savings of 1.1% per year of 2024 sales
- → Savings of approximately 8.4% of 2024 sales from measures installed to date
- → 11 DSM programs planned for 2025 and 2026

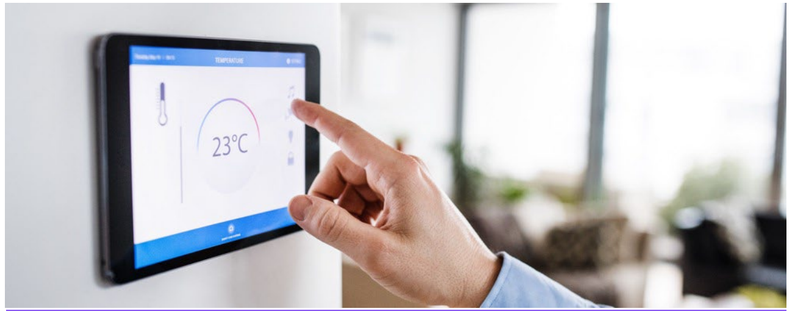
ENERGY EFFICIENCY



Replacement resource options

Erik Miller, Director, Resource Planning, AES Indiana

Commercially available replacement resources



DSM/EE

→ EE & DR measures bundled into tranches for planning model selection

Wind

→ Land-based wind

Solar

→ Utility-scale

Storage

→ Stand alone front-of-meter
→ Long duration storage
→ Solar + storage

Natural gas

→ CCGT
→ CT
→ Reciprocating Engine

Nuclear

→ Small Modular Reactors
→ Advanced Reactors

Data center potential

Erik Miller, Director, Resource Planning, AES Indiana

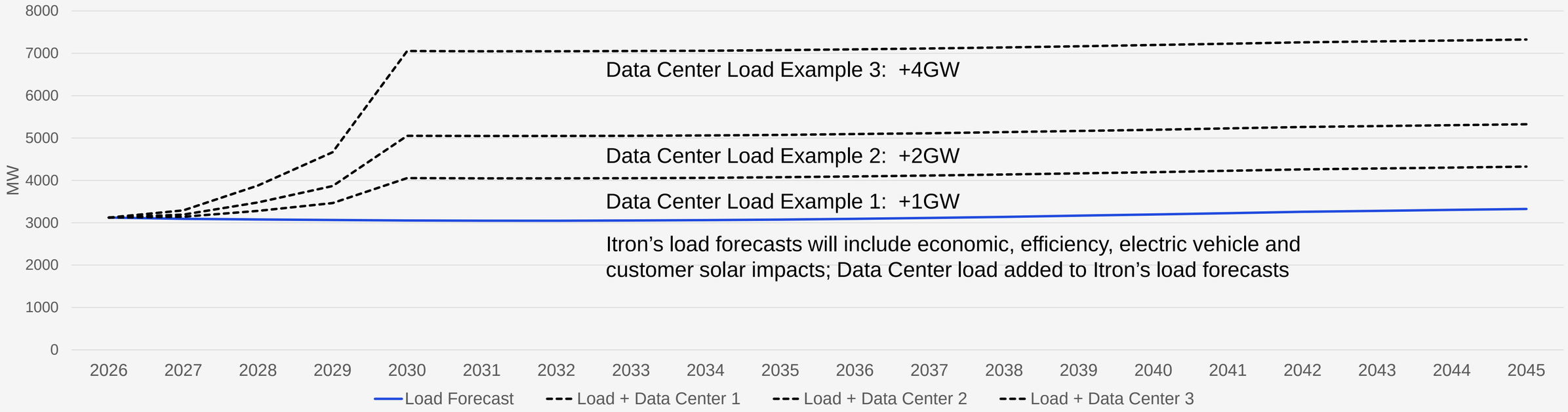
Data center load potential

AES Indiana will consider data center load scenarios in the 2025 IRP of up to 4GW by the mid-2030s.

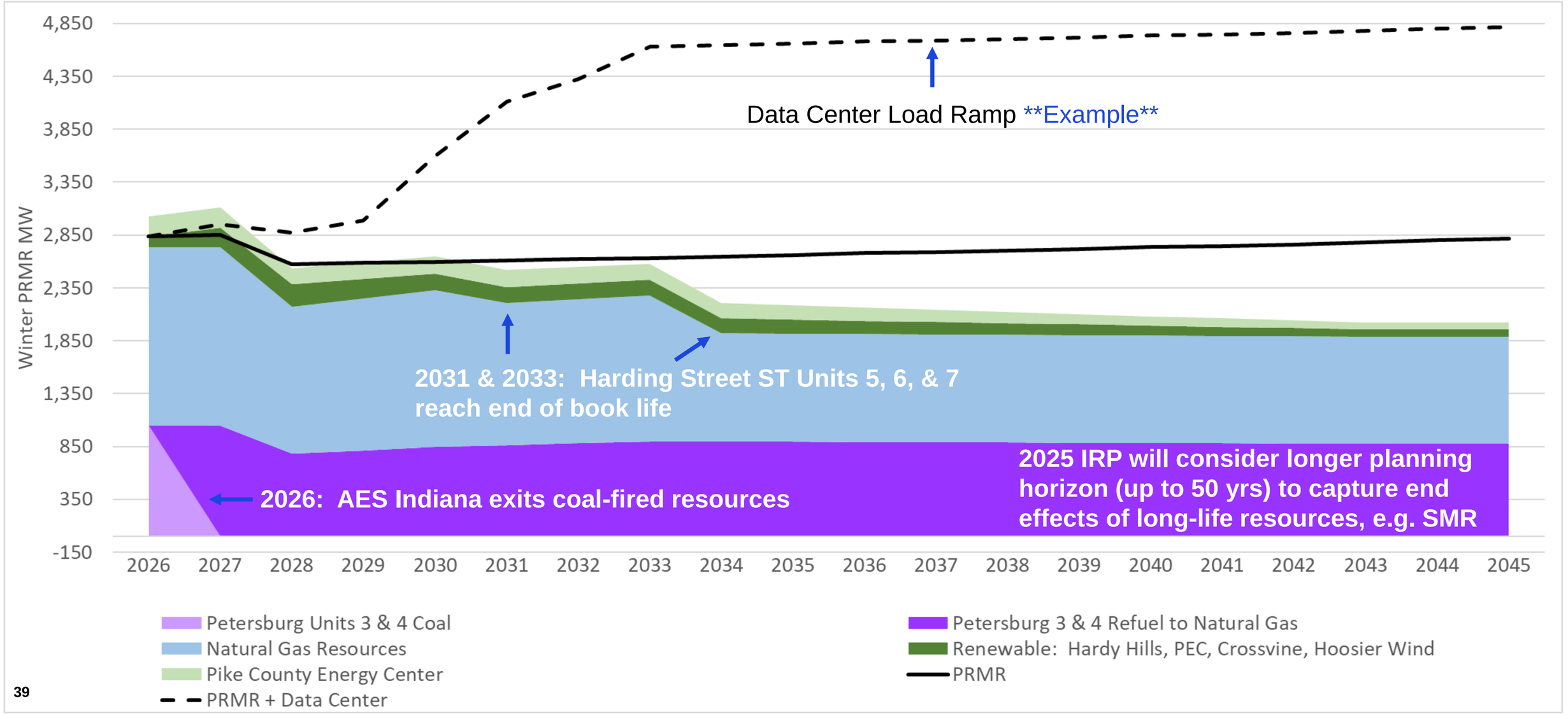
Data Center Load will be added to the load forecasts provided by Itron and considered in the IRP Scenario Analysis.

Still *to be determined* if Base/Reference Case Scenario will include data center load potential. Regardless, **AES Indiana will include a no data center load scenario as one of the scenarios in the IRP Scenario Analysis.**

Example load scenarios:



Starting IRP portfolio with data center example

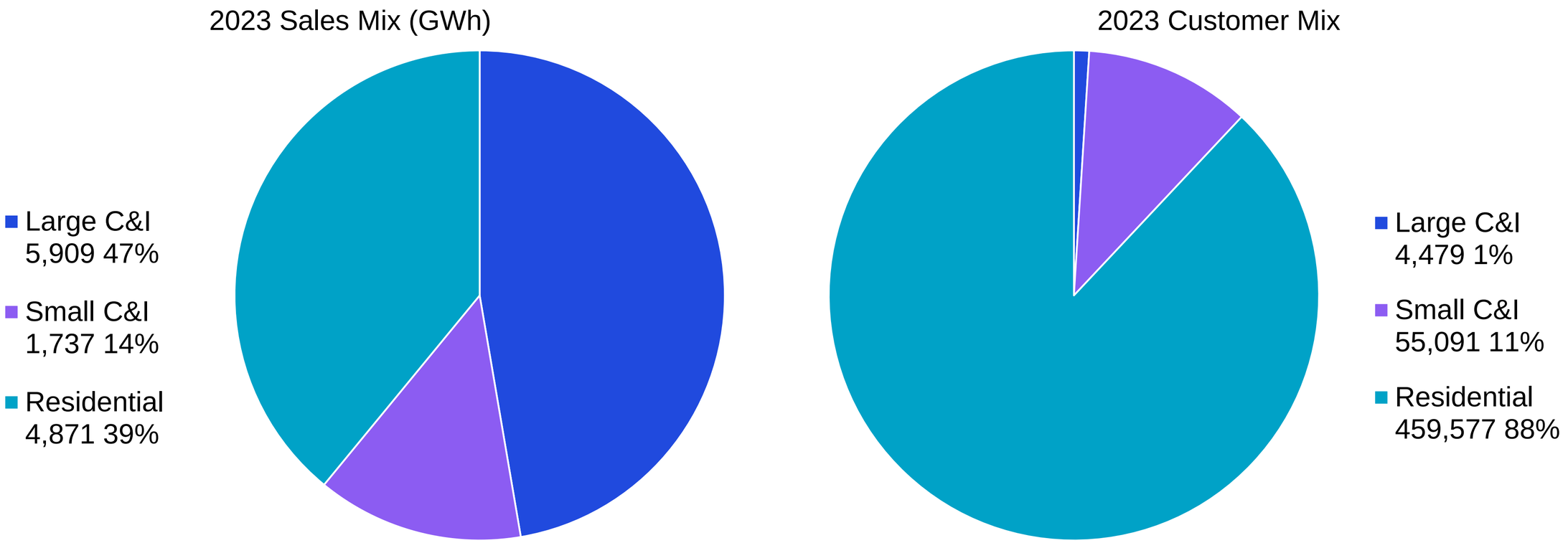


Baseline energy and peak forecast

Michael Russo, Forecasting Consultant, Itron

Sales, energy, and demand trends

AES Indiana customer class mix



AES Indiana serves over 530,000 customers across residential, commercial, and industrial customer classes. The residential class accounts for nearly 90% of the customers and 39% of system sales. Small C&I sales are 14%. Large C&I sales 47%.

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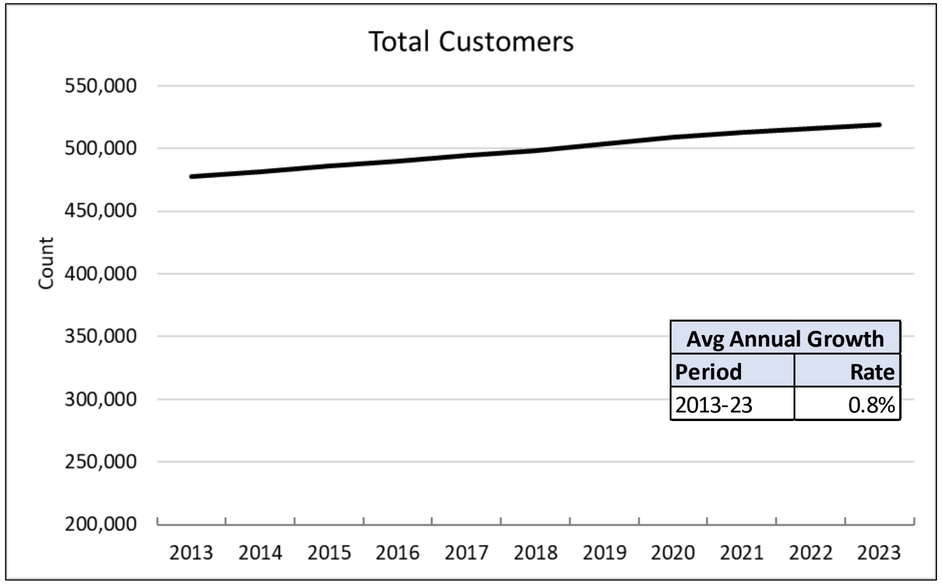
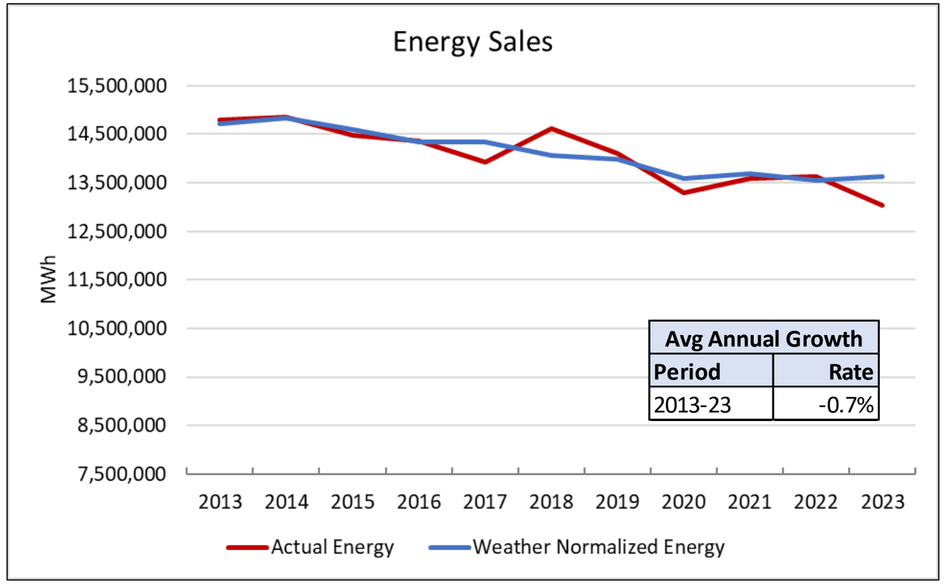
Historical Energy, Peak, and Customer Trends

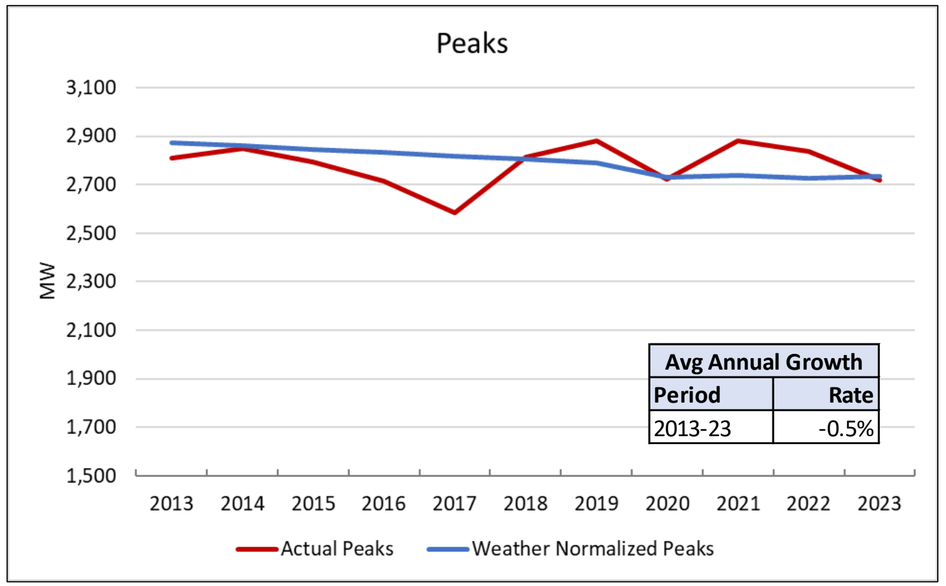




→ Strong customer growth

→ Slowing decline in energy and peaks

→ Energy and peaks have flattened 2019-2023 compared to 2013-2018.



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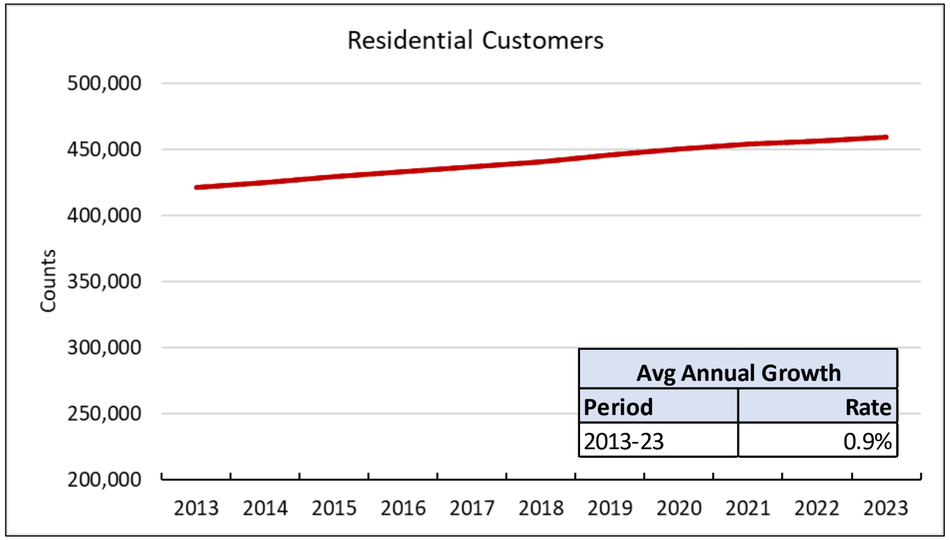
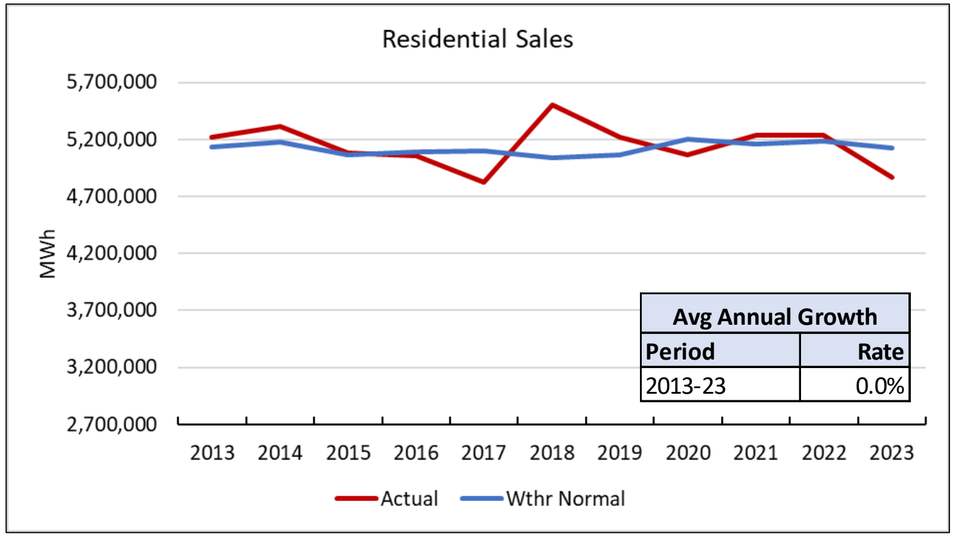
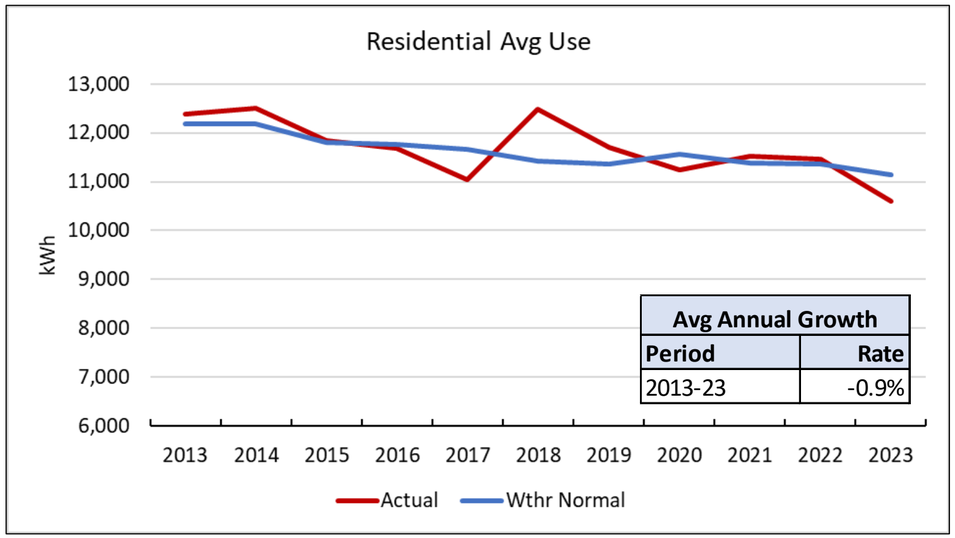
Residential customer and sales trends





→ Strong customer growth due to strong population and household formation in and around Indianapolis.

→ Continued average use decline due to federal codes and AES energy efficiency programs



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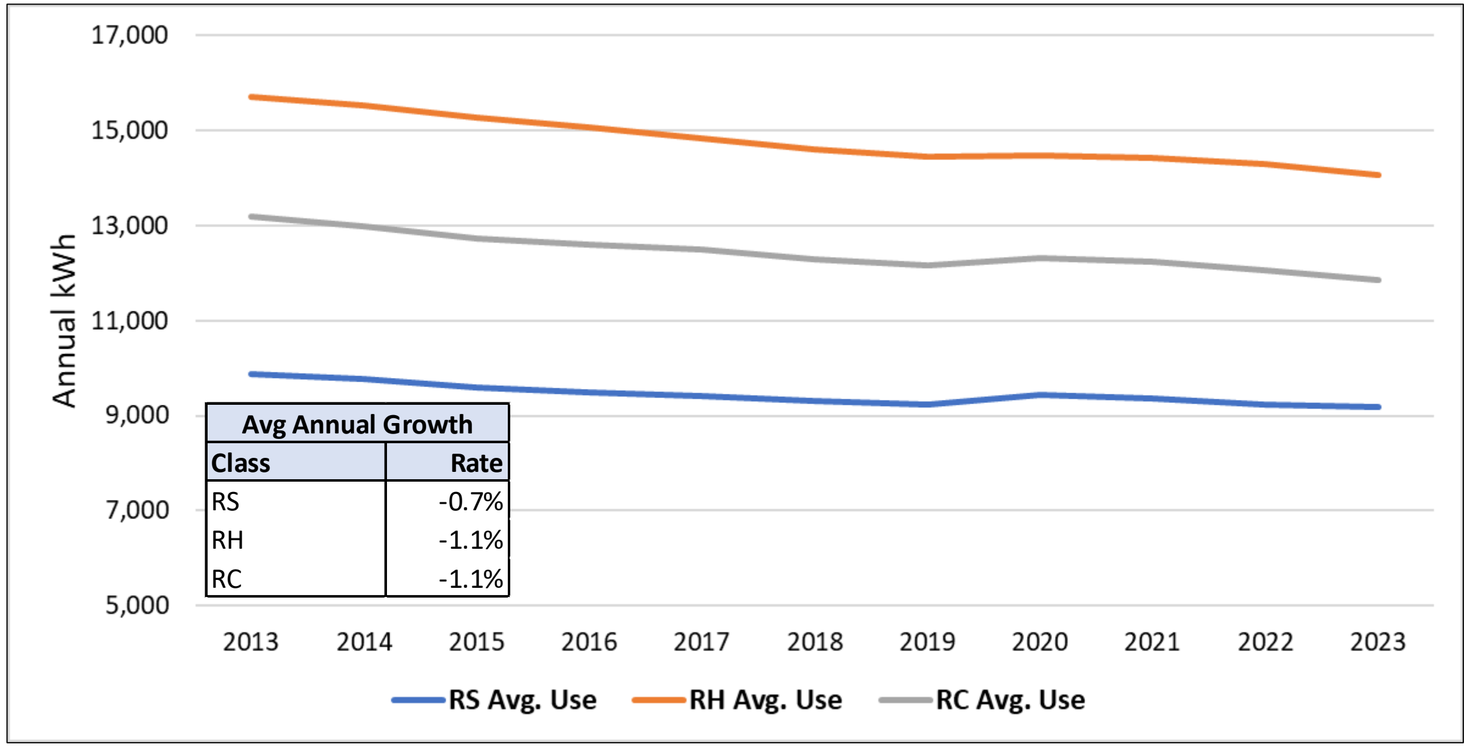
Residential tariff class average use

- → **Use per customer declining across all tariff classes**
- → Federal codes and standards
- → Increase in multi-family homes (decline in ft^2 per household)
- → AES Energy Efficiency (EE) Program Savings
- → Since the 2020 COVID induced increase, use per customer continues to decline



Avg Annual Growth	
Class	Rate
RS	-0.7%
RH	-1.1%
RC	-1.1%

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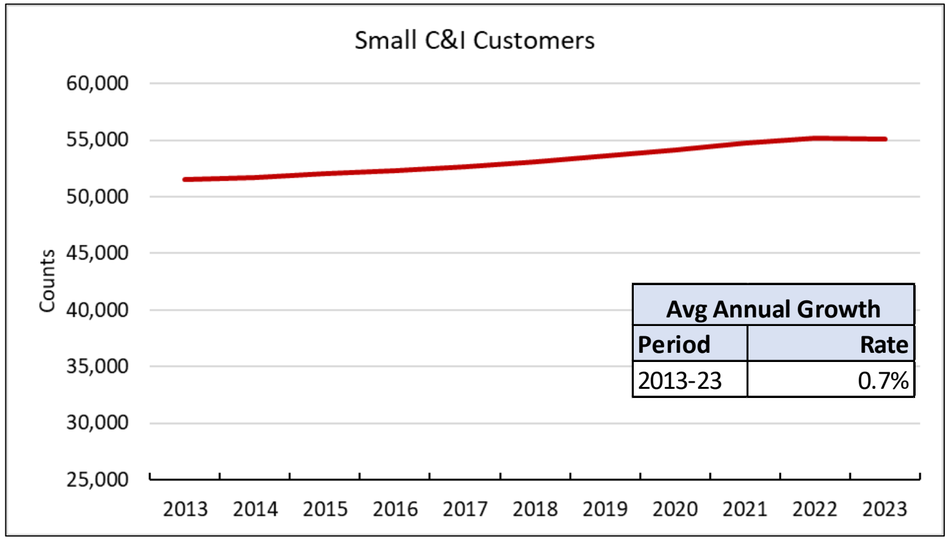
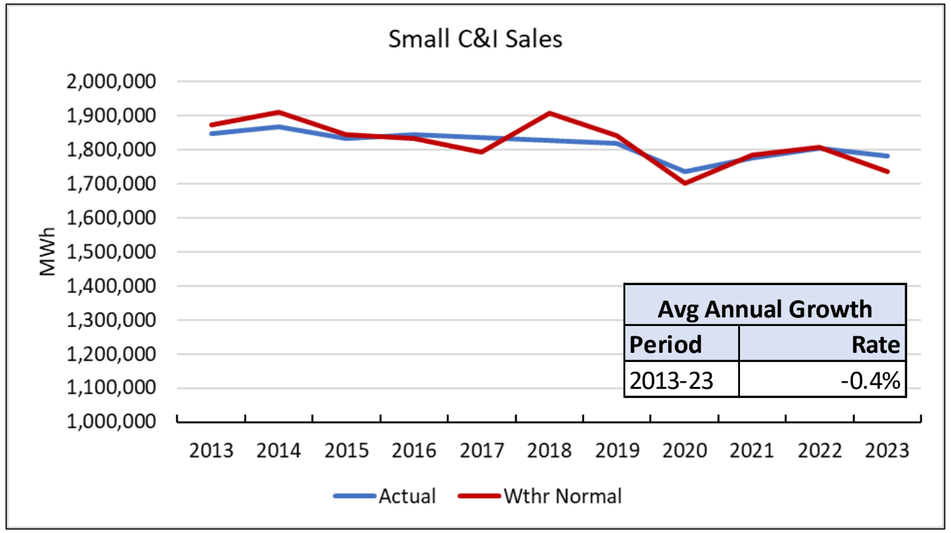
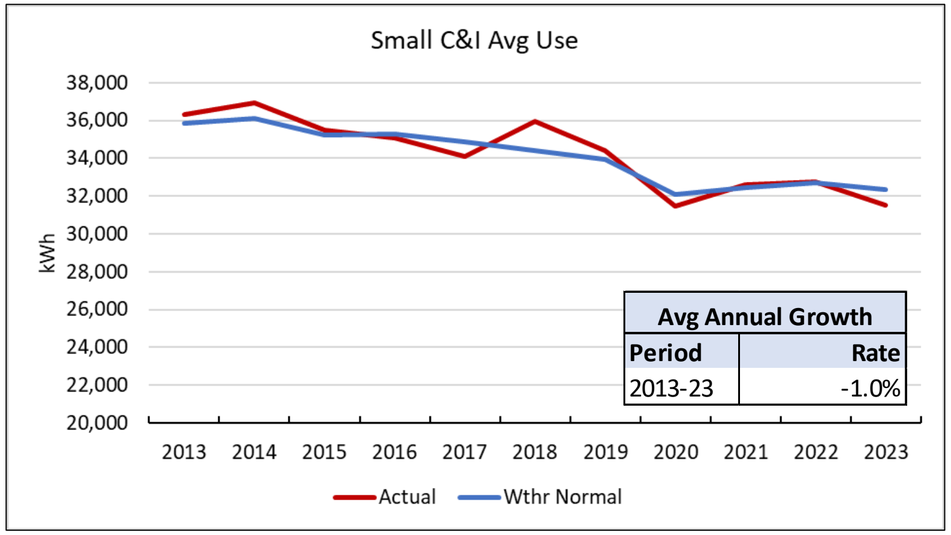
Small C&I sales and customer trends





- → Customer growth has slowed in the last 3 years
- → Like residential, downward pressure on usage due to federal codes and AES EE program savings
- → Sharp drop in 2020 sales due to COVID



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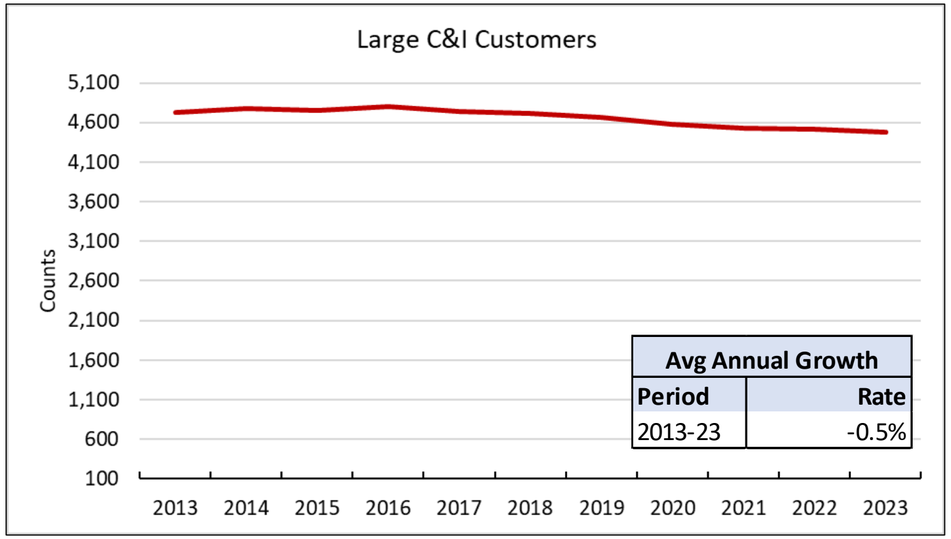
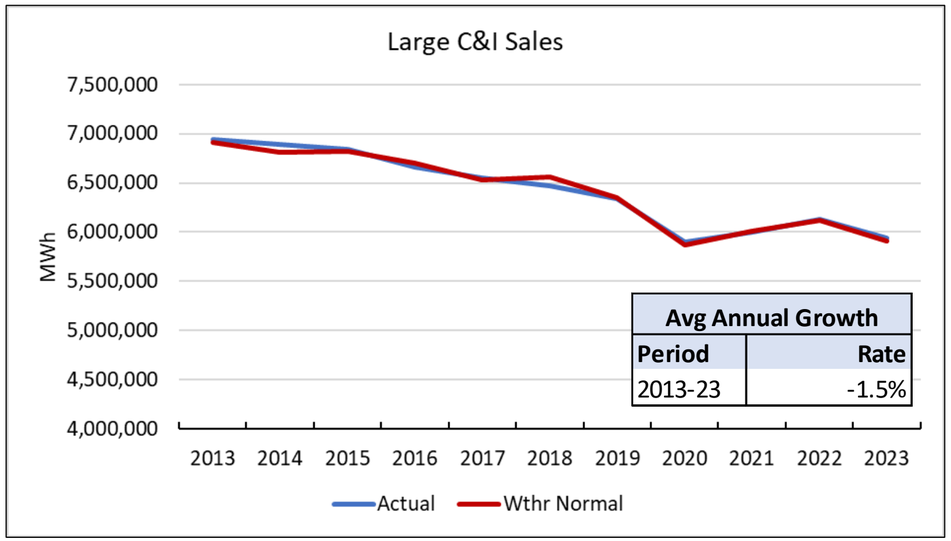
Large C&I sales and customer trends

- → Comprised of the SL, PH, PL, and High Load factor tariffs
- → SL tariff is made up of approximately 4,100 large commercial customers
- → The remaining customers are mainly industrial customers with a handful large load customers having a significant impact on sales and demand.
- → Sharp drop in 2020 sales due to COVID
- → Efficiency improvement due to AES EE program savings and customer run EE programs





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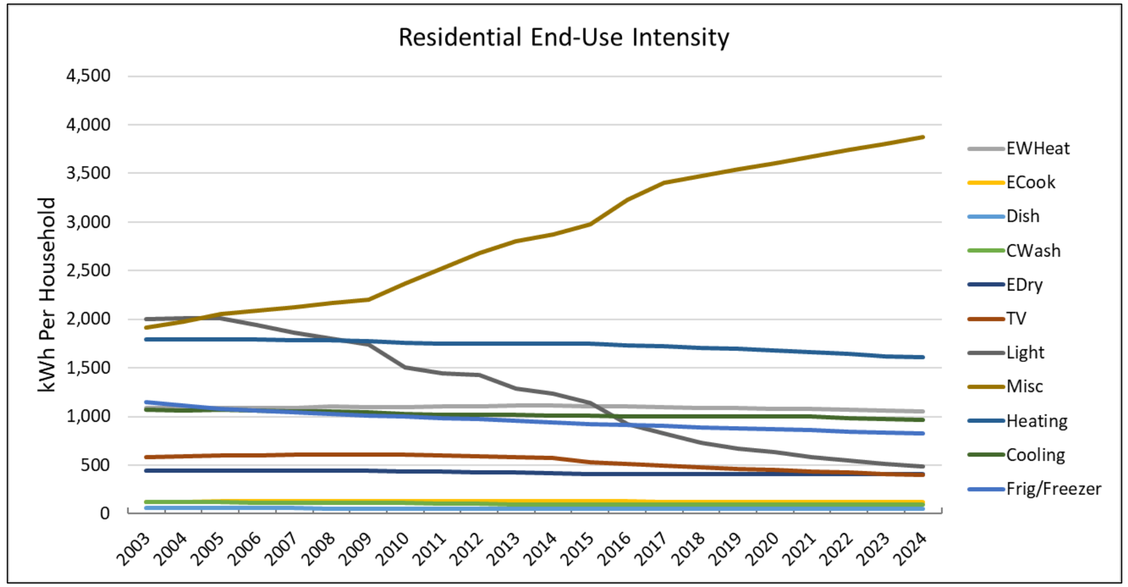
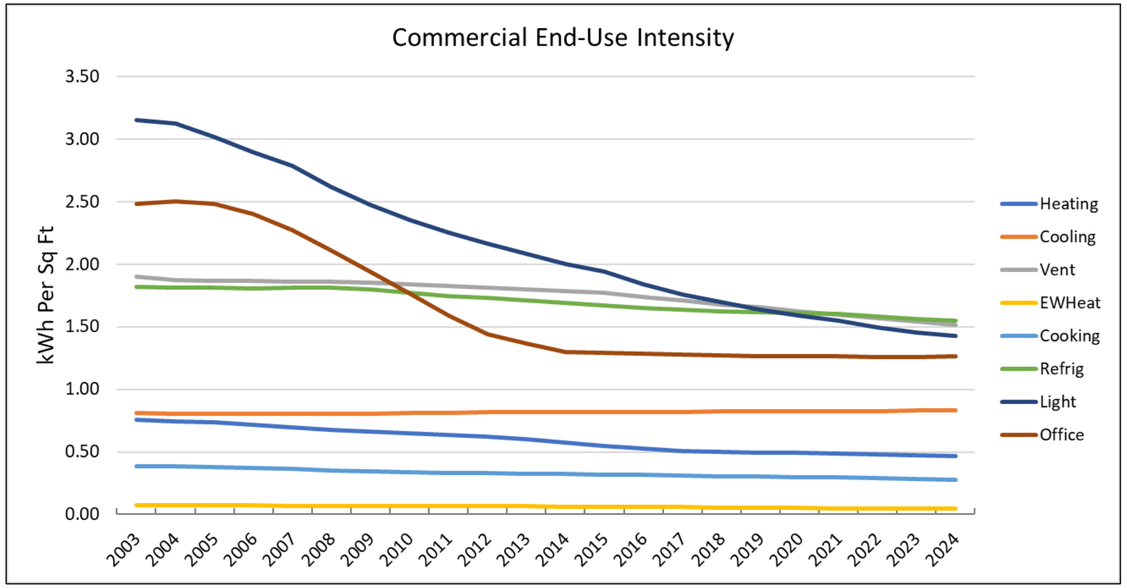
Why is residential and commercial use declining ?





Residential end-use intensities have been declining across nearly all end-uses except miscellaneous. Over the last 10 years:

→ Heating down 0.7%

→ Cooling down 0.4%

→ Base down 0.2%

Similar trends in the commercial sector with the strongest decline in lighting and computer related loads. Over the last 10 years:

→ Heating down 2.3%

→ Cooling up 0.2%

→ Base down 1.4%

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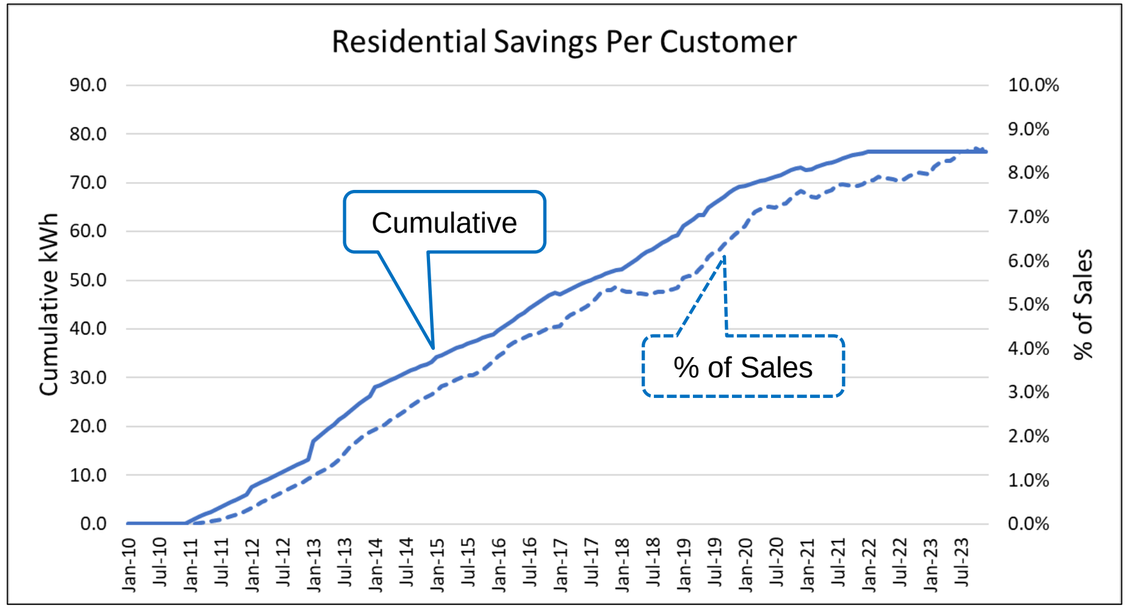
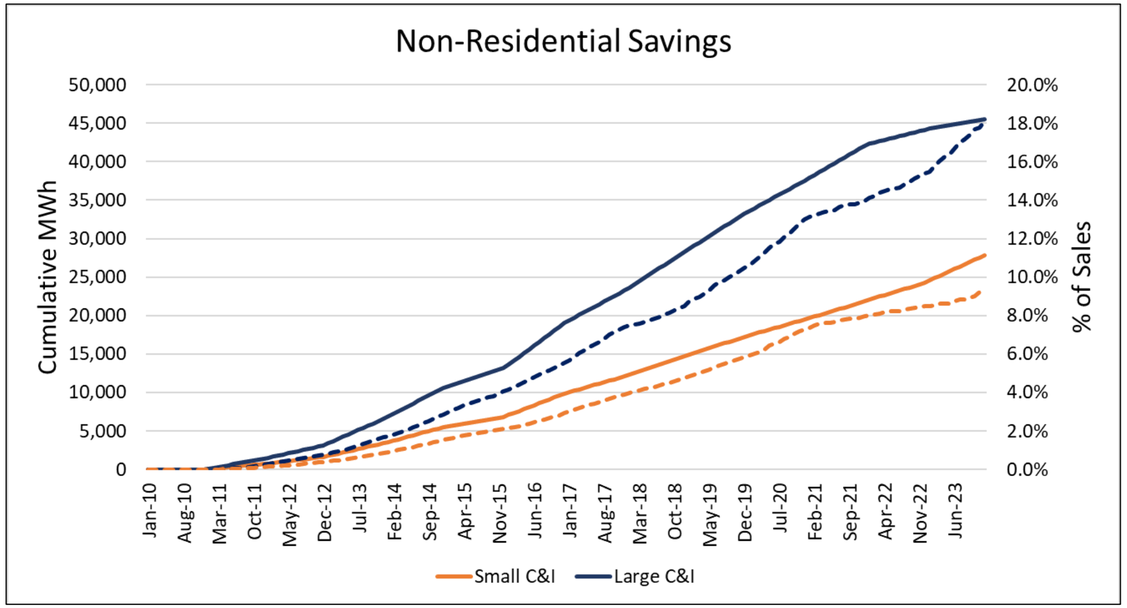
Significant energy efficiency (EE) program activity





Energy Efficiency programs have had a significant impact on sales

→ Reduces residential average use by nearly 9% over the last ten years

→ Reduces small C&I sales by 18%

→ Reduces large C&I sales by 9%

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Modeling approach

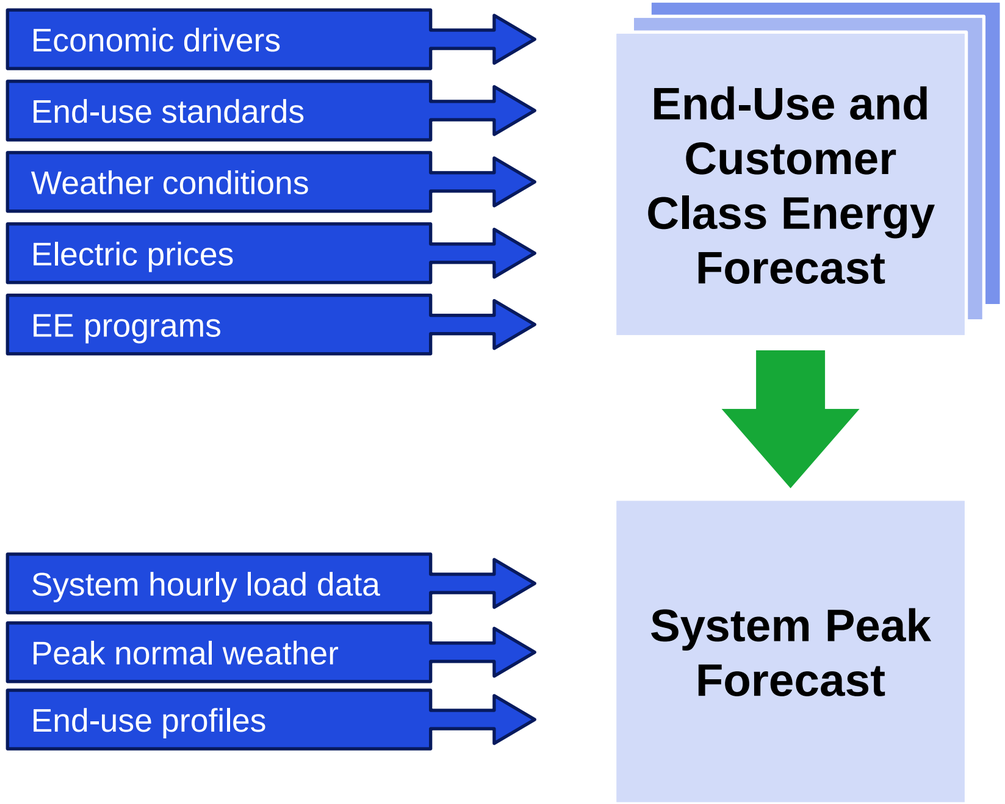
Baseline modeling approach

- → Estimate tariff-class level sales and customer models from historical billed sales data
- → Sales/energy driven by households, economic forecasts, expected weather conditions, price, and end-use efficiency improvements
- → End-use demand drives system peak demand

Monthly sales and customer models are estimated for:

- → *Residential Tariffs*
- → *Commercial Tariffs*
- → *Industrial Tariffs*
- → *Other Tariffs*

Monthly peak model driven by end-use energy forecasts



- → The Baseline forecast excludes behind the meter solar, electric vehicle loads, and future EE program savings
- → Solar and electric vehicles will be added to forecast depending on IRP scenario
- → EE program savings are selectable in the IRP model and, therefore, need to be removed from the IRP load forecasts.

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Rate class models

→ Models estimated by tariff class billed sales and customer data

→ Monthly model, estimated for the period January 2011 to Sept 2024*

→ **5 residential customer classes**

- RS, RC, RH, CR, Residential APL (automatic protective lighting)
- Average use and customer models

→ **6 small C&I customer classes**

- SS, SH, SE, CB, UW, Commercial APL (automatic protective lighting)
- Sales and customer models

→ **7 large C&I industrial customer classes**

- SL, PL, PH, HL1, HL2, HL3, Industrial APL (automatic protective lighting)
- Sales and customer models

→ Structured end-use models that incorporate end-use intensities as well as economic drivers

*High load factor and lighting tariff models are estimated starting in 2018

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Statistically adjusted end-use approach (SAE)

- → Objective:
  - → Develop an econometric approach that incorporates the best characteristics of an econometric and end-use modeling framework
- → Accounts For:
  - → Economic impacts (e.g., household income and size, price impacts)
  - → End-Use Structural changes (e.g., saturation and efficiency trends, housing square footage, thermal shell integrity improvements)
  - → Weather impacts
- → Statistical Framework:
  - → Ideally, one model for budget and long-term forecasting

Econometric Component

End Use Component

Statistical step to “Adjust” components

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Residential SAE average use model

End Use Stock	→ **Thermal Efficiency** → **Home Square Footage** → **AC Saturation** → Central → Heat Pump → Room AC → **AC Efficiency**		→ **Thermal Efficiency** → **Home Square Footage** → **Heating Saturation** → Resistance → Heat Pump → **Heating Efficiency**		→ **Saturation Levels** → **Water Heat** → **Appliances** → Lighting → Plug Loads → **Appliance Efficiency**	
Utilization	→ **Real Income** → **Price** → **Household Size** → **Cooling Degree Days**		→ **Real Income** → **Price** → **Household Size** → **Heating Degree Days**		→ **Real Income** → **Price** → **Household Size** → **Billing Days**	
Result	**Cooling Use**	✚	**Heating Use**	✚	**Other Use**	= **Monthly Average Use**

Tariff Level
AES Energy Efficiency Savings

$$AvgUse_m = a + b_c \times XCool_m + b_h \times XHeat_m + b_o \times XOther_m + b_d \times EEm + e_m$$

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Commercial SAE sales model

End Use Stock	**Cooling Intensity (kWh/ft²)** → Cooling Saturation → Cooling Efficiency	**Heating Intensity (kWh/ ft²)** → Heating Saturation → Heating Efficiency	**Base Intensity (kWh/ ft²)** → Lighting → Office Equipment → Ventilation → Water Heating → Misc.
Utilization	→ **Real Output** → **Employment** → **Population** → **Cooling Degree Days**	→ **Real Output** → **Employment** → **Population** → **Heating Degree Days**	→ **Real Output** → **Employment** → **Population** → **Billing Days**
Result	**Cooling**	**Heating**	**Base Load**

Cooling + **Heating** + **Base Load** = **Monthly Total Sales**

Tariff Level
AES Energy Efficiency Savings

$$MWh_m = a + b_c \times XCool_m + b_h \times XHeat_m + b_o \times XOther_m + b_d \times EEm + e_m$$

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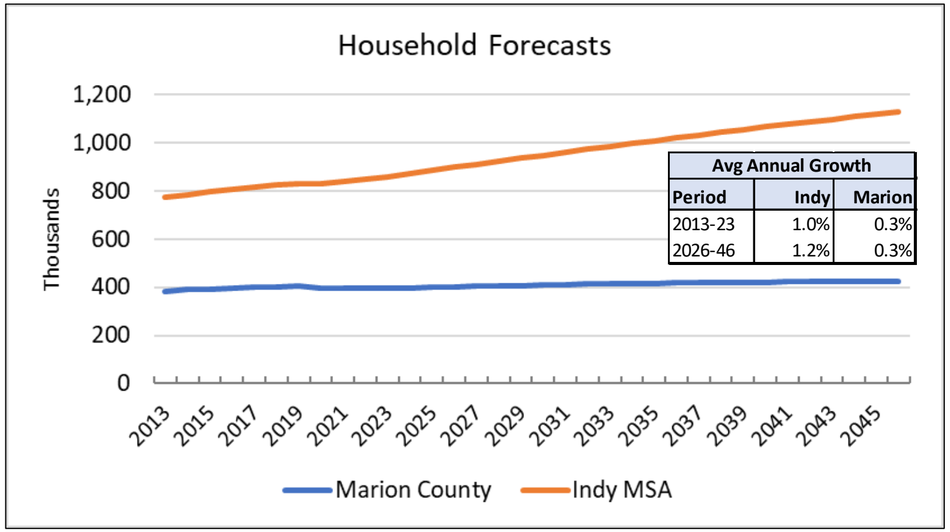
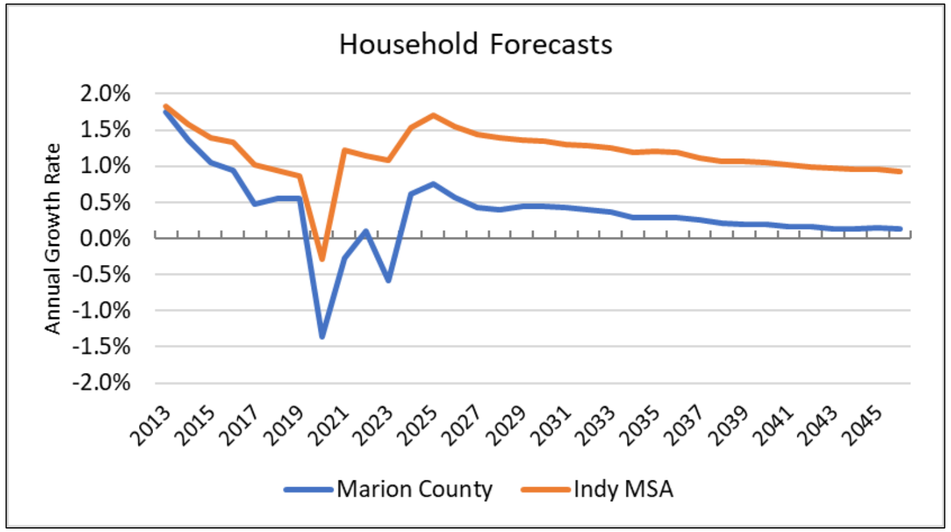
Residential customer drivers

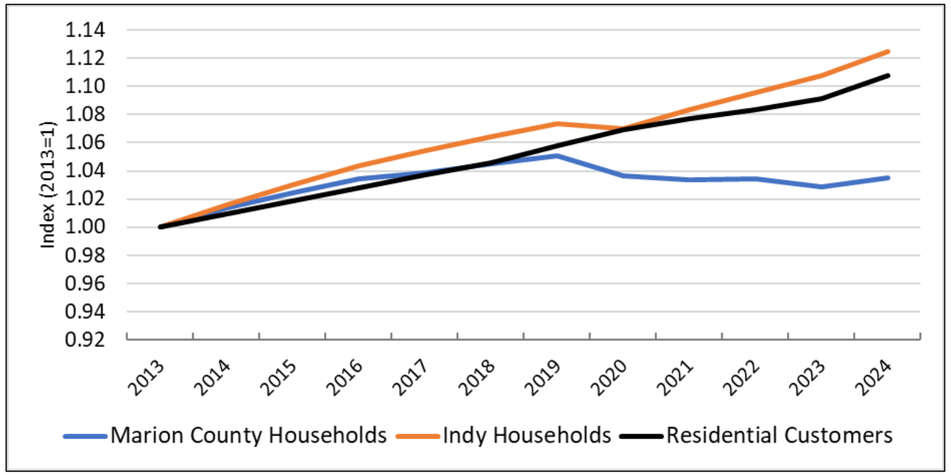


Avg Annual Growth		
Period	Indy	Marion
2013-23	1.0%	0.3%
2026-46	1.2%	0.3%



→ Moody Analytics (October 2024), economic forecast for Marion county and Indianapolis MSA.

→ Indy households are more highly correlated with AES residential customers than Marion county.



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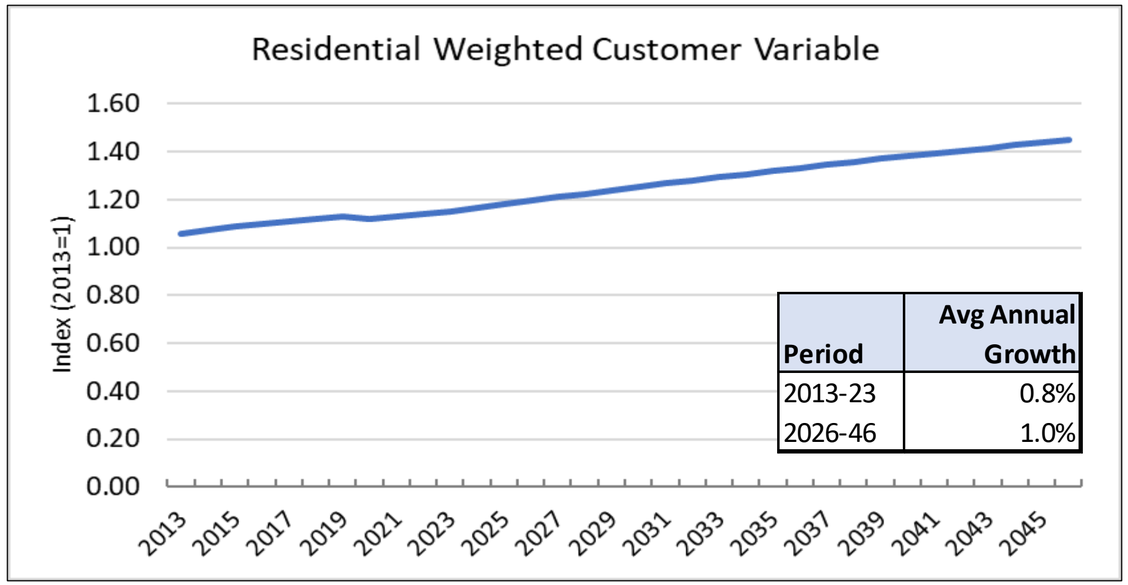
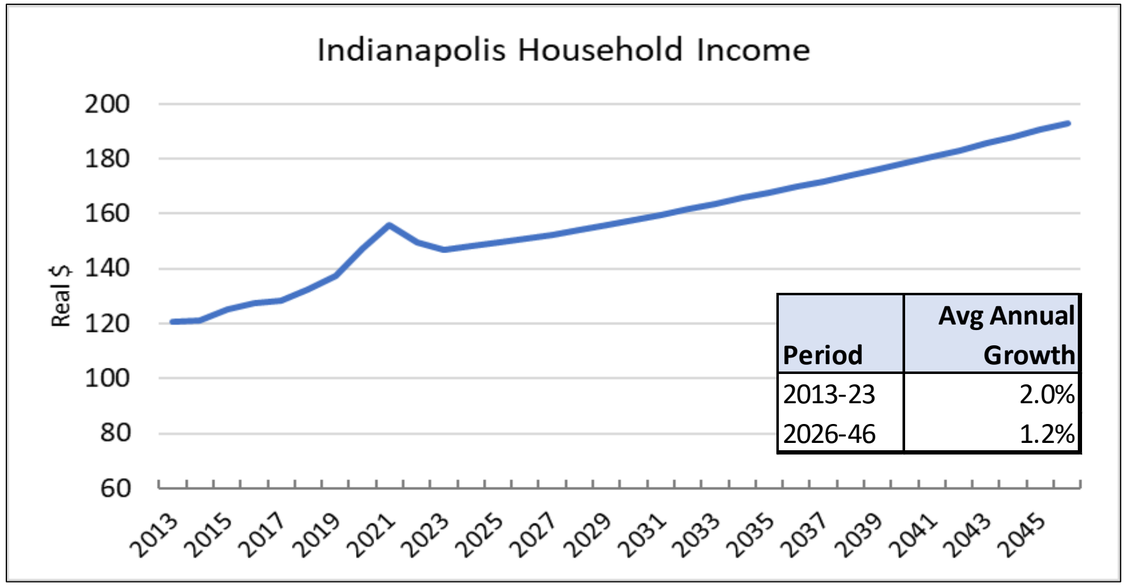
Residential economic drivers





→ Weighted household variable drive the residential customer forecast. 75% weight on Indy household variable and 25% on Marion county

→ Expected household growth is slightly stronger than the last ten years

→ Household income influences customer use

→ Imposed income elasticity of 0.2

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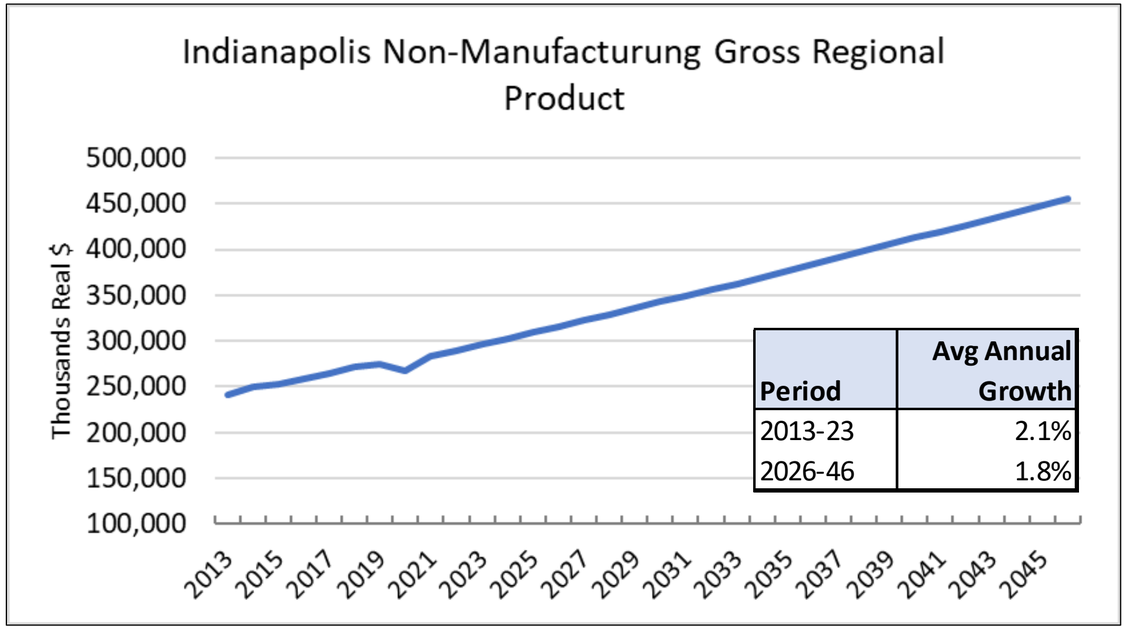
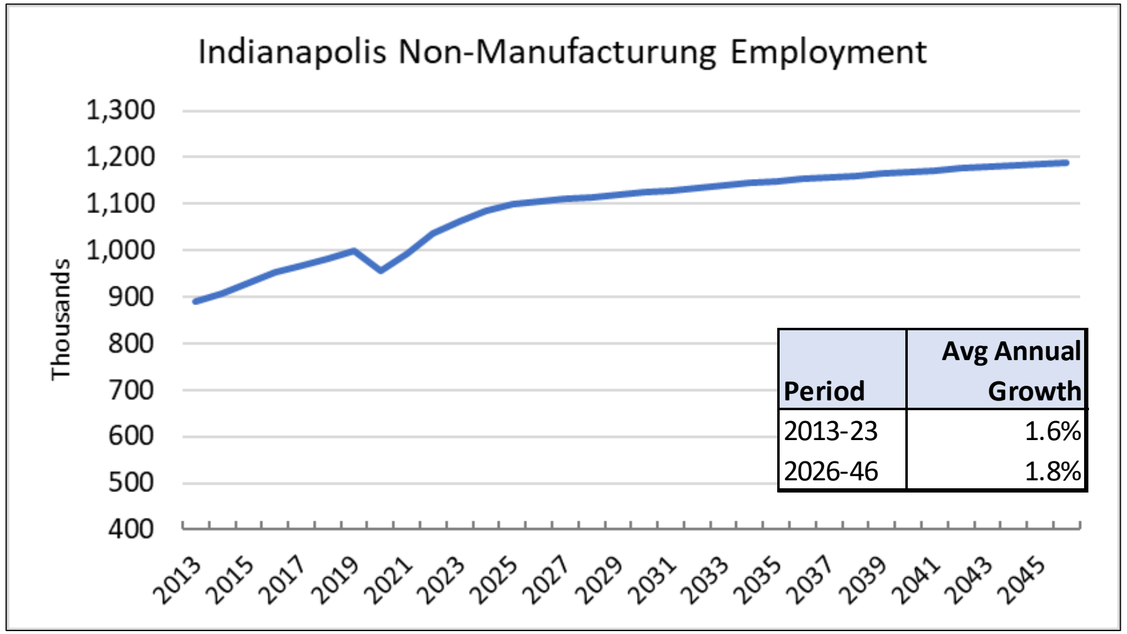
C&I economic drivers





→ Output and employment concepts are weighted into a single economic variable.

→ Weights vary by tariff class

→ Slower employment growth in the out years. Implies higher long-term productivity.

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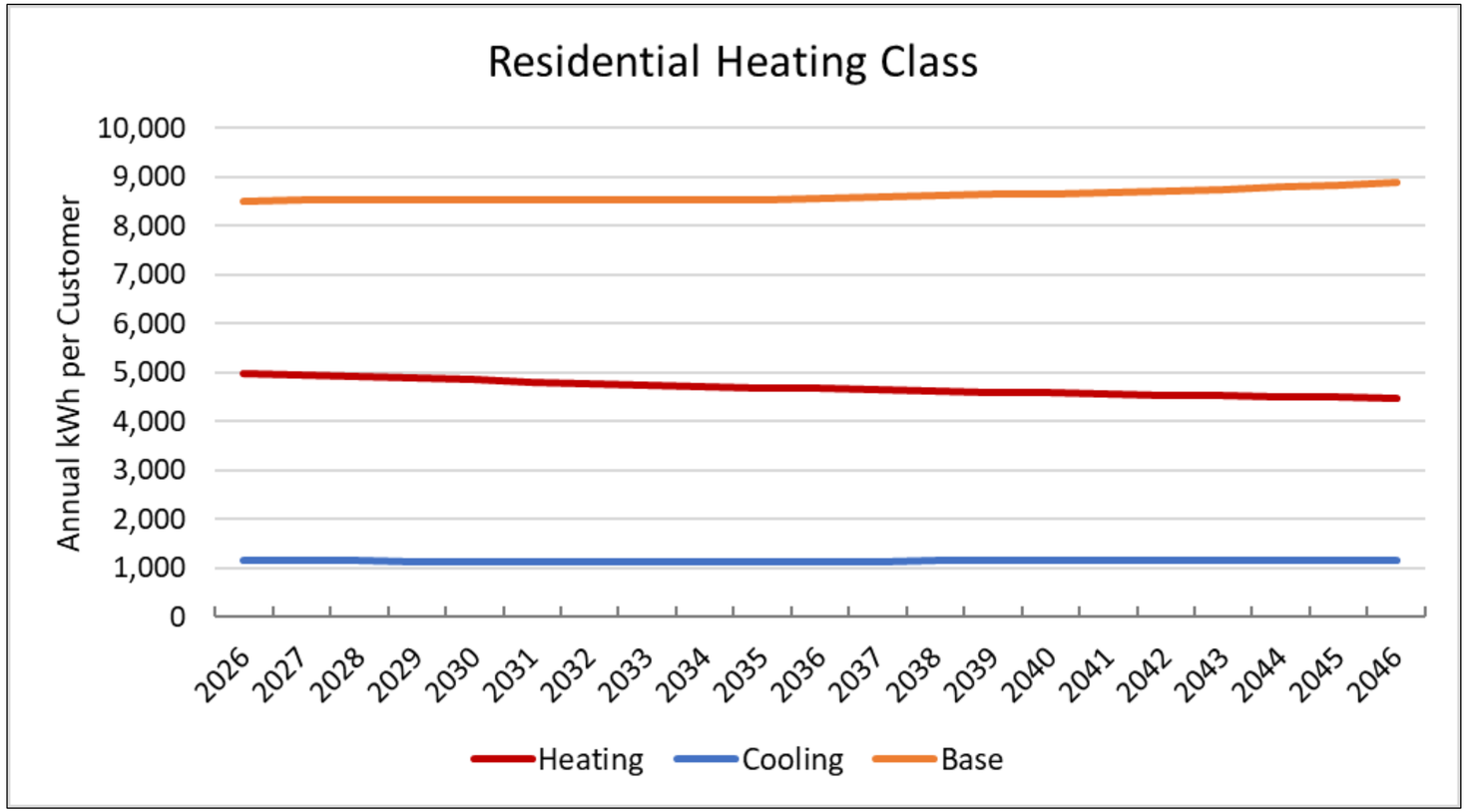
Residential end-use intensity projections

- → End-Use intensities based on end-use saturation and average stock efficiency derived from Energy Information Administration's (EIA) 2023 Annual Energy Outlook (AEO) for East North Central Census Division.
- → Residential calibrated to AES service area based on historical appliance saturation surveys and DSM potential study.



Avg. Annual Growth	
End-Use	**Rate**
Heating	-0.5%
Cooling	0.0%
Base	0.2%

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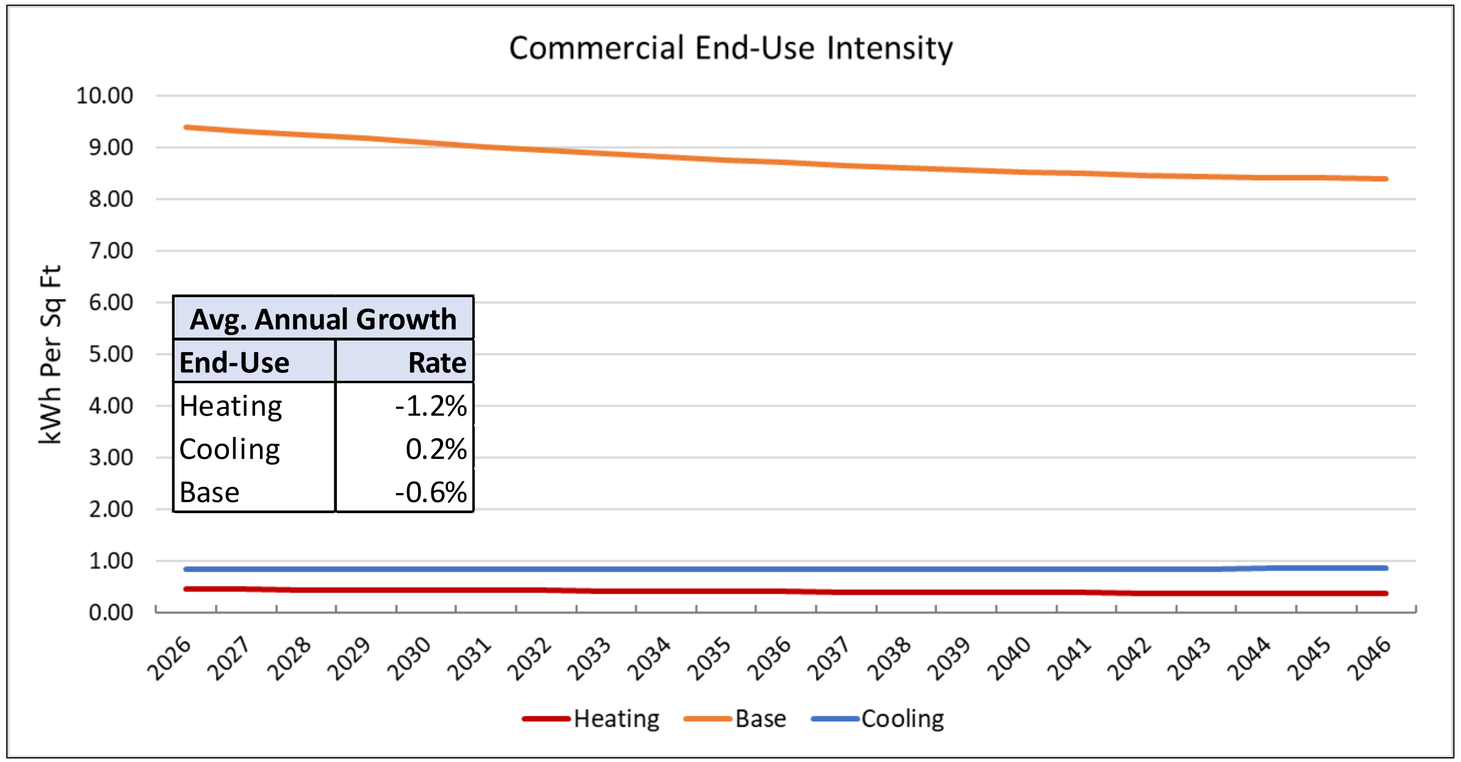
Commercial end-use intensity projections

- → End-Use intensities (kWh per square ft) projected for 9 end-uses and 11 building types
- → Derived from EIA's 2023 Annual Energy Outlook (AEO) for East North Central Census Division.
- → Building-type intensities weighted to the AES service area based on AES commercial sales
- → Projected efficiency gains in lighting and ventilation have the largest impact on base use



Avg. Annual Growth	
End-Use	**Rate**
Heating	-1.2%
Cooling	0.2%
Base	-0.6%

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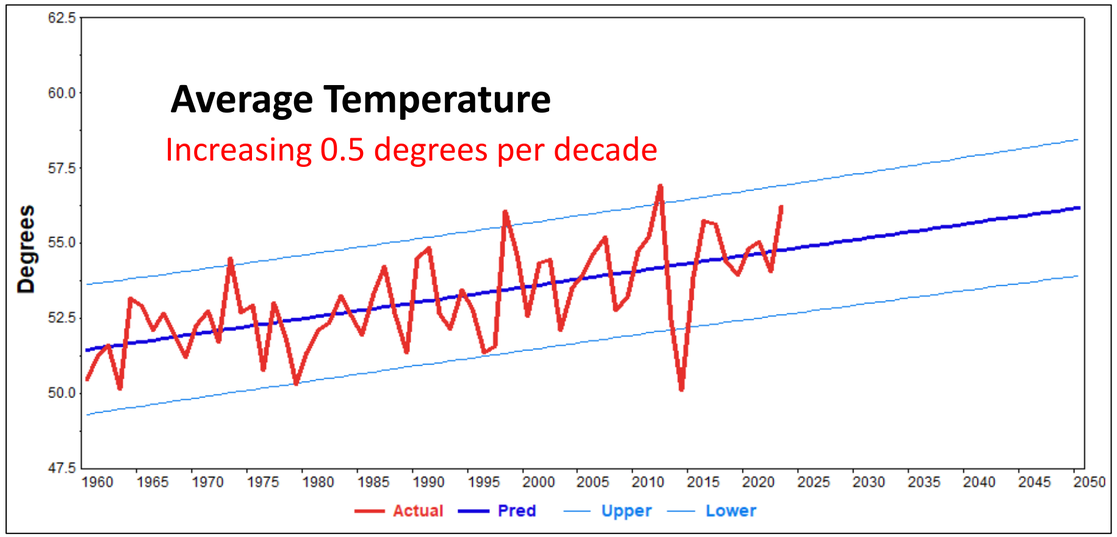
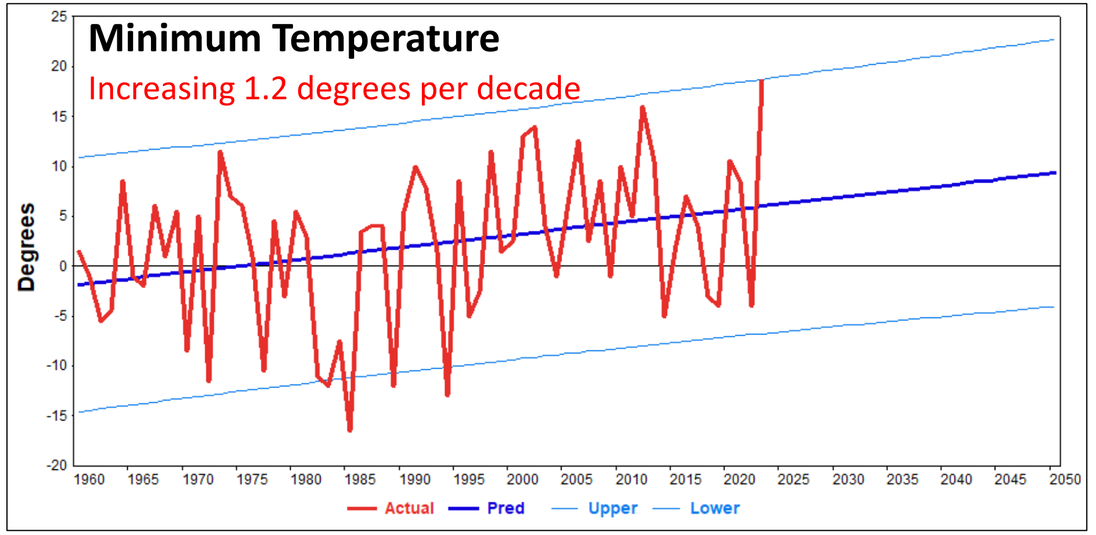
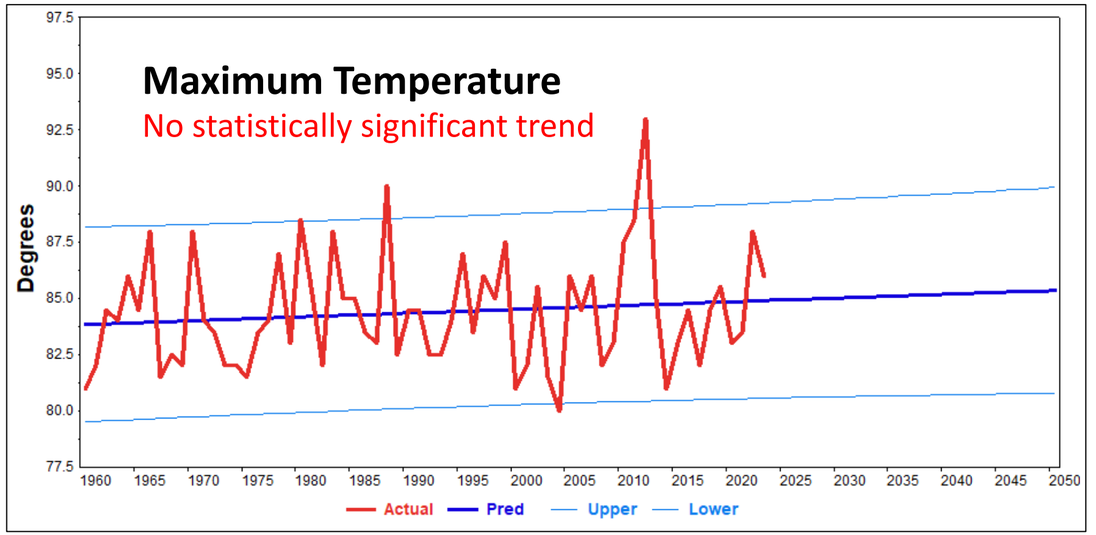
Temperature trends







- → Average annual temperature is increasing .05 degrees per year or 0.5 degrees per decade
- → Consistent with temperature trends across the country 0.4 degrees to 1.2 degrees per decade
- → Minimum temperature increasing twice as fast as the average temperature. No increase in the maximum temperature

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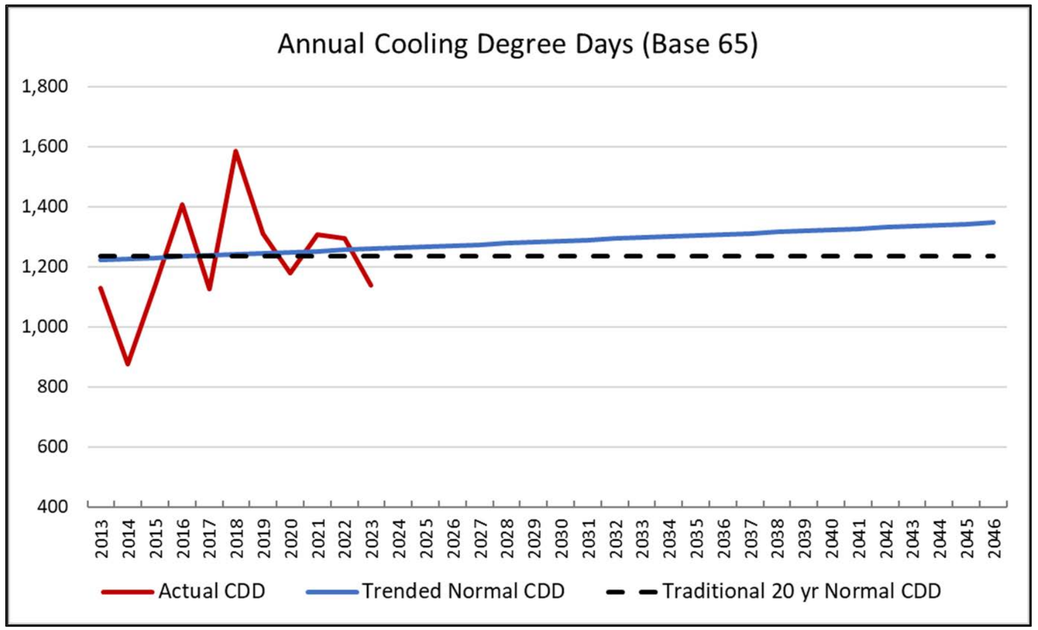
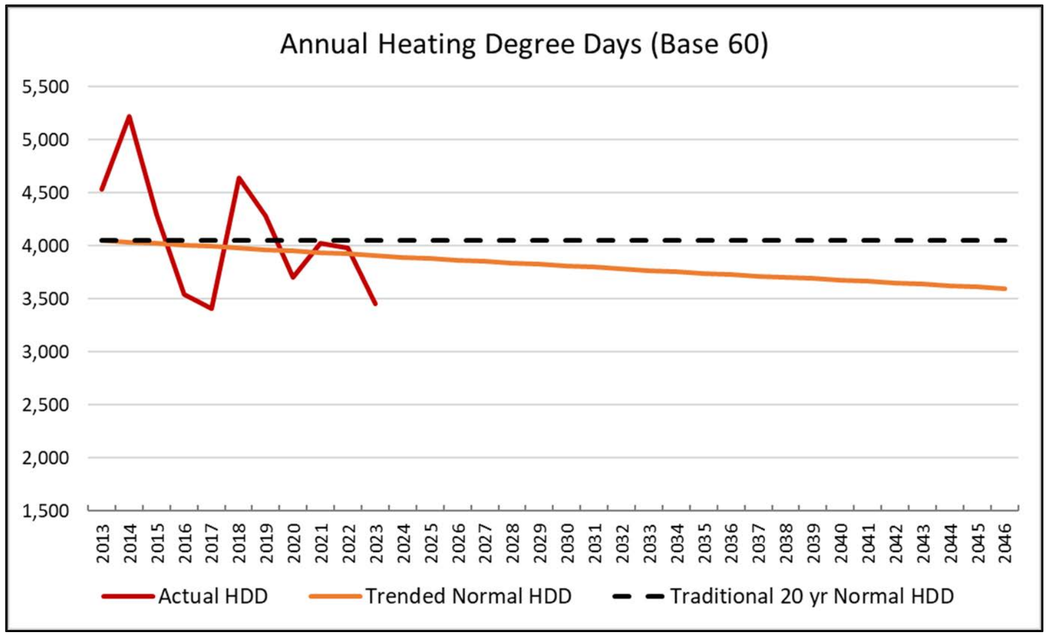
Trending degree days





→ Increasing average temperature translates into 0.3% annual growth in cooling degree days

→ And 0.4% annual decline in heating degree days

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Non-SAE tariff rate class models

- Lighting and large industrial class models estimated using simple econometric models
  - Weather variables
  - Monthly binaries
  - Shift variables to account for changes in sales, such as LED replacement in street lighting

- Large industrial classes include out-of-model adjustments to account for known expansion and contractions.
  - These adjustments are based on correspondence between AES account reps and individual large customers

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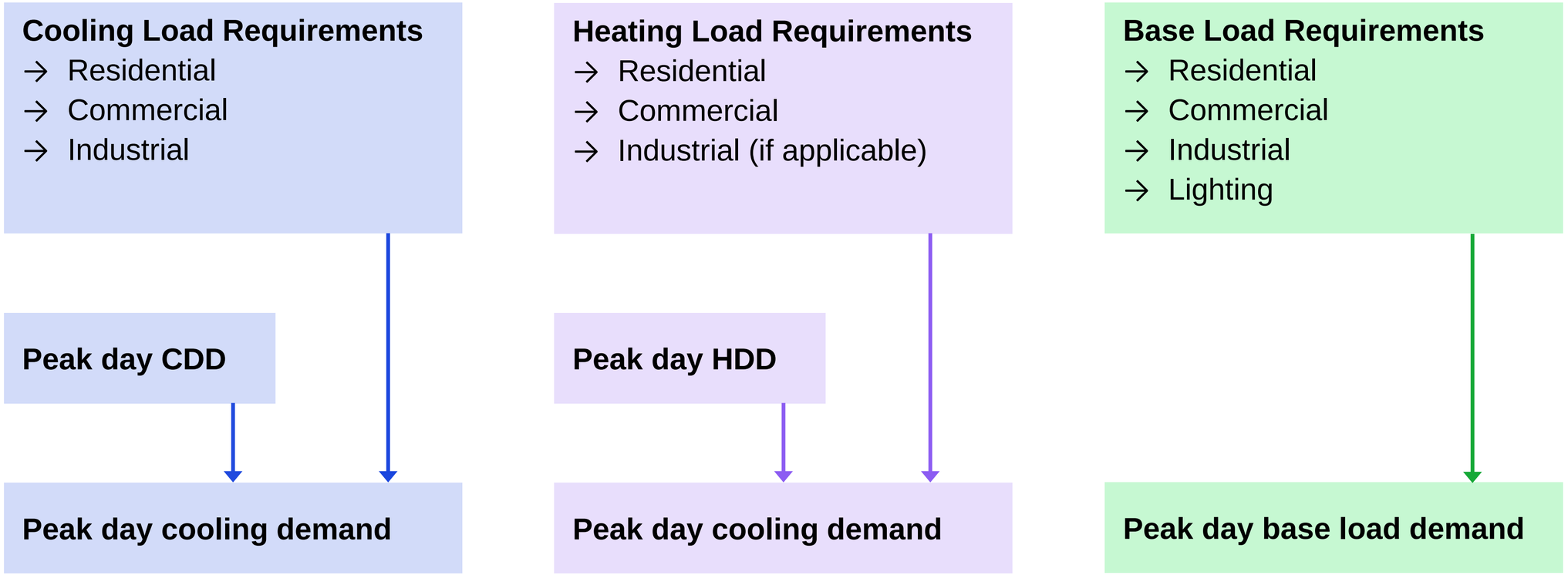
Peak model

Peak demand is driven by heating, cooling, and base load requirements derived from the rate class sales forecast models



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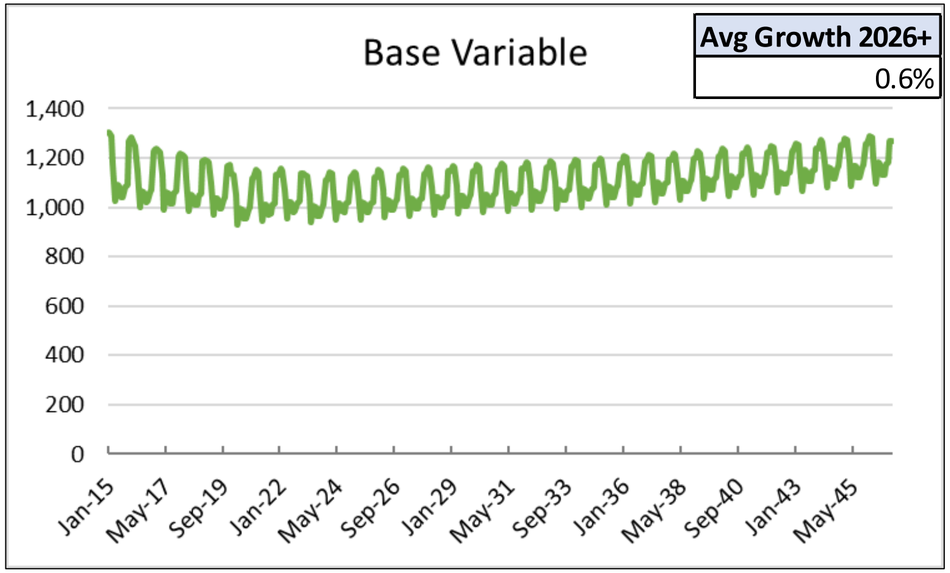
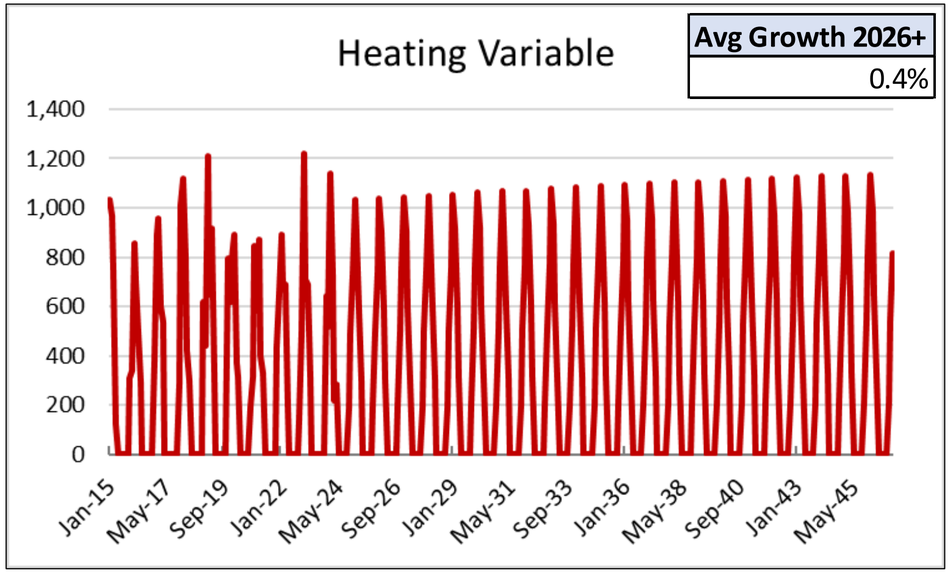
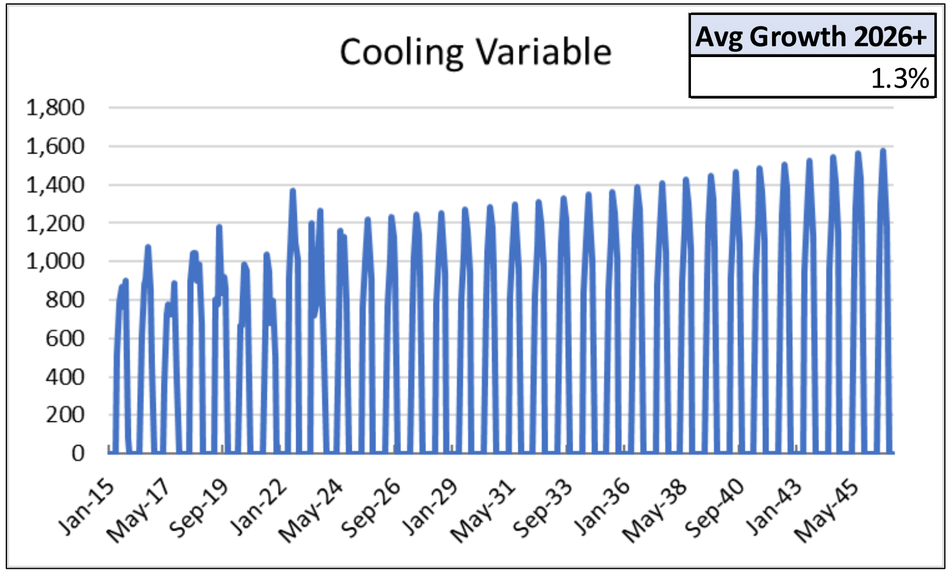
Peak model drivers





→ Heating, cooling, and base-use energy requirements derived from tariff sales forecast models

→ Base-use energy allocated to end-use coincident peak loads. Highest load in winter – lighting load



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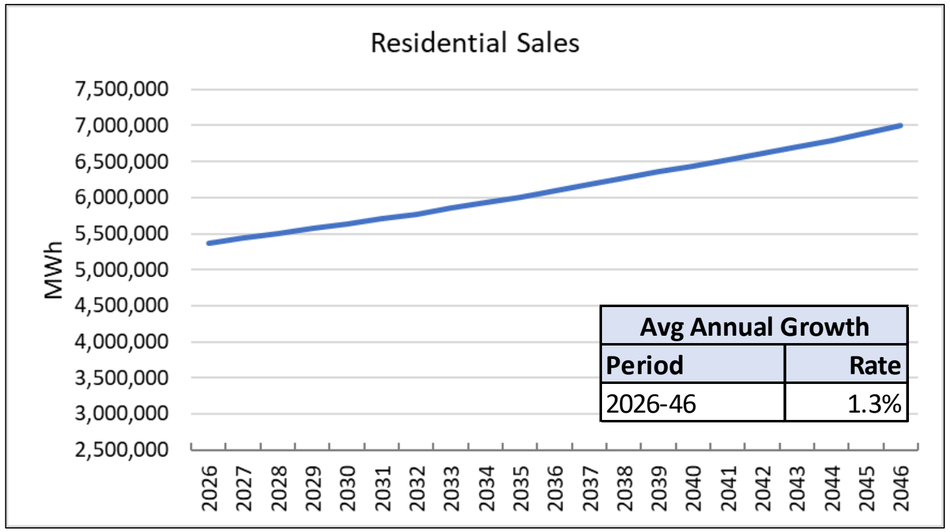
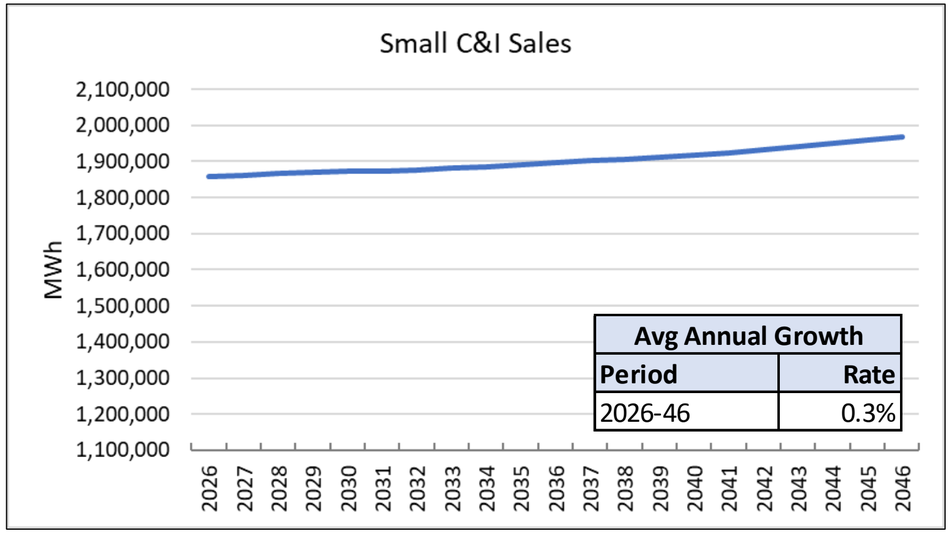
Forecast Results

Class sales forecast



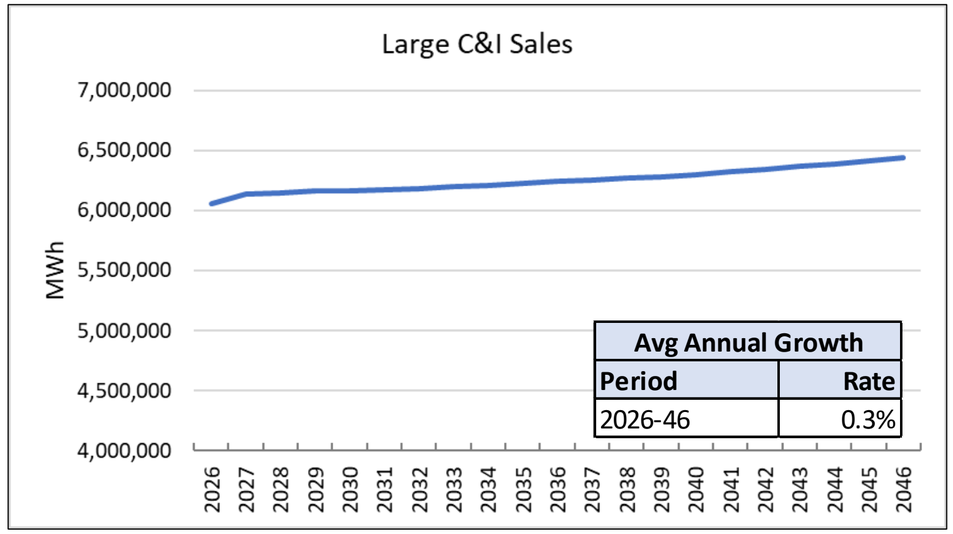


Excludes:

→ Future EE savings

→ Electric vehicle charging loads

→ Future solar adoption



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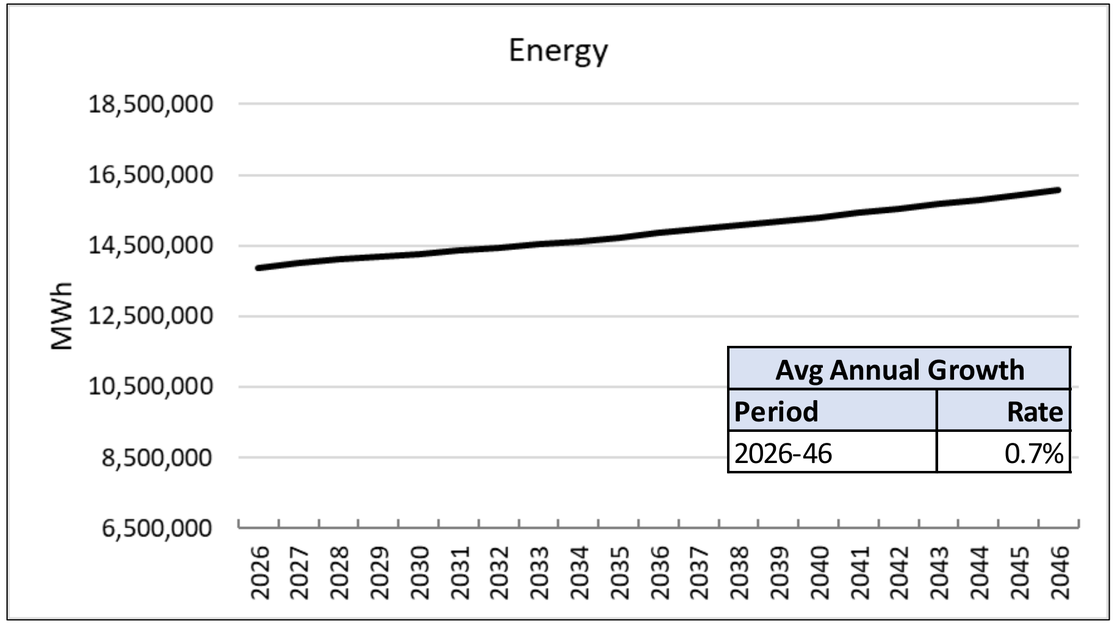
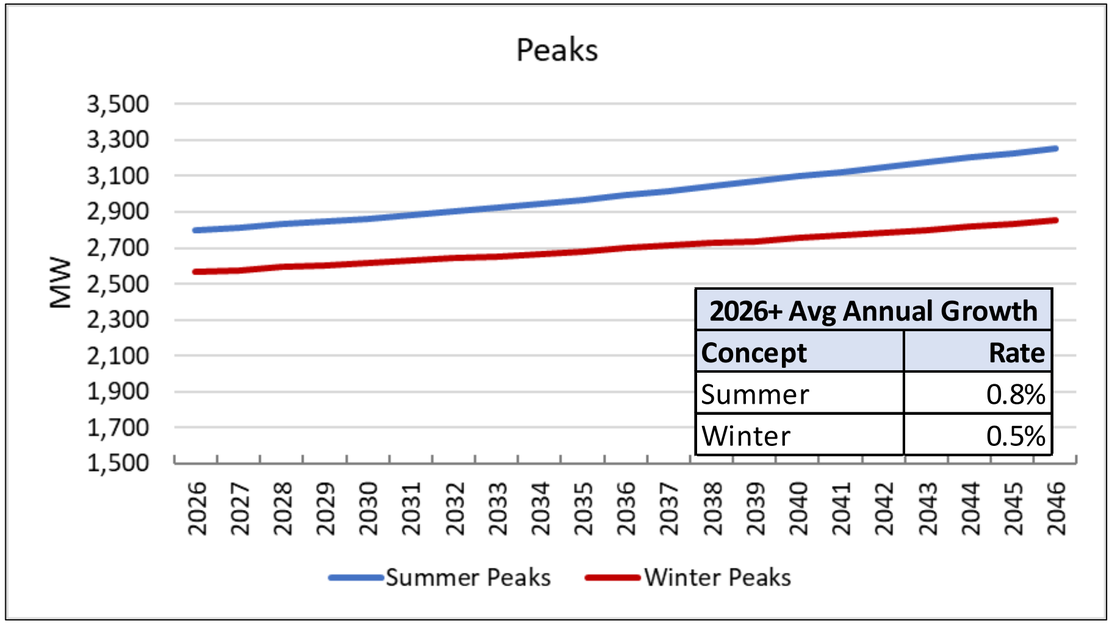
Energy and peak forecast



Avg Annual Growth	
Period	**Rate**
2026-46	0.7%



2026+ Avg Annual Growth	
Concept	**Rate**
Summer	0.8%
Winter	0.5%

→ Forecast excludes future EE, electric vehicles, and solar impact

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Electric vehicle (EV) / solar PV forecasts

Woody Zhu, Assistant Professor, Carnegie Mellon University

Carnegie Mellon University

aes Indiana

Introduction

Carnegie Mellon University

Woody Zhu

Assistant Professor

Wenbin Zhou

PhD Student

AES

Erik Miller

Director, Resource Planning

Rob Whitworth

Sr Manger, T&D Planning

Ryan Yang

Load Forecast Analyst

Victoria Cooper

EV Program Manager

Distributed energy resource

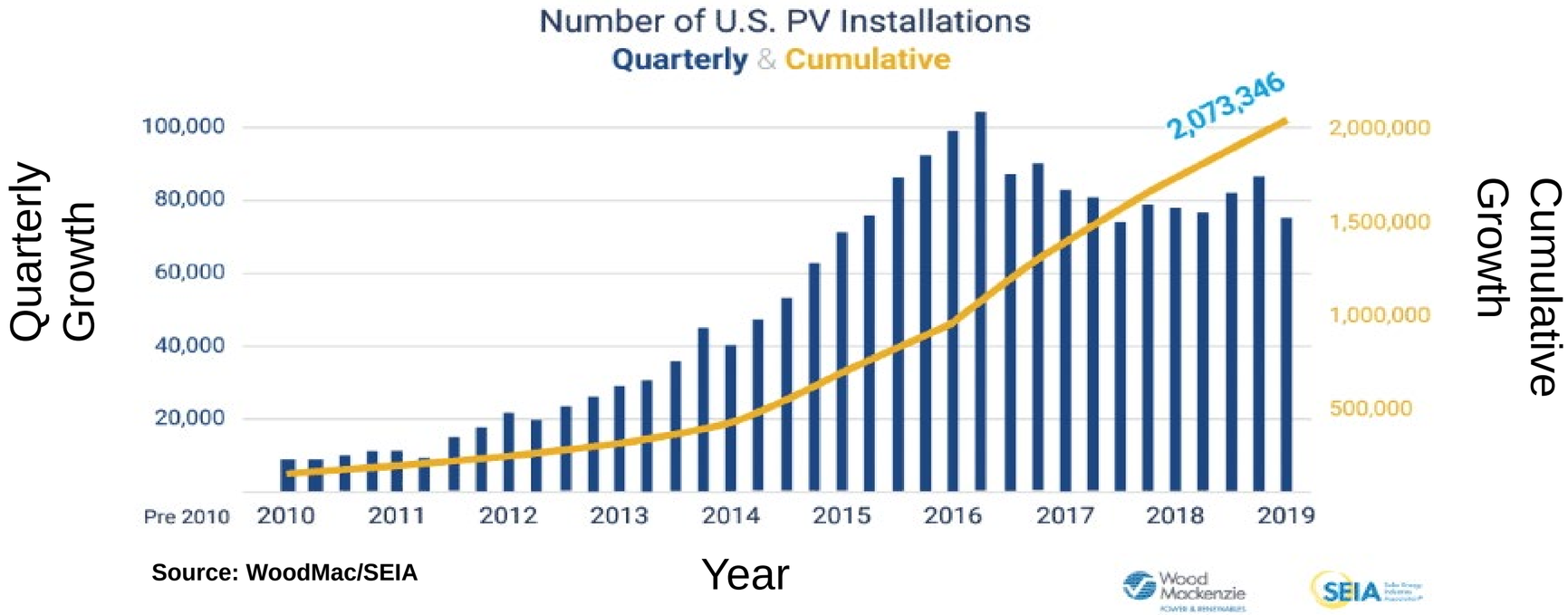
Distributed energy resources (DERs) are small-scale energy generation and storage technologies that are connected to the electricity distribution system.

Electric Vehicles (EV)

Customer Solar

Objective

Number of solar installations in the United States



→ Provide a long-term substation-level and territory-level forecast for the growth of EV and customer solar on AES Indiana's system.

→ Provide base, high, and low forecasts for inclusion in AES Indiana IRP Scenario Analysis.

→ Reveal insights that inform strategic decision-making.

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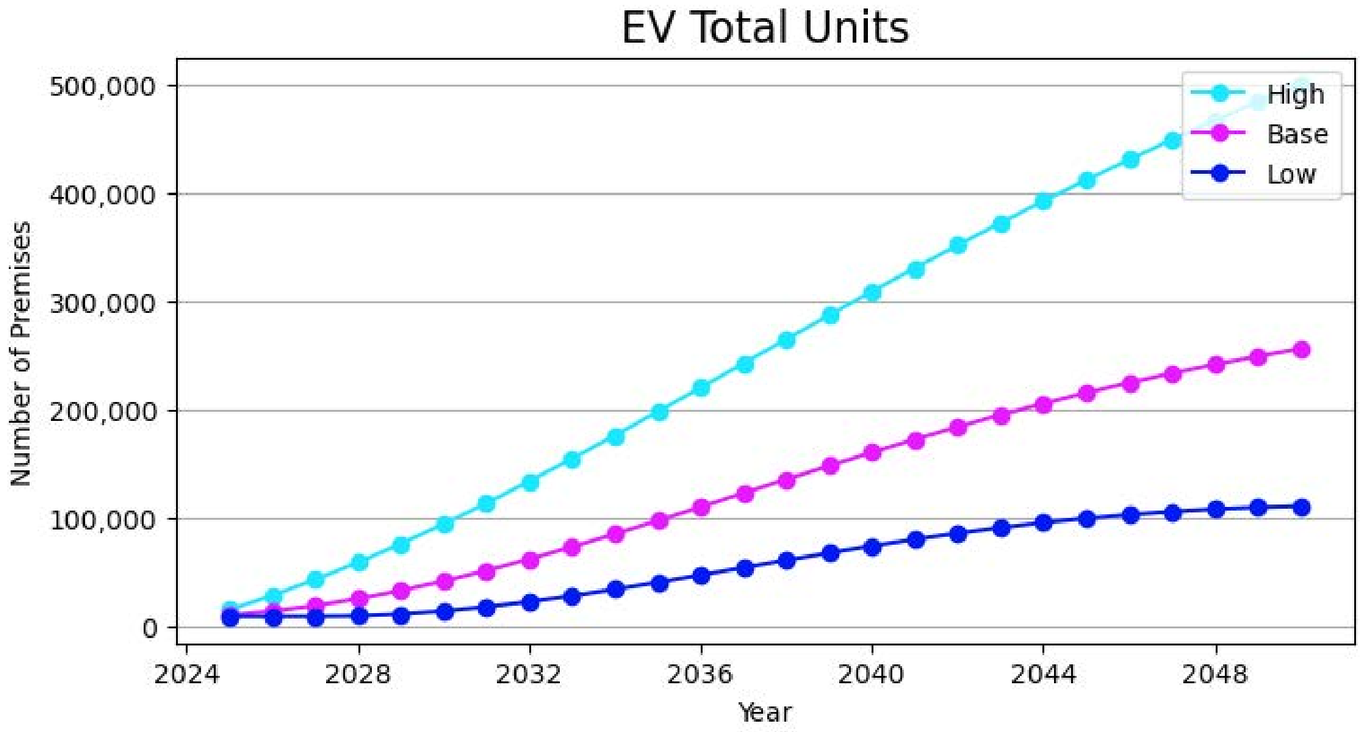
Result: EV unit prediction

110k~500k



A steadily accelerating market and increasing uncertainty over the coming decades, underscoring the need for:

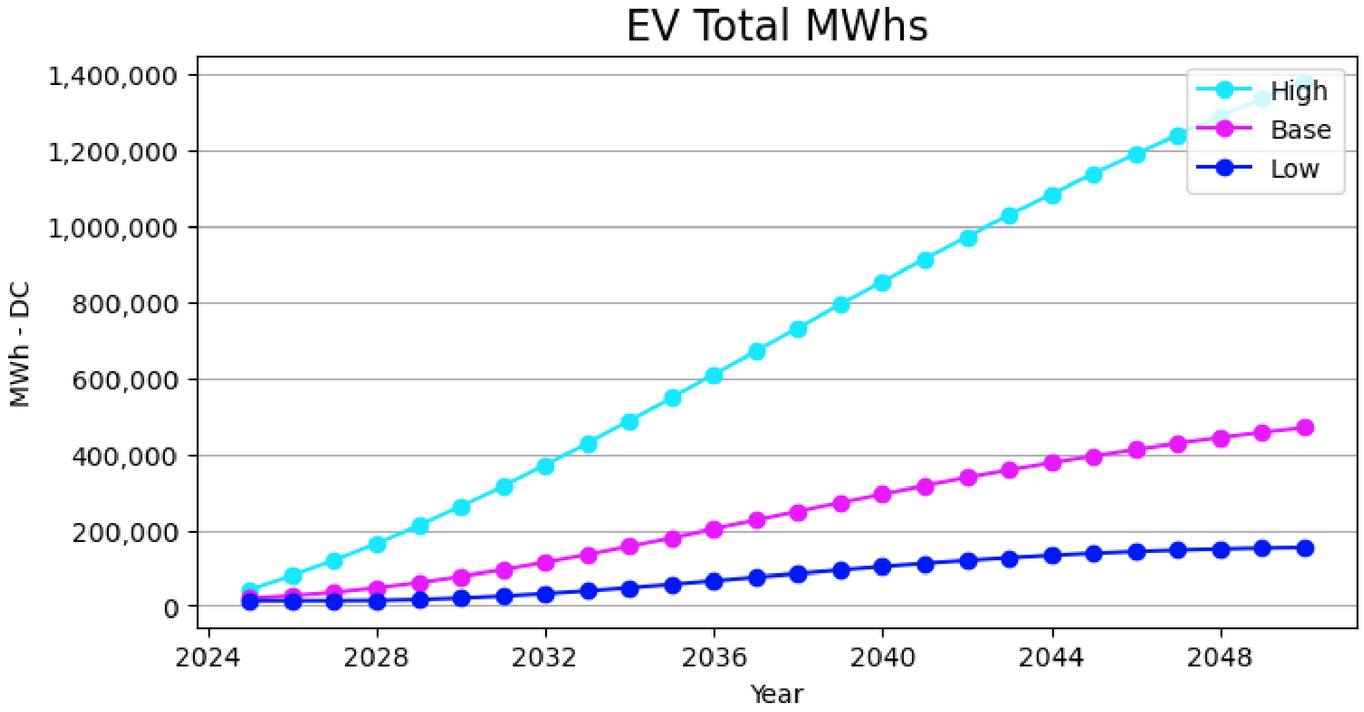
→ proactive infrastructure investments,

→ resource planning, and

→ strategic readiness to capitalize on rising demand.

Result: EV energy (MWh) prediction

0.2M~1.4M



A steadily accelerating market and increasing uncertainty over the coming decades, underscoring the need for:

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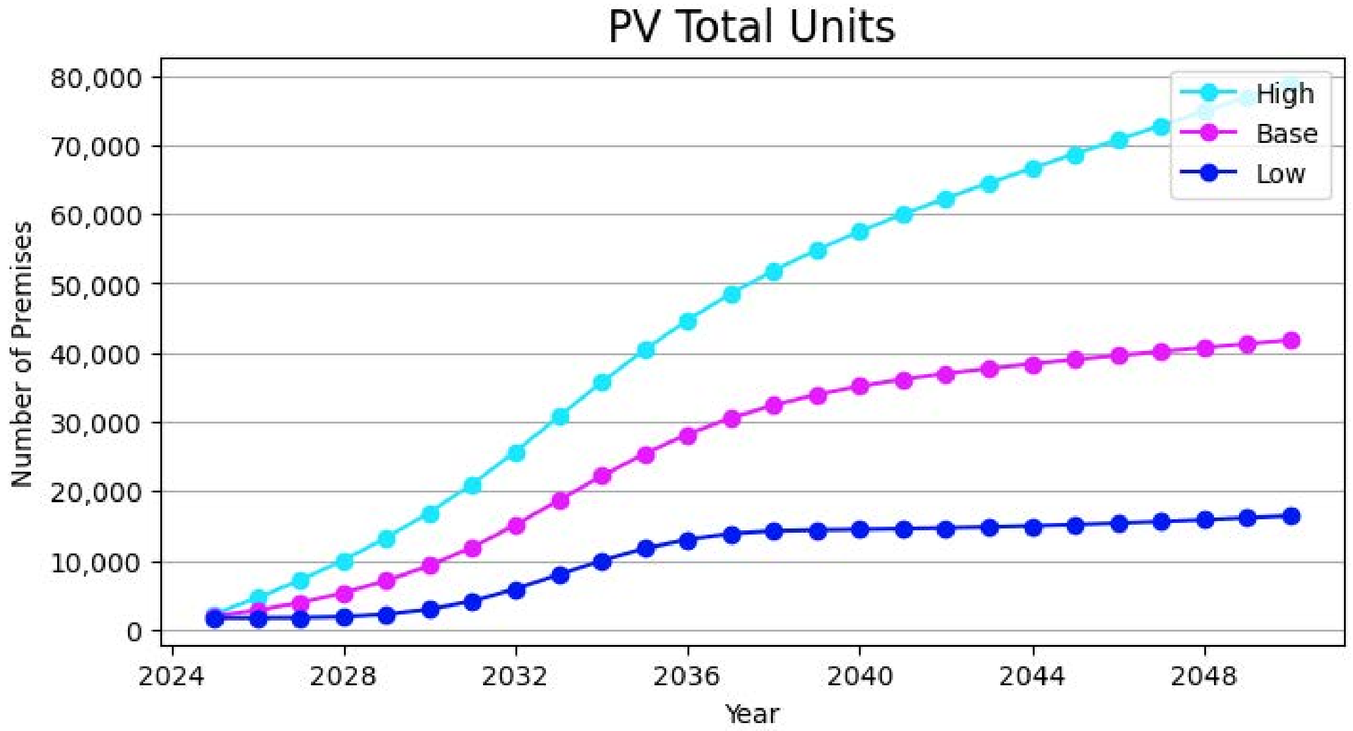
Result: Customer solar unit prediction

18k~80k



A steadily accelerating market and increasing uncertainty over the coming decades, underscoring the need for:

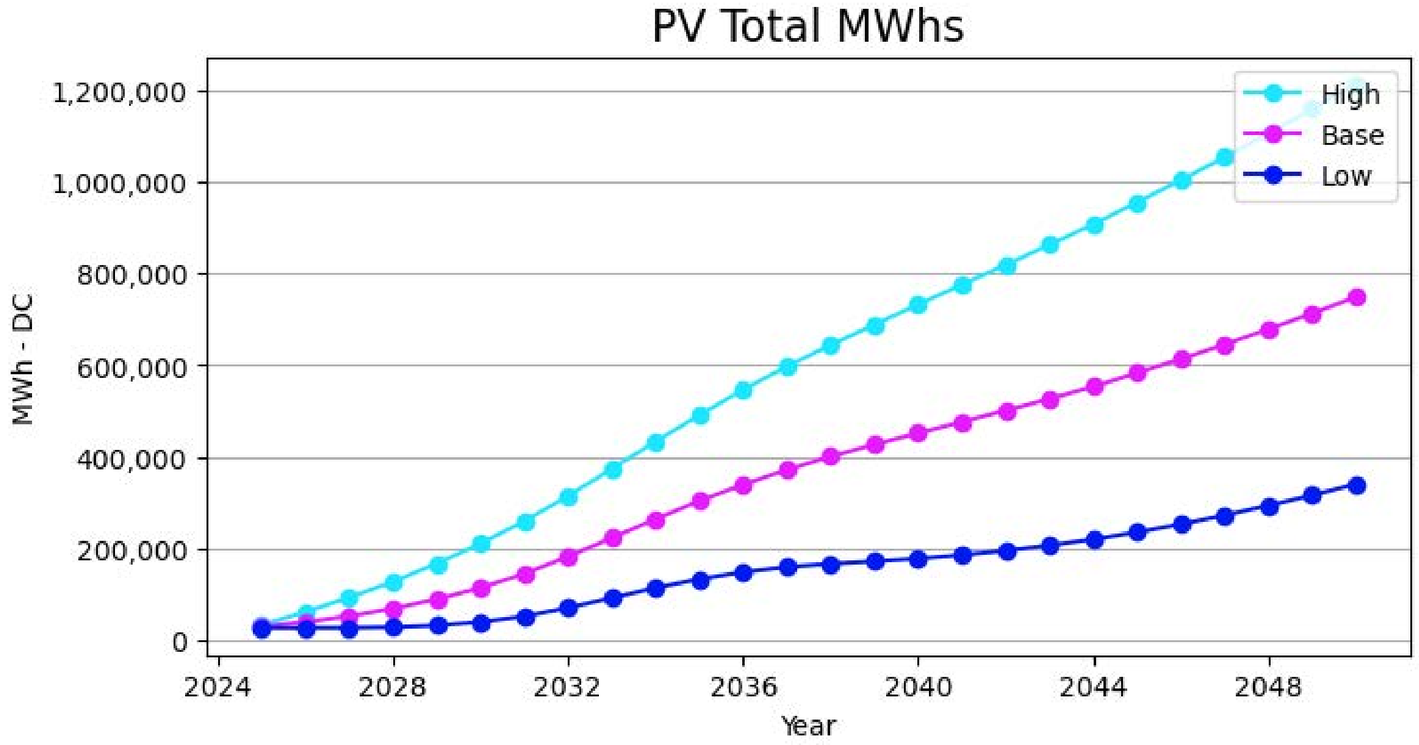
→ proactive infrastructure investments,

→ resource planning, and

→ strategic readiness to capitalize on rising demand.

Result: Customer solar energy (MWh) prediction

0.3M~1.2M



A steadily accelerating market and increasing uncertainty over the coming decades, underscoring the need for:

→ proactive infrastructure investments,

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→ strategic readiness to capitalize on rising demand.

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Key takeaways

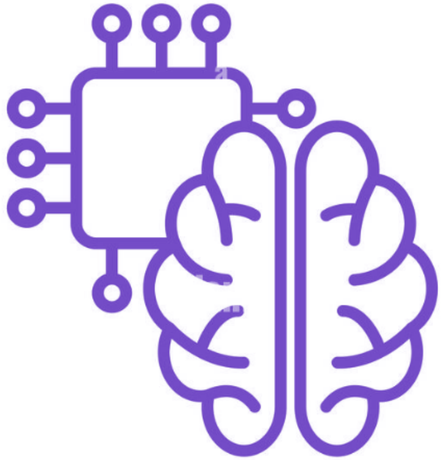
→A **rapid initial growth** phase for EV/solar adoption, which gradually slows, with **a plateau projected around 2036**.

→At the substation level, our analysis identifies **significant spatial disparity** in growth magnitude and uncertainty.

→This pattern suggests that high-adoption substations are also areas of high forecast uncertainty.

Methodology

Real-world data



Machine learning model

Forecast & insight

Data overview

→**PV data** (Customer solar records from AES)

→**EV data** (Vehicle registration records from Indiana BMV)

→Power grid data (from AES)

→Outage records

→Load records

→Census data (from US Census Bureau)

→Demographic survey collected by ACS

Electric vehicle energy (MWh) forecast

→Energy is a function of total EV units, average kWh/mile, and total number of miles/year/EV.

→Three trend scenarios were modeled:

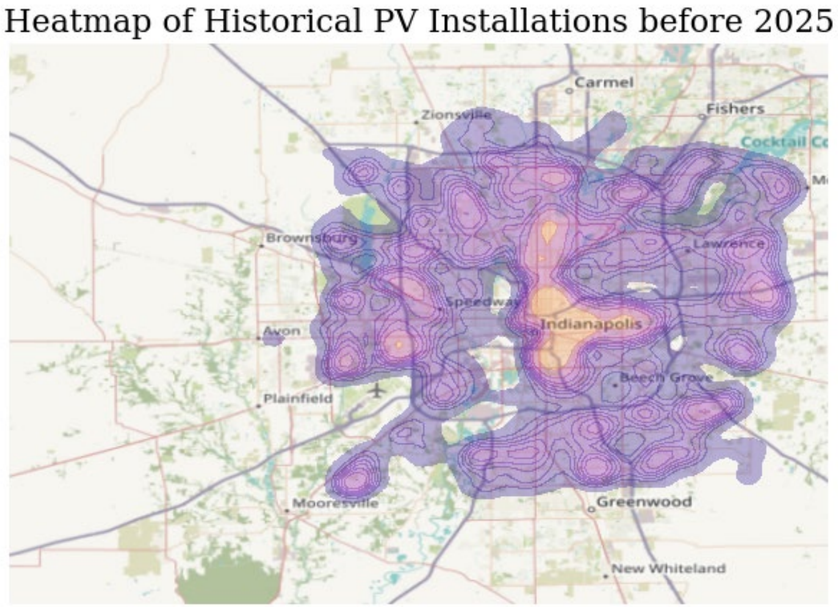
→Low, Base, High

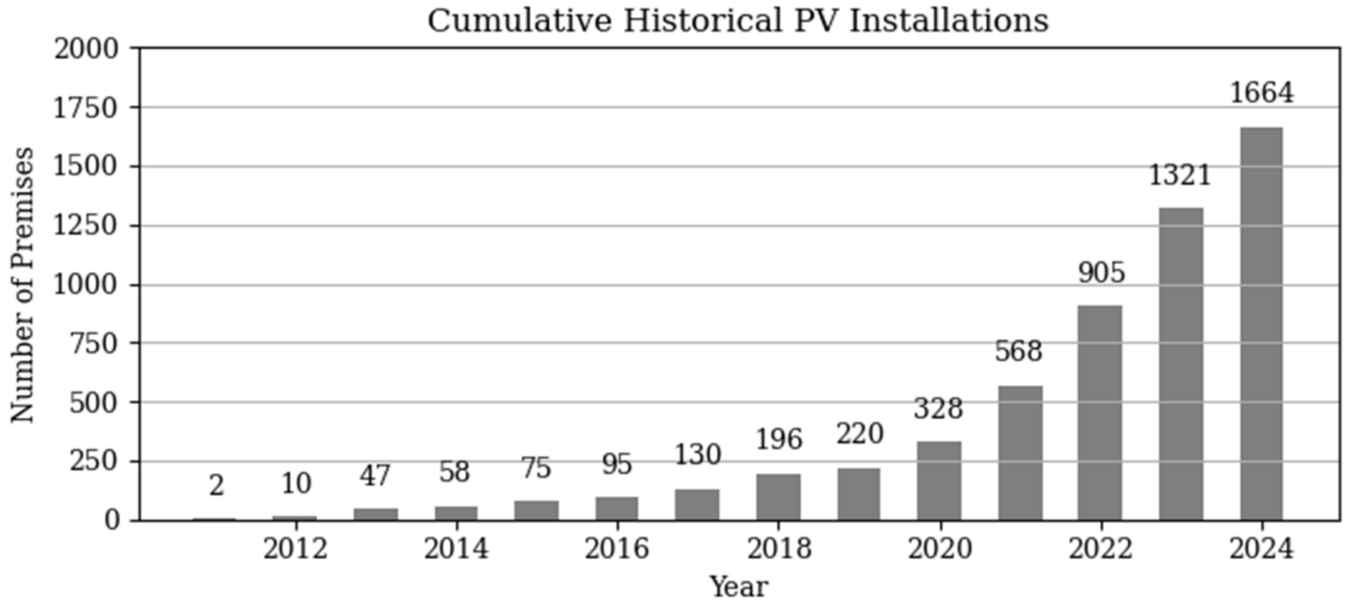
Assumption Chart

Input	Base	High	Low	Source
Average kWh/mile	0.345			Department of Energy & Energy Information Administration
Miles/year/vehicle	5,300	8,000	4,000	Car & Driver

Follow the same rule from IRP 2022

Data overview: PV data





→Rapid growth

→High PV demand in downtown Indianapolis

→Strong spatial heterogeneity

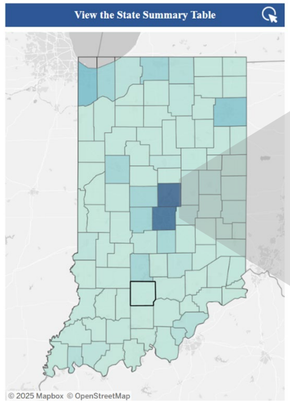
Data overview: EV data

→**Concentration in AES Service Region**

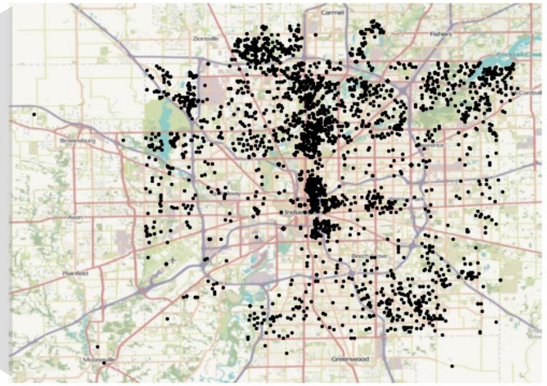
→**Fast-growing trend** compared to other vehicle types (e.g. gas)

→**Strong spatial heterogeneity**

EV in Indiana

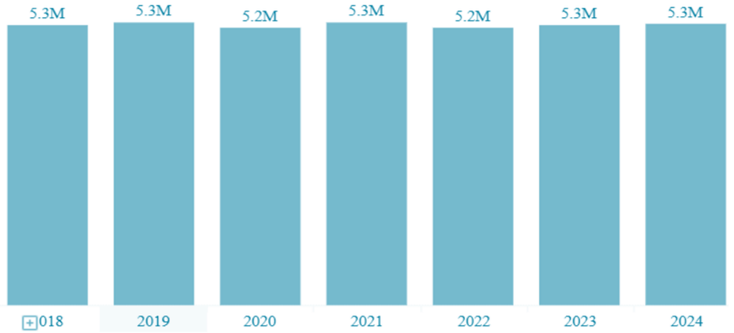


AESIndiana service region



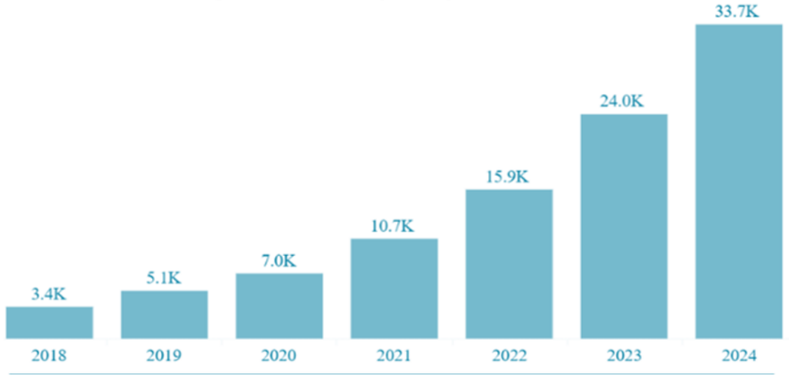
Gas Vehicles

Registration per year in Indiana



Indiana Office of Energy Development

EV Registration per year in Indiana



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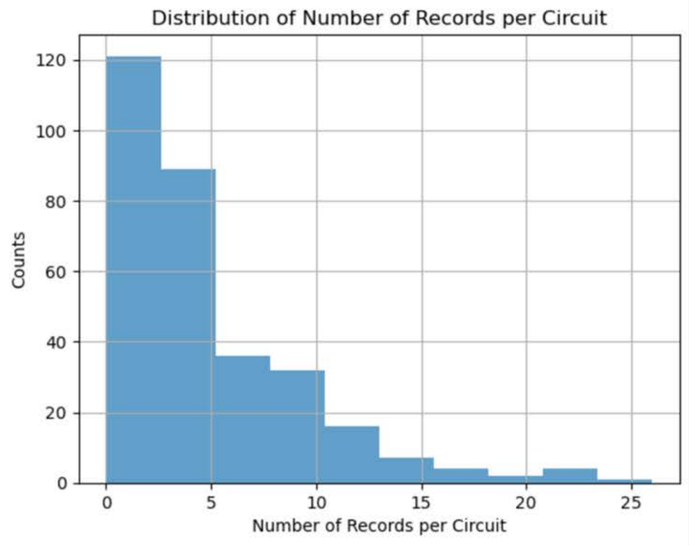
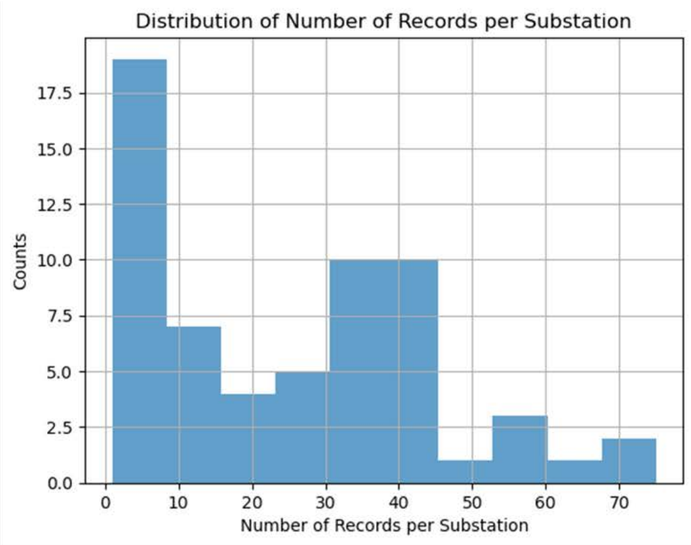
Distribution system analysis



~5 installations per circuit



~24 installations per substation

→**Data sparsity** at substation and circuit level.

→**Need action** to meet growing demand.

→e.g. substation average ~24 installations (2025) to ~786 installations (2050 prediction)

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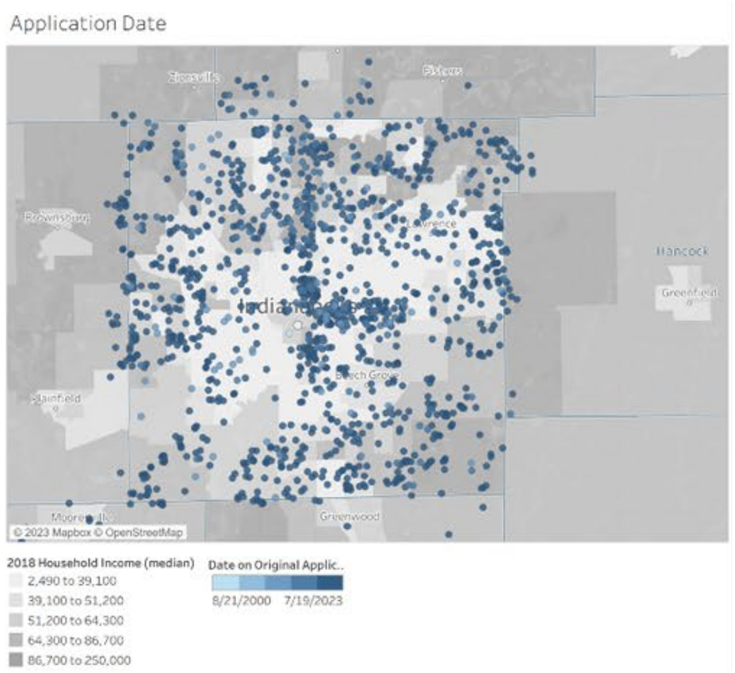
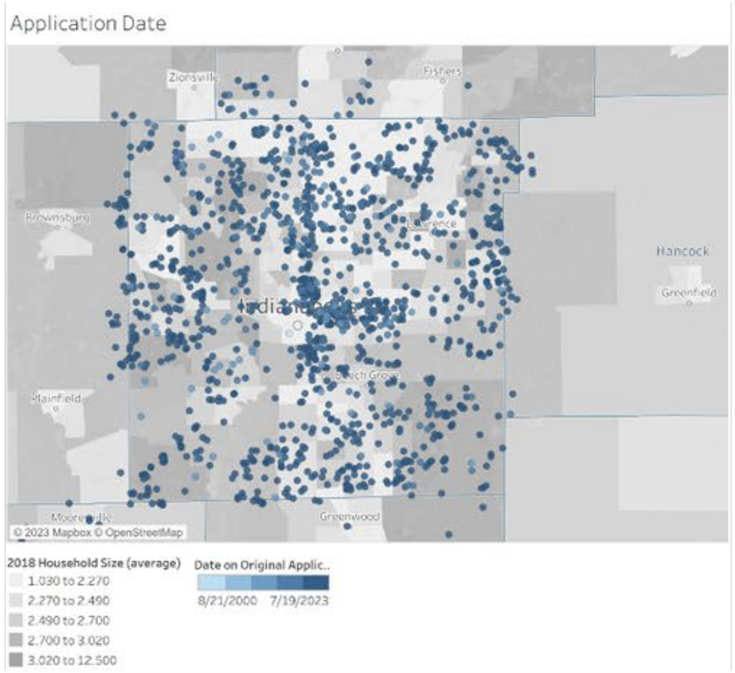
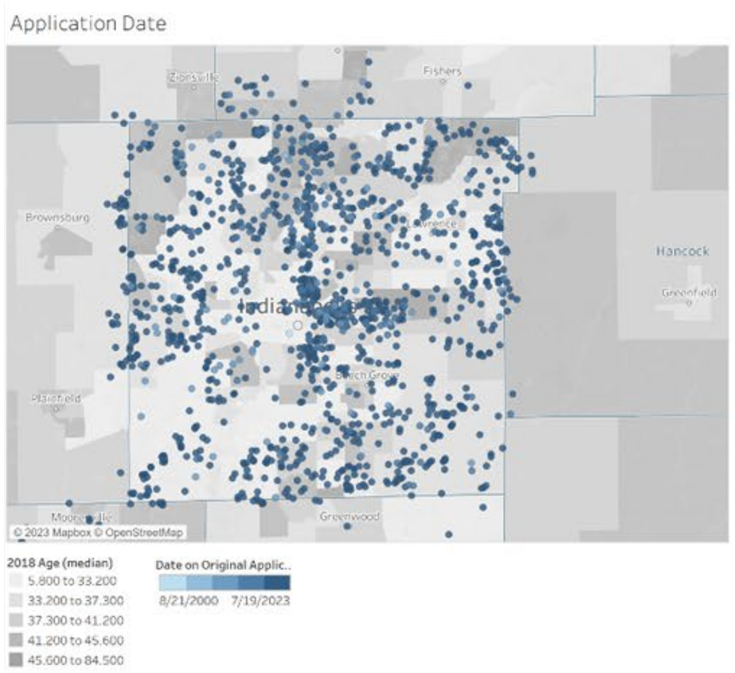
Correlation analysis



Household income



Household size



Median age

→EV / PV growth **depends on other covariates**

→Need to **include these covariates into the prediction**

Takeaways from data analysis

→DER Data shows considerable **sparsity** both temporally and spatially.

→Individual unit records are highly **random** and **unpredictable.**

→The growth of DER may **depend on some key exogenous factors.**

Method

→Machine Learning Model for EV/PV Adoption

→Base Forecast

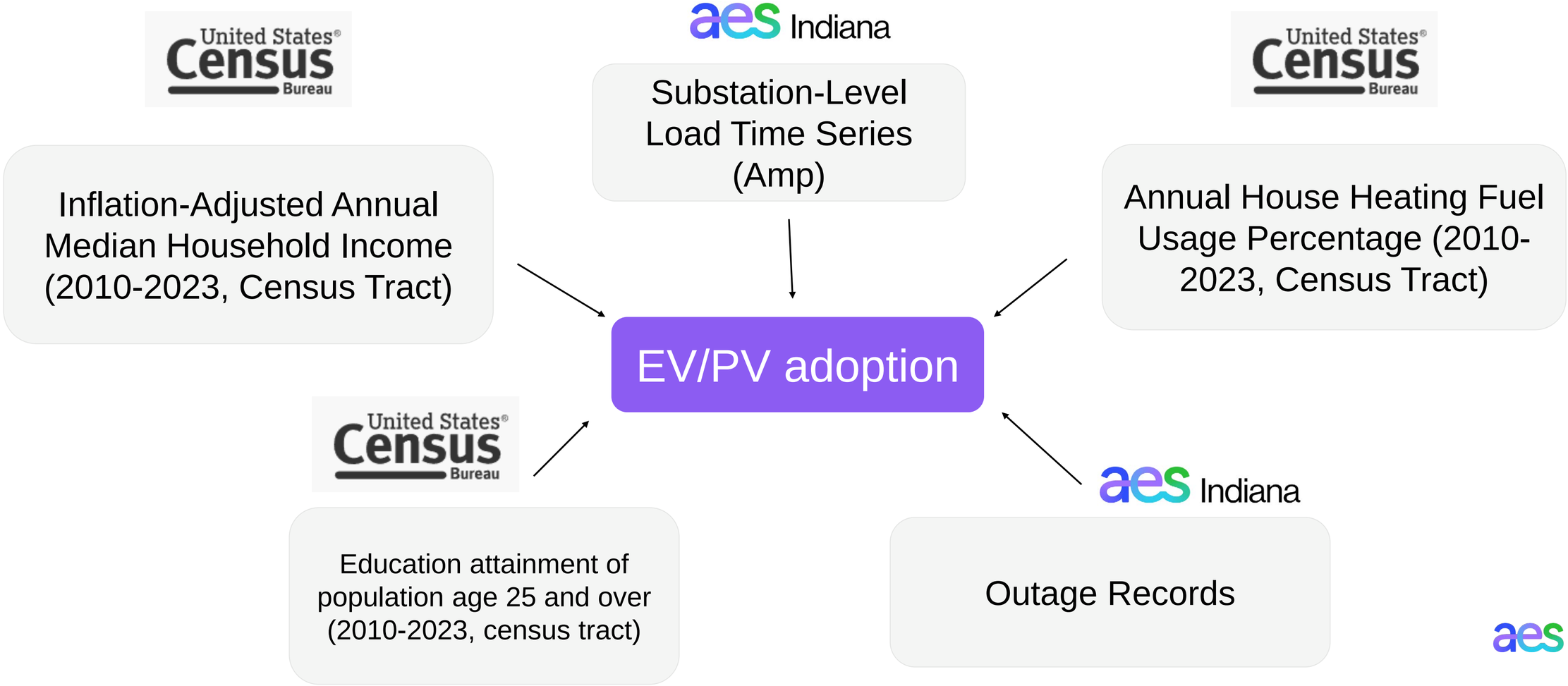
→Statistical Framework for Uncertainty Quantification

→High and Low Forecast

→Model Evaluation

EV/PV prediction model

Adoption in the next month in a region = **Exogenous Influence** + Endogenous Effect



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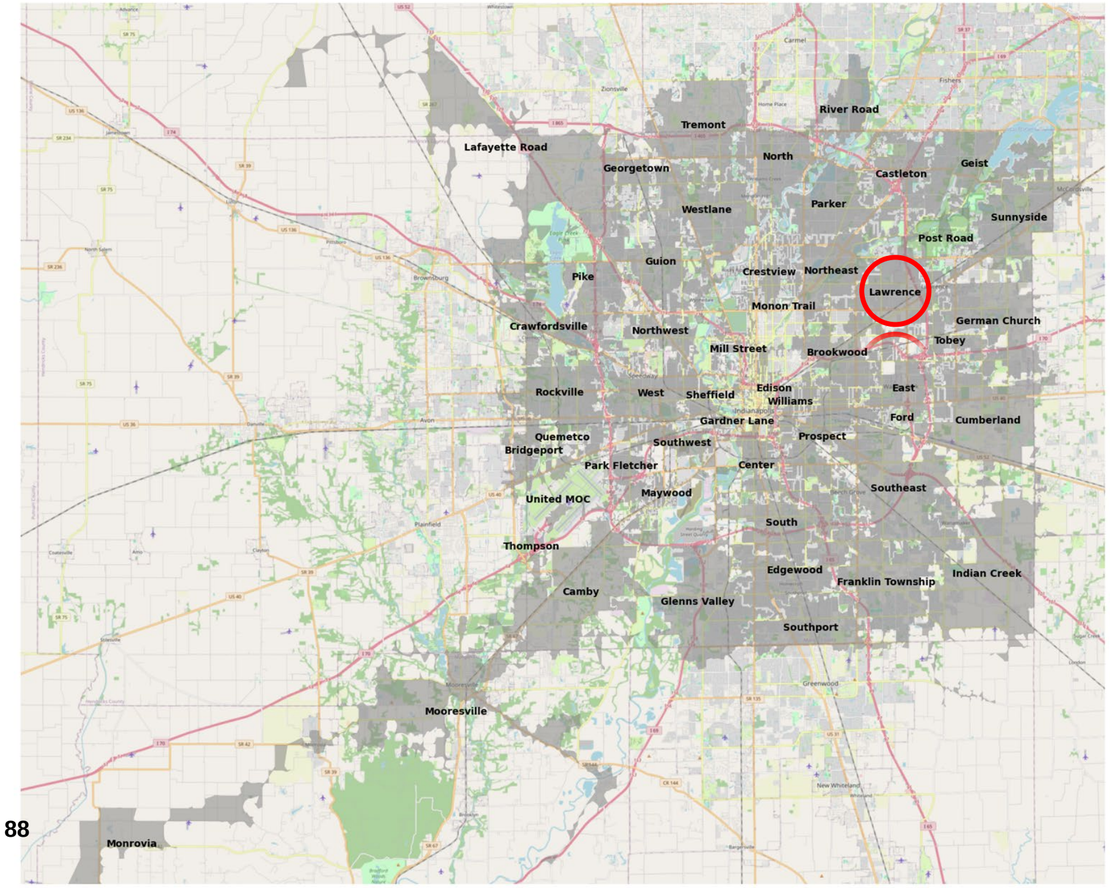
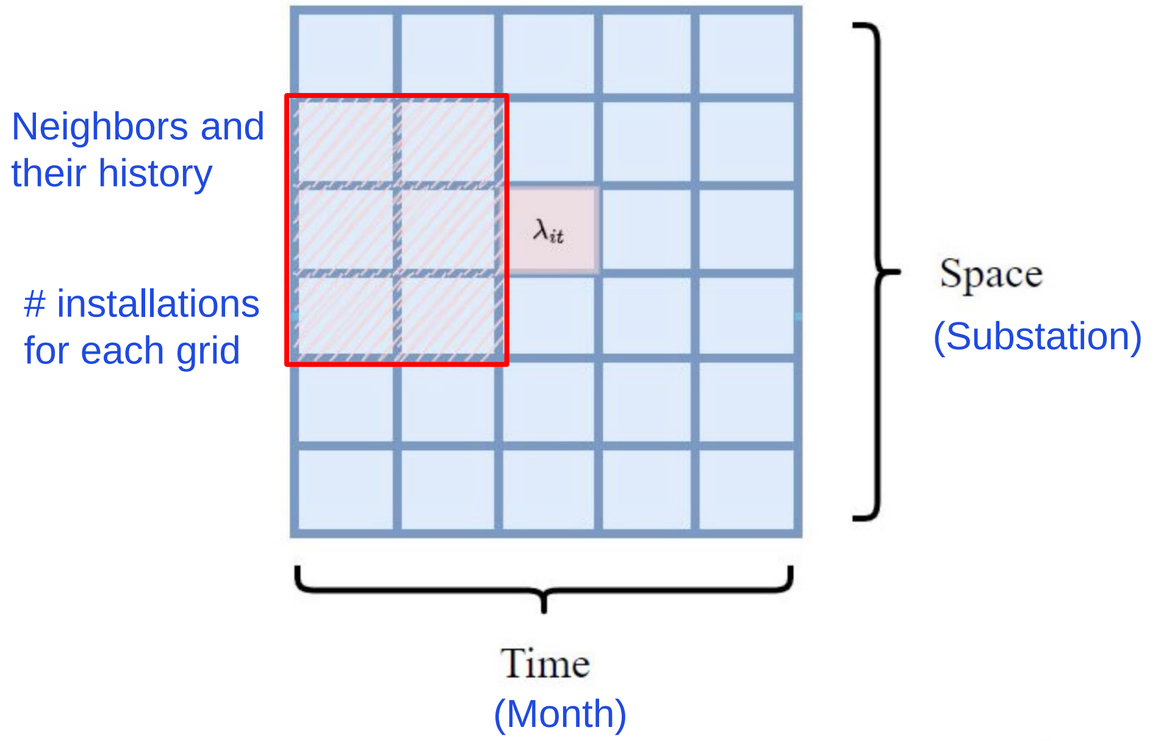
EV/PV Prediction Model

Adoption in the next month in a region = Exogenous Influence + **Endogenous Effect**

"The adoption in a substation may depend on the adoption level of its history and neighbors."

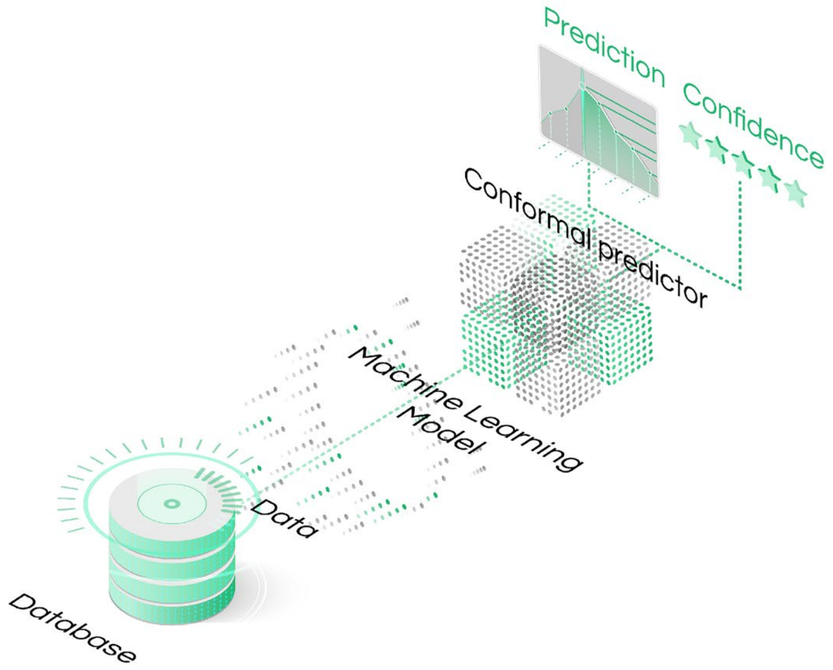




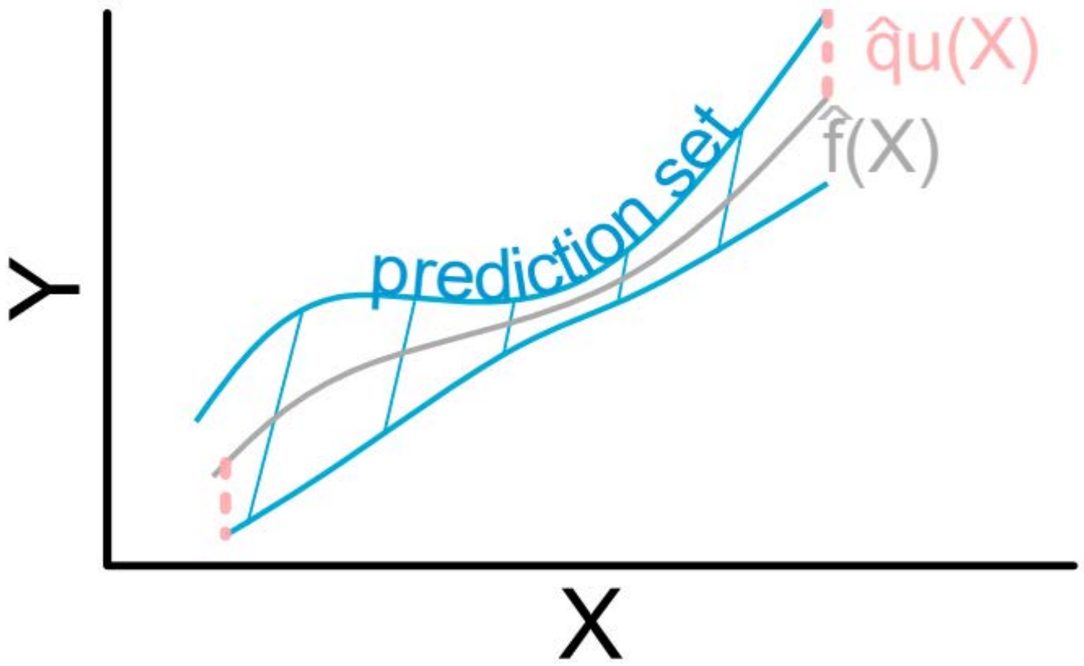
Uncertainty quantification

Conformal Prediction

A model-agnostic uncertainty quantification framework



Construct the high and low base prediction



Hyper-parameters selection (EV)

Supporting evidence to our key assumptions on the hyperparameters:

→ **Confidence level:** Confidence with the low and high predictions

→ Quality and quantity of data + model evaluation

→ **Our choice: 70%**

→ **Tipping point:** The timing when fastest growth rate hits

→ Expert opinions: US tipping point arrives 2021~2031.

- Camus Energy: Indianapolis region arrives at 2029

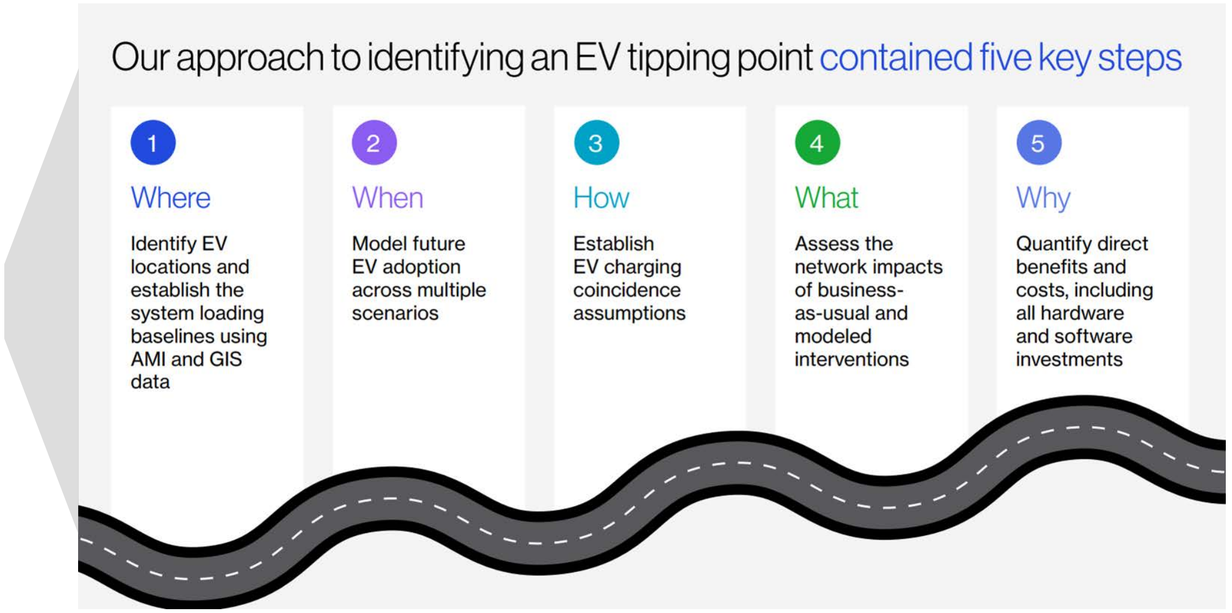
→ **Our choice: 2029**

→ **Penetration rate:** Saturated market size theoretical limit

→ Multiple public surveys: >50% of American people will consider purchasing EV

- e.g. 54%, 57%, 38+40=78%

→ **Our choice: 56%**



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Hyper-parameters selection (PV)

Supporting evidence to our key assumptions on the hyperparameters

Confidence level: Confidence with the low and high predictions

→Quality and quantity of data + model evaluation

→**Our choice:** 90% (Res) and 10% (Com)

Tipping point: The timing when fastest growth rate hits

→*SEIA:* solar panel growth trend continue rising until 2029

→Indiana ranks high (12th) in solar generation.

→Policy incentives (e.g. ITC CEIC) effective until 2032

→**Our choice:** 2032

Penetration rate: i.e. saturated market size theoretical limit

→Current highest state: California = 8%

→**Our choice:** 7% (Res) and 4% (Com)

FRONTIERGROUP

14	**Los Angeles**	CA	Pacific	166.7	649.9	1
15	**Sacramento**	CA	Pacific	159.8	83.9	14
16	**Indianapolis**	IN	North Central	142.1	126.1	12
17	**Newark**	NJ	Northeast	112.0	34.9	27
18	**Hartford**	CT	Northeast	102.1	12.4	41
19	**Charleston***	SC	South Atlantic	101.5	15.2	38

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User portal

Dashboard demo link:

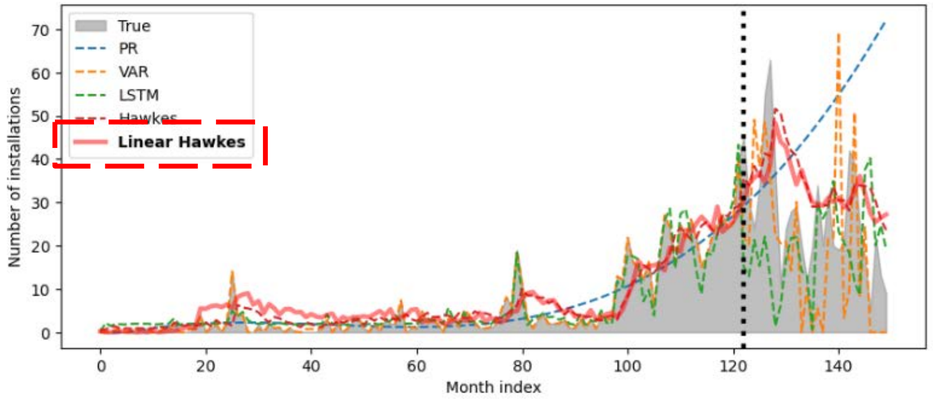
EV:
https://wbzhou2001.github.io/EVPV-Dashboard/ev_dashboard.html

PV:
https://wbzhou2001.github.io/EVPV-Dashboard/pv_dashboard.html

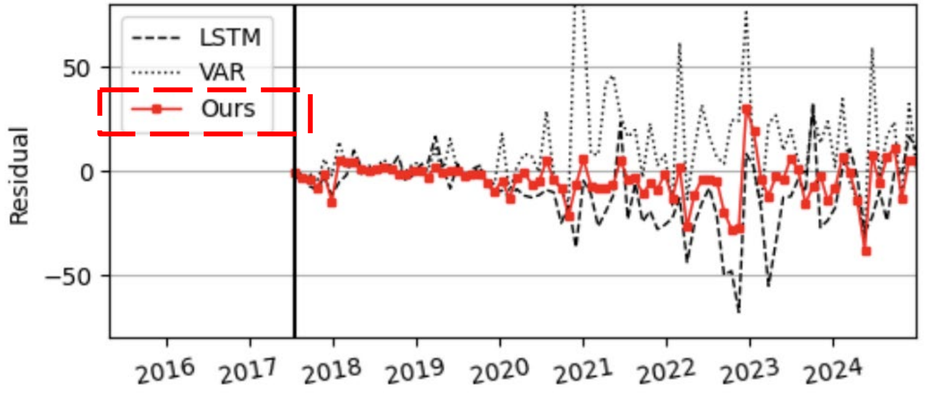
References and more detail of hyperparameter selection are included.

Evaluation

Our method (in red) outperforms other methods significantly regarding predictive error



PV Adoption Prediction Over Time



Prediction Error Over Time

Method	Aggregated MAE	Regional MAE	Regional STD
PR	26.51	0.23	0.34
VAR	15.17	0.40	1.19
LSTM	14.96	0.21	0.37
Vanilla Hawkes	13.35	0.19	**0.31**
Covariate enhanced Hawkes	**12.59**	**0.18**	**0.31**

Prediction Error Comparison

Carnegie Mellon University

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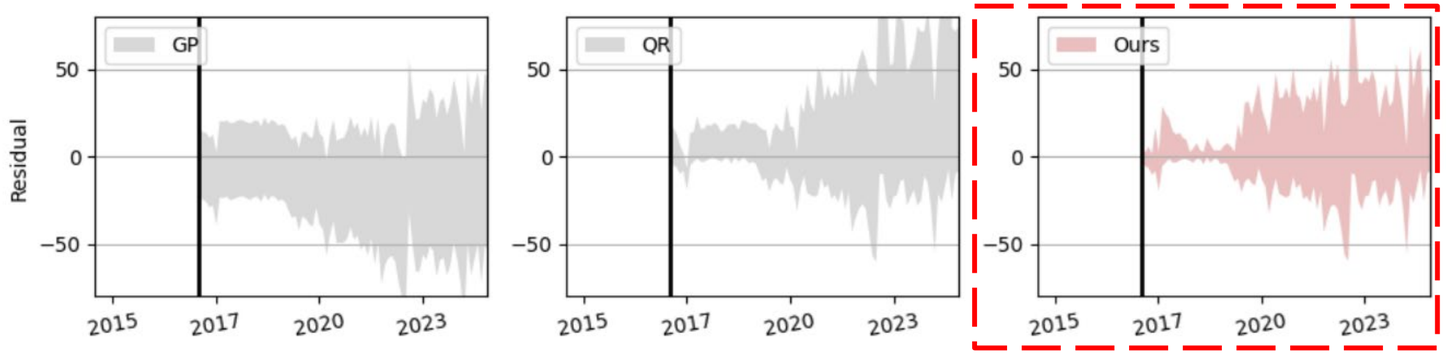
Evaluation

Our method (in red) achieves better uncertainty quantification (narrower prediction band)



Estimated Uncertainty Band Error Over Time Evaluation

Method	Full			Half		
	Val ↑	AggVal ↑	Size ↓	Val	AggVal ↑	Size ↓
LSTM	No (-)	No (-)	-	No (-)	No (-)	-
VAR	No (56%)	No (45%)	0.37	No (68%)	No (79%)	0.37
GPR	No (83%)	Yes (96%)	1.24	No (83%)	Yes (98%)	1.24
QFR	Yes (93%)	Yes (99%)	1.09	Yes (93%)	Yes (100%)	1.09
HST-Conformal	**Yes 99%**	**Yes 100%**	**1.06**	**Yes 99%**	**Yes 95%**	**0.77**

Uncertainty Band Validity (Probabilistic Coverage) and Efficiency (Size) Evaluation

2025 DSM market potential study introduction

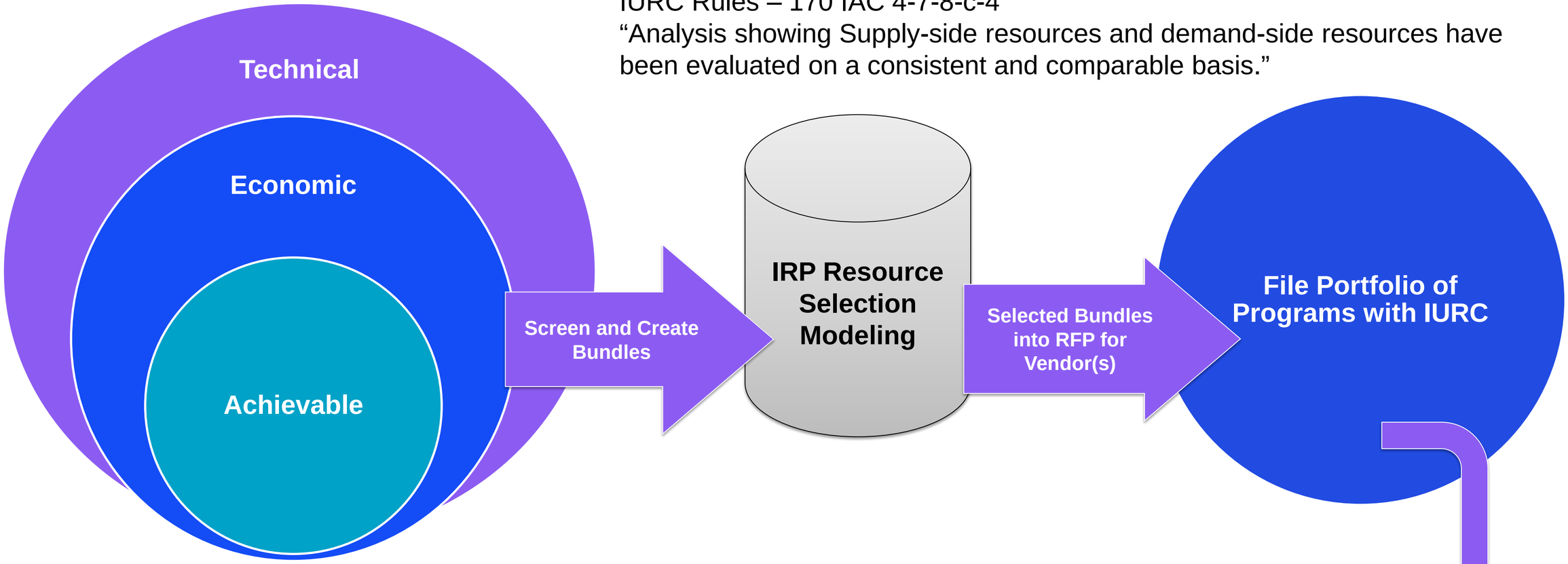
Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates

2025 MPS Topic Areas

- **MPS Overview**
  - Past Studies and Scope Overview
  - Current Project Timeline
- **Market Research Activities**
  - End-Use Analysis
  - Additional Research
- **Energy Efficiency Overview**
  - Major Topic Areas and Activities
  - Methodological Considerations
- **Demand Response Overview**
  - Major Topic Areas and Activities
  - Methodological Considerations
- **IRP Inputs**

DSM overview: DSM process in the IRP

IURC Rules – 170 IAC 4-7-8-c-4
“Analysis showing Supply-side resources and demand-side resources have been evaluated on a consistent and comparable basis.”



Market Potential Study

DSM Filing

2027-2029 AES-IN DSM Program Implementation

DSM overview: Past studies & current scope

- **GDS completed prior market potential studies in coordination with the 2019 and 2022 IRP.**

- **2025 MPS scope of work includes:**
  - End-Use Analysis & Primary Market Research
  - Secondary Market Research
  - Energy Efficiency Market Potential Study
  - Demand Response Market Potential Study
  - Electrification Analysis
  - DSM IRP Inputs

DSM overview: Deliverables overview

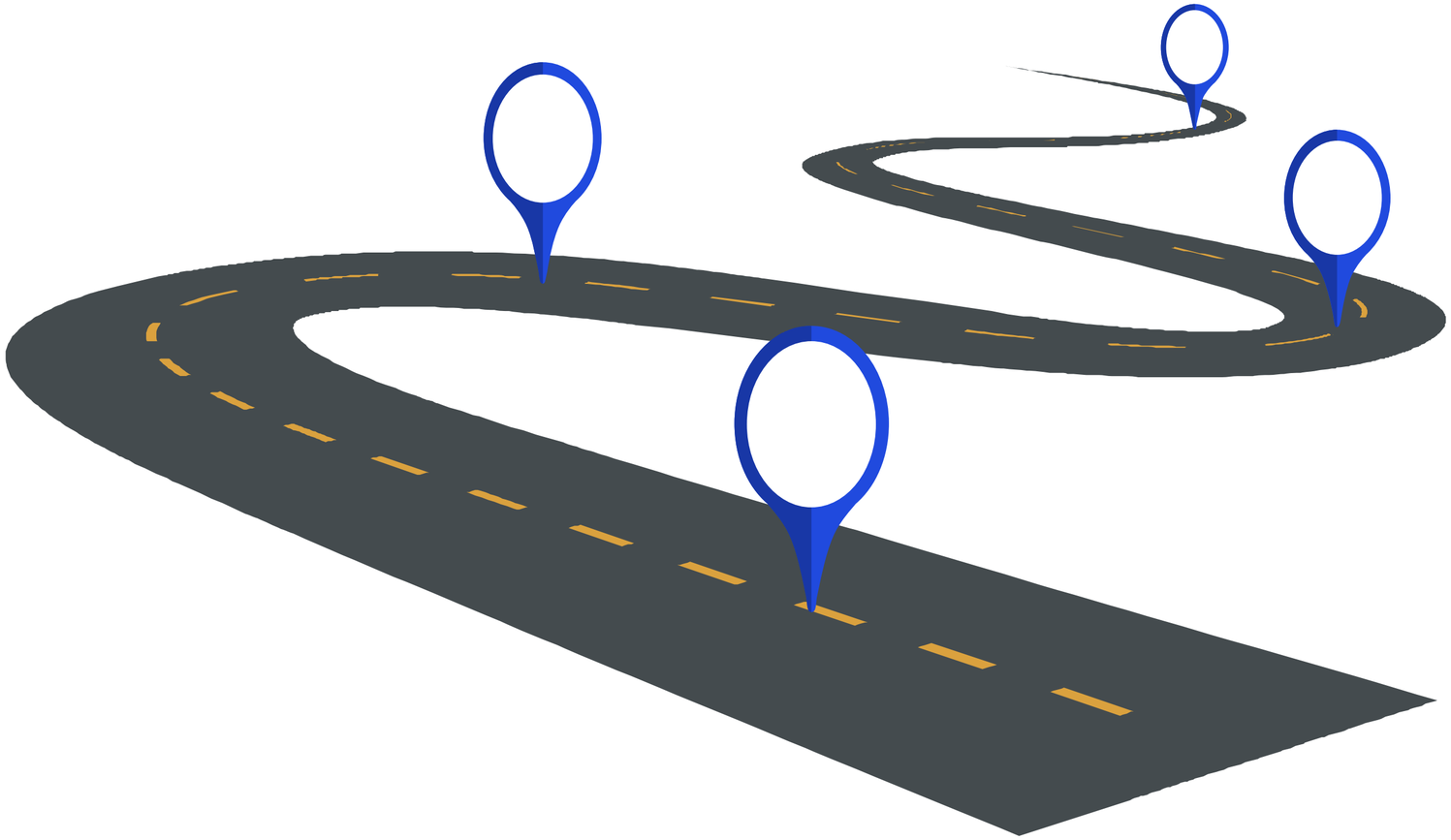
Anticipated Deliverables

- → Market Research Memo and Updated end-use indices used in future load forecasts
- → Energy Efficiency Market Potential Study
- → Demand Response Market Potential Study
- → DSM IRP Inputs

Items that are not an "outcome" of the DSM MPS:

- → IRP load forecast
  - → Used as an input into the DSM Market Potential Study
- → EV forecast
  - → Can be used to inform demand response potential of EV-related programs
- → PV forecast
  - → Can be used as an input to inform potential for battery storage programs
- → Utility-sponsored electrification programs
  - → Fuel-switching not directly considered, but GDS is looking at naturally-occurring electrification and impact to the load forecast

DSM overview: Project timeline



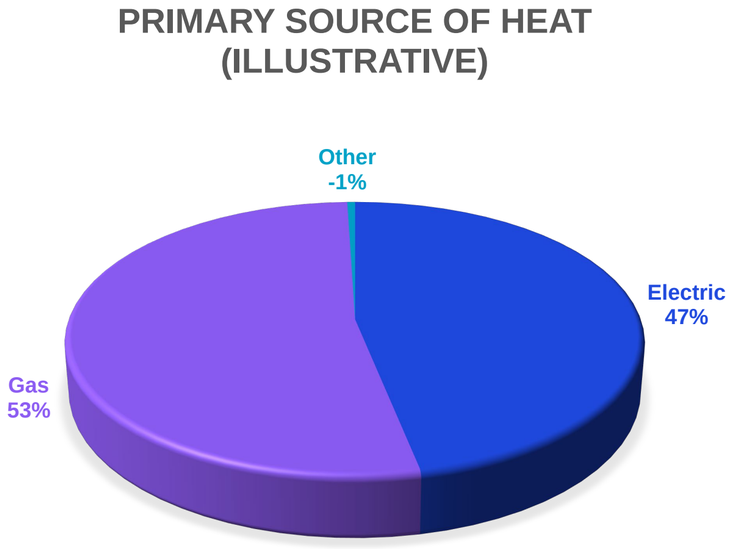
- → **End-use analysis**
  - → In field: January 2025
  - → Result: February 2025
- → **EE MPS**
  - → Draft results: March 2025
  - → Final results: May 2025
- → **Demand response**
  - → Draft results: March 2025
  - → Final results: May 2025
- → **IRP inputs:**
  - → Draft: April 2025
  - → Final: May 2025

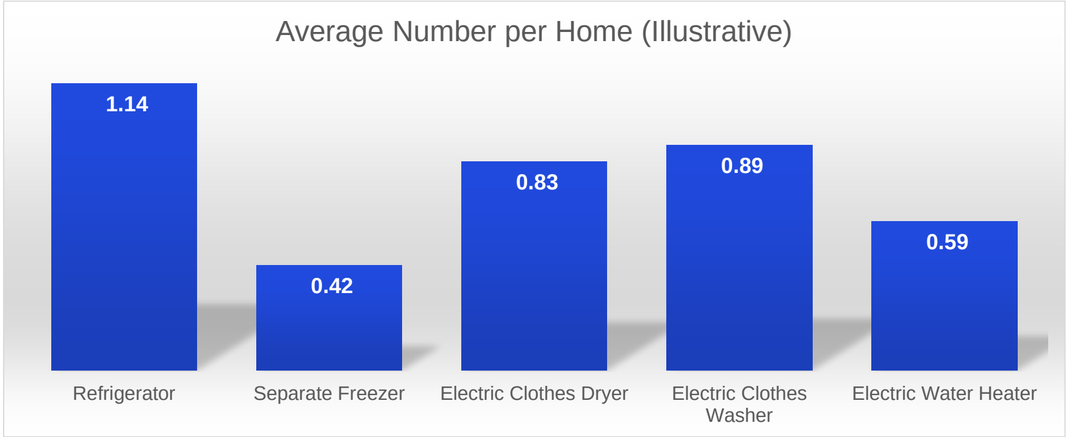
Market research: End-use analysis

- **Research to improve upon inputs typically used in both the AES Indiana load forecast and the GDS Market Potential Study**
  - Includes both primary and secondary market research
  - Email recruitment and on-line survey
- **Residential**
  - End-use market share
  - Unit energy consumption
- **Small Commercial & Industrial**
  - End-use Intensity
  - Distribution of customers by building type
  - End-use saturation

Market research: End-use analysis (cont'd)

- **Data collection elements limited to items that may be answered accurately**
- **Residential survey will collect:**
  - Ownership, age, and count of electric end-use equipment across major end-use categories
  - Information on smart appliances and electric vehicles
- **Nonresidential survey will focus on:**
  - Key end-uses: lighting, cooling, heating, ventilation, water heating, refrigeration
  - Key equipment penetration
  - Limited efficiency saturation (LEDs, controls)





Market research: Survey samples

Market Segment	Sample Design	Sample Frame	# of Responses	Response Rate
Total Residential Population	95/5 Design = 391 Responses	15,320 (100%)	TBD	TBD%
Multifamily Homes	90/10 Design = 109 Responses	4,359 (28%)	TBD	TBD%
Single Family Homes	282 Responses	10,961 (72%)	TBD	TBD%
Nonresidential	90/10 Design >70 Responses	7,840	TBD	TBD%

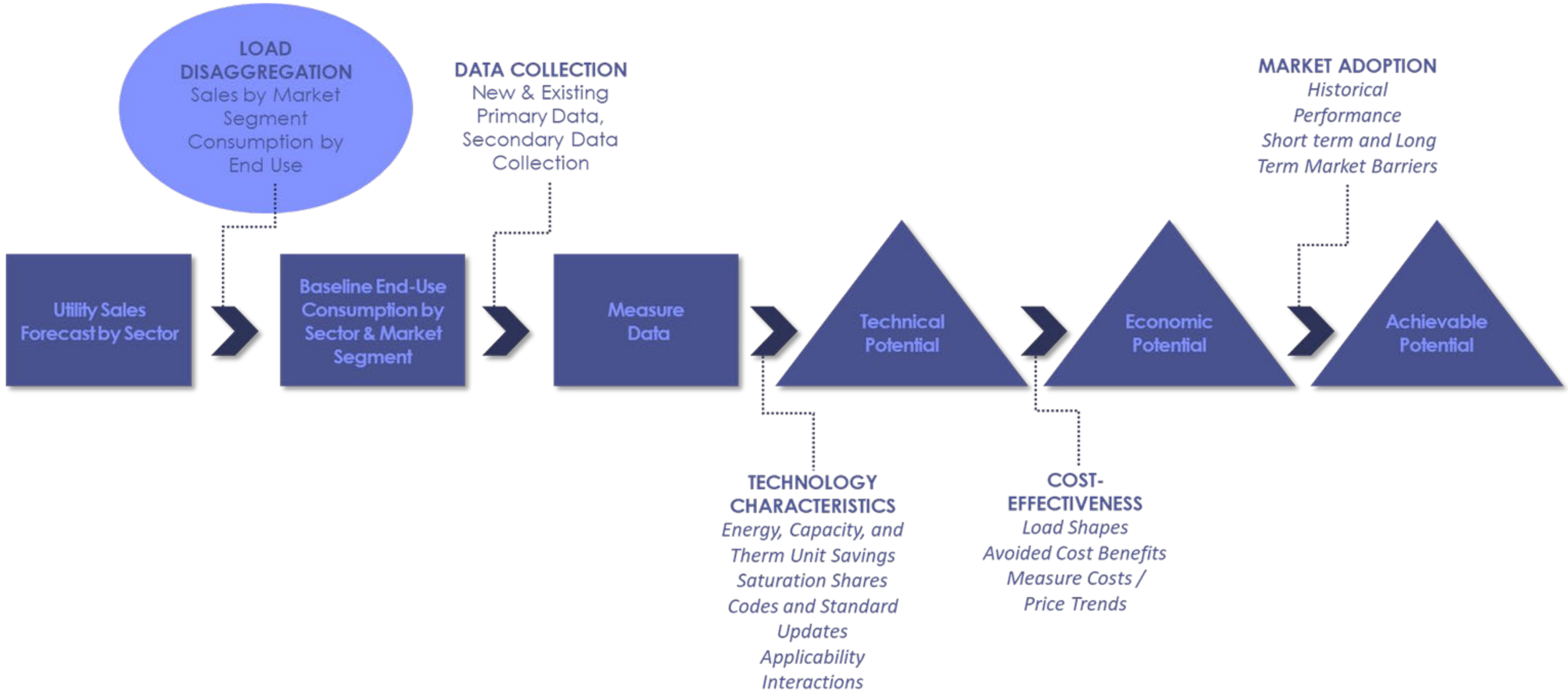
Market research: Additional survey efforts

- **The 2022 MPS market research included a willingness-to-participate (WTP) survey to collect consumer awareness and willingness to participate in various programs or purchase various equipment, such as:**
  - EE Equipment (HVAC, Hot Water, Appliances, Lighting)
  - DR Programs (AC Cycling, TOU Rates)
  - Electric Vehicles/Solar PV

- **GDS has collected similar research in other nearby jurisdictions with minimal differences across respondents.**

- **For the 2025 MPS we intend to offer a WTP survey that collects additional information on:**
  - Additional demand response opportunities
  - Potential impacts of other funding sources (ex. IRA funds)
  - Additional Distributed Energy Resource opportunities (that might not directly tie to the MPS, but could be useful future information to AES-IN initiatives)

EE overview: Flow chart



EE overview: Data input needs

- **Starts with a utility data request to understand:**
  - Timeframe of the analysis
  - Current utility sales forecast projections and sales by customer/industry codes
  - Current avoided costs of energy, capacity, transmission/distribution
  - Global economic inputs (inflation rate, discount rate, reserve margin requirement, line losses)
  - Current program/measure offerings
  - Current incentive levels and other program costs
  - Current participation levels and EM&V results
  - Any relevant DSM policy considerations

EE Overview: Market Data

→ **Understanding the load forecast**

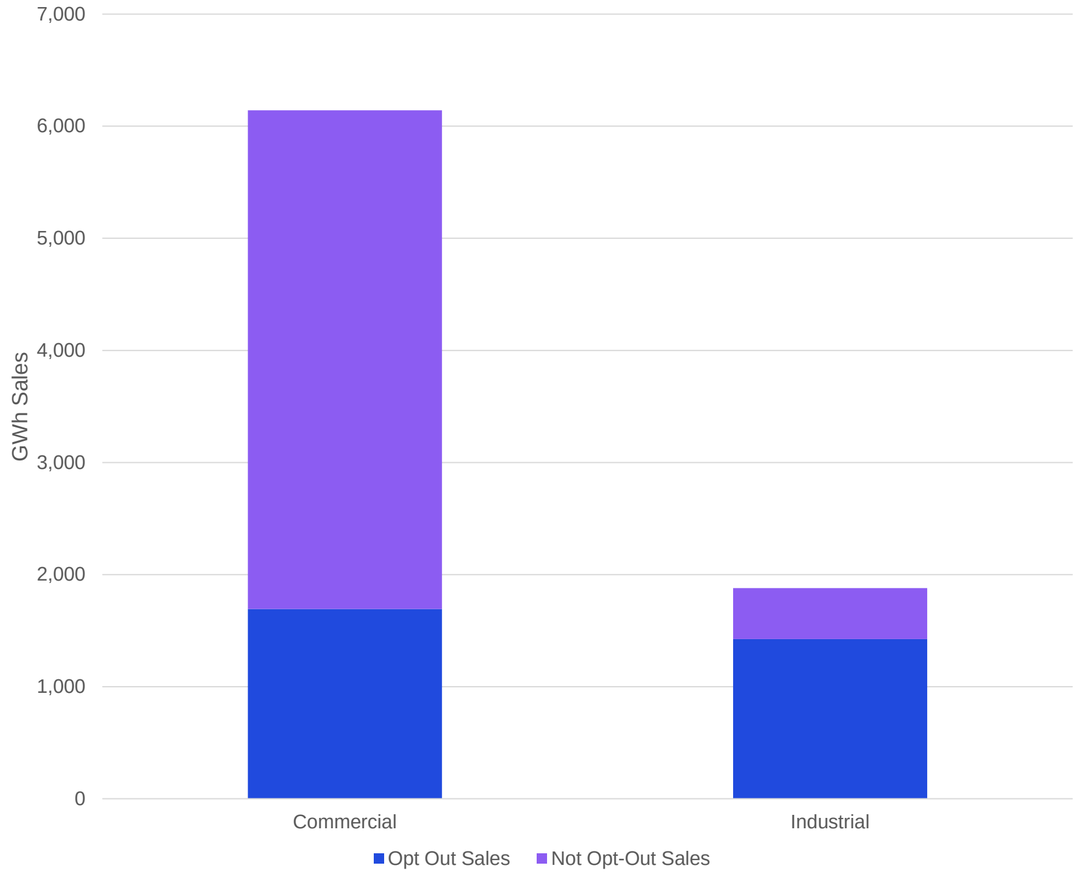
- → Sales and Customer Counts
- → Residential (single family/multifamily ; market rate/income qualified)
- → Commercial (by building type)
- → Industrial (by industry type)

→ **Understanding eligible sales**

- → Percentage of sales from “opt-out” customers
- → Percentage of sales from other “atypical” facilities with limited traditional EE opportunities

→ **Understanding consumption by end-use**

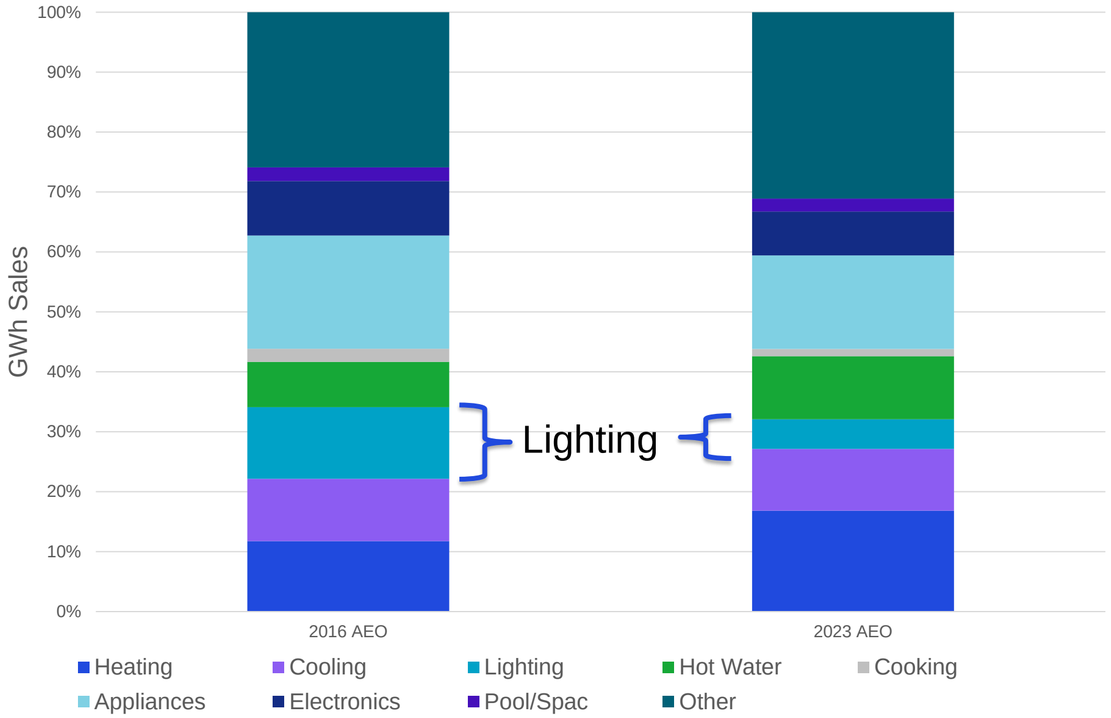
Illustrative example of opt-out sales (from 2022 AES-IN Market Potential Study



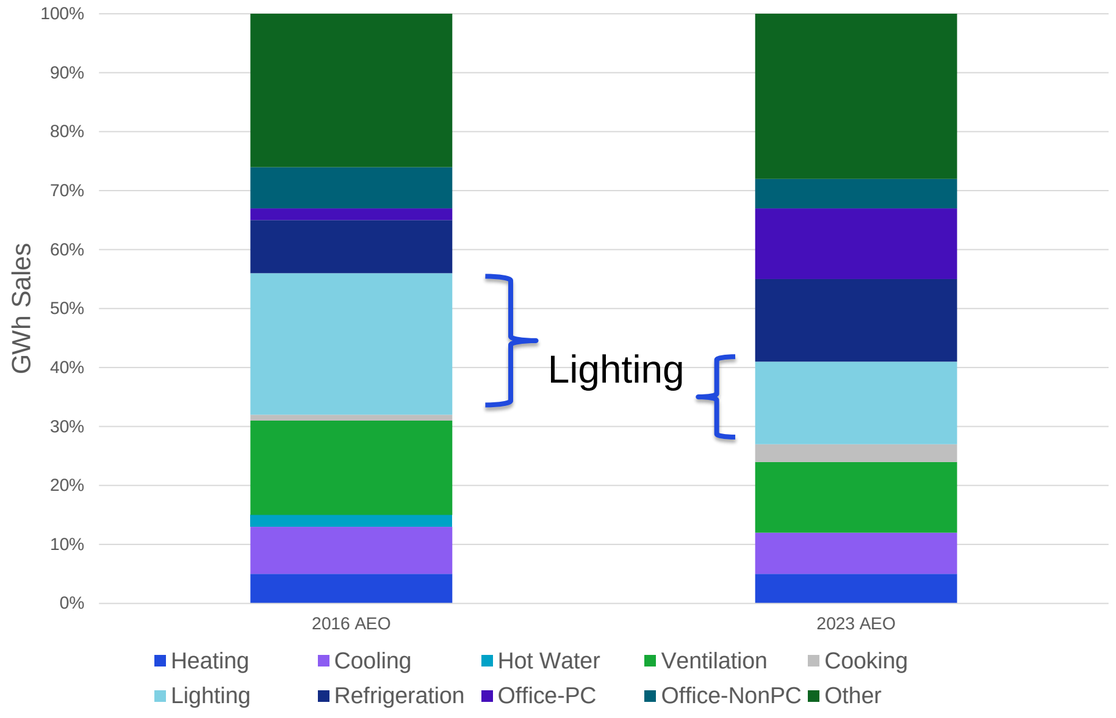
EE overview: Market data (cont'd)

In addition to changes in equipment stock, we also look to incorporate impacts that equipment standard changes have had on consumption.

Illustrative example residential end-use consumption (2016 AEO vs 2023 AEO)



Illustrative example commercial end-use consumption (2016 AEO vs 2023 AEO)



EE overview: Measure data

→ **Develop an AES-Indiana specific measure database of:**

- → Measure Savings (Annual Savings & Peak Demand Savings)
- → Measure Effective Useful Life (EUL)
- → Measure Costs (either full costs or incremental costs)
- → Measure Incentives

Derived primarily from the Indiana TRM w/ support from additional regional resources

- → Base Saturation Estimates (i.e., % of homes with a specific type of equipment)
- → EE Saturation Estimates (% of equipment that is already efficient)

Derived from a blend of primary market research and regional/national data sources

EE overview: Potential overview

TECHNICAL POTENTIAL

All technically feasible measures are incorporated to provide a theoretical maximum potential.

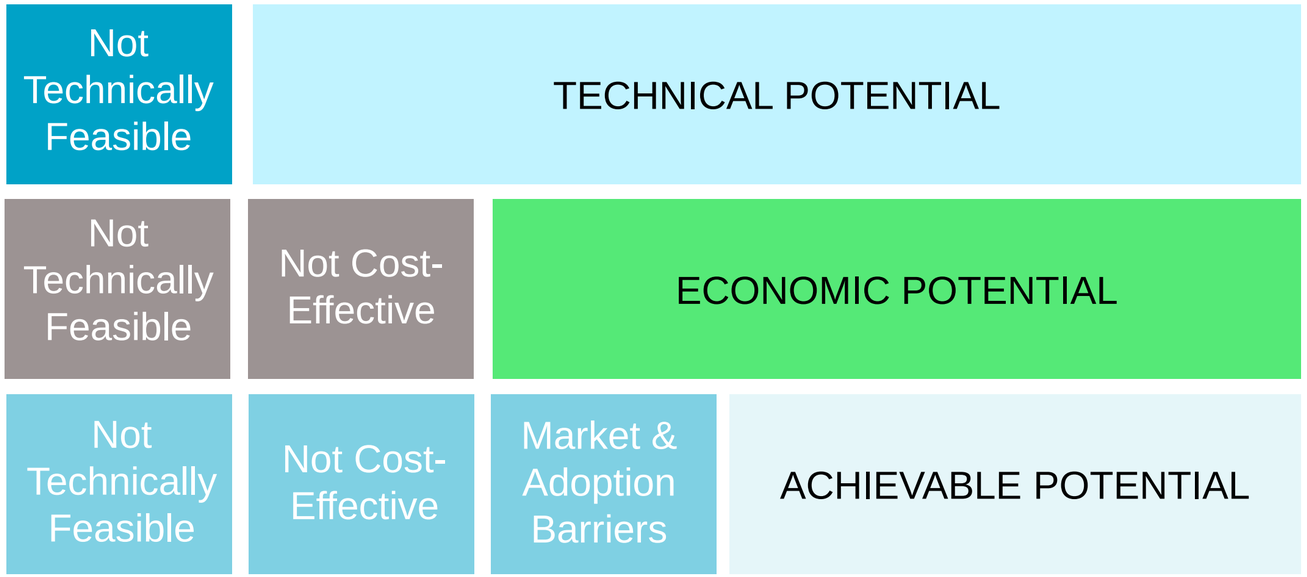
ECONOMIC POTENTIAL

All measures are screened for cost-effectiveness using the **Utility Cost Test**. Only cost-effective measures are included.

ACHIEVABLE POTENTIAL

Cost-effective energy efficiency potential that can practically be attained in a real-world program delivery case, assuming that a certain level of market penetration can be attained.

Types of Energy Efficiency Potential



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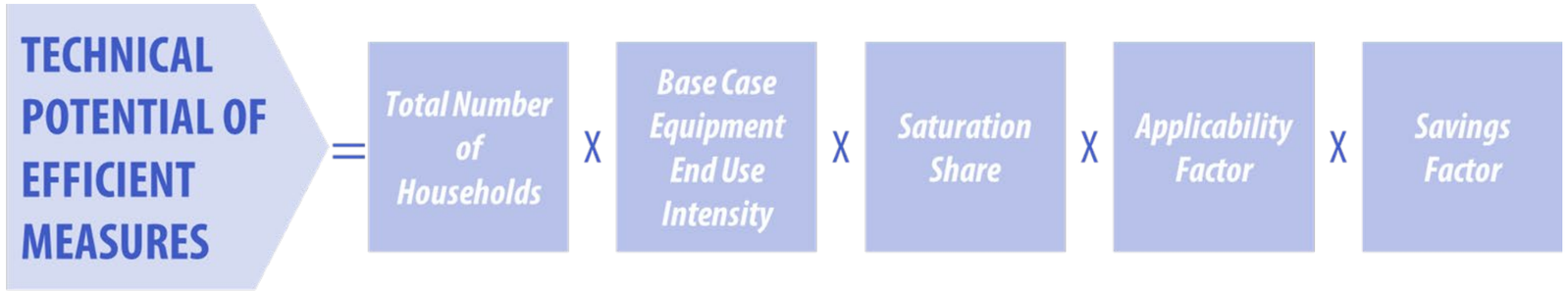
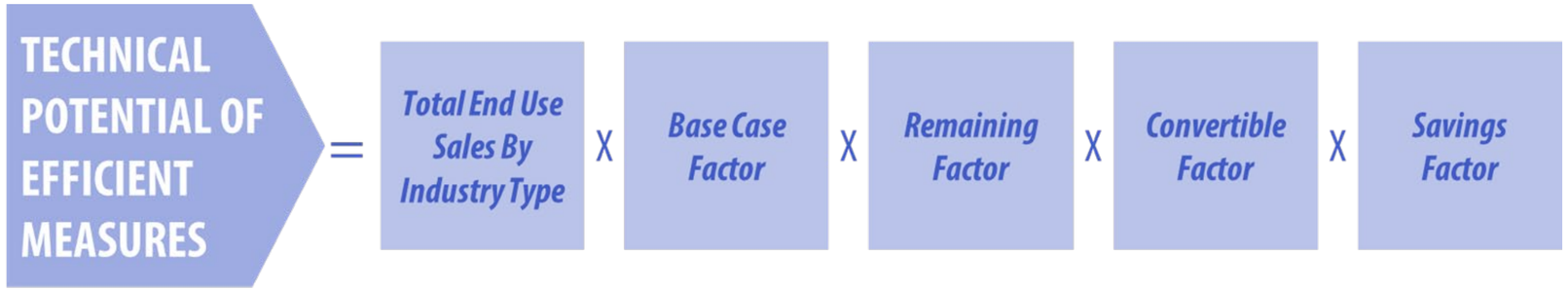
EE overview: Estimating potential

RESIDENTIAL EQUATION



NON-RESIDENTIAL EQUATION



- → Residential sector uses a “bottom-up” approach based on total number of households
- → Commercial Sector uses a top-down approach that disaggregates sales by building type, end-use, and measure type
- → Industrial also is top-down and applies end-use level savings factors to end-use sales due to high variability of equipment in industrial sector

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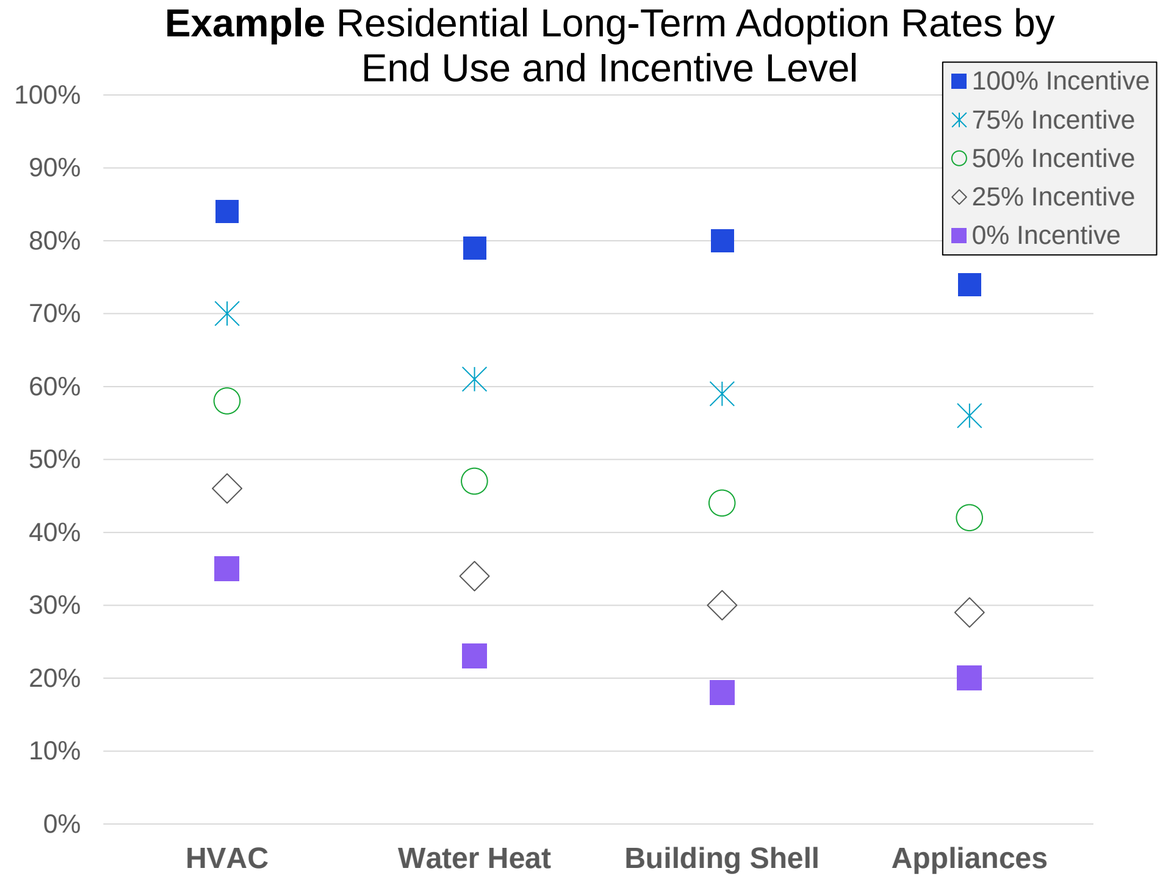
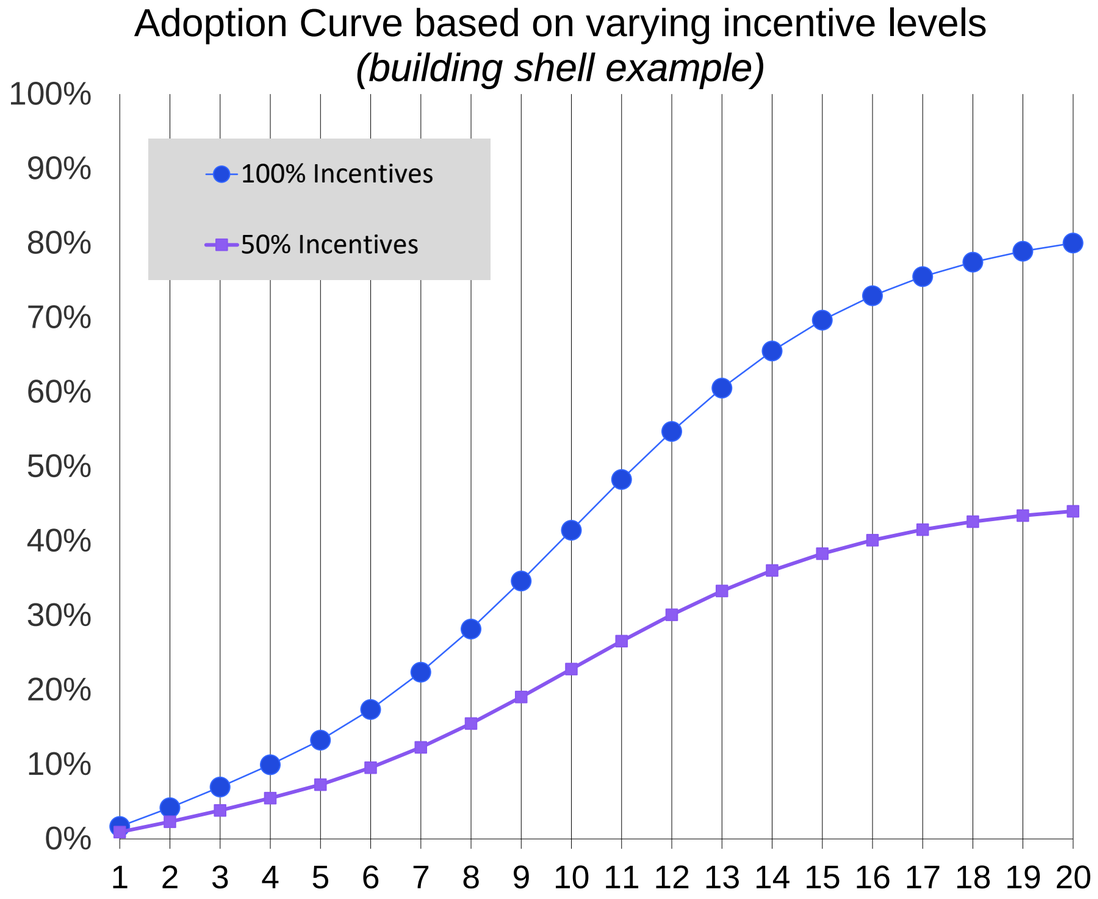
EE overview: Adoption rates

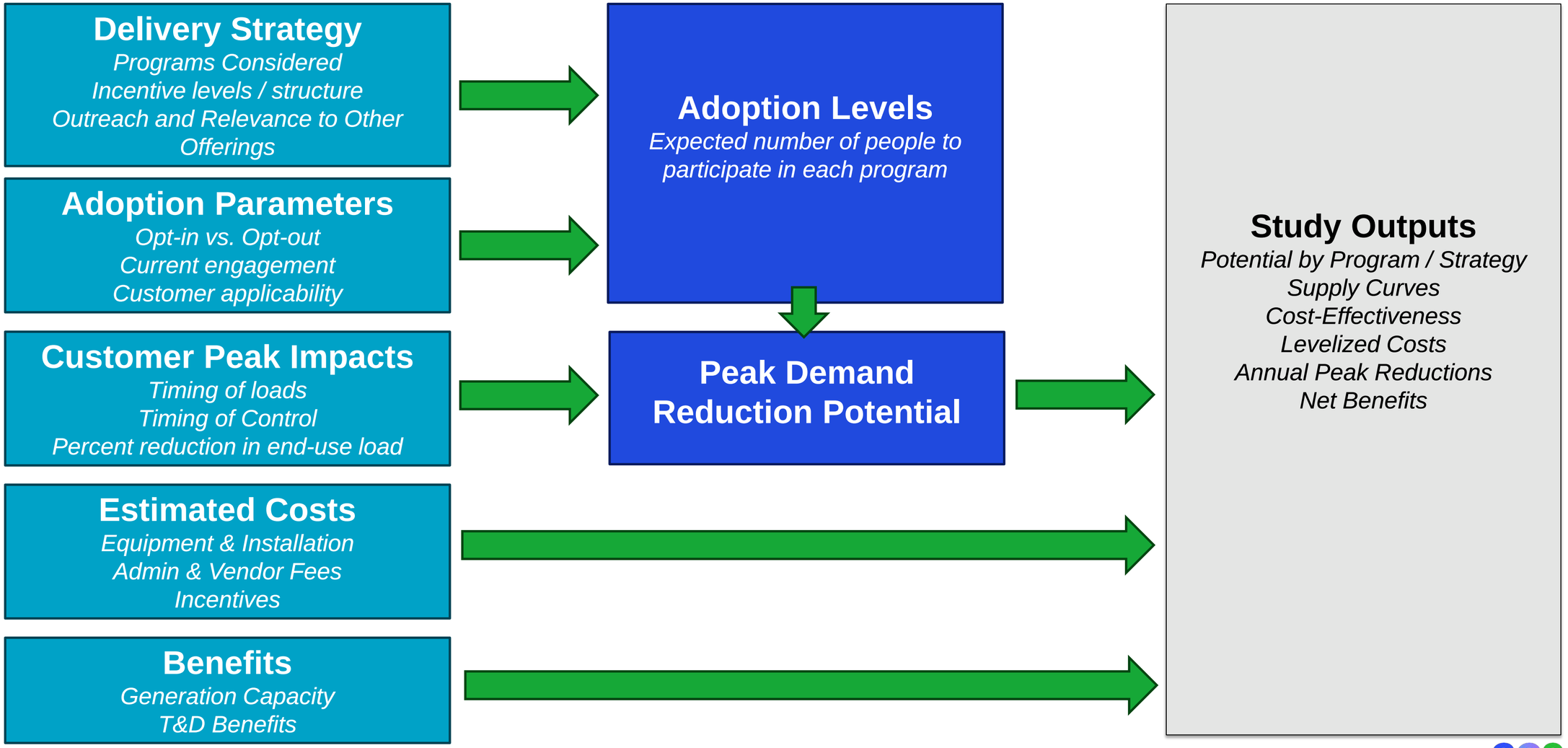




EE overview: EE MPS outputs

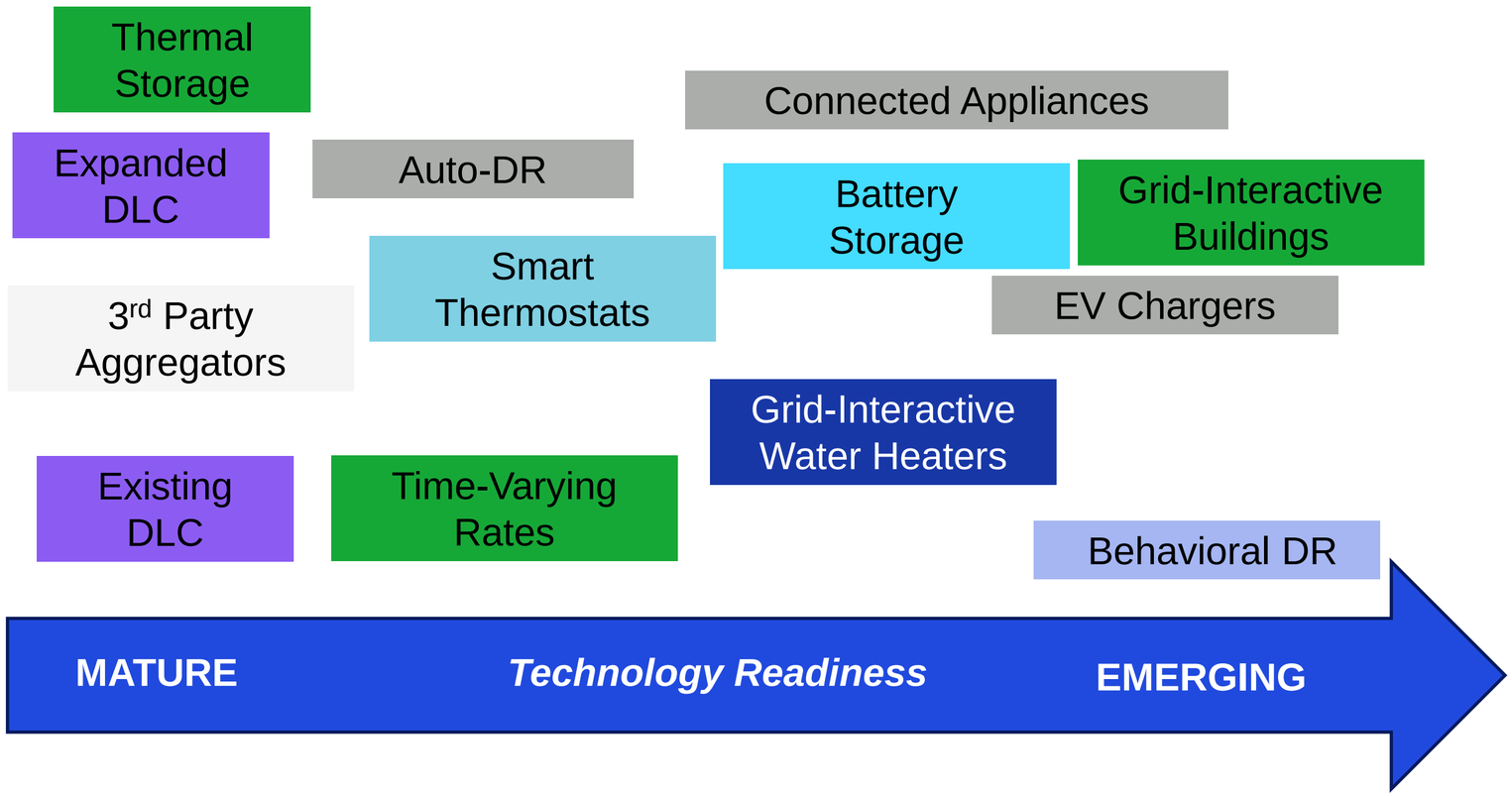
- **Energy savings by potential type**
  - Technical, Economic, Achievable, etc.
- **Gross and net savings**
- **Incremental annual and cumulative annual savings (MWh) by:**
  - Sector
  - Home/Building Type
  - Income Type
  - End Use
  - Program
- **Incremental and cumulative annual demand savings**
  - By Season
- Annual incentive and non-incentive costs
- Annual NPV benefits and UCT ratios
- Levelized costs of energy efficiency and supply curves
- Top program measures
- Top non-program measures

DR overview: Potential overview



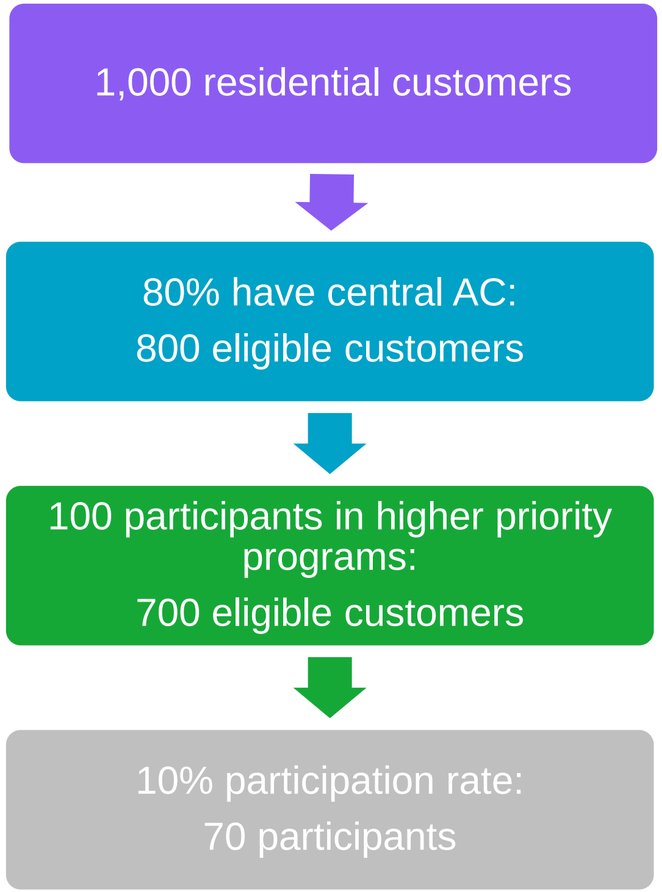
DR overview: Programs considered

- → **DLC – Central AC/Thermostats**
- → DLC –Room ACs
- → DLC – Smart Appliances
- → **DLC – Water Heaters**
- → DLC – Electric Space Heat
- → DLC – Lighting
- → Battery Energy Storage
- → **Electric Vehicle Charging**
- → **Curtailment Agreements**
- → Demand Bidding
- → Capacity Bidding
- → Time of Use Rates
- → **Behavior DR**



DR overview: Estimating participation

- → Eligible customers are those with the appropriate end use for a program (e.g., those with central AC for an AC control program).
- → A hierarchy is used to prevent double-counting of savings from programs that affect the same end uses. It is assumed for this study that customers cannot participate in multiple programs that affect the same end uses. Participants of higher priority programs are subtracted from the eligible market for the lower priority programs.
- → Market research and secondary research will help develop participation rates, which simulate the rate at which participants can be attained over the period of the study. These participation rates are applied to the eligible customers for each program.



Example of how participation is calculated

DR overview: Determining peak load potential

- → Analysis will be conducted using GDS Demand Response Model (DR Model). The model considers approximately 50 required inputs, including expected life of equipment, coincident peak kW load reductions per customer, proposed incentives, and program related expenses.

- → Utility-specific data on avoided costs, line losses, and discount rates will be incorporated. The primary benefit of DR is avoided generation capacity but also includes considerations for avoided transmission and distribution benefits.

- → The DR model determines cost-effectiveness using a variety of tests, such as UCT and TRC, as well as the estimated potential demand savings for each program.

- → Potential savings will be estimated for each season, dependent on both per participant reduction estimates as well as customer participation/eligibility across seasons.

Electrification overview: Analysis approach

- **It's different from market potential study in that it does not examine utility intervention for fuel-switching.**
  - Similar analysis was performed for 2022 MPS/IRP.
- **The analysis will look at the updated economics of electrification for key building technologies (heat pumps, water heating, clothes dryers) to understand overall benefits and costs.**
- **The analysis will utilize a bass diffusion to estimate a range of possible outcomes.**
  - Calibrate curves based on known historical adoption information and market research
  - If possible, use data from WTP and customer attitudes on impacts of federal funding on future electrification adoption levels
  - Account for building electrification effects already present in the baseline forecast
- **The analysis will help determine whether any adjustments to the load forecast to account for future electrification is appropriate.**

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Electrification overview: Results from 2022

Scenario	2023	2025	2030	2035	2040	2042	Percent Above Base Rate Forecast
Low	8,910	16,954	52,983	109,200	163,058	187,904	1.3%
Medium	10,709	22,653	74,905	181,388	301,705	347,890	2.4%
High	12,727	29,661	111,370	329,653	598,830	654,627	4.4%

→In a 2022 study, additional load due to electrification provided a range of 1.3% to 4.4% above the AES base forecast.

→As a comparison, NREL's Electrification Futures Study Reference Case was modeled as showing 0.9% growth above the base forecast by 2042.

DSM in the IRP: Expected input structure

DSM inputs are currently proposed to be:

- → Sector based (residential, income-qualified, and nonresidential)
  - → Residential and non-residential will be selectable resources; income-qualified will be a “going-in” resource
- → Three time-vintages (2027-2029, 2030-2032, and 2033-2045)
- → Based on RAP and/or “Enhanced” RAP (to be defined later)
- → Based on net savings
- → Costs will reflect utility incentive and non-incentive costs (less NPV T&D benefits)
- → Include hourly profiles for each bundle

Final Q&A and next steps

Public Advisory Meeting

Public Advisory Meeting #1	Public Advisory Meeting #2	Public Advisory Meeting #3	Public Advisory Meeting #4	Public Advisory Meeting #5
Jan. 29, 2025	**Mar/Apr 2025**	**Jun/Jul 2025**	**Aug/Sep 2025**	**Oct 2025**

- All meetings will be available for attendance via Teams. Meetings in 2025 may also occur in-person.
- A Technical Meeting will be held the week preceding each Public Advisory Meeting for stakeholders with nondisclosure agreements. Tech Meeting topics will focus on those anticipated at the next Public Advisory Meeting.
- Meeting materials can be accessed at ***www.aesindiana.com/integrated-resource-plan.***

Thank You

IRP acronyms

Note: A glossary of acronyms with definitions is available at https://www.aesindiana.com/integrated-resource-plan.

IRP acronyms

- ACEE: The American Council for an Energy-Efficient Economy
- AMI: Advanced Metering Infrastructure
- BESS: Battery Energy Storage System
- BNEF: Bloomberg New Energy Finance
- BTA: Build-Transfer Agreement
- C&I: Commercial and Industrial
- CAA: Clean Air Act
- CAGR: Compound Annual Growth Rate
- CCGT: Combined Cycle Gas Turbines
- CCS: Carbon Dioxide Capture and Storage
- CDD: Cooling Degree Day
- COD: Commercial Operation Date
- CONE: Cost of New Entry
- CP: Coincident Peak
- CPCN: Certificate of Public Convenience and Necessity
- CT: Combustion Turbine
- CVR: Conservation Voltage Reduction
- DER: Distributed Energy Resource
- DG: Distributed Generation
- DGPV: Distributed Generation Photovoltaic System
- DLC: Direct Load Control
- DOE: U.S. Department of Energy
- DR: Demand Response
- DRR: Demand Response Resource
- DSM: Demand-Side Management
- DSP: Distribution System Planning
- EE: Energy Efficiency
- EFORd: Equivalent Forced Outage Rate Demand
- EIA: Energy Information Administration
- ELCC: Effective Load Carrying Capability
- EM&V: Evaluation Measurement and Verification
- EV: Electric Vehicle
- GDP: Gross Domestic Product
- GT: Gas Turbine
- HDD: Heating Degree Day
- HVAC: Heating, Ventilation, and Air Conditioning
- IAC: Indiana Administrative Code
- IC: Indiana Code
- ICAP: Installed Capacity
- ICE: Internal Combustion Engine
- IRP: Integrated Resource Plan
- ITC: Investment Tax Credit
- IURC: Indiana Regulatory Commission
- kW: Kilowatt
- kWh: Kilowatt-Hour
- LED: Light Emitting Diode
- LMR: Load Modifying Resource
- LNBL: Lawrence Berkeley National Laboratory
- Max Gen: Maximum Generation Emergency Warning
- MIP: Mixed Integer Programming
- MISO: Midcontinent Independent System Operator
- MPS: Market Potential Study
- MW: Megawatt
- NDA: Nondisclosure Agreement
- NOX: Nitrogen Oxides
- NREL: National Renewable Energy Laboratory
- PPA: Power Purchase Agreement
- PRA: Planning Resource Auction
- PTC: Renewable Electricity Production Tax Credit
- PRMR: Planning Reserve Margin Requirement
- PV: Photovoltaic
- PVRR: Present Value Revenue Requirement
- PY: Planning Year
- RA: Resource Adequacy
- RAN: Resource Availability and Need
- REC: Renewable Energy Credit
- REP: Renewable Energy Production
- RFP: Request for Proposals
- RIIA: MISO’s Renewable Integration Impact Assessment
- SAC: MISO’s Seasonal Accredited Capacity
- SCR: Selective Catalytic Reduction System
- SMR: Small Modular Reactors
- ST: Steam Turbine
- SUFG: State Utility Forecasting Group
- TRM: Technical Resource Manual
- UCT: Utility Cost Test
- UCAP: Unforced Capacity
- WTP: Willingness to Participate
- XEFORd: Equivalent Forced Outage Rate Demand excluding causes of outages that are outside management control

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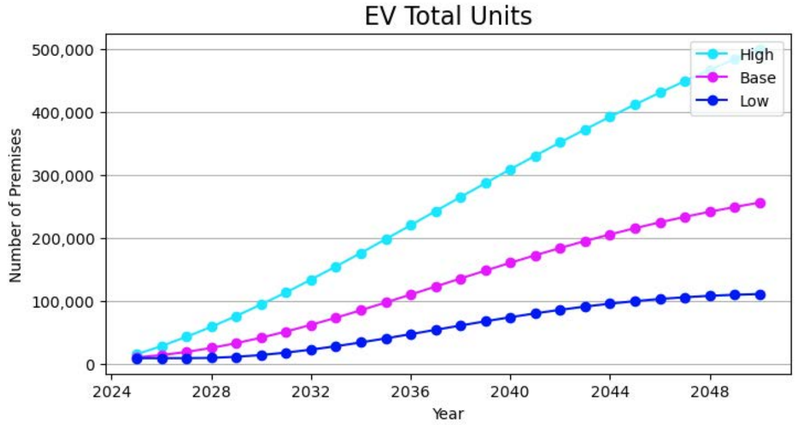
APPENDIX

Short-term action plan progress

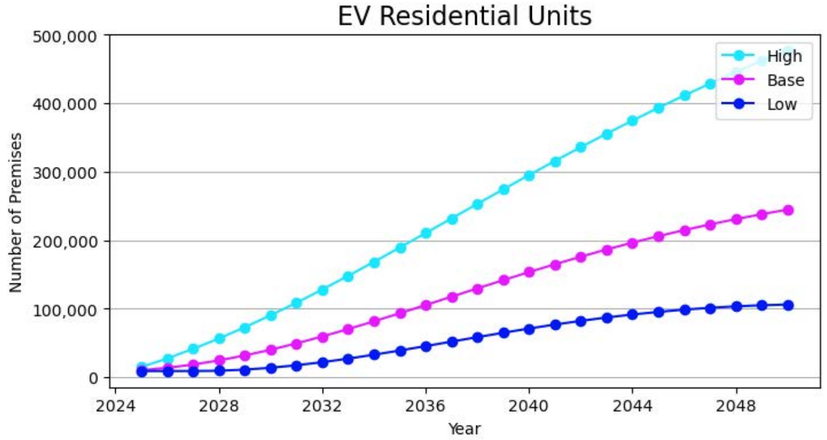
- **June 2023 - July 2024** – AES Indiana issues & evaluates all-source RFP for approximately 1,000 MW of firm capacity in 2023 to fill capacity need identified in 2022 IRP.
- **January 2024** – AES Indiana receives IURC Order approving the CPCN for Pike County Battery Energy Storage (200 MW) evaluated through the RFP process. Project estimated COD Q1 2025.
- **November 2024** – AES Indiana receives IURC Order approving the CPCN for repowering Petersburg Units 3 & 4 from coal to natural gas. Project estimated completion – Unit 3 repowered in first half of 2026; Unit 4 repowered in second half 2026.
- **Expected in Q2 2025** – AES Indiana anticipates IURC Order approving the CPCN for the Crossvine Solar + Storage project (85 MW solar; 85 MW 4-hr battery) identified through the RFP process. Project estimated COD June 2027.
- **January 2025** – AES Indiana receives IURC Order for the implementation of DSM programs in 2025-2026. DSM portfolio will target approximately 130,000 MWh of net savings per year or ~1.1% of forecasted sales.

Appendix: EV Prediction

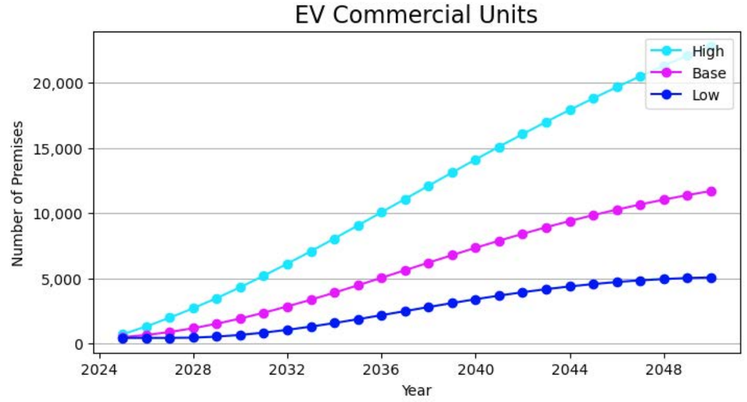
110k~500k



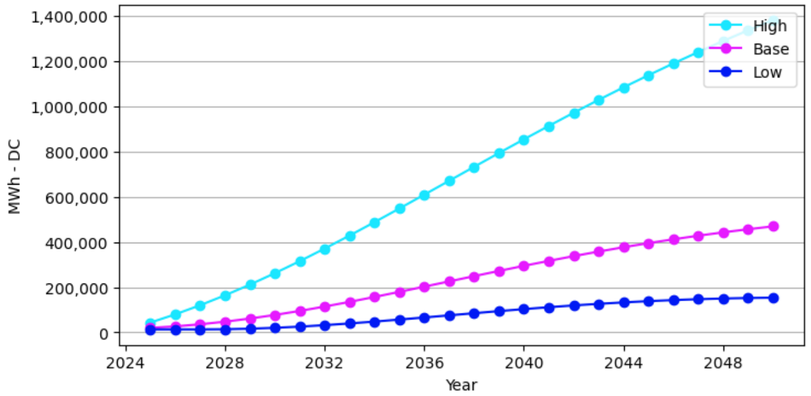
100k~480k



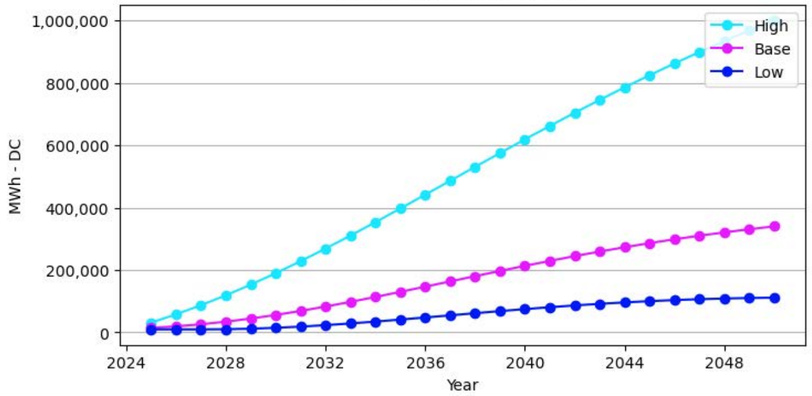
5k~22k



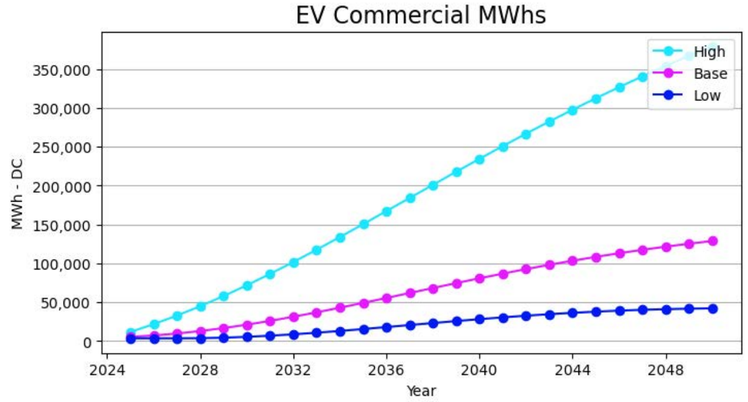
0.2M~1.4M



0.1M~1M



0.05M~0.4M



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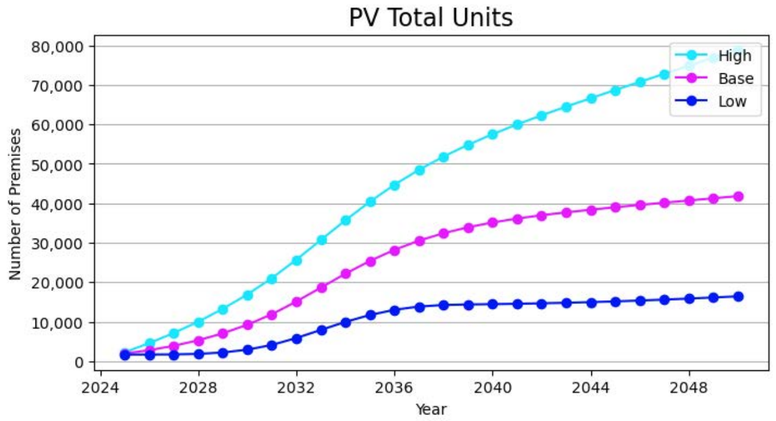
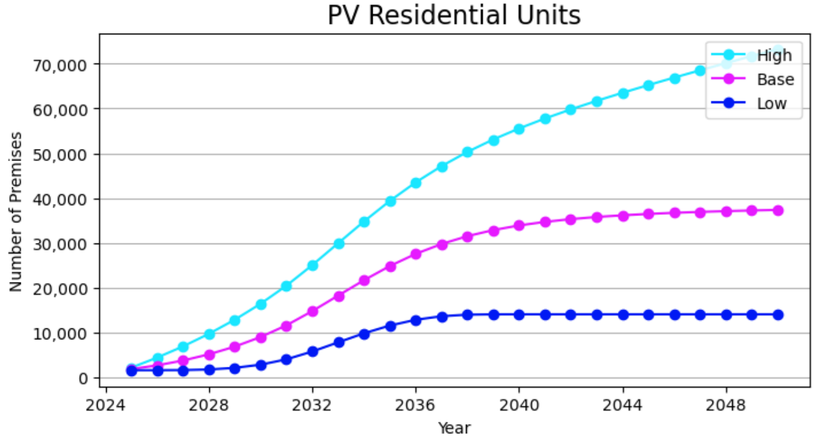
Appendix: Customer solar prediction

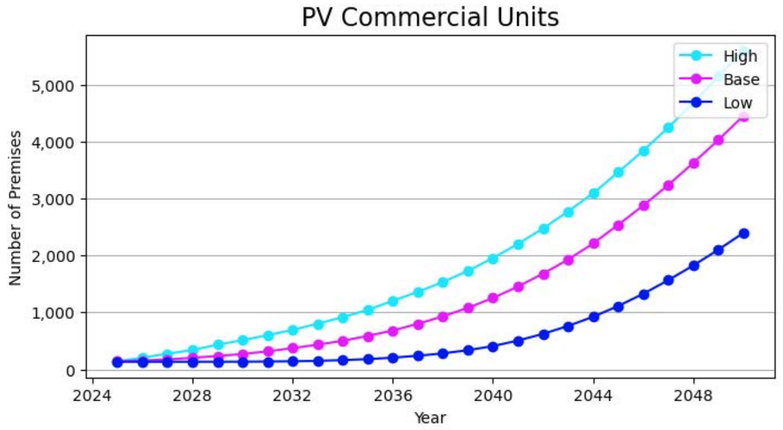
18k~80k



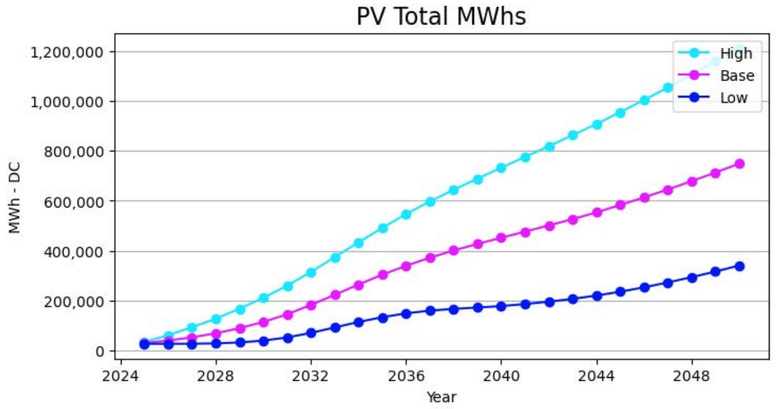
15k~75k



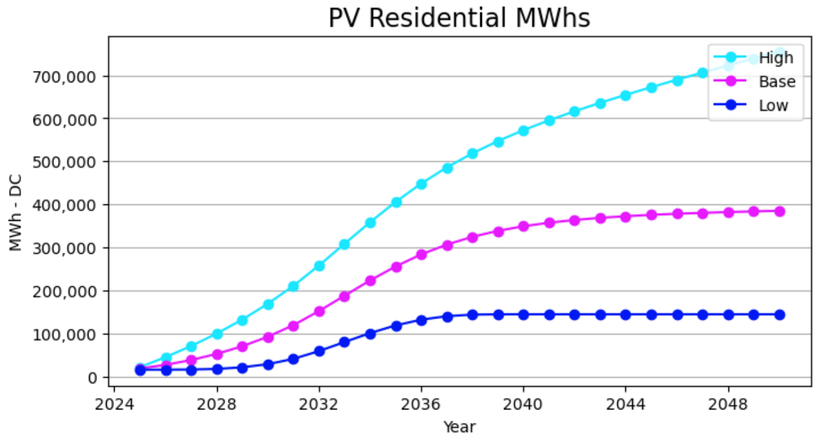
2k~5k



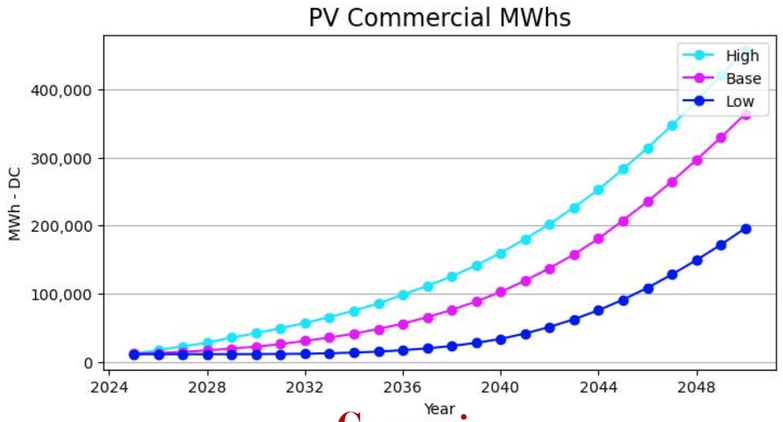
0.3M~1.2M



0.15M~0.75M



0.2M~0.45M



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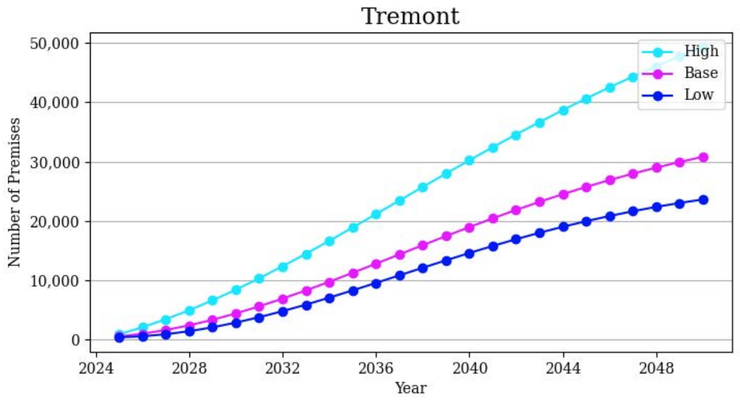
Result: Sub-station EV Prediction

Final predictions and their uncertainty vary significantly across substations



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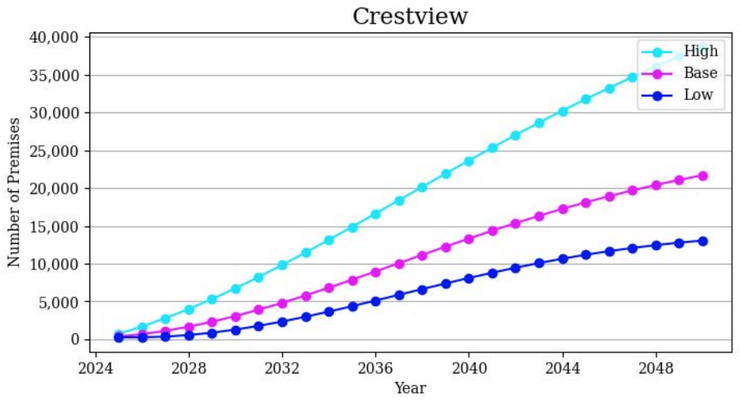

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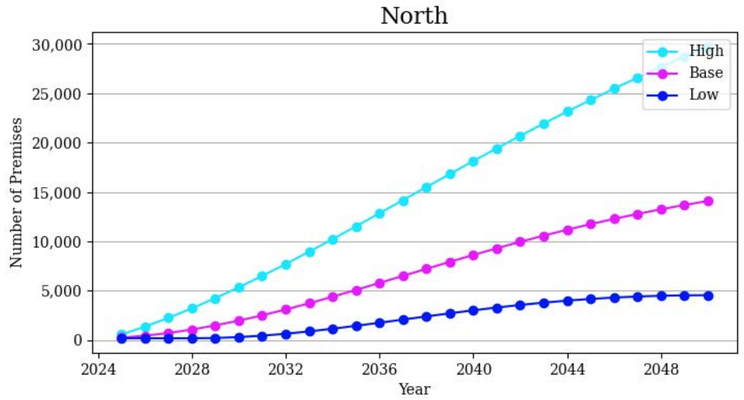

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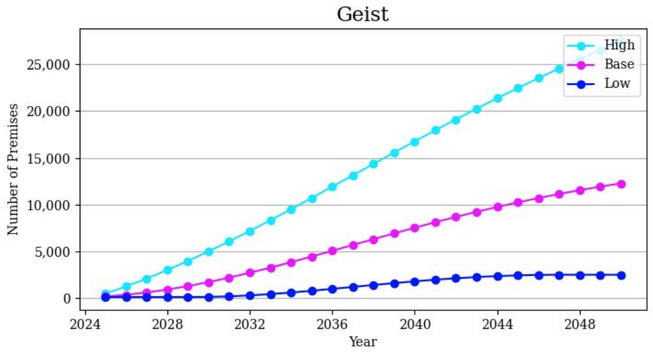

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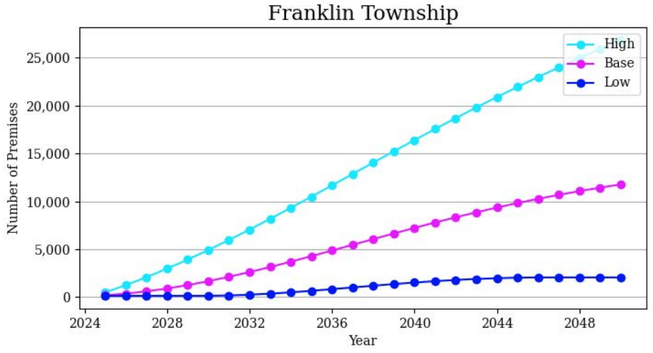

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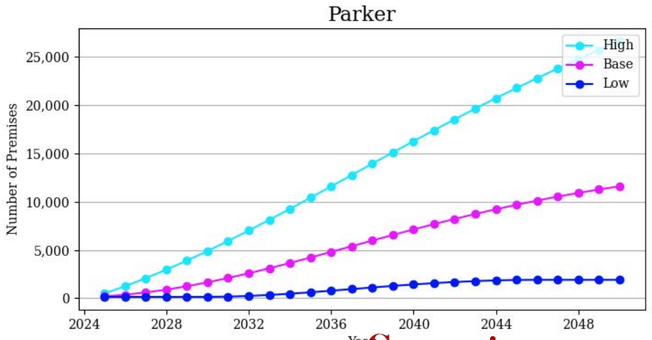

Top 6

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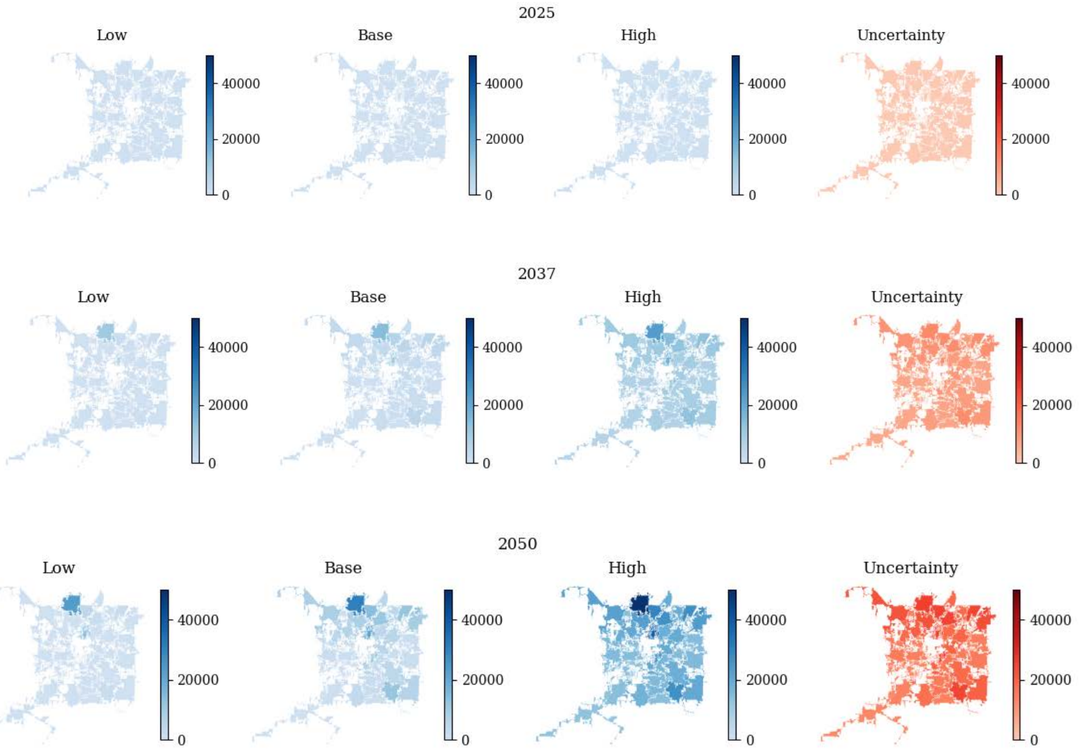
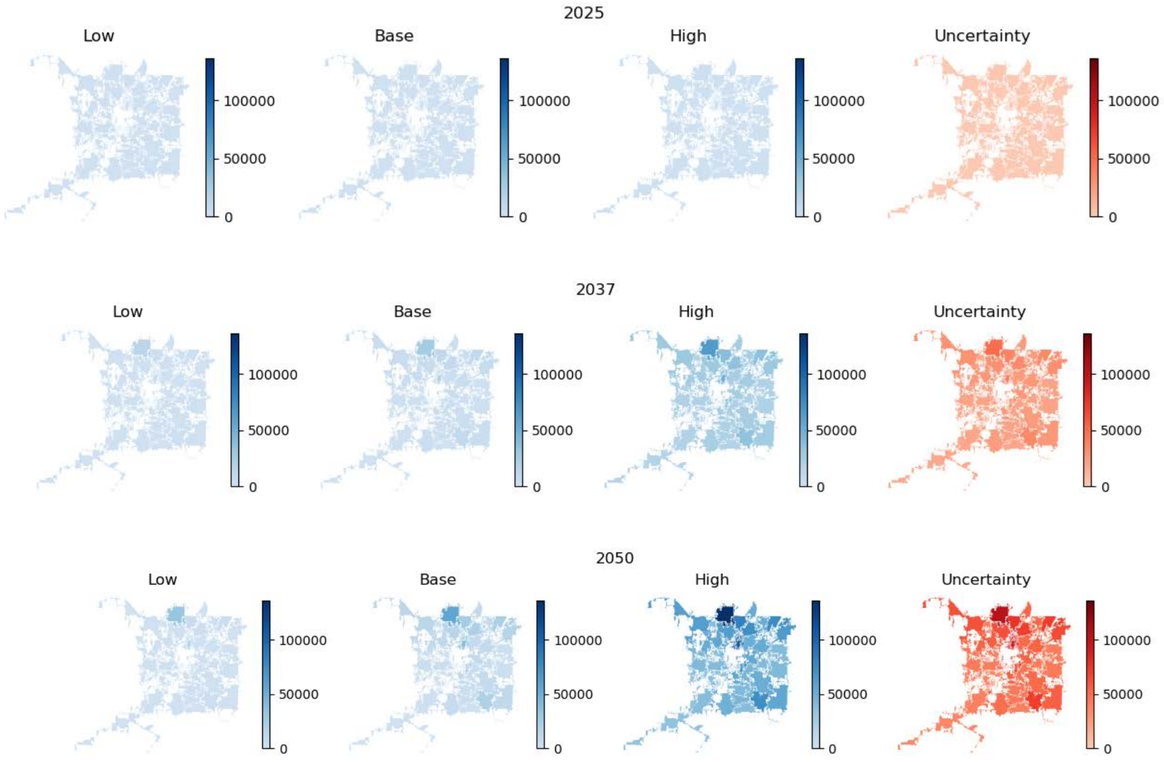
Result: Sub-station EV Prediction

EV Total Units



EV Total Load



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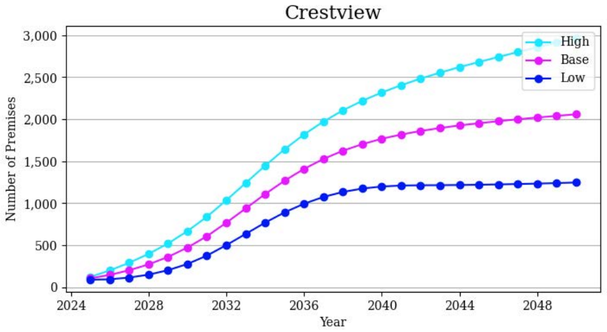
Result: Sub-station PV Prediction

Final predictions and their uncertainty vary significantly across substations



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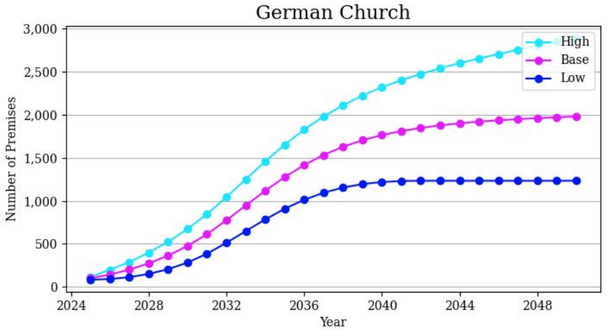

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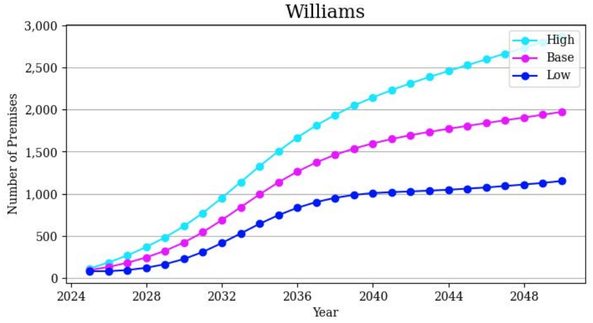

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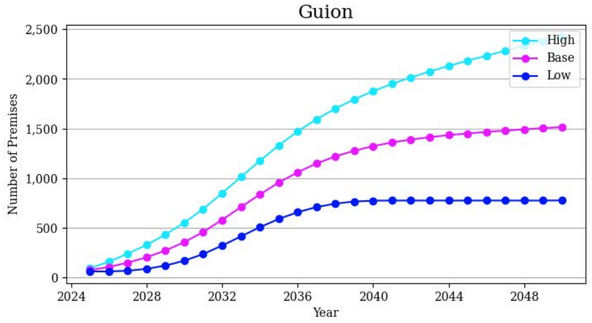

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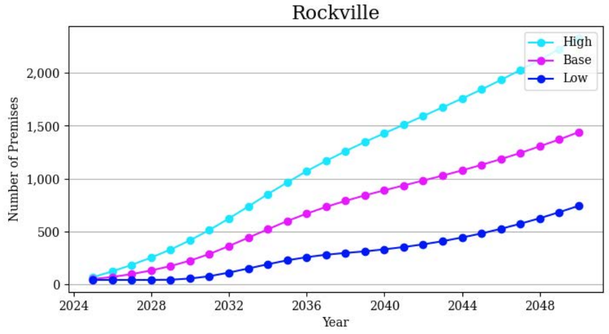

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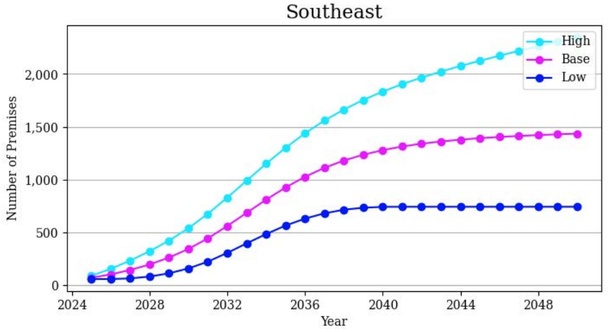

Top 6

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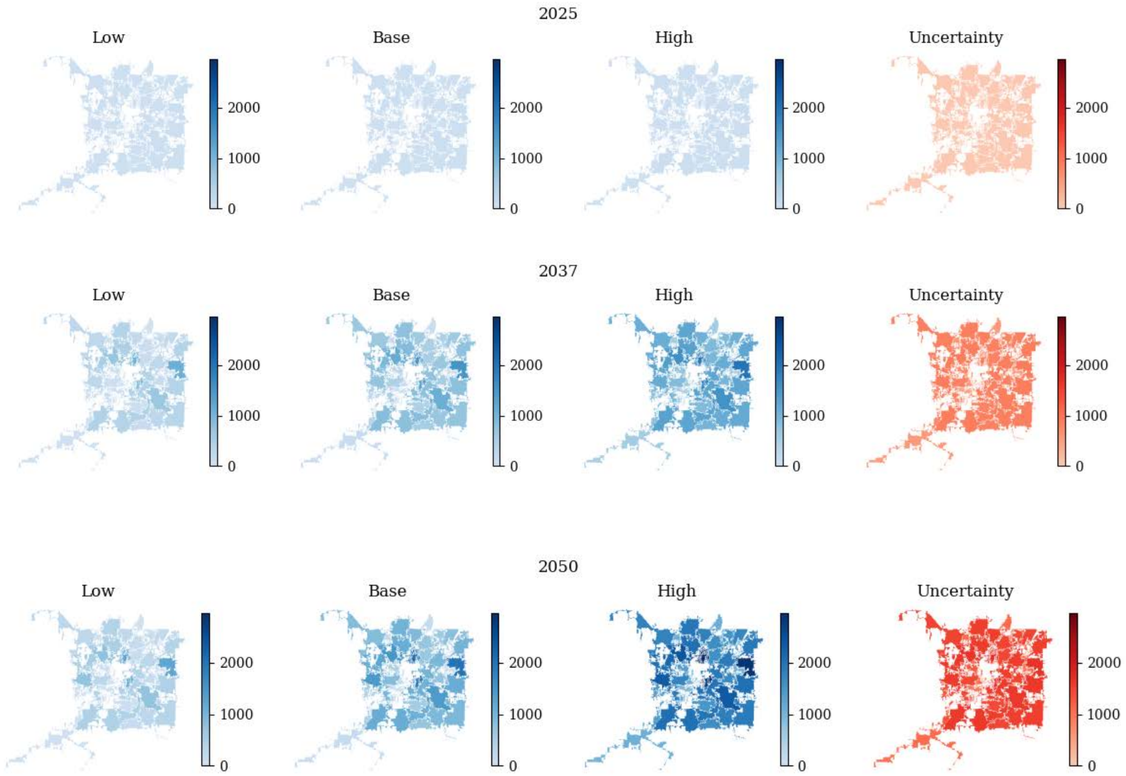
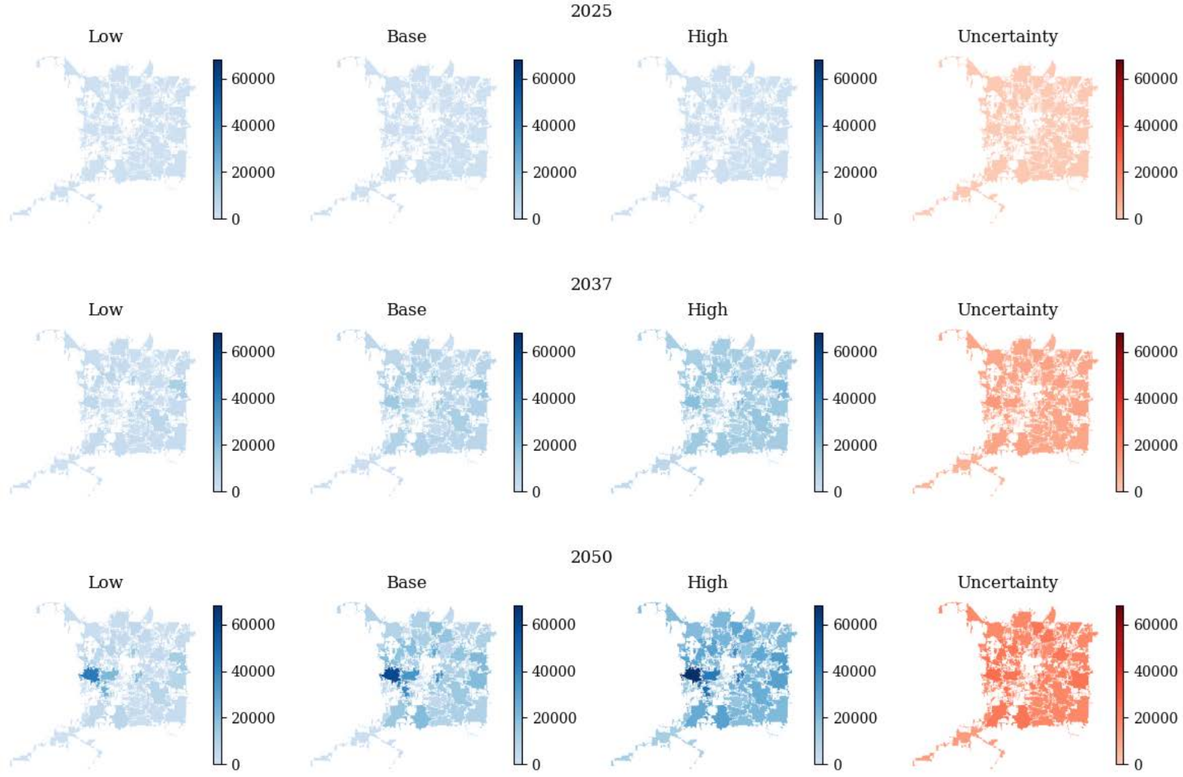
Result: Sub-station PV Prediction

PV Total Units



PV Total Generation



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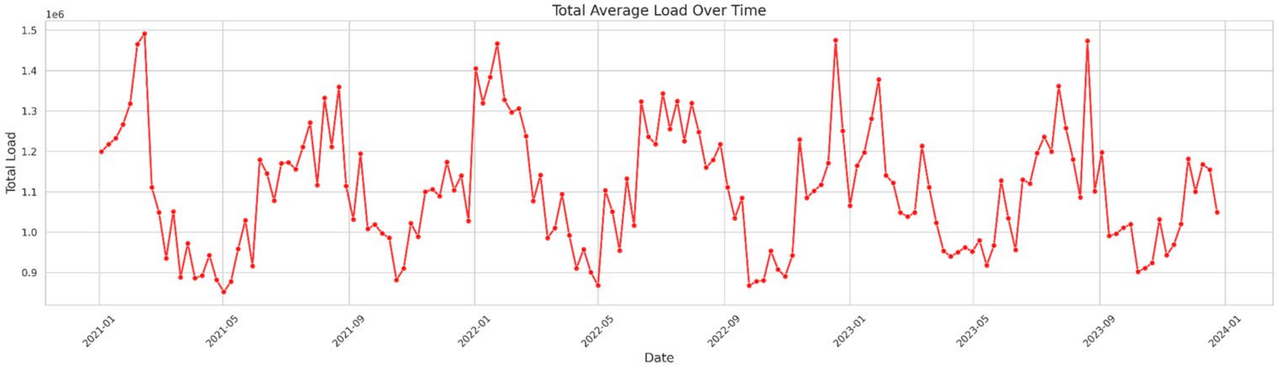
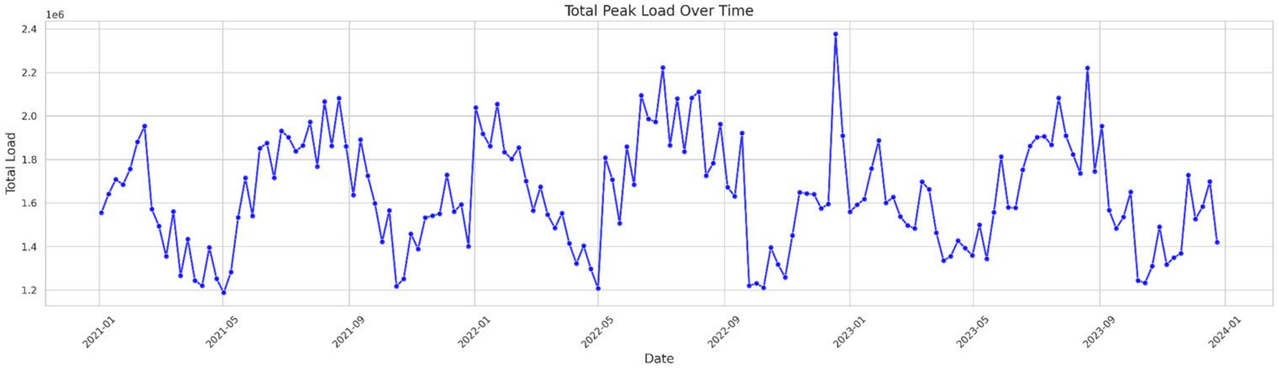
Appendix: Load Data

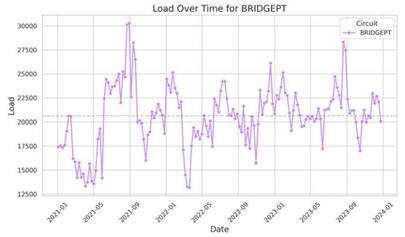
Avg

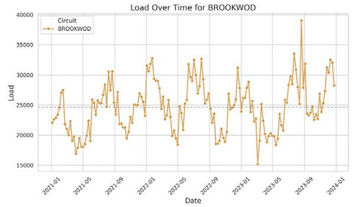


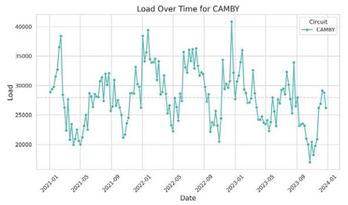
Peak

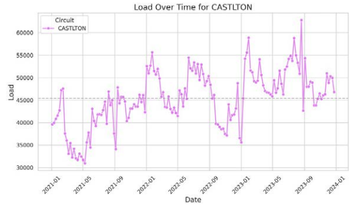


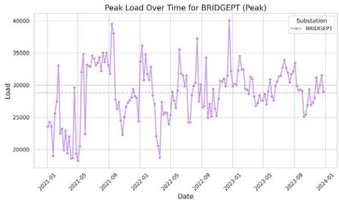
Total

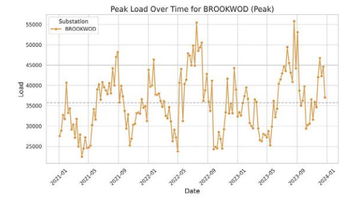


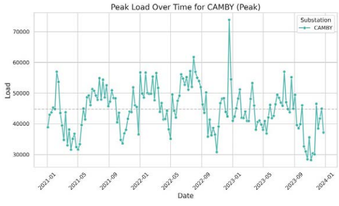


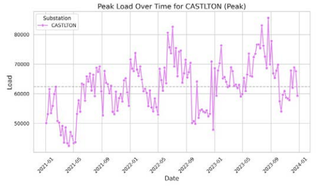






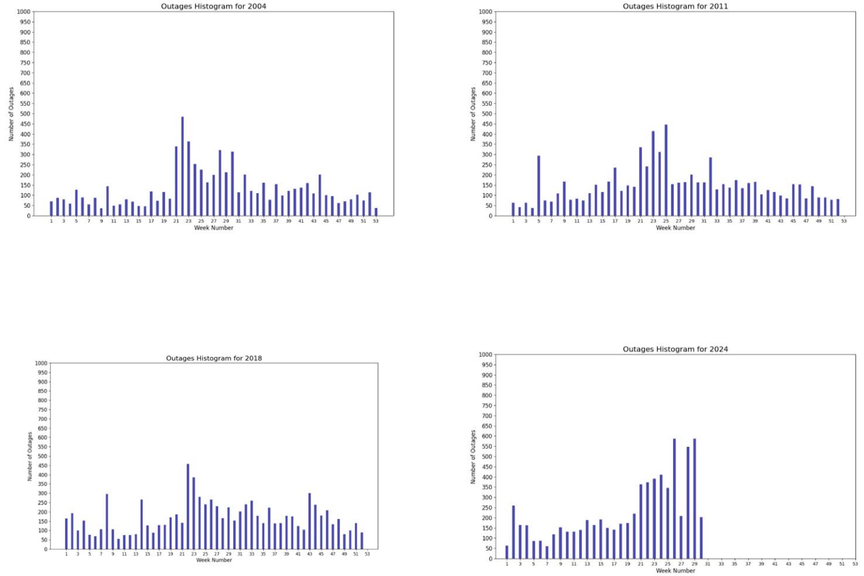




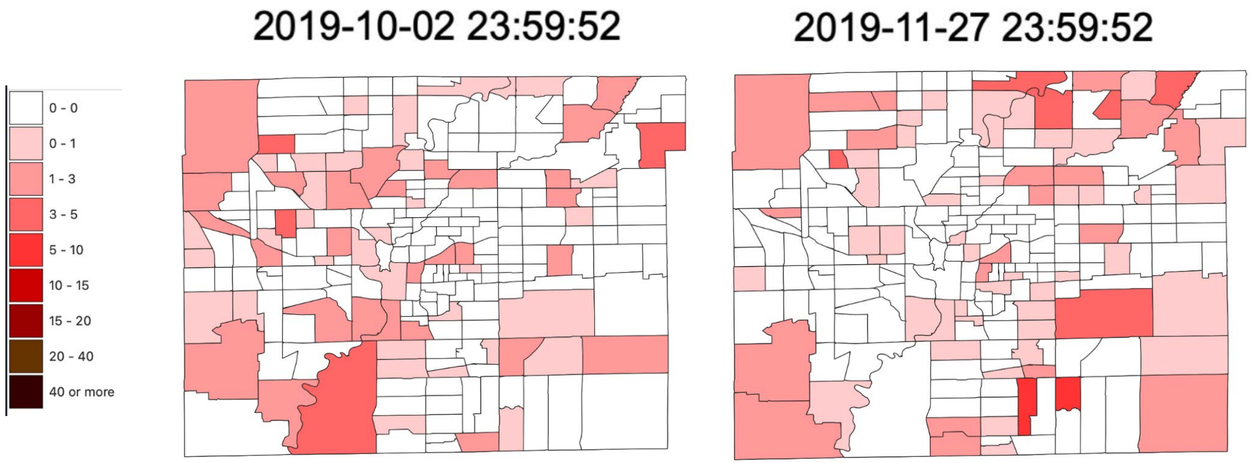


Substation-Level

Appendix: Outage Data



Temporal View



Spatial View

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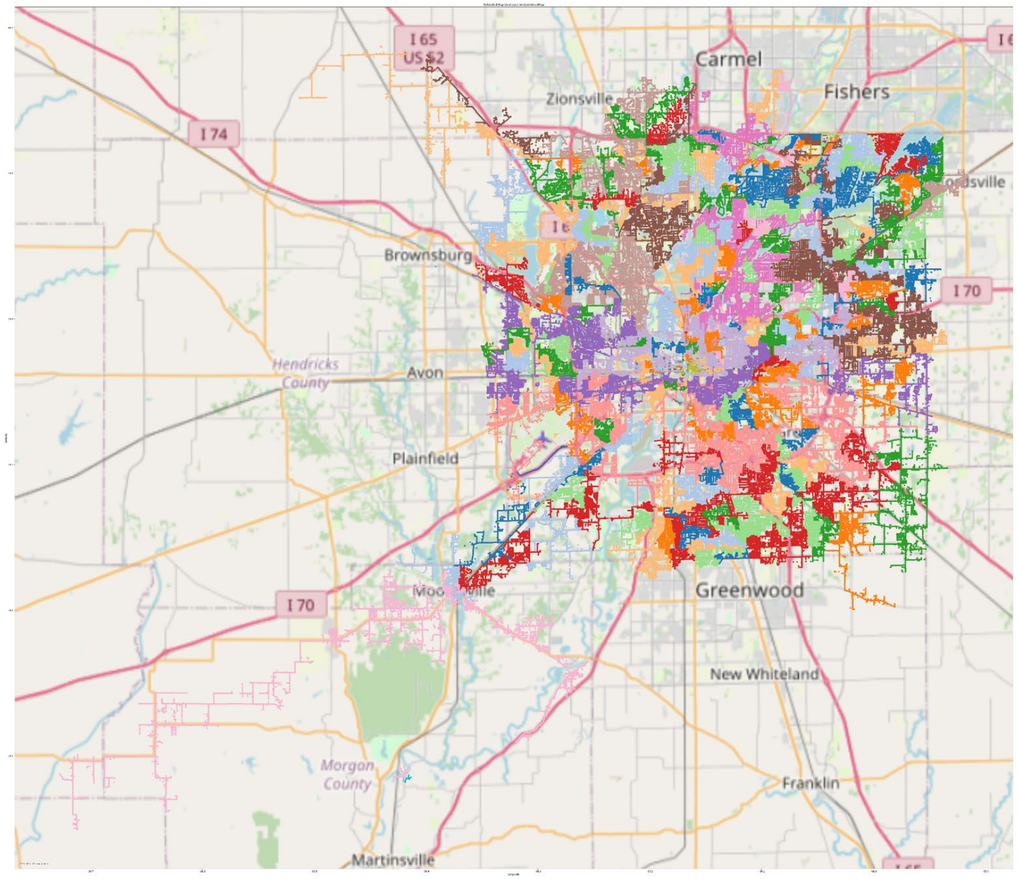
Appendix: Transmission Topology



Match data from multiple sources to each household

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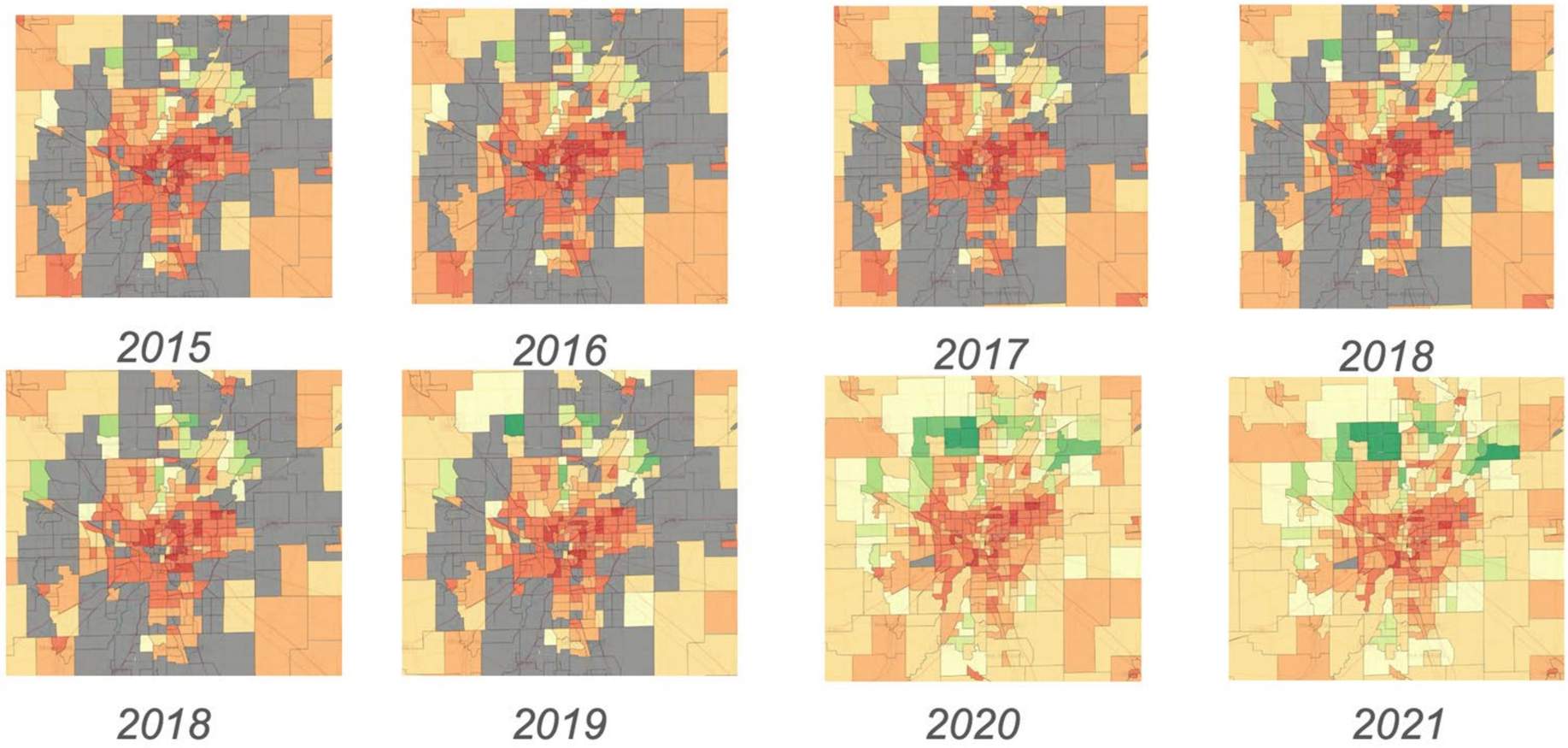
Appendix: Demographic Factors

e.g., Household Income



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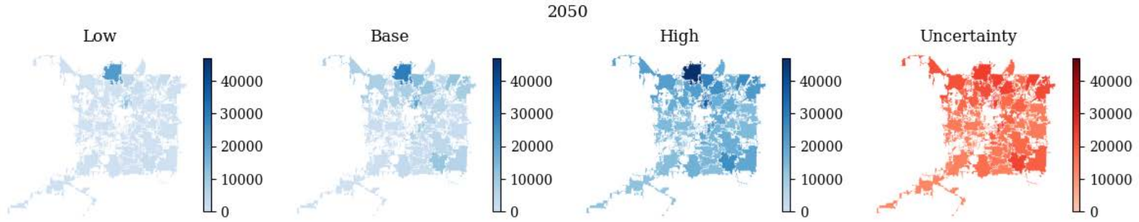
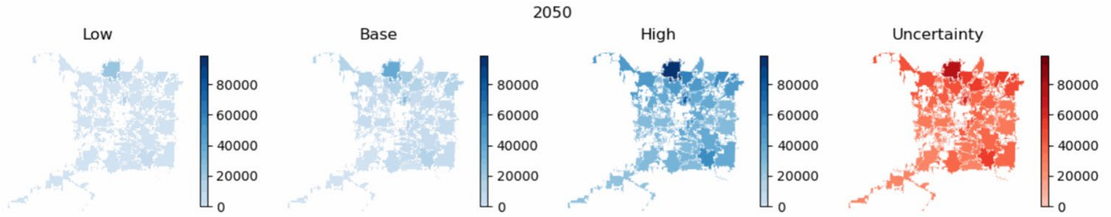
Appendix: More Results

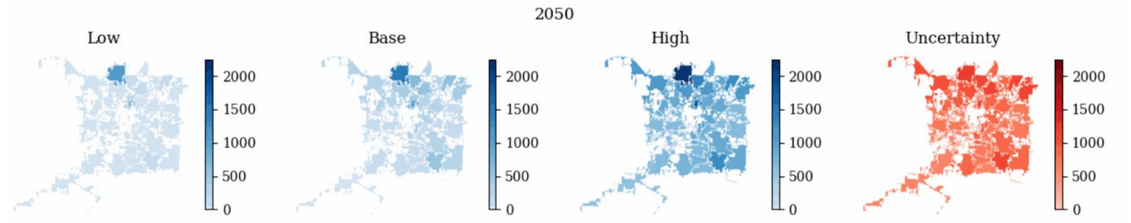
EV Residential Units



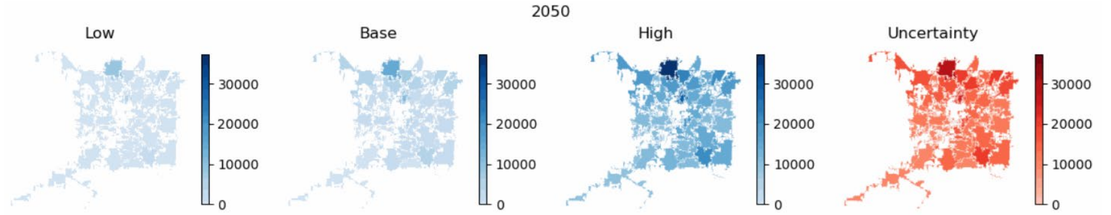
EV Residential Load



EV Commercial Units



EV Commercial Load



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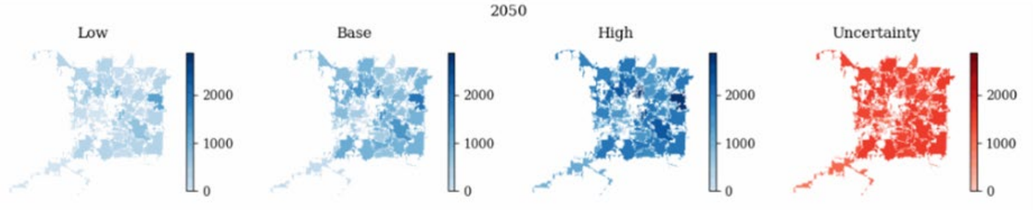
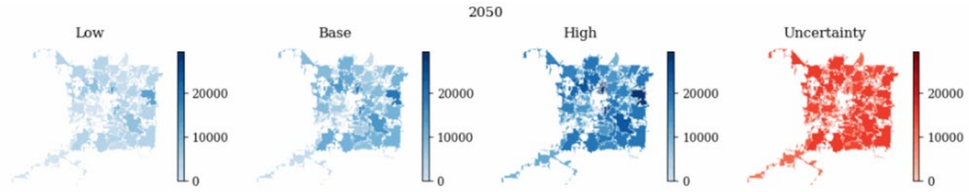
Appendix: More Results

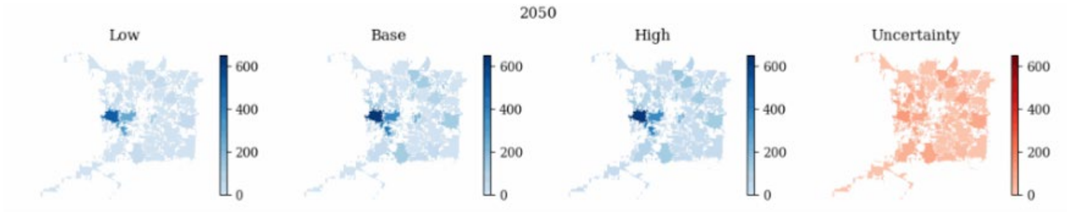
PV Residential Units



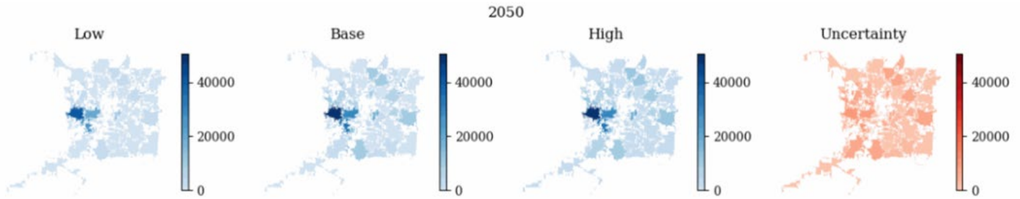
PV Residential Generation



PV Commercial Units



PV Commercial Generation



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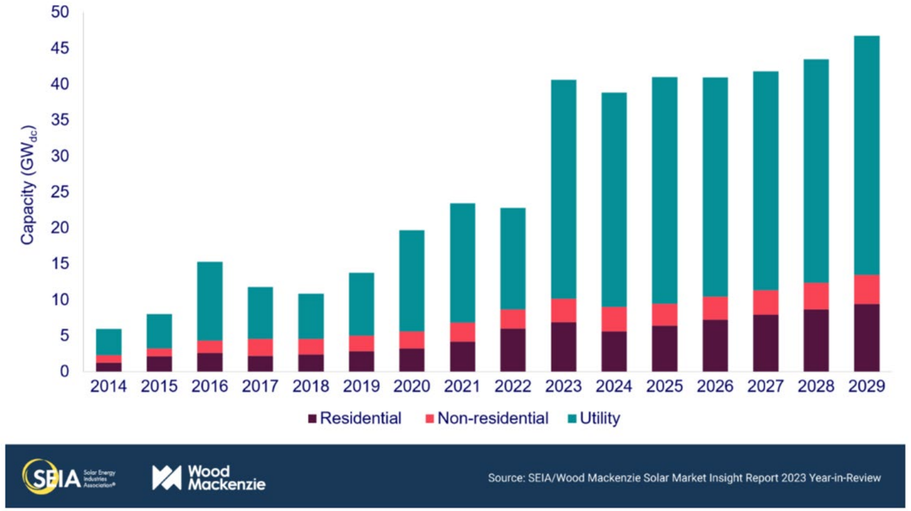
Appendix: Facts about PV installations



US PV Installation and forecasts by sectors, 2014 - 2029 (by Solar Energy Industries Association)

U.S. Adoption Rate Table

State	Total # of Houses	Total # of Solar Installed	Total % of Solar Installed
California	14,392,140	1,183,653	8.2%
Florida	9,865,350	~ 99,530	1.0%
Hawaii	561,066	86,866[x]	15.5%
Massachusetts	2,998,537	~ 118,273	3.9%
New York	8,488,066	112,424[x]	1.3%
Texas	11,589,324	~ 125,003	1.1%

Sources: U.S. Census Bureau; California Distributed Generation Statistics ; Solar Energy Industries Association, Hawaiian Electric, New York State Projects

US PV adoption rate, where California has approximately 8.2% penetration rate.

Appendix: Details on Tipping Point

- → **Definition:** Date when the **5% EV adoption** mark is hit.
  - → This is equivalent to the time when EV demand reach fastest growth, as defined in our model.
- → Camus Energy gave an estimation based on their feeder-level EV projection trajectory as part of their study analyzing investment optimization for AES.
- → **Source:** National Renewable Energy Laboratory's (NREL) Demand-Side Grid (dsgrid) TEMPO Light-Duty Vehicle Charging Profiles, U.S Energy Information Administration's Annual Energy Outlook.
- → **Result:** the mark occurs in 2029.

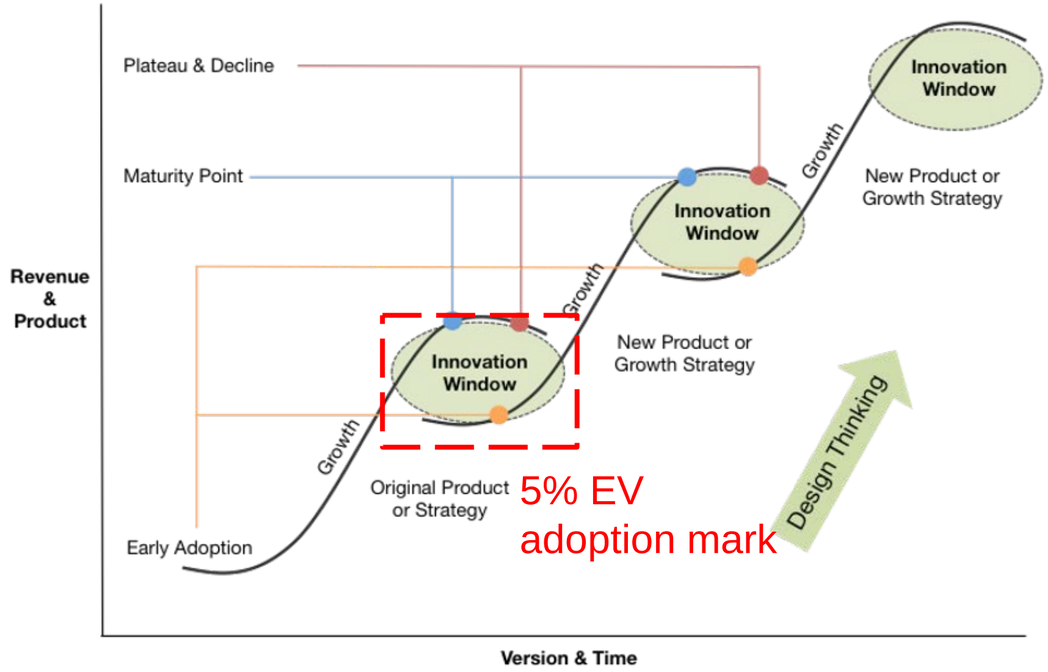


Figure: Diagram showing the theoretical evolution growth trend of EV adoption.

Appendix: Details on Tipping Point (Cont.)

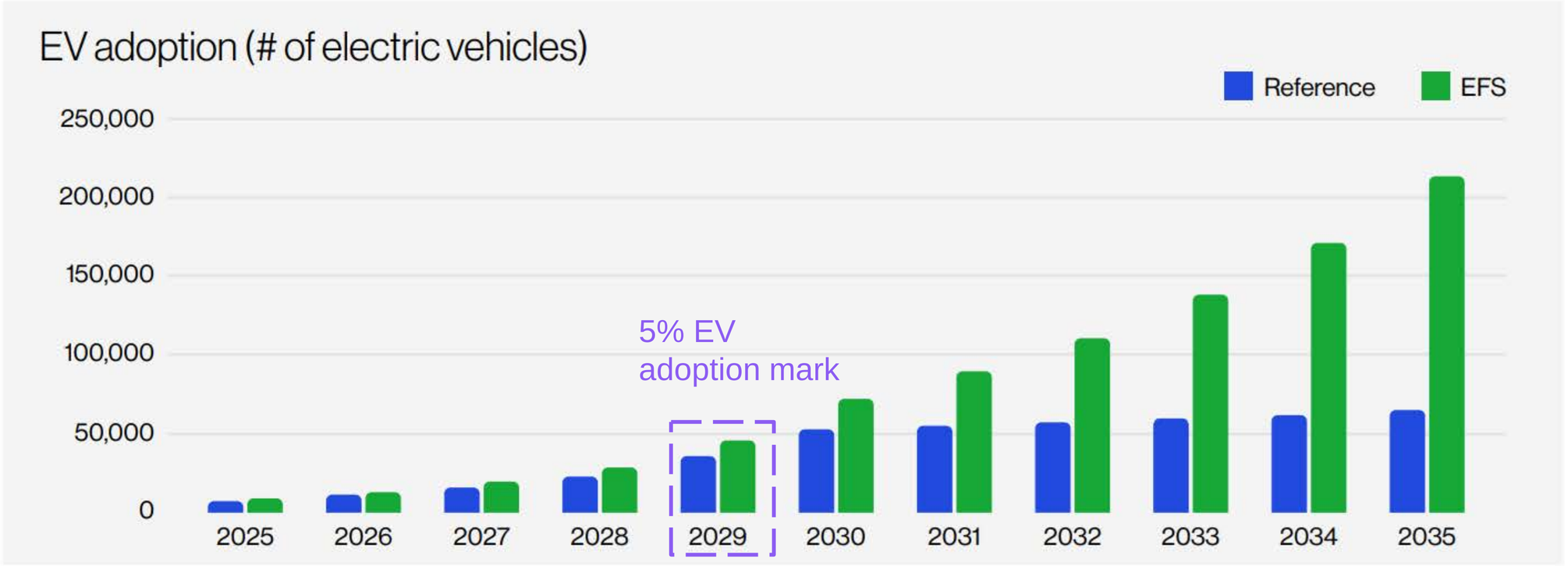


Fig 4. Residential EV adoption for AES Indiana service territory by case. Reference (blue) refers to the Energy Information Administration's Annual Energy Outlook. EFS (green) refers to NREL's Electrification Futures Study.

CAMUS

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2025 Integrated Resource Plan

Public advisory meeting #2

July 24, 2025

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Agenda and introductions

Stewart Ramsay

Managing Executive, Vanry and Associates

Agenda

Time	Topic	Speakers
10 a.m.	Safety message and virtual meeting protocols	Claire Rice, Director, Corporate Affairs & Impact, AES Indiana
10:10 a.m.	Welcome and company update	Ken Zagzebski, CEO, AES Indiana
10:15 a.m.	IRP overview and meeting #1 recap	Patrick Maguire, Senior Director of Commercial and Resource Planning, AES Indiana
10:30 a.m.	RFP overview and results	Melanie Raney, Senior Manager of Mergers and Acquisitions, AES Indiana
10:40 a.m.	New resource assumptions	Patrick Maguire, Senior Director of Commercial and Resource Planning, AES Indiana
11 a.m.	Energy efficiency and DR bundles	Jeff Huber, GDS Associates
Break for lunch		
1 p.m.	IRP scenarios	Alex Dickerson, Senior Manager of Wholesale Energy, AES Indiana
1:15 p.m.	Long-term fundamental forecasts	Will Vance, Director of Capacity and Fundamentals, ACES
2 p.m.	IRP modeling framework and scorecard	Patrick Maguire, Senior Director of Commercial and Resource Planning, AES Indiana
2:30 p.m.	Final Q&A and next steps	

AES Proprietary & Confidential/Not for Distribution

IRP team introductions

AES IRP leadership team

Ken Zagzebski, CEO, AES Indiana
Brandi Davis-Handy, President, AES Indiana
Guga Garavaglia, Chief Financial Officer, AES Utilities
Patrick Maguire, Senior Director, Commercial, AES Utilities

AES Indiana IRP planning team

Alex Dickerson, Senior Manager, Wholesale Energy
Ryan Yang, Load Forecasting Analyst
Michael Hardie, Resource Planning Analyst
Brent Selvidge, Engineer
Quintin Thompson, DSM Research Analyst
Chad Rogers, Director, Regulatory Affairs
Claire Rice, Senior Director of Corporate Affairs and Impact
Melanie Raney, Senior Manager, Mergers and Acquisitions

AES Indiana IRP partners

Eric Fox, Director, Forecasting Solutions, Itron
Mike Russo, Forecast Consultant, Itron
Woody Zhu, Assistant Professor of Data Analytics, Carnegie Mellon University
Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates
Jacob Thomas, Project Manager, GDS Associates
Hisham Othman, Senior Vice President, Quanta Technologies
Christina Owens, Director, Resource Planning, ACES
Will Vance, Director, Capacity Markets and Fundamental Analysis, ACES
Stewart Ramsey, Managing Executive, Vanry and Associates

AES Indiana legal team

Teresa Morton Nyhart, Counsel, Taft Law

Virtual meeting protocols and safety

Claire Rice

Senior Director of Corporate Affairs and Impact, AES Indiana

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Virtual meeting protocols

Questions

→Your candid feedback and input is an integral part to the IRP process.

→Questions or feedback will be taken at the end of each section.

→Feel free to submit a question in the chat function at any time and we will ensure those questions are addressed.

Audio

→All lines are muted upon entry.

→For those using audio via Teams, you can unmute by selecting the microphone icon.

→If you are dialed in from a phone, press *6 to unmute.

Video

→Video is not required; however, if your camera is on, please refrain from distractions.

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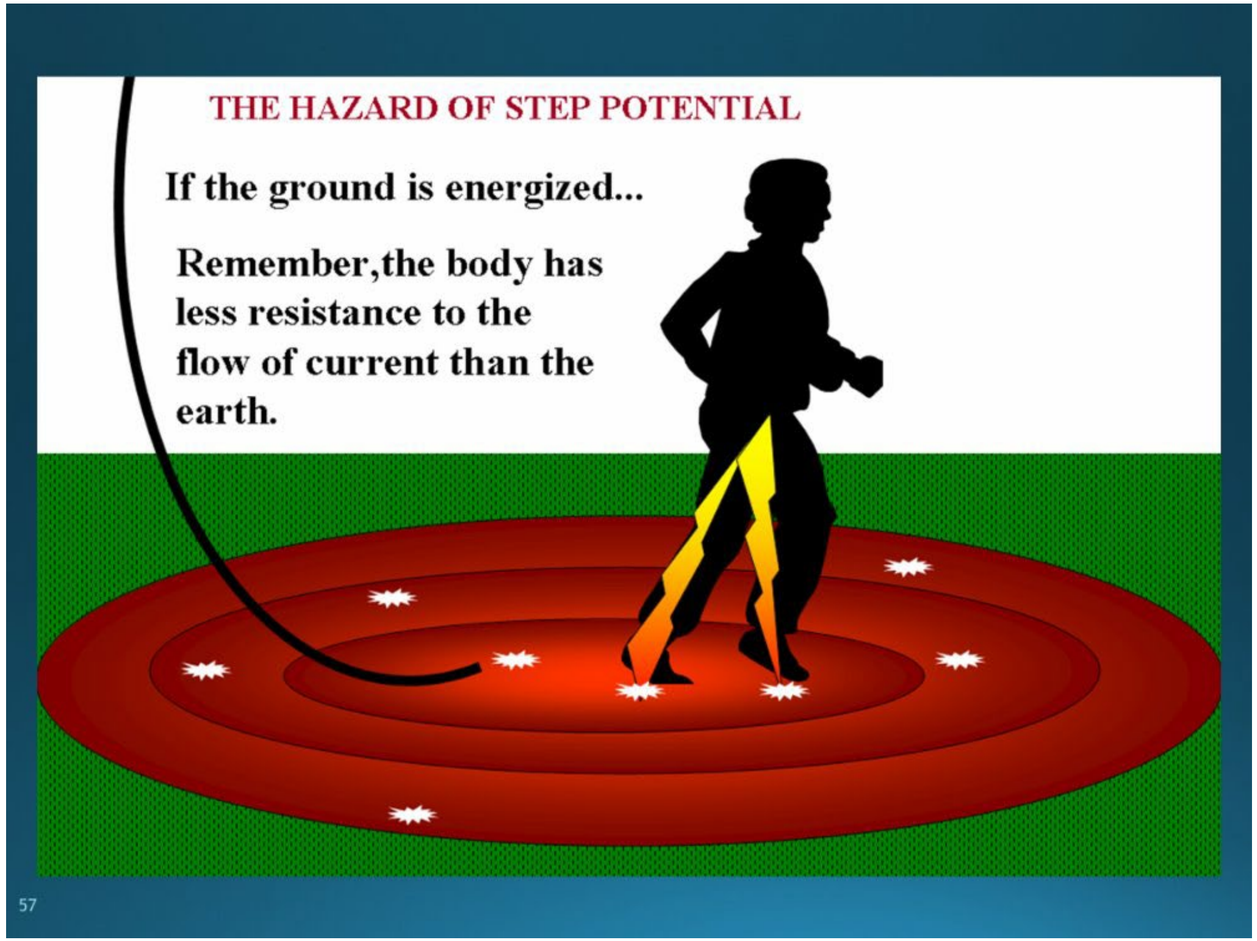
Summer storms safety message

Step potential is the voltage difference between two points on the ground that are a step apart. This is caused by downed power lines.

Summer storms safety message



Key points to know:

→ The greater the distance between your feet the higher the step potential.

→ Avoid walking or running near a downed power line — this increases the risk.

→ Shuffle away from the area with small steps keeping your feet close together and on the ground to minimize voltage difference.

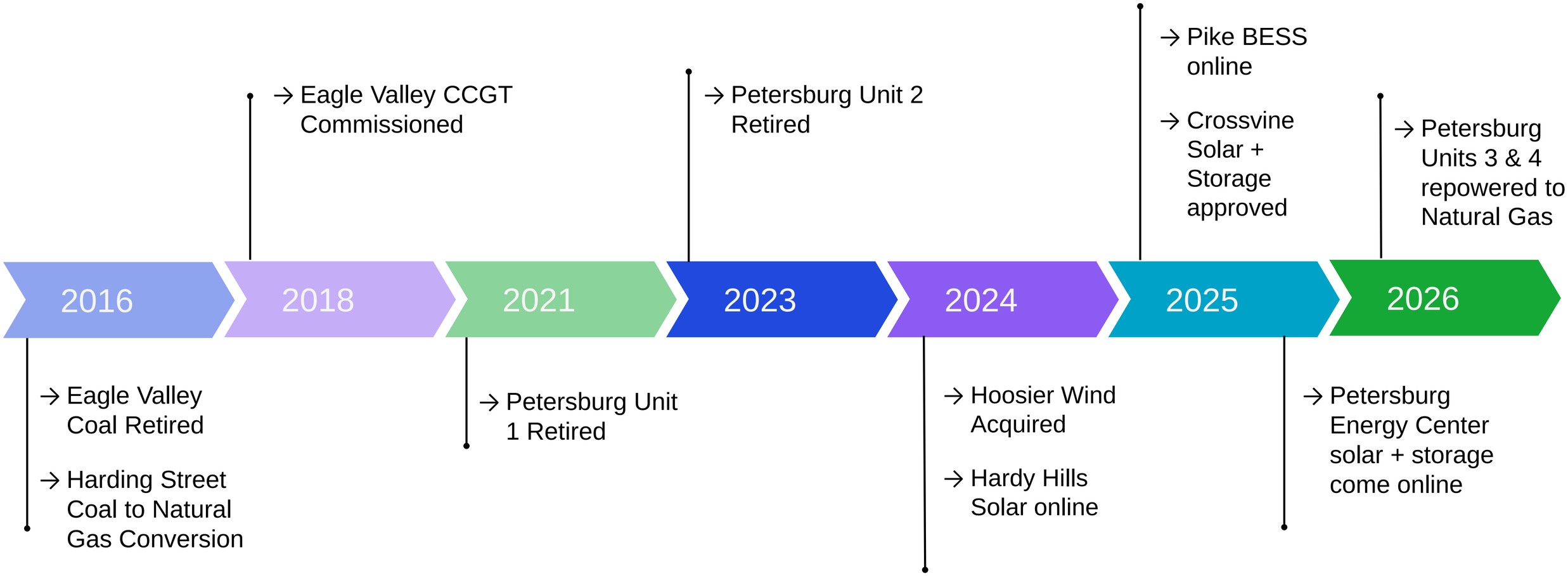
Welcome and update on AES Indiana

Ken Zagzebski

CEO, AES Indiana

Resource planning and legislative actions pave the way toward new opportunities.

Our energy transition



IRP overview and recap

Patrick Maguire

Senior Director of Commercial, AES Indiana

2025 IRP public meeting and data release schedule

Public Advisory Meeting Schedule

Public Advisory Meeting #1: January 29, 2025

→ Recap 2022 IRP Short-Term Action Plan

→ Introduce IRP resource planning process, key dates and topics for 2025 IRP

Public Advisory Meeting #2: July 24, 2025

→ Review assumptions including replacement resource costs and commodity prices

→ Introduce IRP analysis portfolio framework and analysis scorecard

Public Advisory Meeting #3: September 10, 2025

→ Discuss preliminary IRP scorecard results

Public Advisory Meeting #4: October 22, 2025

→ Review final IRP scorecard and reliability analysis

→ Share Preferred Resource Portfolio and Short-Term Action Plan

IRP Assumptions & Modeling Data Release Schedule

Meeting #1 Data Available: February 12, 2025

→ Base Load Forecast

→ EV Base, High and Low Scenarios

→ PV Base, High and Low Scenarios

Meeting #2 Data Available: July 24, 2025

→ IRP Scenario Commodity Curves

→ Replacement Resource Costs and Capacity Accreditation

→ Market Potential Study Results

Meeting #3 Data Available: September 10, 2025

→ EnCompass IRP Scenario Loader

→ PVRR Summary

→ Energy Position Sheets

Meeting #4 Data Available: October 22, 2025

→ EnCompass Stochastic Scenario Loader

→ Stochastic Summary Results

→ Final IRP Scorecard

Dates and agendas are subject to change

Note: The released data will be available to the technical stakeholders with a completed Non-Disclosure Agreement

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2025 IRP process roadmap

Assumption Gathering

Load Forecast
- → Itron SAE Modeling Approach
- → Base, High & Low Load Scenarios
- → Customer EV & DG Scenarios

DSM Market Potential Study
- → End Use Analysis of Efficiencies
- → Develop Tech, Economic & Achievable Potentials
- → Create DSM Inputs for EnCompass

Costs for New Resources
- → RFP issued October 2024
- → RFP Results used to inform new Resource Costs

Other Inputs & Assumptions
- → Discount Rate
- → Commodity Prices
- → MISO Resource Accreditation & PRMs
- → Modeling Parameters & Constraints

Distribution System Plan
- → Circuit Level Analysis
- → Assess EV, DG & DER Impacts
- → Non-wires Alternatives

Modeling & Portfolio Selection

Capacity Expansion Modeling
- → Portfolio Optimization & Retirement and Replacement Analysis

Production Cost Modeling, Stochastic Analysis & PVRR
- → Portfolio Dispatch Analysis & calculation of PVRR
- → Risk Analysis

Portfolio Evaluation & Scorecard
- → Evaluation of the Scorecard & the Five Pillars
- → Identify Preferred Resource Portfolio

2025 IRP Contributors:

- → **ACES** – Stochastic Analysis & Fundamental Market Curves
- → **GDS** – DSM Market Potential Study
- → **Itron** – Load Forecasting
- → **Carnegie Mellon University** – Customer Electric Vehicle & Solar Forecasts
- → **Quanta** – Reliability Analysis
- → **Charles River Associates** – All-resources RFP

IRP Submitted Nov. 1, 2025

IRP-related Filings
- → Certificate of Public Convenience & Necessity (CPCN)
- → Demand Side Management Plan

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2024 RFP overview and results

Melanie Raney

Senior Manager of Mergers and Acquisitions, AES Indiana

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2024 all-source generation RFP

AES Indiana conducted an all-source RFP

→ Positions AES Indiana to efficiently procure generation consistent with IRP preferred resource portfolio

→ Informs IRP replacement resource costs

→ RFP offers requested for commercial operation date (COD) of 2025-2033

→ Requested 3GW intermittent resources, 3 GW non-intermittent resources, 3 GW bridge capacity and DERs

→ RFP issued Sept. 29, 2024

→ All proposals received by Nov. 1, 2024

Technology	Proposals	Project Nameplate (MW)
Solar	51	3,892
Wind	3	819
Thermal	12	2,037
Solar + storage	47	3,258
Storage	41	4,070
ZRC	42	

Results

→ 42 different developer respondents

→ 83 projects totaling over 14 GW

→ 196 proposals totaling over 25.6 GW

→ The term ‘project’ refers to a project site, while ‘proposal’ denotes a bid associated with a project site. Typically, multiple proposals are submitted per site, particularly for PPAs.

Thermal development partner RFP

AES Indiana issued an RFP in Q2 2025 as a continuation of the all-source generation RFP.

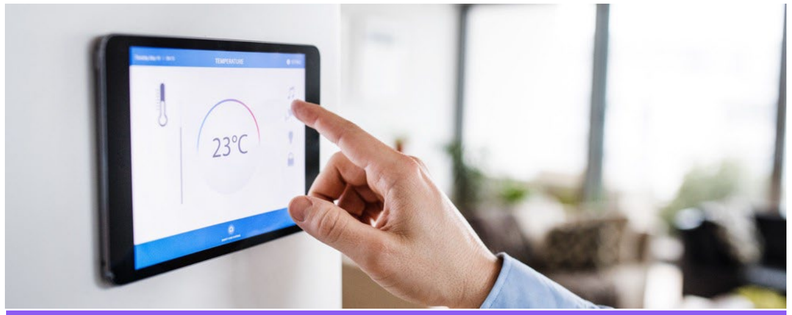
- → All Source RFP bidders expressed interest in developing projects at AES Indiana sites.
  - → 3 potential AES sites: Petersburg, Eagle Valley and Harding Street
  - → AES Indiana provided interested bidders information about the sites in advance of proposal due date
  - → AES Indiana indicated that the company was targeting early 2030's COD
- → 4 respondents to date
- → Multiple partnership structures proposed including build transfer, build own transfer and PPA

New resource assumptions

Patrick Maguire

Senior Director of Commercial and Resource Planning, AES Indiana

Commercially available options



DSM/EE

→ EE and DR measures bundled into tranches for planning model selection

Wind

→ Land-based wind

Solar

→ Utility-scale

Storage

→ Standalone front-of-meter

→ Solar and storage

Natural gas

→ CCGT

→ CT

Nuclear

→ Small modular reactors

IRP model inputs for new resources

Overnight capital cost to construct ($/kW)

→Costs associated with development and construction of a resource

Operating cost

→Fixed operation and maintenance (FOM) are costs incurred whether plant is operating or not, e.g. staff cost, regular maintenance, administrative costs

→Variable operation and maintenance (VOM) are costs associated with electricity production, e.g. repair and replacement of parts

Operating characteristics

→Heat rates

→Ramp rates

→Capacity accreditation

→Asset useful life

→Solar and wind generation profiles

→Storage roundtrip efficiency

→Market availability limits

Methodology for capital cost assumptions

Proposals

AES Indiana aggregated proposals by technology type and calculated the average cost of proposals for each technology. This estimate serves as the base cost starting point in 2026 for solar and storage. Gas and wind adjusted based on small number of bids.

Forecasts

AES Indiana then used the average trend from Wood Mackenzie, National Renewable Energy Laboratories and Bloomberg New Energy Finance capital cost forecasts by technology type to determine the changes to the cost starting point over the planning period. This approach captures the potential technology learning curve or cost efficiencies from improvements in design and manufacturing processes.

Estimates

SMR estimates from RFP response and secondary sources.

Methodology for O&M cost assumptions

Fixed O&M

- → AES Indiana used the average of the five-year fixed cost forecast for Company resources as a proxy for FOM for new wind, solar, storage, hybrid and thermal resources.
- → AES Indiana then used the average trend from Wood Mackenzie, National Renewable Energy Laboratories and Bloomberg New Energy Finance fixed cost forecasts by technology type to determine the changes to the fixed cost starting point over the planning period.
- → SMR estimates from RFP response and secondary sources.

Variable O&M

- → Only applies to thermal resources
- → AES Indiana used the estimated VOM for its thermal resources as a proxy for new CCGT and SCCT resources.
- → SMR estimates from RFP response and secondary sources.

ITC/PTC assumptions in 2025 IRP

On July 4, 2025, the One Big Beautiful Bill Act (OBBBA) was signed into law.

Tax credits for renewables were directly impacted, with implications for cost projections in the IRP.

Assumptions for annual percentages of tax credits assumed in the IRP as of July 17, 2025, are shown below. Some assumptions are subject to change as we receive more guidance over the next month.

Tax credit assumptions in IRP

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Solar	ITC	30%	30%	30%	30%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage	ITC	30%	30%	30%	30%	30%	30%	30%	30%	30%	23%	15%	0%	0%	0%	0%	0%
Wind	PTC	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Nuclear	PTC	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	50%	0%	0%	0%	0%	0%
Geothermal	PTC	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	50%	0%	0%	0%	0%	0%

Wind and Solar: assumed selectable projects in the IRP achieved safe harbor to begin construction in 2025. Assumptions driven by developer feedback and publicly available information on OBBBA tax credits.

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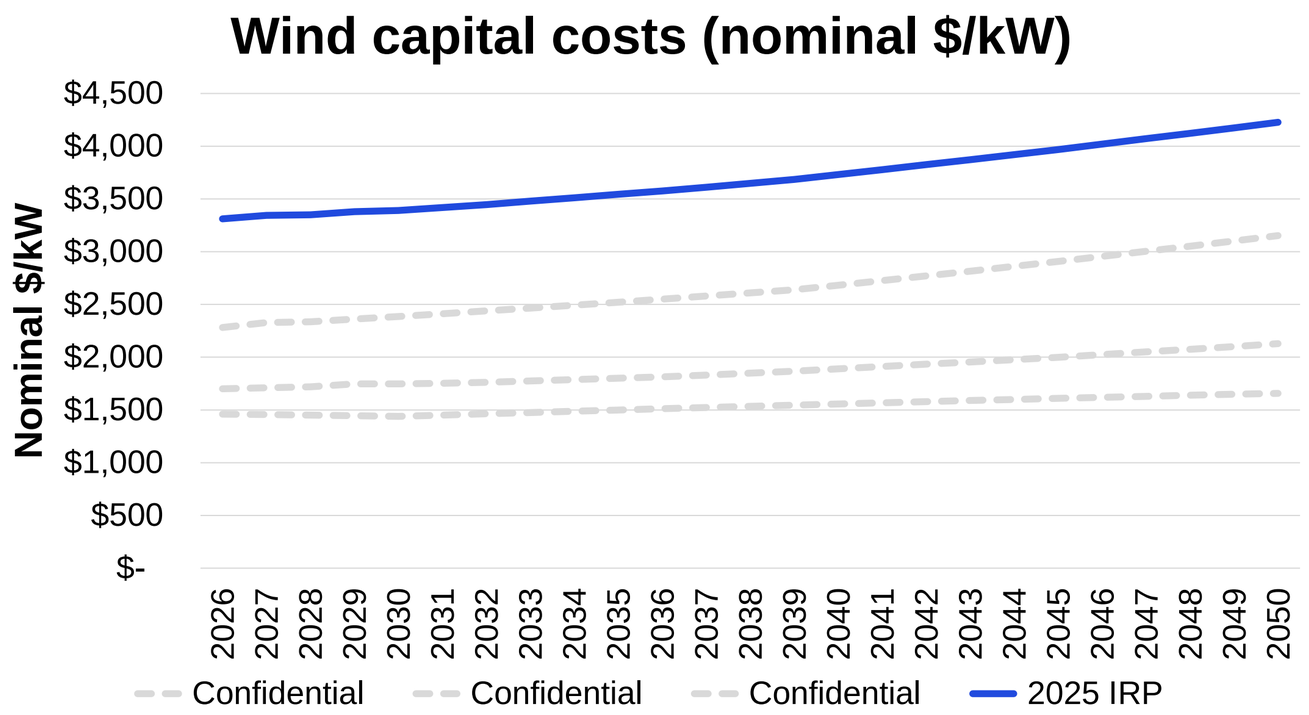
Wind: Costs and parameters

- → Capital cost ($/kW) in 2026: $3,331
- → Fixed O&M ($/kW-yr) in 2026: $54.03
- → Location: Indiana
- → Annual capacity factor: 40.4%
- → Source profile: NREL System Advisory Model (SAM)
- → Useful life: 30 years



Note: Confidential cost forecasts in chart include forecasts from NREL, Wood Mackenzie and BNEF

Note: Capital Cost estimates presented here are without federal tax credits. Federal tax credits will be included in modeling based on the IRP scenario assumptions.

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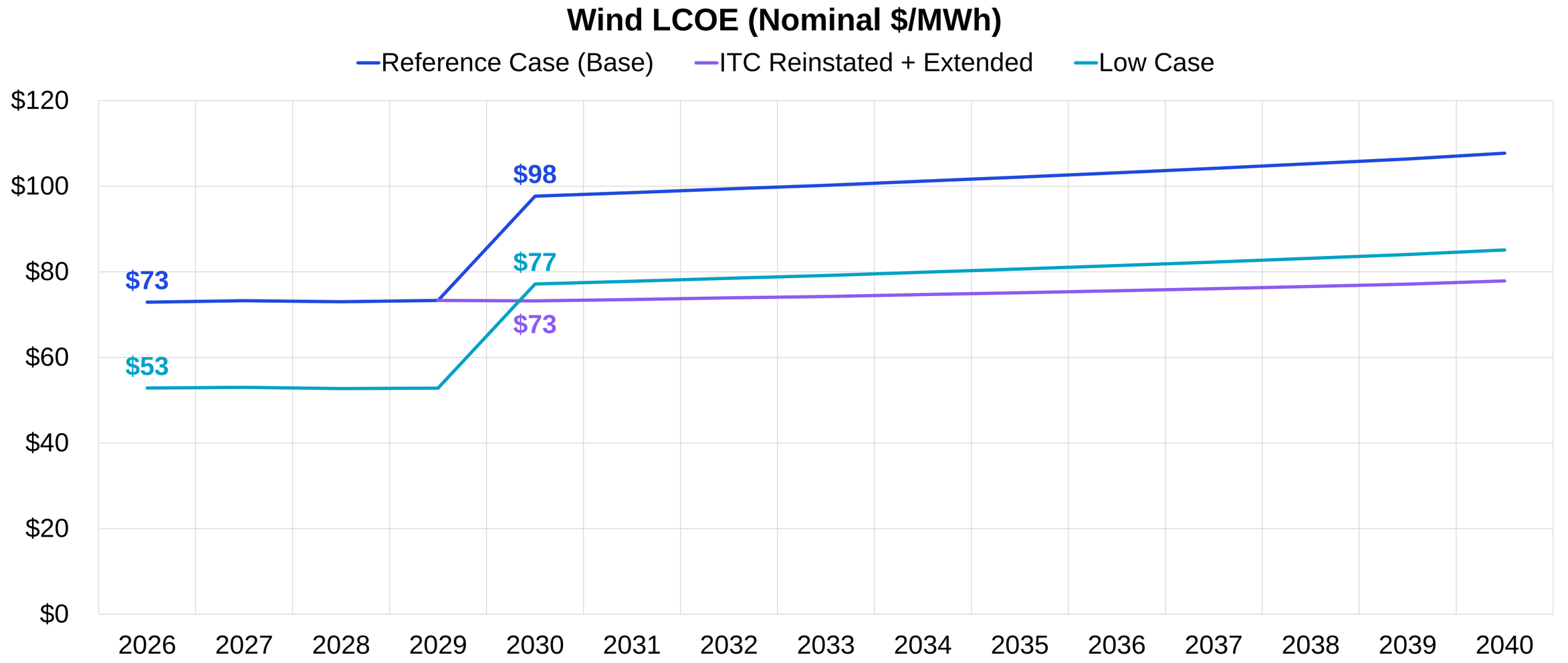
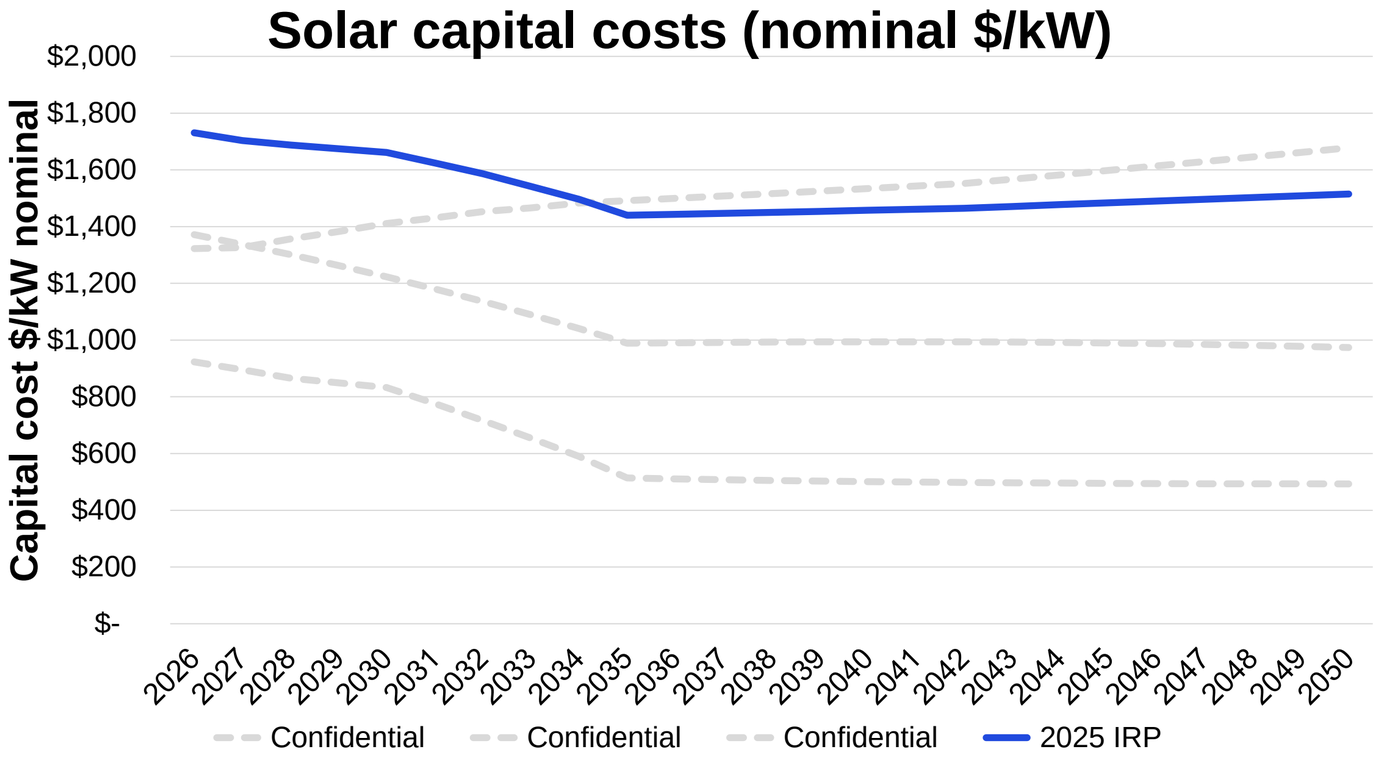
Wind: LCOE


Wind LCOE (Nominal $/MWh)
Reference Case (Base)
ITC Reinstated + Extended
Low Case
$120
$100
$80
$60
$40
$20
$0
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
$98
$77
$73
$73
$53

Solar: Costs and parameters

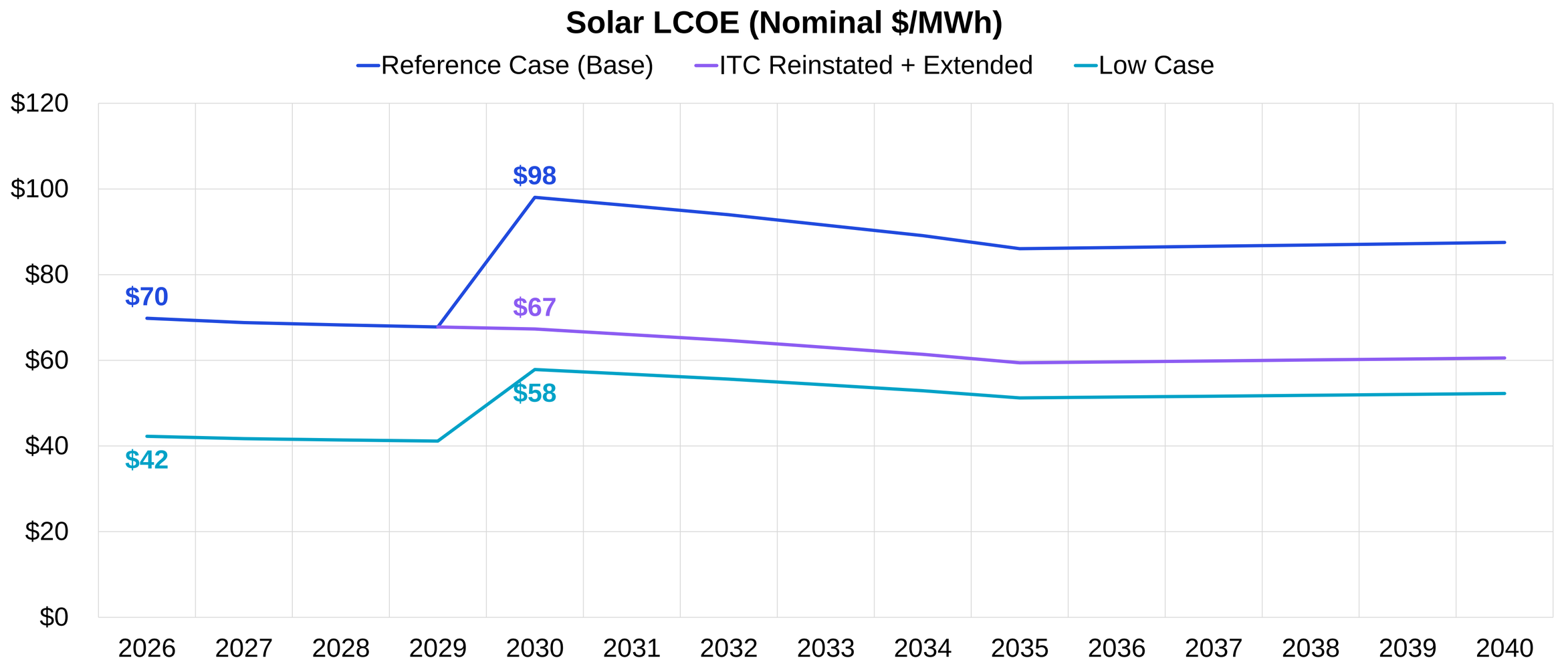
- → Capital cost ($/kW) in 2026: $1,731
- → Fixed O&M ($/kW-yr) in 2026: $16.73
- → Annual capacity factor: 23%
- → Source profile: NREL System Advisory Model (SAM)
- → Project size: 25 MW ICAP
- → Useful life: 35 years



Note: Confidential cost forecasts in chart include forecasts from NREL, Wood Mackenzie and BNEF

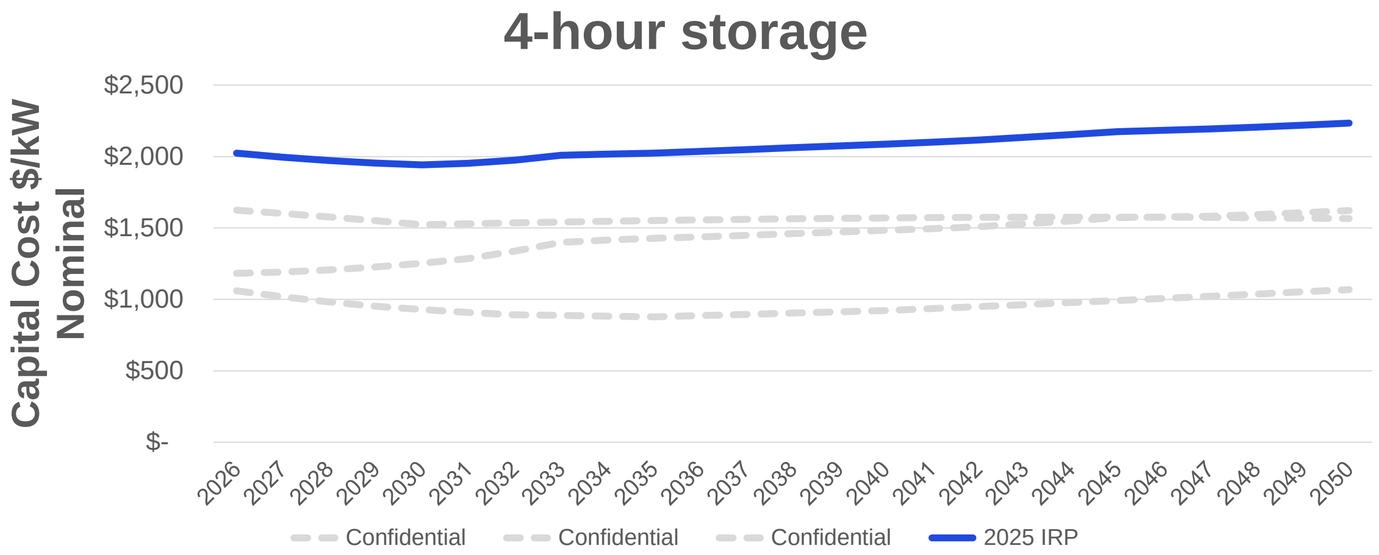
Note: Capital Cost estimates presented here are without federal tax credits. Federal tax credits will be included in modeling based on the IRP scenario assumptions.

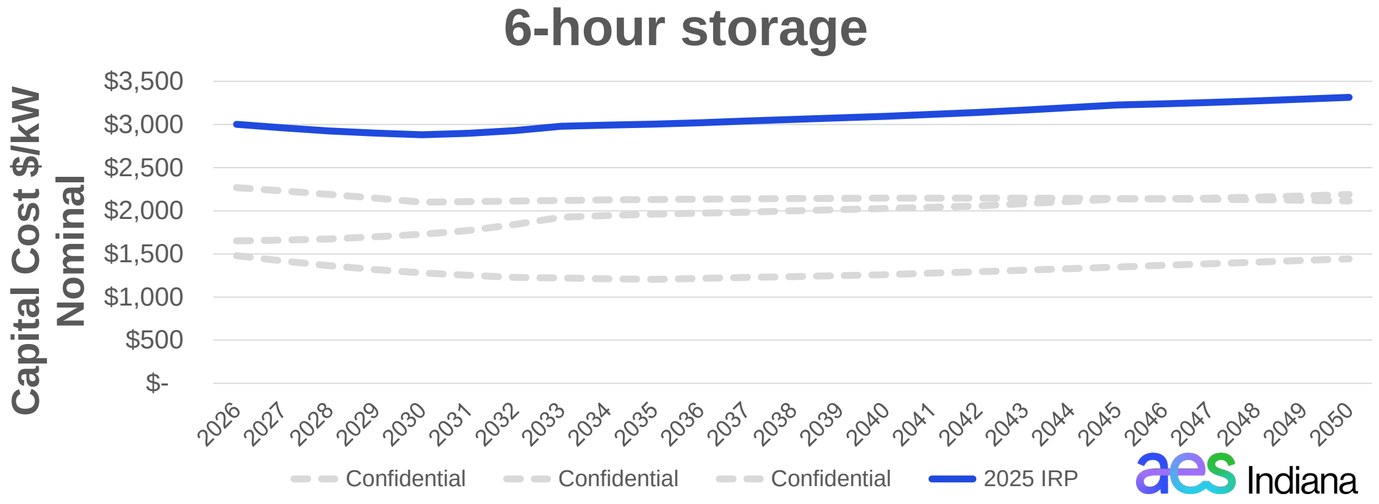
Solar: LCOE


Solar LCOE (Nominal $/MWh)
Reference Case (Base)
ITC Reinstated + Extended
Low Case
$120
$100
$80
$60
$40
$20
$0
$98
$70
$67
$58
$42
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040

Storage: Costs and parameters

- →Capital cost:
  - →4-hour: $2,024/kW
  - →6-hour: $3,002/kW
- →Fixed O&M
  - →4-hour: $28.15/kW-year
  - →6-hour: $38.66/kW-year
- →Project size: 20 MW ICAP | 80 MWh (4-hour)
- →Round trip efficiency (RTE): 85%
- →Cycles per year: 365
- →Useful life: 20 years



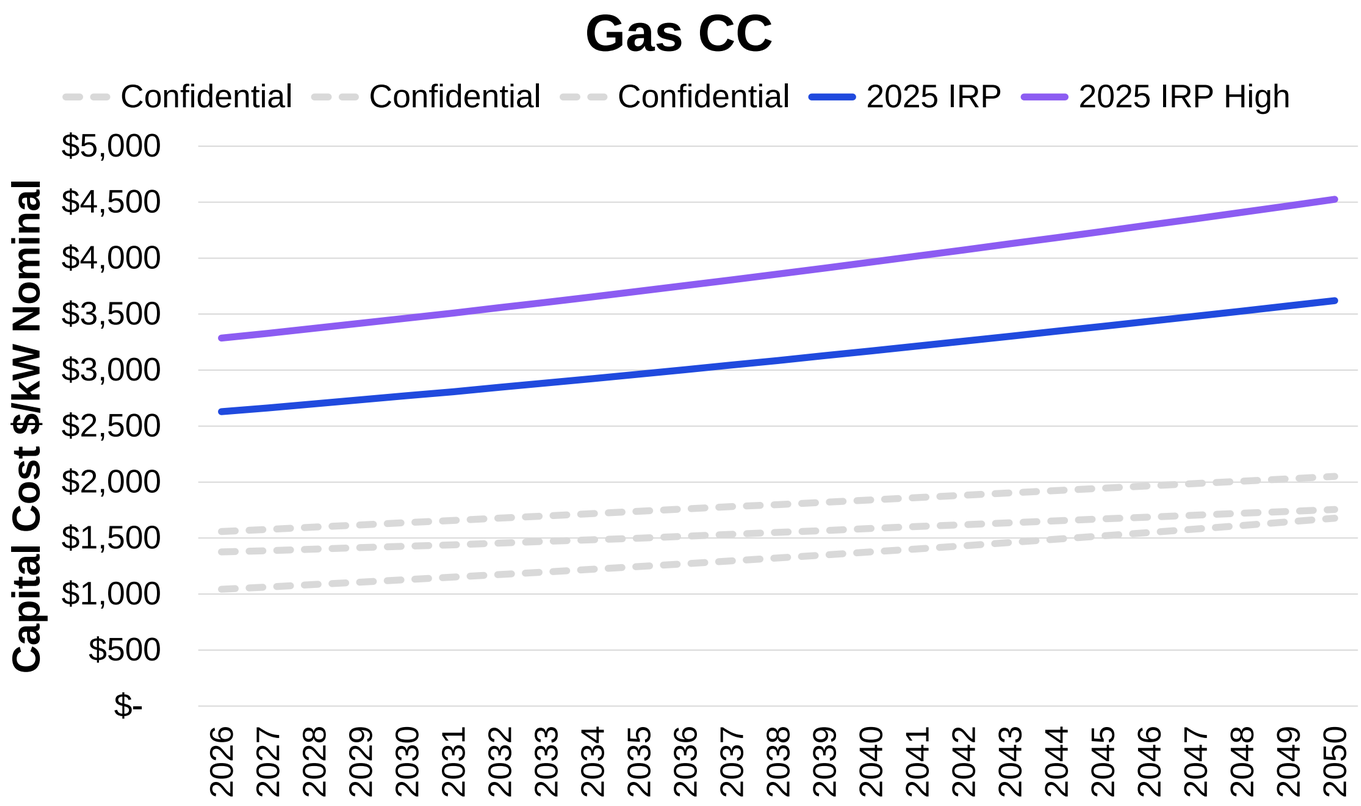


Note: Capital cost estimates presented here are without federal tax credits. Federal tax credits will be included in modeling based on the IRP scenario assumptions.

Note: Confidential cost forecasts in chart include forecasts from NREL, Wood Mackenzie and BNEF

CCGT: Costs and parameters

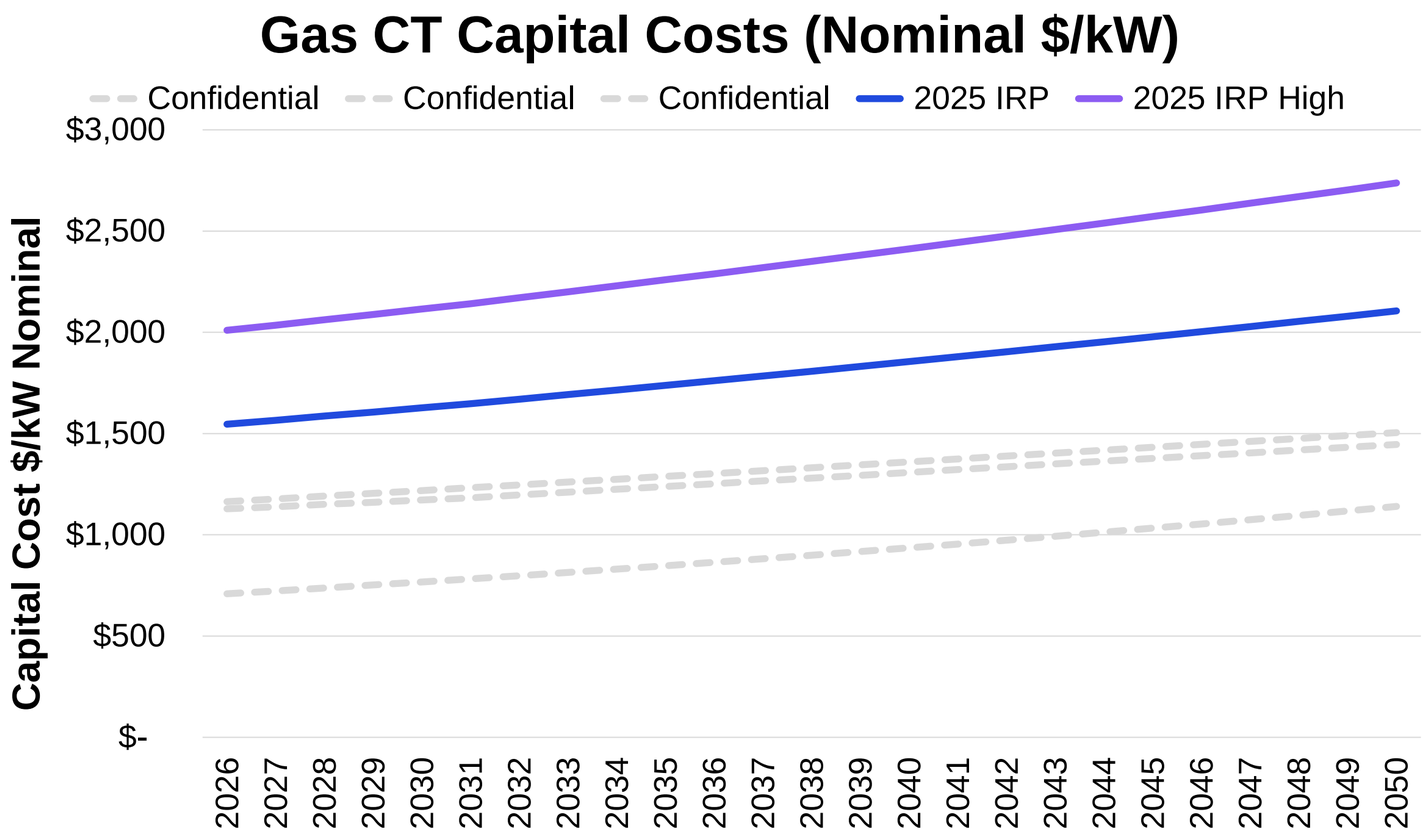
- →Capital cost in 2026: $2,629/kW
- →Fixed O&M in 2026: $59.22/kW-year (includes firm gas transportation)
- →Project size: 640 MW (ICAP, summer net)
- →Heat rate at max economic load: 6,200 Btu/kWh
- →Useful life: 30 years



Note: Confidential cost forecasts in chart include forecasts from NREL, Wood Mackenzie and BNEF

CT: costs and parameters

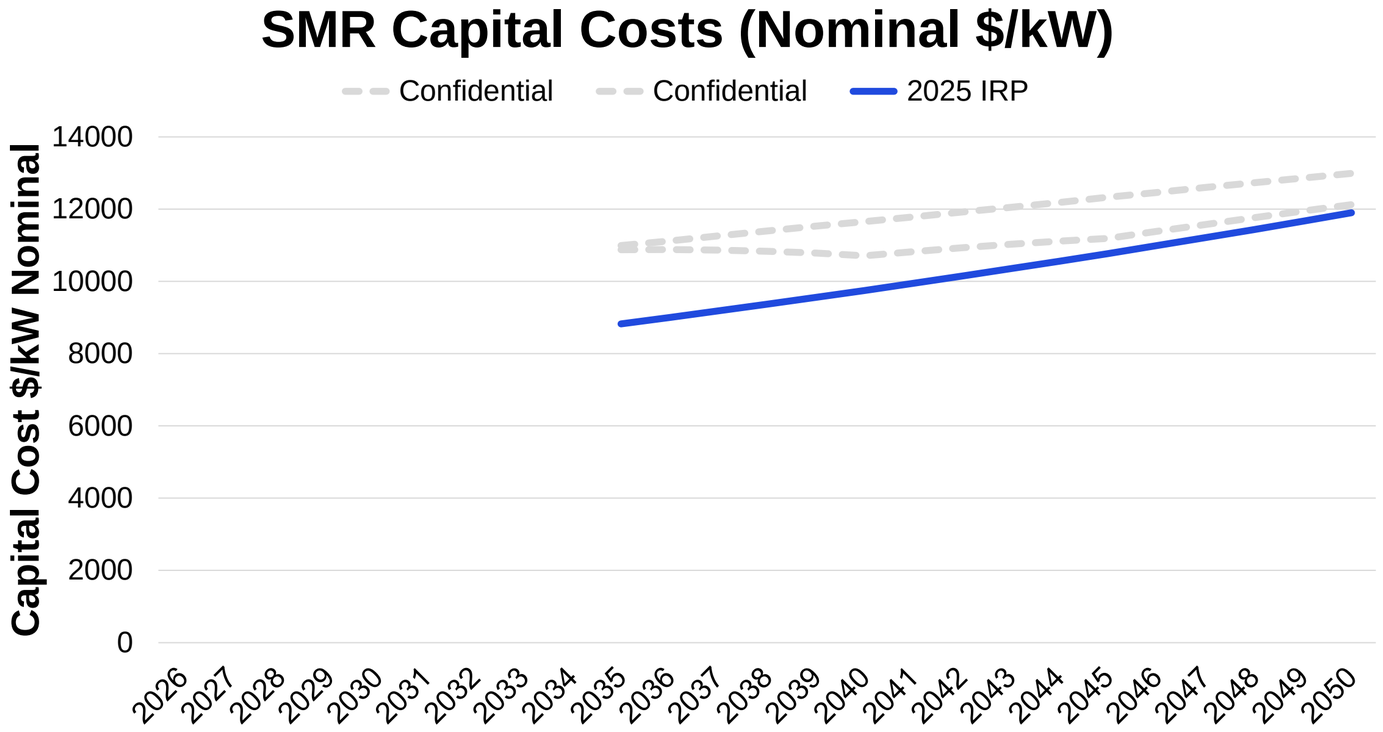
- Capital cost in 2026: $1,546/kW
- Fixed O&M in 2026: $51.42/kW-year (includes firm gas transportation)
- Project size: 240 MW ICAP
- Heat rate at max economic load: 10,012 Btu/kWh
- Useful life: 30 years



Note: Confidential cost forecasts in chart include forecasts from NREL, Wood Mackenzie and BNEF

SMR capital and operating costs

- Capital cost ($/kW) in 2035: $8,824
- Fixed O&M ($/kW-yr) in 2035: $235.53
- Variable O&M ($/MWh) in 2035: $1.47
- Project size: 470 MW ICAP
- Heat rate at max economic load: 8,000 Btu/kWh



Note: Confidential cost forecasts in chart include forecasts from NREL and Wood Mackenzie

Note: Capital Cost estimates presented here are without federal tax credits. Federal tax credits will be included in modeling based on the IRP scenario assumptions.

New resource build limits

Project Type	*Incremental Size (ICAP MW)*	*Per year limits (ICAP MW)*										*Planning Period Max (ICAP MW)*
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035+	
Wind	50	0	0	0	0	400	400	600	600	600	600	8,000
Solar	25	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	8,000
4-Hour Storage	20	0	800	800	800	800	800	800	800	800	800	1,600
6-Hour Storage	20	0	800	800	800	800	800	800	800	800	800	1,600
8-Hour Storage	20	0	800	800	800	800	800	800	800	800	800	1,600
Gas CCGT	640	0	0	0	0	1,360	1,360	1,360	1,360	1,360	1,360	4,080
Gas CT	240	0	0	0	0	960	960	960	960	960	960	2,880
SMR	470	0	0	0	0	0	0	0	0	0	940	1,880

Resource accreditation

	Summer	Fall	Winter	Spring
Gas CCGT	94%	95%	85%	85%
Gas CT	85%	85%	90%	90%
Gas ST	75%	75%	75%	75%
Oil	70%	70%	80%	80%
Nuclear	94%	90%	87%	81%

2025 IRP resource accreditation is based on a combination of:

(a) Indicative MISO Direct Loss of Load (DLOL) modeling

(b) MISO-provided AES Indiana indicative DLOL values for existing resources

(c) AES Indiana projections for future penetration levels of various technologies, particularly solar and storage

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Solar																				
Summer	39%	34%	30%	28%	25%	23%	22%	20%	19%	18%	17%	16%	15%	14%	13%	12%	12%	11%	10%	10%
Fall	24%	21%	19%	17%	16%	15%	14%	13%	12%	11%	10%	10%	9%	9%	8%	8%	7%	7%	6%	6%
Winter	16%	13%	11%	10%	9%	8%	7%	7%	6%	6%	5%	5%	4%	4%	3%	3%	3%	2%	2%	2%
Spring	24%	21%	19%	18%	16%	15%	14%	13%	12%	12%	11%	10%	10%	9%	9%	8%	8%	8%	7%	7%
Storage																				
Summer	95%	95%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Fall	95%	95%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Winter	95%	95%	95%	80%	78%	76%	70%	66%	63%	61%	59%	57%	55%	54%	52%	51%	50%	49%	48%	47%
Spring	95%	95%	95%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Wind																				
Summer	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Fall	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%
Winter	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
Spring	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%

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2025 DSM market potential study introduction

Jeff Huber

GDS Associates

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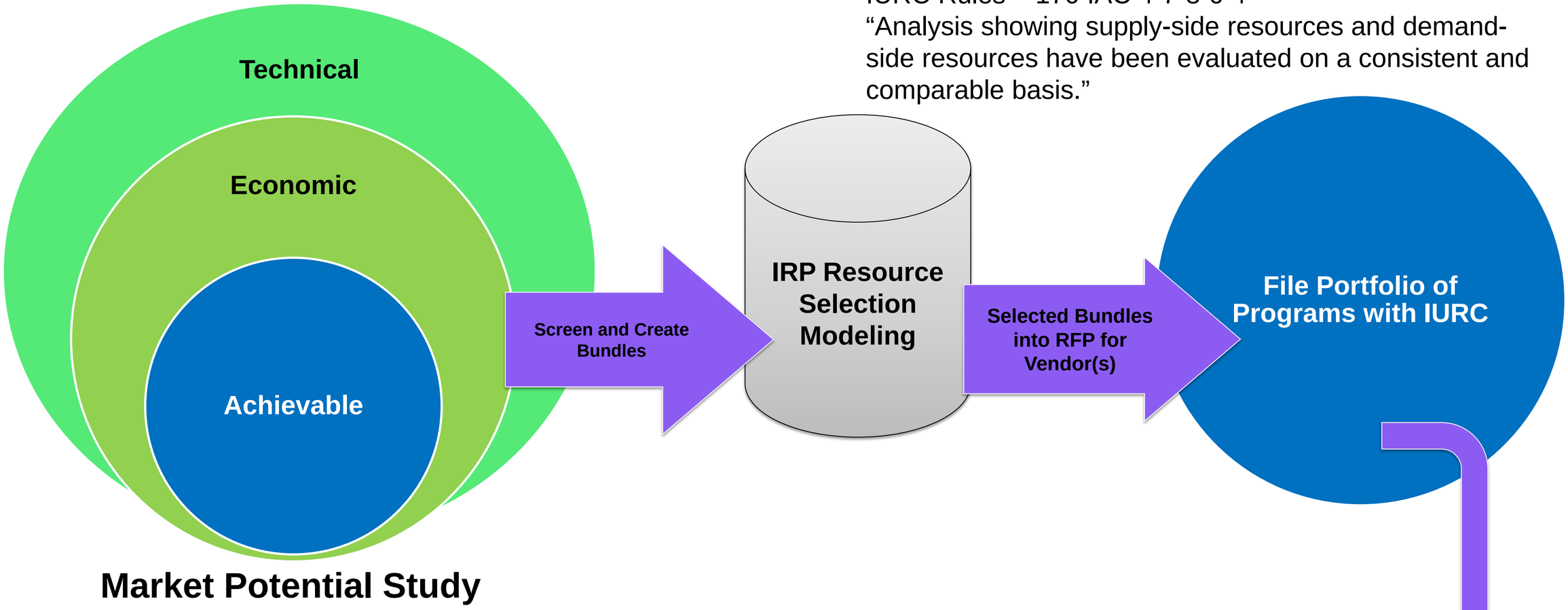
DSM overview: DSM process in the IRP

IURC Rules – 170 IAC 4-7-8-c-4
“Analysis showing supply-side resources and demand-side resources have been evaluated on a consistent and comparable basis.”



Energy efficiency potential analysis

Market characterization and research

- Primary research to improve upon inputs typically used in both the AES-IN load forecast and the GDS Market Potential Study
  - **Residential**
    - End-Use Market Share
    - Unit Energy Consumption
  - **Small Commercial & Industrial**
    - End-Use Intensity
    - Distribution of customers by building type
    - End-Use Saturation

**Received survey responses from over 990 residential households and 250 commercial businesses*

- Data collection elements limited to items that may be answered accurately
- **Residential survey collected:**
  - Ownership, age, and count of electric end-use equipment across major end-use categories
  - Information on smart appliances and electric vehicles
- **Nonresidential survey focused on:**
  - Key end-uses: lighting, cooling, heating, ventilation, water heating, refrigeration
  - Key Equipment Penetration
  - Limited Efficiency Saturation (LEDs, controls)
- Willingness-to-participate (WTP) survey to collect consumer awareness and willingness to participate in various programs or purchase various Energy Efficiency equipment or Demand Response programs

EE overview: Potential overview

TECHNICAL POTENTIAL

All technically feasible measures are incorporated to provide a theoretical maximum potential.

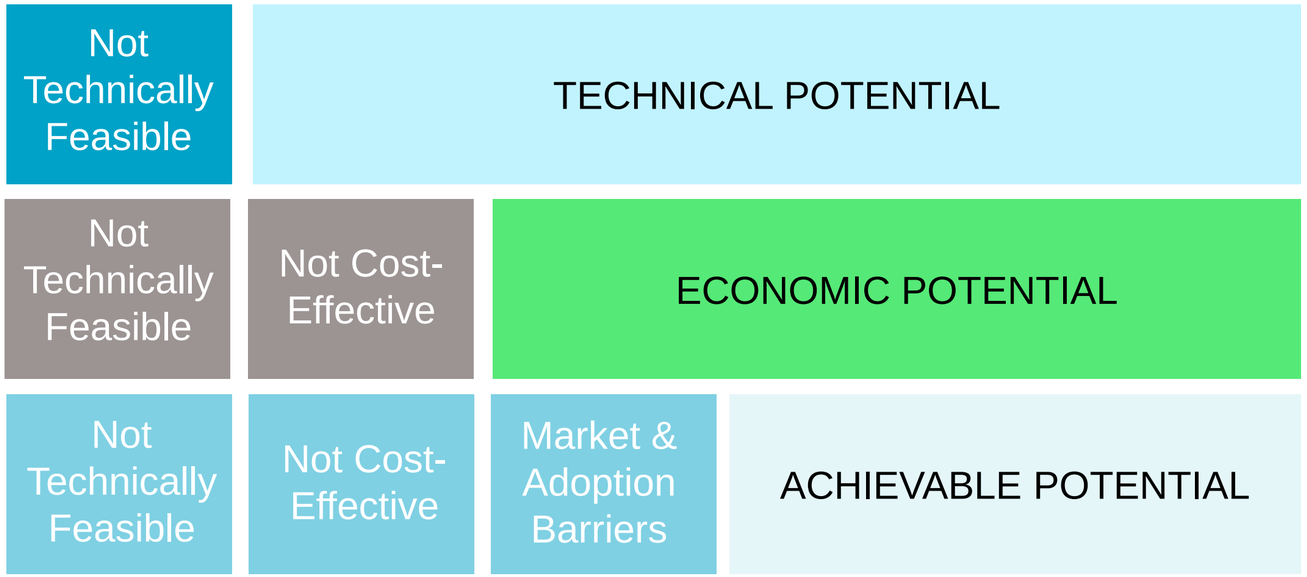
ECONOMIC POTENTIAL

All measures are screened for cost-effectiveness using the **Utility Cost Test**. Only cost-effective measures are included.

ACHIEVABLE POTENTIAL

Cost-effective energy efficiency potential that can practically be attained in a real-world program delivery case, assuming that a certain level of market penetration can be attained.

Types of Energy Efficiency Potential



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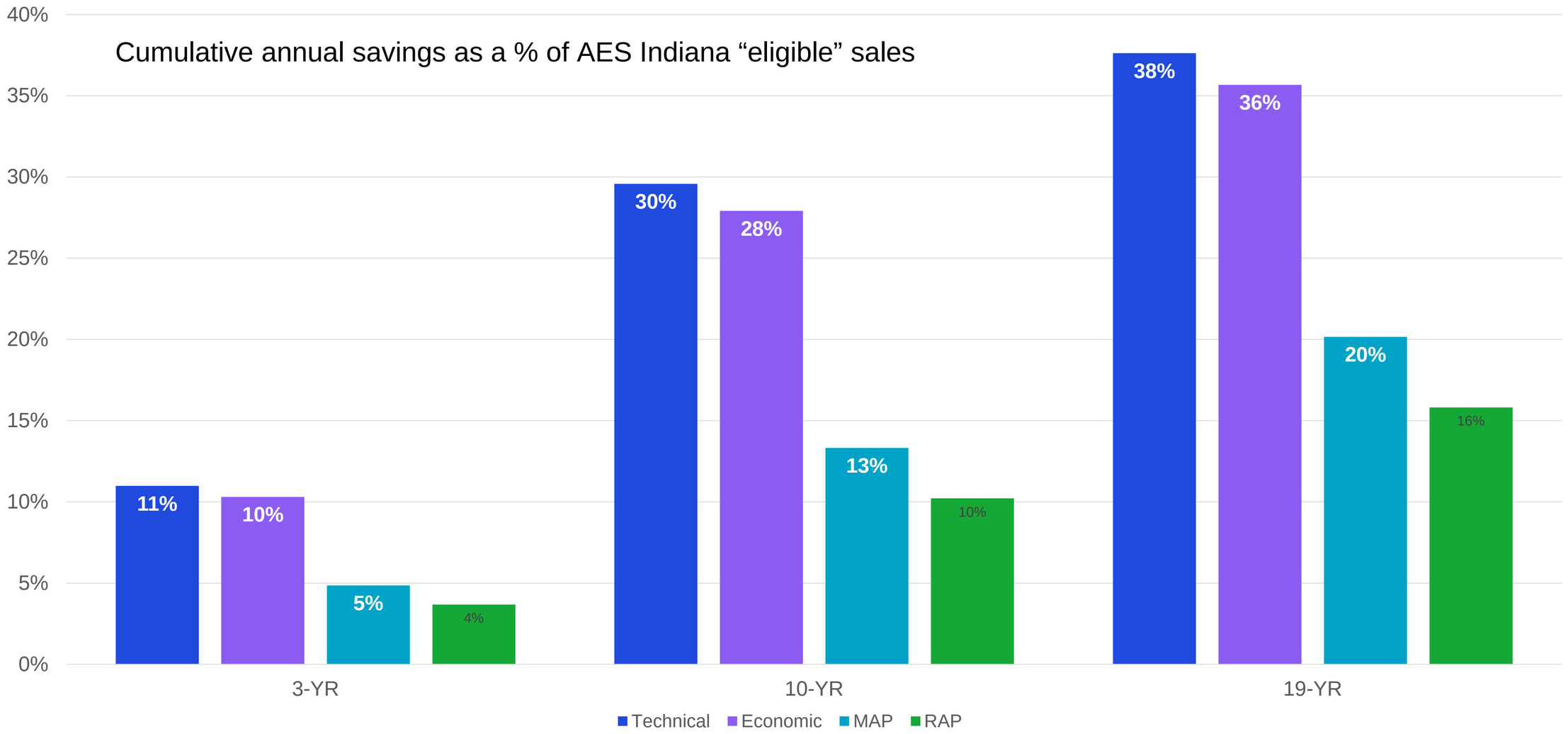
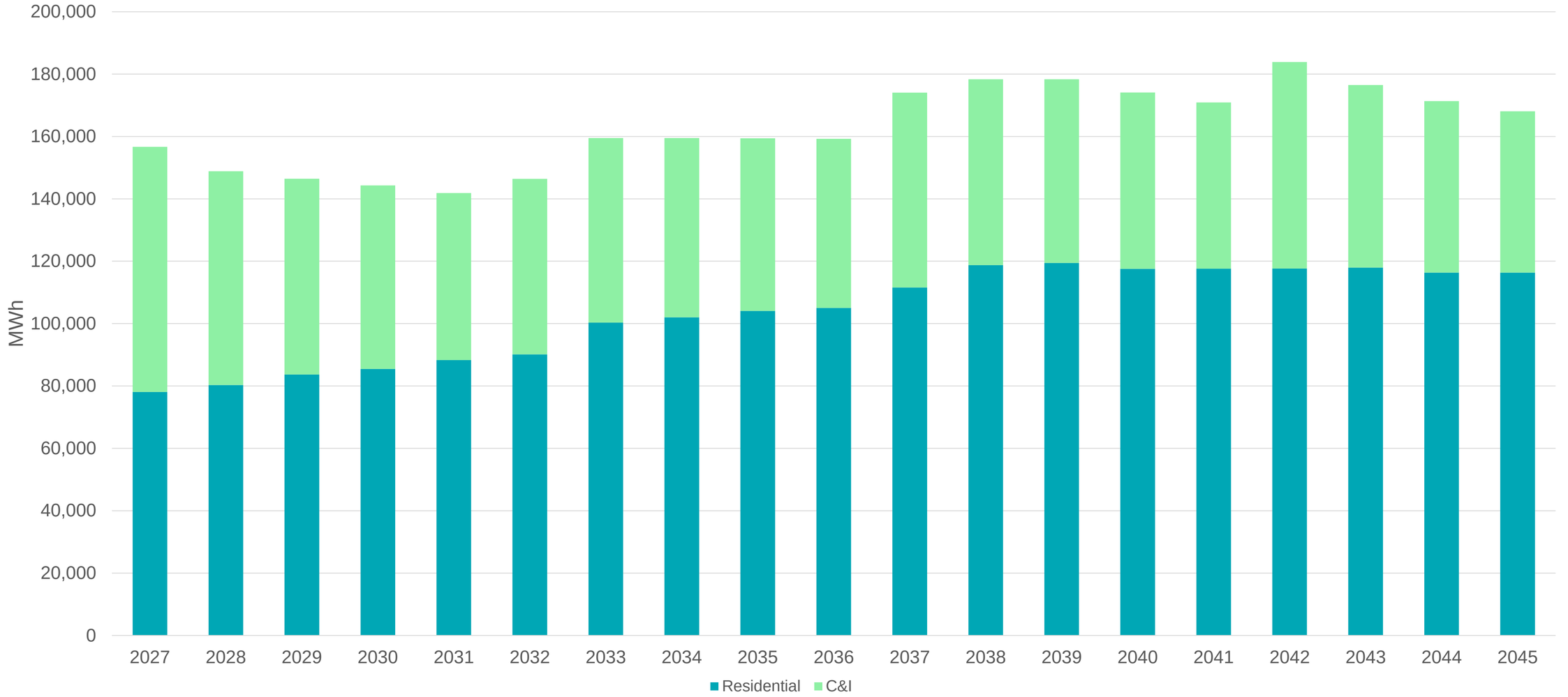
Overview of results: Cumulative annual

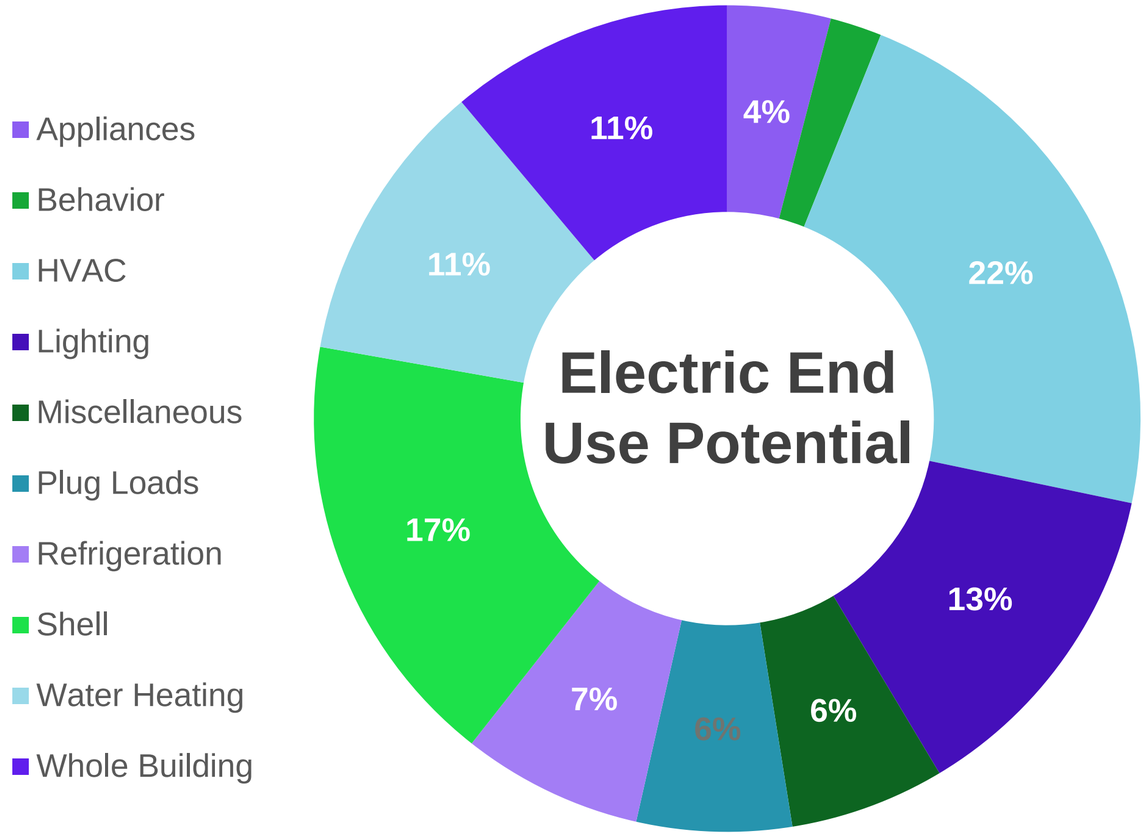


Incremental annual savings by sector: RAP



Cumulative annual savings by end use

2045 Cumulative Annual



16%

Residential cumulative annual realistic achievable potential as a percentage of forecasted sales in 2045

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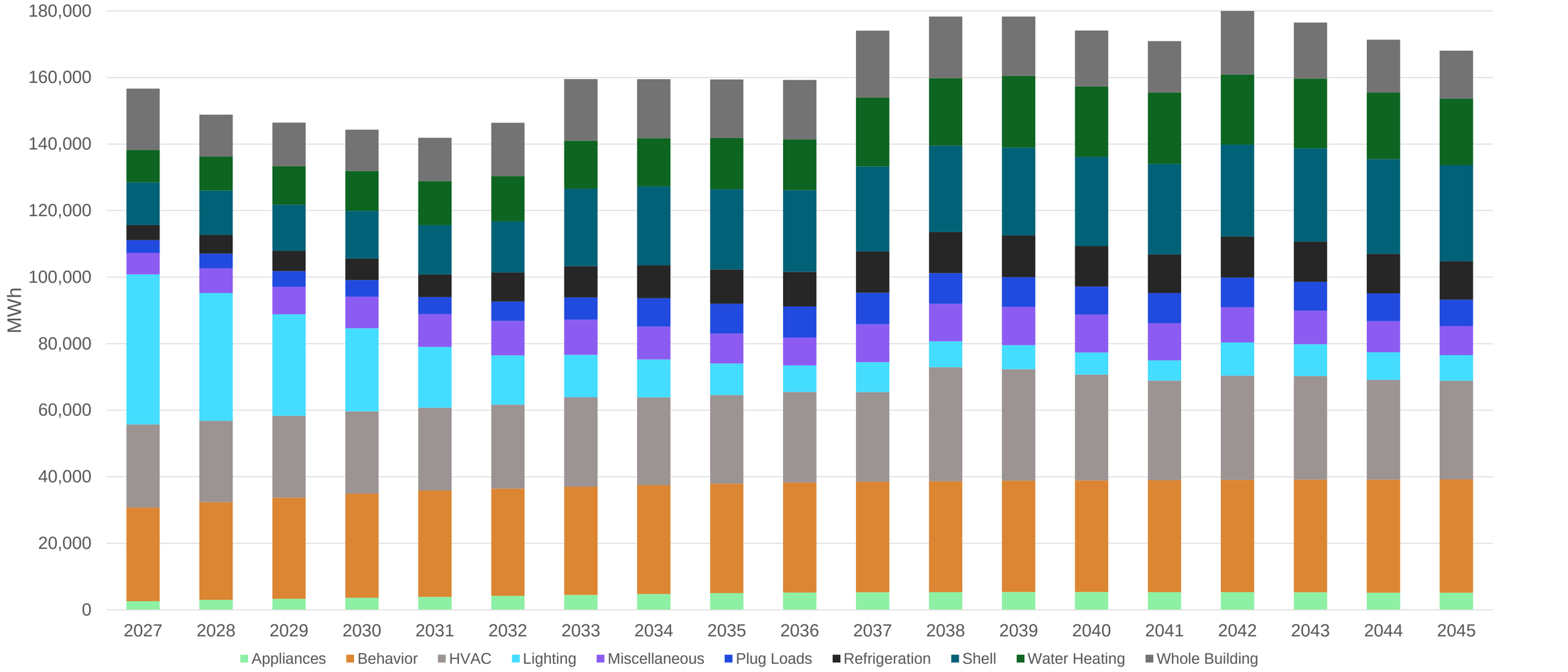
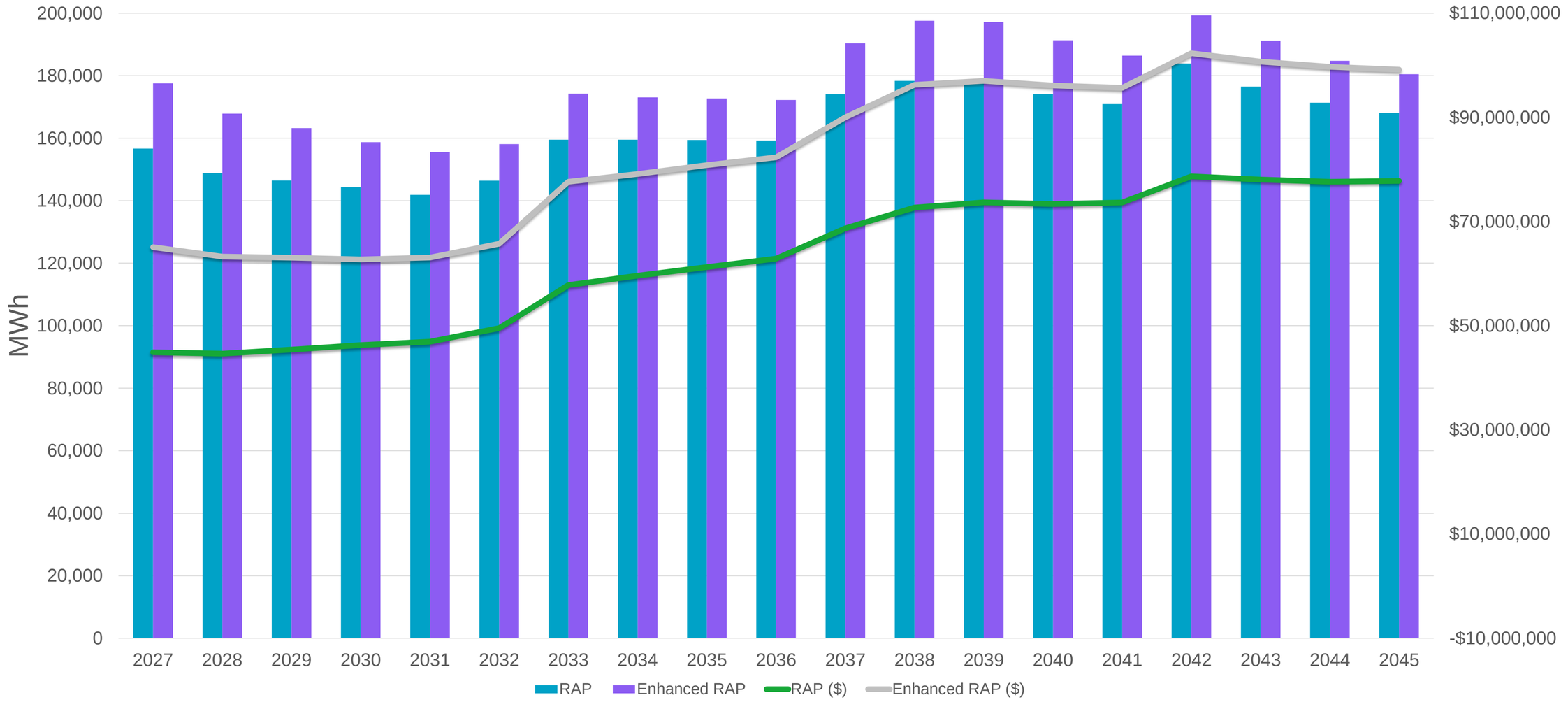
Incremental annual savings by end use



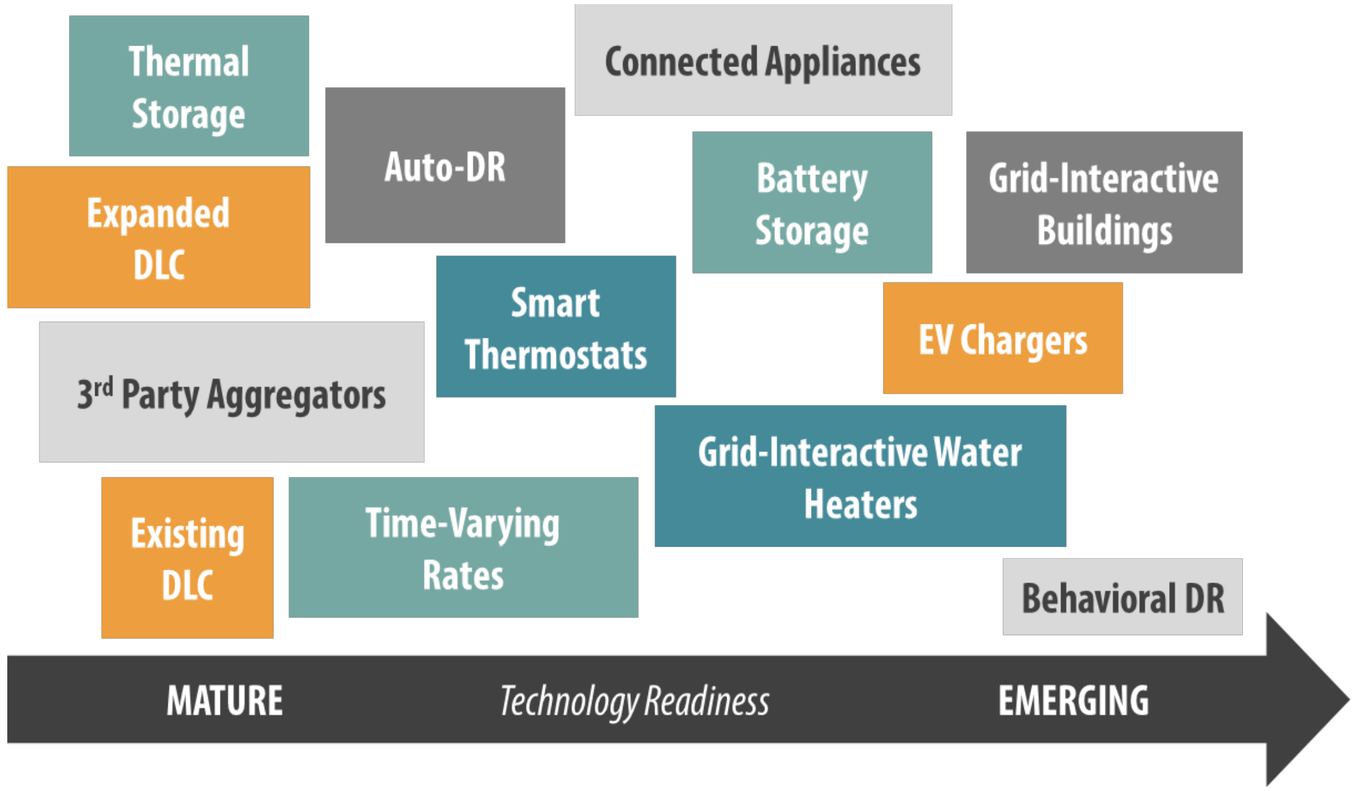
RAP and enhanced RAP: Annual savings and costs



Demand response potential analysis

DR overview: programs considered

- **DLC – Central AC/Thermostats**
- DLC –Room ACs
- DLC – Smart Appliances
- **DLC – Water Heaters**
- DLC – Electric Space Heat
- DLC – Lighting
- Battery Energy Storage
- **Electric Vehicle Charging**
- Curtailment Agreements
- Demand Bidding
- Capacity Bidding
- Time of Use Rates
- Peak Time Rebate
- Behavior DR



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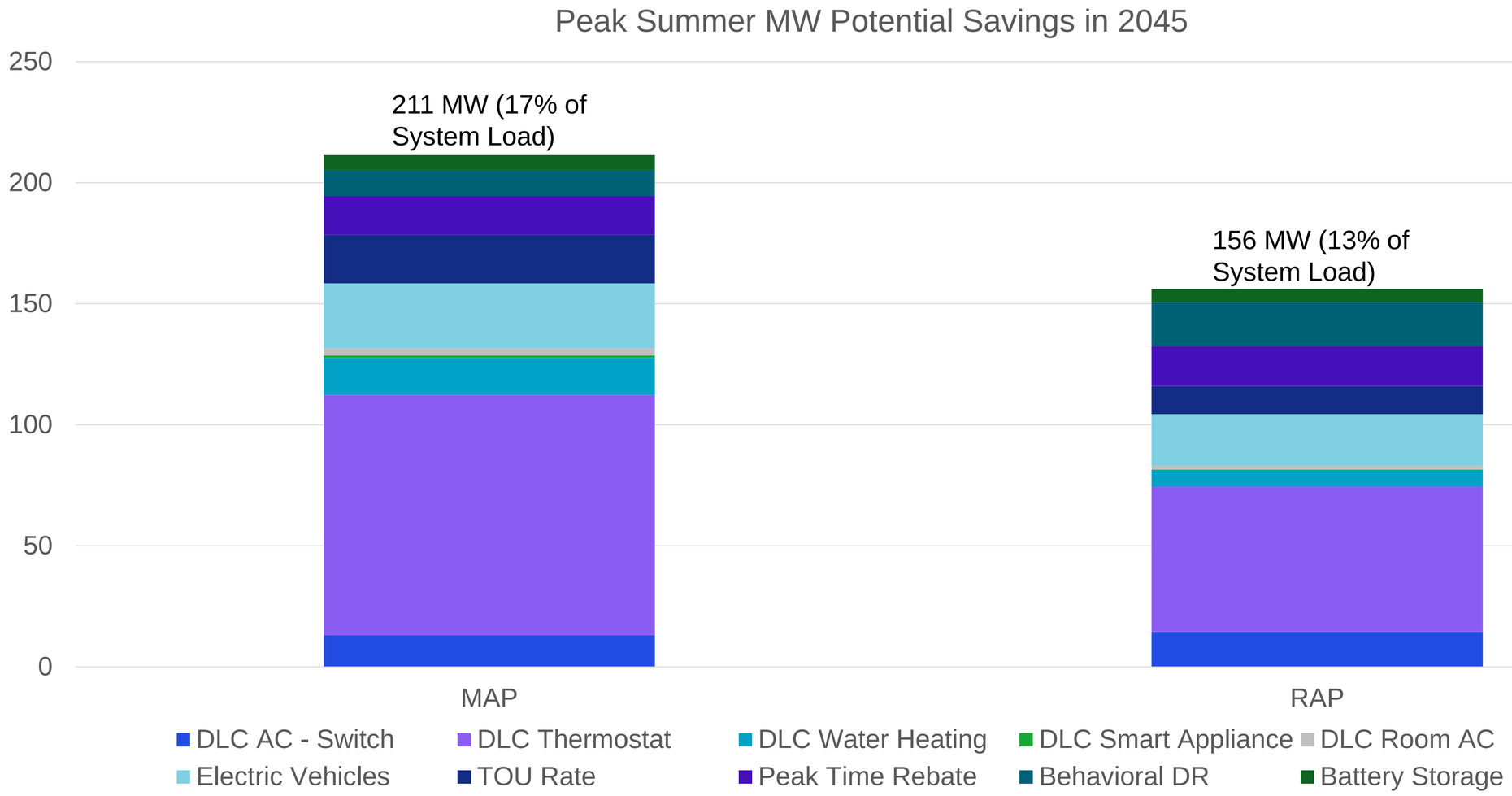
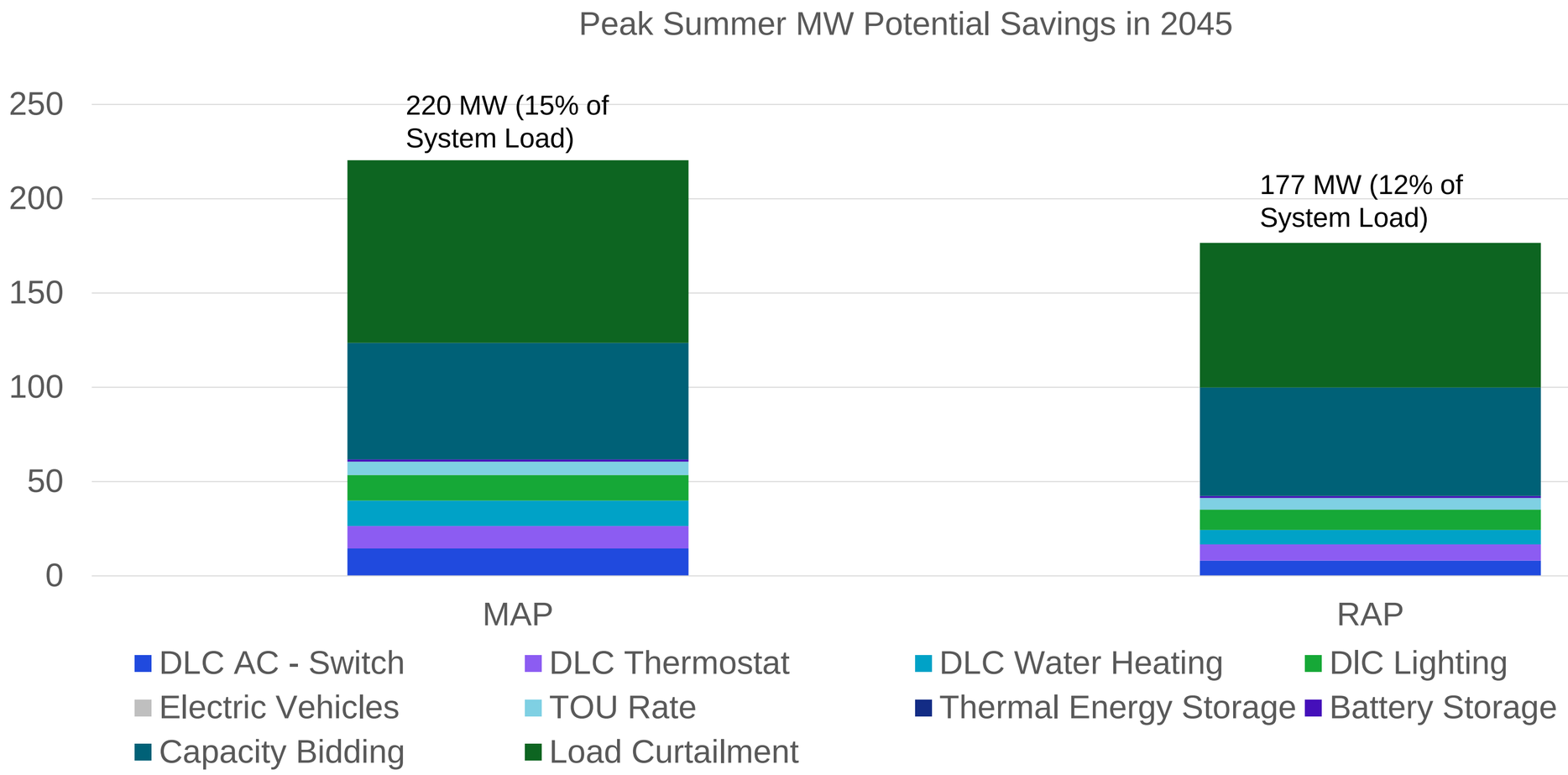
Residential demand response MAP/RAP results

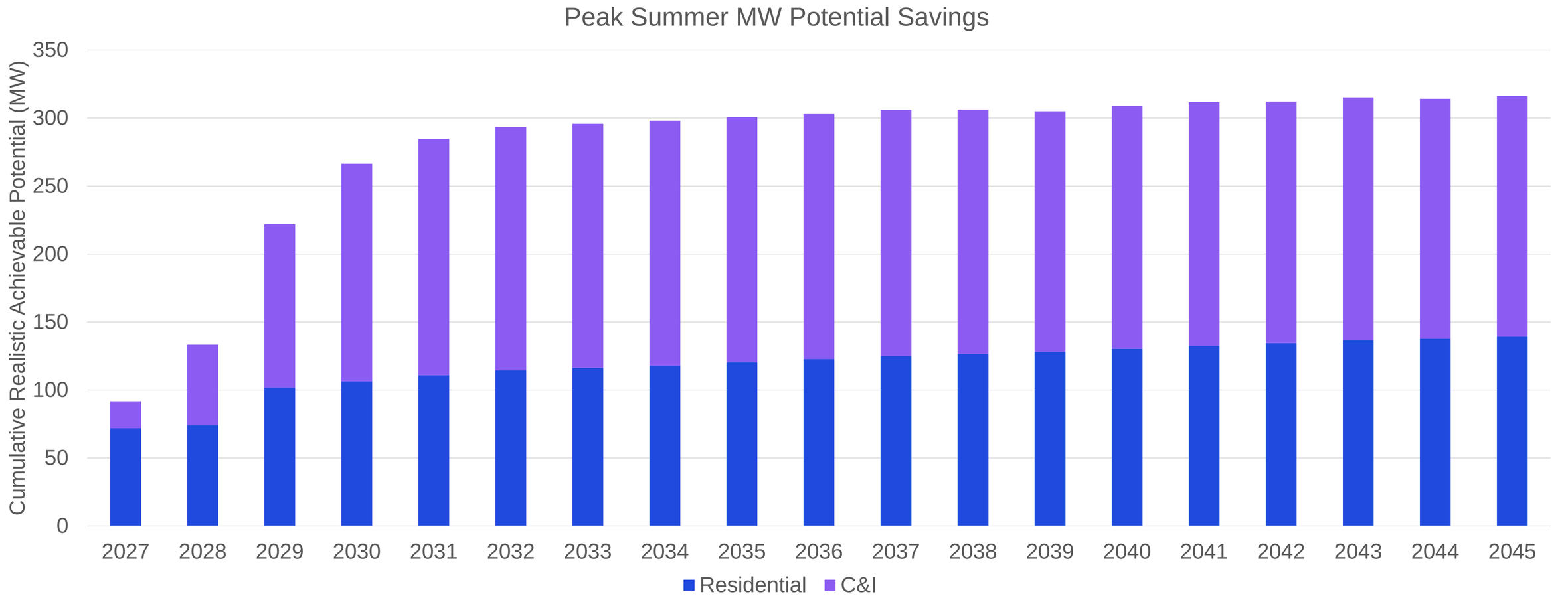


C&I demand response MAP/RAP results

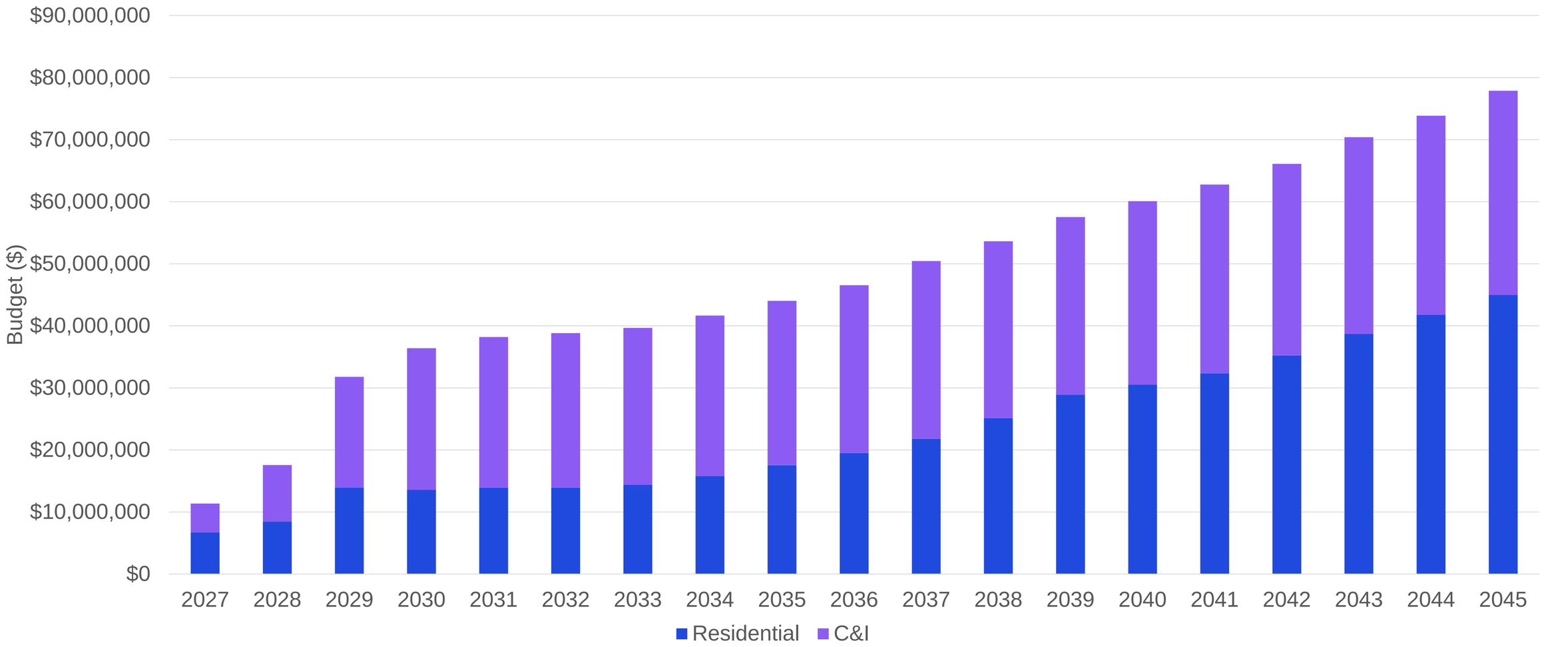


Annual demand response (RAP – by sector)

CUMULATIVE ANNUAL



Annual demand response budgets (by sector)

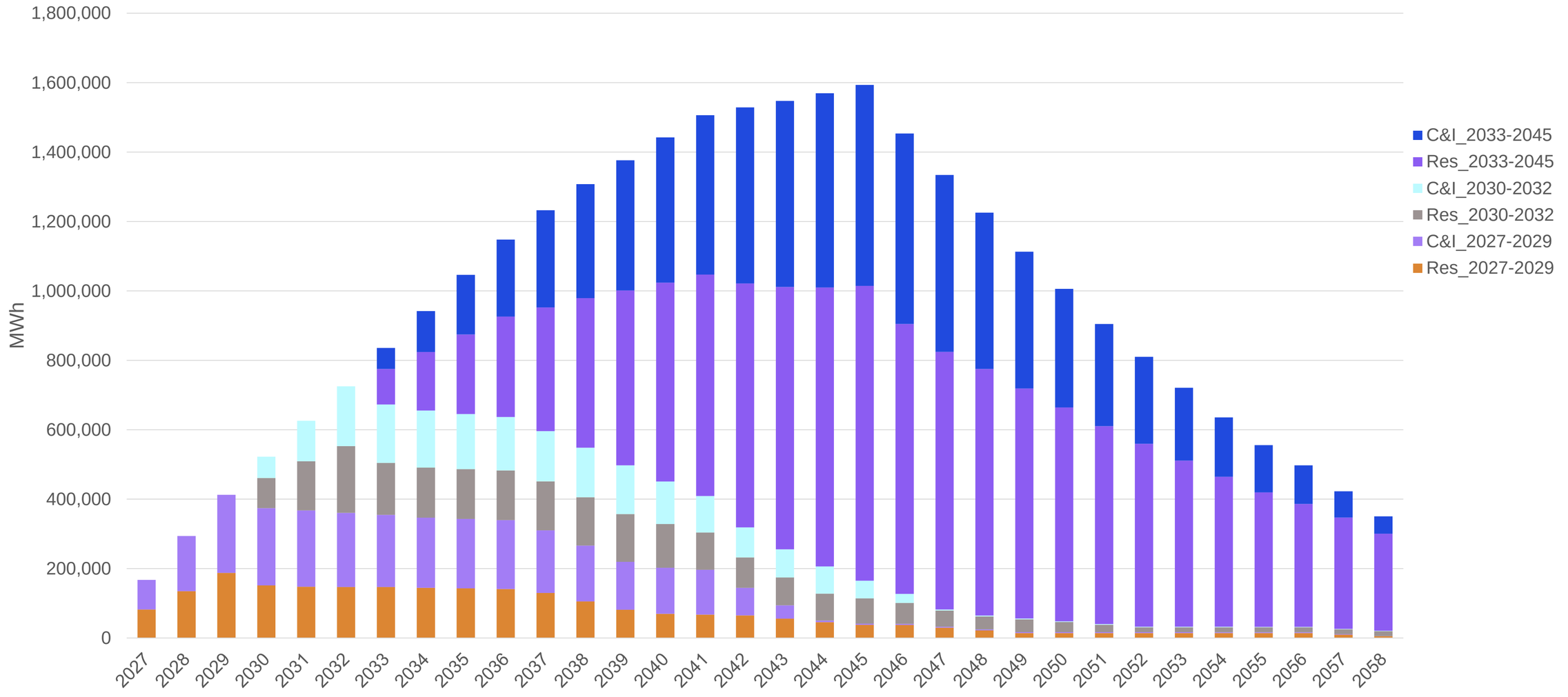


IRP inputs

DSM in the IRP: Expected input structure

- **DSM inputs are:**
  - Three time-vintages (2027-2029, 2030-2032, and 2033-2045)
  - Vintages are sector based (residential, income-qualified, and nonresidential)
    - Residential and nonresidential will be selectable resources ; income-qualified will be a “going-in” resource
  - Provided both Enhanced RAP and RAP for Commercial, RAP only for residential
  - Based on net savings
  - Costs will reflect utility incentive and non-incentive costs (less NPV T&D benefits)
  - Include hourly profiles for each bundle

IRP inputs – energy efficiency – enhanced RAP



DSM in the IRP: expected input structure

- **Time-differentiated savings:**
  - Within a bundle/vintage, the EE savings are broken out by end-use.
  - Saving by end-use are mapped to 8,760 end-use load shape data, developed by National Renewable Energy Laboratory (NREL) and Lawrence Berkley National Lab (LBL).
  - Residential sector includes 33 end-uses
  - Nonresidential sector includes 11 end-uses
  - Hourly savings shapes are provided so that the model captures the timing of savings relative to the AES Indiana system and peak periods.

DR IRP bundles

- →DLC Central AC Switch (One Way)
- →DLC Central AC Switch (Two Way)
- →DLC Thermostat
- →DLC Water Heater
- →Residential DLC Smart Appliances
- →Residential DLC Room AC
- →Electric Vehicles
- →Time of Use Rate
- →Residential Peak Time Rebate
- →Residential Behavioral DR
- →Battery Storage
- →C&I Thermal Energy Storage Rate
- →C&I Capacity Bidding
- →C&I Load Curtailment

DR cost-effectiveness & RAP results

Residential Programs

	UCT Result	Spring	Summer	Fall	Winter
DLC Central AC Switch - One Way	Pass	8.1	13.1	8.2	0.0
DLC Central AC Switch - Two Way	Pass	1.3	2.1	1.3	0.0
DLC Thermostat (Free Thermostat)	Pass	0.5	2.6	0.5	2.3
DLC Thermostat (BYOT)	Pass	12.4	60.0	10.8	54.1
DLC Water Heater Switch	Fail	2.8	4.5	2.8	7.8
DLC Grid-Enabled Water Heater	Fail	1.6	2.6	1.6	4.4
DLC Smart Appliances	Fail	0.2	0.3	0.2	0.3
DLC Room Air Conditioning	Fail	1.0	1.6	1.0	0.0
DLC Electric Vehicle	Fail	5.1	8.2	5.1	16.0
Electric Vehicle Time of Use Incentive	Fail	8.7	14.1	8.8	11.9
Electric Vehicle EVX Rate	Pass	0.0	0.0	0.0	0.1
Time of Use Rate	Pass	7.5	12.1	7.5	5.2
Peak Time Rebate	Pass	10.7	17.2	10.7	10.0
Behavioral Demand Response	Pass	11.8	19.0	11.8	8.1
Battery Storage	Fail	3.6	5.7	3.6	5.7

C&I Programs

	UCT Result	Spring	Summer	Fall	Winter
DLC Central AC Switch - One Way	Fail	0.0	0.0	0.0	0.0
DLC Central AC Switch - Two Way	Pass	7.7	8.4	7.9	0.0
DLC Thermostat (Free Thermostat)	Pass	0.9	4.5	0.8	4.1
DLC Thermostat (BYOT)	Pass	0.9	4.5	0.8	4.1
DLC Water Heater Switch	Pass	6.2	6.7	6.3	6.7
DLC Grid-Enabled Water Heater	Pass	1.2	1.3	1.2	1.3
DLC Lighting	Fail	10.3	11.2	10.5	8.8
DLC Electric Vehicle	Fail	0.0	0.0	0.0	0.0
Electric Vehicle Time of Use Incentive	Fail	0.0	0.0	0.0	0.0
Time of Use Rate	Pass	5.9	6.5	6.1	2.5
Thermal Energy Storage Rate	Fail	0.1	0.1	0.1	0.0
Battery Storage	Fail	0.9	1.0	0.9	1.0
Capacity Bidding	Fail	37.3	60.1	37.4	46.9
Load Curtailment	Pass	73.5	80.0	75.1	60.6

	Spring	Summer	Fall	Winter
Total	220.4	347.2	220.9	261.9
Total with UCT>1	148.7	237.8	148.9	159.2

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IRP scenario framework

Alex Dickerson

Senior Manager of Wholesale Energy, AES Indiana

IRP scenario drivers

	Reference case	Gas infrastructure challenges	High regulatory: environmental	Stable markets scenario
EPA GHG NSPS	Repealed	Repealed	**111B remains in effect**	Repealed
Tax credits (ITC/PTC)	OBBBA	OBBBA	**IRA reinstatement + extension**	OBBBA
AES Indiana load	Base	Base	↑	↓
Natural gas prices	Base	↑	↑	↓
Thermal CAPEX	Base	Base[1]	↑	↓
Renewables CAPEX	Base	Base	Base	↓
EV/distributed solar	↓	Base	↑	Base

[1] High fixed O&M to reflect high firm gas transportation costs

IRP scenario analysis

Reference case

- → EPA New Source Performance Standards (NSPS) for GHG repealed
- → Tax credits (ITC/PTC) follow OBBBA
- → Base case economic outlook
- → Base natural gas prices
- → Power prices assume high data center demand within MISO
- → Low case of electric vehicles and distributed solar

Natural gas infrastructure and supply challenges

- → EPA NSPS for GHG repealed
- → Tax credits (ITC/PTC) follow OBBBA
- → Base case economic outlook
- → High gas and power prices
- → Challenges to gas infrastructure and supply drive high gas prices
- → Base case adoption of electric vehicles and distributed solar

High regulatory: environmental

- → EPA NSPS for GHG remain law
- → IRA tax credits reinstated and extended through 2040
- → High load base load growth
- → Power and gas prices assume high data center demand within MISO
- → High penetration of electric vehicles and distributed solar

Stable market scenario

- → EPA NSPS for GHG repealed
- → Tax credits (ITC/PTC) follow OBBBA
- → Low case economic outlook
- → Gas and power prices lowered to historical norms
- → Base case adoption of electric vehicles and distributed solar

Overview of commodities by IRP scenario

AES Indiana worked with ACES Power to develop commodity scenarios for the 2025 IRP.

Commodity forecasts and inputs include:
→ Power prices
→ Gas prices
→ Capacity prices
→ NOx prices
→ Power price shapes
→ Gas price shapes

AES Indiana plans to use scenarios from ACES's fall 2024 fundamental forecast for the reference case, natural gas infrastructure and supply challenges, and stable market outlook scenarios.

ACES has developed a custom fundamental forecast for the high regulatory: environmental scenario for better alignment.

AES 2025 IRP scenario	ACES commodity scenario
Reference case	ACES fall 2024 fundamental forecast – high demand without GHG rules
Natural gas infrastructure and supply challenges	ACES fall 2024 fundamental forecast – high gas
High regulatory: environmental	ACES custom scenario – high demand with GHG rules
Stable market outlook	ACES fall 2024 fundamental forecast – low gas

ACES fundamental forecast

Will Vance

Director of Fundamental Analysis, ACES

aes Indiana

Agenda

1 Introduction

2 Key Inputs

3 Forecasted Generation Mix

- Installed capacity, capacity credit, generation

4 Forecasted Prices

- Monthly on-peak/off-peak power, sample hourly shapes, capacity

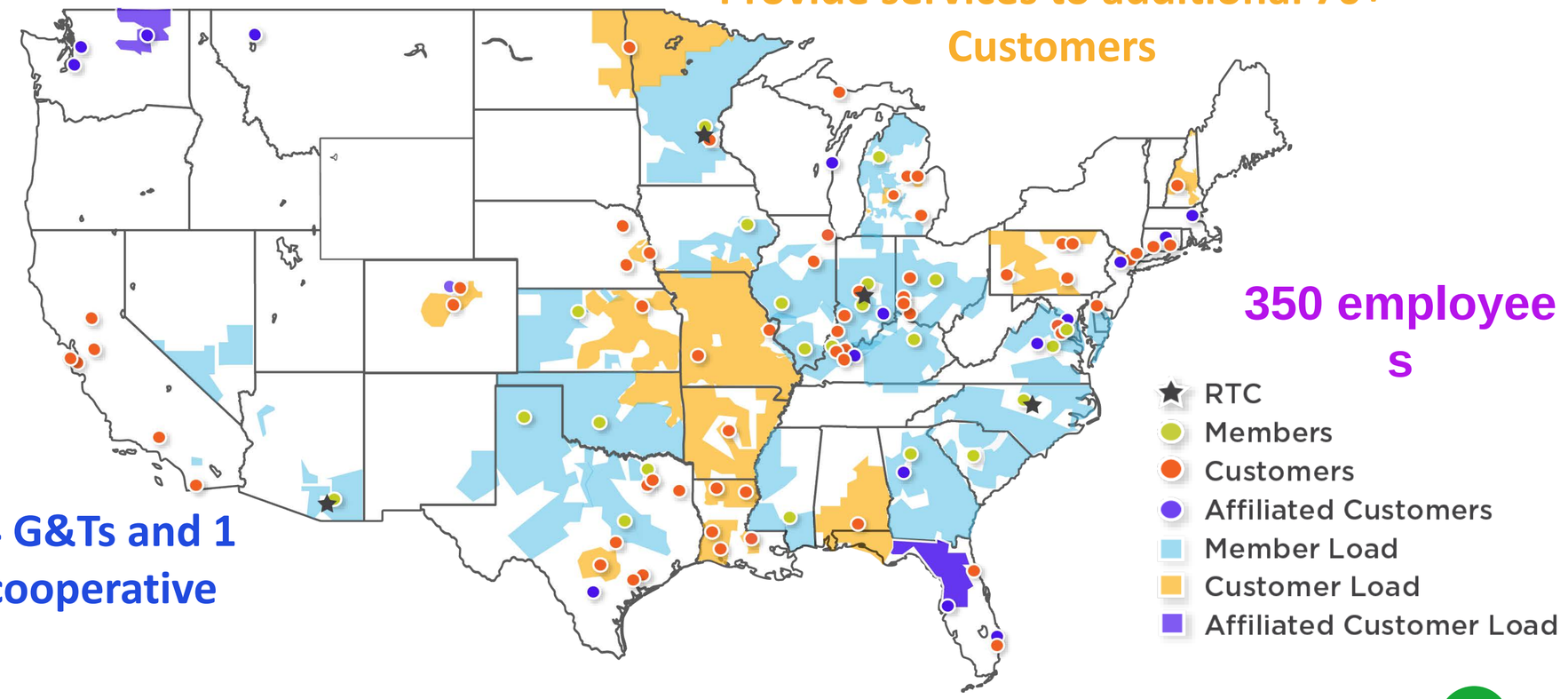
5 Scenarios

- High and Low Gas Prices and High Demand

Who is ACES?

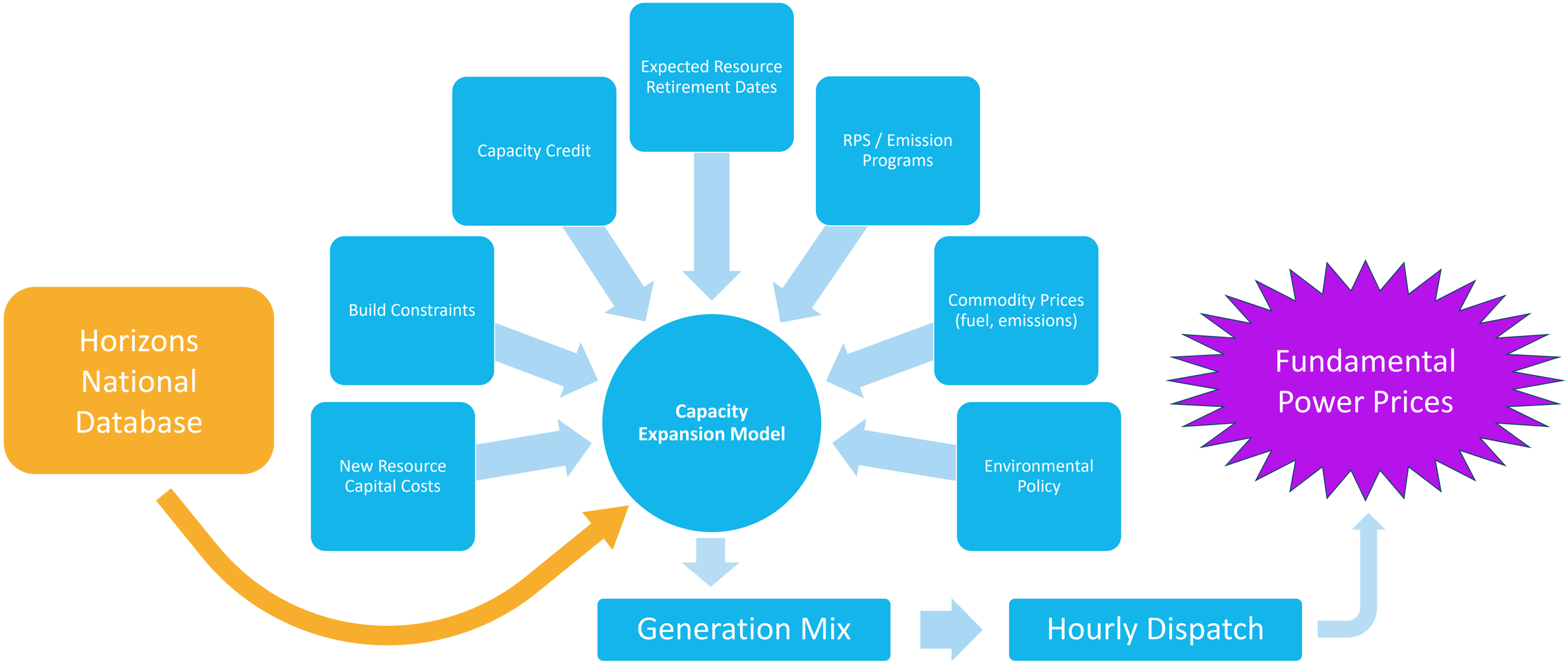
ACES is a nationwide energy management company

We help our Members and Customers buy, sell, and manage energy more efficiently, with less risk



Owned by 24 G&Ts and 1 distribution cooperative

What is a Fundamental Forecast?



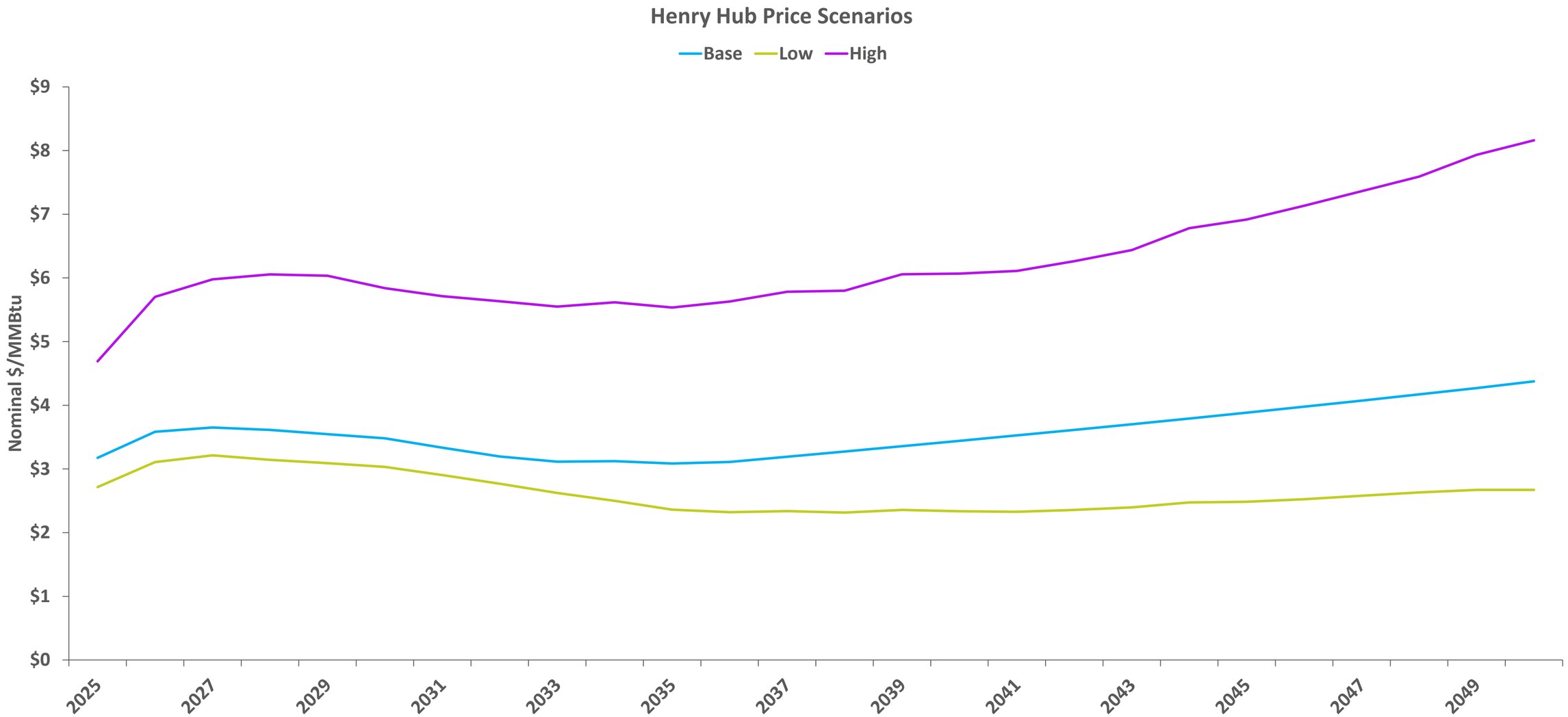
ACES Fundamental Forecast

The forecast includes several scenarios. We will focus on these four:

1. High Demand – includes data center load groups but limited environmental regulation
2. High Gas – high natural gas prices
3. High Demand with GHG Rules – High demand scenario with EPA's Rule 111b
4. Low Gas – low natural gas prices

Key Inputs

Natural Gas


Henry Hub Price Scenarios
Base
Low
High
Nominal $/MMBtu
$9
$8
$7
$6
$5
$4
$3
$2
$1
$0
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045
2047
2049

New Resource Capital Costs (nominal $/kW)

- Used public sources and confidential market intelligence
  - National Renewable Energy Laboratory's (NREL) 2024 Annual Technology Baseline (ATB)
  - U.S. Energy Information Administration's (EIA) 2023 Annual Energy Outlook (AEO)
  - Lawrence Berkely National Laboratory (LBNL) 2023 Interconnection Cost Report
- Each state has a tech-specific capex factor

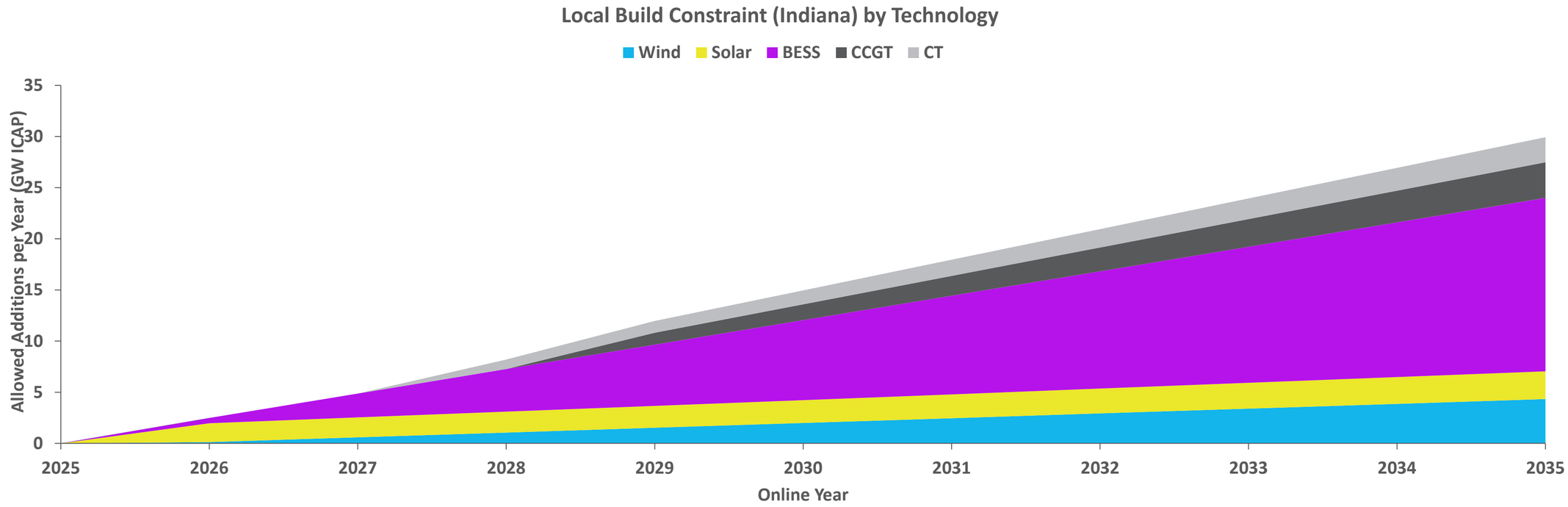
Total Interconnection Cost (2022 $/kW)	
	Weighted Average Across RTOs
Natural Gas	$63
Solar	$154
Solar Hybrid	$229
Storage	$189
Wind Onshore	$95
Wind Offshore	$184

Sample CapEx Factors					
	State				
Technology	IL	IN	KY	MI	OH
CCGT	122%	99%	100%	108%	98%
CT	120%	100%	100%	107%	98%
ICE	121%	102%	101%	109%	94%
SMR	118%	101%	101%	106%	99%
Solar	113%	100%	100%	104%	99%
Battery	107%	102%	102%	102%	99%
Wind	120%	102%	101%	106%	98%

Source: Sargent & Lundy (S&L) report for the EIA

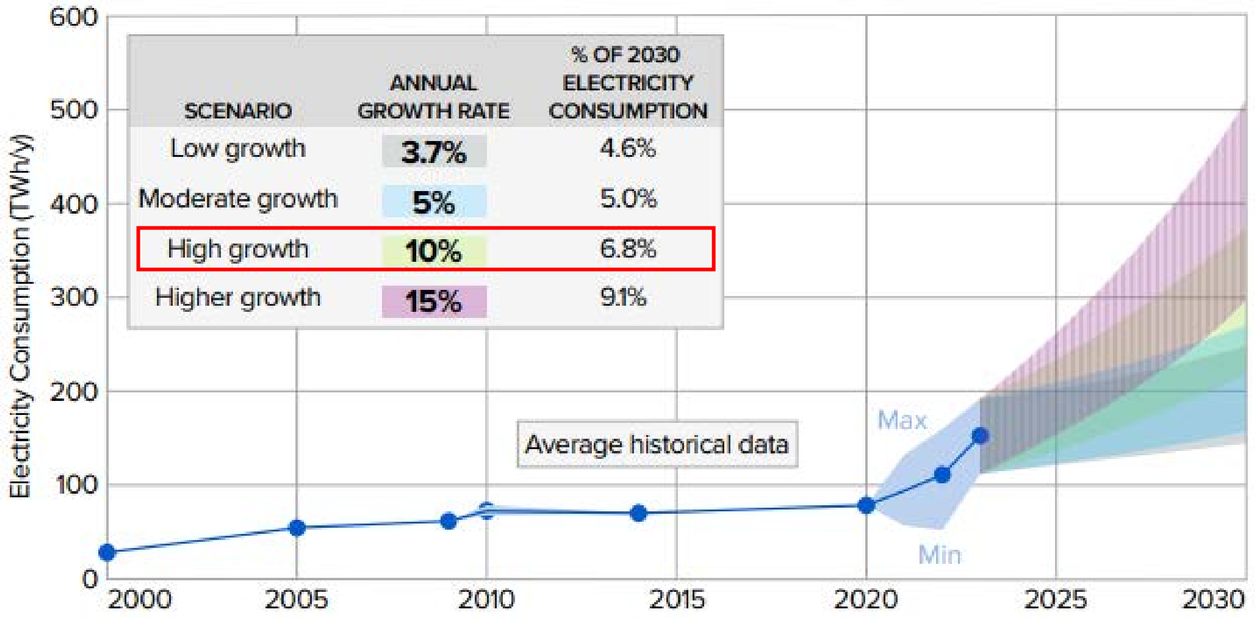
Build Constraints

- Applies local and global build constraints
- Primary intelligence comes from the EIA's 860m



High Demand

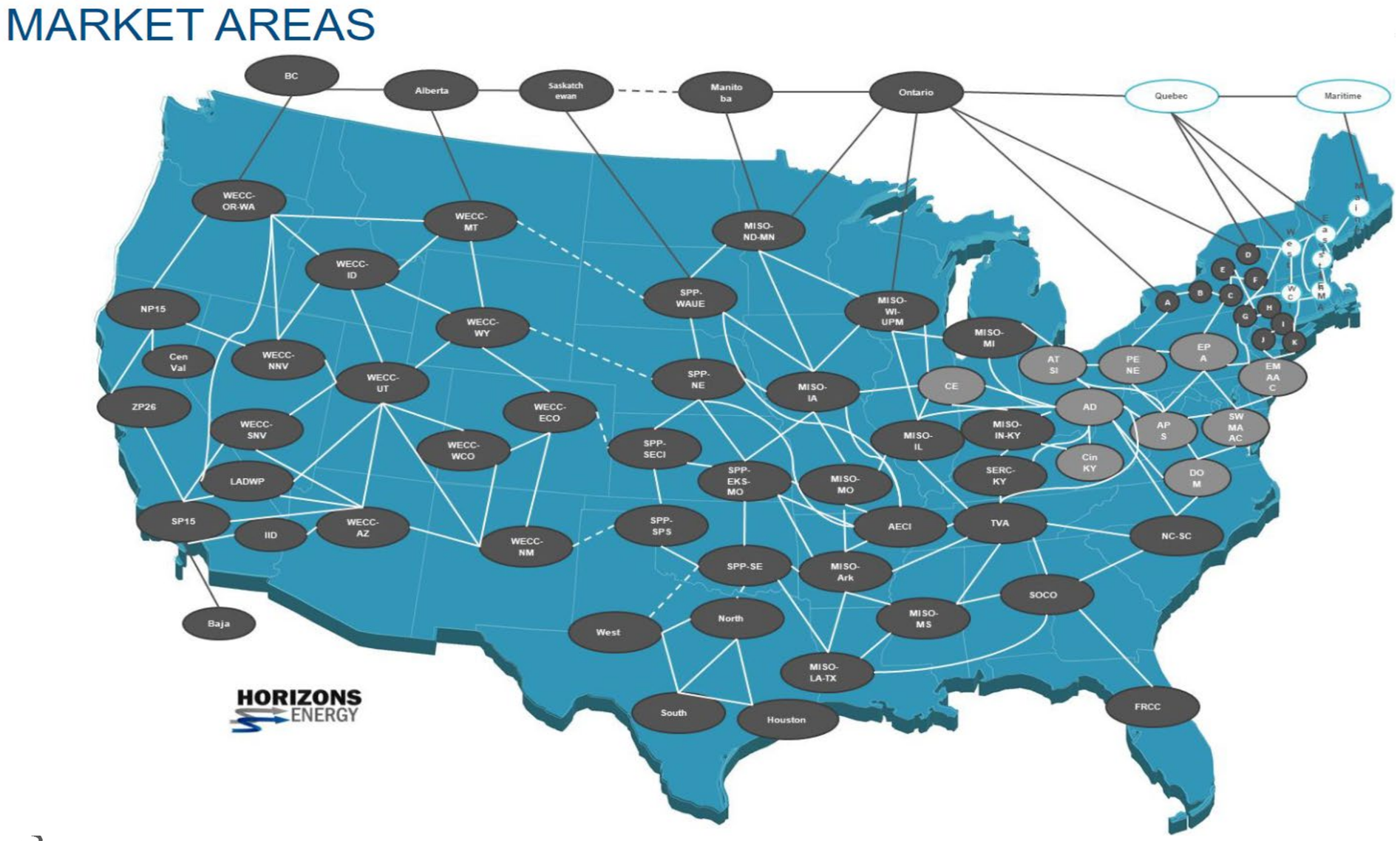
- Incremental data center load growth with high load factor
- Uses EPRI's 2024 White Paper "Powering Intelligence" High Growth Scenario
  - Existing 2023 data center load experiences 10% annual growth rate from 2024 – 2030, tapering off to 3% from there



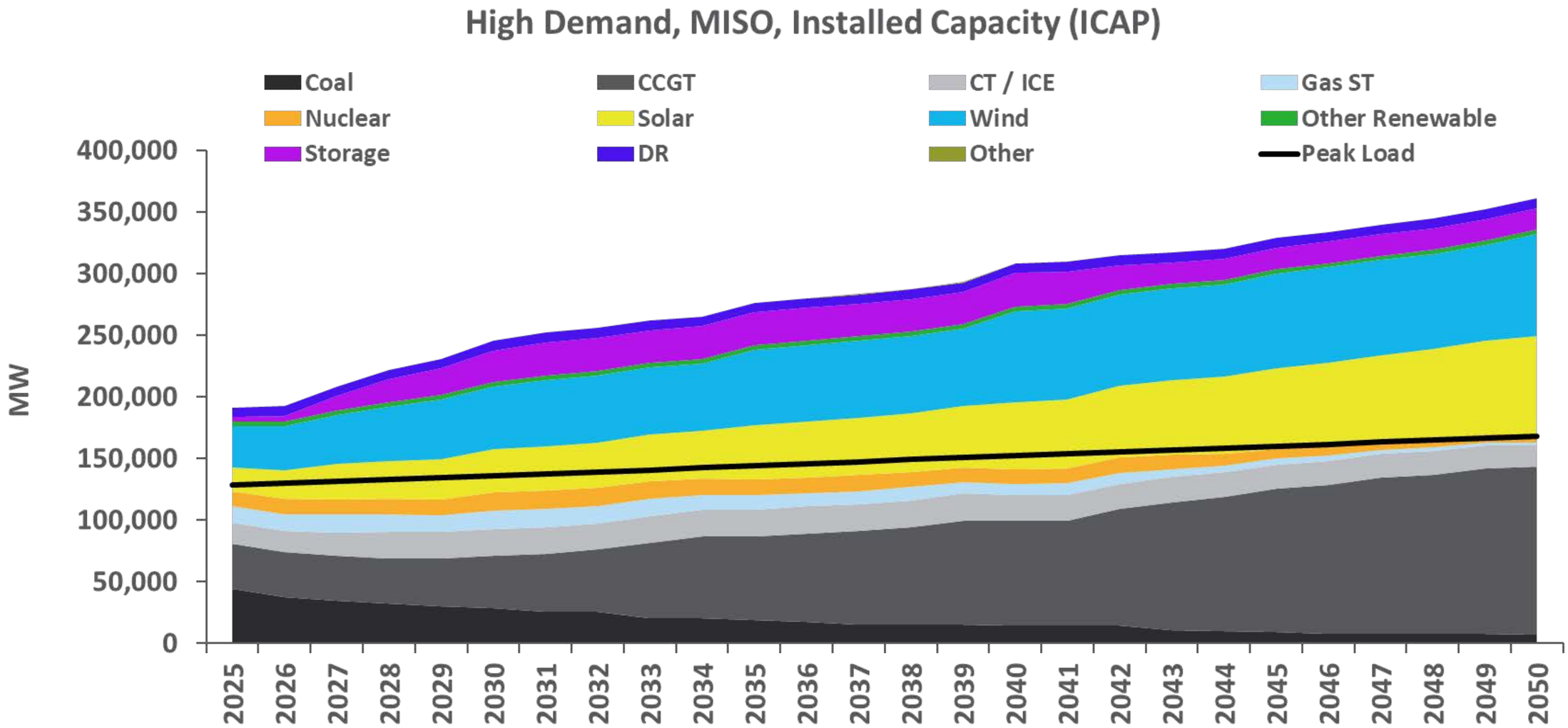
- For Indiana, this is an incremental 1 GW of growth by 2030

Results

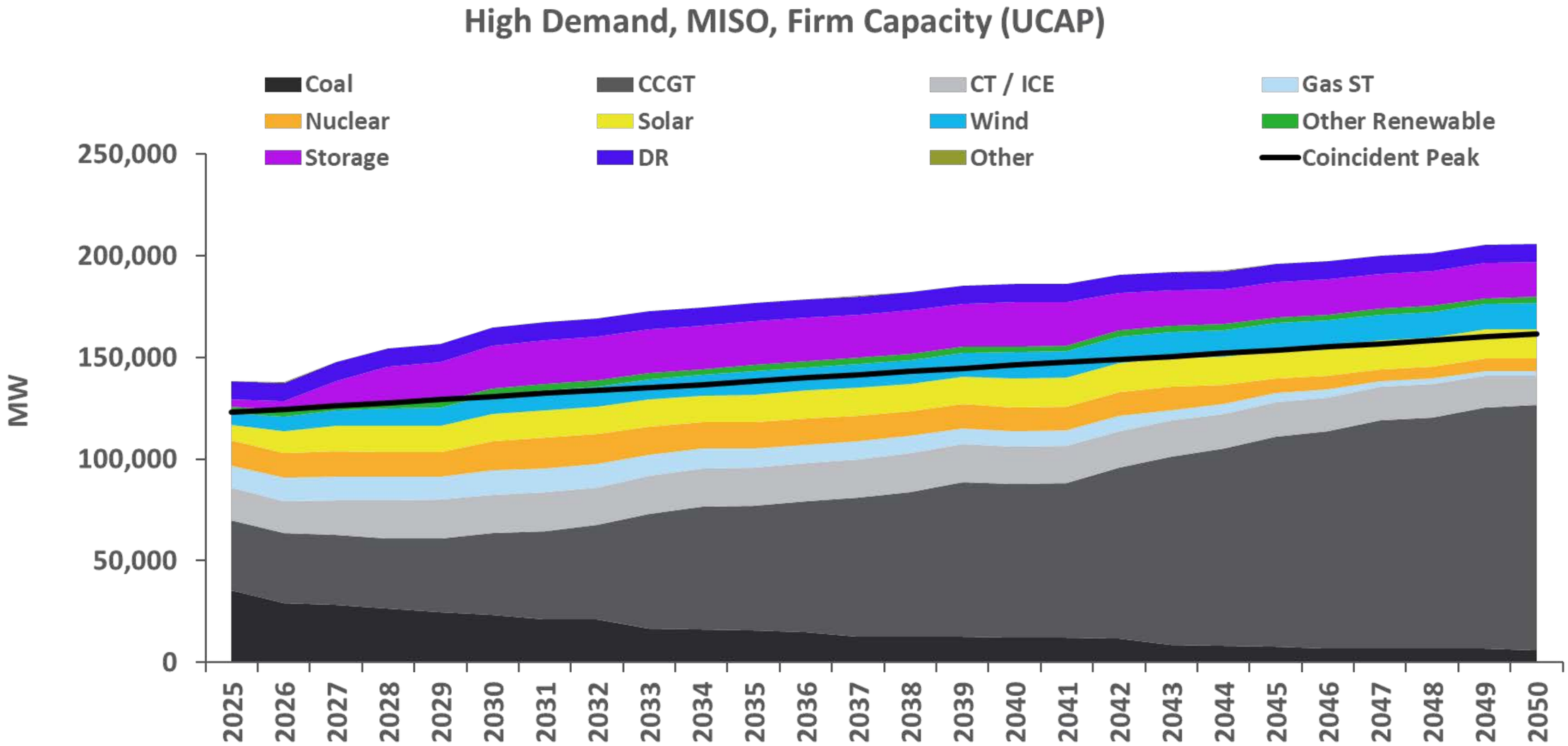
National Data Base Topology



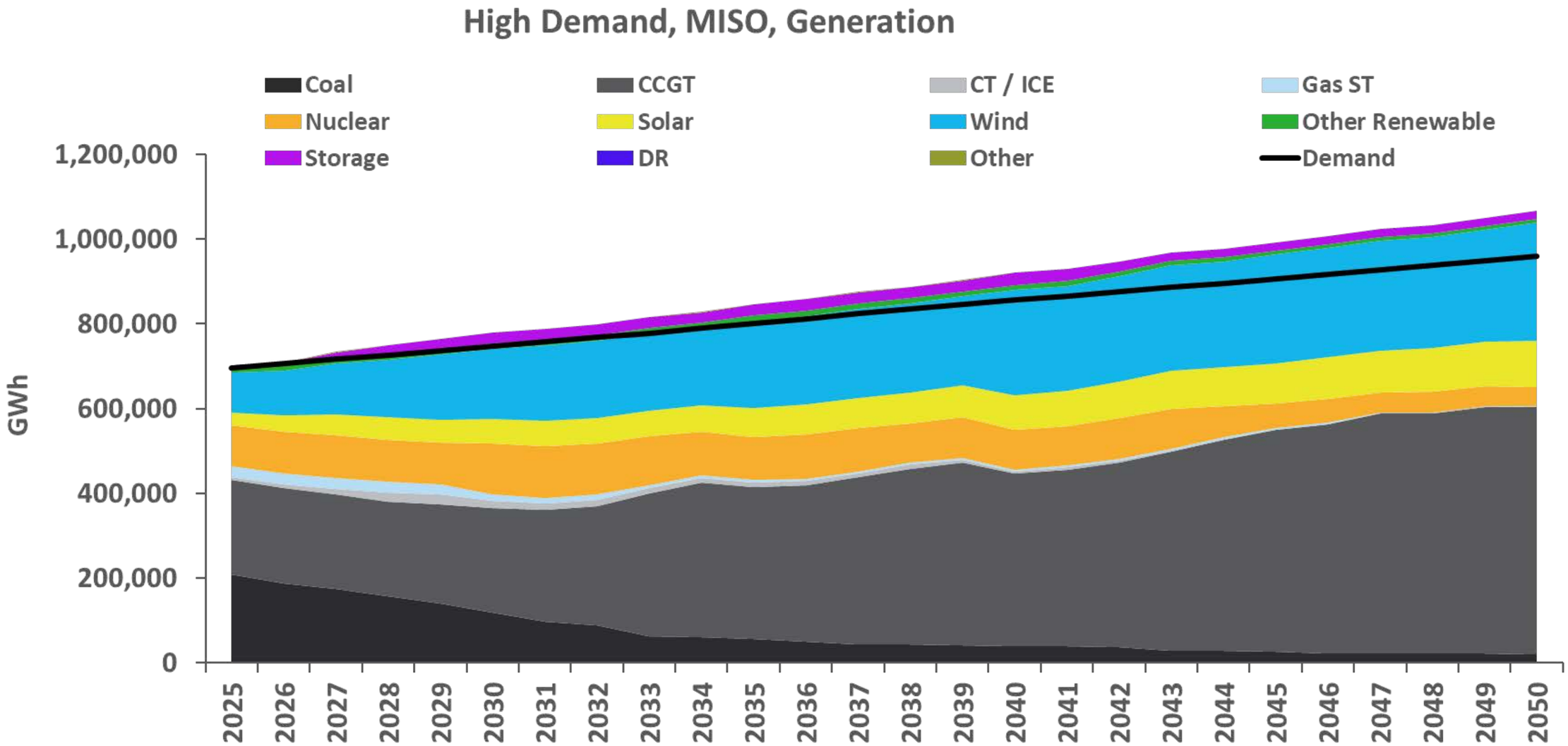
Results: High Demand – Installed Capacity



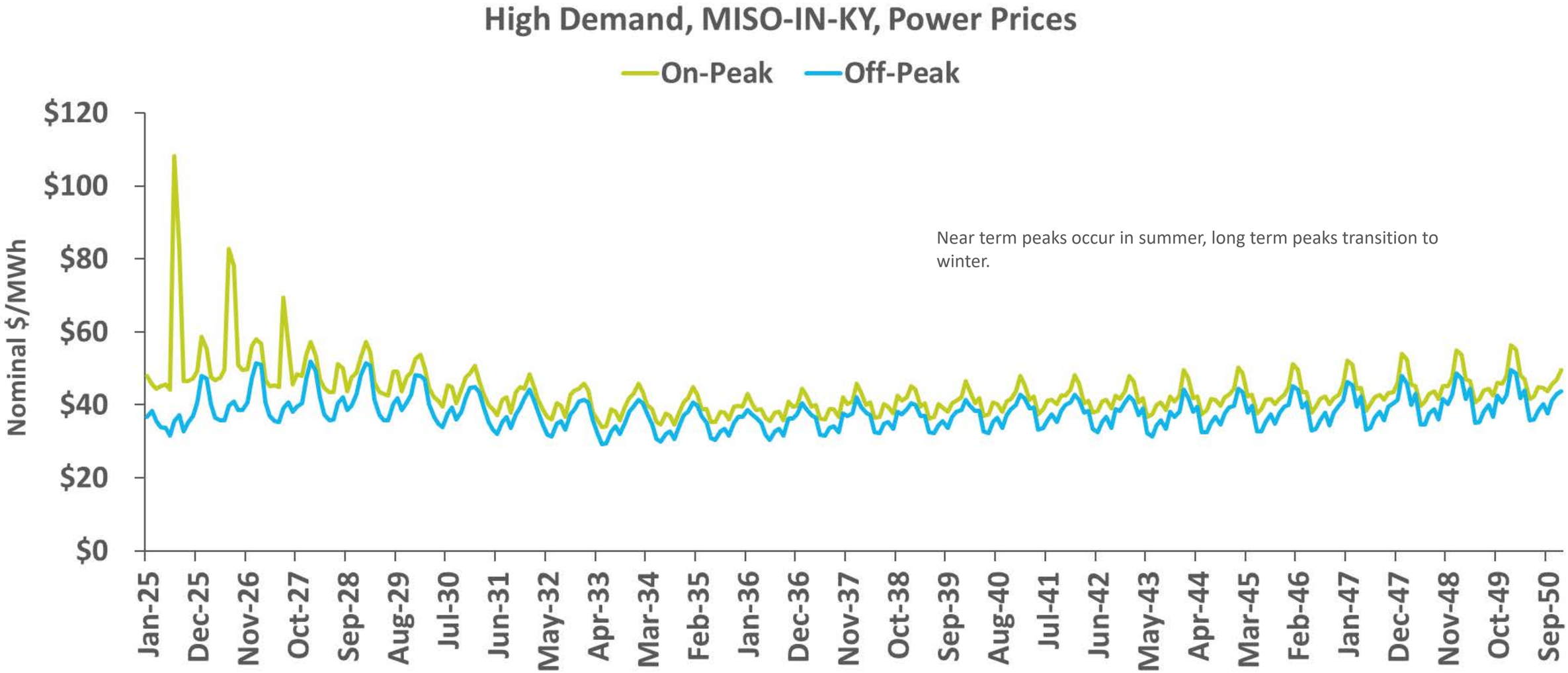
Results: High Demand – Capacity Credit



Results: High Demand – Generation

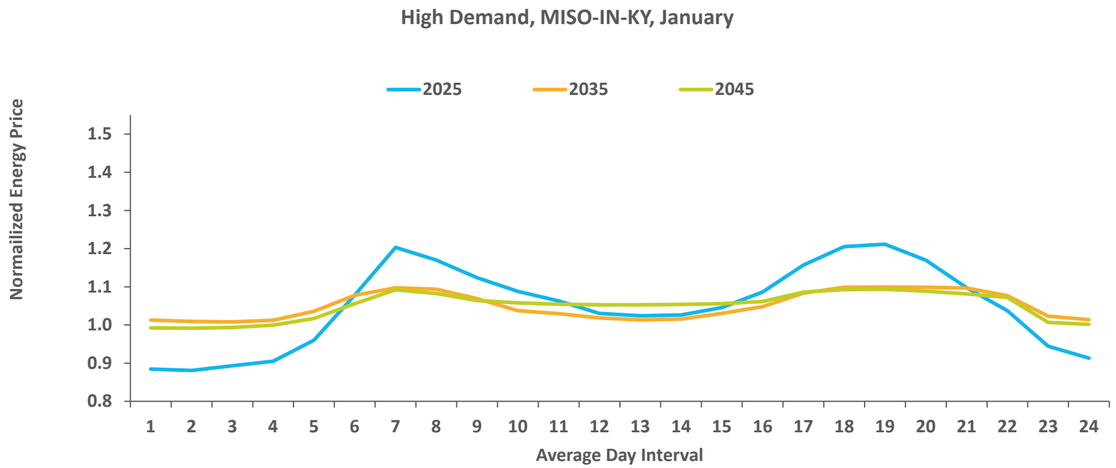


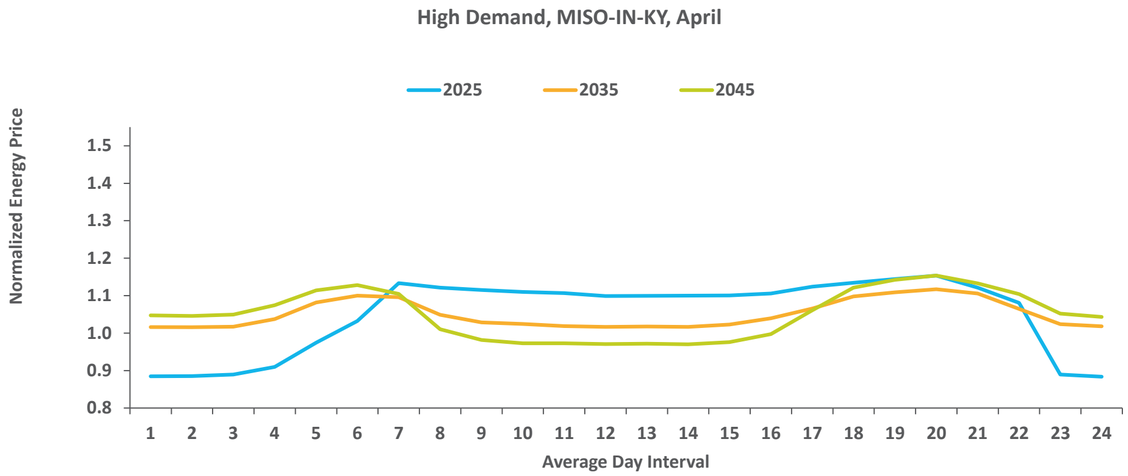
Results: High Demand – Monthly Prices

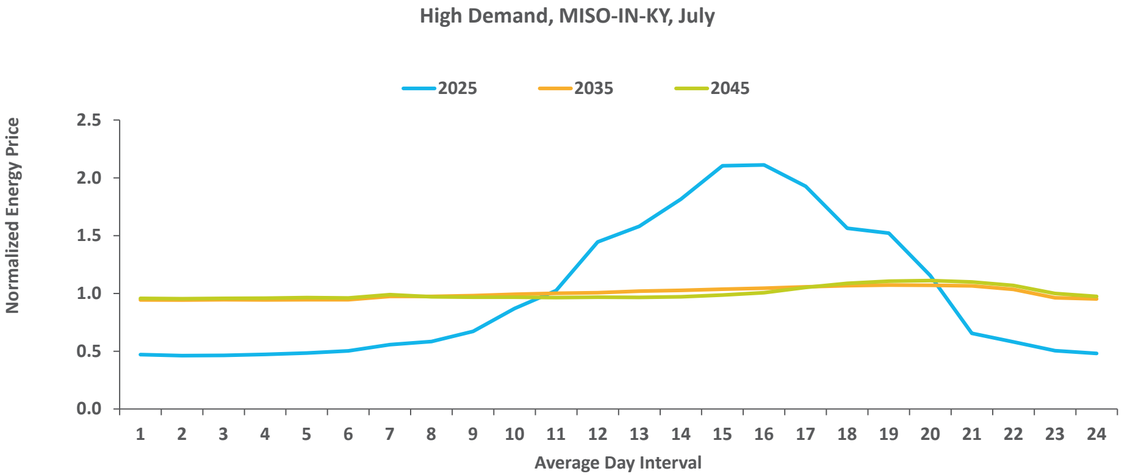


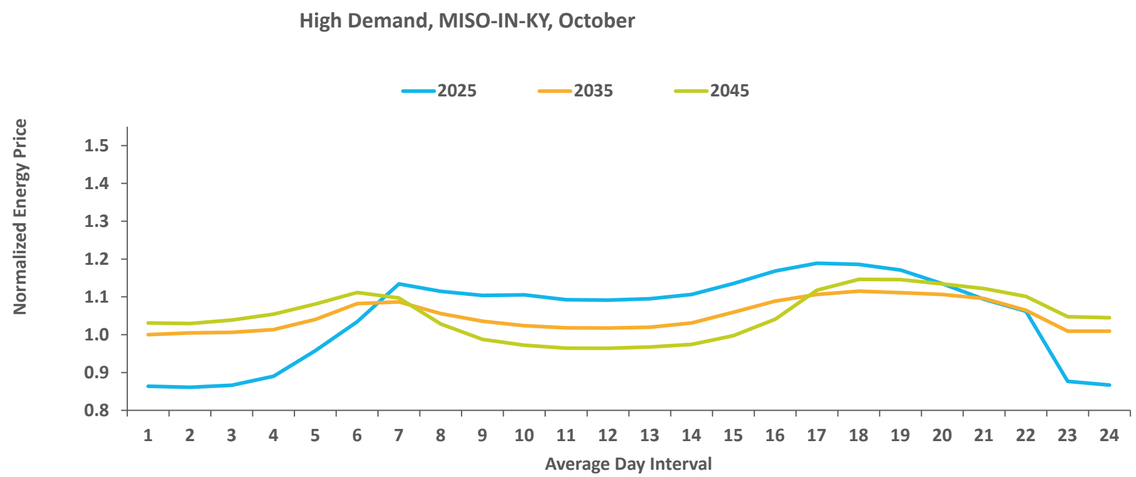
Near term peaks occur in summer, long term peaks transition to winter.

Results: High Demand – Power Shape

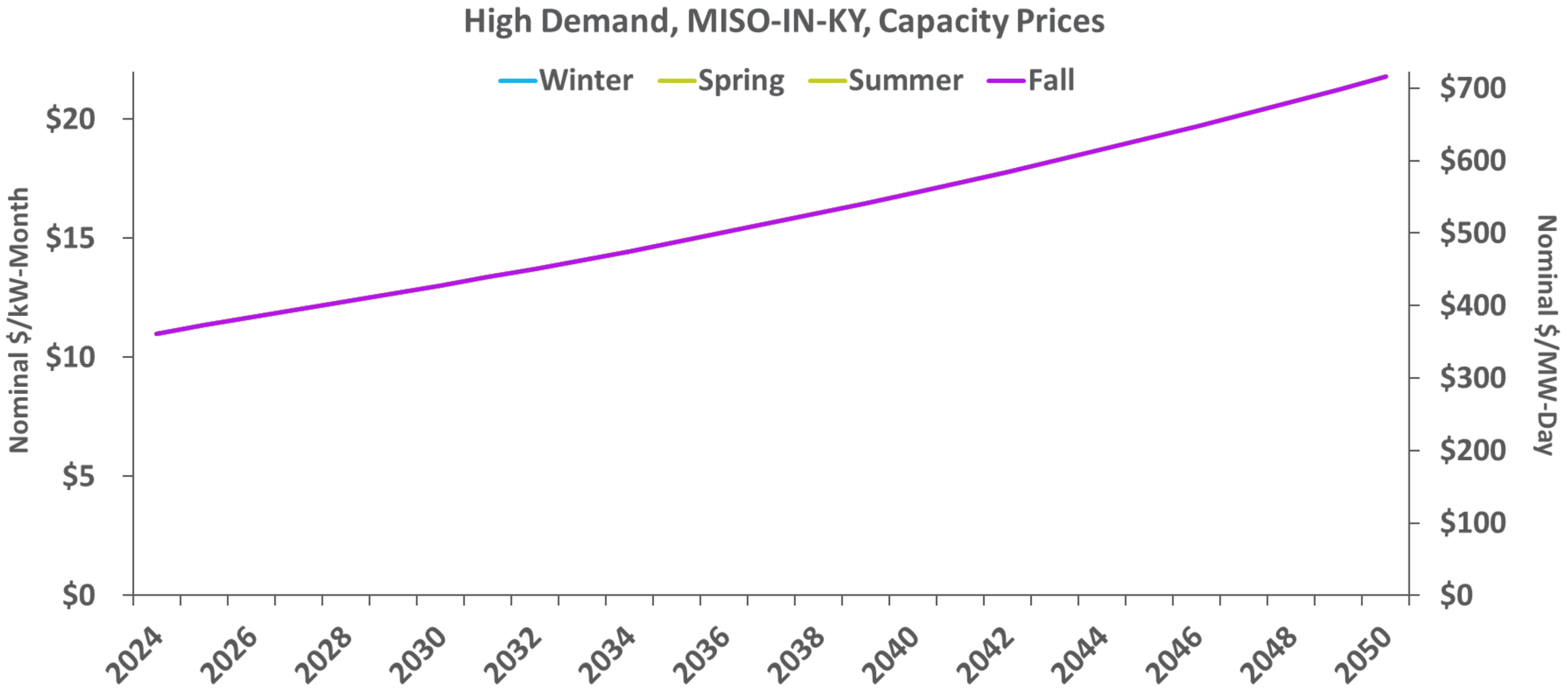








Results: Base Case – Capacity Prices



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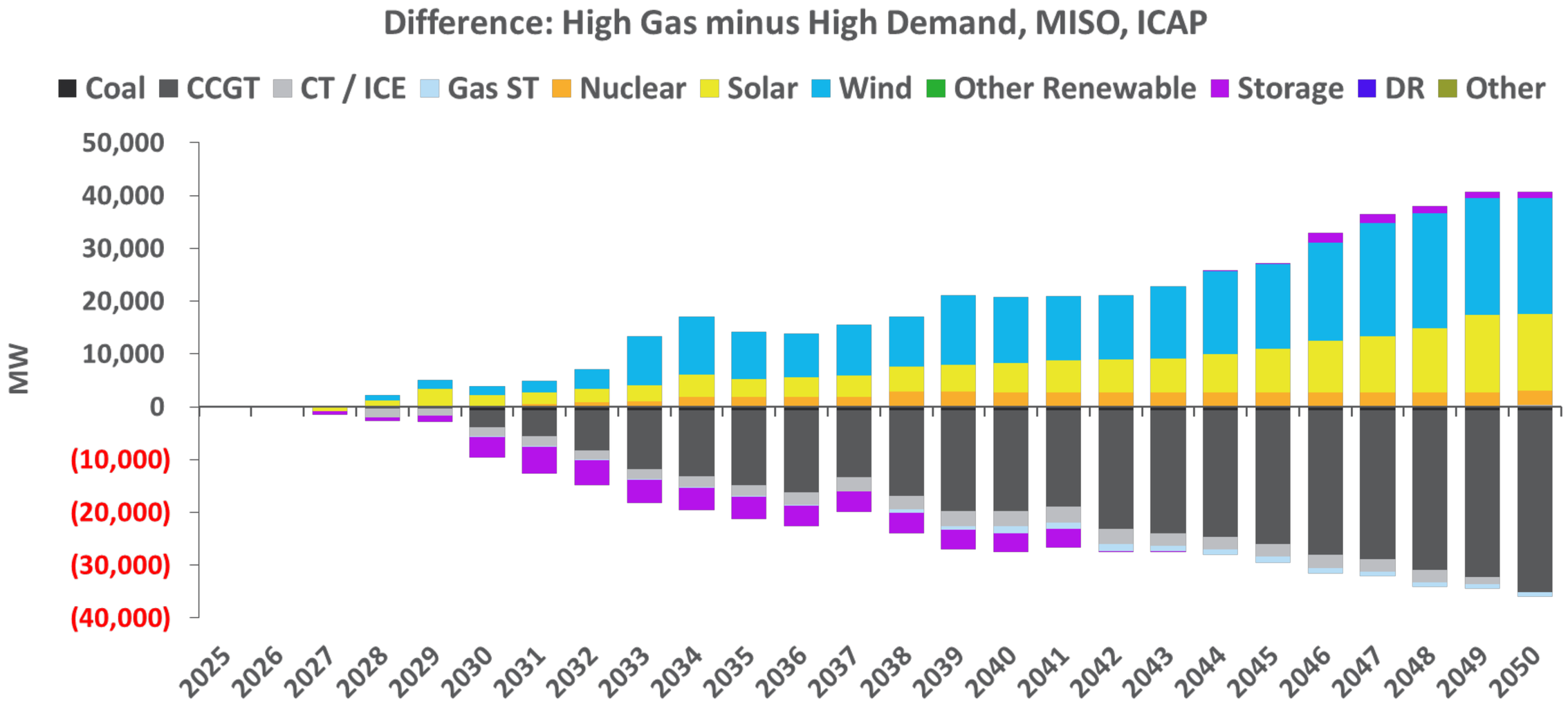
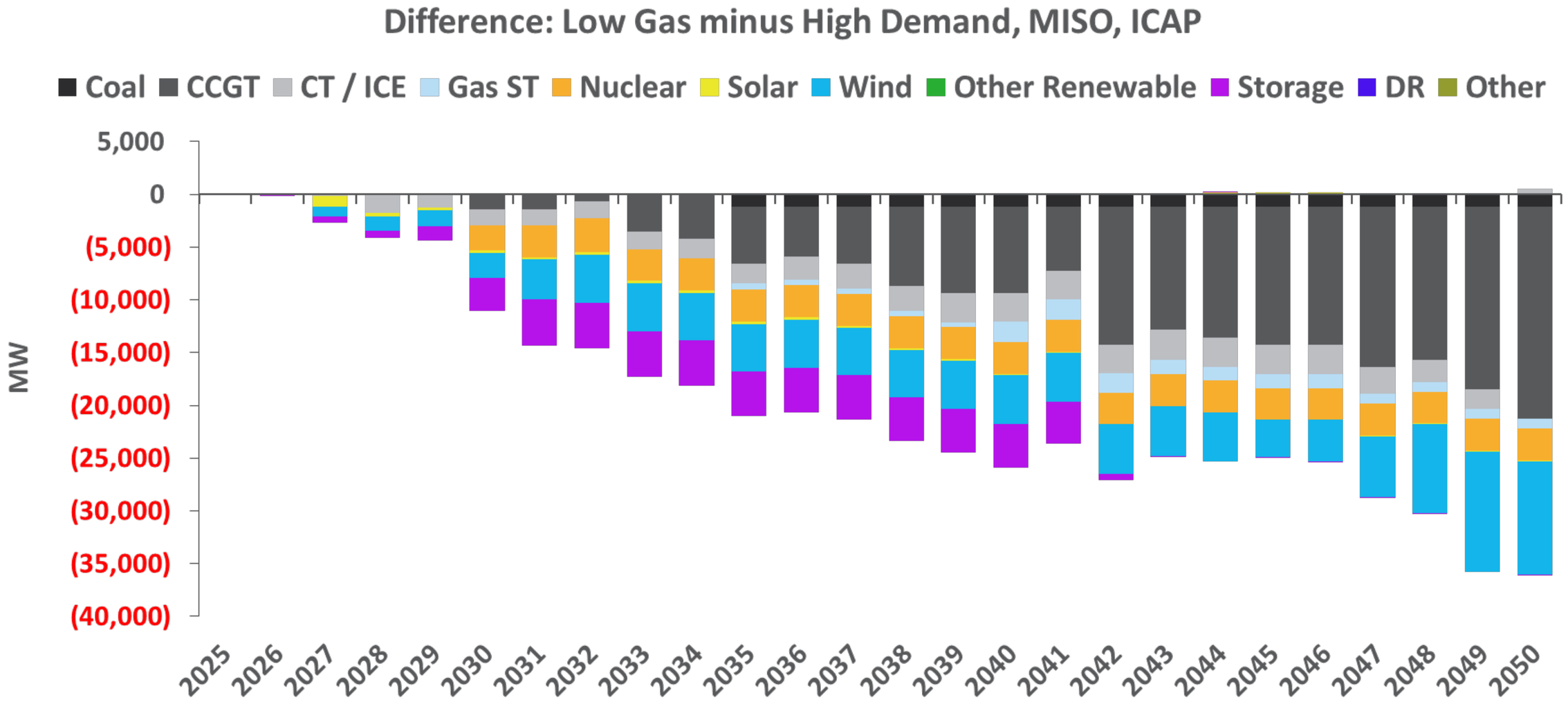
Scenarios

Results: High Gas vs. High Demand



Results: Low Gas vs. High Demand

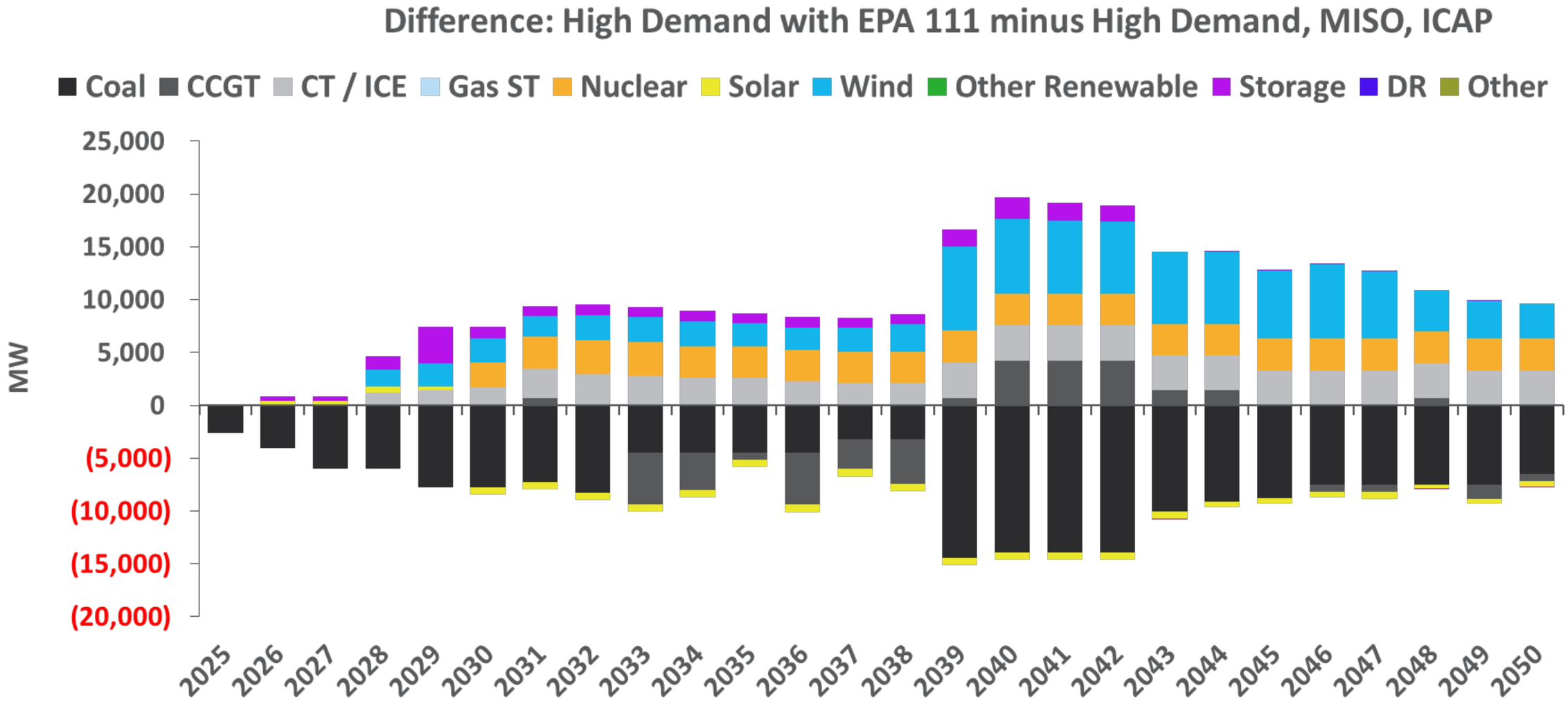


Scenario Assumption: High Demand with EPA 111

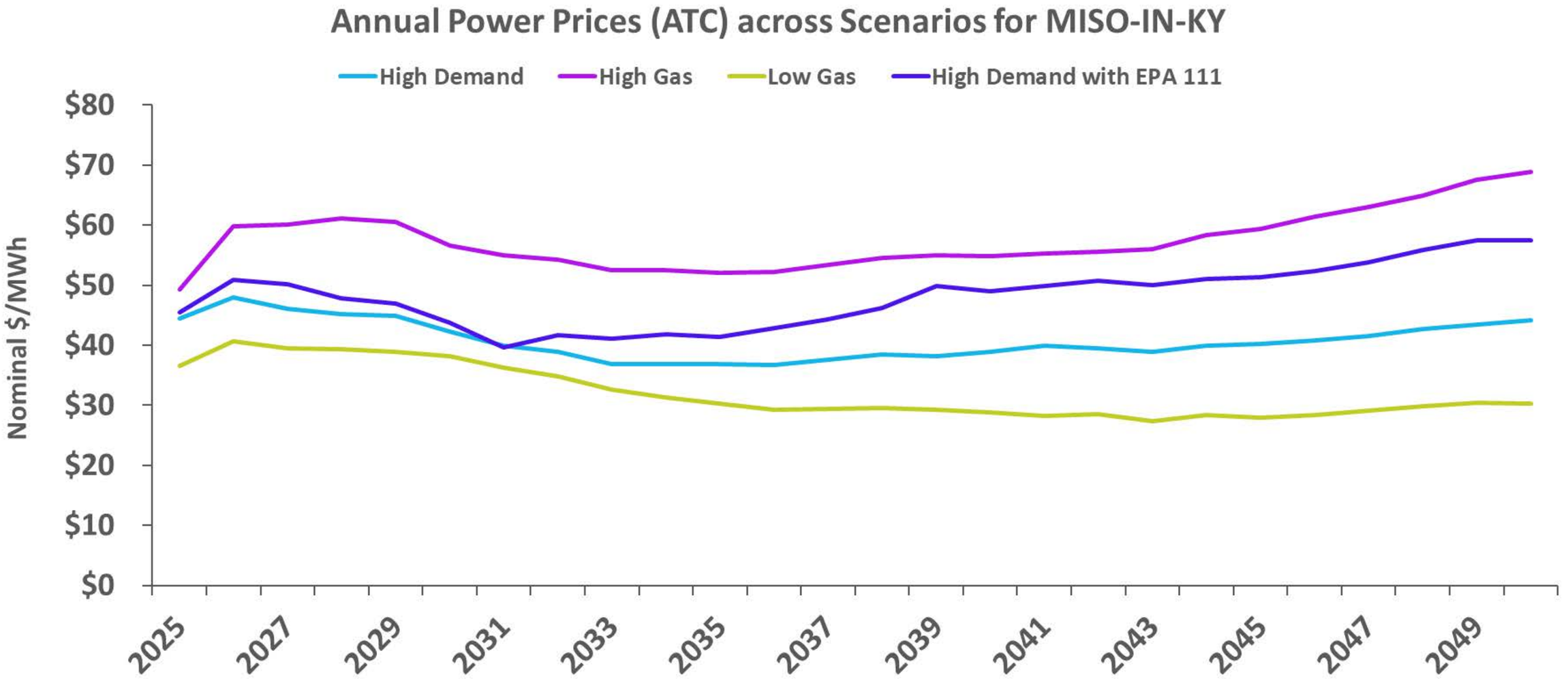
- New CCGTs and CTs are limited to a 40% Capacity Factor
- Coal must co-fire 40% natural gas beginning in 2032
- All coal retires by 2039

Source: https://www.epa.gov/system/files/documents/2024-04/cps-table-of-all-bser-final-rule-4-24-2024.pdf

Results: High Demand with and without EPA 111



Results: Scenario Prices



Commodity assumptions

Alex Dickerson

Senior Manager of Wholesale Energy, AES Indiana

Reference case

Reference case uses ACES fall 2024 fundamental forecast – high demand without GHG rules.

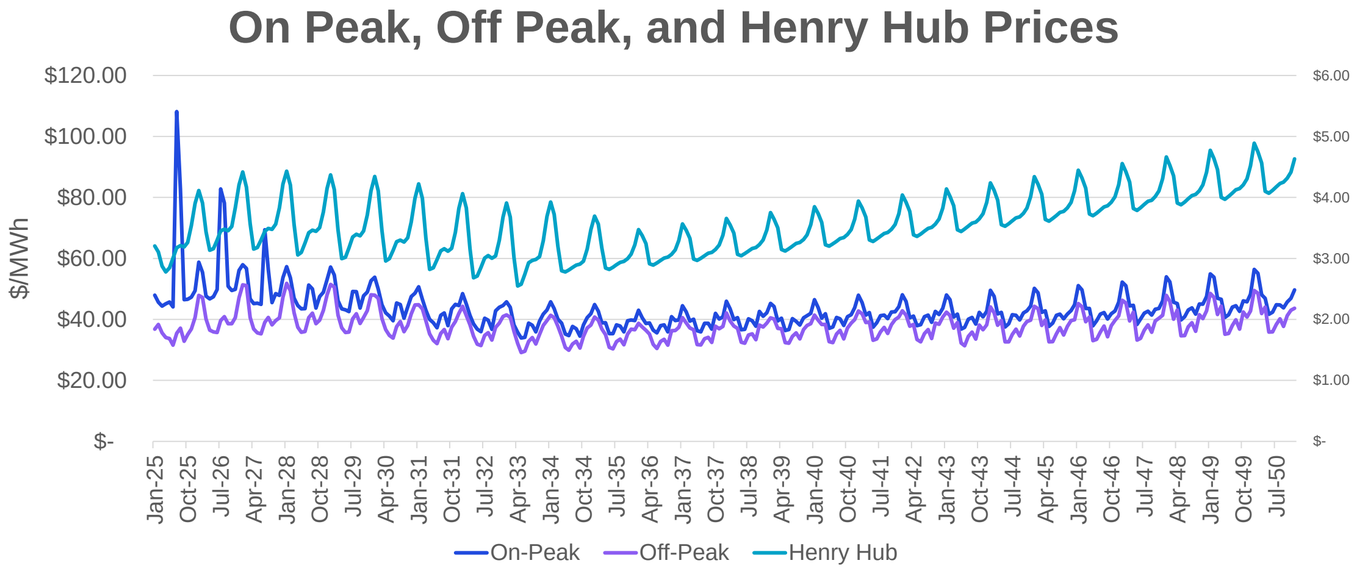
Fundamental assumptions:

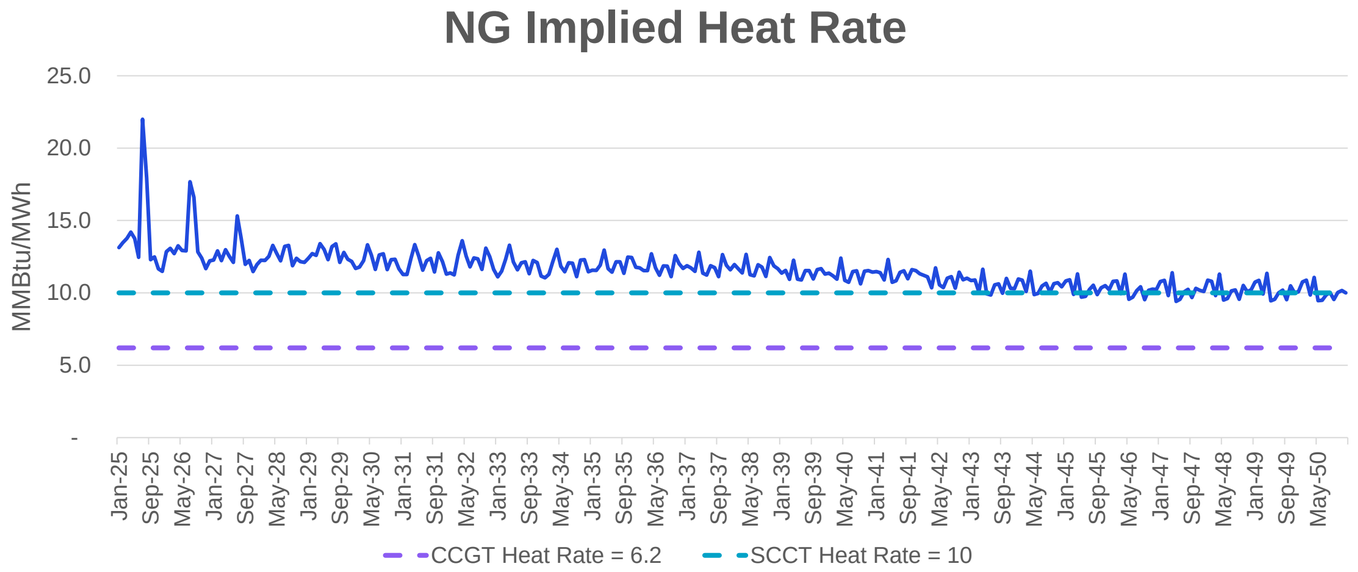
→GHG rules repealed

→Incremental high load factor data center load growth

→Uses EPRI's 2024 white paper "Power Intelligence" high growth scenario

→Existing 2023 data center load experiences 10% growth rate from 2024–2030, tapering off to 3% after 2030





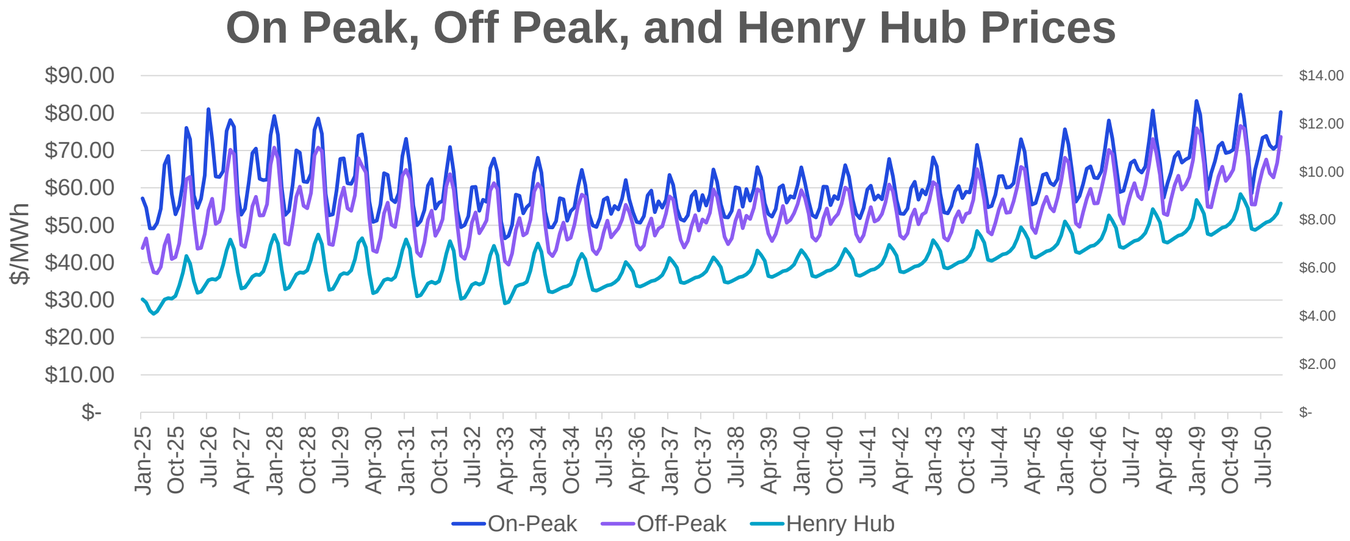
Natural gas infrastructure and supply challenges

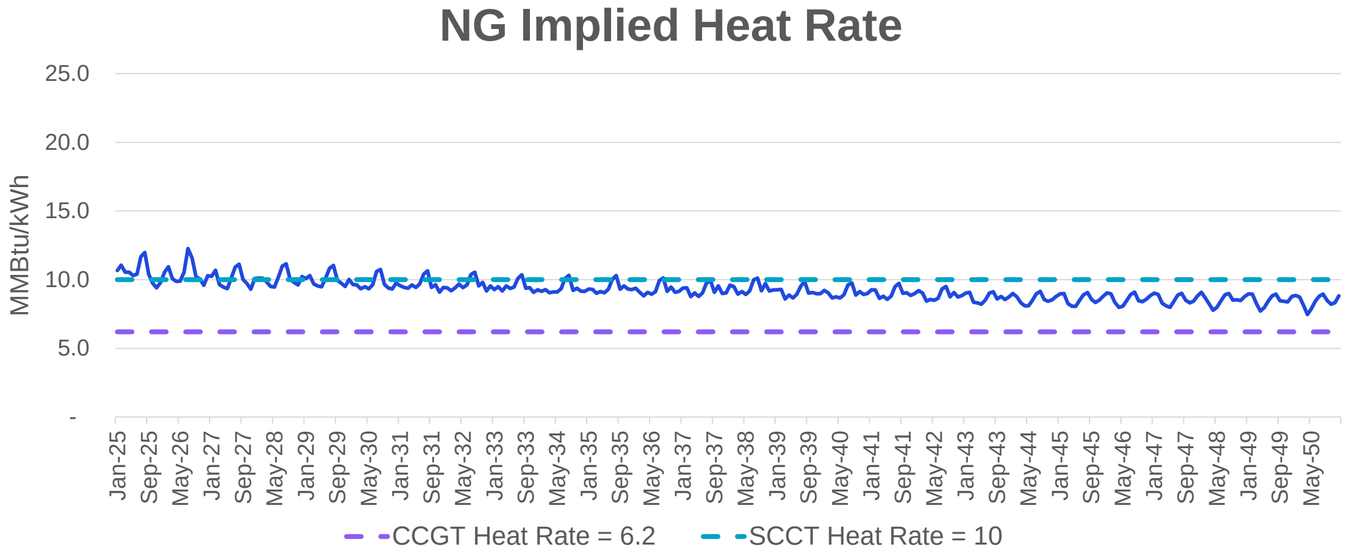
Natural gas infrastructure and supply challenges scenario uses ACES fall 2024 fundamental forecast – high gas

Fundamental assumptions:

→High gas prices resulting from supply constraints due to insufficient infrastructure and limitations on fracking.

→Limited data center growth due to challenges to gas infrastructure and supply challenges which limit natural gas generation development to serve data center customers.





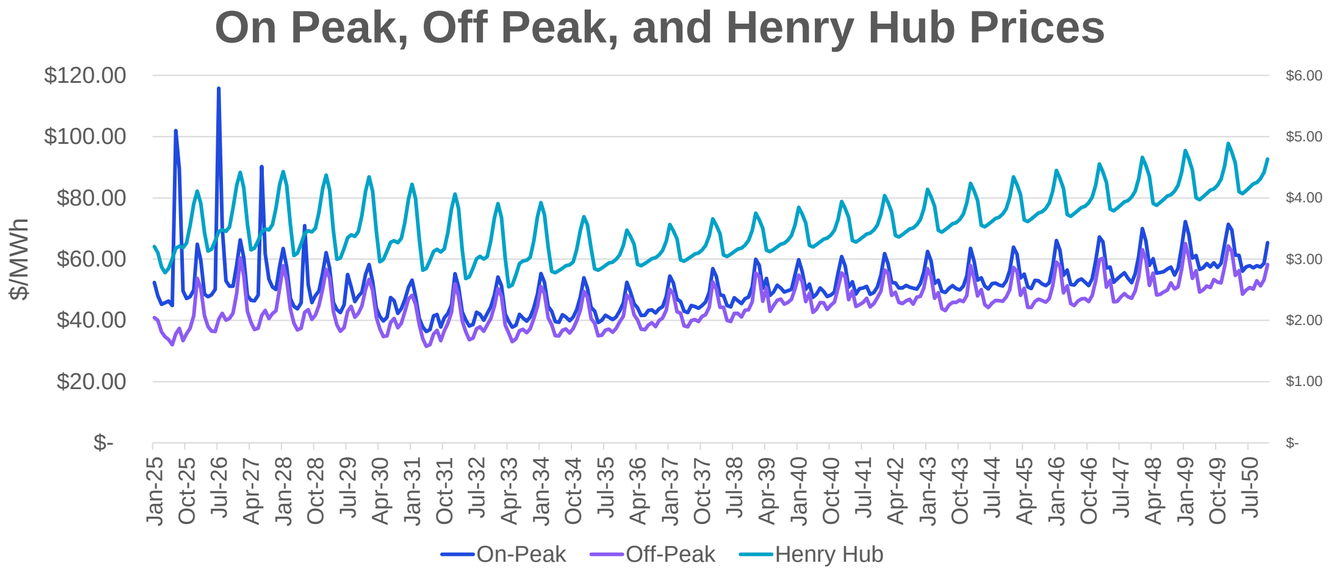
High regulatory: environmental

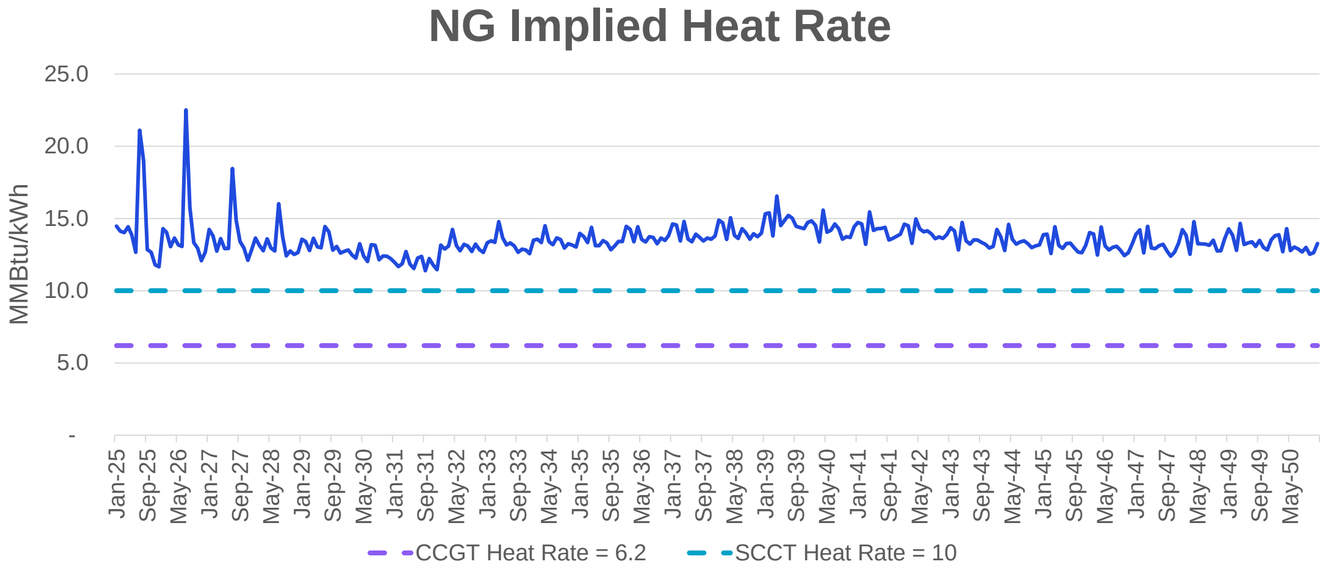
High regulatory: Environmental scenario uses custom ACES fundamental forecast – high demand with GHG rules

Fundamental assumptions:

→GHG rules remain law through planning period
→New CCGTs and CTs are limited to 40% capacity factor
→Coal must co-fire with 40% natural gas beginning in 2032
→All coal retires by 2039

→Same demand assumptions included in high demand without GHG rules fundamental forecast discussed on prior slide





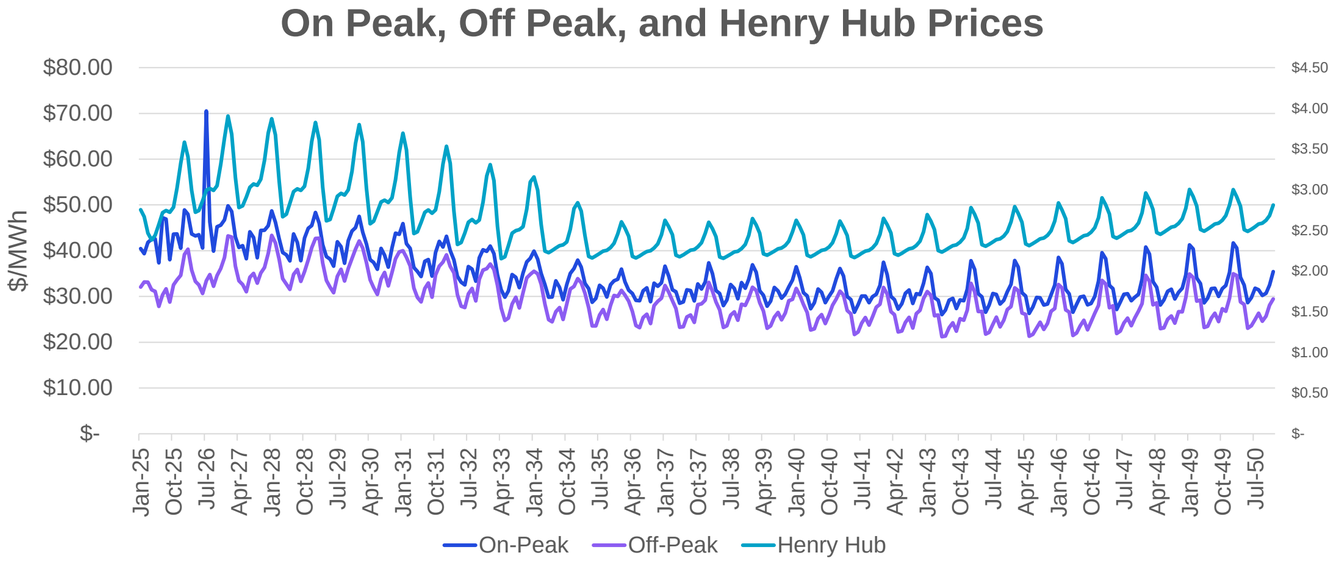
Stable market outlook

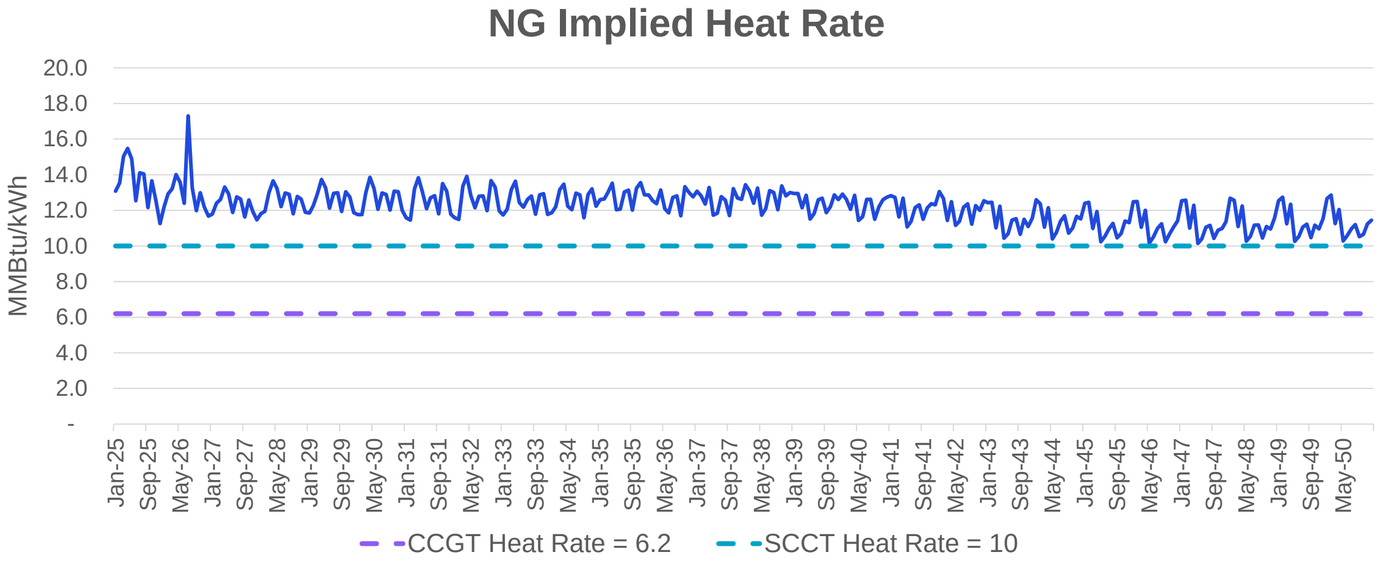
Stable Market Outlook scenario uses ACES Fall 2024 fundamental forecast – low gas

Fundamental assumptions:

→GHG rules repealed, and IRA tax credits applied as defined by OBBBA

→Low case economic outlook along with gas and power prices lowered to historical norms





IRP evaluation framework

Patrick Maguire

Senior Director of Commercial and Resource Planning, AES Indiana

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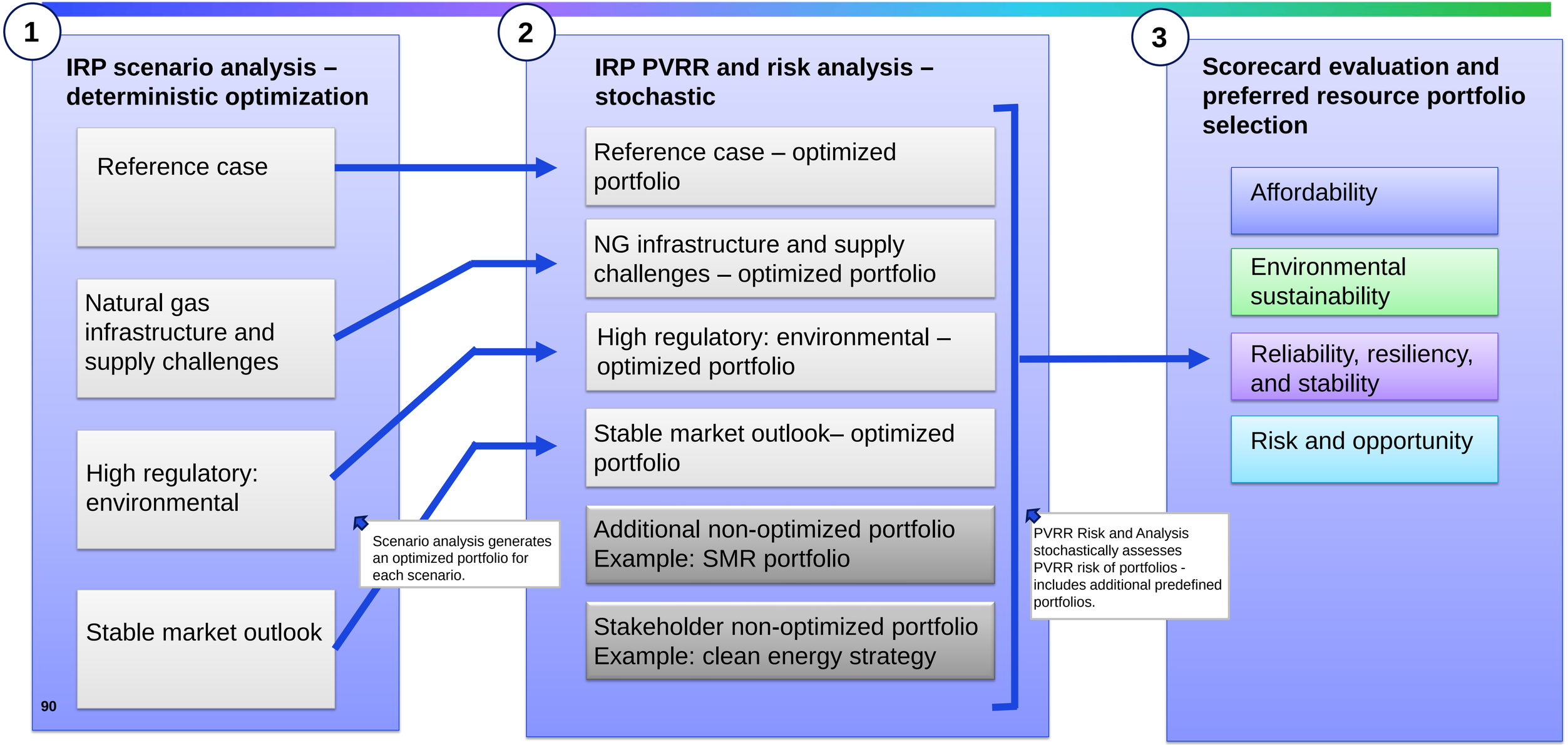
IRP evaluation framework overview



Modeling scenarios with data center ramps

Different trajectories of generic data center load growth will be modeled in distinct but comparable sets of portfolios

Data Center Scenarios for IRP (Peak by end of Cal-Year, MW)

	Low	Mid	High
2027	0	50	75
2028	50	231	378
2029	114	413	681
2030	179	594	984
2031	243	775	1,288
2032	307	956	1,591
2033	371	1,138	1,894
2034	436	1,319	2,197
2035	500	1,500	2,500
2036	500	1,500	2,500
2037	500	1,500	2,500
2038	500	1,500	2,500
2039	500	1,500	2,500
2040	500	1,500	2,500

Scenarios →

NO DATA CENTER LOAD

Optimized Portfolios ↓	Reference Case	Challenged Gas Infrastructure	High Env. Reg.	Stable Markets
Reference Case				
Challenged Gas Infrastructure				
High Env. Reg.				
Stable Markets				

PVRR Results

Scenarios →

LOW DATA CENTER LOAD

Optimized Portfolios ↓	Reference Case	Challenged Gas Infrastructure	High Env. Reg.	Stable Markets
Reference Case				
Challenged Gas Infrastructure				
High Env. Reg.				
Stable Markets				

PVRR Results

Scenarios →

HIGH DATA CENTER LOAD

Optimized Portfolios ↓	Reference Case	Challenged Gas Infrastructure	High Env. Reg.	Stable Markets
Reference Case				
Challenged Gas Infrastructure				
High Env. Reg.				
Stable Markets				

PVRR Results

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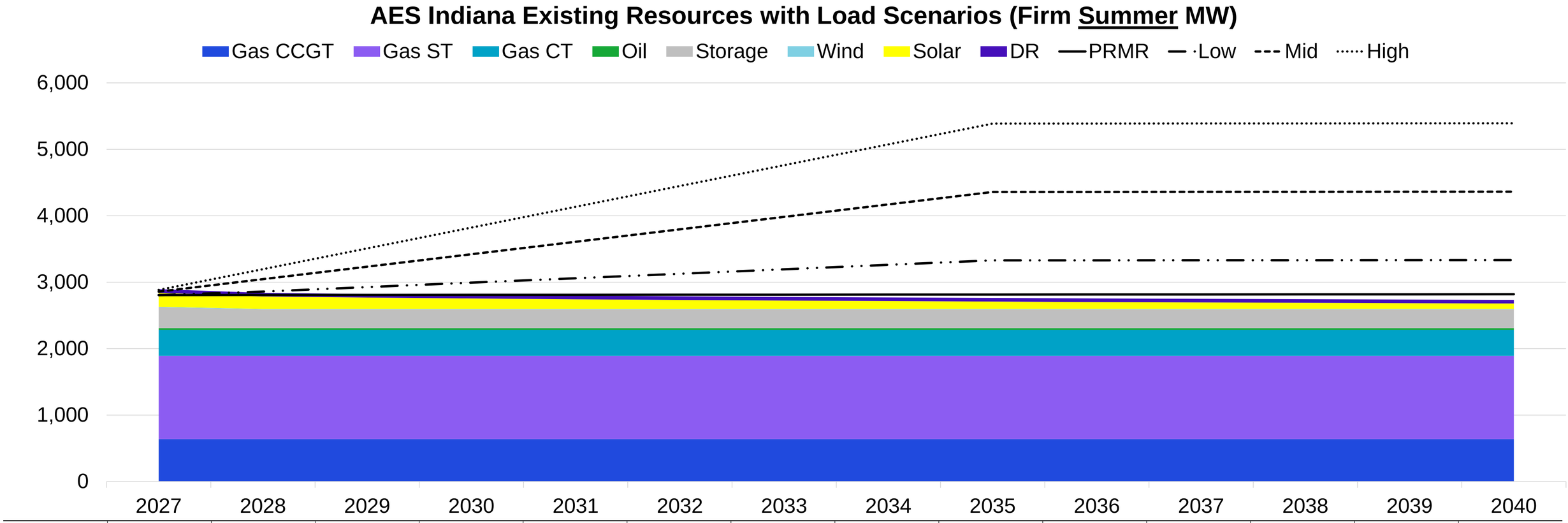
Going-in capacity position: Summer



	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Base (No Data Centers)	89	33	15	0	(13)	(24)	(34)	(44)	(52)	(60)	(67)	(74)	(80)	(86)
Low	89	(18)	(103)	(184)	(263)	(340)	(417)	(492)	(566)	(574)	(581)	(588)	(594)	(600)
Mid	38	(205)	(410)	(611)	(811)	(1,008)	(1,205)	(1,401)	(1,595)	(1,603)	(1,610)	(1,617)	(1,623)	(1,629)
High	12	(356)	(686)	(1,013)	(1,338)	(1,661)	(1,983)	(2,304)	(2,624)	(2,632)	(2,639)	(2,646)	(2,652)	(2,658)

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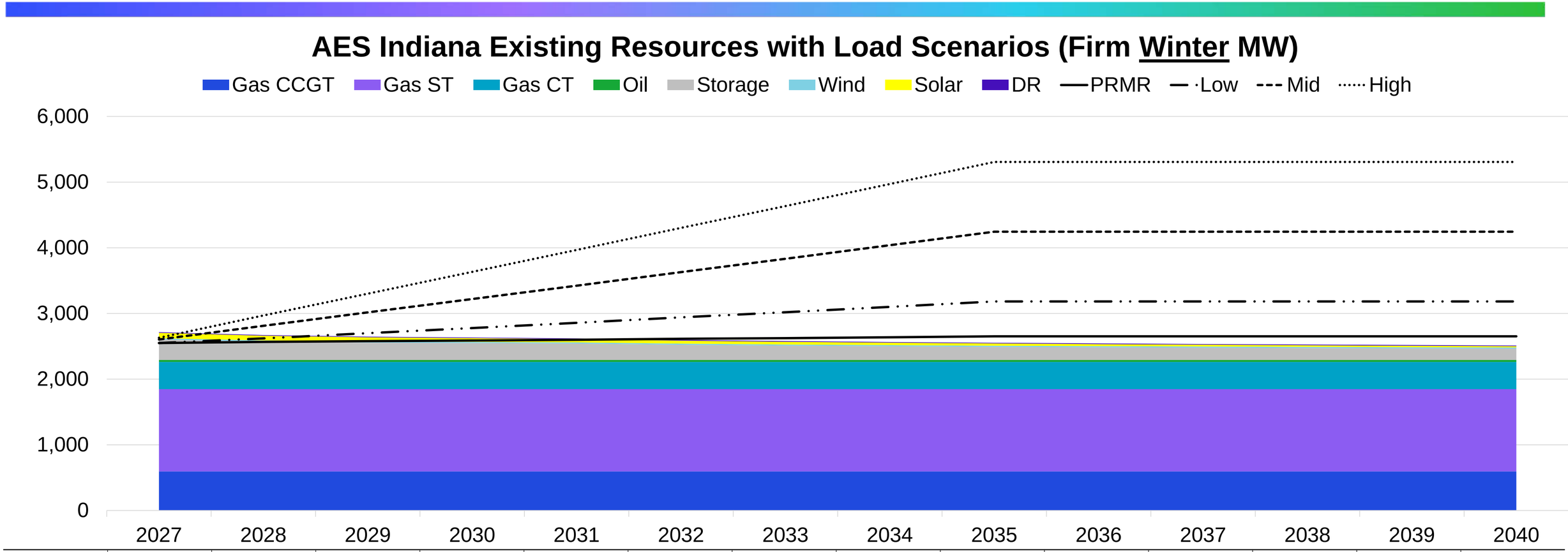
Going-in capacity position: Winter



	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Base (No Data Centers)	165	105	69	45	21	(17)	(44)	(72)	(98)	(108)	(117)	(125)	(132)	(139)
Low	165	52	(52)	(144)	(237)	(343)	(439)	(535)	(629)	(639)	(648)	(656)	(663)	(670)
Mid	112	(141)	(369)	(585)	(802)	(1,033)	(1,252)	(1,473)	(1,691)	(1,701)	(1,710)	(1,718)	(1,725)	(1,732)
High	86	(297)	(654)	(1,000)	(1,346)	(1,706)	(2,055)	(2,405)	(2,753)	(2,763)	(2,772)	(2,780)	(2,787)	(2,794)

Stochastic PVRR and risk analysis

→PVRR and risk analysis **stochastic analysis**

→Stochastic analysis will be performed to understand the risks and opportunities to each optimized portfolio from:

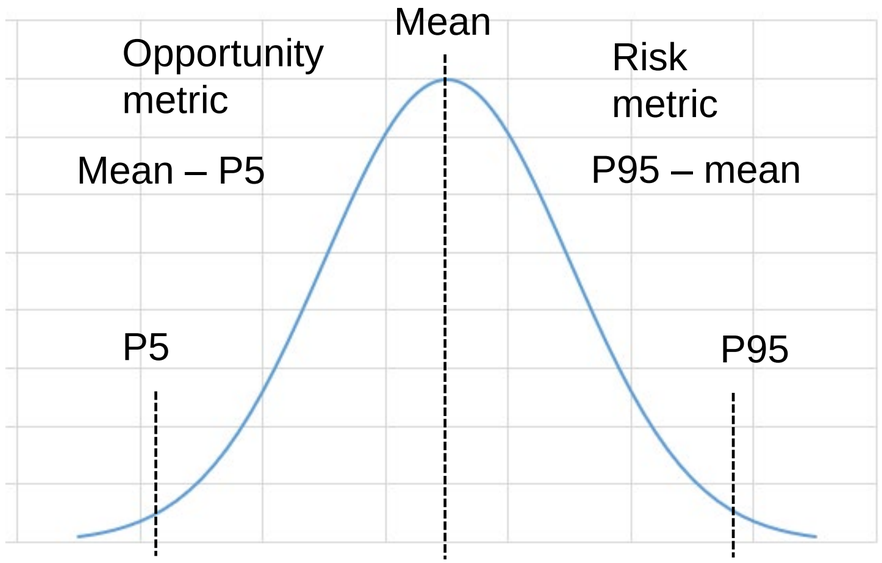
- → Gas price volatility
- → Energy price volatility
- → Load volatility
- → Renewable generation volatility

→Each variable will be varied across a full stochastic distribution using 100 iterations of potential outcomes

→Metrics to measure cost risks and cost opportunities include:

→Risk metric = P95 – mean

→Opportunity metric = mean – P5



IRP scorecard analysis and components

Scorecard that evaluates the portfolios using the five pillars of utility electric service to select the preferred resource portfolio

- → Scorecard analysis will be performed on the base case set of portfolios
- → Scorecard categories align with the five pillars of utility electric service as required by statute
  - → Affordability
  - → Environmental sustainability
  - → Reliability
  - → Resiliency
  - → Stability
- → Additional categories that measure the risk and opportunity and economic impact included to comply with IURC rules
- → Scorecard evaluation used to select the preferred resource portfolio and short-term action plan

Category	Metric	Description
Affordability	30- to 50-year PVRR and 10-year PVRR	Multiple time periods allow for rate impact estimates over time
Environmental sustainability	CO2 emissions	Total CO_2 emissions over planning period
	SO2 emissions	Total SO_2 emissions over planning period
	NOx emissions	Total NOx emissions over planning period
	Water user	Total water use over planning period
	Clean energy progress	% of clean energy in portfolio by 2035
Reliability, resiliency and stability	Reliability score	Quanta Technology will perform reliability analysis on candidate portfolios
Risk and opportunity	General cost opportunity **stochastic analysis**	P5 (mean – P5)
	General cost risk **stochastic analysis**	P95 (P95 – mean)
	Market exposure	20-year sales and purchases

Final Q&A and next steps

2025 IRP Public Meeting & Data Release Schedule

Public Advisory Meeting Schedule

Public Advisory Meeting #1: January 29, 2025
- → Recap 2022 IRP Short-Term Action Plan
- → Introduce IRP resource planning process, key dates and topics for 2025 IRP

Public Advisory Meeting #2: July 24, 2025
- → Review assumptions including replacement resource costs and commodity prices
- → Introduce IRP analysis portfolio framework and analysis scorecard

Public Advisory Meeting #3: September 10, 2025
- → Discuss preliminary IRP scorecard results

Public Advisory Meeting #4: October 22, 2025
- → Review final IRP scorecard and reliability analysis
- → Share Preferred Resource Portfolio and Short-Term Action Plan

IRP Assumptions & Modeling Data Release Schedule

Meeting #1 Data Available: February 12, 2025
- → Base Load Forecast
- → EV Base, High and Low Scenarios
- → PV Base, High and Low Scenarios

Meeting #2 Data Available: July 24, 2025
- → IRP Scenario Commodity Curves
- → Replacement Resource Costs and Capacity Accreditation
- → Market Potential Study Results

Meeting #3 Data Available: September 10, 2025
- → EnCompass IRP Scenario Loader
- → PVRR Summary
- → Energy Position Sheets

Meeting #4 Data Available: October 22, 2025
- → EnCompass Stochastic Scenario Loader
- → Stochastic Summary Results
- → Final IRP Scorecard

Dates and agendas are subject to change

Note: The released data will be available to the technical stakeholders with a completed Non-Disclosure Agreement

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Thank you

IRP acronyms

Note: A glossary of acronyms with definitions is available at https://www.aesindiana.com/integrated-resource-plan.

IRP acronyms

- ACEE: The American Council for an Energy-Efficient Economy
- AMI: Advanced Metering Infrastructure
- BESS: Battery Energy Storage System
- BNEF: Bloomberg New Energy Finance
- BTA: Build-Transfer Agreement
- C&I: Commercial and Industrial
- CAA: Clean Air Act
- CAGR: Compound Annual Growth Rate
- CCGT: Combined Cycle Gas Turbines
- CCS: Carbon Dioxide Capture and Storage
- CDD: Cooling Degree Day
- COD: Commercial Operation Date
- CONE: Cost of New Entry
- CP: Coincident Peak
- CPCN: Certificate of Public Convenience and Necessity
- CT: Combustion Turbine
- CVR: Conservation Voltage Reduction
- DER: Distributed Energy Resource
- DG: Distributed Generation
- DGPV: Distributed Generation Photovoltaic System
- DLC: Direct Load Control
- DOE: U.S. Department of Energy
- DR: Demand Response
- DRR: Demand Response Resource
- DSM: Demand-Side Management
- DSP: Distribution System Planning
- EE: Energy Efficiency
- EFORd: Equivalent Forced Outage Rate Demand
- EIA: Energy Information Administration
- ELCC: Effective Load Carrying Capability
- EM&V: Evaluation Measurement and Verification
- EV: Electric Vehicle
- GDP: Gross Domestic Product
- GT: Gas Turbine
- HDD: Heating Degree Day
- HVAC: Heating, Ventilation, and Air Conditioning
- IAC: Indiana Administrative Code
- IC: Indiana Code
- ICAP: Installed Capacity
- ICE: Internal Combustion Engine
- IRP: Integrated Resource Plan
- ITC: Investment Tax Credit
- IURC: Indiana Utility Regulatory Commission
- kW: Kilowatt
- kWh: Kilowatt-Hour
- LED: Light Emitting Diode
- LMR: Load Modifying Resource
- LNBL: Lawrence Berkeley National Laboratory
- Max Gen: Maximum Generation Emergency Warning
- MIP: Mixed Integer Programming
- MISO: Midcontinent Independent System Operator
- MPS: Market Potential Study
- MW: Megawatt
- NDA: Nondisclosure Agreement
- NOX: Nitrogen Oxides
- NREL: National Renewable Energy Laboratory
- NSPS: New Source Preformance Standards
- PPA: Power Purchase Agreement
- PRA: Planning Resource Auction
- PTC: Renewable Electricity Production Tax Credit
- PRMR: Planning Reserve Margin Requirement
- PV: Photovoltaic
- PVRR: Present Value Revenue Requirement
- PY: Planning Year
- RA: Resource Adequacy
- RAN: Resource Availability and Need
- REC: Renewable Energy Credit
- REP: Renewable Energy Production
- RFP: Request for Proposals
- RIIA: MISO's Renewable Integration Impact Assessment
- SAC: MISO's Seasonal Accredited Capacity
- SCR: Selective Catalytic Reduction System
- SMR: Small Modular Reactors
- ST: Steam Turbine
- SUFG: State Utility Forecasting Group
- TRM: Technical Resource Manual
- UCT: Utility Cost Test
- UCAP: Unforced Capacity
- WTP: Willingness to Participate
- XEFORd: Equivalent Forced Outage Rate Demand excluding causes of outages that are outside management control

2025 Integrated Resource Plan

Public advisory meeting #3

September 10, 2025

AES Indiana

Agenda and Introductions

Stewart Ramsay

Managing Executive, Vanry and Associates

Agenda

Time	Topic	Speakers
10 a.m.	Safety message and virtual meeting protocols	**Claire Rice**, Senior Director, Corporate Affairs & Impact, AES Indiana
10:10 a.m.	IRP overview and meeting #1 and #2 recap	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
10:30 a.m.	IRP Modeling Framework and Assumptions	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
10:40 a.m.	Capacity Expansion Results	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
11 a.m.	Energy efficiency and DR bundles	**Quintin Thompson**, DSM Research Analyst, AES Indiana
Break for lunch		
1 p.m.	IRP Portfolio Cost and Analysis: Reference Case	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
1:30 p.m.	Final Q&A and next steps	

AES Proprietary & Confidential/Not for Distribution

IRP team introductions

AES IRP leadership team

Ken Zagzebski, CEO, AES Indiana
Brandi Davis-Handy, President, AES Indiana
Guga Garavaglia, Chief Financial Officer, AES Utilities
Evaristo Leonardi, Chief Operating Officer, AES Utilities
Patrick Maguire, Senior Director, Commercial, AES Utilities

AES Indiana IRP planning team

Alex Dickerson, Senior Manager, Wholesale Energy
Ryan Yang, Load Forecasting Analyst
Michael Hardie, Resource Planning Analyst
Brent Selvidge, Engineer
Quintin Thompson, DSM Research Analyst
Chad Rogers, Director, Regulatory Affairs
Claire Rice, Senior Director of Corporate Affairs and Impact
Melanie Raney, Senior Manager, Mergers and Acquisitions

AES Indiana IRP partners

Eric Fox, Director, Forecasting Solutions, Itron
Mike Russo, Forecast Consultant, Itron
Woody Zhu, Assistant Professor of Data Analytics, Carnegie Mellon University
Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates
Jacob Thomas, Project Manager, GDS Associates
Hisham Othman, Senior Vice President, Quanta Technologies
Christina Owens, Director, Resource Planning, ACES
Will Vance, Director, Capacity Markets and Fundamental Analysis, ACES
Stewart Ramsey, Managing Executive, Vanry and Associates

AES Indiana legal team

Teresa Morton Nyhart, Counsel, Taft Law

Virtual meeting protocols and safety

Claire Rice

Senior Director of Corporate Affairs and Impact, AES Indiana

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Virtual meeting protocols

Questions

→Your candid feedback and input is an integral part to the IRP process.

→Questions or feedback will be taken at the end of each section.

→Feel free to submit a question in the chat function at any time and we will ensure those questions are addressed.

Audio

→All lines are muted upon entry.

→For those using audio via Teams, you can unmute by selecting the microphone icon.

→If you are dialed in from a phone, press *6 to unmute.

Video

→Video is not required; however, if your camera is on, please refrain from distractions.

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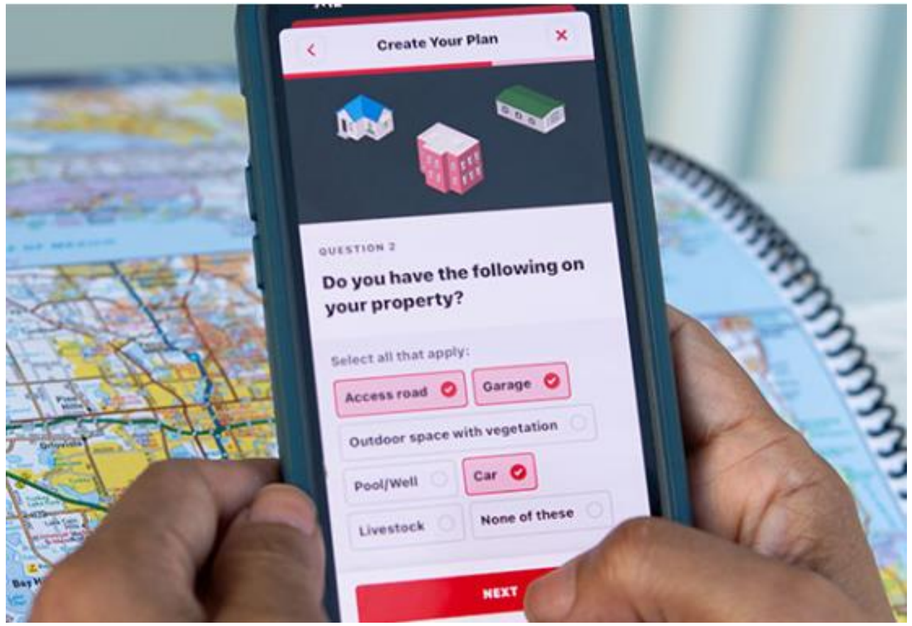
September is National Preparedness Month

Be ready before you need to be.

- → **Know your risk and have a plan** – Know what could happen at work and home.
- → **Build a kit** – Stock essentials like water, non-perishable food, flashlight, batteries, first-aid supplies, and critical documents.
- → **Stay informed** – Sign up for local weather alerts/FEMA app, know community shelter locations, and monitor official updates.
- → **Get trained** – Take part in CPR, first-aid, or emergency response training to be ready to help others.
- → **Engage together** – Encourage coworkers and family members to practice drills and review preparedness steps regularly.



https://www.ready.gov/september

IRP Modeling Framework and Assumptions

Patrick Maguire

Senior Director of Commercial and Resource Planning, AES Indiana

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Resource planning and legislative actions pave the way toward new opportunities.

- Integrated resource plan
- HEA 1007
- Data centers

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IRP scenario drivers

	Reference case	Gas infrastructure challenges	High regulatory: environmental	Stable markets scenario
EPA GHG NSPS	Repealed	Repealed	**111B remains in effect**	Repealed
Tax credits (ITC/PTC)	OBBBA	OBBBA	**IRA reinstatement + extension**	OBBBA
AES Indiana load	Base	Base	↑	↓
Natural gas prices	Base	↑	↑	↓
Thermal CAPEX	Base	Base[1]	↑	↓
Renewables CAPEX	Base	Base	Base	↓
EV/distributed solar	↓	Base	↑	Base

[1] High fixed O&M to reflect high firm gas transportation costs

Modeling scenarios with data center ramps

Different trajectories of generic data center load growth will be modeled in distinct but comparable sets of portfolios

Data Center Scenarios for IRP (Peak by end of Cal-Year, MW)

	Low	Mid	High
2027	0	50	75
2028	50	231	378
2029	114	413	681
2030	179	594	984
2031	243	775	1,288
2032	307	956	1,591
2033	371	1,138	1,894
2034	436	1,319	2,197
2035	500	1,500	2,500
2036	500	1,500	2,500
2037	500	1,500	2,500
2038	500	1,500	2,500
2039	500	1,500	2,500
2040	500	1,500	2,500

Scenarios →

NO DATA CENTER LOAD Optimized Portfolios ↓	Reference Case	Challenged Gas Infrastructure	High Env. Reg.	Stable Markets
Reference Case				
Challenged Gas Infrastructure				
High Env. Reg.				
Stable Markets				

PVRR Results

Scenarios →

LOW DATA CENTER LOAD Optimized Portfolios ↓	Reference Case	Challenged Gas Infrastructure	High Env. Reg.	Stable Markets
Reference Case				
Challenged Gas Infrastructure				
High Env. Reg.				
Stable Markets				

PVRR Results

Scenarios →

HIGH DATA CENTER LOAD Optimized Portfolios ↓	Reference Case	Challenged Gas Infrastructure	High Env. Reg.	Stable Markets
Reference Case				
Challenged Gas Infrastructure				
High Env. Reg.				
Stable Markets				

PVRR Results

PVRR: Present Value of the Revenue Requirements

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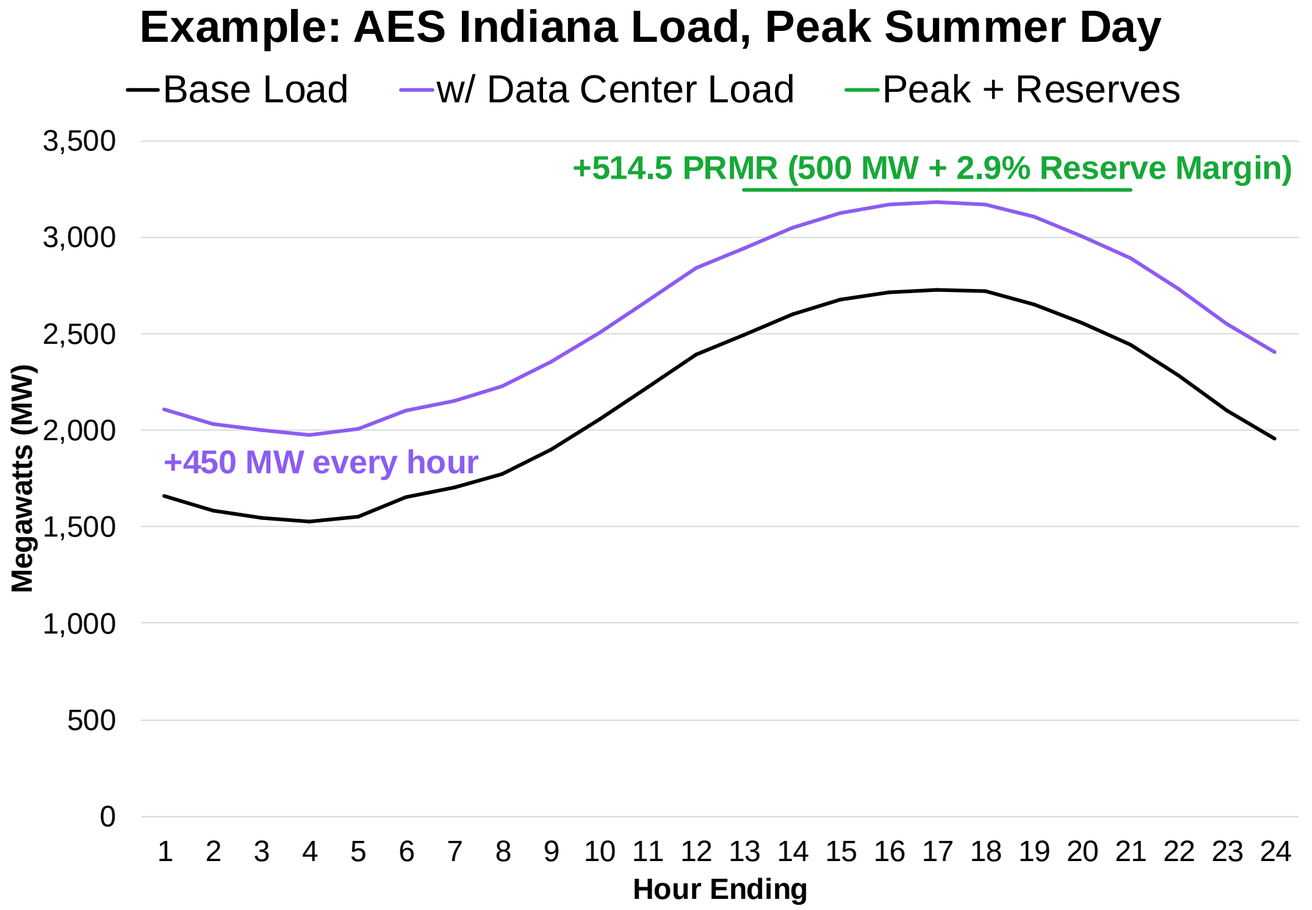
Data center load profile and assumptions

Example: Low Data Center Case

- → 90% load factor for all hours
- → 500 MW new load by 2035
- → 450 MW every hour
- → Capacity planning to full 500 MW + reserve margin
  - → Accomplished through “Firm Peak Adjustment” ratio in EnCompass
- → Data center load modeled as separate load in AES Indiana territory – will not be subject to stochastic variability due to weather and/or economics
- → Actual operations of data centers will vary across time and location depending on ultimate use case
- → Sensitivities will be run with lower load factors to evaluate impact on portfolio cost, market interaction



Data center transmission investment

- → Annual Revenue Requirement Adjustment outside of model:
  - → Low: $100/kW (sensitivity)
  - → Mid: $250/kW (“Base” assumption)
  - → High: $500/kW (sensitivity)
- → Cost based on peak load of data center additions by scenario
- → Staged investment: three equal investments, Year 1, Year 4, Year 7
- → Transmission: 30-year depreciation

LOW Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	167	$41,667	$16,667	$83,333
Year 4	167	$41,667	$16,667	$83,333
Year 7	167	$41,667	$16,667	$83,333
	500	**$125,000**	**$50,000**	**$250,000**

MID Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	500	$125,000	$50,000	$250,000
Year 4	500	$125,000	$50,000	$250,000
Year 7	500	$125,000	$50,000	$250,000
	1,500	**$375,000**	**$150,000**	**$750,000**

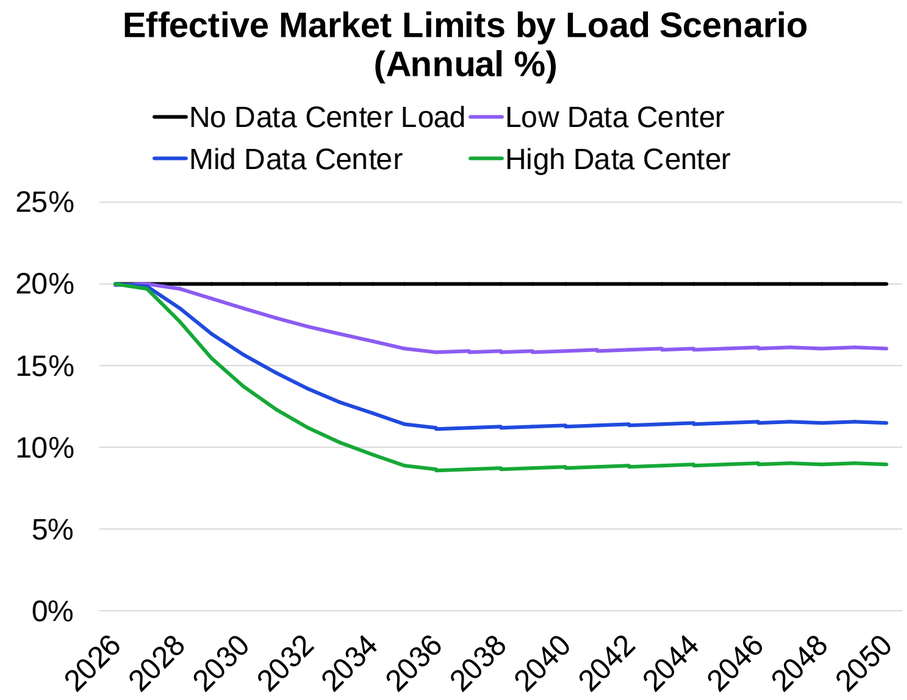
HIGH Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	833	$208,333	$83,333	$416,667
Year 4	833	$208,333	$83,333	$416,667
Year 7	833	$208,333	$83,333	$416,667
	2,500	**$625,000**	**$250,000**	**$1,250,000**

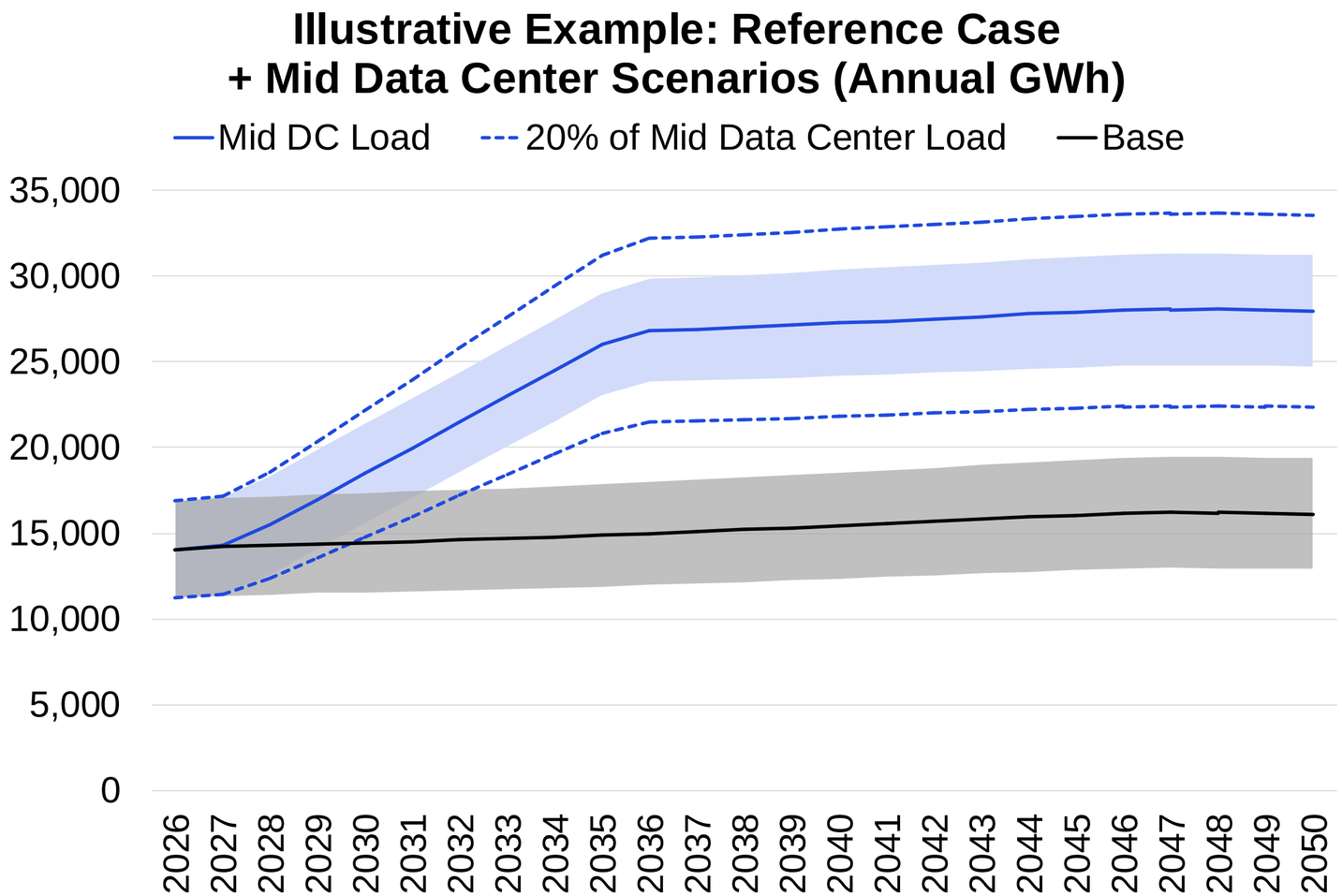
Capacity market constraints

- → Capacity Market Constraints: ±50 MW @ seasonal CONE
- → Capacity length above 50 MW has no market value
- → Capacity purchases above 50 MW assessed at 1.5x Annual CONE for any season where purchases above 50 MW are required
- → Does not impact capacity expansion runs – model is building to load and reserve margin specific to each scenario
- → Additional capacity costs will flow through to revenue requirement in scenario analysis

Energy market limits

- → Energy market access constrained to ±20% on an annual basis, anchored to Reference Case, no data center load
- → As data center load is increased in scenarios, the MWh volume of market access stays the same





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Update: MPS adjustment

Program	Details
Smart Thermostats – Winter Capacity Adjustment	→ Originally assumed nearly all customers with Smart Thermostats would instantaneously participate, resulting in winter capacity nearly on par with summer. → Reduce residential saturation to remove electric baseboard heating. → Incorporate willingness to participate data from survey that asked if the survey participant would be “more likely”, “equally likely”, or “less likely” to participate in a winter thermostat program vs summer. 33% said they would be “less likely” and 15% said they would be “more likely”. → Applied 33% to the short term and then applied the net of those who chose “less likely” and “more likely” (33%-15%) to the long term, assuming AES Indiana would be able to acquire those customers who would be more likely to participate over time. → Applied both to residential and C&I programs.

Demand response accreditation factor

- → Assumption: A universal 70% accreditation factor to all resource MWs in all seasons identified in the MPS
- → Accounts for DR uncertainty from MISO LMR changes

Uncertainty from MISO LMR Changes

- → Changes to the participation options based on response time
- → Increased Measurement & Verification Baseline methodology
  - → Hourly-Ahead Baseline method
  - → MISO initiated testing
- → Accreditation Changes
  - → Determined by real-time availability aligning with Schedule 53A Resources
  - → Accreditation split into multiple parts for each participation option/resource type to properly capture capability
- → Increased LMR performance-based penalties

SOURCES: MISO RASC Material: 20231107-08 RASC Item 11aii LMR Accreditation (RASC-2019-9)630751.pdf
MISO RASC Material: 20250820 RASC Item 08b LMR Enhancements Near Term Filings (RASC-2019-9).pdf
MISO: Demand Response and Emergency Resource Reforms White Paper Version 3

Capacity Expansion Results

Patrick Maguire

Senior Director of Commercial, AES Indiana

Assumptions in all scenarios

- → Harding Street Station Units 5-7 (618 MW) retire 12/31/2040
- → Lakefield Wind 200 MW PPA ends 10/31/2031
- → Rate REP solar continues on system and seen as a distributed solar resource
- → Reserve margins held for every year, consistent with MISO 25/26 Indicative Direct Loss of Load study (link):
  - → Summer: 2.9%
  - → Fall: 4.1%
  - → Winter: 6.2%
  - → Spring: 2.1%

Reference case: Resource additions

INSTALLED CAPACITY (MW)		2030	2035	2040	2045
Demand Response	No Data Center Load	130	156	158	157
	Low DC Load	129	153	153	152
	Mid DC Load	124	140	140	139
	High DC Load	129	153	153	152
Energy Efficiency	No Data Center Load	98	191	267	303
	Low DC Load	98	191	267	303
	Mid DC Load	98	191	267	303
	High DC Load	98	191	267	303
Battery Storage	No Data Center Load	20	100	100	100
	Low DC Load	160	420	420	420
	Mid DC Load	580	860	860	860
	High DC Load	620	640	680	680
Gas CCGT	No Data Center Load				700
	Low DC Load				700
	Mid DC Load		700	700	1,400
	High DC Load	700	2,100	2,100	2,800
Gas CT	No Data Center Load				
	Low DC Load		480	480	480
	Mid DC Load		480	720	720
	High DC Load		240	720	720
Gas Reciprocating Engines	No Data Center Load			108	108
	Low DC Load			54	54
	Mid DC Load			108	108
	High DC Load		54	54	54
Solar	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				
Wind	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				

Demand Response and Energy Efficiency play a significant role in all resource plans

Storage added early in study. Highest storage of 860 MW in Mid Case

CCGT added in 2032 in Mid Case; 2030 in High Case. One 700 MW resource added to replace HS STs 5-7 in 2041

CTs added in all data center cases, as early as 2033

Smaller reciprocating engine banks added in late 2030s

No new solar and wind added through 2045

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Reference case: resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	105	124	133	138	138	139	140	140	141	140	139	140
	High DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load			20	20	20	20	40	100	100	100	100	100	100	100	100
	Low DC Load			40	80	160	260	420	420	420	420	420	420	420	420	420
	Mid DC Load			200	360	580	860	860	860	860	860	860	860	860	860	860
	High DC Load			300	620	620	640	640	640	640	640	640	640	640	640	680
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load							700	700	700	700	700	700	700	700	700
	High DC Load					700	700	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Gas CT	No Data Center Load															
	Low DC Load								240	240	480	480	480	480	480	480
	Mid DC Load									240	480	720	720	720	720	720
	High DC Load								240	240	240	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load											54	54	54	108	108
	Low DC Load														54	54
	Mid DC Load													54	54	108
	High DC Load										54	54	54	54	54	54
Solar	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

Challenged/high gas scenario: resource additions

INSTALLED CAPACITY (MW)		2030	2035	2040	2045
Demand Response	No Data Center Load	130	156	158	157
	Low DC Load	129	153	153	152
	Mid DC Load	130	156	158	157
	High DC Load	130	156	158	157
Energy Efficiency	No Data Center Load	98	191	267	303
	Low DC Load	98	191	267	303
	Mid DC Load	98	191	267	303
	High DC Load	98	191	267	303
Battery Storage	No Data Center Load	20	100	100	100
	Low DC Load	160	160	160	160
	Mid DC Load	320	380	380	380
	High DC Load	560	620	620	620
Gas CCGT	No Data Center Load				700
	Low DC Load		700	700	1,400
	Mid DC Load	700	1,400	1,400	2,100
	High DC Load	700	2,800	2,800	3,500
Gas CT	No Data Center Load				
	Low DC Load				
	Mid DC Load			240	240
	High DC Load				
Gas Reciprocating Engines	No Data Center Load			108	108
	Low DC Load				
	Mid DC Load		108	162	162
	High DC Load			108	108
Solar	No Data Center Load				
	Low DC Load				
	Mid DC Load	50	50	50	50
	High DC Load	25	25	25	25
Wind	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				

Demand Response and Energy Efficiency play a significant role in all resource plans

Less battery storage added – higher market prices drives decision to energy assets

Higher gas and power prices push implied heat rates lower, driving less efficient units out of the market.

Existing gas CTs and STs run less, more investment in CCGT to meet energy limits

Small amount of solar added in early years ahead of tax credit expiration

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Challenged/high gas: resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load			20	20	20	20	40	100	100	100	100	100	100	100	100
	Low DC Load			20	80	160	160	160	160	160	160	160	160	160	160	160
	Mid DC Load			140	320	320	320	380	380	380	380	380	380	380	380	380
	High DC Load			260	560	560	620	620	620	620	620	620	620	620	620	620
Gas CCGT	No Data Center Load															
	Low DC Load						700	700	700	700	700	700	700	700	700	700
	Mid DC Load					700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	High DC Load					700	700	1,400	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800
Gas CT	No Data Center Load															
	Low DC Load															
	Mid DC Load											240	240	240	240	240
	High DC Load															
Gas Reciprocating Engines	No Data Center Load											54	54	54	108	108
	Low DC Load															
	Mid DC Load										108	108	162	162	162	162
	High DC Load													54	54	108
Solar	No Data Center Load															
	Low DC Load															
	Mid DC Load			50	50	50	50	50	50	50	50	50	50	50	50	50
	High DC Load			25	25	25	25	25	25	25	25	25	25	25	25	25
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

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High regulatory scenario: resource additions

INSTALLED CAPACITY (MW)		2030	2035	2040	2045
Demand Response	No Data Center Load	130	156	158	157
	Low DC Load	130	156	158	157
	Mid DC Load	130	156	158	157
	High DC Load	130	156	158	157
Energy Efficiency	No Data Center Load	98	191	267	303
	Low DC Load	98	191	267	303
	Mid DC Load	98	191	267	303
	High DC Load	98	191	267	303
Battery Storage	No Data Center Load	100	120	180	1,000
	Low DC Load	300	780	1,020	1,880
	Mid DC Load	640	1,840	2,340	3,240
	High DC Load	940	2,480	2,960	3,140
Gas CCGT	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				
Gas CT	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load		480	480	1,200
Gas Reciprocating Engines	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				
Solar	No Data Center Load	25	25	50	275
	Low DC Load		350	375	675
	Mid DC Load	50	1,050	1,525	2,025
	High DC Load	100	1,225	2,500	2,600
Wind	No Data Center Load	50	900	2,050	2,550
	Low DC Load		1,350	2,650	3,250
	Mid DC Load	350	2,750	4,250	5,150
	High DC Load	400	2,800	5,250	6,400

Demand Response and Energy Efficiency play a significant role in all resource plans

>2,000 MW of storage added in Mid and High Cases

No CCGTs added with 40% capacity factor limit

Only High Data Center case adds gas peakers

Significant buildout of wind and solar. In Mid Case:
+2,750 MW of new wind by 2035
+1,050 MW of new solar by 2035

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High regulatory scenario: resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		40	100	100	100	120	120	120	120	120	120	120	120	120	180
	Low DC Load		40	100	180	300	420	500	540	620	780	860	860	940	940	1,020
	Mid DC Load		40	180	420	640	840	1,120	1,360	1,660	1,840	2,080	2,080	2,200	2,200	2,340
	High DC Load		20	240	580	940	1,340	1,700	1,700	2,140	2,480	2,820	2,820	2,880	2,880	2,960
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Gas CT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load							240	480	480	480	480	480	480	480	480
Gas Reciprocating Engines	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Solar	No Data Center Load		25	25	25	25	25	25	25	25	25	25	25	50	50	50
	Low DC Load										350	350	375	375	375	375
	Mid DC Load		25	50	50	50	50	50	75	75	1,050	1,425	1,475	1,525	1,525	1,525
	High DC Load		25	50	75	100	100	100	100	225	1,225	2,200	2,275	2,500	2,500	2,500
Wind	No Data Center Load					50	50	350	450	700	900	1,150	1,350	1,650	1,950	2,050
	Low DC Load						50	400	850	1,300	1,350	1,750	2,050	2,150	2,450	2,650
	Mid DC Load					350	750	1,250	1,750	2,250	2,750	3,150	3,650	3,700	4,200	4,250
	High DC Load					400	800	1,300	1,800	2,300	2,800	3,300	3,750	4,250	4,750	5,250

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Stable market scenario: resource additions

INSTALLED CAPACITY (MW)		2030	2035	2040	2045
Demand Response	No Data Center Load	48	61	64	66
	Low DC Load	129	153	153	152
	Mid DC Load	130	156	158	157
	High DC Load	129	153	153	152
Energy Efficiency	No Data Center Load	98	191	267	303
	Low DC Load	98	191	267	303
	Mid DC Load	98	191	267	303
	High DC Load	98	191	267	303
Battery Storage	No Data Center Load			20	120
	Low DC Load	40	120	140	200
	Mid DC Load	400	720	780	940
	High DC Load	780	960	1,020	1,020
Gas CCGT	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load		700	700	1,400
Gas CT	No Data Center Load				480
	Low DC Load		480	480	960
	Mid DC Load		960	1,200	1,680
	High DC Load		1,440	1,680	1,680
Gas Reciprocating Engines	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				
Solar	No Data Center Load				
	Low DC Load	50	50	50	50
	Mid DC Load	100	100	100	100
	High DC Load	100	100	100	100
Wind	No Data Center Load				
	Low DC Load				
	Mid DC Load				
	High DC Load				

Demand Response and Energy Efficiency play a significant role in all resource plans

High storage additions for capacity with lower market prices

Low market prices drive investment into storage and CTs

Large buildout of gas CTs in Low, Mid, and High cases

Lower CAPEX resources selected over recips

Small solar additions in early years, no new wind

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Stable market scenario: resource additions

		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	38	39	43	48	54	58	60	60	61	62	63	63	63	64
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load															
	Low DC Load			40	40	40	80	80	120	120	120	120	120	120	120	140
	Mid DC Load			80	180	400	660	700	720	720	720	720	720	740	740	780
	High DC Load			120	420	780	960	960	960	960	960	960	960	960	980	1,020
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load							700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load															
	Low DC Load							240	240	240	480	480	480	480	480	480
	Mid DC Load							240	480	720	960	1,200	1,200	1,200	1,200	1,200
	High DC Load						240	240	480	960	1,440	1,680	1,680	1,680	1,680	1,680
Gas Reciprocating Engines	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Solar	No Data Center Load															
	Low DC Load			50	50	50	50	50	50	50	50	50	50	50	50	50
	Mid DC Load			100	100	100	100	100	100	100	100	100	100	100	100	100
	High DC Load			100	100	100	100	100	100	100	100	100	100	100	100	100
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

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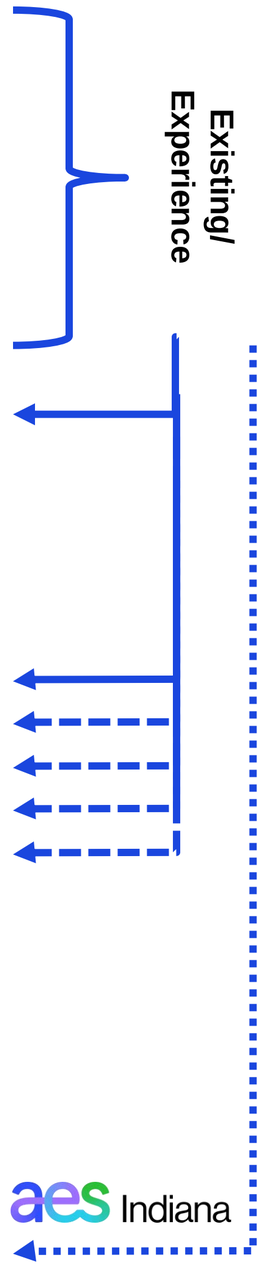
Demand-side bundles

Energy Efficiency Bundle	Program
C&I	Prescriptive (Non-Lighting and Lighting)
	Custom (Retro- Commissioning, Strategic Energy Management, and New Construction)
Res BEH	Efficient Products (≤ $70 RAP LCOE)
	Multifamily (≤ $70 RAP LCOE)
	School Education (≤ $70 RAP LCOE)
	No Program (≤ $70 RAP LCOE)
	Home Energy Reports
Res Tier 2	Efficient Products (> $70 RAP LCOE)
	Multifamily (> $70 RAP LCOE)
	School Education (> $70 RAP LCOE)
	No Program (> $70 RAP LCOE)
IQW	Income Qualified Weatherization
IQ HEAR*	Income Qualified Indiana Energy Saver Program

Code	Name	Timing
V1	Vintage 1	2027-2029
V2	Vintage 2	2030-2032
V3	Vintage 3	2033-2045

Demand Response Bundle	Program
AC Switch - One Way	Residential DLC Central AC Switch - One Way
	Commercial and Industrial DLC Central AC Switch - One Way
AC Switch - Two Way	Residential DLC Central AC Switch - Two Way
	Commercial and Industrial DLC Central AC Switch - Two Way
Thermostats	Residential DLC Thermostat (Free Thermostat)
	Residential DLC Thermostat (BYOT)
	Commercial and Industrial DLC Thermostat (Free Thermostat)
	Commercial and Industrial DLC Thermostat (BYOT)
Water Heaters	Residential DLC Water Heater Switch
	Residential DLC Grid-Enabled Water Heater
	Commercial and Industrial DLC Water Heater Switch
	Commercial and Industrial DLC Grid-Enabled Water Heater
Smart App	Residential DLC Smart Appliances
Room AC	Residential DLC Room Air Conditioning
Lighting	Commercial and Industrial DLC Lighting
EV	Residential Electric Vehicle EVX Rate
	Residential DLC Electric Vehicle
	Residential Electric Vehicle Time of Use Incentive
	Commercial and Industrial DLC Electric Vehicle
	Commercial and Industrial Electric Vehicle Time of Use Incentive
TOU	Residential Time of Use Rate
	Commercial and Industrial Time of Use Rate
PTR	Residential Peak Time Rebate
BDR	Residential Behavioral Demand Response
Battery	Residential Battery Storage
	Commercial and Industrial Battery Storage
C&I TES	Commercial and Industrial Thermal Energy Storage Rate
Capacity Bidding	Commercial and Industrial Capacity Bidding
Load Curtailment	Commercial and Industrial Load Curtailment



* See Indiana Energy Saver Program for more details – LINK.

Energy efficiency selection by scenario

	Reference Case				Gas Infrastructure Challenges				High Regulatory: Environmental				Stable Markets			
	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC
Energy Efficiency																
C&I V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C&I V2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C&I V3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res Tier2 V1																
Res Tier2 V2								X			X	X				
Res Tier2 V3									X	X	X	X				
IQW V1*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQW V2*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQW V3*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V1*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V2*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V3*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* Income Qualified Weatherization (IQW) bundles are forced through the model. Income Qualified, Indiana Home Appliance Rebate (IQ HEAR) bundle are forced through the model, but at no cost.

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Demand response selection by scenario

	Reference Case				Gas Infrastructure Challenges				High Regulatory: Environmental				Stable Markets			
	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC
Demand Response																
DR Thermostat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DR Battery	X				X		X	X	X	X	X	X			X	
DR Load Curtailment	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
DR Capacity Bidding												X				
DR BDR	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
DR PTR	X	X		X	X	X	X	X	X	X	X	X		X	X	X
DR TOU	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Resources Not Selected in any scenario:

- → AC Switch One Way
- → AC Switch Two Way
- → Water Heaters
- → Smart App
- → Room AC
- → Lighting
- → EV
- → C&I TES

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Portfolio Cost

Patrick Maguire

Senior Director of Commercial, AES Indiana

Annual revenue requirement

25-Year Present Value of the Revenue Requirements (PVRR)

Annual Calculation:

Revenue Requirement =

Operating Expenses

- → Energy Purchases
- → Fuel
- → Variable O&M
- → Fixed O&M
- → Emissions

+

Recovery of and Return on <u>New</u> Capital

- → Book Depreciation
- → Return on Rate Base
- → Property Taxes

−

Market Revenues

- → MISO Energy Revenue
- → Net Capacity Revenue

<u>Past IRPs</u>: Only included incremental revenue requirement, where some items in base rates were excluded, considered to be “sunk” costs in all portfolios

<u>2025 IRP</u>: To evaluate both the system cost increase but also load increase, a total system rate in $/MWh will be calculated for all portfolios. An outside the model adjustment will be made to reflect forward-looking projection of base rates for AES Indiana’s current system

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Revenue requirement: reference, no data center load

			2026	2027	2028	2029	2030
		Existing Production Assets					
		Depreciation/Decommissioning Costs	$198	$198	$198	$198	$198
		Amortization	$65	$65	$65	$65	$65
		Return on	$338	$338	$338	$338	$338
	1	Total Existing Prod.	$601	$601	$601	$601	$601
	2	**Transmission & Distribution**	$777	$800	$824	$849	$874
Calc:1+2	3	**Baseline Revenue Requirement ($MM)**	**$1,378**	**$1,401**	**$1,425**	**$1,450**	**$1,475**

“Baseline” Annual Revenue Requirement
Starting values established from Cause No. 46258

Costs for existing production assets held flat
T&D, other costs escalated at 3% annually
** Baseline costs added to ALL portfolios **

			2026	2027	2028	2029	2030
		Expenses ($MM)	**814**	**811**	**827**	**819**	**811**
		Energy Purchases	115	106	100	87	119
		Fuel	367	438	431	436	390
		Variable O&M	131	128	129	131	131
		Fixed O&M	183	129	146	135	136
		Start Cost	2	1	1	1	1
		Demand Response and Energy Efficiency	0	9	15	25	31
		Capacity Purchases	17	1	3	1	1
		Emissions	1	1	1	1	1
		Book Depreciation	0	0	2	2	2
		Property Taxes	0	0	0	0	0
		Decommissioning	0	0	0	0	0
		Insurance	0	0	0	0	0
		Rate Base ($MM)	**0**	**0**	**27**	**24**	**21**
		Return on Rate Base	0	0	2	2	2
		Total Revenue Requirement	814	811	829	821	813
		Less: (revenues from energy and capacity)					
		Energy Revenue ($MM)	96	148	136	136	125
		Capacity Revenue ($MM)	2	4	4	4	4
	4	**Incremental Revenue Requirement ($MM)**	**716**	**660**	**690**	**681**	**683**
Calc: 3+4	5	**Total Revenue Requirement ($MM)**	**$2,094**	**$2,061**	**$2,115**	**$2,131**	**$2,159**

IRP modeling will calculate “incremental” revenue requirement, including:
→ Wholesale market interaction (market purchases, sales)
→ Capacity market purchases and sales
→ Production: Fuel, Variable O&M, Fixed O&M
→ New DR/EE costs
→ Recovery of and on new resources

Total Revenue Requirement will be used for rate analysis

Revenue requirement: reference, no data center load

1	**Baseline Revenue Requirement**	**$1,378**	**$1,401**	**$1,425**	**$1,450**	**$1,475**

Baseline Revenue Requirement (before Generation Expenses)

	2026	2027	2028	2029	2030
Expenses ($MM)	**814**	**811**	**827**	**819**	**811**
Energy Purchases	115	106	100	87	119
Fuel	367	438	431	436	390
Variable O&M	131	128	129	131	131
Fixed O&M	183	129	146	135	136
Start Cost	2	1	1	1	1
Demand Response and Energy Efficiency	0	9	15	25	31
Capacity Purchases	17	1	3	1	1
Emissions	1	1	1	1	1
Book Depreciation	0	0	2	2	2
Property Taxes	0	0	0	0	0
Decommissioning	0	0	0	0	0
Insurance	0	0	0	0	0
Rate Base ($MM)	**0**	**0**	**27**	**24**	**21**
Return on Rate Base	0	0	2	2	2
Total Revenue Requirement	814	811	829	821	813
Less: (revenues from energy and capacity)					
Energy Revenue ($MM)	96	148	136	136	125
Capacity Revenue ($MM)	2	4	4	4	4
Incremental Revenue Requirement ($MM)	**716**	**660**	**690**	**681**	**683**

+ IRP Modeling Revenue Requirement

Calc: 1+2	3	**Total Revenue Requirement ($MM)**	**$2,094**	**$2,061**	**$2,115**	**$2,131**	**$2,159**
	4	**Total System Level Sales (GWh)**	14,054	14,212	14,300	14,388	14,459
*Calc: 3*1000/4*	5	**Annual Revenue Requirement ($/MWh)**	**$149**	**$145**	**$148**	**$148**	**$149**

= Total Revenue Requirement

Divided by Total System Sales

= Revenue Requirement in $/MWh

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IRP rate modeling:

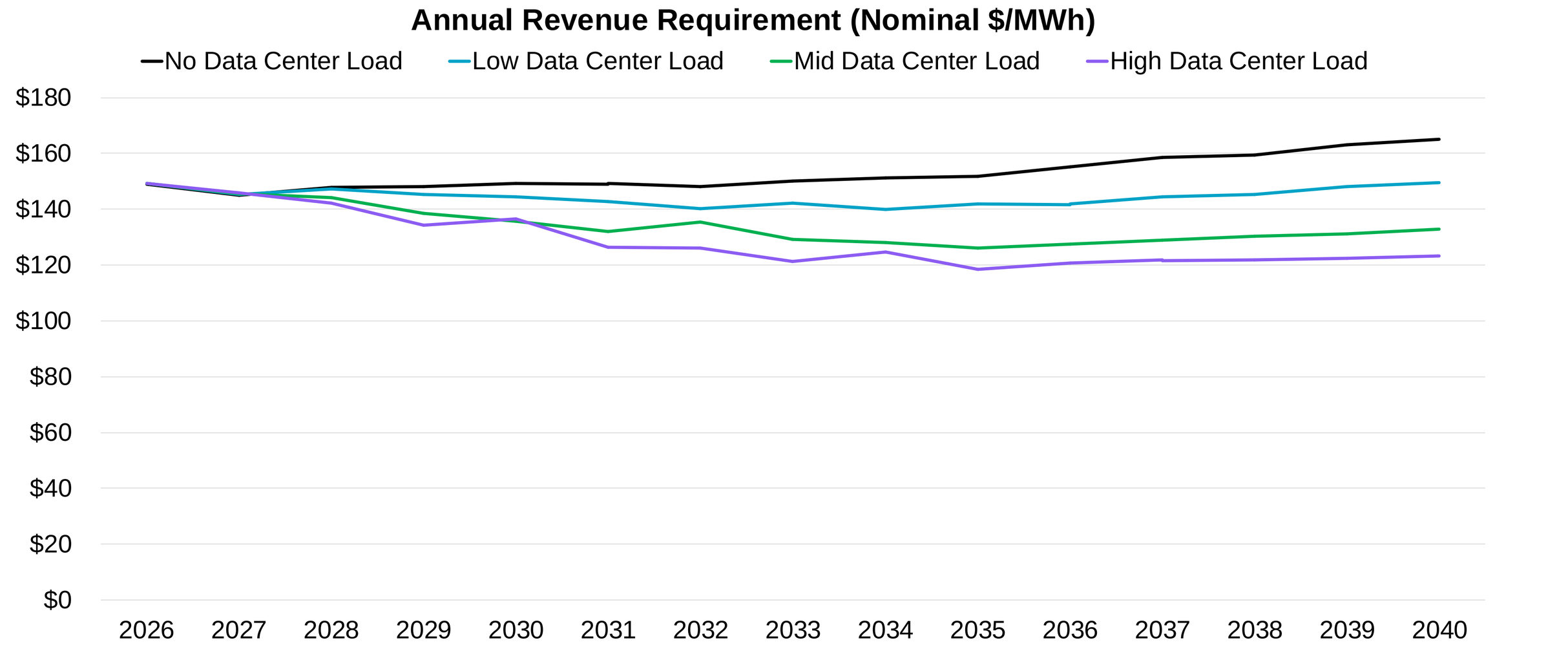
What the IRP analysis is:

- System-level, $/MWh costs to support economic decision making
- Incremental view relative to the baseline, “no data center” scenarios
- Breakdown of the changing portfolio costs by category to see the highest impact variables as load and portfolio mix changes

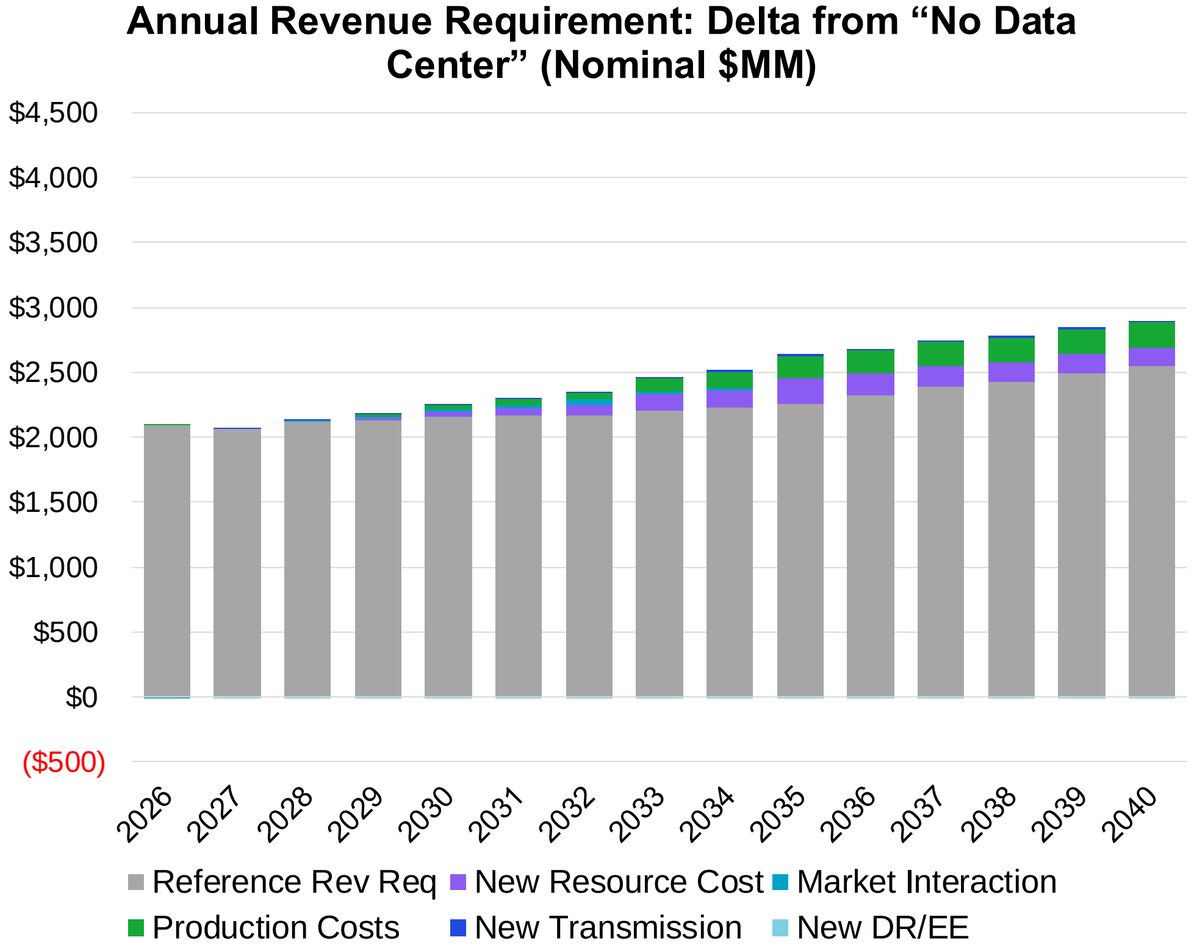
What the IRP analysis is not:

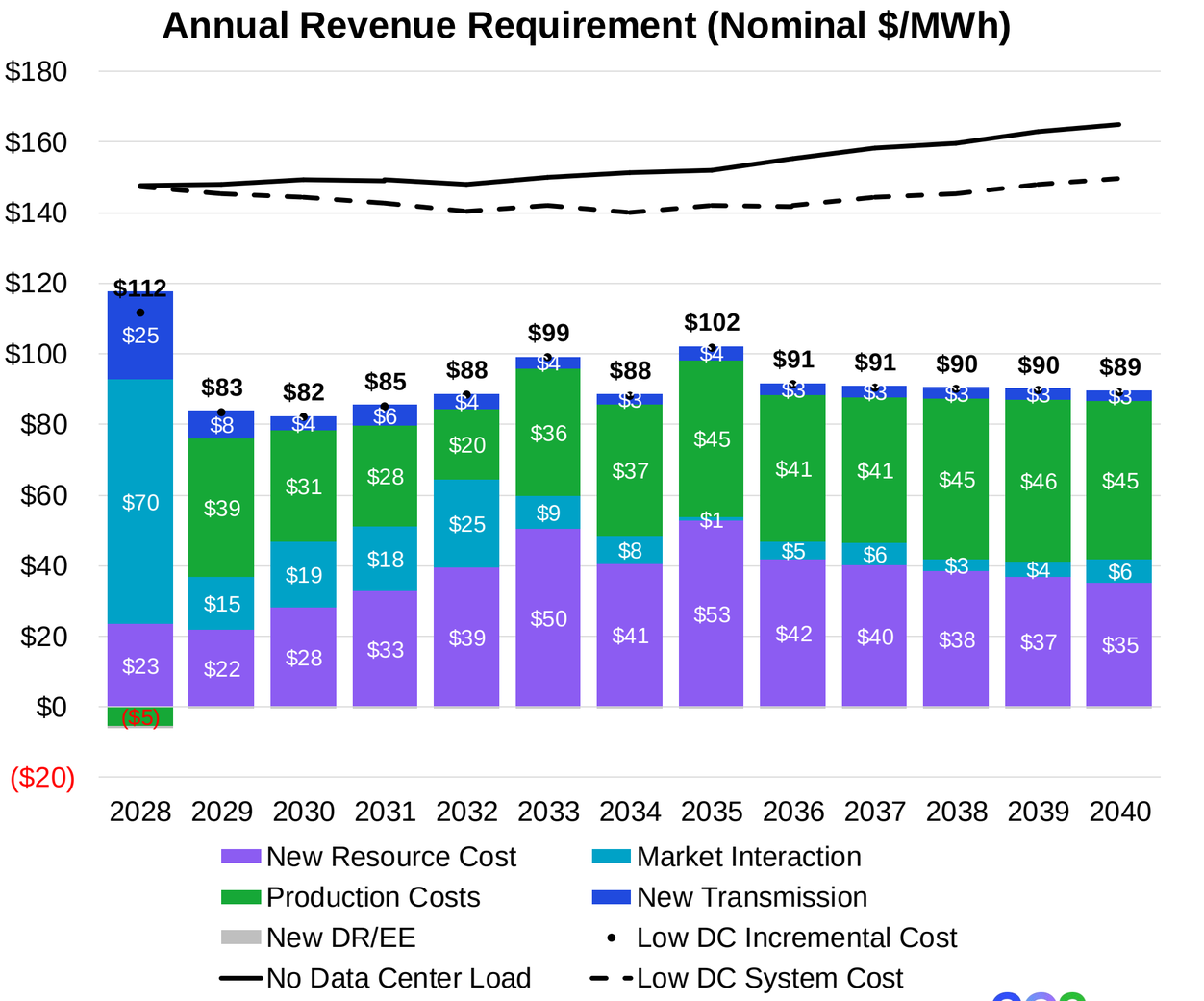
- A precise forecast of current or future rates for AES Indiana
- A projected rate for a new large load customer
- Projected rates by rate class

Annual portfolio cost: Reference case ($/MWh)



Low data center: Reference case results





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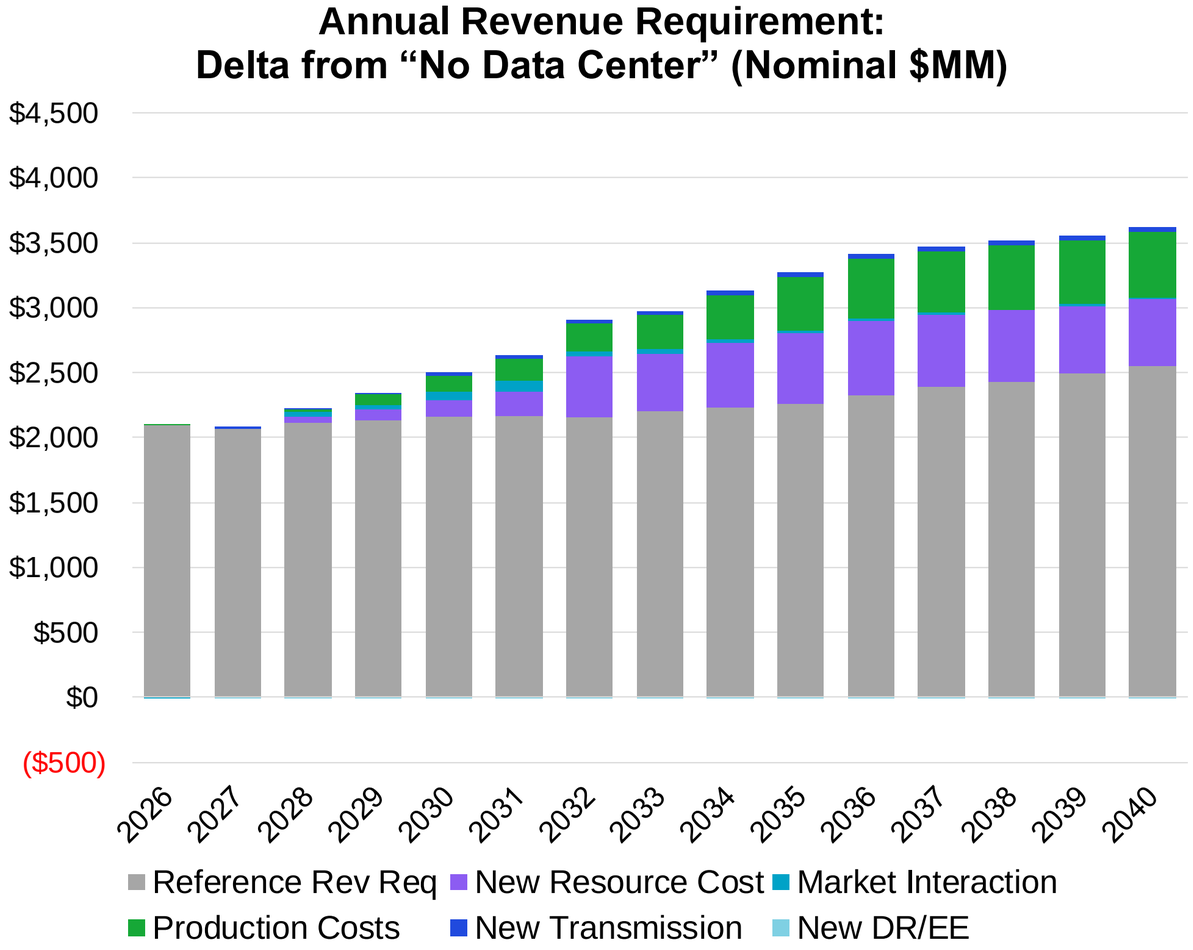
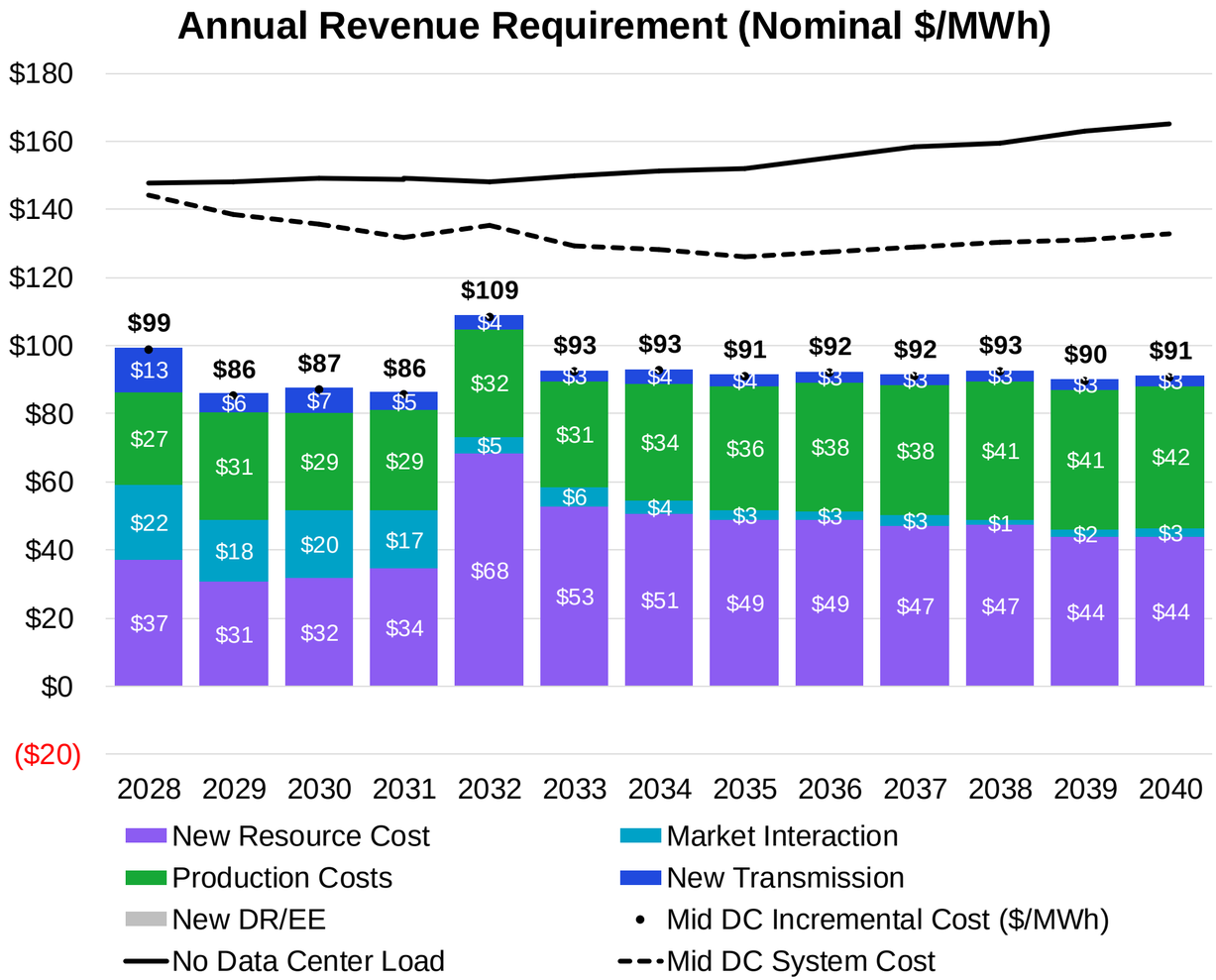
Mid data center: Reference case costs





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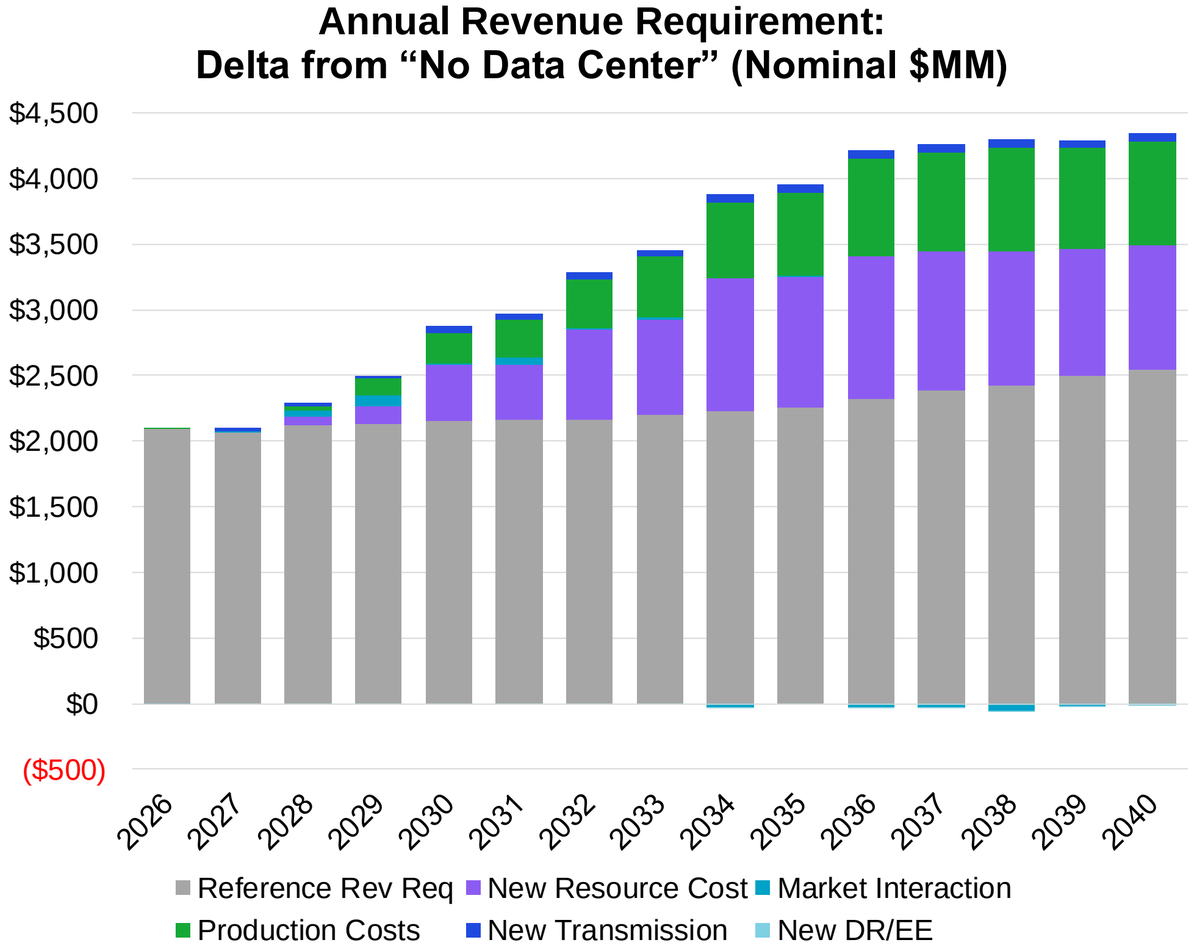
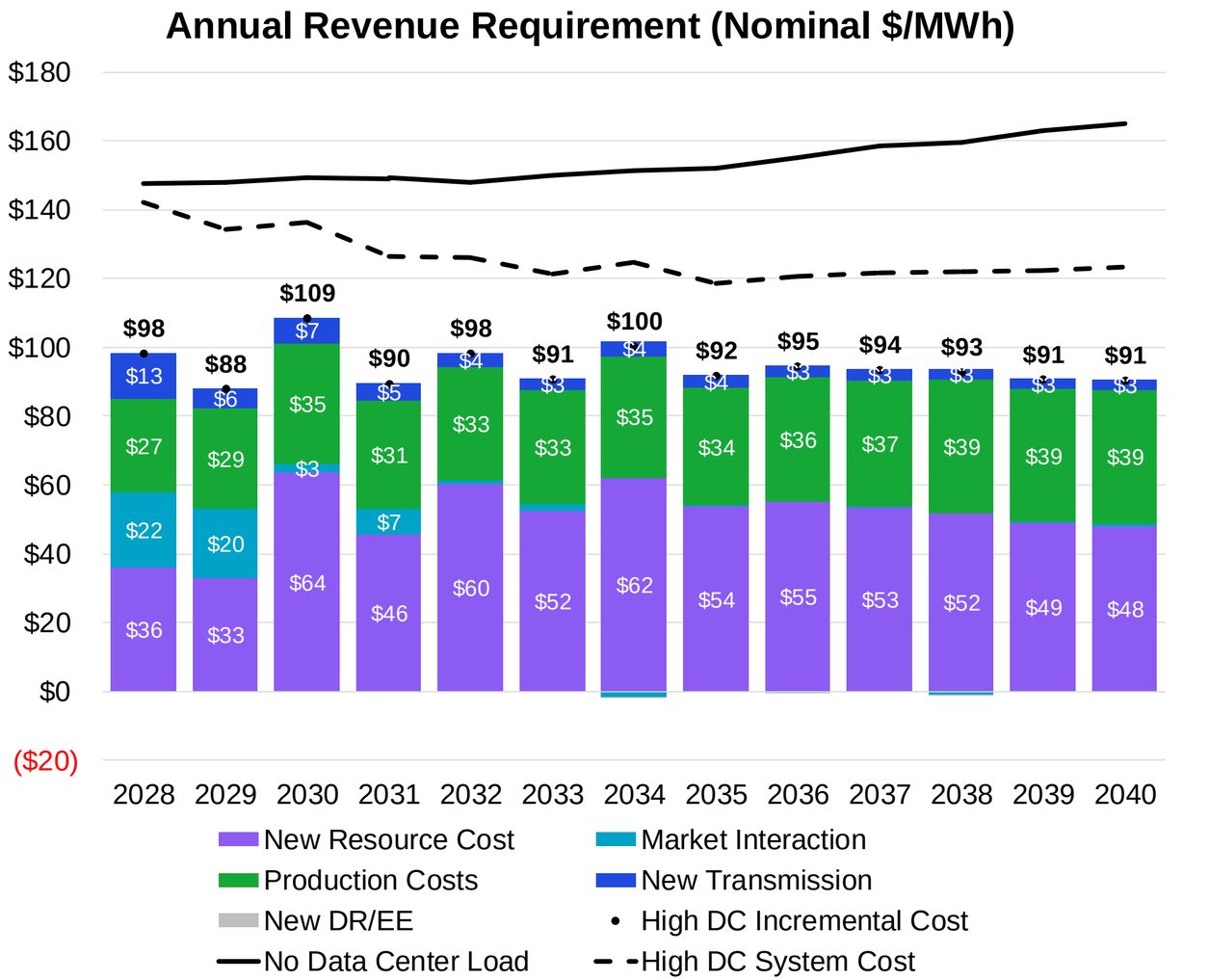
High data center: Reference case results





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Key takeaways: Portfolio cost

- → AES Indiana's current Regulatory Rate Review that was filed with the Indiana Utility Regulatory Commission on June 3, 2025 does not include any costs related to potential large-load data center customers.

- → Modeling shows new large, high load factor loads could put downward pressure on revenue requirements per megawatt hour.

- → Additional analysis being conducted to test portfolios:
  - → Full scenario analysis, running portfolios through each scenario
  - → Sensitivities: data center load factor, transmission cost, other as identified
  - → Stochastic risk analysis: all 16 portfolios being run through stochastic risk modeling

Next Steps

2025 IRP public meeting and data release schedule

Public Advisory Meeting Schedule

Public Advisory Meeting #1: January 29, 2025

→ Recap 2022 IRP Short-Term Action Plan

→ Introduce IRP resource planning process, key dates and topics for 2025 IRP

Public Advisory Meeting #2: July 24, 2025

→ Review assumptions including replacement resource costs and commodity prices

→ Introduce IRP analysis portfolio framework and analysis scorecard

Public Advisory Meeting #3: September 10, 2025

→ Discuss preliminary IRP results

Public Advisory Meeting #4: October 22, 2025

→ Review final IRP scorecard and reliability analysis

→ Share Preferred Resource Portfolio and Short-Term Action Plan

IRP Assumptions & Modeling Data Release Schedule

Meeting #1 Data Available: February 12, 2025

→ Base Load Forecast

→ EV Base, High and Low Scenarios

→ PV Base, High and Low Scenarios

Meeting #2 Data Available: July 24, 2025

→ IRP Scenario Commodity Curves

→ Replacement Resource Costs and Capacity Accreditation

→ Market Potential Study Results

Meeting #3 Data Available: September 10, 2025

→ EnCompass IRP Scenario Loader

→ PVRR Summary

→ Energy Position Sheets

Meeting #4 Data Available: October 22, 2025

→ EnCompass Stochastic Scenario Loader

→ Stochastic Summary Results

→ Final IRP Scorecard

Dates and agendas are subject to change

Note: The released data will be available to the technical stakeholders with a completed Non-Disclosure Agreement

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Thank you!

IRP acronyms

Note: A glossary of acronyms with definitions is available at https://www.aesindiana.com/integrated-resource-plan.

IRP acronyms

- ACEE: The American Council for an Energy-Efficient Economy
- AMI: Advanced Metering Infrastructure
- BESS: Battery Energy Storage System
- BNEF: Bloomberg New Energy Finance
- BTA: Build-Transfer Agreement
- C&I: Commercial and Industrial
- CAA: Clean Air Act
- CAGR: Compound Annual Growth Rate
- CCGT: Combined Cycle Gas Turbines
- CCS: Carbon Dioxide Capture and Storage
- CDD: Cooling Degree Day
- COD: Commercial Operation Date
- CONE: Cost of New Entry
- CP: Coincident Peak
- CPCN: Certificate of Public Convenience and Necessity
- CT: Combustion Turbine
- CVR: Conservation Voltage Reduction
- DER: Distributed Energy Resource
- DG: Distributed Generation
- DGPV: Distributed Generation Photovoltaic System
- DLC: Direct Load Control
- DOE: U.S. Department of Energy
- DR: Demand Response
- DRR: Demand Response Resource
- DSM: Demand-Side Management
- DSP: Distribution System Planning
- EE: Energy Efficiency
- EFORd: Equivalent Forced Outage Rate Demand
- EIA: Energy Information Administration
- ELCC: Effective Load Carrying Capability
- EM&V: Evaluation Measurement and Verification
- EV: Electric Vehicle
- GDP: Gross Domestic Product
- GT: Gas Turbine
- HDD: Heating Degree Day
- HVAC: Heating, Ventilation, and Air Conditioning
- IAC: Indiana Administrative Code
- IC: Indiana Code
- ICAP: Installed Capacity
- ICE: Internal Combustion Engine
- IRP: Integrated Resource Plan
- ITC: Investment Tax Credit
- IURC: Indiana Utility Regulatory Commission
- kW: Kilowatt
- kWh: Kilowatt-Hour
- LED: Light Emitting Diode
- LMR: Load Modifying Resource
- LNBL: Lawrence Berkeley National Laboratory
- Max Gen: Maximum Generation Emergency Warning
- MIP: Mixed Integer Programming
- MISO: Midcontinent Independent System Operator
- MPS: Market Potential Study
- MW: Megawatt
- NDA: Nondisclosure Agreement
- NOX: Nitrogen Oxides
- NREL: National Renewable Energy Laboratory
- NSPS: New Source Performance Standards
- PPA: Power Purchase Agreement
- PRA: Planning Resource Auction
- PTC: Renewable Electricity Production Tax Credit
- PRMR: Planning Reserve Margin Requirement
- PV: Photovoltaic
- PVRR: Present Value Revenue Requirement
- PY: Planning Year
- RA: Resource Adequacy
- RAN: Resource Availability and Need
- REC: Renewable Energy Credit
- REP: Renewable Energy Production
- RFP: Request for Proposals
- RIIA: MISO's Renewable Integration Impact Assessment
- SAC: MISO's Seasonal Accredited Capacity
- SCR: Selective Catalytic Reduction System
- SMR: Small Modular Reactors
- ST: Steam Turbine
- SUFG: State Utility Forecasting Group
- TRM: Technical Resource Manual
- UCT: Utility Cost Test
- UCAP: Unforced Capacity
- WTP: Willingness to Participate
- XEFORd: Equivalent Forced Outage Rate Demand excluding causes of outages that are outside management control

2025 Integrated Resource Plan

Stakeholder Meeting #4

October 22, 2025

AES Indiana

Agenda and introductions

Stewart Ramsay

Managing Executive, Vanry and Associates

Agenda

Time	Topic	Speakers
10 a.m.	Virtual meeting protocols and safety	**Claire Rice**, Senior Director, Corporate Affairs & Impact, AES Indiana
10:10 a.m.	IRP review	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
10:30 a.m.	IRP results	
Noon	Break for lunch	
12:30 p.m.	Additional scenarios and sensitivities	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
1:30 p.m.	IRP results review	
1:45 p.m.	Preferred resource portfolio	
2:15 p.m.	Short term action plan	
2:50 p.m	AES Indiana president message	**Brandi Davis-Handy**, President, AES Indiana
	Final Q&A and next steps	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana

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IRP team introductions

AES IRP leadership team

Ken Zagzebski, CEO, AES Indiana
Brandi Davis-Handy, President, AES Indiana
Guga Garavaglia, Chief Financial Officer, AES Utilities
Evaristo Leonardi, Chief Operating Officer, AES Utilities
Patrick Maguire, Senior Director, Commercial, AES Utilities

AES Indiana IRP planning team

Nette Brocks, Senior Manager, Resource Planning
Alex Dickerson, Senior Manager, Wholesale Energy
Ryan Yang, Load Forecasting Analyst
Michael Hardie, Resource Planning Analyst
Brent Selvidge, Engineer
Quintin Thompson, DSM Research Analyst
Chad Rogers, Director, Regulatory Affairs
Claire Rice, Senior Director of Corporate Affairs and Impact
Melanie Raney, Senior Manager, Mergers and Acquisitions

AES Indiana IRP partners

Eric Fox, Director, Forecasting Solutions, Itron
Mike Russo, Forecast Consultant, Itron
Woody Zhu, Assistant Professor of Data Analytics, Carnegie Mellon University
Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates
Jacob Thomas, Project Manager, GDS Associates
Hisham Othman, Senior Vice President, Quanta Technologies
Christina Owens, Director, Resource Planning, ACES
Will Vance, Director, Capacity Markets and Fundamental Analysis, ACES
Stewart Ramsey, Managing Executive, Vanry and Associates

AES Indiana legal team

Teresa Morton Nyhart, Counsel, Taft Law

Virtual meeting protocols and safety

Claire Rice

Senior Director of Corporate Affairs and Impact, AES Indiana

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Virtual meeting protocols

Questions

→Your candid feedback and input is an integral part to the IRP process.

→Questions or feedback will be taken at the end of each section.

→Feel free to submit a question in the chat function at any time and we will ensure those questions are addressed.

Audio

→All lines are muted upon entry.

→For those using audio via Teams, you can unmute by selecting the microphone icon.

→If you are dialed in from a phone, press *6 to unmute.

Video

→Video is not required; however, if your camera is on, please refrain from distractions.

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Safety message: Safe driving

With Daylight Saving Time ending on Nov. 2, 2025, there will be less daylight during morning and evening commutes.

- → **Buckle up. Phone down. Eyes up.**
- → **Pre-trip check:** Tires, lights, mirrors, load secure
- → **Keep space:** 3-4 sec gap (more in bad weather)
- → **Scan constantly:** Mirrors every few seconds; expect surprises
- → **Slow for conditions:** No rolling stops; signal early
- → **Avoid blind spots:** See and be seen (daytime lights)

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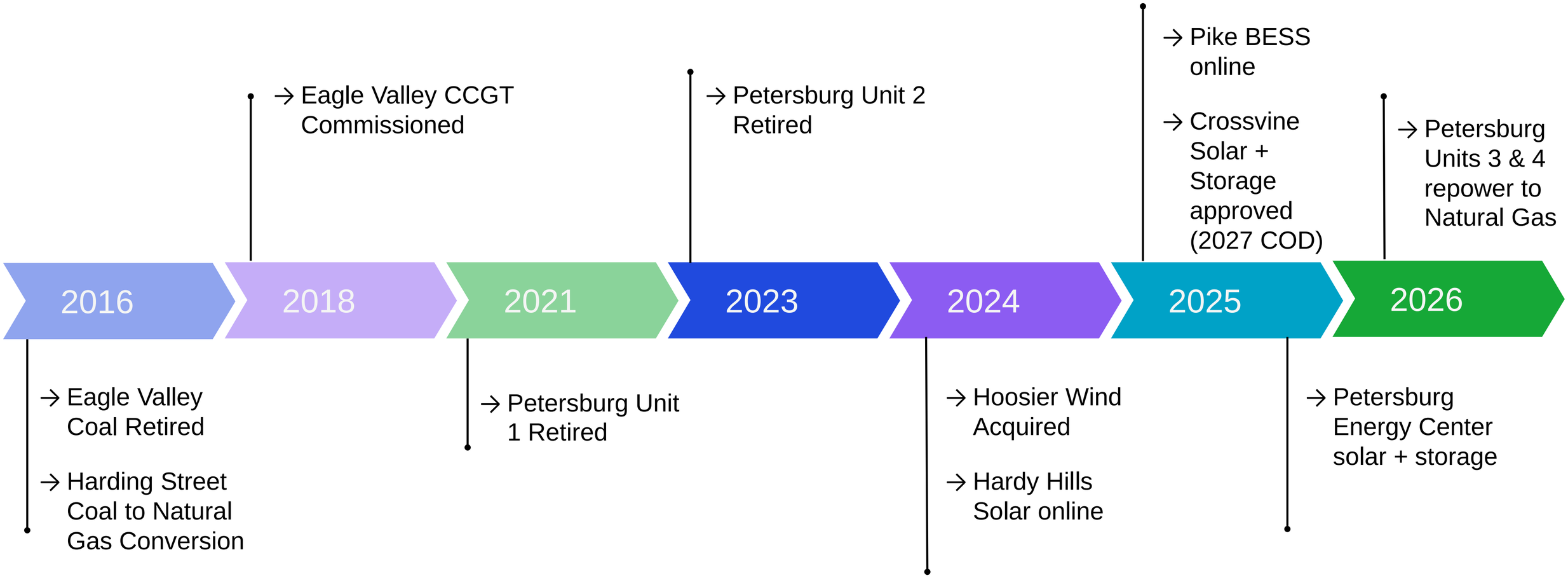
IRP review

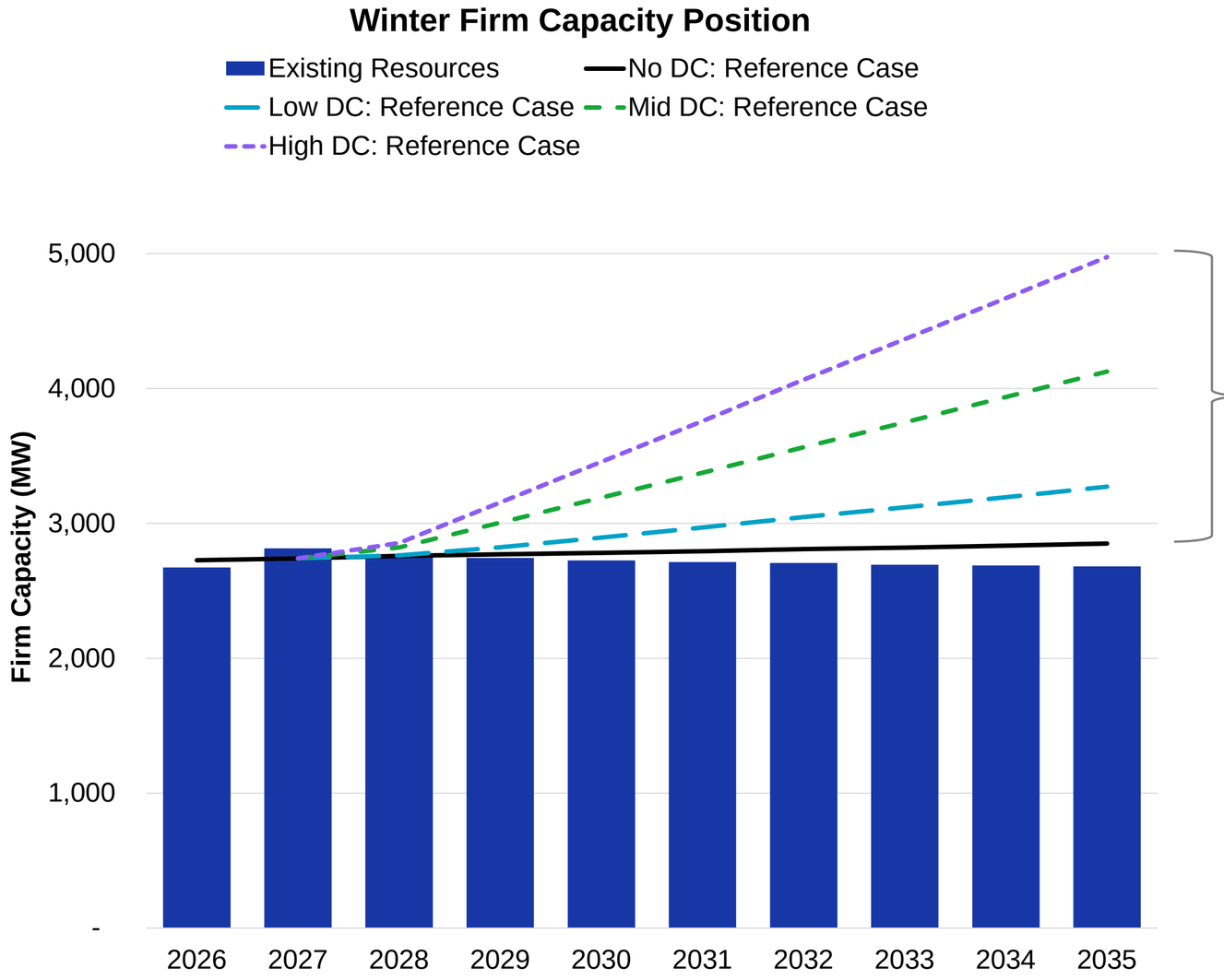
Patrick Maguire

Senior Director of Commercial and Resource Planning, AES Indiana

Power supply transformation: 2015-2025



Winter capacity position



Firm Capacity Position (MW)		
Reference Case	**2030**	**2035**
No DC	(190)	(334)
Low DC	(304)	(755)
Mid DC	(599)	(1,609)
High DC	(865)	(2,458)

→ By 2030, across all 64 portfolios/scenario variations, AES Indiana could be 62 MW[1] to 954 MW[2] short

→ By 2035, this increases to 158[1] MW to 2.6 GW[2] short

[1] No DC: Stable Markets Scenario
[2] High DC: Reference Case.

IRP scenario drivers

	Reference case	Gas infrastructure challenges	High regulatory: environmental	Stable markets scenario
EPA GHG NSPS	Repealed	Repealed	**111B remains in effect**	Repealed
Tax credits (ITC/PTC)	OBBBA	OBBBA	**IRA reinstatement + extension**	OBBBA
AES Indiana load	Base	Base	↑	↓
Natural gas prices	Base	↑	↑	↓
Thermal CAPEX	Base	Base[1]	↑	↓
Renewables CAPEX	Base	Base	Base	↓
EV/distributed solar	↓	Base	↑	Base

[1] High fixed O&M to reflect high firm gas transportation costs

Capacity expansion runs

- The IRP solved for 16 portfolios (capacity expansion)
  - 4 scenarios and 4 data center loads
- Each portfolio was tested against 4 scenarios
- There are 64 model runs
  - (4 data center loads * 4 portfolios * 4 scenarios)

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
No Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Low Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Mid Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
High Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

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Additional capacity expansions

Different portfolios have different loads. Capacity expansions solve for varying capacity shortages. When comparing across portfolios, some will be short. For example, all other portfolios will be short in the “High regulatory: environmental” scenarios since there is a higher electrification load.

	Reference case	Gas infrastructure challenges	High regulatory: environmental	Stable markets scenario
AES Indiana load	Base	Base	↑	↓

While a capacity shortage penalty could be applied, the portfolios could also be reoptimized for additional capacity. This may more closely reflect the types and costs of replacement resources.

25-Year PVRR (2026$MM, 2026-2050)		Scenarios [1]			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
(1) No Data Center Load (2) Low Data Center Load (3) Mid Data Center Load (4) High Data Center Load	Reference Case			[1]	
	Gas Infrastructure Challenges			[2]	
	High Regulatory: Environmental				
	Stable Markets Scenario	[3]	[4]	[5]	

AES conducted 20 additional capacity expansions to reflect need for short portfolios to install additional resources, as opposed to solely taking a capacity penalty. This reduced dependence on capacity prices.

[1] 20 Optimizations = (4) * [5]

Reference case: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	105	124	133	138	138	139	140	140	141	140	139	140
	High DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load			20	20	20	20	40	100	100	100	100	100	100	100	100
	Low DC Load			40	80	160	260	420	420	420	420	420	420	420	420	420
	Mid DC Load			200	360	580	860	860	860	860	860	860	860	860	860	860
	High DC Load			300	620	620	640	640	640	640	640	640	640	640	640	680
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load							700	700	700	700	700	700	700	700	700
	High DC Load					700	700	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Gas CT	No Data Center Load															
	Low DC Load								240	240	480	480	480	480	480	480
	Mid DC Load									240	480	720	720	720	720	720
	High DC Load								240	240	240	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load											54	54	54	108	108
	Low DC Load														54	54
	Mid DC Load													54	54	108
	High DC Load										54	54	54	54	54	54
Solar	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

Challenged/high gas: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load			20	20	20	20	40	100	100	100	100	100	100	100	100
	Low DC Load			20	80	160	160	160	160	160	160	160	160	160	160	160
	Mid DC Load			140	320	320	320	380	380	380	380	380	380	380	380	380
	High DC Load			260	560	560	620	620	620	620	620	620	620	620	620	620
Gas CCGT	No Data Center Load															
	Low DC Load						700	700	700	700	700	700	700	700	700	700
	Mid DC Load					700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	High DC Load					700	700	1,400	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800
Gas CT	No Data Center Load															
	Low DC Load															
	Mid DC Load											240	240	240	240	240
	High DC Load															
Gas Reciprocating Engines	No Data Center Load											54	54	54	108	108
	Low DC Load															
	Mid DC Load										108	108	162	162	162	162
	High DC Load													54	54	108
Solar	No Data Center Load															
	Low DC Load															
	Mid DC Load			50	50	50	50	50	50	50	50	50	50	50	50	50
	High DC Load			25	25	25	25	25	25	25	25	25	25	25	25	25
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

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High regulatory scenario: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		40	100	100	100	120	120	120	120	120	120	120	120	120	180
	Low DC Load		40	100	180	300	420	500	540	620	780	860	860	940	940	1,020
	Mid DC Load		40	180	420	640	840	1,120	1,360	1,660	1,840	2,080	2,080	2,200	2,200	2,340
	High DC Load		20	240	580	940	1,340	1,700	1,700	2,140	2,480	2,820	2,820	2,880	2,880	2,960
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Gas CT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load							240	480	480	480	480	480	480	480	480
Gas Reciprocating Engines	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Solar	No Data Center Load		25	25	25	25	25	25	25	25	25	25	25	50	50	50
	Low DC Load										350	350	375	375	375	375
	Mid DC Load		25	50	50	50	50	50	75	75	1,050	1,425	1,475	1,525	1,525	1,525
	High DC Load		25	50	75	100	100	100	100	225	1,225	2,200	2,275	2,500	2,500	2,500
Wind	No Data Center Load					50	50	350	450	700	900	1,150	1,350	1,650	1,950	2,050
	Low DC Load						50	400	850	1,300	1,350	1,750	2,050	2,150	2,450	2,650
	Mid DC Load					350	750	1,250	1,750	2,250	2,750	3,150	3,650	3,700	4,200	4,250
	High DC Load					400	800	1,300	1,800	2,300	2,800	3,300	3,750	4,250	4,750	5,250

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Stable market scenario: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	38	39	43	48	54	58	60	60	61	62	63	63	63	64
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load															
	Low DC Load			40	40	40	80	80	120	120	120	120	120	120	120	140
	Mid DC Load			80	180	400	660	700	720	720	720	720	720	740	740	780
	High DC Load			120	420	780	960	960	960	960	960	960	960	960	980	1,020
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load							700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load															
	Low DC Load							240	240	240	480	480	480	480	480	480
	Mid DC Load							240	480	720	960	1,200	1,200	1,200	1,200	1,200
	High DC Load						240	240	480	960	1,440	1,680	1,680	1,680	1,680	1,680
Gas Reciprocating Engines	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Solar	No Data Center Load															
	Low DC Load			50	50	50	50	50	50	50	50	50	50	50	50	50
	Mid DC Load			100	100	100	100	100	100	100	100	100	100	100	100	100
	High DC Load			100	100	100	100	100	100	100	100	100	100	100	100	100
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

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Summary: Candidate portfolios through 2035

Optimized Portfolios: Cumulative Capacity Additions through 2035

Installed Capacity (MW)

		DR	EE	Storage	Gas CCGT	Gas Peaking	Solar	Wind
No Data Center Load	Reference	156	191	100	0	0	0	0
	Scenario 2	156	191	100	0	0	0	0
	Scenario 3	156	191	120	0	0	25	900
	Scenario 4	61	191	0	0	0	0	0
Low Data Center Load (500 MW)	Reference	153	191	420	0	480	0	0
	Scenario 2	153	191	160	700	0	0	0
	Scenario 3	156	191	780	0	0	350	1,350
	Scenario 4	153	191	120	0	480	50	0
Mid Data Center Load (1,500 MW)	Reference	140	191	860	700	480	0	0
	Scenario 2	156	191	380	1,400	108	50	0
	Scenario 3	156	191	1,840	0	0	1,050	2,750
	Scenario 4	156	191	720	0	960	100	0
High Data Center Load (2,500 MW)	Reference	153	191	640	2,100	294	0	0
	Scenario 2	156	191	620	2,800	0	25	0
	Scenario 3	156	191	2,480	0	480	1,225	2,800
	Scenario 4	153	191	960	700	1,440	100	0

16 optimized portfolios

4 deterministic scenarios
X
4 data center load ramps

Iterative Capacity Expansion Portfolios: Difference from Original Optimized Portfolio

Installed Capacity (MW)

		DR	EE	Storage	Gas CCGT	Gas Peaking	Solar	Wind
No Data Center Load	Reference through Scenario 3	0	0	60	0	0	100	800
	Scenario 2 through Scenario 3	0	0	60	0	0	50	900
	Scenario 4 through Scenario 1	95	0	100	0	0	0	0
	Scenario 4 through Scenario 2	77	0	60	0	54	50	0
	Scenario 4 through Scenario 3	95	0	180	0	0	125	650
Low Data Center Load (500 MW)	Reference through Scenario 3	3	0	60	0	0	50	550
	Scenario 2 through Scenario 3	0	0	100	0	0	75	150
	Scenario 4 through Scenario 1	0	0	180	0	54	0	0
	Scenario 4 through Scenario 2	3	0	100	0	108	75	0
	Scenario 4 through Scenario 3	3	0	180	0	0	25	1,200
Mid Data Center Load (1,500 MW)	Reference through Scenario 3	13	0	80	0	0	625	350
	Scenario 2 through Scenario 3	0	0	40	0	0	250	500
	Scenario 4 through Scenario 1	0	0	240	0	54	0	0
	Scenario 4 through Scenario 2	0	0	180	0	54	75	0
	Scenario 4 through Scenario 3	0	0	120	0	0	150	1,650
High Data Center Load (2,500 MW)	Reference through Scenario 3	0	0	40	0	0	1,050	600
	Scenario 2 through Scenario 3	0	0	40	0	0	425	400
	Scenario 4 through Scenario 1	0	0	560	0	0	0	0
	Scenario 4 through Scenario 2	0	0	420	0	0	475	0
	Scenario 4 through Scenario 3	0	0	200	0	0	950	800

20 iterative capacity expansion portfolios for scenario matrix

3 portfolios through High Load (Scenario 3)
X
2 portfolios through Base Load (Scenario 4 through 1, 2)
X
4 data center load ramps

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IRP Results

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IRP scorecard results

AFFORDABILITY	10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	Includes all system costs (depreciation/decommissioning on existing assets, amortization on existing assets, return on existing assets, and transmission/distribution expenses) and incremental revenue requirements, divided annually by total retail sales; then levelized
	25-Year Supply Cost (2026$/MWh, 2026-2050)	
	10-Year PVRR (2026$MM, 2026-2035)	Incremental annual present value revenue requirements then levelized; ignores sunk costs
	25-Year PVRR (2026$MM, 2026-2050)	
RELIABILITY, RESILIENCY, AND STABILITY	25-year Market Interaction: Purchases + Sales	Sum of two metrics below
	25-year energy purchases	Average of annual energy purchases divided by retail sales across study period (2026-2050)
	25-year energy sales	Average of annual energy sales divided by retail sales across study period (2026-2050)
	Dispatchable Capacity Divided by Peak Load (2035)	In 2035, total dispatchable (natural gas and storage) capacity divided by peak load
	Dispatchable FIRM Capacity Divided by Peak Load (2035)	In 2035, total firm dispatchable (natural gas and storage) capacity divided by peak load
RISK & OPPORTUNITY	(Mean – P5)	Across 100 stochastic runs, the mean minus the 5th percentile value of the 25-Year PVRR (2026$MM, 2026-2050)
	(P95 – Mean)	Across 100 stochastic runs, the 95th percentile value minus the mean of the 25-Year PVRR (2026$MM, 2026-2050)
	Opportunity: % of PVRR	The (Mean – P5) metric divided by the 25-Year PVRR (2026$MM, 2026-2050)
	Risk: % of PVRR	The (P95-Mean) metric divided by the 25-Year PVRR (2026$MM, 2026-2050)
	Environmental Scenario Risk	The 25-Year PVRR (2026$MM, 2026-2050) of the “High Environmental: Regulatory” Scenario minus the evaluated Scenario
	Mean PVRR % Difference from Optimal	The average percent difference between the evaluated Scenario and the optimized portfolio
ENVIRONMENTAL	Total CO2 Emissions (Million Tons)	Generation emissions across study period (2026-2050)
	Total CO2 Emissions (lb/MWh, Study Average)	Sum of total CO2 emissions across study period (2026-2050) divided by total retail sales across study period (2026-2050)

IRP scorecard results

		AFFORDABILITY				RELIABILITY, RESILIENCY, AND STABILITY					RISK & OPPORTUNITY				ENVIRONMENTAL	
Data Center Case	Portfolio	10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	25-Year Supply Cost (2026$/MWh, 2026-2050)	10-Year PVRR (2026$MM, 2026-2035)	25-Year PVRR (2026$MM, 2026-2050)	25-year Market Interaction: Purchases+ Sales	25-yr energy purchases	25-yr energy sales	Dispatchable Capacity Divided by Peak Load (2035)	Dispatchable FIRM Capacity Divided by Peak Load (2035)	Opportunity (Mean - P5): % of PVRR	Risk (P95-Mean): % of PVRR	Environmental Scenario Risk	Mean PVRR % Difference from Optimal	Total CO2 Emissions (Million Tons)	Total CO2 Emissions (lb/MWh, Study Average)
No Data Center Load	Reference Case	$149	$161	$5,126	$10,092	26%	16%	10%	110.7%	90.5%	17%	18%	$234	3%	147	772
	Gas Infrastructure Challenges	$149	$162	$5,154	$10,161	21%	13%	8%	110.7%	90.5%	17%	18%	$237	4%	146	766
	High Regulatory: Environmental	$156	$188	$5,906	$15,455	25%	11%	14%	111.4%	91.0%	7%	9%	$0	52%	99	523
	Stable Markets Scenario	$149	$161	$5,126	$10,070	27%	18%	9%	110.7%	90.5%	17%	19%	$57	0%	153	805
Low Data Center	Reference Case	$144	$151	$5,985	$12,654	23%	15%	8%	121%	99%	14%	18%	$239	3%	183	806
	Gas Infrastructure Challenges	$148	$153	$6,400	$13,047	21%	11%	10%	118%	98%	12%	15%	$970	7%	177	777
	High Regulatory: Environmental	$153	$180	$7,099	$19,827	26%	12%	14%	117%	96%	6%	8%	$0	53%	111	486
	Stable Markets Scenario	$145	$151	$6,020	$12,699	23%	15%	8%	119%	97%	15%	18%	$196	1%	194	854
Mid Data Center	Reference Case	$138	$139	$7,971	$18,187	17%	12%	5%	122%	102%	11%	16%	$658	3%	247	812
	Gas Infrastructure Challenges	$139	$140	$8,220	$18,499	17%	10%	7%	117%	99%	11%	15%	$1,217	6%	232	763
	High Regulatory: Environmental	$151	$174	$10,236	$30,040	21%	10%	11%	118%	98%	4%	6%	$0	60%	117	384
	Stable Markets Scenario	$138	$139	$7,967	$18,266	17%	12%	4%	121%	100%	12%	18%	$209	2%	278	914
High Data Center	Reference Case	$134	$132	$9,975	$23,754	15%	10%	5%	118%	102%	11%	15%	$1,434	3%	295	779
	Gas Infrastructure Challenges	$135	$133	$10,132	$24,032	14%	8%	7%	125%	109%	10%	14%	$1,851	5%	292	770
	High Regulatory: Environmental	$145	$164	$12,246	$37,871	18%	10%	8%	120%	99%	4%	7%	$0	52%	149	394
	Stable Markets Scenario	$134	$133	$9,959	$23,990	14%	10%	4%	133%	112%	11%	16%	$590	2%	333	879

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Affordability: PVRR results

All results in 2026$MM; showing only incremental or modeled IRP PVRR in these tables

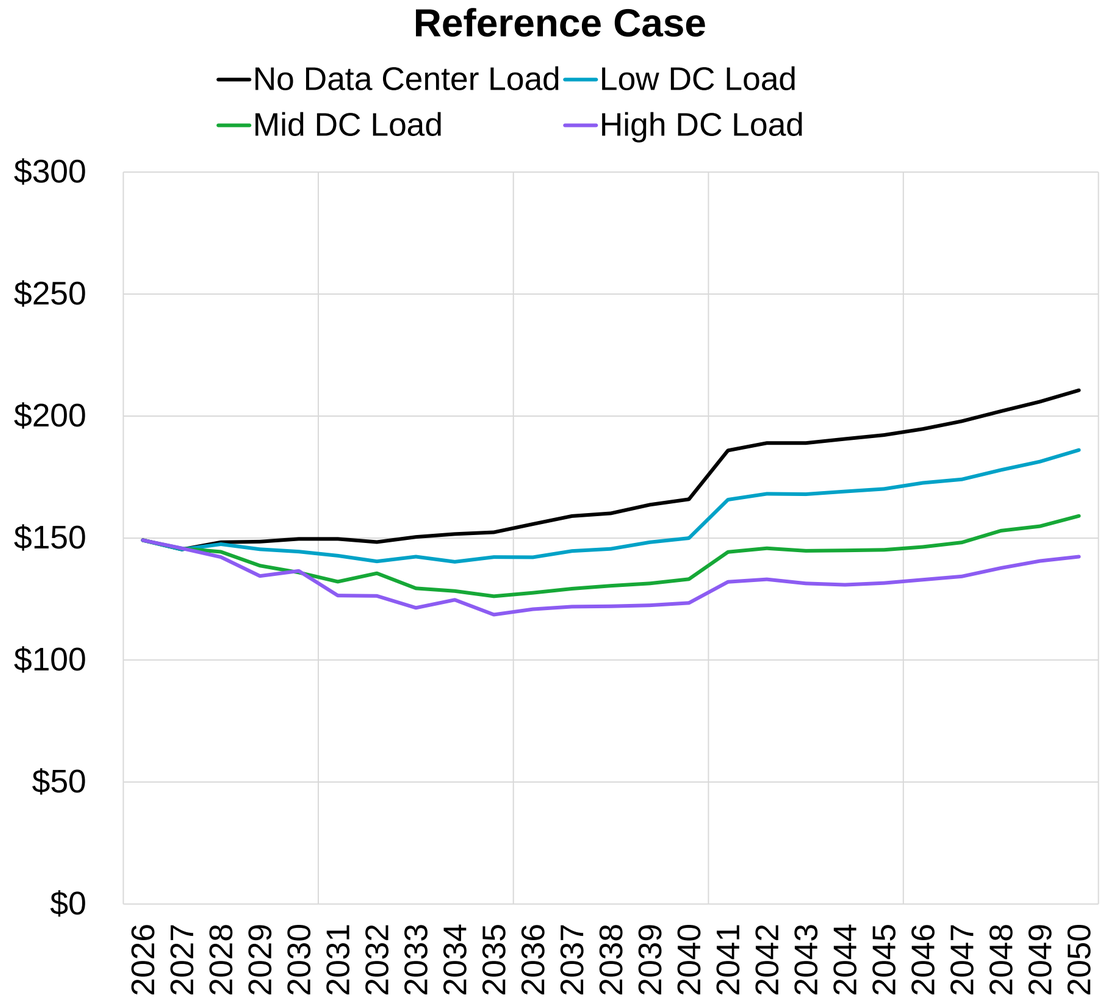
No Data Center Load	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	10,092	13,067	14,941	8,043
Gas Infrastructure Challenges	10,161	13,091	14,944	8,102
High Regulatory: Environmental	15,455	17,378	14,707	12,595
Stable Markets Scenario	10,070	13,144	14,763	7,429

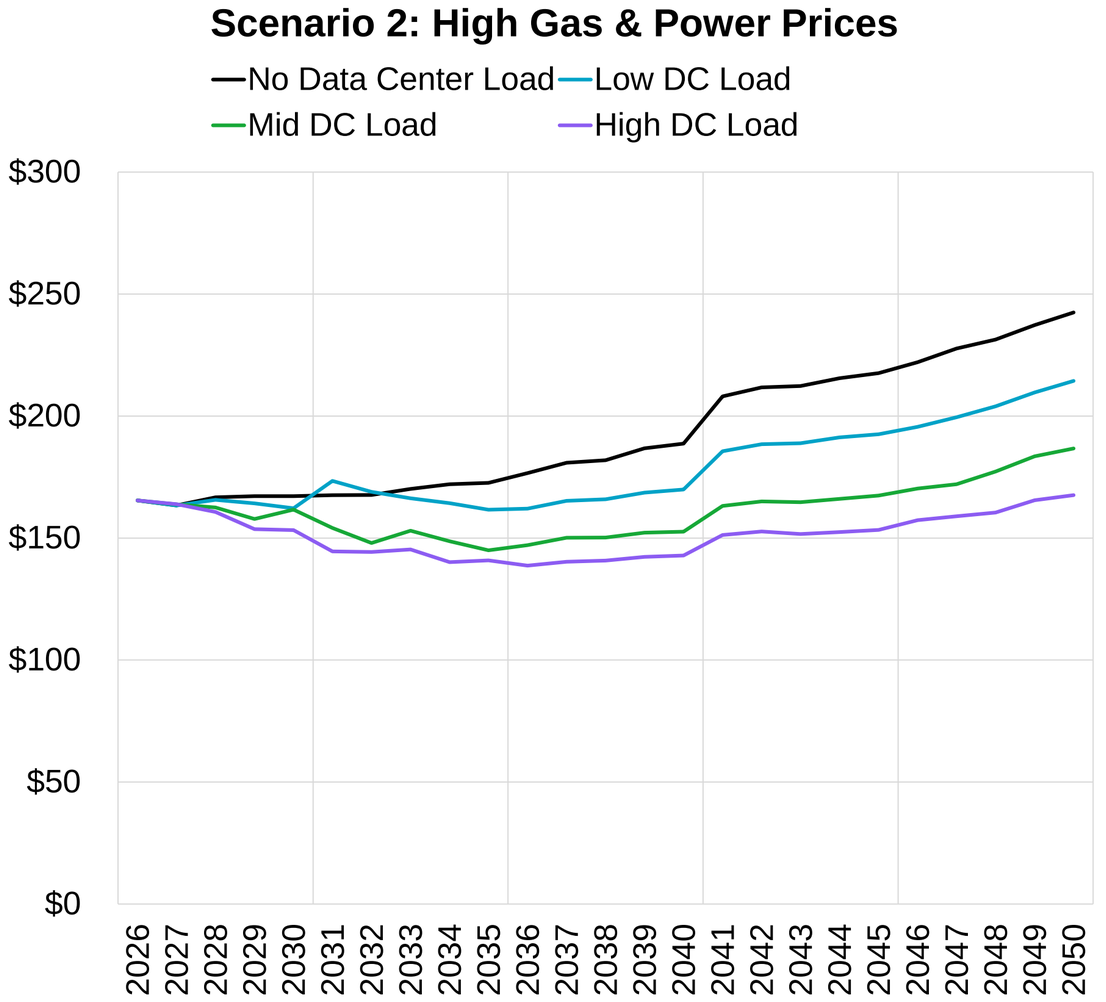
Mid Data Center Load	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	18,187	23,307	26,744	14,152
Gas Infrastructure Challenges	18,499	23,190	27,303	14,619
High Regulatory: Environmental	30,040	32,546	26,086	22,878
Stable Markets Scenario	18,266	23,996	26,295	13,215

Low Data Center Load	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	12,654	16,431	18,616	9,895
Gas Infrastructure Challenges	13,047	16,509	19,348	10,349
High Regulatory: Environmental	19,827	22,064	18,377	15,588
Stable Markets Scenario	12,699	16,622	18,573	9,273

High Data Center Load	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	23,754	29,824	35,286	18,596
Gas Infrastructure Challenges	24,032	29,846	35,703	18,969
High Regulatory: Environmental	37,871	41,290	33,852	27,764
Stable Markets Scenario	23,990	30,824	34,442	17,532

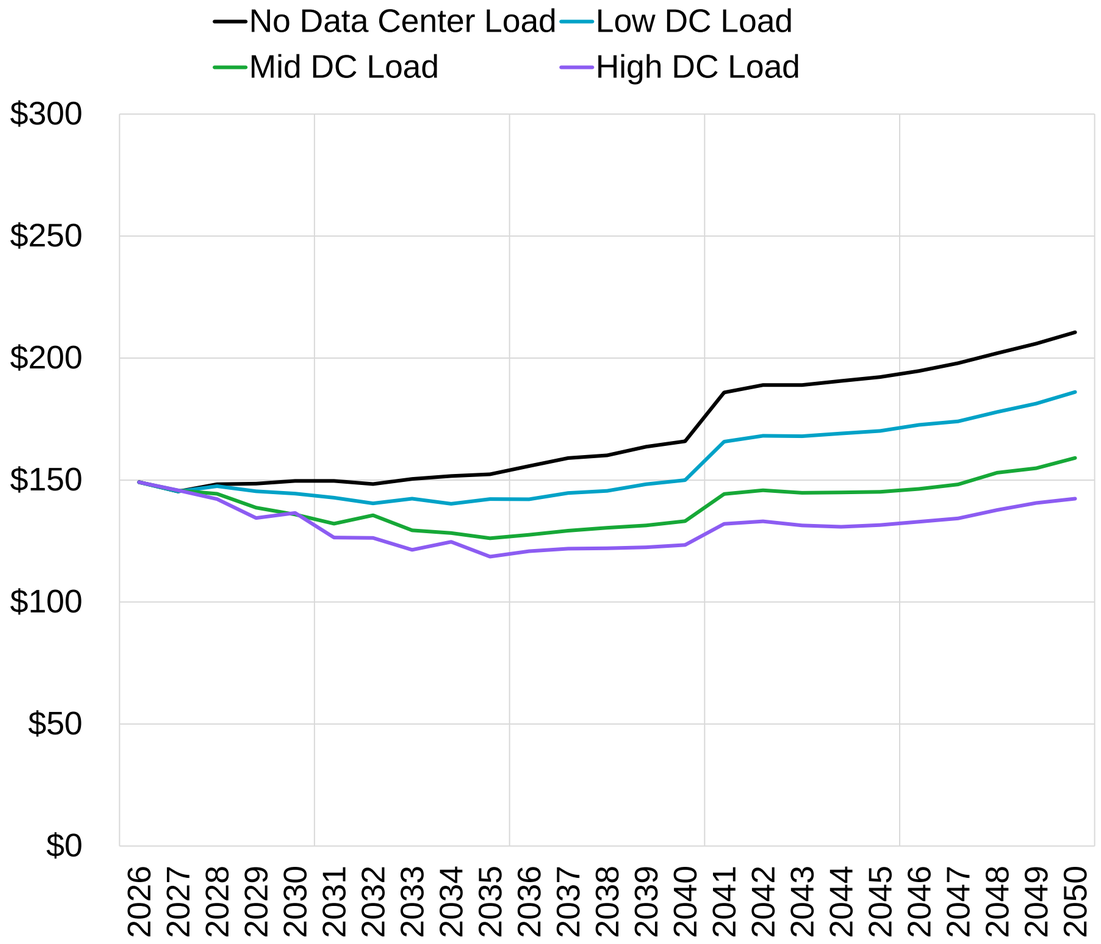
Affordability: System rates ($/MWh)



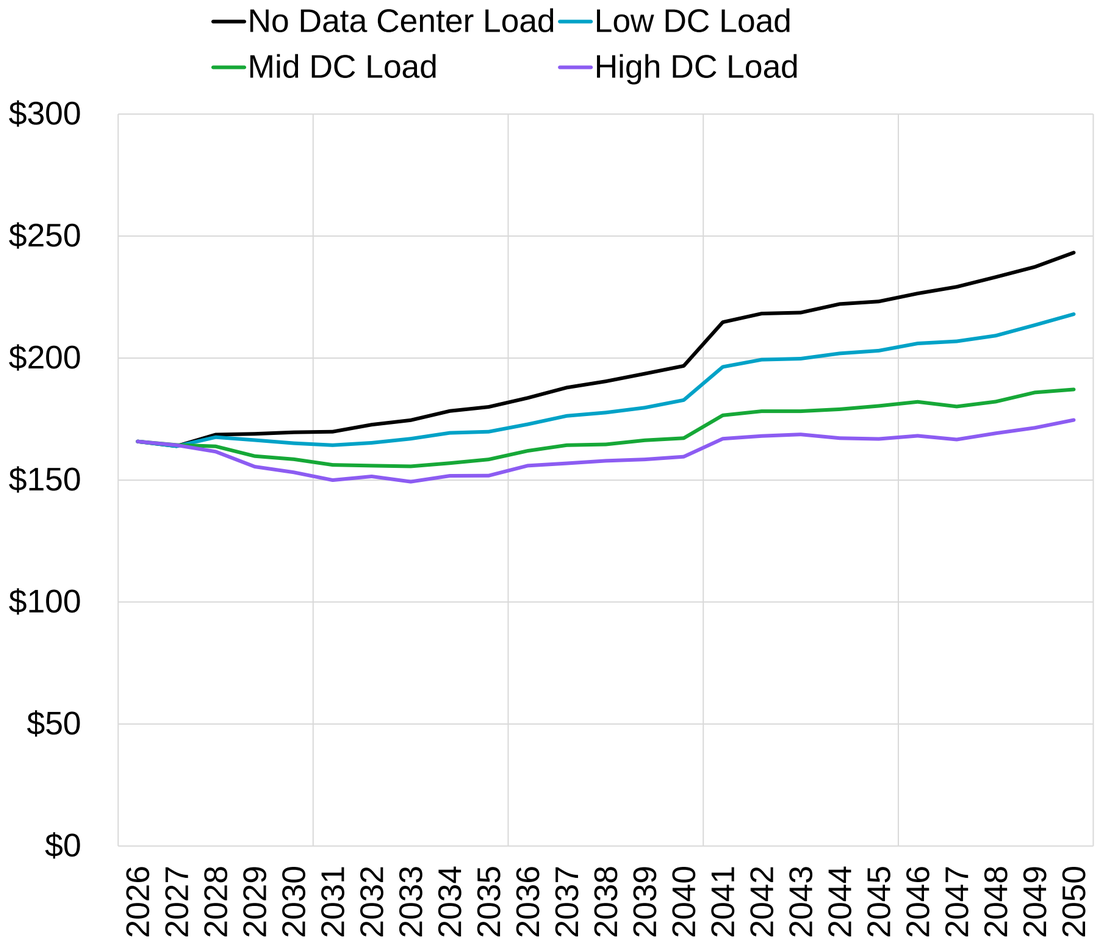


Affordability: System rates ($/MWh)

Reference Case



Scenario 3: Environmental Regulation



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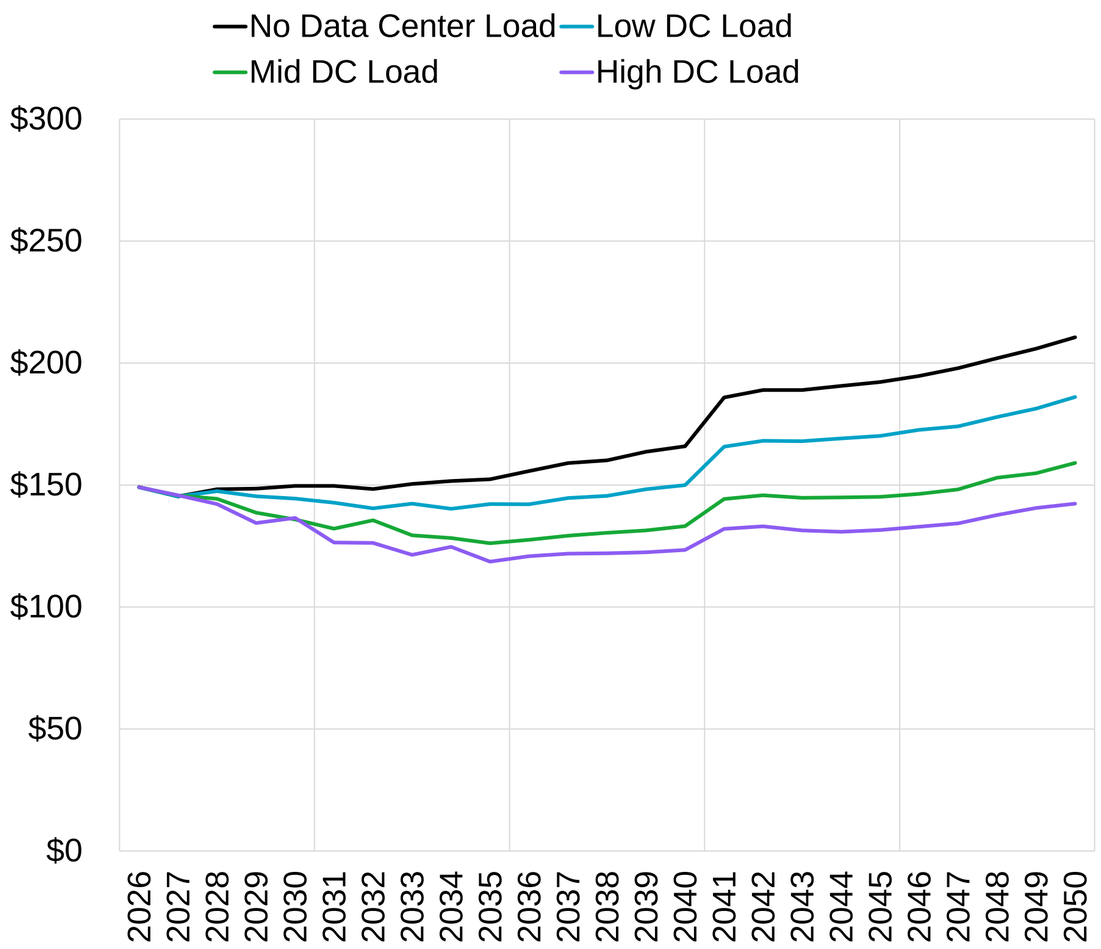
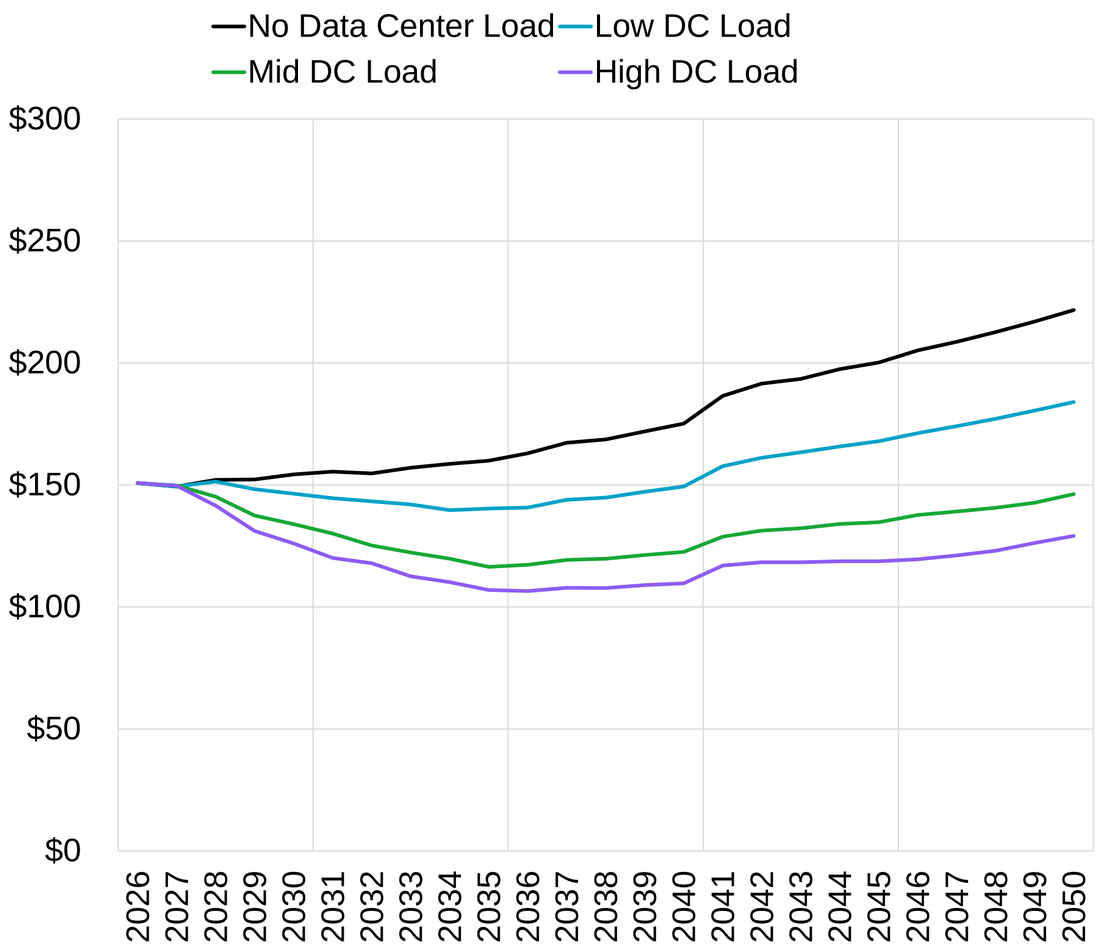
Affordability: System rates ($/MWh)

Reference Case



Scenario 4: Stable Markets



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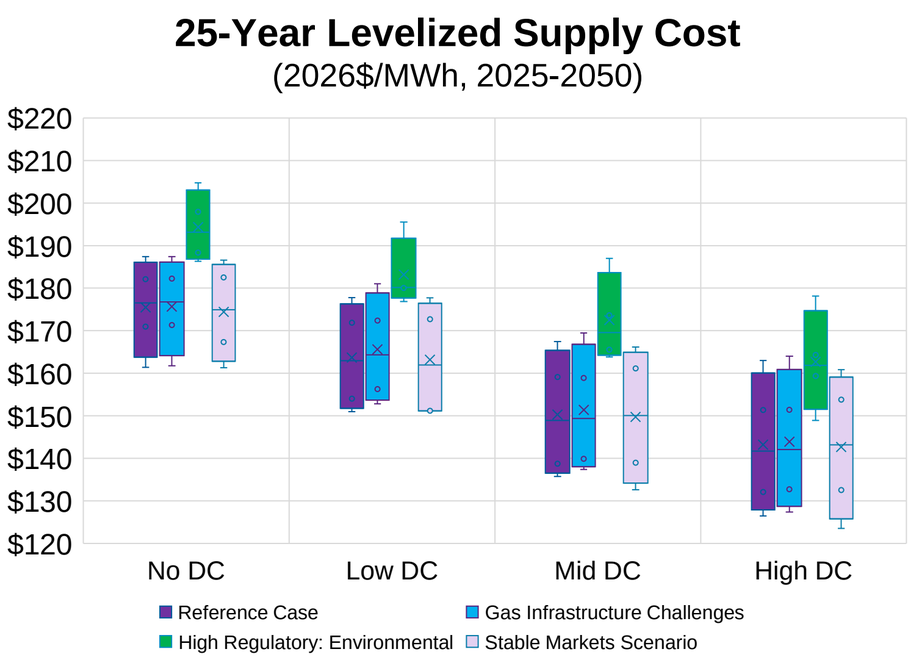
Affordability: System rates ($/MWh)



	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
No Data Center Load	Reference Case	$161	$182	$187	$171
	Gas Infrastructure Challenges	$162	$182	$187	$171
	High Regulatory: Environmental	$188	$205	$186	$198
	Stable Markets Scenario	$161	$183	$187	$167

	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Low Data Center Load	Reference Case	$151	$172	$178	$154
	Gas Infrastructure Challenges	$153	$172	$181	$156
	High Regulatory: Environmental	$180	$196	$177	$180
	Stable Markets Scenario	$151	$173	$178	$151

	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Mid Data Center Load	Reference Case	$139	$159	$167	$136
	Gas Infrastructure Challenges	$140	$159	$169	$137
	High Regulatory: Environmental	$174	$187	$166	$164
	Stable Markets Scenario	$139	$161	$166	$133

	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
High Data Center Load	Reference Case	$132	$151	$163	$126
	Gas Infrastructure Challenges	$133	$151	$164	$127
	High Regulatory: Environmental	$164	$178	$159	$149
	Stable Markets Scenario	$133	$154	$161	$124

→ The High Regulatory: Environmental Portfolio has the smallest spread in costs across scenarios but the highest average cost

→ Other portfolios have similar risk profiles

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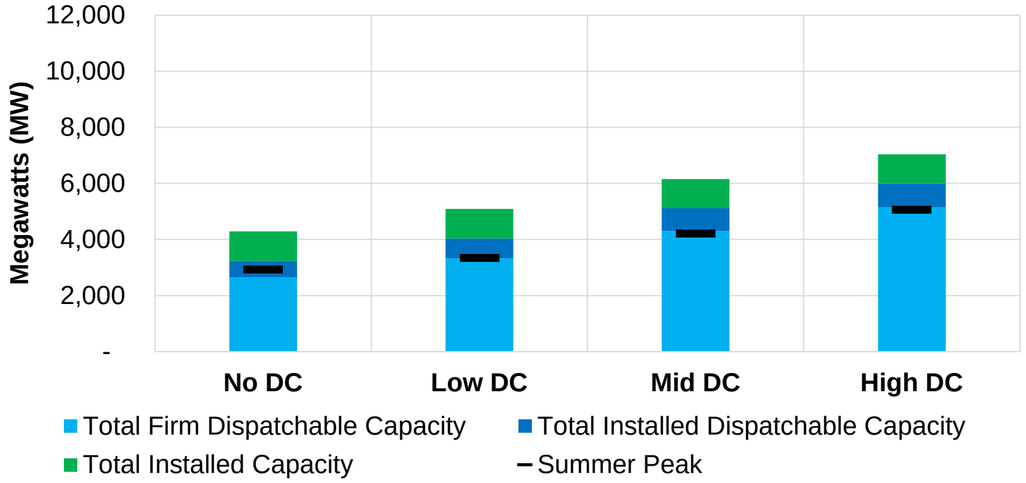
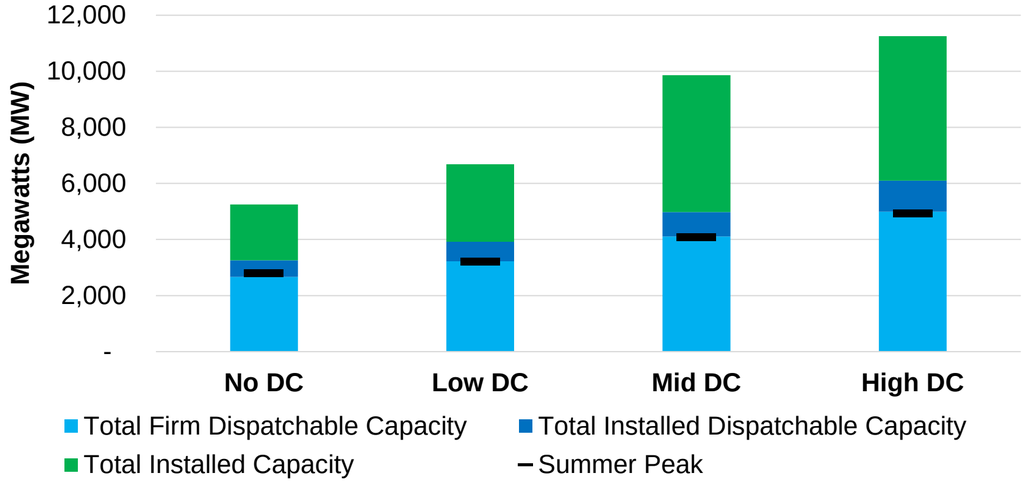
Reliability, resiliency, stability: dispatchable capacity

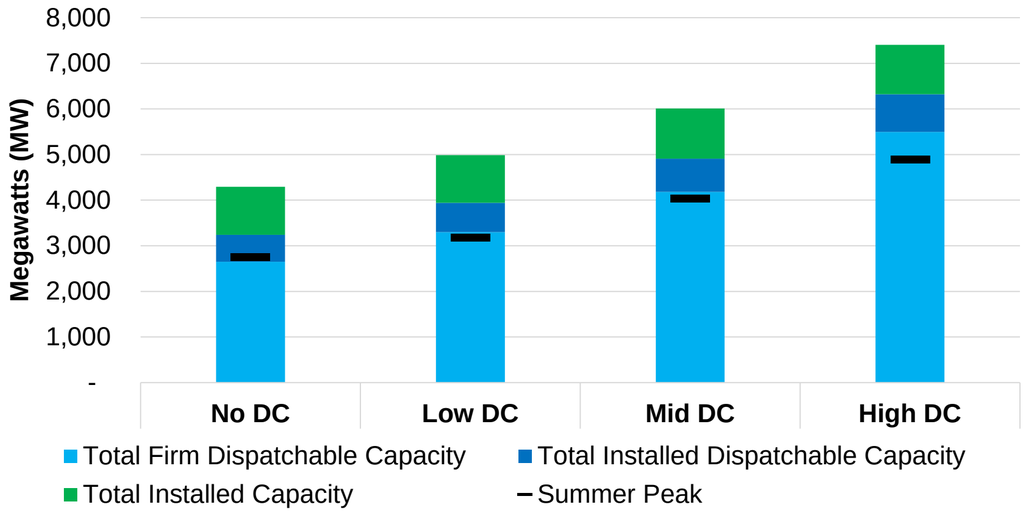
Reference Case (2035)



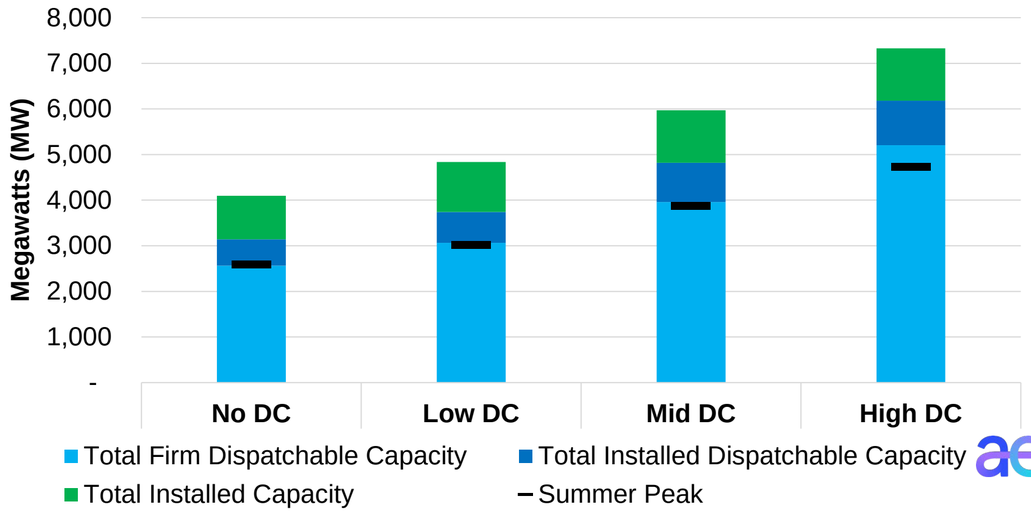
High Regulatory: Environmental (2035)



Gas Infrastructure Challenges (2035)



Stable Markets Scenario (2035)



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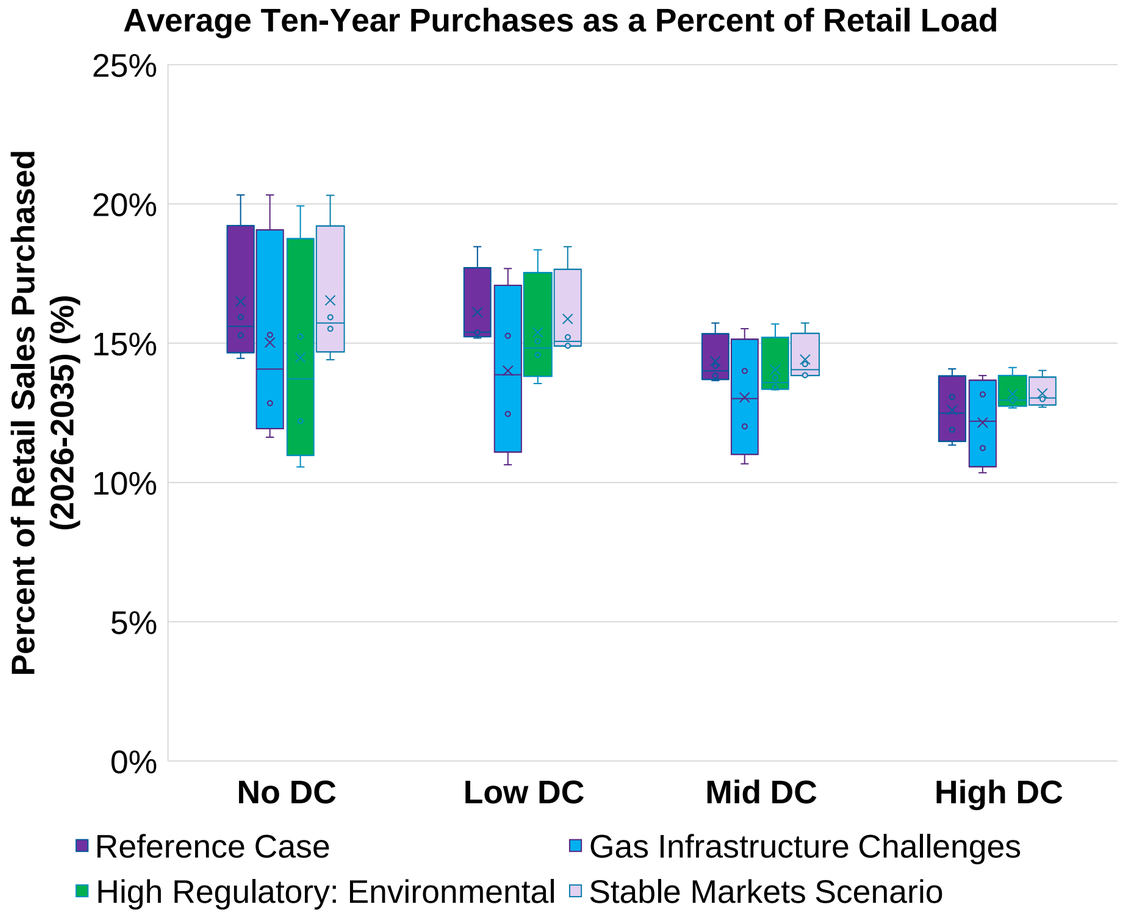
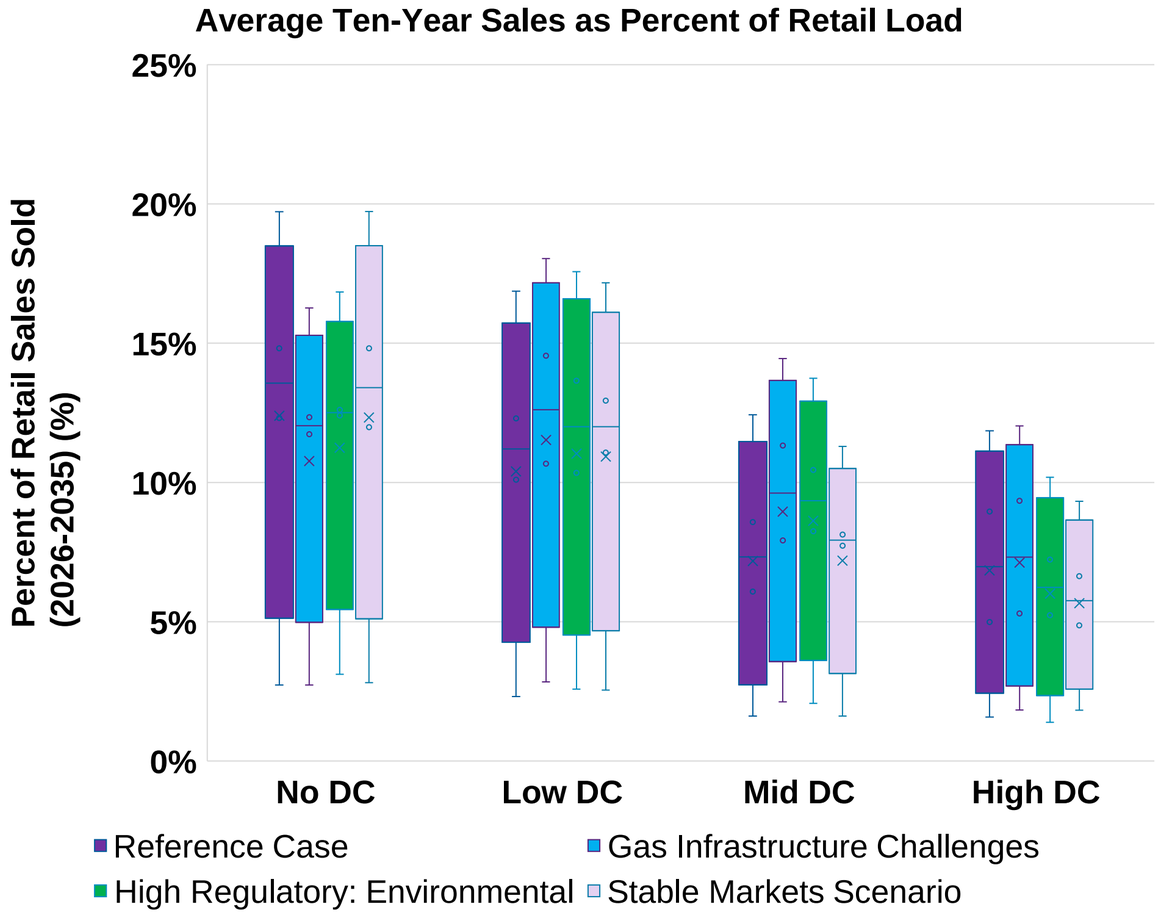
Reliability, resiliency, stability: market reliance





→ The Gas Infrastructure Challenges Portfolio has the greatest spread in purchases as a percent of retail load

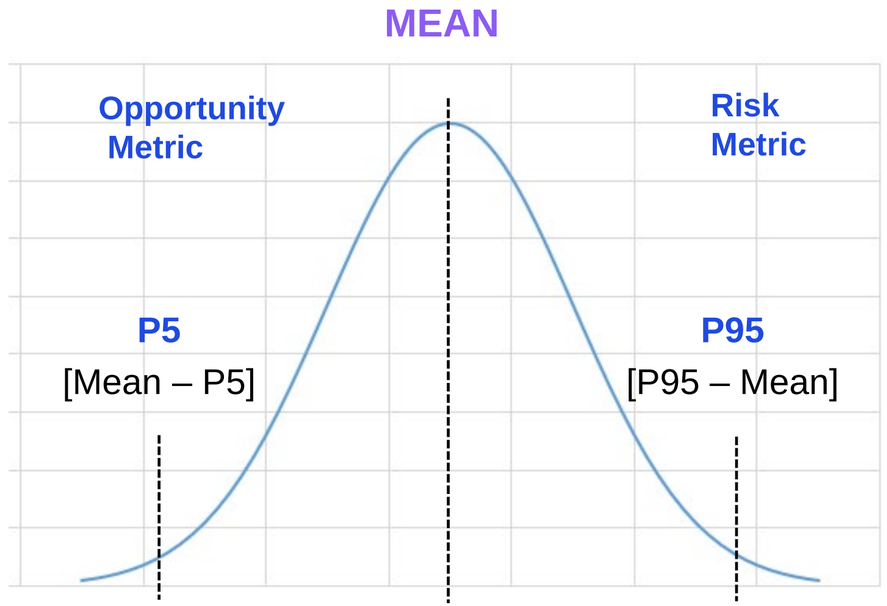
→ Purchases generally range between 10-20% of load. Purchases were constrained to 20% in the modeling

→ Sales generally range between 10-20% of load

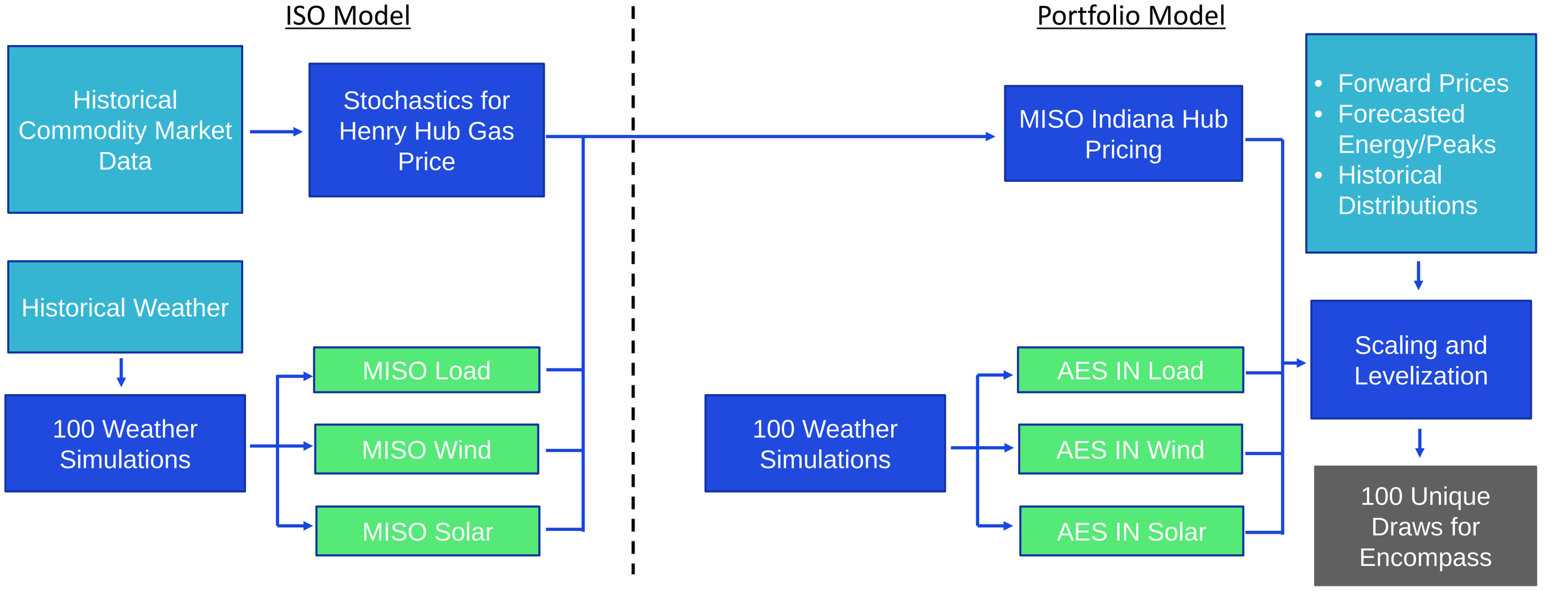
→ Sales were constrained to 20% in the modeling

Risk and opportunity metrics

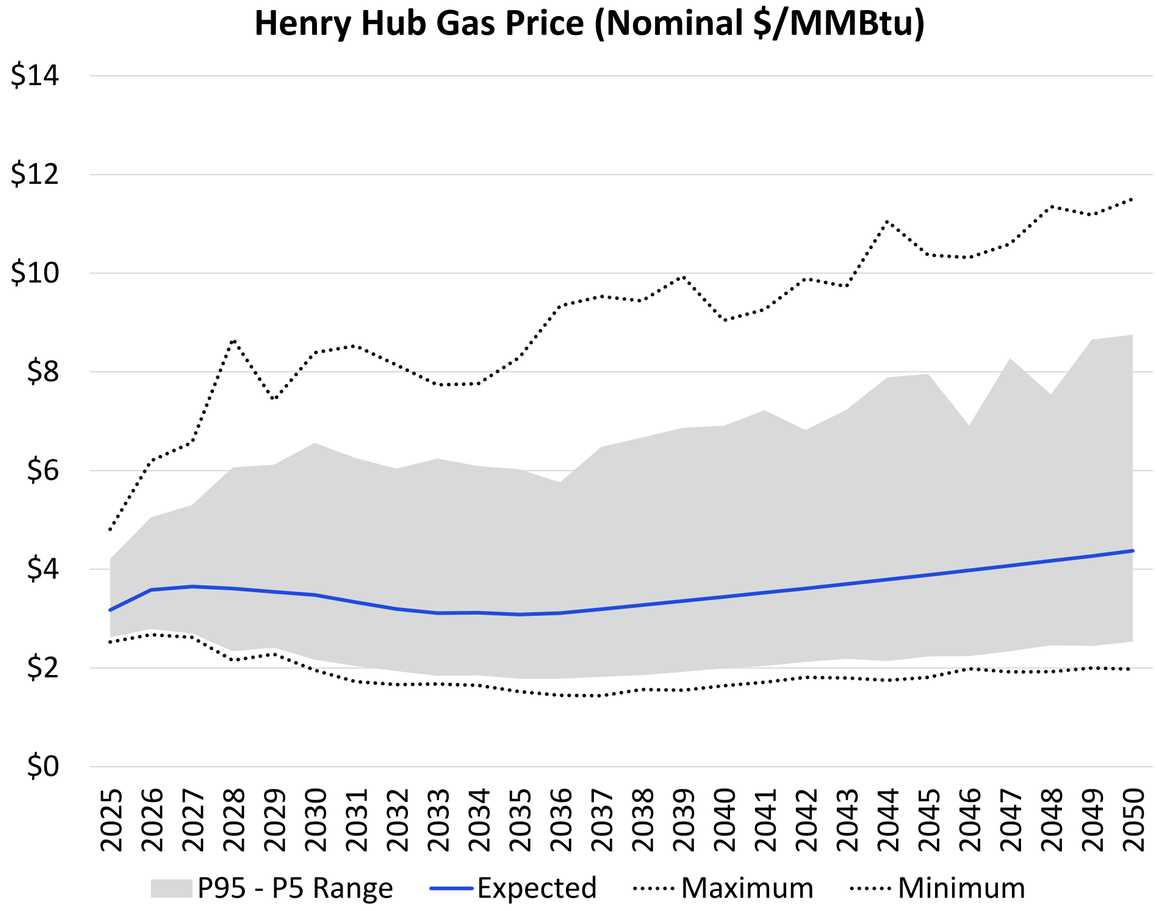
- → Stochastic analysis was performed on the 16 optimized portfolios through the Reference Case to understand the risks and opportunities from:
  - → Energy price volatility
  - → Gas price volatility
  - → Load volatility
  - → Renewable generation volatility
- → Each variable was varied across a full stochastic distribution using 100 iterations of potential outcomes.
- → Metrics to measure cost risks and cost opportunities include:
  - → General Cost Risk Metric = [P95 – Mean]
  - → General Cost Opportunity Metric = [Mean – P5]

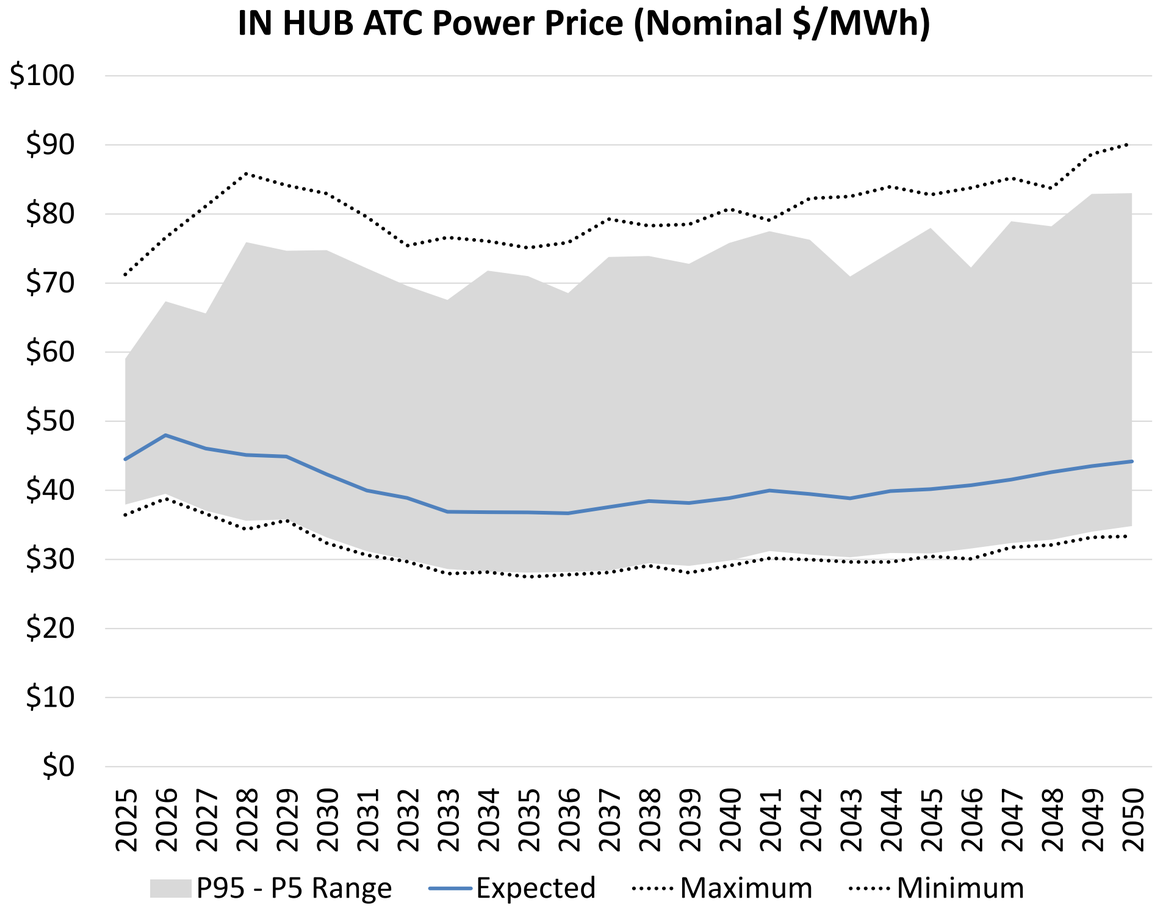


Weather driven stochastics overview



Stochastic gas and power prices





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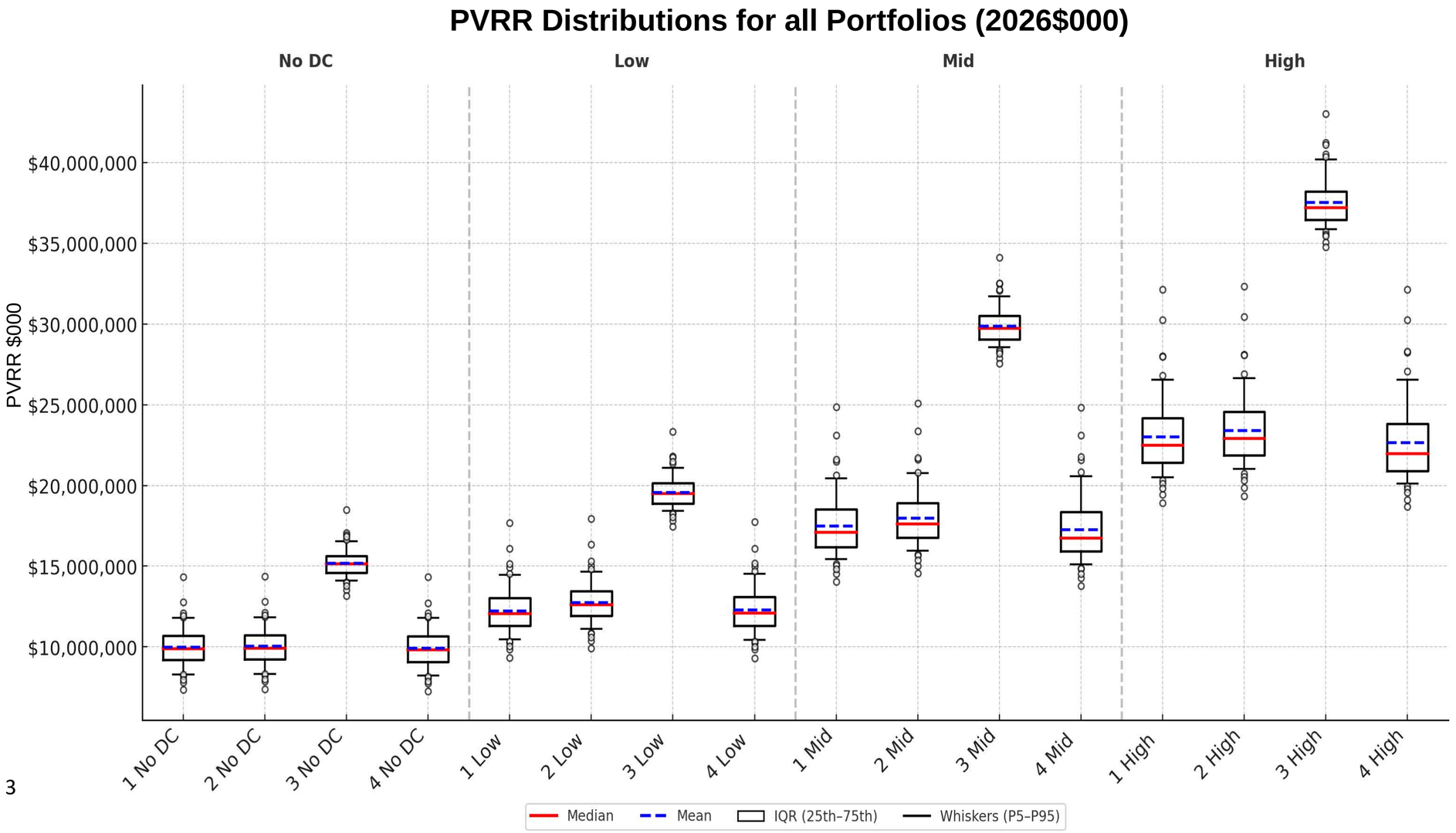
Stochastic results – All portfolios

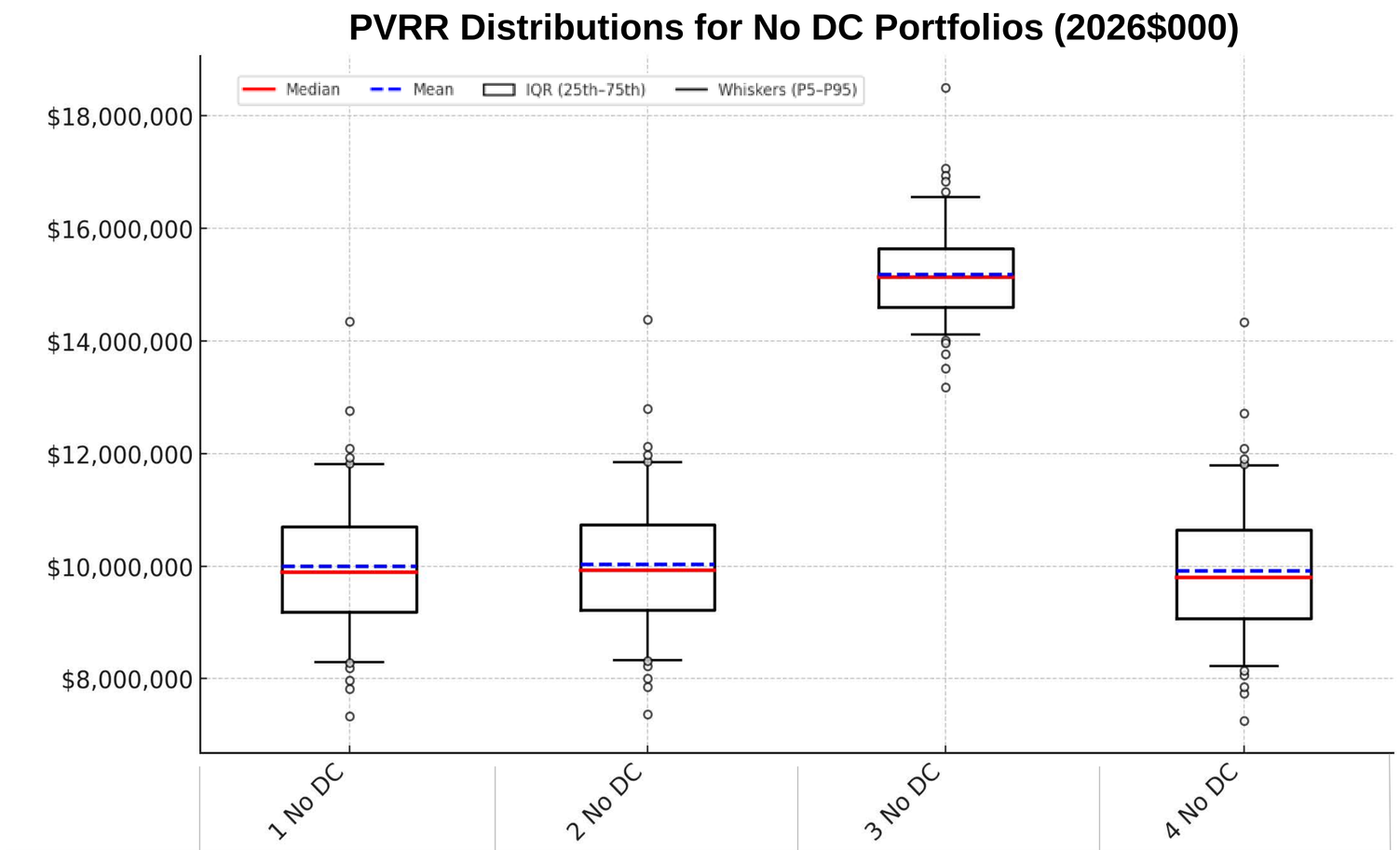


At each load level, Scenario 3: High Env Reg contains the narrowest PVRR distribution due to higher renewables volumes and, therefore, less fuel exposure.

As natural gas gen is added to serve higher amounts of data center load, the PVRR distribution widens due to more fuel risk exposure.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

Stochastic results – No data center



	1 No DC	2 No DC	3 No DC	4 No DC
P95 - Mean	$ 1,821,399	$ 1,818,145	$ 1,384,780	$ 1,877,576
Mean - P5	$ 1,696,232	$ 1,694,724	$ 1,070,702	$ 1,692,280

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes. This is driven by higher renewable vs natural gas resource volumes compared to the other portfolios and, in turn, less fuel price risk.

Scenarios 1, 2, & 4 are not materially different in terms of risk and opportunity.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

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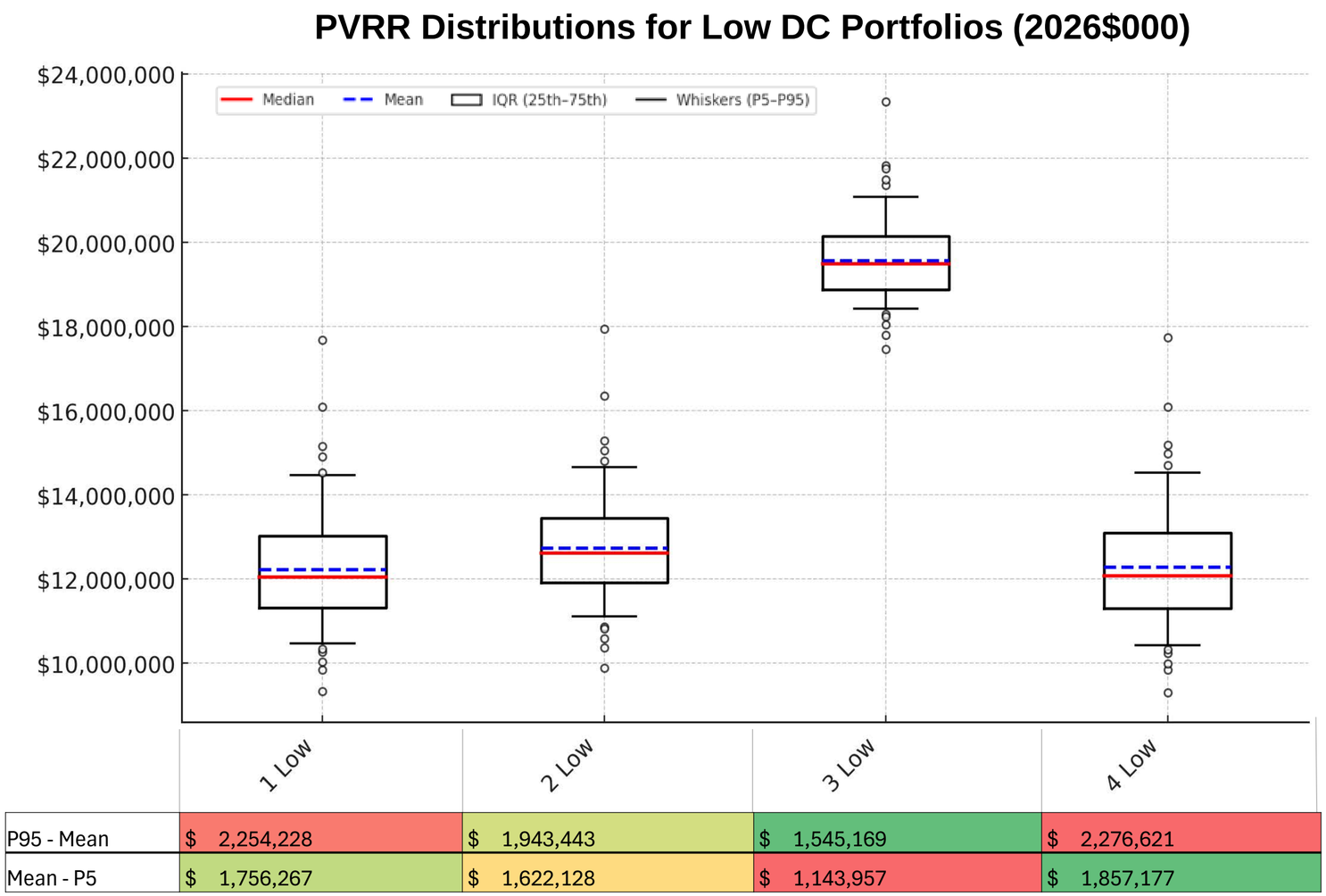
Stochastic results – Low data center



	1 Low	2 Low	3 Low	4 Low
P95 - Mean	$ 2,254,228	$ 1,943,443	$ 1,545,169	$ 2,276,621
Mean - P5	$ 1,756,267	$ 1,622,128	$ 1,143,957	$ 1,857,177

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

Portfolios that include more CCGT rather than CT exhibit lower P95-Mean due to the CCGT's lower heat rate which provides low spark hedge.

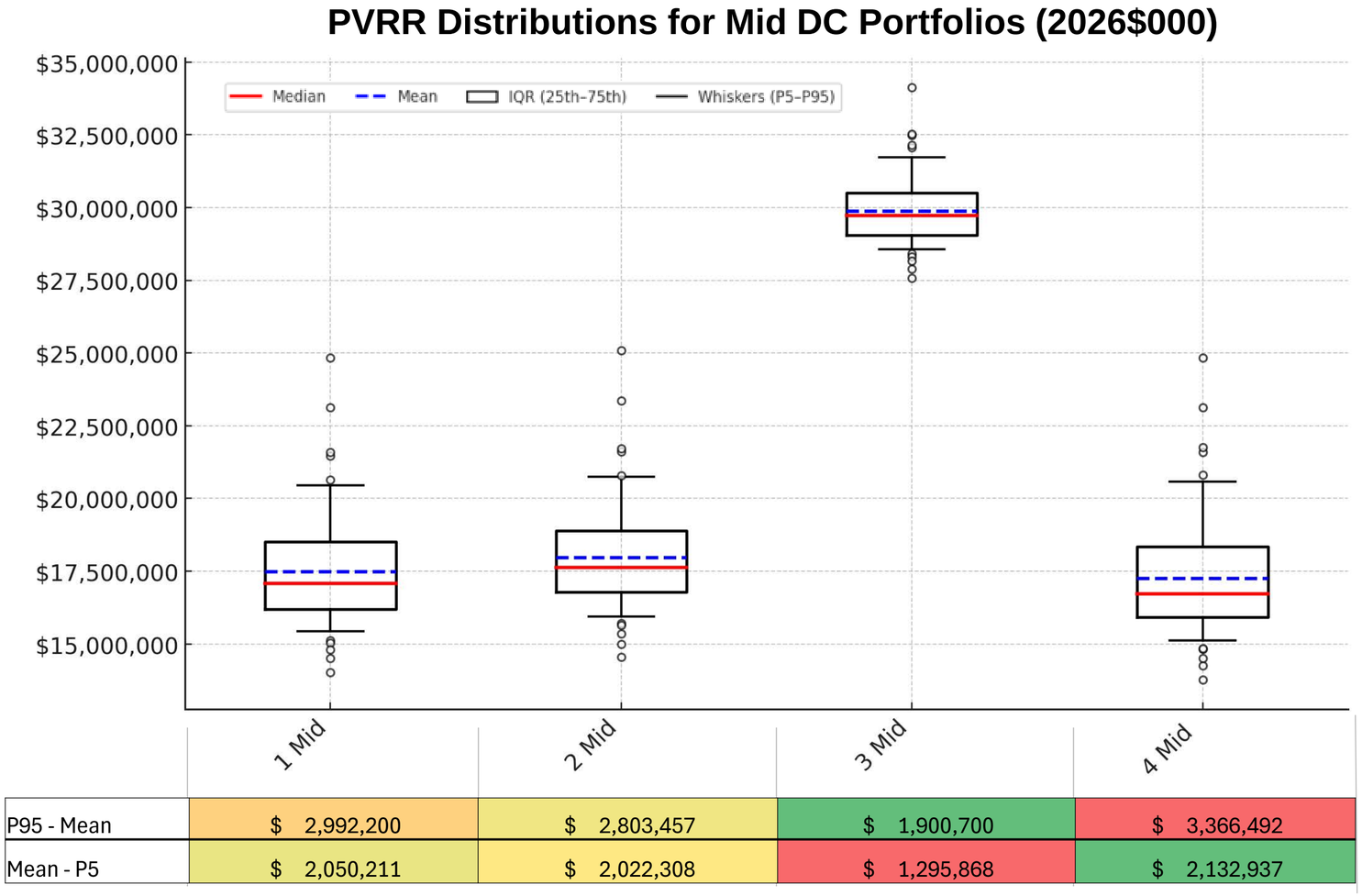
Ex: Scenario 1 & 4 both add CT to serve DC load in 2035; whereas Scenario 2 adds CCGT.

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes. This is driven by higher renewable vs natural gas resource volumes compared to the other portfolios and, in turn, less fuel price risk.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

AES Proprietary & Confidential/Not for Distribution

Stochastic results – Mid data center



	1 Mid	2 Mid	3 Mid	4 Mid
P95 - Mean	$ 2,992,200	$ 2,803,457	$ 1,900,700	$ 3,366,492
Mean - P5	$ 2,050,211	$ 2,022,308	$ 1,295,868	$ 2,132,937

Scenario 4 adds mostly CT and no CCGT to serve the data center load resulting in the highest P95-Mean and greatest risk for higher cost outcomes. In comparison, Scenarios 1 & 2 contain more low-heat rate CCGT resources which provide a hedge against outcomes with low spark spreads.

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes. This is driven by higher renewable vs natural gas resource volumes compared to the other portfolios and, in turn, less fuel price risk.

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

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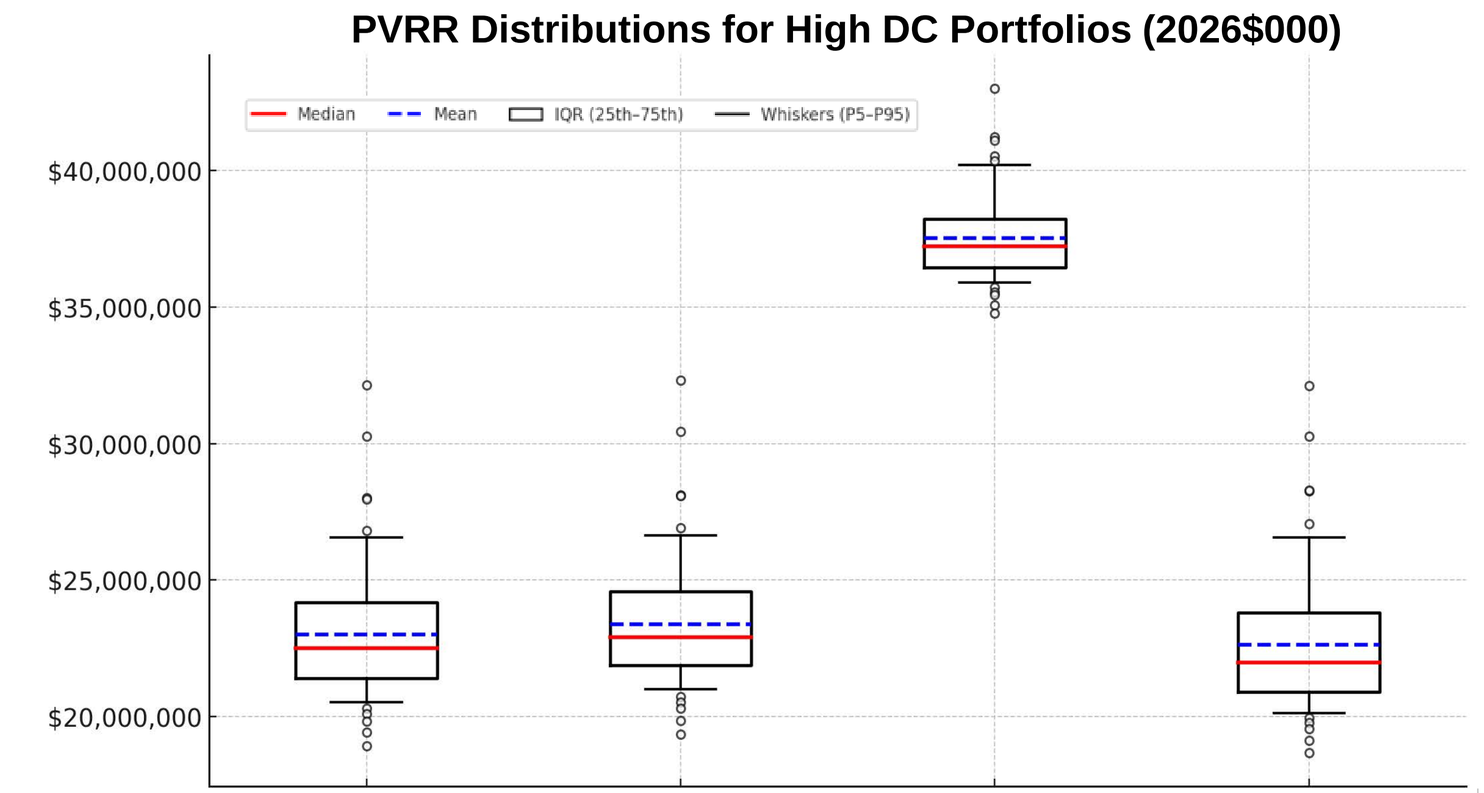
Stochastic results – High data center



	1 High	2 High	3 High	4 High
P95 - Mean	$ 3,571,289	$ 3,274,101	$ 2,692,545	$ 3,972,000
Mean - P5	$ 2,502,800	$ 2,392,576	$ 1,634,476	$ 2,532,459

The high data center case shows similar trends to the mid data center case.

Scenario 4 adds mostly CT and no CCGT to serve the data center load resulting in the highest P95-Mean and greatest risk for higher cost outcomes.

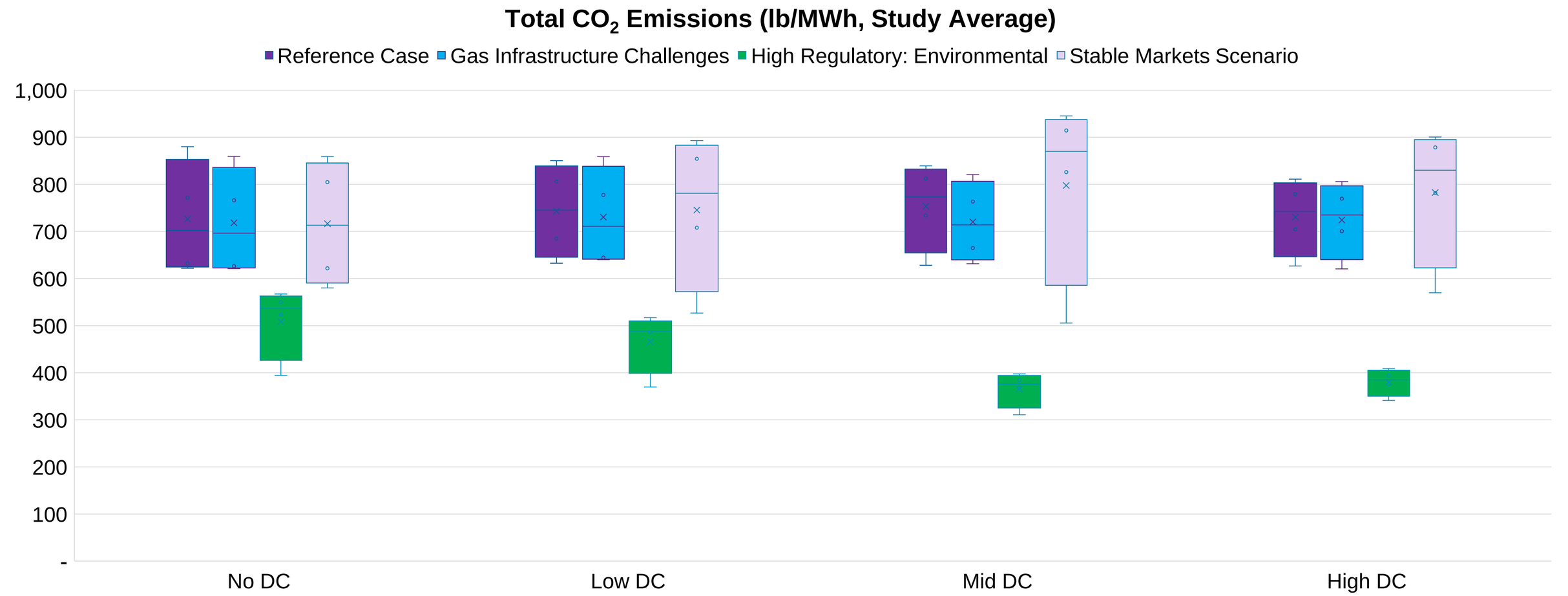
Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes.

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

AES Proprietary & Confidential and Subject to Protective Order

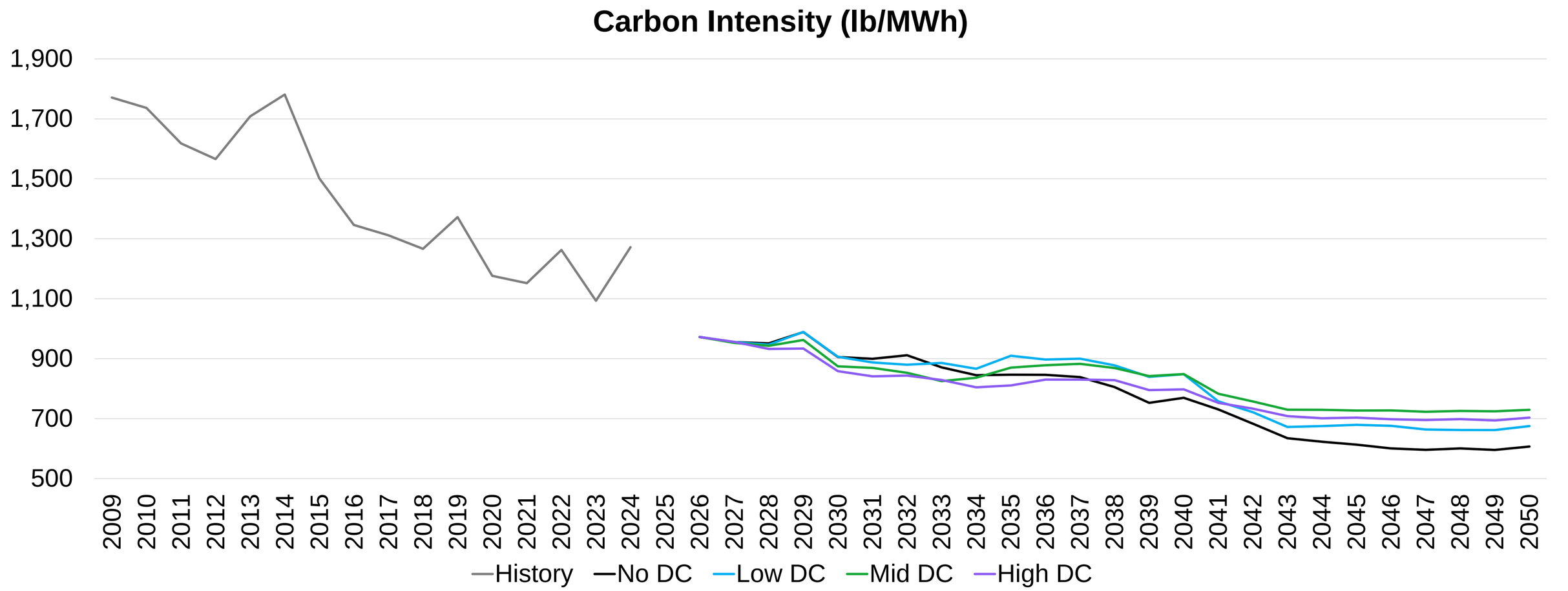
Sustainability: Carbon emissions



→ Except for the High Regulatory: Environmental portfolios, the carbon intensity of portfolios is similar

→ The Stable Markets portfolio has a larger distribution in natural gas generation

Sustainability: Carbon emissions



→ Emissions decline through the study period

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Additional scenarios and sensitivities

2025 IRP: Additional modeling

AES Indiana conducted seven (7) additional sensitivities/scenarios as part of the 2025 IRP.
Two were initiated by AES Indiana, and five were requested by stakeholders:

	Name	Description
AES Indiana initiated	1. Data center transmission investment	AES Indiana assumed a “Base” level of transmission investment required for the data center loads that is added outside of the model. High and low estimates were also developed to determine the potential impact of the transmission investment associated with interconnecting new load.
	2. SMR breakeven analysis	SMRs were not selected in any scenario. AES Indiana forced on new SMR to evaluate the breakeven capital cost required to match the PVRR of the optimized portfolios.
Stakeholder requested	3. Model ERAP instead of RAP for C&I	CAC and EFG requested additional analysis for Enhanced RAP for C&I EE bundles.
	4. Reinstate tax credits for wind and solar in the Reference Case	Clean Grid Alliance requested additional runs with IRA tax credits reinstated in the Reference Case to see if solar and wind get selected.
	5. Model lower load factor for data center load	Load factors for the data center load were reduced from 90% (base) to 70% in 5% increments to evaluate the $/MWh impacts of lower energy but the same capacity requirement of data center load.
	6. Model case where data center load leaves early	Request for analysis of data center load leaving early (e.g. after 10-15 years).
	7. Modify thermal costs in the Stable Markets scenario to reflect higher near-term pricing	The Stable Market scenario reflects lower CAPEX for all new capital resources starting in Year 1. EFG requested a more gradual decrease to reflect higher near-term costs, particularly for thermal resources.

1. Data center transmission investment

- → Annual Revenue Requirement Adjustment outside of model:
  - → Low: $100/kW (sensitivity)
  - → Mid: $250/kW (“Base” assumption)
  - → High: $500/kW (sensitivity)
- → Cost based on peak load of data center additions by scenario
- → Staged investment: three equal investments, Year 1, Year 4, Year 7
- → Transmission: 30-year depreciation

LOW Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	167	$41,667	$16,667	$83,333
Year 4	167	$41,667	$16,667	$83,333
Year 7	167	$41,667	$16,667	$83,333
	500	**$125,000**	**$50,000**	**$250,000**

MID Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	500	$125,000	$50,000	$250,000
Year 4	500	$125,000	$50,000	$250,000
Year 7	500	$125,000	$50,000	$250,000
	1,500	**$375,000**	**$150,000**	**$750,000**

HIGH Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	833	$208,333	$83,333	$416,667
Year 4	833	$208,333	$83,333	$416,667
Year 7	833	$208,333	$83,333	$416,667
	2,500	**$625,000**	**$250,000**	**$1,250,000**

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1. Data center transmission investment

→High/low transmission costs have a $0.50-$2/MWh impact on the total system cost, or within±2% in all cases
→Generation costs are significantly higher than transmission costs, even for the “high cost” transmission case

System Cost Rate (Nominal $/MWh)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	15-Year Levelized ($/MWh)	Diff. from Mid Cost
No Data Center Load	**$149**	**$145**	**$148**	**$149**	**$150**	**$150**	**$148**	**$150**	**$152**	**$152**	**$156**	**$159**	**$160**	**$164**	**$166**	**$152**	**-**
Low Data Center Load																	
Mid Cost	$149	$145	$147	$145	$144	$143	$140	$142	$140	$142	$142	$145	$146	$148	$150	$145	-
Low Cost	$149	$145	$147	$145	$144	$142	$140	$142	$140	$142	$142	$144	$145	$148	$150	$145	-0.2%
High Cost	$149	$145	$148	$146	$145	$143	$141	$143	$141	$143	$143	$145	$146	$149	$151	$145	0.5%
Mid Data Center Load																	
Mid Cost	$149	$146	$144	$139	$136	$132	$136	$129	$128	$126	$128	$129	$130	$131	$133	$136	-
Low Cost	$149	$145	$144	$138	$135	$131	$135	$129	$127	$125	$127	$128	$130	$131	$132	$135	-0.5%
High Cost	$149	$147	$145	$140	$138	$134	$137	$131	$130	$128	$129	$131	$132	$133	$134	$137	1.4%
High Data Center Load																	
Mid Cost	$149	$146	$142	$134	$137	$126	$126	$121	$125	$119	$121	$122	$122	$122	$123	$131	-
Low Cost	$149	$145	$141	$134	$135	$125	$125	$120	$123	$117	$120	$121	$121	$121	$122	$130	-0.8%
High Cost	$149	$148	$144	$136	$139	$129	$128	$123	$127	$121	$123	$124	$124	$124	$125	$133	2.0%

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2. SMR breakeven analysis

SMRs were not selected in any scenario, primarily due to high capital cost

Question AES Indiana wanted to evaluate: what cost would SMR need to be to break even with the optimized portfolios?
- Two items to consider any resource: cost and value

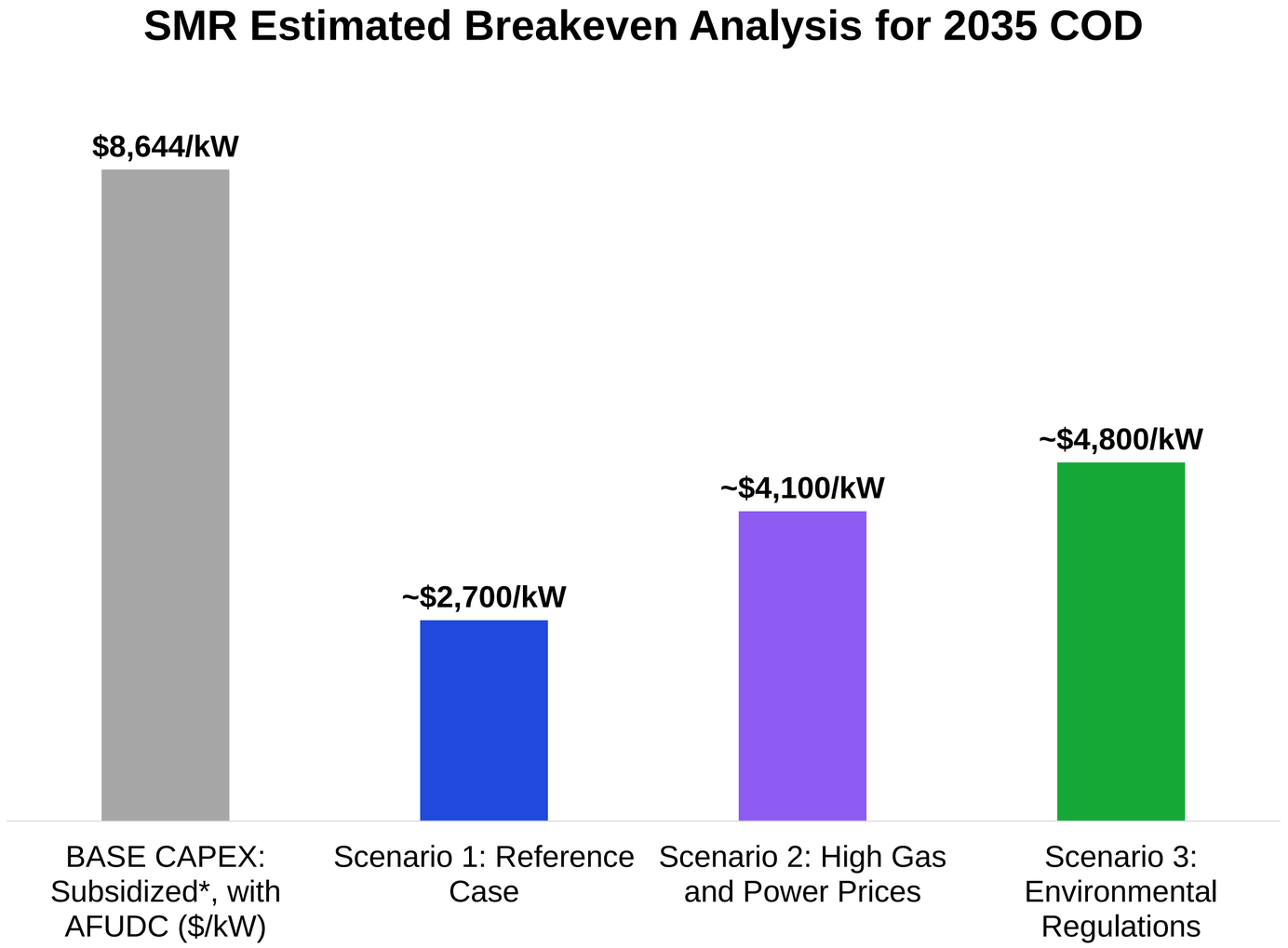
Items to consider for SMR valuation:
- Production Tax Credits (PTC) or Investment Tax Credits (ITC) weigh significantly on the cost
- Natural gas and power prices: higher natural gas, and therefore power prices, would improve the value of new nuclear
- Carbon/GHG legislation: nuclear is a zero-carbon resource, so policy or regulation that hinders the ability of thermal assets to be built and/or produce energy would improve the value of new nuclear in the future

2. SMR breakeven analysis

For the High Data Center load scenarios, AES Indiana “forced on” a 470 MW SMR in 2035

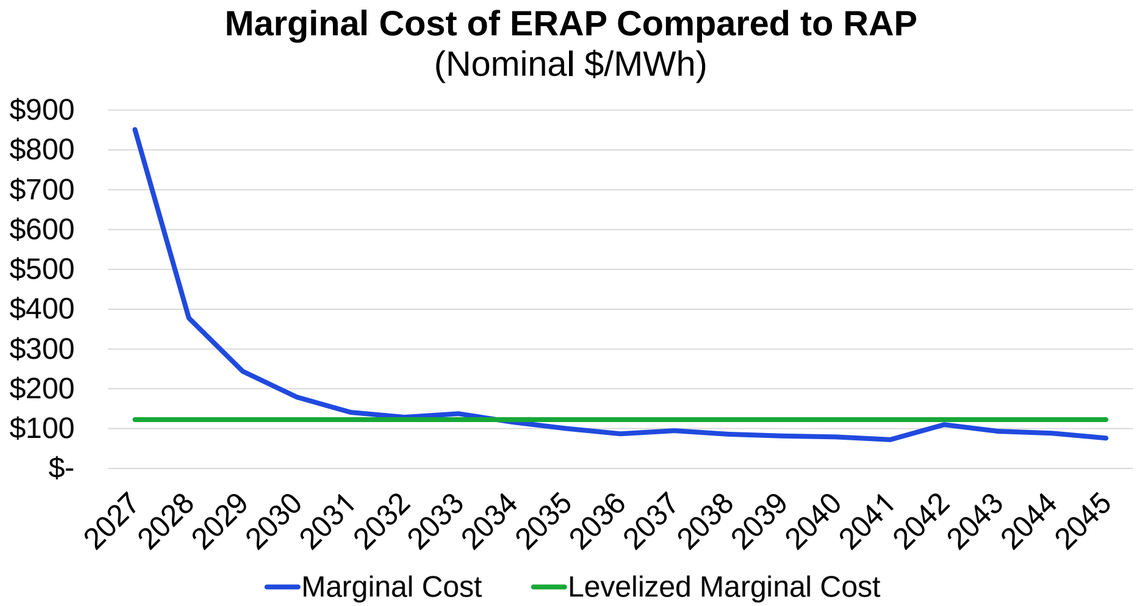
The breakeven cost was solved for so the NPV from 2035-2050 would be the same for the optimized portfolio

The breakeven cost is higher, requiring less of a reduction from the Base assumption, in the High Gas and Environmental Regulation scenarios due to increased value for SMRs in those scenarios



3. ERAP vs. RAP

- → Enhanced RAP (ERAP) was modeled in place of RAP in the no, low, mid and high data center loads
- → ERAP gets selected in all portfolios
- → However, the system rate is higher than the RAP cases
- → This is because there is a marginal cost to support ERAP over RAP
- → Furthermore, enhanced RAP (ERAP) was modeled in place of RAP in the no, low, mid and high data center loads *only* for the first vintage (2027-2029)



10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	With RAP	With ONLY FIRST ERAP (CI_V1)	With ERAP
No Load	149.08	149.41	149.54
Low Load	144.44	144.71	144.71
Mid Load	137.86	138.03	138.04
High Load	134.37	134.48	134.49

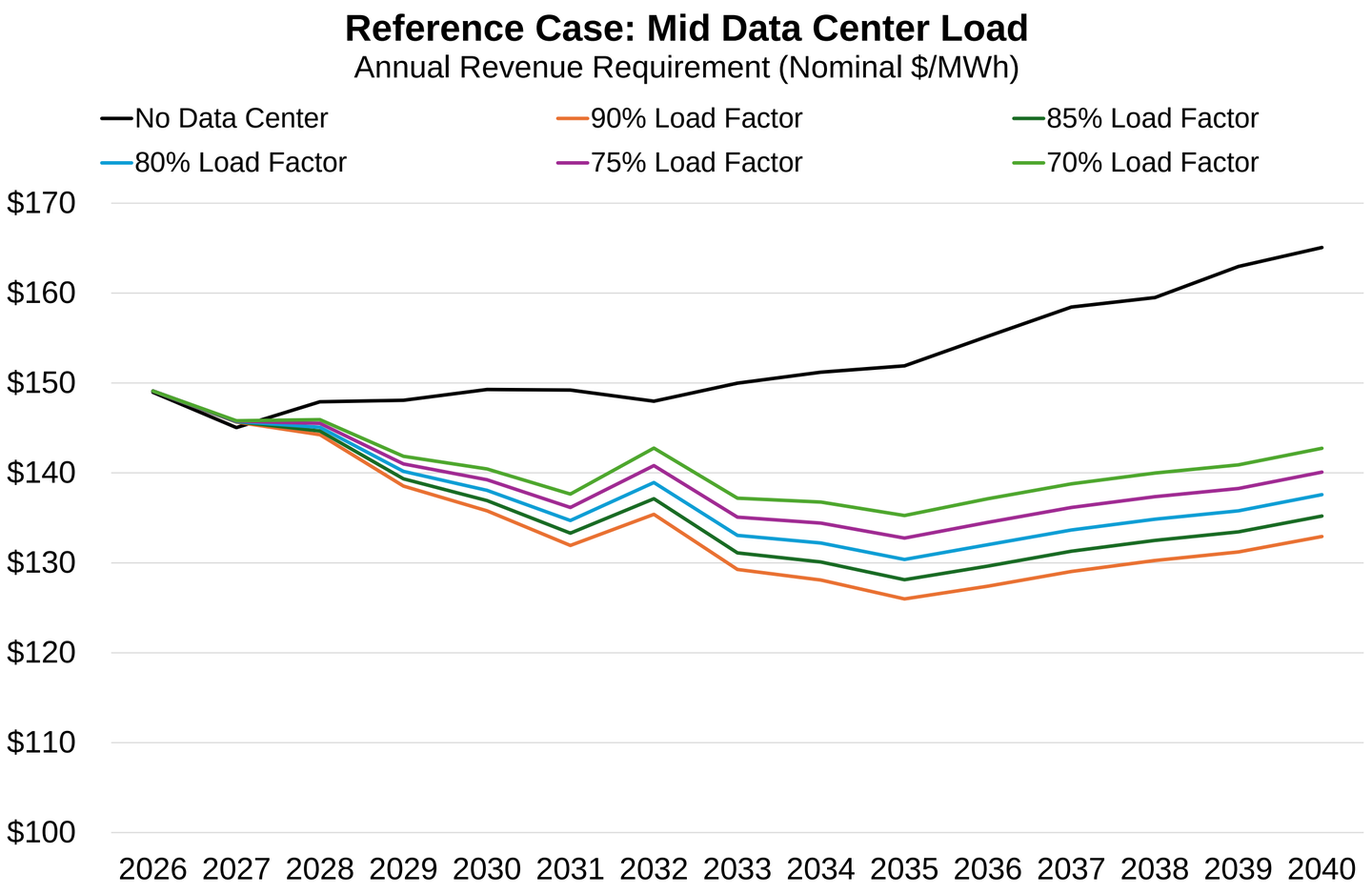
4. Reinstatement of tax credits

- Reinstating and extending tax credits does not materially change wind and solar installed in the Reference Case
- At what price would solar get selected?
  - Ran capacity expansions assuming solar ranges from $30/MWh to $90/MWh, in $10/MWh increments
  - At $50/MWh, solar is selected
- New solar limited by future accreditation risk, particularly in winter when new firm capacity is needed in most scenarios
- Individual solar projects will be evaluated on a per project basis

Annual New Solar Installed Capacity (MW)

	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
No Data Center Load														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	25	50	50	50	50	50
Low Data Center														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Data Center														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Data Center														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Data Center: Reference Case														
Mid DC: $30/MWh Solar	1,000	2,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Mid DC: $40/MWh Solar	1,000	2,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Mid DC: $50/MWh Solar	150	350	350	350	350	350	350	350	350	350	350	350	350	350
Mid DC: $60/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid DC: $70/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid DC: $80/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid DC: $90/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5. Data center load factor



- → Optimize for the reference portfolio
  - → 90% energy capacity factor for the data centers is base case
- → Reduce the capacity factor of the data centers, and re-dispatch the portfolio
  - → Vary the capacity factors from 90% to 70%, in 5% decrements
  - → A capacity factor of 70% shows a lower system cost rate compared to a no data center case

10-Year Levelized Supply Cost (2026$/MWh, 2025-2035) [1]						
	0%	70%	75%	80%	85%	90%
No DC	$149					
Low DC		$146	$146	$145	$145	$144
Mid DC		$142	$141	$140	$139	$138
High DC		$140	$139	$137	$136	$134

[1] Mid Data Center ($250/kW) transmission cost assumption.

6. Data center leaves sensitivity

→ Rates for data centers and other customers will be addressed in future regulatory filings

→ Stakeholders requested a scenario where the data center load does not materialize or ends early

→ Customers can be protected during the contracting phase with new load customers by requiring large load customers to provide coverage for certain costs

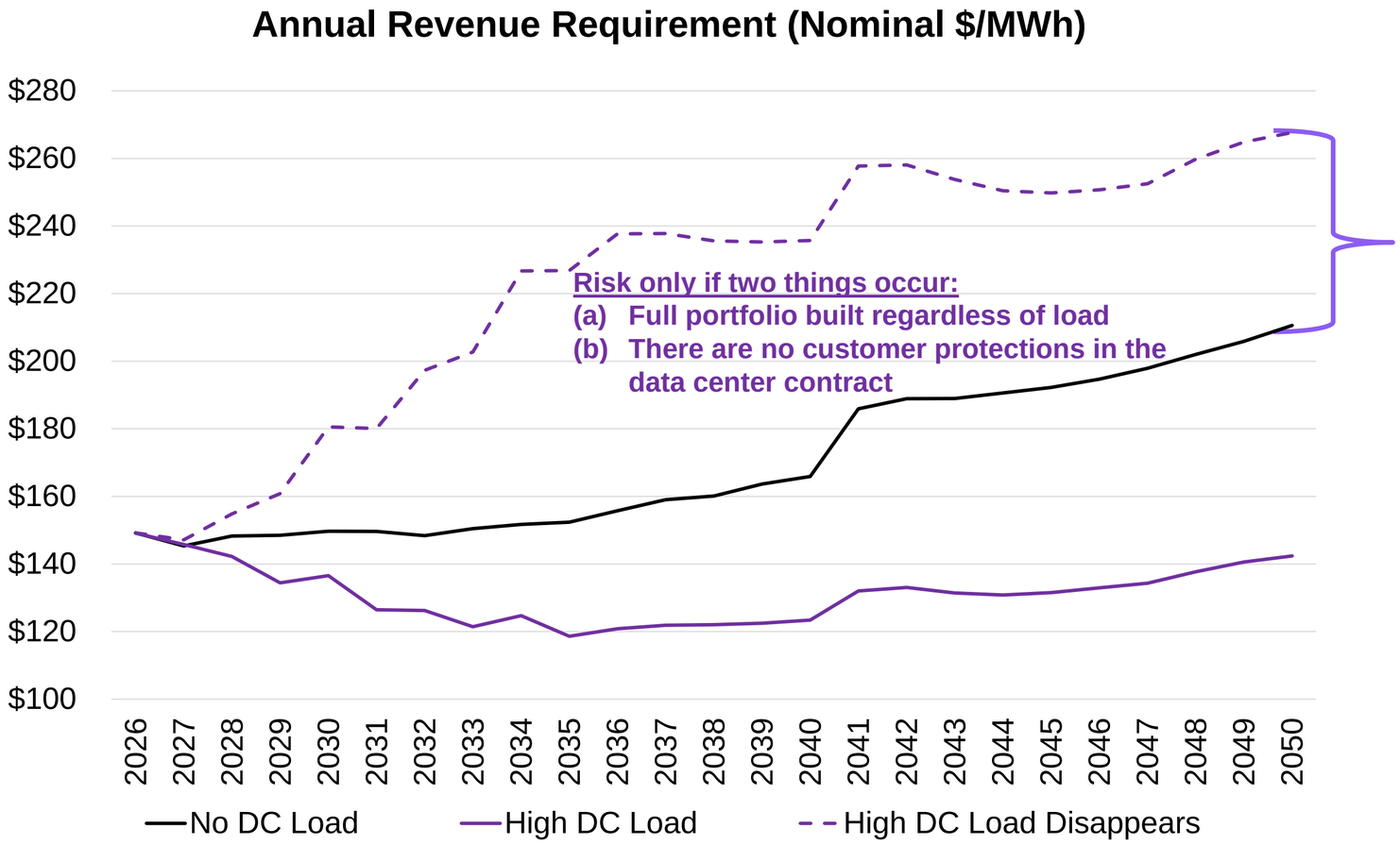
→ **Ways to mitigate risk include, but are not limited to, the following:**

- Minimum contract terms
- Exit and/or contract volume reductions
- Consistent and more frequent re-evaluation of supply and demand
- Market capacity purchases and sales
- Economic development integration (e.g. finding new large load customers)
- Potential retirement of existing units

[1] IURC.

6. Data center leaves sensitivity

What if AES Indiana builds for data centers and the load does not materialize?



2026$/MWh	No Data Center Load	High Data Center Load	High Data Center Load Does Not Materialize
10-Year Levelized Supply Cost[1]	$149	$134	$178
25-Year Supply Cost[2]	$161	$132	$206

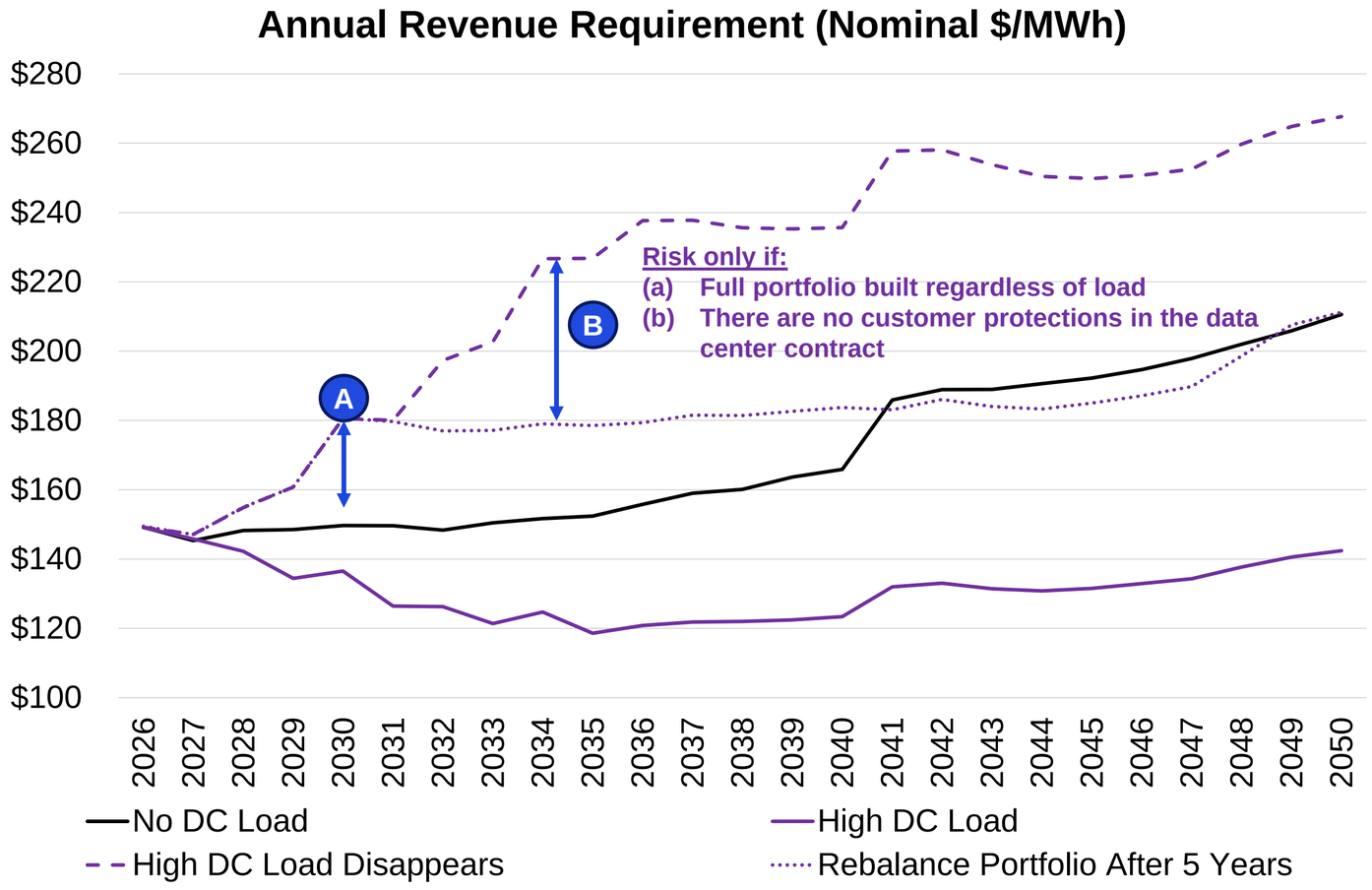
→ If AES Indiana plans for data centers, and they do not materialize, system rates would be more expensive compared to a world where AES Indiana did *not* plan for those data centers

→ **This represents an *extreme* or *bookend* scenario**

Illustrative examples based on stakeholder requested analysis. Contract terms, customer protections, and retail rate impacts would be part of a future regulatory filing if a data center customer is signed

[1] 2026-2035.
[2] 2026 – 2050.

6. Data center leaves sensitivity



Illustrative examples based on stakeholder requested analysis. Contract terms, customer protections, and retail rate impacts would be part of a future regulatory filing if a data center customer is signed

2026$/MWh	No Data Center Load	High Data Center Load	High Data Center Load Does Not Materialize	High Data Center: AES Rebalances After 5 Years
10-Year Levelized Supply Cost[1]	$149	$134	$178	$166
25-Year Supply Cost[2]	$161	$132	$206	$175

→ Assume that AES contracted resources for the next five years due to supply chain constraints. Then, assume that the load does not materialize, and AES Indiana rebalances the portfolio in Year 6 (in 2031)

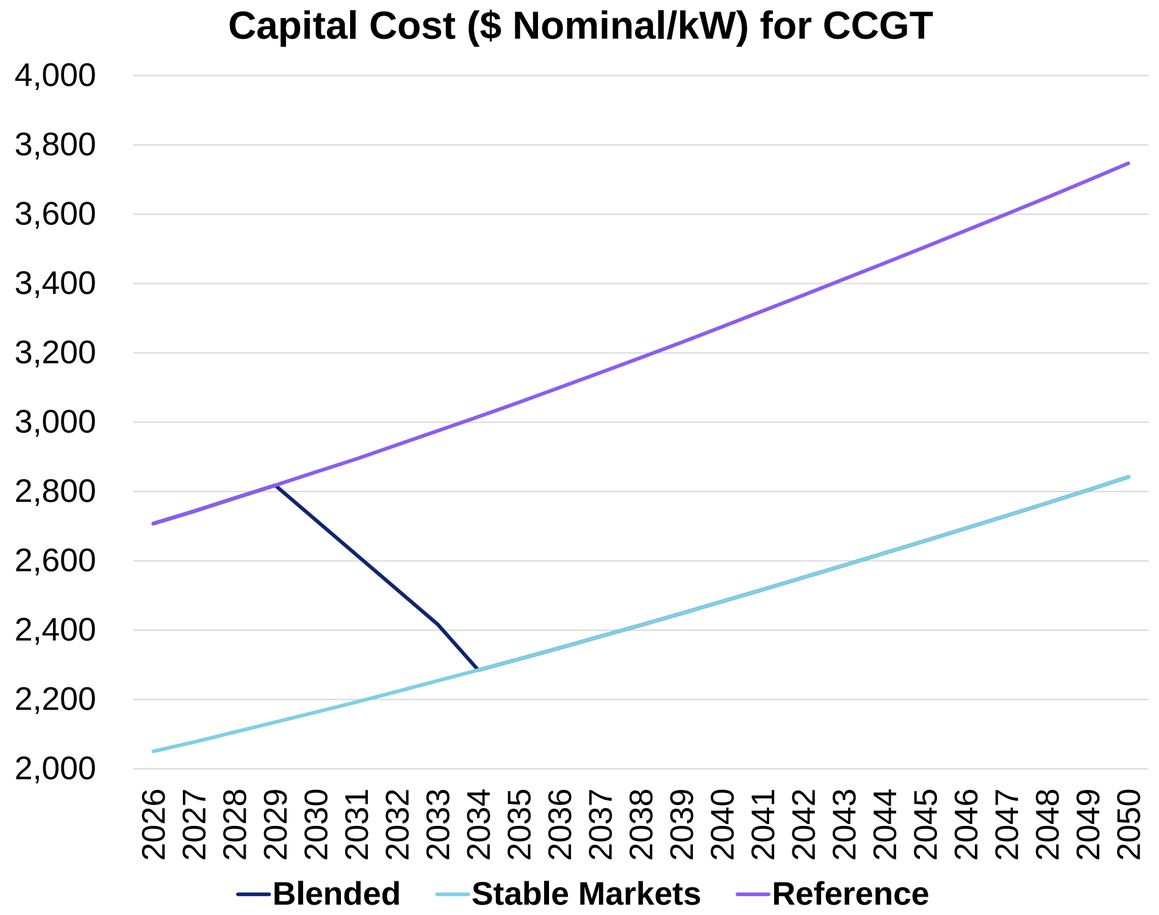
A If the data center does not show up, the costs are higher than if AES did not plan for data centers

B AES would rebalance the portfolio, meaning the costs would be lower than the case where the data centers didn't show up

[1] 2026-2035.
[2] 2026 – 2050.

7. Stable markets: Blended cost scenario

- →It was requested that AES Indiana modify new thermal capital costs in the Stable Market portfolio to *not* reflect any capital cost declines until after 2031
  - →The intention is to maintain the supply chain constraints facing new resources in the short term
- →AES Indiana adjusted capital costs for all resources
  - →Costs were Reference costs from 2026-2030, then straight line blended into Stable Market costs by 2035
  - →A CCGT is shown as an example in the graph to the right



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7. Stable markets: Blended cost scenario

- →The Blended portfolio has a higher rate than the Stable Markets portfolio
- →For resource selections, the different data center (DC) load portfolios see tradeoffs between solar, storage, and natural gas
  - →Overall, less solar is installed
  - →The low DC portfolio prefers batteries over CTs
  - →The mid DC portfolio prefers CTs over batteries
  - →The high DC portfolio has slight differences in CCGT and CT install timing, with slightly more batteries
  - →Differences before 2035 impact later year decisions

10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)		
	Blended	Stable Markets
No DC	$153.90	$153.90
Low DC	$146.37 (A)	$146.34 (A)
Mid DC	$136.40	$135.26
High DC	$131.31	$129.46

25-Year Supply Cost (2026$/MWh, 2026-2050)		
	Blended	Stable Markets
No DC	$167.36	$167.34
Low DC	$151.61	$151.16
Mid DC	$133.86	$132.61
High DC	$125.48	$123.54

(A) Same portfolio by 2035

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IRP results review

Patrick Maguire

Senior Director of Commercial, AES Indiana

Scorecard review

The Scorecard evaluates portfolios to select the Preferred Resource Portfolio

→ The scorecard analysis is performed on the Reference case portfolios

→ Scorecard categories align with the Five Pillars of Utility Electric Service as required by statute
  → Additional categories measure that Risk & Opportunity are also included to comply with IURC rules

→ Scorecard evaluation helps select the Preferred Resource Portfolio and Short-Term Action Plan

[1] From July 17, 2025 Technical Meeting #2 and July 24, 2025 Public Advisory Meeting #2.

IRP scorecard results

		AFFORDABILITY				RELIABILITY, RESILIENCY, AND STABILITY					RISK & OPPORTUNITY				ENVIRONMENTAL	
Data Center Case	Portfolio	10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	25-Year Supply Cost (2026$/MWh, 2026-2050)	10-Year PVRR (2026$MM, 2026-2035)	25-Year PVRR (2026$MM, 2026-2050)	25-year Market Interaction: Purchases+ Sales	25-yr energy purchases	25-yr energy sales	Dispatchable Capacity Divided by Peak Load (2035)	Dispatchable FIRM Capacity Divided by Peak Load (2035)	Opportunity (Mean - P5): % of PVRR	Risk (P95-Mean): % of PVRR	Environmental Scenario Risk	Mean PVRR % Difference from Optimal	Total CO2 Emissions (Million Tons)	Total CO2 Emissions (lb/MWh, Study Average)
No Data Center Load	Reference Case	$149	$161	$5,126	$10,092	26%	16%	10%	110.7%	90.5%	17%	18%	$234	3%	147	772
	Gas Infrastructure Challenges	$149	$162	$5,154	$10,161	21%	13%	8%	110.7%	90.5%	17%	18%	$237	4%	146	766
	High Regulatory: Environmental	$156	$188	$5,906	$15,455	25%	11%	14%	111.4%	91.0%	7%	9%	$0	52%	99	523
	Stable Markets Scenario	$149	$161	$5,126	$10,070	27%	18%	9%	110.7%	90.5%	17%	19%	$57	0%	153	805
Low Data Center	Reference Case	$144	$151	$5,985	$12,654	23%	15%	8%	121%	99%	14%	18%	$239	3%	183	806
	Gas Infrastructure Challenges	$148	$153	$6,400	$13,047	21%	11%	10%	118%	98%	12%	15%	$970	7%	177	777
	High Regulatory: Environmental	$153	$180	$7,099	$19,827	26%	12%	14%	117%	96%	6%	8%	$0	53%	111	486
	Stable Markets Scenario	$145	$151	$6,020	$12,699	23%	15%	8%	119%	97%	15%	18%	$196	1%	194	854
Mid Data Center	Reference Case	$138	$139	$7,971	$18,187	17%	12%	5%	122%	102%	11%	16%	$658	3%	247	812
	Gas Infrastructure Challenges	$139	$140	$8,220	$18,499	17%	10%	7%	117%	99%	11%	15%	$1,217	6%	232	763
	High Regulatory: Environmental	$151	$174	$10,236	$30,040	21%	10%	11%	118%	98%	4%	6%	$0	60%	117	384
	Stable Markets Scenario	$138	$139	$7,967	$18,266	17%	12%	4%	121%	100%	12%	18%	$209	2%	278	914
High Data Center	Reference Case	$134	$132	$9,975	$23,754	15%	10%	5%	118%	102%	11%	15%	$1,434	3%	295	779
	Gas Infrastructure Challenges	$135	$133	$10,132	$24,032	14%	8%	7%	125%	109%	10%	14%	$1,851	5%	292	770
	High Regulatory: Environmental	$145	$164	$12,246	$37,871	18%	10%	8%	120%	99%	4%	7%	$0	52%	149	394
	Stable Markets Scenario	$134	$133	$9,959	$23,990	14%	10%	4%	133%	112%	11%	16%	$590	2%	333	879

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Preferred resource portfolio

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Preferred resource portfolio

→ "'Preferred resource portfolio' means the utility's selected long term supply-side and demand-side resource mix that safely, reliably, efficiently, and cost-effectively meets the electric system demand, taking cost, risk, and uncertainty into consideration." IAC 4-7-1-1-cc

→ AES has chosen two Preferred Portfolios:

- Reference Case, No Data Center Load
- Reference Case, Mid Data Center Load

REFERENCE CASE PORTFOLIO ADDITIONS: INSTALLED CAPACITY (MW)

		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	44	61	105	124	133	138	138	139	140	140	141	140	139	140
Energy Efficiency	No Data Center Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		20	20	20	20	40	100	100	100	100	100	100	100	100
	Mid DC Load		200	360	580	860	860	860	860	860	860	860	860	860	860
Gas CCGT	No Data Center Load														
	Mid DC Load						700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load														
	Mid DC Load								240	480	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load										54	54	54	108	108
	Mid DC Load												54	54	108
Solar	No Data Center Load														
	Mid DC Load														
Wind	No Data Center Load														
	Mid DC Load														
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)	(50)	(50)	(50)	(50)	(50)	(47)	(50)	(39)
	Mid DC Load	2	34	49	48	(0)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44	16	37	50	19	28	50	13	40
	Mid DC Load	23	(43)	22	49	48	(50)	(38)	(5)	12	18	43	31	50	44

Preferred resource portfolio

→ The Preferred Resource Portfolio will be largely dependent on new, signed data center customers

→ To the extent AES Indiana reaches agreement with a new data center customer, resources will be pursued in line with the Reference Case portfolios, particularly the Mid Data Center Case

→ All resources additions via PPA, acquisition, or self-development will be subject to IURC approval in a future regulatory filing

REFERENCE CASE PORTFOLIO ADDITIONS: INSTALLED CAPACITY (MW)

		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	44	61	105	124	133	138	138	139	140	140	141	140	139	140
Energy Efficiency	No Data Center Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		20	20	20	20	40	100	100	100	100	100	100	100	100
	Mid DC Load		200	360	580	860	860	860	860	860	860	860	860	860	860
Gas CCGT	No Data Center Load														
	Mid DC Load						700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load														
	Mid DC Load								240	480	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load										54	54	54	108	108
	Mid DC Load												54	54	108
Solar	No Data Center Load														
	Mid DC Load														
Wind	No Data Center Load														
	Mid DC Load														
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)	(50)	(50)	(50)	(50)	(50)	(47)	(50)	(39)
	Mid DC Load	2	34	49	48	(0)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44	16	37	50	19	28	50	13	40
	Mid DC Load	23	(43)	22	49	48	(50)	(38)	(5)	12	18	43	31	50	44

Preferred resource portfolio

→Key factors that could change the Preferred Resource Portfolio over time:

- Resource accreditation: higher or lower firm capacity value for storage, gas, or existing resources could impact AES Indiana's capacity position, requiring more or less additions in the future
- MISO Reserve Margins: MISO is moving to the DLOL method for PY 28/29 forward. A reserve margin different than what was modeled in the IRP could require a different volume of resource additions
- Market Availability/Resource Feasibility: AES Indiana will have to evaluate the likelihood of being able to contract for or construct the resources identified in the IRP
- Data Center Load Ramp: the IRP modeled new, generic data center load ramps at different volumes, ramping up linearly over time. If a new data center customer is signed, AES Indiana will calibrate the Preferred Resource Portfolio to match the actual projected ramp from the new customer

Portfolio variability: no data center load

		2026	2027	2028	2029	2030	2031	2032
Reference Case	Solar	-	-	-	-	-	-	-
Reference Case	Wind	-	-	-	-	-	-	-
Gas Infrastructure Challenges	Solar	-	-	-	-	-	-	-
Gas Infrastructure Challenges	Wind	-	-	-	-	-	-	-
High Regulatory: Environmental	Solar	-	25	25	25	25	25	25
High Regulatory: Environmental	Wind	-	-	-	-	50	50	350
Stable Markets Scenario	Solar	-	-	-	-	-	-	-
Stable Markets Scenario	Wind	-	-	-	-	-	-	-

Wind and solar is needed only in a High Regulatory: Environmental world, where 75 MW should be acquired by 2030/2031

Reference Case	DR & EE	96	152	188	239	273	299	322
Gas Infrastructure Challenges		96	152	188	239	273	299	322
High Regulatory: Environmental		96	152	188	239	273	299	322
Stable Markets Scenario		96	147	171	195	216	236	255

Unless the market loosens, 275 MW of demand management and energy efficiency is needed by 2030, and 300 MW by 2031

Reference Case	Storage	-	-	20	20	20	20	40
Gas Infrastructure Challenges		-	-	20	20	20	20	40
High Regulatory: Environmental		-	40	100	100	100	120	120
Stable Markets Scenario		-	-	-	-	-	-	-

20 MW of storage is needed by 2030/2031

Reference Case	Gas Peaking	-	-	-	-	-	-	-
Gas Infrastructure Challenges		-	-	-	-	-	-	-
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	-
Reference Case	Gas CCGT	-	-	-	-	-	-	-
Gas Infrastructure Challenges		-	-	-	-	-	-	-
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	-

No natural gas added

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Portfolio variability: mid data center load

		2026	2027	2028	2029	2030	2031	2032
Reference Case	Solar	-	-	-	-	-	-	-
Reference Case	Wind	-	-	-	-	-	-	-
Gas Infrastructure Challenges	Solar	-	-	50	50	50	50	50
Gas Infrastructure Challenges	Wind	-	-	-	-	-	-	-
High Regulatory: Environmental	Solar	-	25	50	50	50	50	50
High Regulatory: Environmental	Wind	-	-	-	-	350	750	1,250
Stable Markets Scenario	Solar	-	-	100	100	100	100	100
Stable Markets Scenario	Wind	-	-	-	-	-	-	-

If the market environment begins shift away from current conditions, consider adding 50 to 100 MW of solar. If policies look like those in 2020s, then also consider adding up to 350 MW of wind

Reference Case	DR & EE	96	152	188	237	269	292	312
Gas Infrastructure Challenges		96	152	188	239	273	299	322
High Regulatory: Environmental		96	152	188	239	277	308	335
Stable Markets Scenario		96	152	188	239	273	299	322

Similar acquisition to the no DC case; no matter the large load, acquire around 300 MW of DSM/EE

Reference Case	Storage	-	-	200	360	580	860	860
Gas Infrastructure Challenges		-	-	140	320	320	320	380
High Regulatory: Environmental		-	40	180	420	640	840	1,120
Stable Markets Scenario		-	-	80	180	400	660	700

Build 300 MW to 650 MW of storage

Reference Case	Gas Peaking	-	-	-	-	-	-	-
Gas Infrastructure Challenges		-	-	-	-	-	-	-
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	240

No gas peaking until 2033+ in all scenarios except Stable Market

Reference Case	Gas CCGT	-	-	-	-	-	-	700
Gas Infrastructure Challenges		-	-	-	-	700	700	700
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	-

In 2032, a 700 MW CCGT comes online in the Reference Case. In the Gas Infrastructure Challenges, a CCGT comes online earlier, because more economic energy from the lower heat rate is needed

Short term action plan

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Senior Director of Commercial, AES Indiana

Short term action plan

REFERENCE CASE PORTFOLIO ADDITIONS: INSTALLED CAPACITY (MW)

		2027	2028	2029	2030	2031	2032
Demand Response	No Data Center Load	44	61	107	130	144	152
	Mid DC Load	44	61	105	124	133	138
Energy Efficiency	No Data Center Load	34	57	78	98	116	133
	Mid DC Load	34	57	78	98	116	133
Battery Storage	No Data Center Load		20	20	20	20	40
	Mid DC Load		200	360	580	860	860
Gas CCGT	No Data Center Load						
	Mid DC Load						700
Gas CT	No Data Center Load						
	Mid DC Load						
Gas Reciprocating Engines	No Data Center Load						
	Mid DC Load						
Solar	No Data Center Load						
	Mid DC Load						
Wind	No Data Center Load						
	Mid DC Load						
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)
	Mid DC Load	2	34	49	48	(0)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44
	Mid DC Load	23	(43)	22	49	48	(50)

AES Indiana will pursue resource selections according to the Preferred Plans.

→ Resource selection will be subject to large load contracting, availability, and cost-benefit analysis

Short-term capacity market purchases or sales would be used only for rebalancing capacity positions and is subject to change based on resource accreditation, load forecast, MISO PRM, or other MISO capacity market rule changes

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Energy efficiency selection by scenario

	Reference Case				Gas Infrastructure Challenges				High Regulatory: Environmental				Stable Markets			
	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC
Energy Efficiency																
C&I V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C&I V2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C&I V3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res Tier2 V1																
Res Tier2 V2								X			X	X				
Res Tier2 V3									X	X	X	X				
IQW V1*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQW V2*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQW V3*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V1*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V2*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V3*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* Income Qualified Weatherization (IQW) bundles are forced through the model. Income Qualified, Indiana Home Appliance Rebate (IQ HEAR) bundle are forced through the model, but at no cost.

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Short-term action plan: energy efficiency

	Vintage 1 (2027- 2029)	
Energy Efficiency Bundles	**Cumulative Savings (MWh)**	**Summer 2029 Capacity (MW)**
C&I V1	**418,275**	**23**
Res BEH Tier1 V1	**219,603**	**16**
IQW V1	**57,656**	**6**
IQ HEAR V1	**12,927**	**0.2**
Total Selected Energy Efficiency	**708,461**	**45.2**

	Vintage 2 (2030- 2032)	
Energy Efficiency Bundles	**Cumulative Savings (MWh)**	**Summer 2032 Capacity (MW)**
C&I V2	**324,800**	**26**
Res BEH Tier1 V2	**222,944**	**15**
IQW V2	**47,924**	**5**
IQ HEAR V1	**17,624**	**0.4**
Total Selected Energy Efficiency	**613,292**	**43.4**

Notes:
- Reference Case, Mid DC Load DSM Selected Resources
- IQ HEAR bundles were forced through the model, but at no cost. Bundle is not utility-sponsored DSM.

Demand response selection by scenario

	Reference Case				Gas Infrastructure Challenges				High Regulatory: Environmental				Stable Markets			
	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC
Demand Response																
DR Thermostat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DR Battery	X				X		X	X	X	X	X	X			X	
DR Load Curtailment	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
DR Capacity Bidding												X				
DR BDR	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
DR PTR	X	X		X	X	X	X	X	X	X	X	X		X	X	X
DR TOU	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Resources Not Selected in any scenario:

- → AC Switch One Way
- → AC Switch Two Way
- → Water Heaters
- → Smart App
- → Room AC
- → Lighting
- → EV
- → C&I TES

AES Proprietary & Confidential/Not for Distribution

Short-term action plan: demand response

	2027		2028		2029		2030		2031		2032	
Demand Response Bundles	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**
DR Thermostat	**37.6**	**16.8**	**39.3**	**18.3**	**41.3**	**20.3**	**42.9**	**20.3**	**44.0**	**20.3**	**44.9**	**20.3**
DR Load Curtailment	**6.6**	**5.1**	**21.3**	**16.6**	**44.5**	**34.1**	**59.5**	**45.2**	**63.8**	**48.7**	**64.9**	**49.9**
DR BDR	**-**	**-**	**-**	**-**	**18.1**	**8.1**	**17.3**	**7.5**	**15.8**	**6.7**	**14.8**	**6.8**
DR TOU	**-**	**-**	**-**	**-**	**1.4**	**0.6**	**4.7**	**2.0**	**9.8**	**4.1**	**13.0**	**5.7**
Total Selected DR	***44.2***	***21.9***	***60.6***	***34.9***	***105.3***	***63.1***	***124.4***	***75.0***	***133.4***	***79.8***	***137.6***	***82.7***

Notes:
- Reference Case, Mid DC Load DSM Selected Resources
- MWs are cumlative capacity of the resource.

Q&A

IRP acronyms

IRP acronyms

- ACEE: The American Council for an Energy-Efficient Economy
- AMI: Advanced Metering Infrastructure
- BESS: Battery Energy Storage System
- BNEF: Bloomberg New Energy Finance
- BTA: Build-Transfer Agreement
- C&I: Commercial and Industrial
- CAA: Clean Air Act
- CAGR: Compound Annual Growth Rate
- CCGT: Combined Cycle Gas Turbines
- CCS: Carbon Dioxide Capture and Storage
- CDD: Cooling Degree Day
- COD: Commercial Operation Date
- CONE: Cost of New Entry
- CP: Coincident Peak
- CPCN: Certificate of Public Convenience and Necessity
- CT: Combustion Turbine
- CVR: Conservation Voltage Reduction
- CX: Capacity Expansion
- DC: Data center
- DER: Distributed Energy Resource
- DG: Distributed Generation
- DGPV: Distributed Generation Photovoltaic System
- DLC: Direct Load Control
- DOE: U.S. Department of Energy
- DR: Demand Response
- DRR: Demand Response Resource
- DSM: Demand-Side Management
- DSP: Distribution System Planning
- EE: Energy Efficiency
- EFORd: Equivalent Forced Outage Rate Demand
- EIA: Energy Information Administration
- ELCC: Effective Load Carrying Capability
- EM&V: Evaluation Measurement and Verification
- EV: Electric Vehicle
- GDP: Gross Domestic Product
- GT: Gas Turbine
- HDD: Heating Degree Day
- HVAC: Heating, Ventilation, and Air Conditioning
- IAC: Indiana Administrative Code
- IC: Indiana Code
- ICAP: Installed Capacity
- ICE: Internal Combustion Engine
- IRP: Integrated Resource Plan
- ITC: Investment Tax Credit
- IURC: Indiana Utility Regulatory Commission
- kW: Kilowatt
- kWh: Kilowatt-Hour
- LED: Light Emitting Diode
- LMR: Load Modifying Resource
- LNBL: Lawrence Berkeley National Laboratory
- Max Gen: Maximum Generation Emergency Warning
- MIP: Mixed Integer Programming
- MISO: Midcontinent Independent System Operator
- MPS: Market Potential Study
- MW: Megawatt
- NDA: Nondisclosure Agreement
- NOX: Nitrogen Oxides
- NREL: National Renewable Energy Laboratory
- NSPS: New Source Performance Standards
- PPA: Power Purchase Agreement
- PRA: Planning Resource Auction
- PTC: Renewable Electricity Production Tax Credit
- PRMR: Planning Reserve Margin Requirement
- PV: Photovoltaic
- PVRR: Present Value Revenue Requirement
- PY: Planning Year
- RA: Resource Adequacy
- RAN: Resource Availability and Need
- REC: Renewable Energy Credit
- REP: Renewable Energy Production
- RFP: Request for Proposals
- RIIA: MISO's Renewable Integration Impact Assessment
- SAC: MISO's Seasonal Accredited Capacity
- SCR: Selective Catalytic Reduction System
- SMR: Small Modular Reactors
- ST: Steam Turbine
- SUFG: State Utility Forecasting Group
- TRM: Technical Resource Manual
- UCT: Utility Cost Test
- UCAP: Unforced Capacity
- WTP: Willingness to Participate
- XEFORd: Equivalent Forced Outage Rate Demand excluding causes of outages that are outside management control

Appendix

Solar resource additions

INSTALLED INCREMENTAL SOLAR CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	25	25	25	25	25	25	25	25	25	25	25	50	50	50	50	200	200	275	275	350	375	475	725	1,225
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	350	350	375	375	375	375	475	575	675	675	675	950	950	950	1,150	1,450
	Stable Markets Scenario	-	-	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Mid DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	High Regulatory: Environmental	-	25	50	50	50	50	50	75	75	1,050	1,425	1,475	1,525	1,525	1,525	1,550	1,550	1,550	1,600	2,025	2,025	2,025	2,025	2,075	2,075
	Stable Markets Scenario	-	-	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
High DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	High Regulatory: Environmental	-	25	50	75	100	100	100	100	225	1,225	2,200	2,275	2,500	2,500	2,500	2,500	2,525	2,600	2,600	2,600	2,625	2,625	2,750	2,750	3,025
	Stable Markets Scenario	-	-	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Wind resource additions

INSTALLED INCREMENTAL WIND CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	50	50	50	50
	High Regulatory: Environmental	-	-	-	-	50	50	350	450	700	900	1,150	1,350	1,650	1,950	2,050	2,200	2,200	2,250	2,500	2,550	2,650	2,700	2,750	2,750	2,750
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	-	50	400	850	1,300	1,350	1,750	2,050	2,150	2,450	2,650	2,650	2,750	2,750	3,000	3,250	3,400	3,400	3,500	3,600	3,650
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mid DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	350	750	1,250	1,750	2,250	2,750	3,150	3,650	3,700	4,200	4,250	4,350	4,450	4,500	4,900	5,150	5,150	5,150	5,350	5,350	5,450
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	400	800	1,300	1,800	2,300	2,800	3,300	3,750	4,250	4,750	5,250	5,700	5,900	5,900	6,050	6,400	6,900	6,900	7,000	7,150	7,200
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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DR& EE resource additions

INSTALLED DR & EE (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
	Gas Infrastructure Challenges	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
	High Regulatory: Environmental	52	78	118	185	228	260	285	314	339	363	386	410	428	446	464	484	493	502	515	519	490	490	490	490	490
	Stable Markets Scenario	52	72	96	121	145	170	191	214	233	252	271	289	304	318	331	346	352	357	369	369	347	347	347	347	347
Low DC	Reference Case	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
	Gas Infrastructure Challenges	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
	High Regulatory: Environmental	52	78	118	185	228	260	285	314	339	363	386	410	428	446	464	484	493	502	515	519	490	490	490	490	490
	Stable Markets Scenario	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
Mid DC	Reference Case	52	78	117	183	222	249	271	292	312	331	349	367	381	394	408	422	427	432	442	442	420	420	420	420	420
	Gas Infrastructure Challenges	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
	High Regulatory: Environmental	52	78	118	185	233	269	298	326	349	373	396	419	436	454	472	491	499	507	521	524	494	494	494	494	494
	Stable Markets Scenario	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
High DC	Reference Case	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
	Gas Infrastructure Challenges	52	78	118	185	233	269	298	319	338	357	376	393	406	419	433	447	451	455	465	465	442	442	442	442	442
	High Regulatory: Environmental	52	84	136	222	281	320	350	377	400	424	446	468	485	502	519	538	545	553	565	568	538	538	538	538	538
	Stable Markets Scenario	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433

CT & RICE resource additions

INSTALLED INCREMENTAL CT & RICE CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	54	54	54	108	108	108	108	108	108	108	108	108	108	108	108
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	54	54	54	108	108	108	108	108	108	108	108	108	108	108	108
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	480	480	480	480	480	480	480	480	480	480
Low DC	Reference Case	-	-	-	-	-	-	-	240	240	480	480	480	480	534	534	534	534	534	534	534	588	588	642	642	696
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	108
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	240	240	240	480	480	480	480	480	480	960	960	960	960	960	960	960	960	960	960
Mid DC	Reference Case	-	-	-	-	-	-	-	-	240	480	720	720	774	774	828	828	828	828	828	828	882	882	1,122	1,122	1,230
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	108	348	402	402	402	402	402	402	402	402	402	456	456	456	456	510
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	240	480	480
	Stable Markets Scenario	-	-	-	-	-	-	240	480	720	960	1,200	1,200	1,200	1,200	1,200	1,680	1,680	1,680	1,680	1,680	1,920	1,920	1,920	1,920	1,920
High DC	Reference Case	-	-	-	-	-	-	-	240	240	294	774	774	774	774	774	774	774	774	774	774	828	828	1,068	1,176	1,176
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	54	54	108	108	108	108	108	108	348	348	348	510	510
	High Regulatory: Environmental	-	-	-	-	-	-	240	480	480	480	480	480	480	480	480	960	960	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
	Stable Markets Scenario	-	-	-	-	-	240	240	480	960	1,440	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,920	1,920

CCGT resource additions

INSTALLED INCREMENTAL CCGT CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700
	Gas Infrastructure Challenges	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mid DC	Reference Case	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	Gas Infrastructure Challenges	-	-	-	-	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High DC	Reference Case	-	-	-	-	700	700	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
	Gas Infrastructure Challenges	-	-	-	-	700	700	1,400	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400

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Storage resource additions

INSTALLED INCREMENTAL BATTERY CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	20	20	20	20	40	100	100	100	100	100	100	100	100	100	100	100	100	100	120	140	160	180	220
	Gas Infrastructure Challenges	-	-	20	20	20	20	40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	160	140	160	180
	High Regulatory: Environmental	-	40	100	100	100	120	120	120	120	120	120	120	120	120	180	820	880	940	960	1,000	1,080	1,100	1,100	1,120	1,160
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	60	80	80	120	120	220	240	280	300	320
Low DC	Reference Case	-	-	40	80	160	260	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	440	400	380	320
	Gas Infrastructure Challenges	-	-	20	80	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	180	220	240	180	100
	High Regulatory: Environmental	-	40	100	180	300	420	500	540	620	780	860	860	940	940	1,020	1,680	1,740	1,820	1,860	1,880	1,960	2,000	2,000	1,980	1,980
	Stable Markets Scenario	-	-	40	40	40	80	80	120	120	120	120	120	120	120	140	160	160	200	200	200	260	280	280	300	320
Mid DC	Reference Case	-	-	200	360	580	860	860	860	860	860	860	860	860	860	860	860	860	860	860	860	880	900	700	540	340
	Gas Infrastructure Challenges	-	-	140	320	320	320	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	440	460	460
	High Regulatory: Environmental	-	40	180	420	640	840	1,120	1,360	1,660	1,840	2,080	2,080	2,200	2,200	2,340	3,020	3,120	3,240	3,240	3,240	3,240	3,200	3,180	2,940	2,780
	Stable Markets Scenario	-	-	80	180	400	660	700	720	720	720	720	720	740	740	780	860	880	900	940	940	940	940	860	760	660
High DC	Reference Case	-	-	300	620	620	640	640	640	640	640	640	640	640	640	680	680	680	680	680	680	680	720	420	120	160
	Gas Infrastructure Challenges	-	-	260	560	560	620	620	620	620	620	620	620	620	620	620	620	620	620	620	620	620	620	360	60	80
	High Regulatory: Environmental	-	20	240	580	940	1,340	1,700	1,700	2,140	2,480	2,820	2,820	2,880	2,880	2,960	3,060	3,140	3,140	3,140	3,140	3,140	3,180	3,200	3,220	3,120
	Stable Markets Scenario	-	-	120	420	780	960	960	960	960	960	960	960	960	980	1,020	1,020	1,020	1,020	1,020	1,020	1,040	1,080	1,040	740	560

2025 Integrated Resource Plan

Stakeholder Meeting #4

October 22, 2025

AES Indiana

Agenda and introductions

Stewart Ramsay

Managing Executive, Vanry and Associates

Agenda

Time	Topic	Speakers
10 a.m.	Virtual meeting protocols and safety	**Claire Rice**, Senior Director, Corporate Affairs & Impact, AES Indiana
10:10 a.m.	IRP review	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
10:30 a.m.	IRP results	
Noon	Break for lunch	
12:30 p.m.	Additional scenarios and sensitivities	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana
1:30 p.m.	IRP results review	
1:45 p.m.	Preferred resource portfolio	
2:15 p.m.	Short term action plan	
2:50 p.m	AES Indiana president message	**Brandi Davis-Handy**, President, AES Indiana
	Final Q&A and next steps	**Patrick Maguire**, Senior Director of Commercial and Resource Planning, AES Indiana

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IRP team introductions

AES IRP leadership team

Ken Zagzebski, CEO, AES Indiana
Brandi Davis-Handy, President, AES Indiana
Guga Garavaglia, Chief Financial Officer, AES Utilities
Evaristo Leonardi, Chief Operating Officer, AES Utilities
Patrick Maguire, Senior Director, Commercial, AES Utilities

AES Indiana IRP planning team

Nette Brocks, Senior Manager, Resource Planning
Alex Dickerson, Senior Manager, Wholesale Energy
Ryan Yang, Load Forecasting Analyst
Michael Hardie, Resource Planning Analyst
Brent Selvidge, Engineer
Quintin Thompson, DSM Research Analyst
Chad Rogers, Director, Regulatory Affairs
Claire Rice, Senior Director of Corporate Affairs and Impact
Melanie Raney, Senior Manager, Mergers and Acquisitions

AES Indiana IRP partners

Eric Fox, Director, Forecasting Solutions, Itron
Mike Russo, Forecast Consultant, Itron
Woody Zhu, Assistant Professor of Data Analytics, Carnegie Mellon University
Jeffrey Huber, Overall Project Manager and MPS Lead, GDS Associates
Jacob Thomas, Project Manager, GDS Associates
Hisham Othman, Senior Vice President, Quanta Technologies
Christina Owens, Director, Resource Planning, ACES
Will Vance, Director, Capacity Markets and Fundamental Analysis, ACES
Stewart Ramsey, Managing Executive, Vanry and Associates

AES Indiana legal team

Teresa Morton Nyhart, Counsel, Taft Law

Virtual meeting protocols and safety

Claire Rice

Senior Director of Corporate Affairs and Impact, AES Indiana

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Virtual meeting protocols

Questions

→Your candid feedback and input is an integral part to the IRP process.

→Questions or feedback will be taken at the end of each section.

→Feel free to submit a question in the chat function at any time and we will ensure those questions are addressed.

Audio

→All lines are muted upon entry.

→For those using audio via Teams, you can unmute by selecting the microphone icon.

→If you are dialed in from a phone, press *6 to unmute.

Video

→Video is not required; however, if your camera is on, please refrain from distractions.

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Safety message: Safe driving

With Daylight Saving Time ending on Nov. 2, 2025, there will be less daylight during morning and evening commutes.

- → **Buckle up. Phone down. Eyes up.**
- → **Pre-trip check:** Tires, lights, mirrors, load secure
- → **Keep space:** 3-4 sec gap (more in bad weather)
- → **Scan constantly:** Mirrors every few seconds; expect surprises
- → **Slow for conditions:** No rolling stops; signal early
- → **Avoid blind spots:** See and be seen (daytime lights)

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IRP review

Patrick Maguire

Senior Director of Commercial and Resource Planning, AES Indiana

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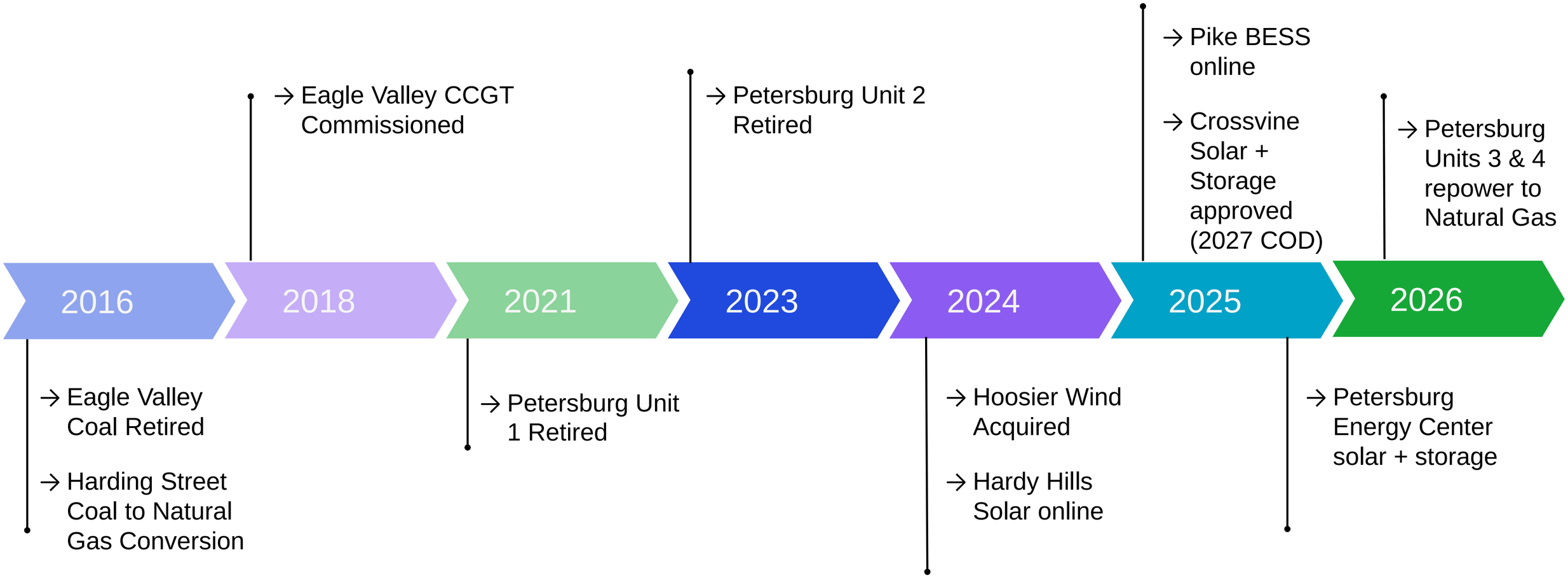
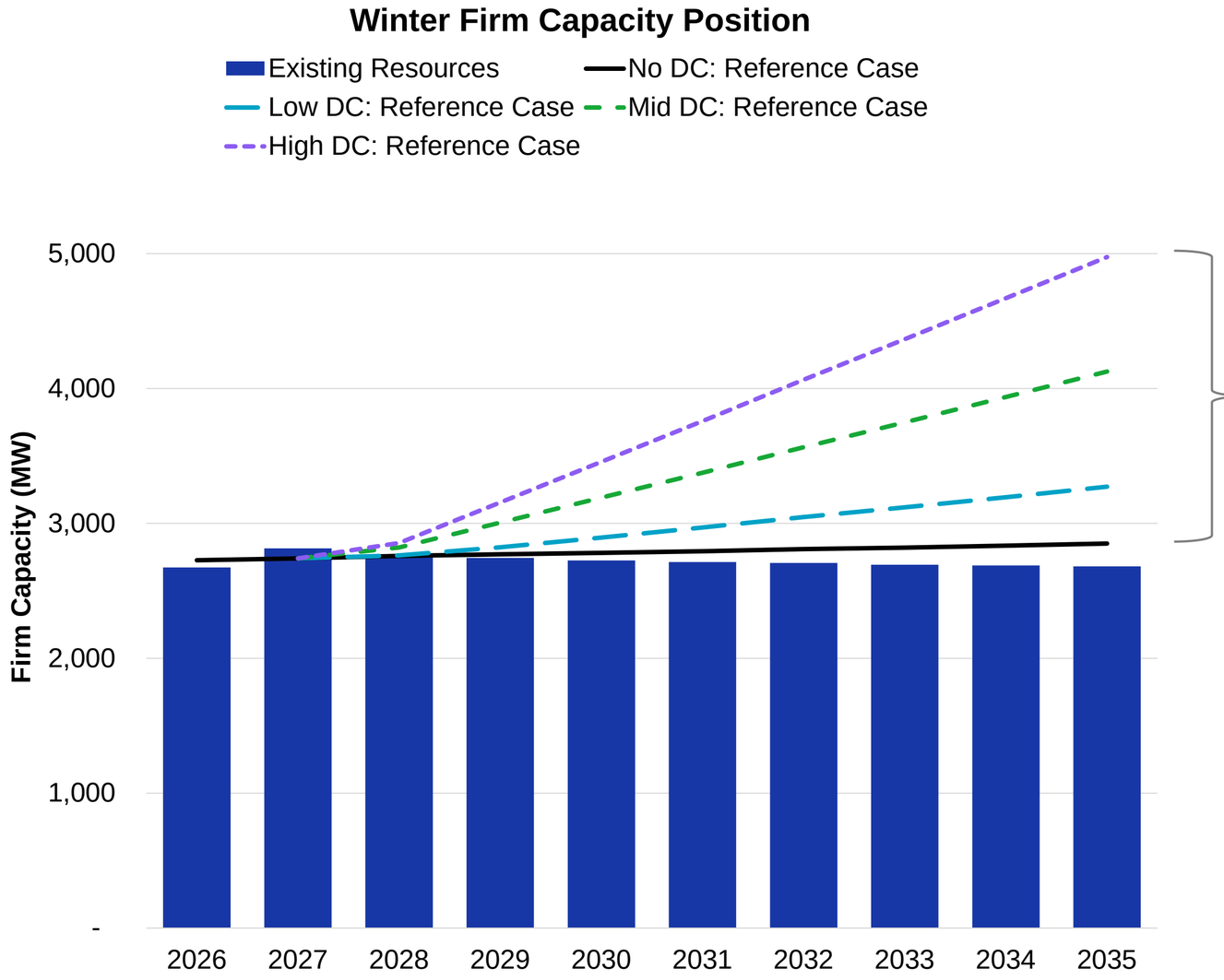
Power supply transformation: 2015-2025



Winter capacity position



Firm Capacity Position (MW)		
Reference Case	**2030**	**2035**
No DC	(190)	(334)
Low DC	(304)	(755)
Mid DC	(599)	(1,609)
High DC	(865)	(2,458)

→ By 2030, across all 64 portfolios/scenario variations, AES Indiana could be 62 MW[1] to 954 MW[2] short

→ By 2035, this increases to 158[1] MW to 2.6 GW[2] short

[1] No DC: Stable Markets Scenario
[2] High DC: Reference Case.

IRP scenario drivers

	Reference case	Gas infrastructure challenges	High regulatory: environmental	Stable markets scenario
EPA GHG NSPS	Repealed	Repealed	**111B remains in effect**	Repealed
Tax credits (ITC/PTC)	OBBBA	OBBBA	**IRA reinstatement + extension**	OBBBA
AES Indiana load	Base	Base	↑	↓
Natural gas prices	Base	↑	↑	↓
Thermal CAPEX	Base	Base[1]	↑	↓
Renewables CAPEX	Base	Base	Base	↓
EV/distributed solar	↓	Base	↑	Base

[1] High fixed O&M to reflect high firm gas transportation costs

Capacity expansion runs

- The IRP solved for 16 portfolios (capacity expansion)
  - 4 scenarios and 4 data center loads
- Each portfolio was tested against 4 scenarios
- There are 64 model runs
  - (4 data center loads * 4 portfolios * 4 scenarios)

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
No Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Low Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Mid Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

		Scenarios			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
High Data Center Load	Reference Case	Portfolio	Scenario	Scenario	Scenario
	Gas Infrastructure Challenges	Scenario	Portfolio	Scenario	Scenario
	High Regulatory: Environmental	Scenario	Scenario	Portfolio	Scenario
	Stable Markets Scenario	Scenario	Scenario	Scenario	Portfolio

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Additional capacity expansions

Different portfolios have different loads. Capacity expansions solve for varying capacity shortages. When comparing across portfolios, some will be short. For example, all other portfolios will be short in the “High regulatory: environmental” scenarios since there is a higher electrification load.

	Reference case	Gas infrastructure challenges	High regulatory: environmental	Stable markets scenario
AES Indiana load	Base	Base	↑	↓

While a capacity shortage penalty could be applied, the portfolios could also be reoptimized for additional capacity. This may more closely reflect the types and costs of replacement resources.

25-Year PVRR (2026$MM, 2026-2050)		Scenarios [1]			
		Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
(1) No Data Center Load (2) Low Data Center Load (3) Mid Data Center Load (4) High Data Center Load	Reference Case			[1]	
	Gas Infrastructure Challenges			[2]	
	High Regulatory: Environmental				
	Stable Markets Scenario	[3]	[4]	[5]	

AES conducted 20 additional capacity expansions to reflect need for short portfolios to install additional resources, as opposed to solely taking a capacity penalty. This reduced dependence on capacity prices.

[1] 20 Optimizations = (4) * [5]

Reference case: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	105	124	133	138	138	139	140	140	141	140	139	140
	High DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load			20	20	20	20	40	100	100	100	100	100	100	100	100
	Low DC Load			40	80	160	260	420	420	420	420	420	420	420	420	420
	Mid DC Load			200	360	580	860	860	860	860	860	860	860	860	860	860
	High DC Load			300	620	620	640	640	640	640	640	640	640	640	640	680
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load							700	700	700	700	700	700	700	700	700
	High DC Load					700	700	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Gas CT	No Data Center Load															
	Low DC Load								240	240	480	480	480	480	480	480
	Mid DC Load									240	480	720	720	720	720	720
	High DC Load								240	240	240	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load											54	54	54	108	108
	Low DC Load														54	54
	Mid DC Load													54	54	108
	High DC Load										54	54	54	54	54	54
Solar	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

Challenged/high gas: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load			20	20	20	20	40	100	100	100	100	100	100	100	100
	Low DC Load			20	80	160	160	160	160	160	160	160	160	160	160	160
	Mid DC Load			140	320	320	320	380	380	380	380	380	380	380	380	380
	High DC Load			260	560	560	620	620	620	620	620	620	620	620	620	620
Gas CCGT	No Data Center Load															
	Low DC Load						700	700	700	700	700	700	700	700	700	700
	Mid DC Load					700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	High DC Load					700	700	1,400	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800
Gas CT	No Data Center Load															
	Low DC Load															
	Mid DC Load											240	240	240	240	240
	High DC Load															
Gas Reciprocating Engines	No Data Center Load											54	54	54	108	108
	Low DC Load															
	Mid DC Load										108	108	162	162	162	162
	High DC Load													54	54	108
Solar	No Data Center Load															
	Low DC Load															
	Mid DC Load			50	50	50	50	50	50	50	50	50	50	50	50	50
	High DC Load			25	25	25	25	25	25	25	25	25	25	25	25	25
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

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High regulatory scenario: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Low DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		40	100	100	100	120	120	120	120	120	120	120	120	120	180
	Low DC Load		40	100	180	300	420	500	540	620	780	860	860	940	940	1,020
	Mid DC Load		40	180	420	640	840	1,120	1,360	1,660	1,840	2,080	2,080	2,200	2,200	2,340
	High DC Load		20	240	580	940	1,340	1,700	1,700	2,140	2,480	2,820	2,820	2,880	2,880	2,960
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Gas CT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load							240	480	480	480	480	480	480	480	480
Gas Reciprocating Engines	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Solar	No Data Center Load		25	25	25	25	25	25	25	25	25	25	25	50	50	50
	Low DC Load										350	350	375	375	375	375
	Mid DC Load		25	50	50	50	50	50	75	75	1,050	1,425	1,475	1,525	1,525	1,525
	High DC Load		25	50	75	100	100	100	100	225	1,225	2,200	2,275	2,500	2,500	2,500
Wind	No Data Center Load					50	50	350	450	700	900	1,150	1,350	1,650	1,950	2,050
	Low DC Load						50	400	850	1,300	1,350	1,750	2,050	2,150	2,450	2,650
	Mid DC Load					350	750	1,250	1,750	2,250	2,750	3,150	3,650	3,700	4,200	4,250
	High DC Load					400	800	1,300	1,800	2,300	2,800	3,300	3,750	4,250	4,750	5,250

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Stable market scenario: Resource additions

INSTALLED CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	61	38	39	43	48	54	58	60	60	61	62	63	63	63	64
	Low DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
	Mid DC Load	61	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	High DC Load	61	44	61	107	129	142	150	151	152	153	153	155	154	152	153
Energy Efficiency	No Data Center Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Low DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
	High DC Load		34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load															
	Low DC Load			40	40	40	80	80	120	120	120	120	120	120	120	140
	Mid DC Load			80	180	400	660	700	720	720	720	720	720	740	740	780
	High DC Load			120	420	780	960	960	960	960	960	960	960	960	980	1,020
Gas CCGT	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load							700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load															
	Low DC Load							240	240	240	480	480	480	480	480	480
	Mid DC Load							240	480	720	960	1,200	1,200	1,200	1,200	1,200
	High DC Load						240	240	480	960	1,440	1,680	1,680	1,680	1,680	1,680
Gas Reciprocating Engines	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															
Solar	No Data Center Load															
	Low DC Load			50	50	50	50	50	50	50	50	50	50	50	50	50
	Mid DC Load			100	100	100	100	100	100	100	100	100	100	100	100	100
	High DC Load			100	100	100	100	100	100	100	100	100	100	100	100	100
Wind	No Data Center Load															
	Low DC Load															
	Mid DC Load															
	High DC Load															

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Summary: Candidate portfolios through 2035

Optimized Portfolios: Cumulative Capacity Additions through 2035

Installed Capacity (MW)

		DR	EE	Storage	Gas CCGT	Gas Peaking	Solar	Wind
No Data Center Load	Reference	156	191	100	0	0	0	0
	Scenario 2	156	191	100	0	0	0	0
	Scenario 3	156	191	120	0	0	25	900
	Scenario 4	61	191	0	0	0	0	0
Low Data Center Load (500 MW)	Reference	153	191	420	0	480	0	0
	Scenario 2	153	191	160	700	0	0	0
	Scenario 3	156	191	780	0	0	350	1,350
	Scenario 4	153	191	120	0	480	50	0
Mid Data Center Load (1,500 MW)	Reference	140	191	860	700	480	0	0
	Scenario 2	156	191	380	1,400	108	50	0
	Scenario 3	156	191	1,840	0	0	1,050	2,750
	Scenario 4	156	191	720	0	960	100	0
High Data Center Load (2,500 MW)	Reference	153	191	640	2,100	294	0	0
	Scenario 2	156	191	620	2,800	0	25	0
	Scenario 3	156	191	2,480	0	480	1,225	2,800
	Scenario 4	153	191	960	700	1,440	100	0

16 optimized portfolios

4 deterministic scenarios
X
4 data center load ramps

Iterative Capacity Expansion Portfolios: Difference from Original Optimized Portfolio

Installed Capacity (MW)

		DR	EE	Storage	Gas CCGT	Gas Peaking	Solar	Wind
No Data Center Load	Reference through Scenario 3	0	0	60	0	0	100	800
	Scenario 2 through Scenario 3	0	0	60	0	0	50	900
	Scenario 4 through Scenario 1	95	0	100	0	0	0	0
	Scenario 4 through Scenario 2	77	0	60	0	54	50	0
	Scenario 4 through Scenario 3	95	0	180	0	0	125	650
Low Data Center Load (500 MW)	Reference through Scenario 3	3	0	60	0	0	50	550
	Scenario 2 through Scenario 3	0	0	100	0	0	75	150
	Scenario 4 through Scenario 1	0	0	180	0	54	0	0
	Scenario 4 through Scenario 2	3	0	100	0	108	75	0
	Scenario 4 through Scenario 3	3	0	180	0	0	25	1,200
Mid Data Center Load (1,500 MW)	Reference through Scenario 3	13	0	80	0	0	625	350
	Scenario 2 through Scenario 3	0	0	40	0	0	250	500
	Scenario 4 through Scenario 1	0	0	240	0	54	0	0
	Scenario 4 through Scenario 2	0	0	180	0	54	75	0
	Scenario 4 through Scenario 3	0	0	120	0	0	150	1,650
High Data Center Load (2,500 MW)	Reference through Scenario 3	0	0	40	0	0	1,050	600
	Scenario 2 through Scenario 3	0	0	40	0	0	425	400
	Scenario 4 through Scenario 1	0	0	560	0	0	0	0
	Scenario 4 through Scenario 2	0	0	420	0	0	475	0
	Scenario 4 through Scenario 3	0	0	200	0	0	950	800

20 iterative capacity expansion portfolios for scenario matrix

3 portfolios through High Load (Scenario 3)
X
2 portfolios through Base Load (Scenario 4 through 1, 2)
X
4 data center load ramps

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IRP Results

Patrick Maguire

Senior Director of Commercial and Resource Planning, AES Indiana

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IRP scorecard results

AFFORDABILITY	10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	Includes all system costs (depreciation/decommissioning on existing assets, amortization on existing assets, return on existing assets, and transmission/distribution expenses) and incremental revenue requirements, divided annually by total retail sales; then levelized
	25-Year Supply Cost (2026$/MWh, 2026-2050)	
	10-Year PVRR (2026$MM, 2026-2035)	Incremental annual present value revenue requirements then levelized; ignores sunk costs
	25-Year PVRR (2026$MM, 2026-2050)	
RELIABILITY, RESILIENCY, AND STABILITY	25-year Market Interaction: Purchases + Sales	Sum of two metrics below
	25-year energy purchases	Average of annual energy purchases divided by retail sales across study period (2026-2050)
	25-year energy sales	Average of annual energy sales divided by retail sales across study period (2026-2050)
	Dispatchable Capacity Divided by Peak Load (2035)	In 2035, total dispatchable (natural gas and storage) capacity divided by peak load
	Dispatchable FIRM Capacity Divided by Peak Load (2035)	In 2035, total firm dispatchable (natural gas and storage) capacity divided by peak load
RISK & OPPORTUNITY	(Mean – P5)	Across 100 stochastic runs, the mean minus the 5th percentile value of the 25-Year PVRR (2026$MM, 2026-2050)
	(P95 – Mean)	Across 100 stochastic runs, the 95th percentile value minus the mean of the 25-Year PVRR (2026$MM, 2026-2050)
	Opportunity: % of PVRR	The (Mean – P5) metric divided by the 25-Year PVRR (2026$MM, 2026-2050)
	Risk: % of PVRR	The (P95-Mean) metric divided by the 25-Year PVRR (2026$MM, 2026-2050)
	Environmental Scenario Risk	The 25-Year PVRR (2026$MM, 2026-2050) of the “High Environmental: Regulatory” Scenario minus the evaluated Scenario
	Mean PVRR % Difference from Optimal	The average percent difference between the evaluated Scenario and the optimized portfolio
ENVIRONMENTAL	Total CO2 Emissions (Million Tons)	Generation emissions across study period (2026-2050)
	Total CO2 Emissions (lb/MWh, Study Average)	Sum of total CO2 emissions across study period (2026-2050) divided by total retail sales across study period (2026-2050)

IRP scorecard results

		AFFORDABILITY				RELIABILITY, RESILIENCY, AND STABILITY					RISK & OPPORTUNITY				ENVIRONMENTAL	
Data Center Case	Portfolio	10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	25-Year Supply Cost (2026$/MWh, 2026-2050)	10-Year PVRR (2026$MM, 2026-2035)	25-Year PVRR (2026$MM, 2026-2050)	25-year Market Interaction: Purchases+ Sales	25-yr energy purchases	25-yr energy sales	Dispatchable Capacity Divided by Peak Load (2035)	Dispatchable FIRM Capacity Divided by Peak Load (2035)	Opportunity (Mean - P5): % of PVRR	Risk (P95-Mean): % of PVRR	Environmental Scenario Risk	Mean PVRR % Difference from Optimal	Total CO2 Emissions (Million Tons)	Total CO2 Emissions (lb/MWh, Study Average)
No Data Center Load	Reference Case	$149	$161	$5,126	$10,092	26%	16%	10%	110.7%	90.5%	17%	18%	$234	3%	147	772
	Gas Infrastructure Challenges	$149	$162	$5,154	$10,161	21%	13%	8%	110.7%	90.5%	17%	18%	$237	4%	146	766
	High Regulatory: Environmental	$156	$188	$5,906	$15,455	25%	11%	14%	111.4%	91.0%	7%	9%	$0	52%	99	523
	Stable Markets Scenario	$149	$161	$5,126	$10,070	27%	18%	9%	110.7%	90.5%	17%	19%	$57	0%	153	805
Low Data Center	Reference Case	$144	$151	$5,985	$12,654	23%	15%	8%	121%	99%	14%	18%	$239	3%	183	806
	Gas Infrastructure Challenges	$148	$153	$6,400	$13,047	21%	11%	10%	118%	98%	12%	15%	$970	7%	177	777
	High Regulatory: Environmental	$153	$180	$7,099	$19,827	26%	12%	14%	117%	96%	6%	8%	$0	53%	111	486
	Stable Markets Scenario	$145	$151	$6,020	$12,699	23%	15%	8%	119%	97%	15%	18%	$196	1%	194	854
Mid Data Center	Reference Case	$138	$139	$7,971	$18,187	17%	12%	5%	122%	102%	11%	16%	$658	3%	247	812
	Gas Infrastructure Challenges	$139	$140	$8,220	$18,499	17%	10%	7%	117%	99%	11%	15%	$1,217	6%	232	763
	High Regulatory: Environmental	$151	$174	$10,236	$30,040	21%	10%	11%	118%	98%	4%	6%	$0	60%	117	384
	Stable Markets Scenario	$138	$139	$7,967	$18,266	17%	12%	4%	121%	100%	12%	18%	$209	2%	278	914
High Data Center	Reference Case	$134	$132	$9,975	$23,754	15%	10%	5%	118%	102%	11%	15%	$1,434	3%	295	779
	Gas Infrastructure Challenges	$135	$133	$10,132	$24,032	14%	8%	7%	125%	109%	10%	14%	$1,851	5%	292	770
	High Regulatory: Environmental	$145	$164	$12,246	$37,871	18%	10%	8%	120%	99%	4%	7%	$0	52%	149	394
	Stable Markets Scenario	$134	$133	$9,959	$23,990	14%	10%	4%	133%	112%	11%	16%	$590	2%	333	879

Affordability: PVRR results

All results in 2026$MM; showing only incremental or modeled IRP PVRR in these tables

No Data Center Load

	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	10,092	13,067	14,941	8,043
Gas Infrastructure Challenges	10,161	13,091	14,944	8,102
High Regulatory: Environmental	15,455	17,378	14,707	12,595
Stable Markets Scenario	10,070	13,144	14,763	7,429

Mid Data Center Load

	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	18,187	23,307	26,744	14,152
Gas Infrastructure Challenges	18,499	23,190	27,303	14,619
High Regulatory: Environmental	30,040	32,546	26,086	22,878
Stable Markets Scenario	18,266	23,996	26,295	13,215

Low Data Center Load

	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	12,654	16,431	18,616	9,895
Gas Infrastructure Challenges	13,047	16,509	19,348	10,349
High Regulatory: Environmental	19,827	22,064	18,377	15,588
Stable Markets Scenario	12,699	16,622	18,573	9,273

High Data Center Load

	Scenarios			
	Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Reference Case	23,754	29,824	35,286	18,596
Gas Infrastructure Challenges	24,032	29,846	35,703	18,969
High Regulatory: Environmental	37,871	41,290	33,852	27,764
Stable Markets Scenario	23,990	30,824	34,442	17,532

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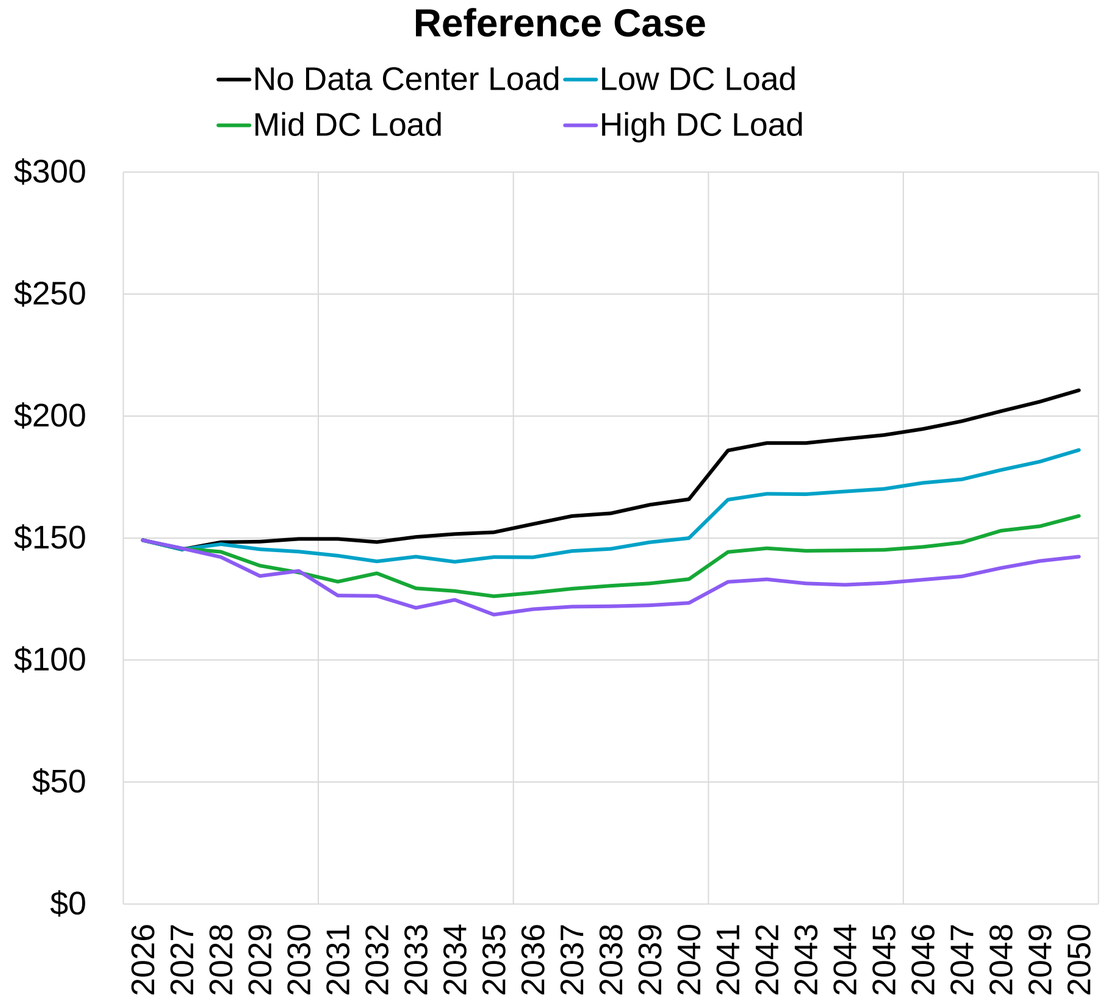
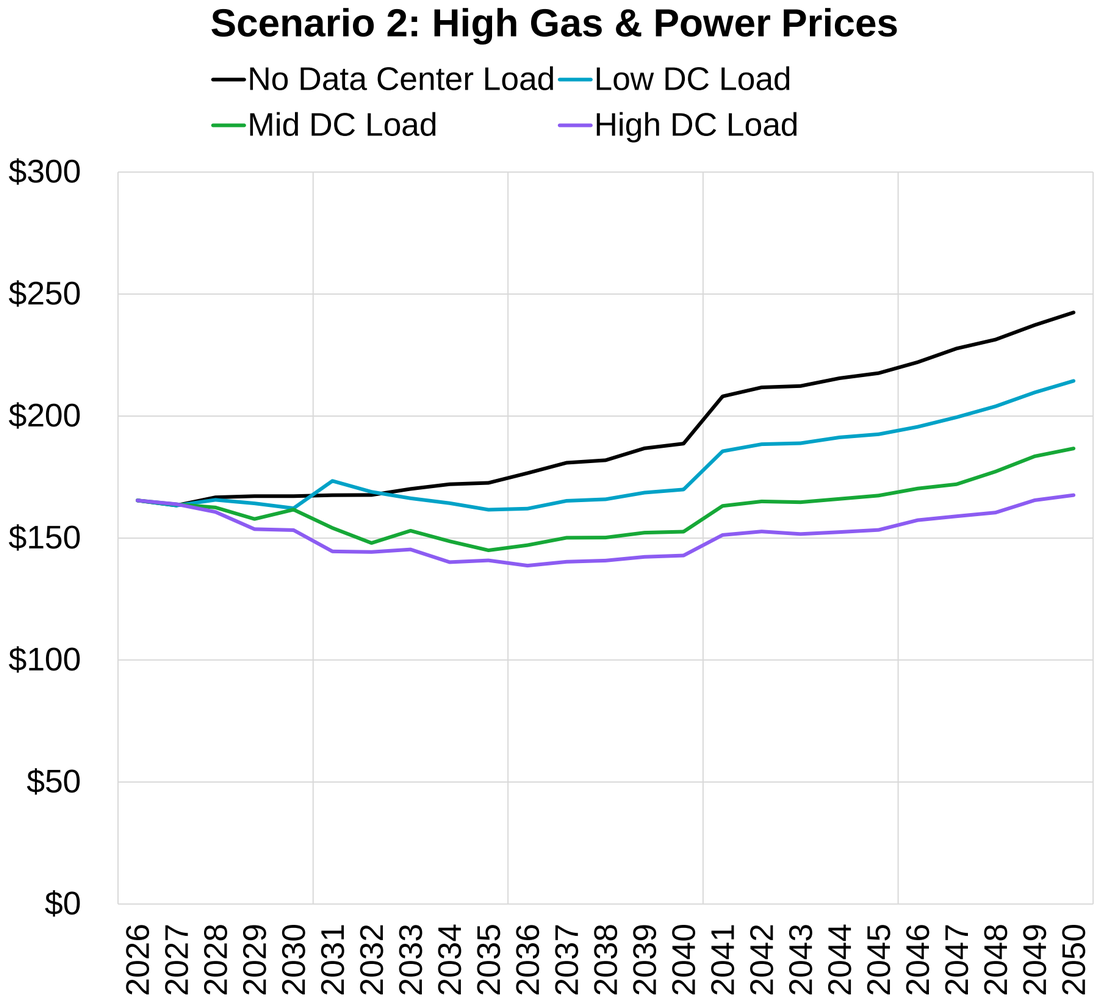
Affordability: System rates ($/MWh)





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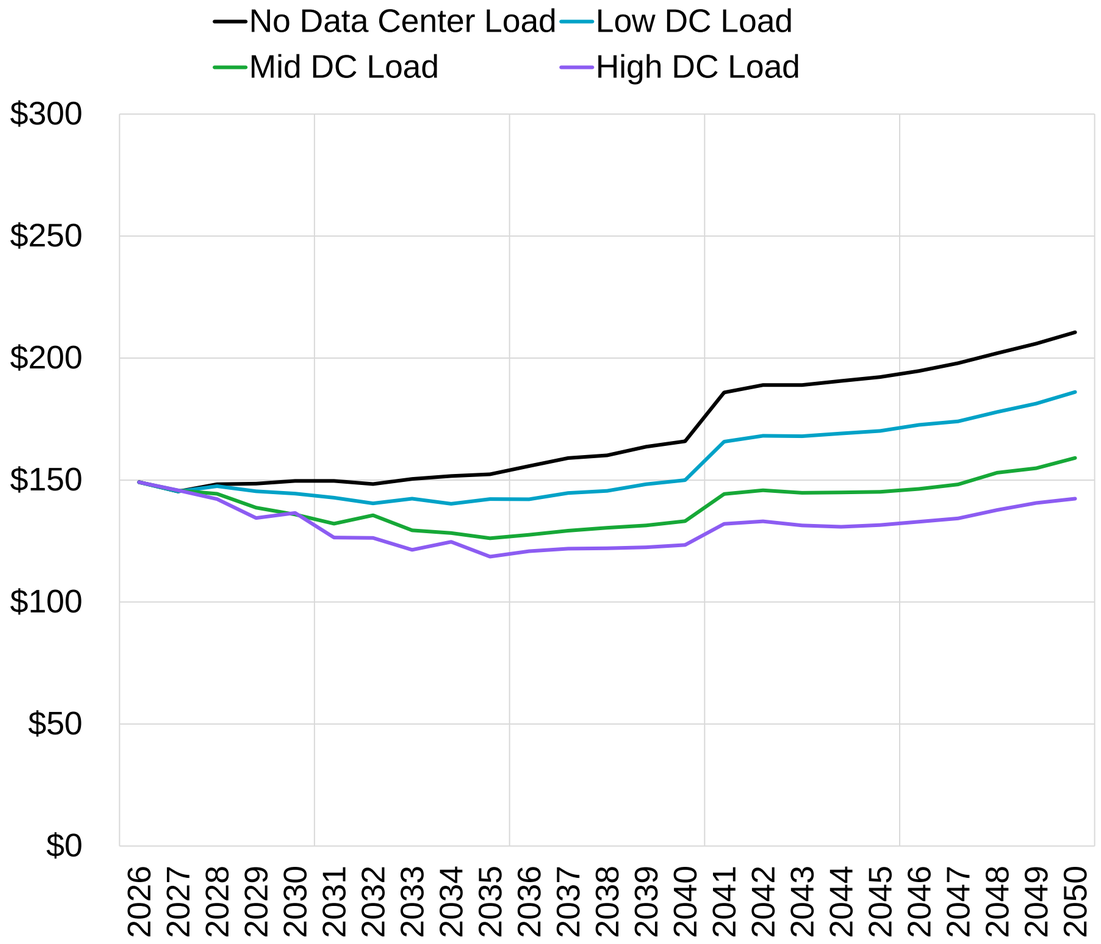
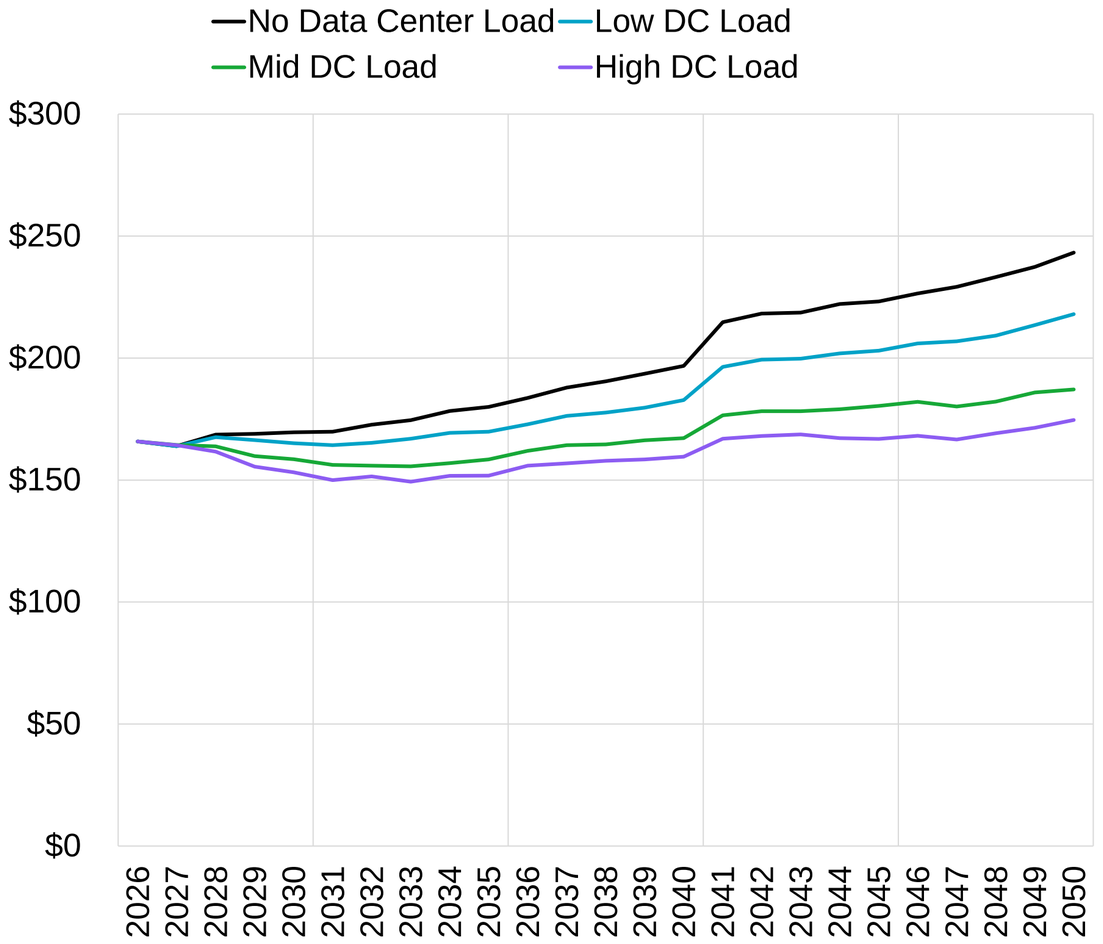
Affordability: System rates ($/MWh)

Reference Case



Scenario 3: Environmental Regulation



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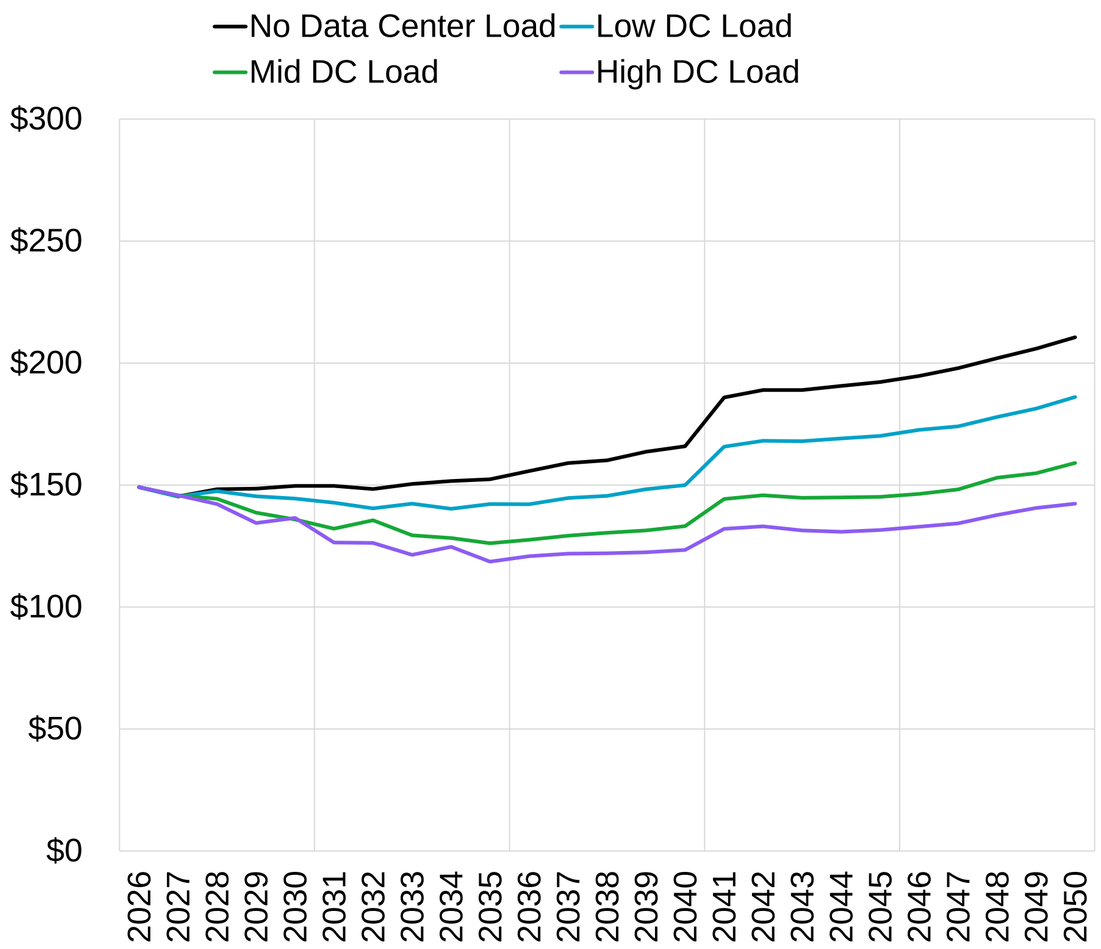
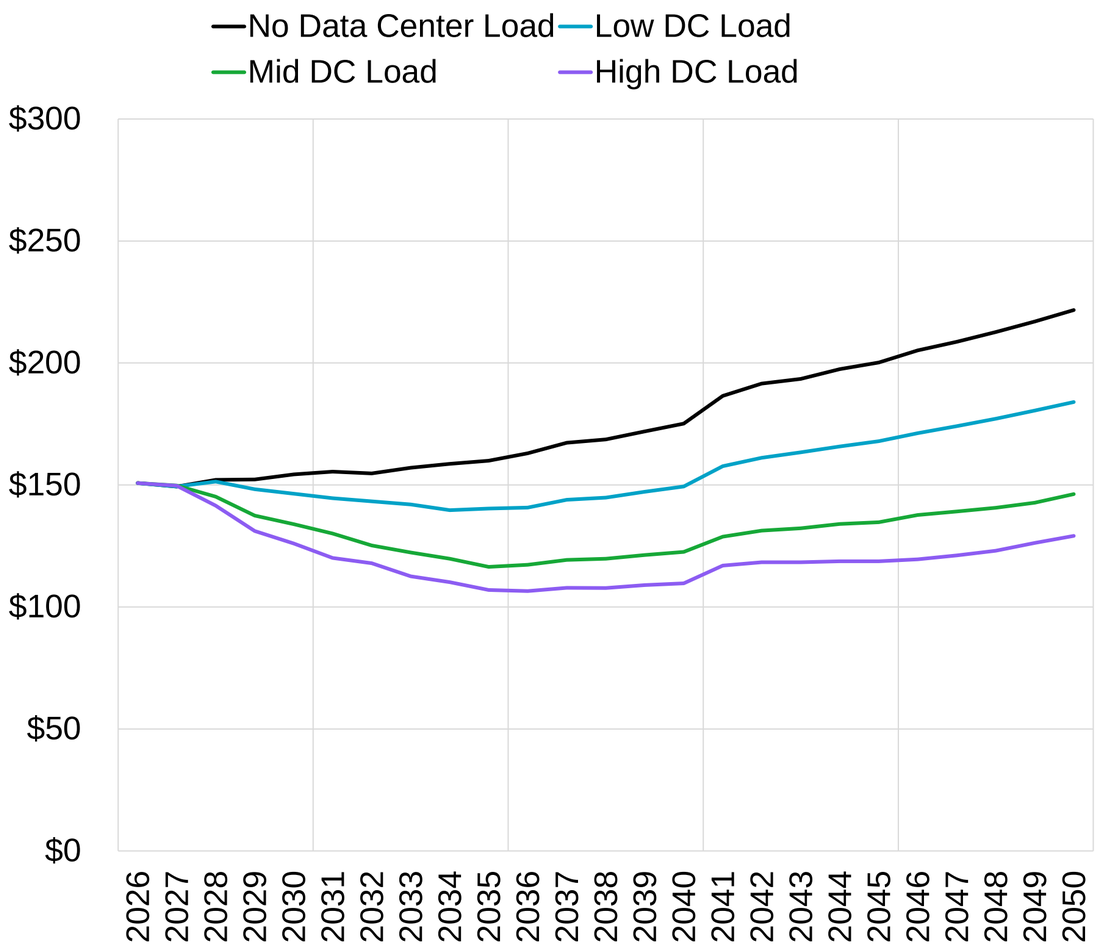
Affordability: System rates ($/MWh)

Reference Case



Scenario 4: Stable Markets



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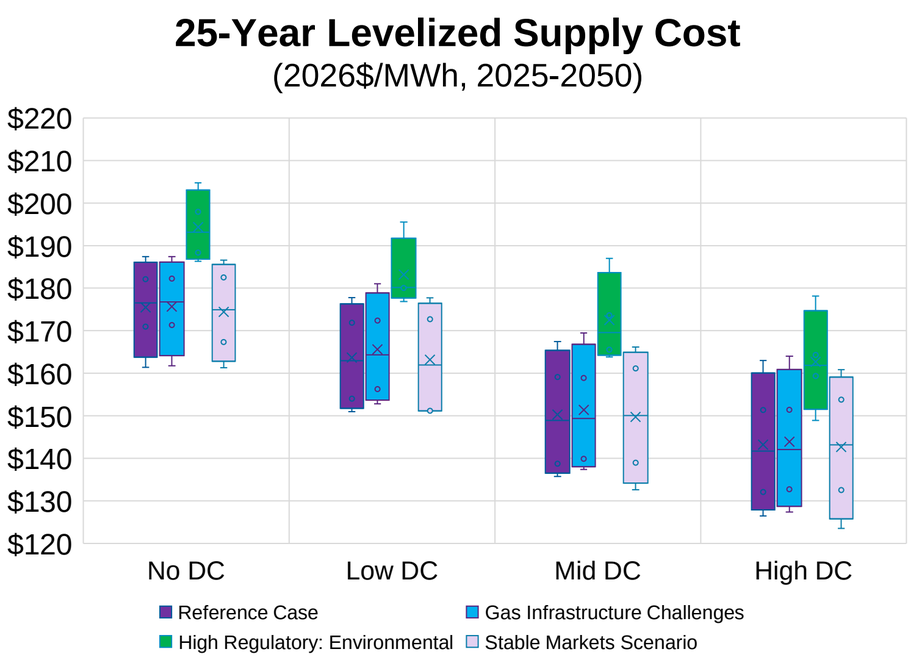
Affordability: System rates ($/MWh)



	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
No Data Center Load	Reference Case	$161	$182	$187	$171
	Gas Infrastructure Challenges	$162	$182	$187	$171
	High Regulatory: Environmental	$188	$205	$186	$198
	Stable Markets Scenario	$161	$183	$187	$167

	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Low Data Center Load	Reference Case	$151	$172	$178	$154
	Gas Infrastructure Challenges	$153	$172	$181	$156
	High Regulatory: Environmental	$180	$196	$177	$180
	Stable Markets Scenario	$151	$173	$178	$151

	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
Mid Data Center Load	Reference Case	$139	$159	$167	$136
	Gas Infrastructure Challenges	$140	$159	$169	$137
	High Regulatory: Environmental	$174	$187	$166	$164
	Stable Markets Scenario	$139	$161	$166	$133

	25-Year Supply Cost (2026$/MWh, 2026-2050)	Scenarios: Reference Case	Gas Infrastructure Challenges	High Regulatory: Environmental	Stable Markets Scenario
High Data Center Load	Reference Case	$132	$151	$163	$126
	Gas Infrastructure Challenges	$133	$151	$164	$127
	High Regulatory: Environmental	$164	$178	$159	$149
	Stable Markets Scenario	$133	$154	$161	$124

→ The High Regulatory: Environmental Portfolio has the smallest spread in costs across scenarios but the highest average cost

→ Other portfolios have similar risk profiles

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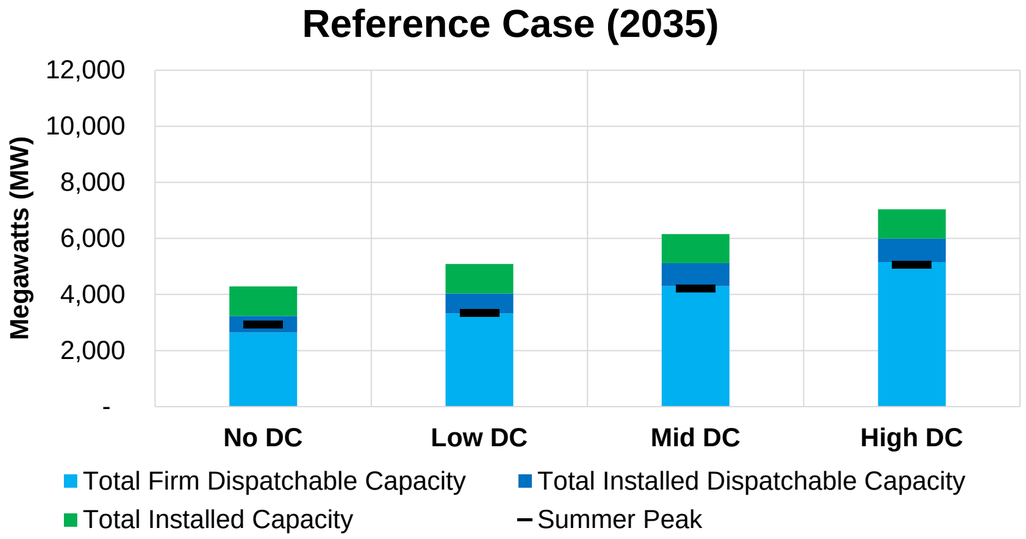
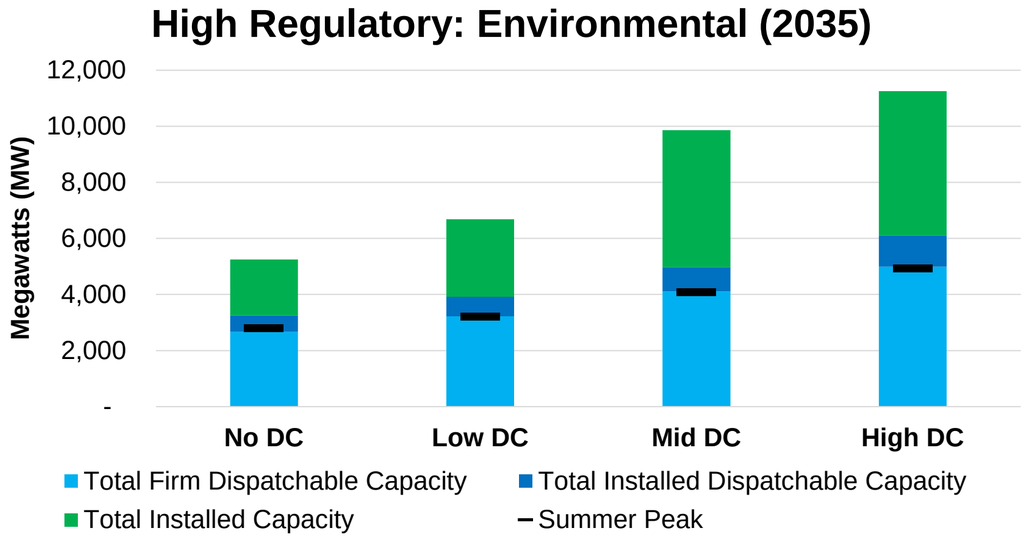
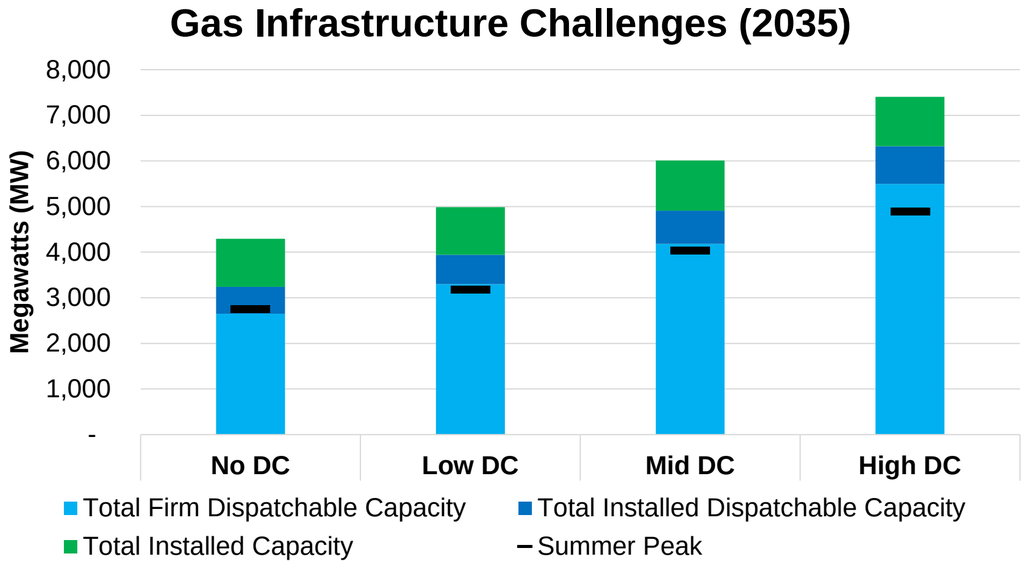
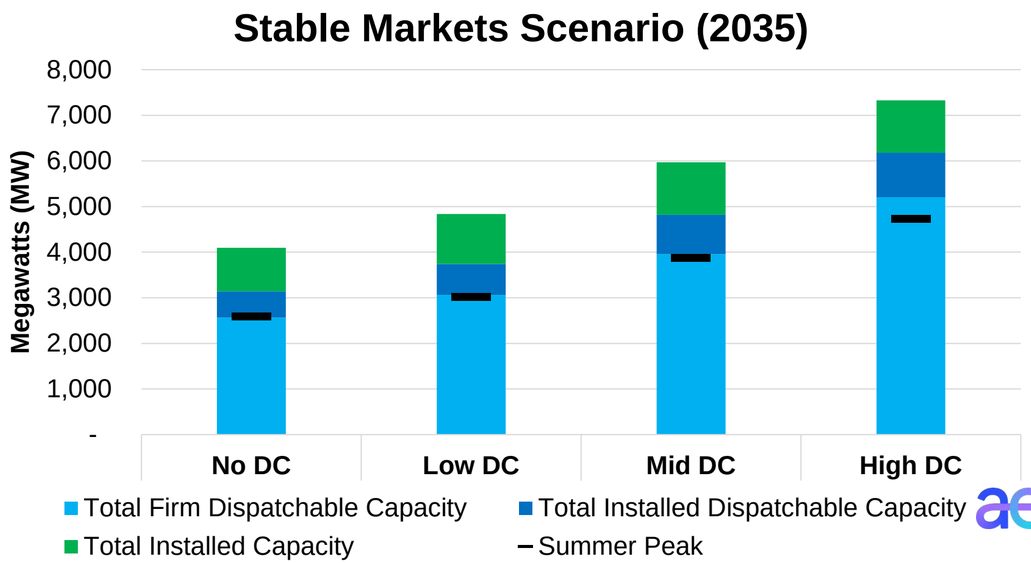
Reliability, resiliency, stability: dispatchable capacity

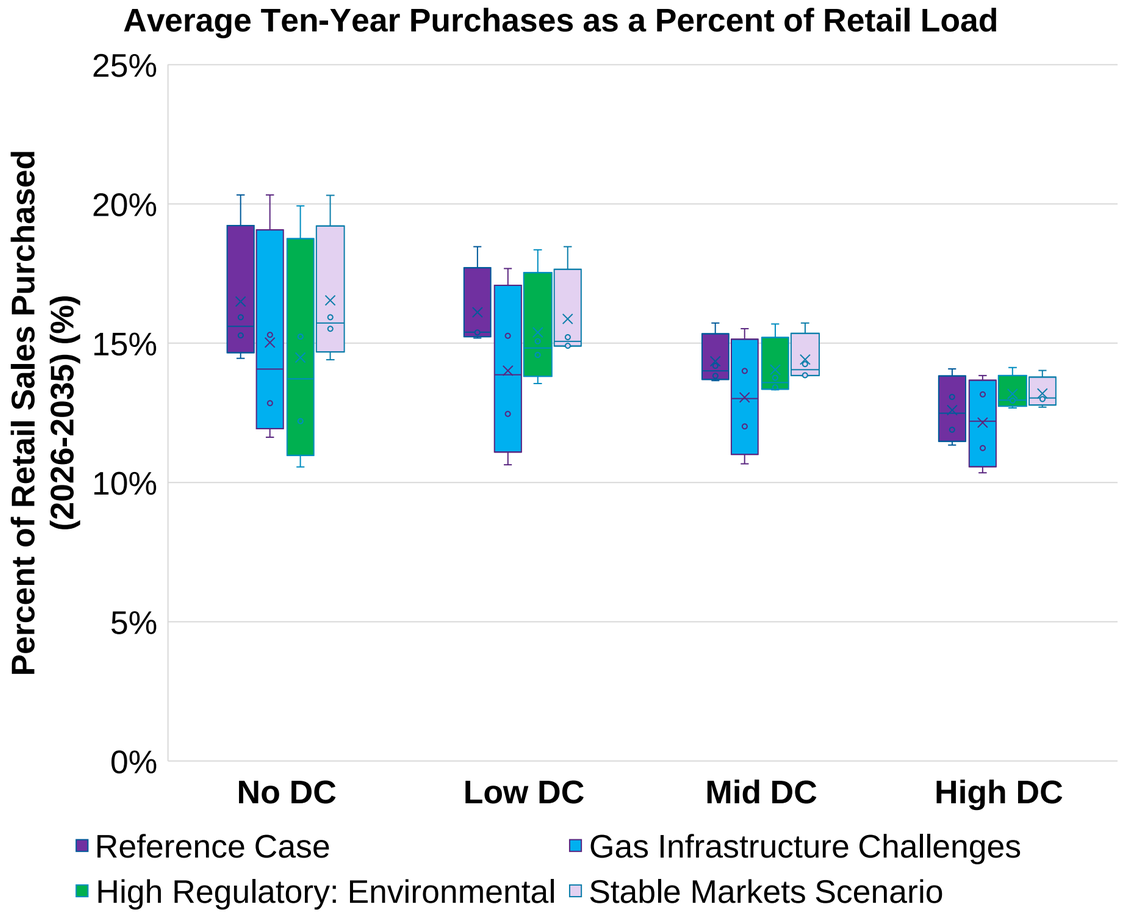


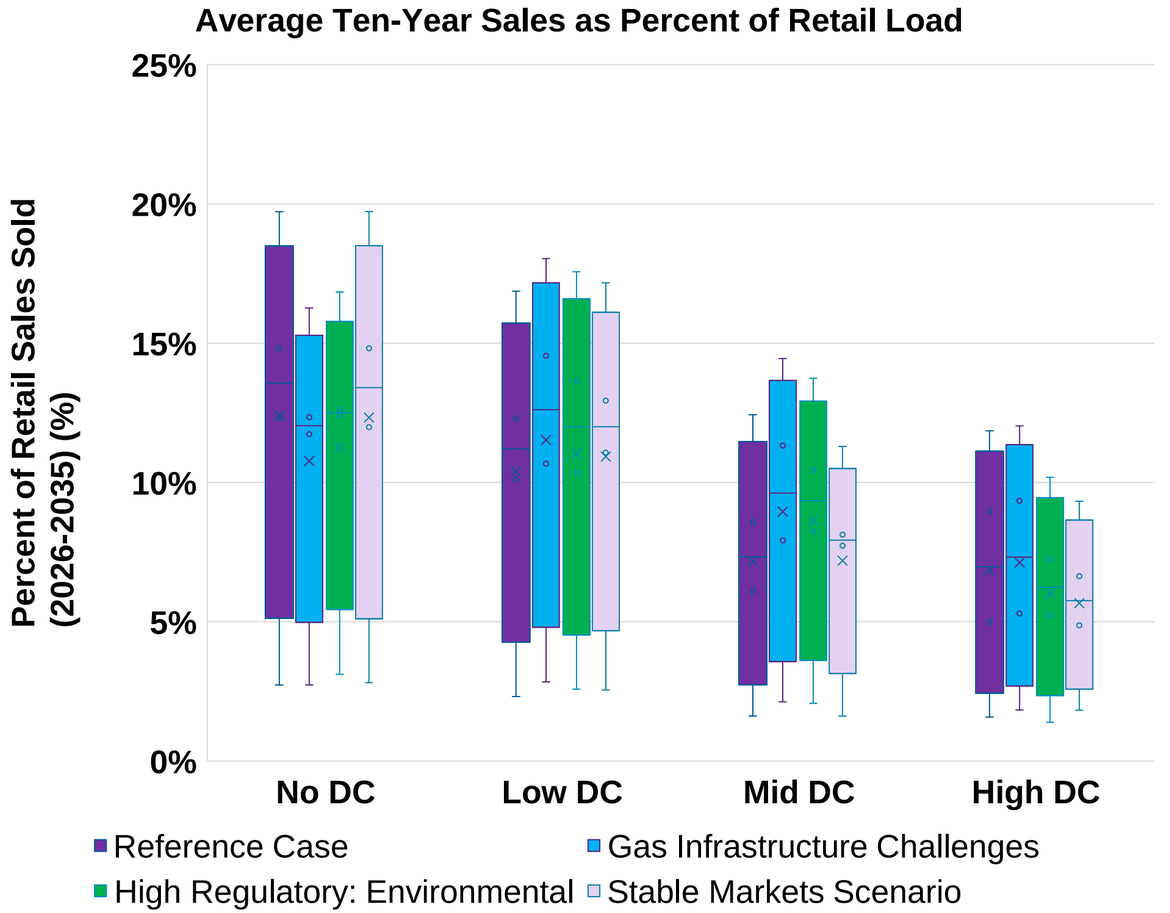






Reliability, resiliency, stability: market reliance



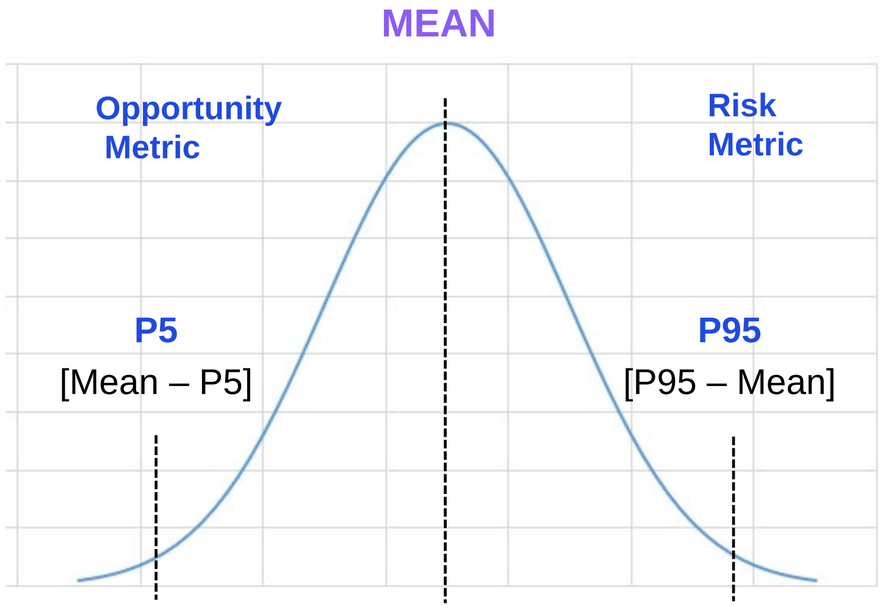


- → The Gas Infrastructure Challenges Portfolio has the greatest spread in purchases as a percent of retail load
- → Purchases generally range between 10-20% of load. Purchases were constrained to 20% in the modeling

- → Sales generally range between 10-20% of load
- → Sales were constrained to 20% in the modeling

Risk and opportunity metrics

- → Stochastic analysis was performed on the 16 optimized portfolios through the Reference Case to understand the risks and opportunities from:
  - → Energy price volatility
  - → Gas price volatility
  - → Load volatility
  - → Renewable generation volatility
- → Each variable was varied across a full stochastic distribution using 100 iterations of potential outcomes.
- → Metrics to measure cost risks and cost opportunities include:
  - → General Cost Risk Metric = [P95 – Mean]
  - → General Cost Opportunity Metric = [Mean – P5]



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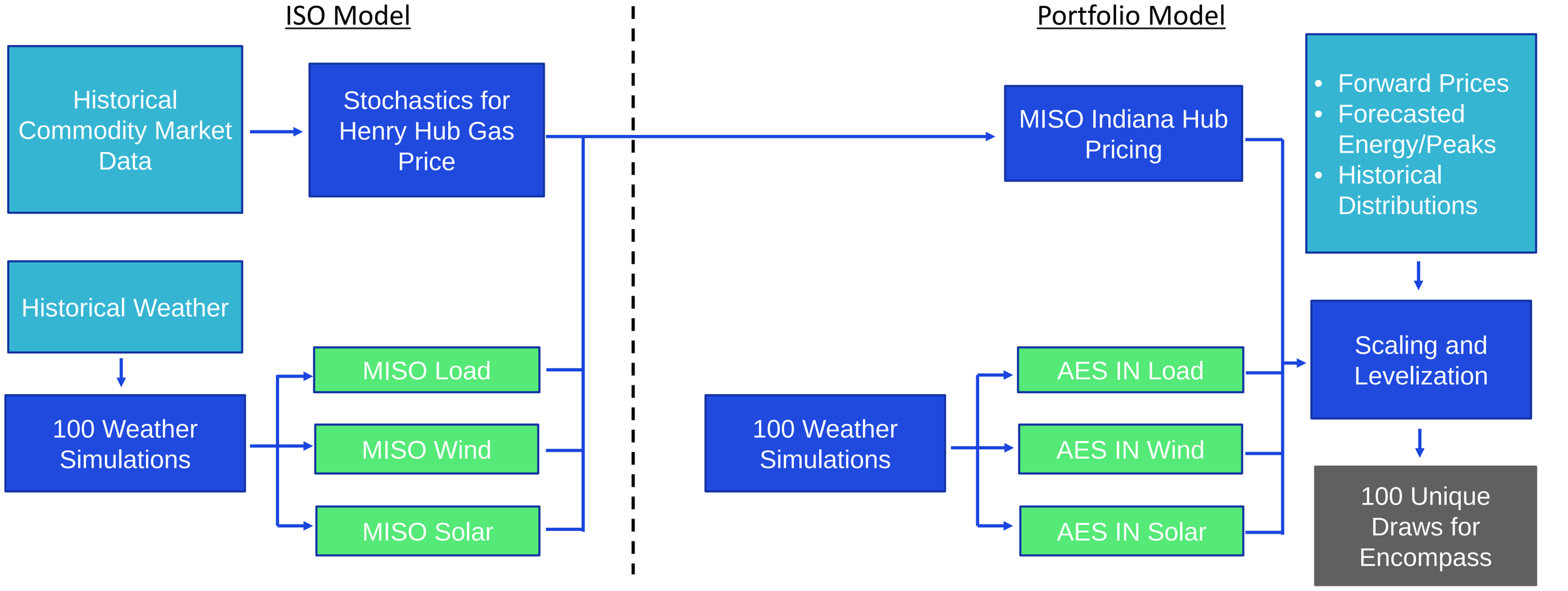
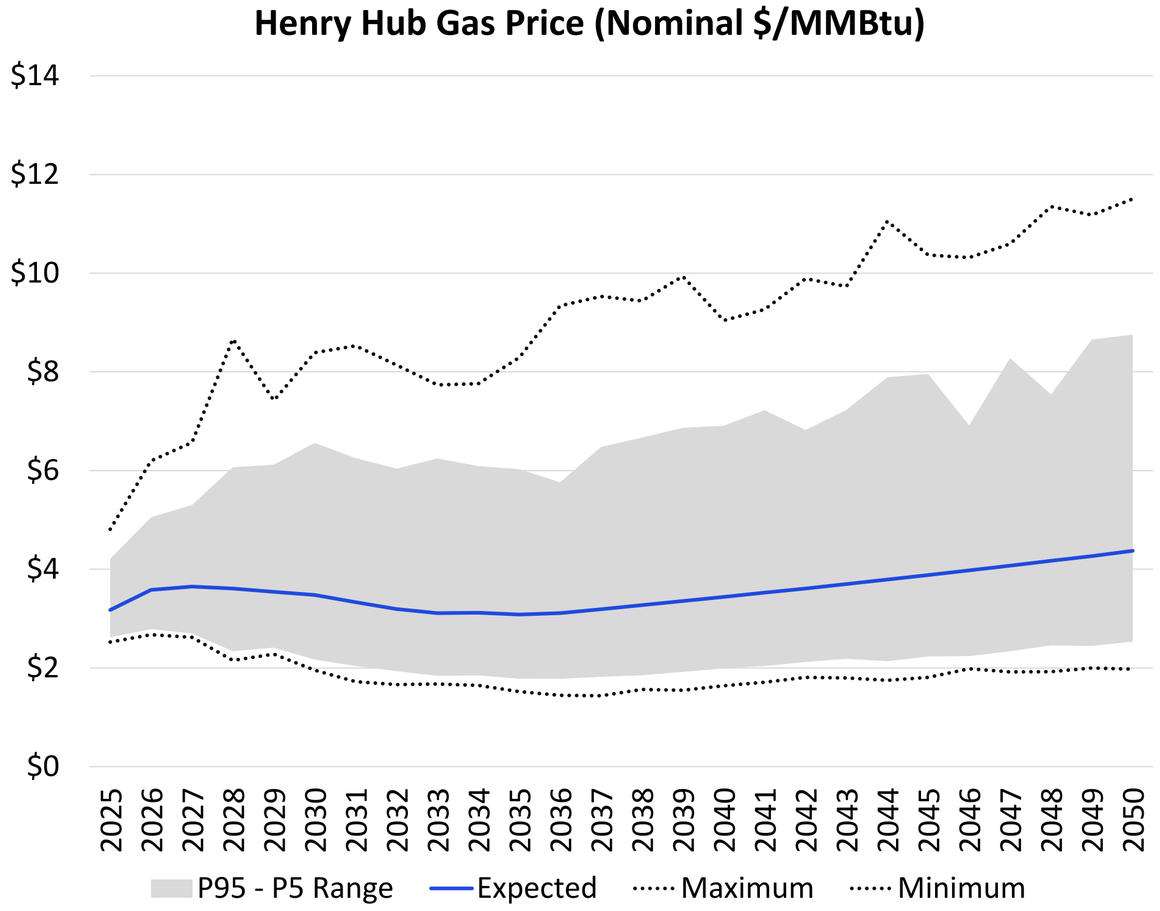
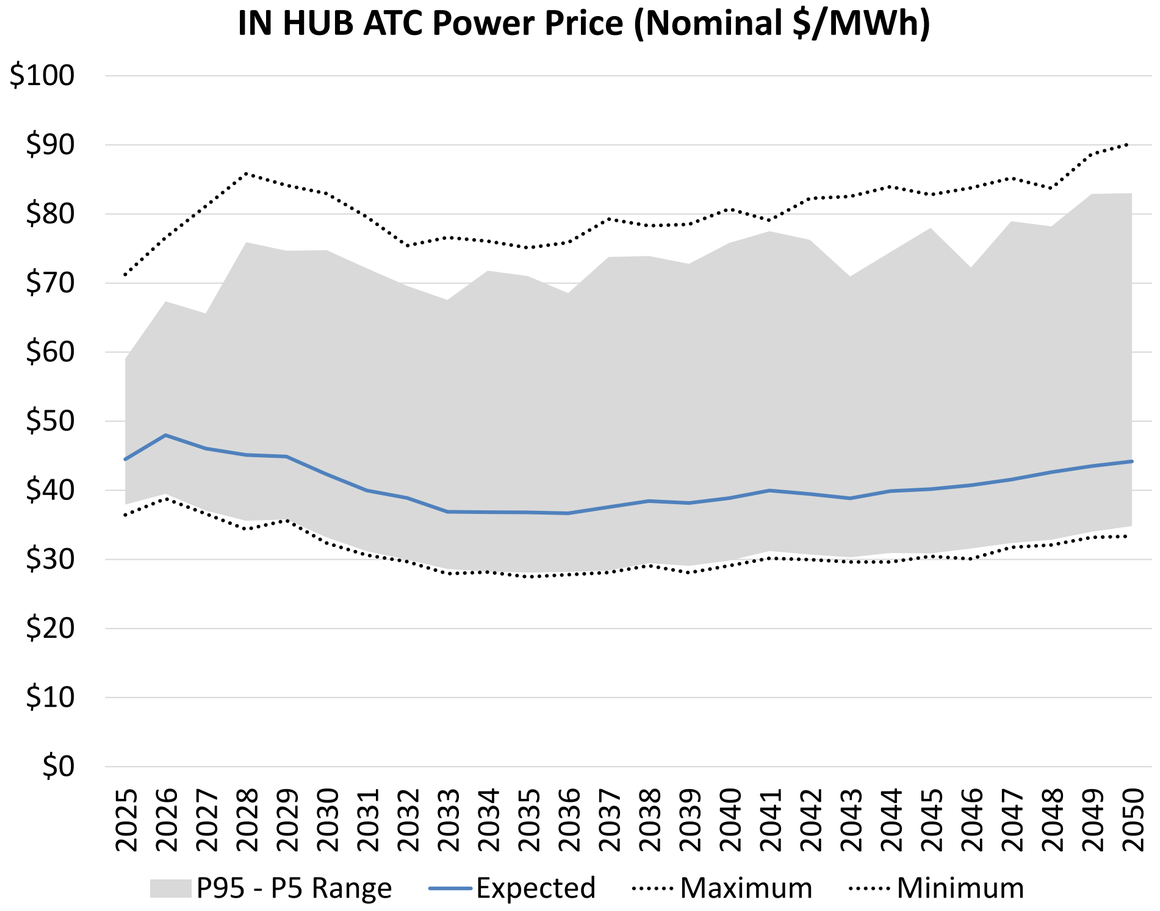
Weather driven stochastics overview



Stochastic gas and power prices





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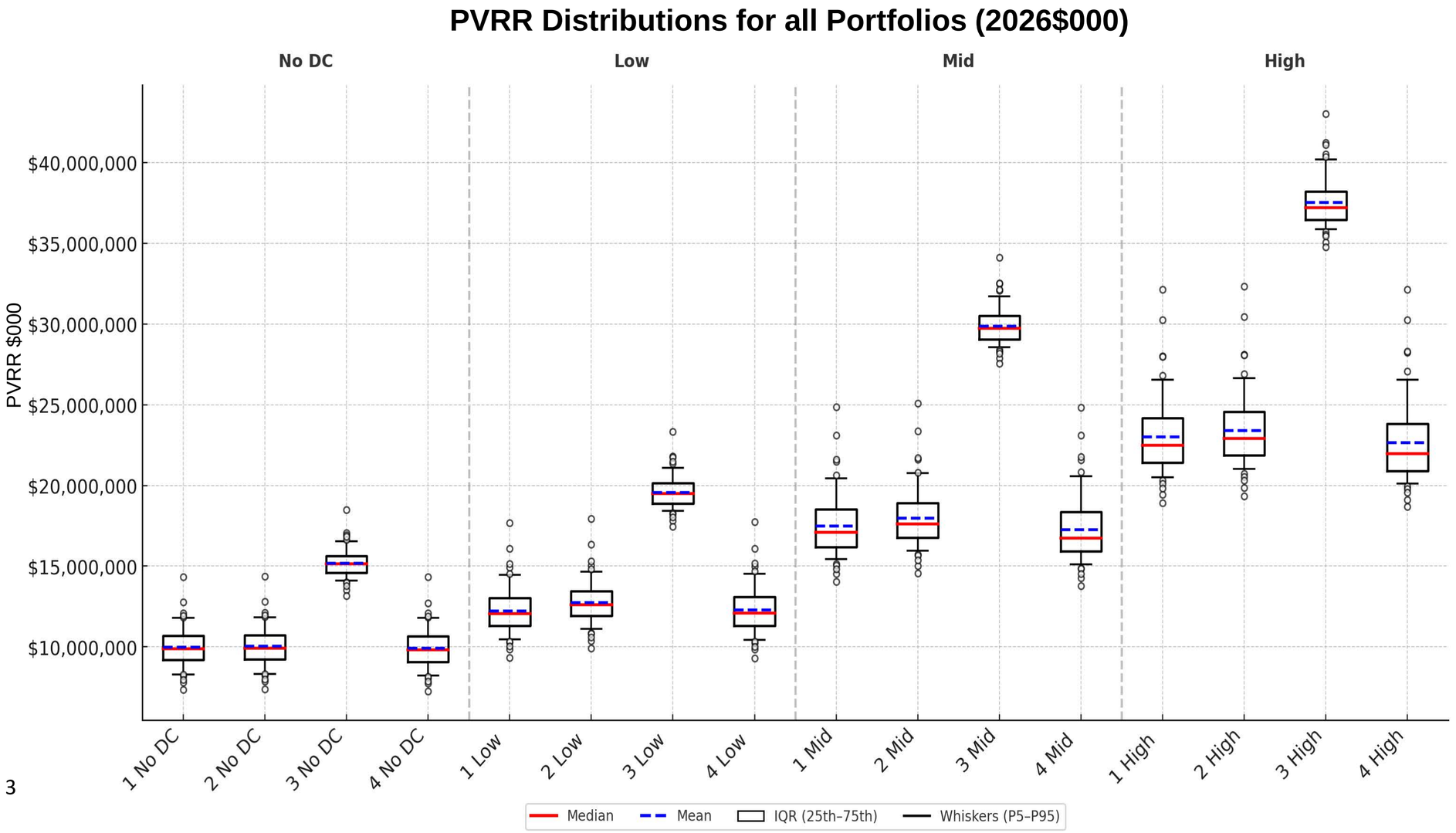
Stochastic results – All portfolios

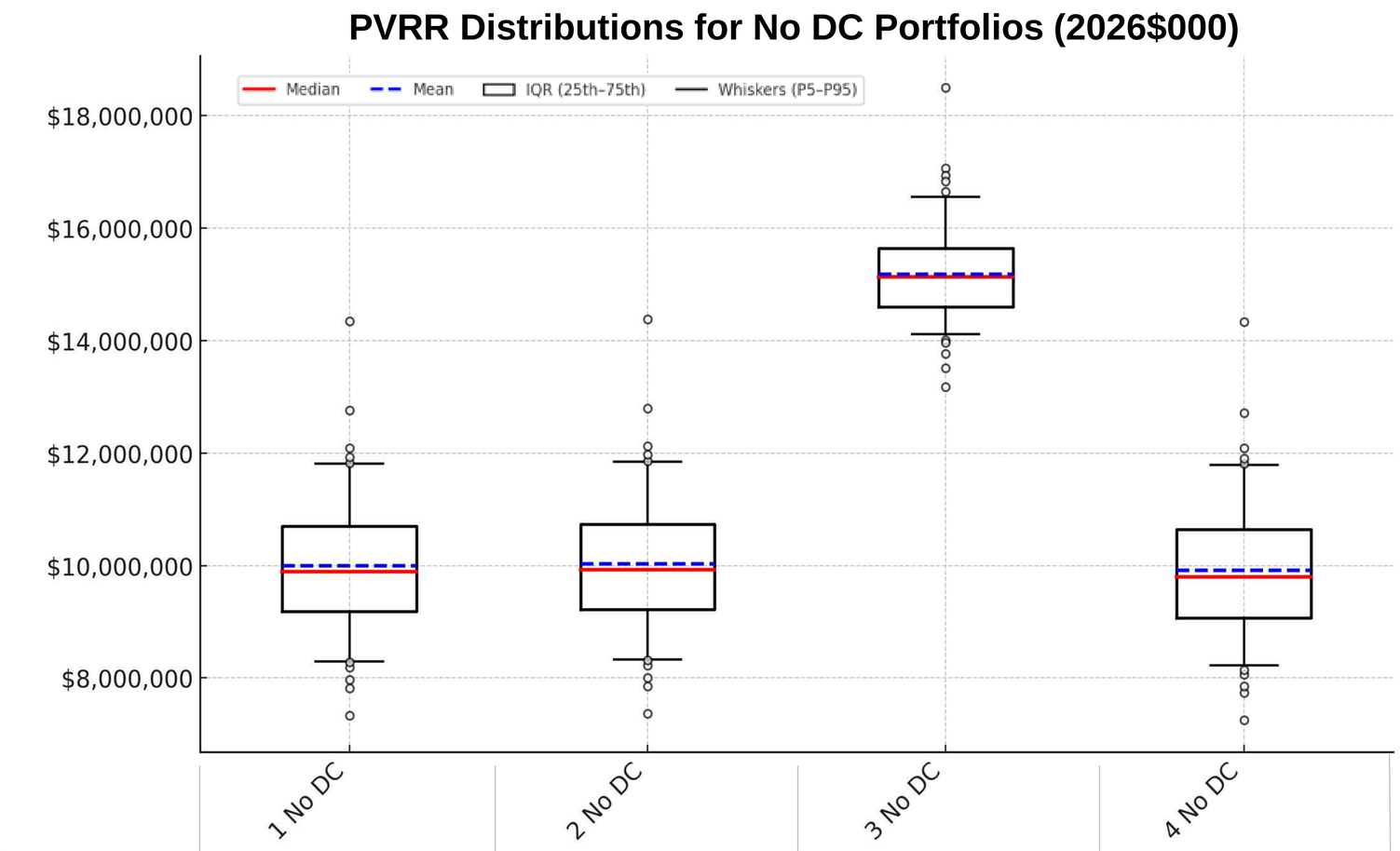


At each load level, Scenario 3: High Env Reg contains the narrowest PVRR distribution due to higher renewables volumes and, therefore, less fuel exposure.

As natural gas gen is added to serve higher amounts of data center load, the PVRR distribution widens due to more fuel risk exposure.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

Stochastic results – No data center



	1 No DC	2 No DC	3 No DC	4 No DC
P95 - Mean	$ 1,821,399	$ 1,818,145	$ 1,384,780	$ 1,877,576
Mean - P5	$ 1,696,232	$ 1,694,724	$ 1,070,702	$ 1,692,280

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes. This is driven by higher renewable vs natural gas resource volumes compared to the other portfolios and, in turn, less fuel price risk.

Scenarios 1, 2, & 4 are not materially different in terms of risk and opportunity.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

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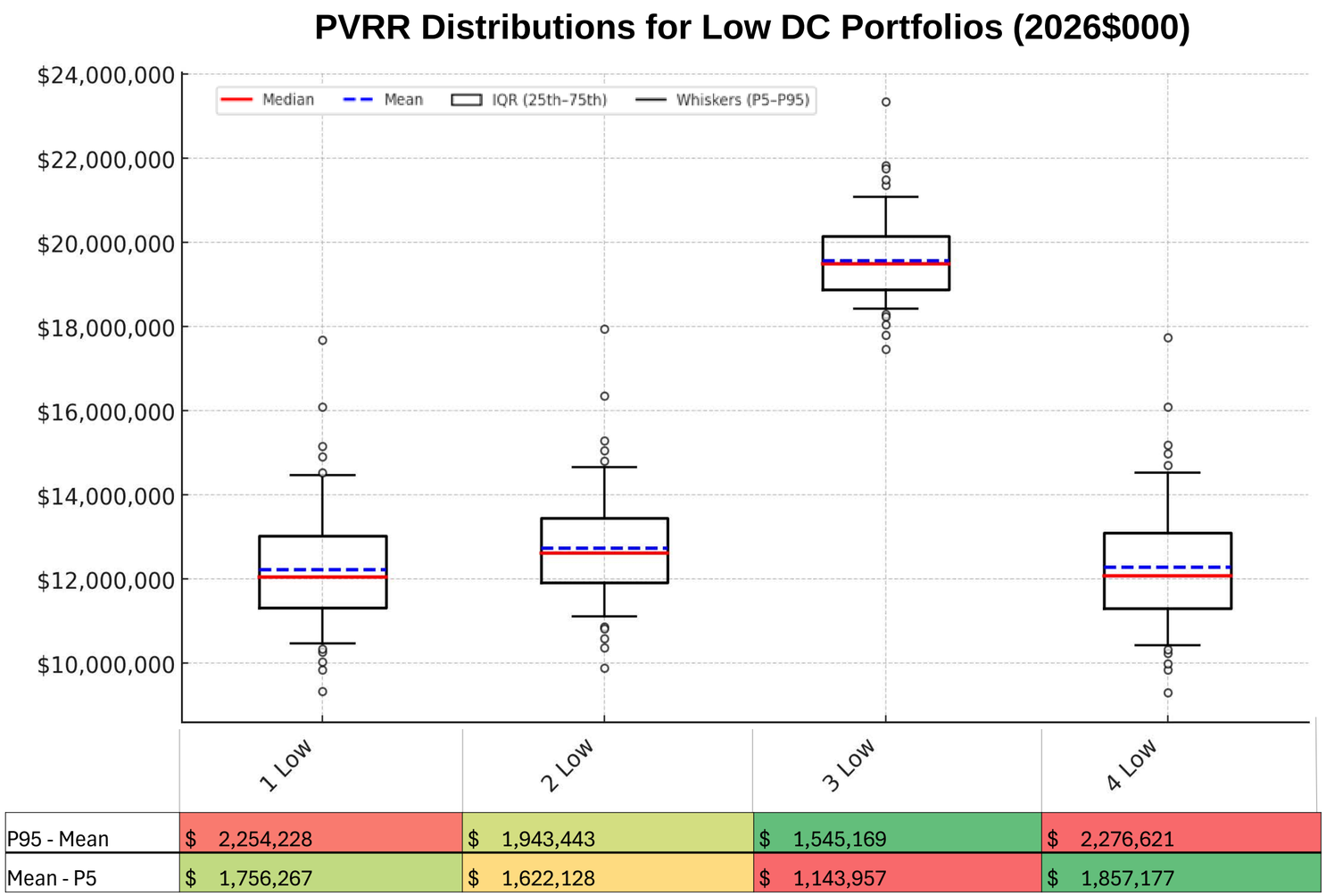
Stochastic results – Low data center



	1 Low	2 Low	3 Low	4 Low
P95 - Mean	$ 2,254,228	$ 1,943,443	$ 1,545,169	$ 2,276,621
Mean - P5	$ 1,756,267	$ 1,622,128	$ 1,143,957	$ 1,857,177

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

Portfolios that include more CCGT rather than CT exhibit lower P95-Mean due to the CCGT's lower heat rate which provides low spark hedge.

Ex: Scenario 1 & 4 both add CT to serve DC load in 2035; whereas Scenario 2 adds CCGT.

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes. This is driven by higher renewable vs natural gas resource volumes compared to the other portfolios and, in turn, less fuel price risk.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

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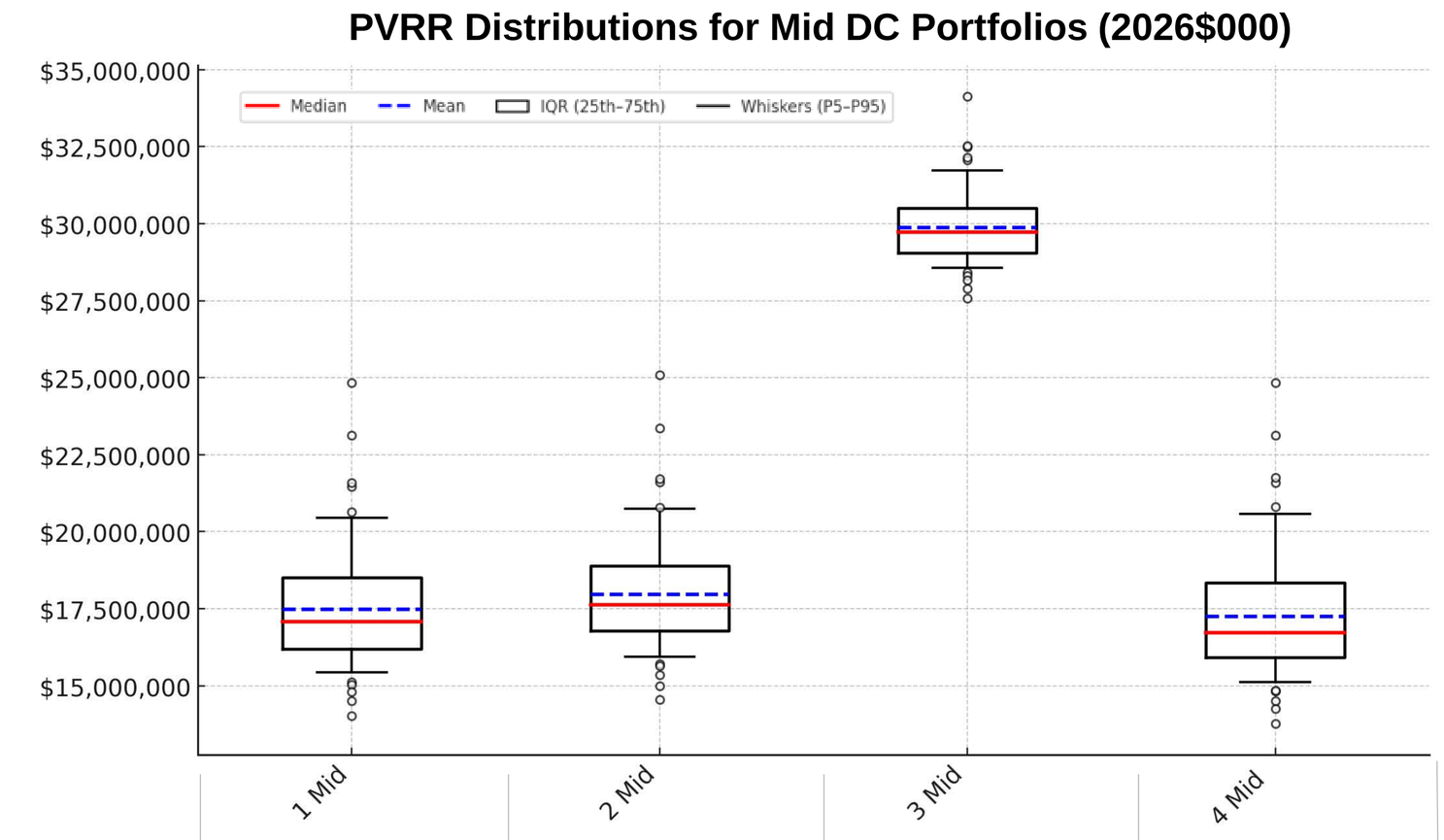
Stochastic results – Mid data center



	1 Mid	2 Mid	3 Mid	4 Mid
P95 - Mean	$ 2,992,200	$ 2,803,457	$ 1,900,700	$ 3,366,492
Mean - P5	$ 2,050,211	$ 2,022,308	$ 1,295,868	$ 2,132,937

Scenario 4 adds mostly CT and no CCGT to serve the data center load resulting in the highest P95-Mean and greatest risk for higher cost outcomes. In comparison, Scenarios 1 & 2 contain more low-heat rate CCGT resources which provide a hedge against outcomes with low spark spreads.

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes. This is driven by higher renewable vs natural gas resource volumes compared to the other portfolios and, in turn, less fuel price risk.

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

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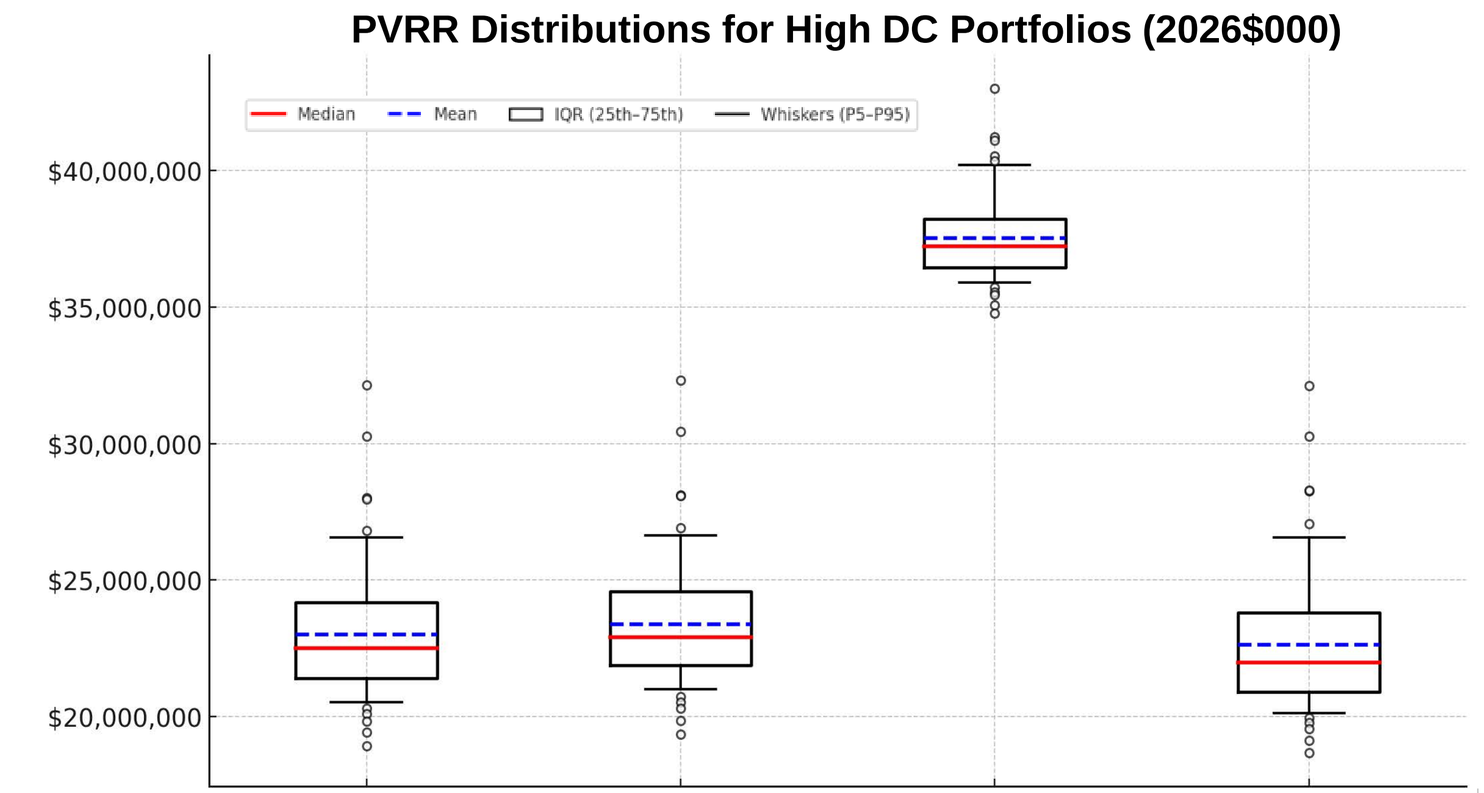
Stochastic results – High data center



	1 High	2 High	3 High	4 High
P95 - Mean	$ 3,571,289	$ 3,274,101	$ 2,692,545	$ 3,972,000
Mean - P5	$ 2,502,800	$ 2,392,576	$ 1,634,476	$ 2,532,459

The high data center case shows similar trends to the mid data center case.

Scenario 4 adds mostly CT and no CCGT to serve the data center load resulting in the highest P95-Mean and greatest risk for higher cost outcomes.

Scenario 3: High Env. Reg exhibits the lowest P95-Mean or exposure to higher cost outcomes.

Risk: P95-Mean measures the portfolio's exposure to higher cost outcomes; lower is better.
Opportunity: Mean-P5 measures the portfolio's opportunity for lower cost outcomes; higher is better.

1 Reference Case
2 Challenged Gas Infrastructure
3 High Env. Reg
4 Stable Markets

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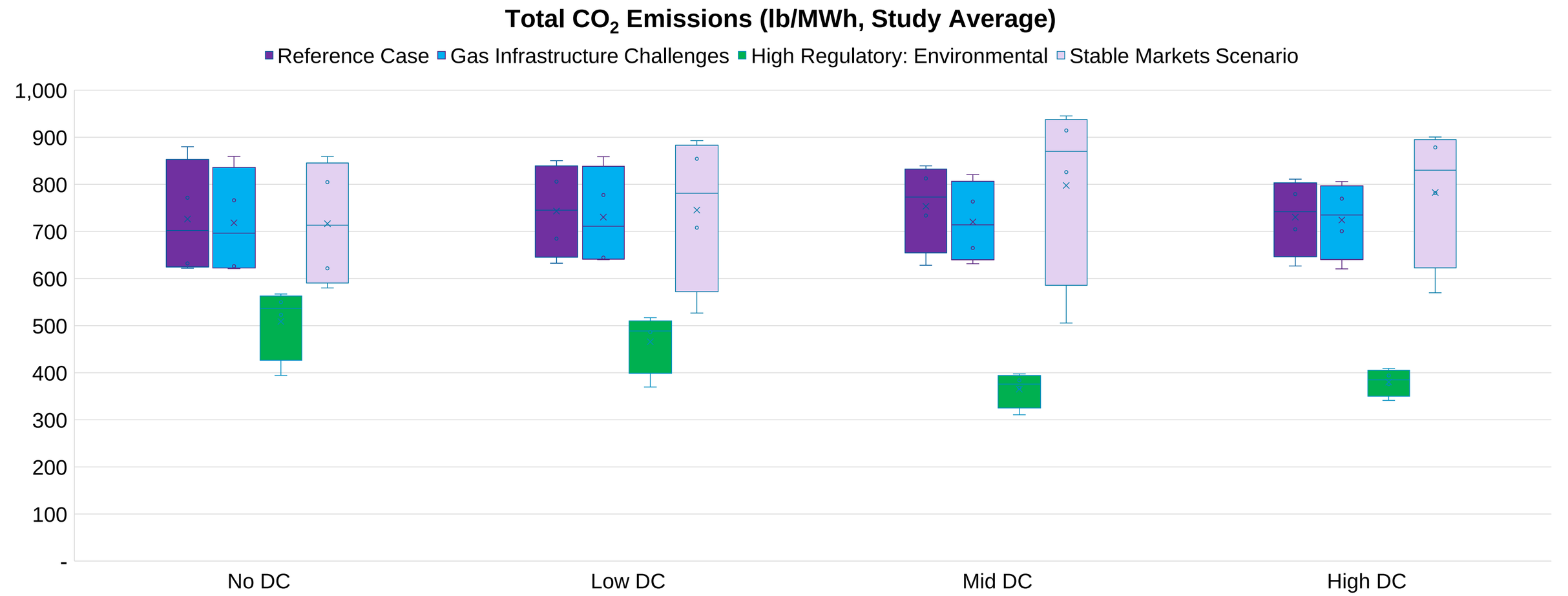
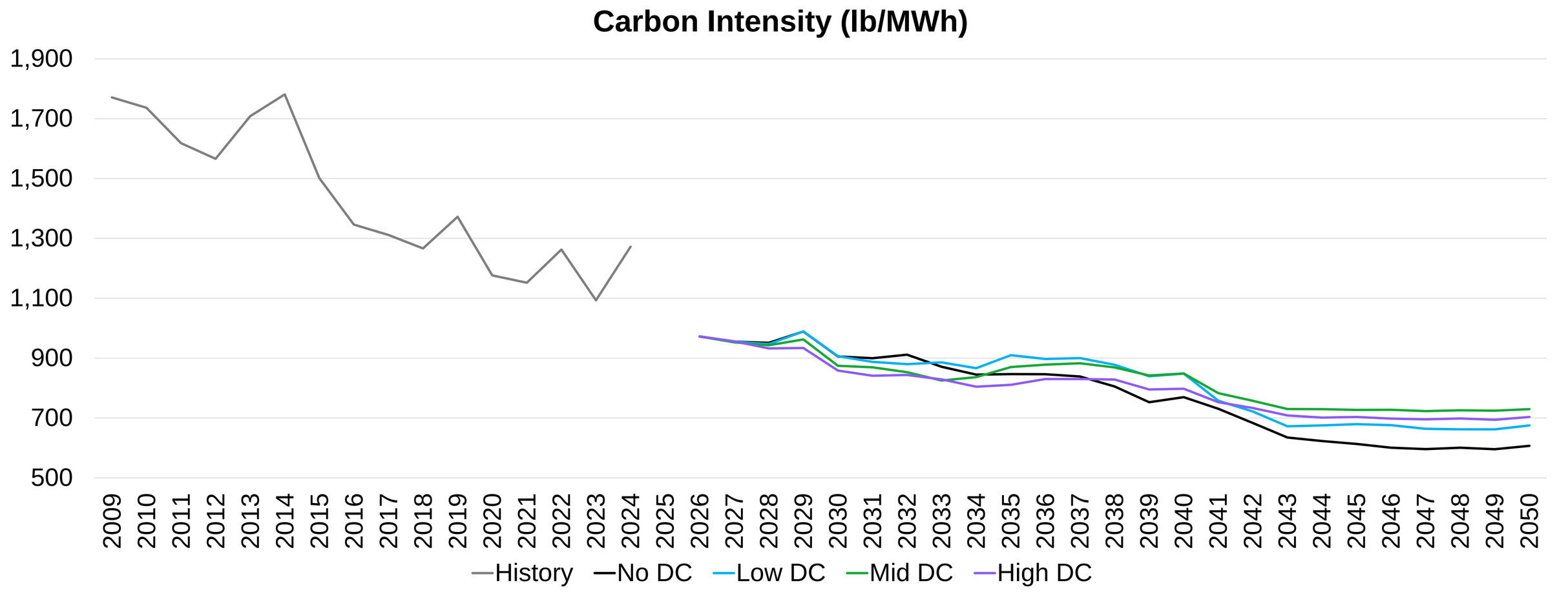
Sustainability: Carbon emissions



→ Except for the High Regulatory: Environmental portfolios, the carbon intensity of portfolios is similar

→ The Stable Markets portfolio has a larger distribution in natural gas generation

Sustainability: Carbon emissions



→ Emissions decline through the study period

Additional scenarios and sensitivities

2025 IRP: Additional modeling

AES Indiana conducted seven (7) additional sensitivities/scenarios as part of the 2025 IRP.
Two were initiated by AES Indiana, and five were requested by stakeholders:

	Name	Description
AES Indiana initiated	1. Data center transmission investment	AES Indiana assumed a “Base” level of transmission investment required for the data center loads that is added outside of the model. High and low estimates were also developed to determine the potential impact of the transmission investment associated with interconnecting new load.
	2. SMR breakeven analysis	SMRs were not selected in any scenario. AES Indiana forced on new SMR to evaluate the breakeven capital cost required to match the PVRR of the optimized portfolios.
Stakeholder requested	3. Model ERAP instead of RAP for C&I	CAC and EFG requested additional analysis for Enhanced RAP for C&I EE bundles.
	4. Reinstate tax credits for wind and solar in the Reference Case	Clean Grid Alliance requested additional runs with IRA tax credits reinstated in the Reference Case to see if solar and wind get selected.
	5. Model lower load factor for data center load	Load factors for the data center load were reduced from 90% (base) to 70% in 5% increments to evaluate the $/MWh impacts of lower energy but the same capacity requirement of data center load.
	6. Model case where data center load leaves early	Request for analysis of data center load leaving early (e.g. after 10-15 years).
	7. Modify thermal costs in the Stable Markets scenario to reflect higher near-term pricing	The Stable Market scenario reflects lower CAPEX for all new capital resources starting in Year 1. EFG requested a more gradual decrease to reflect higher near-term costs, particularly for thermal resources.

1. Data center transmission investment

- → Annual Revenue Requirement Adjustment outside of model:
  - → Low: $100/kW (sensitivity)
  - → Mid: $250/kW (“Base” assumption)
  - → High: $500/kW (sensitivity)
- → Cost based on peak load of data center additions by scenario
- → Staged investment: three equal investments, Year 1, Year 4, Year 7
- → Transmission: 30-year depreciation

LOW Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	167	$41,667	$16,667	$83,333
Year 4	167	$41,667	$16,667	$83,333
Year 7	167	$41,667	$16,667	$83,333
	500	**$125,000**	**$50,000**	**$250,000**

MID Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	500	$125,000	$50,000	$250,000
Year 4	500	$125,000	$50,000	$250,000
Year 7	500	$125,000	$50,000	$250,000
	1,500	**$375,000**	**$150,000**	**$750,000**

HIGH Data Center Load		**Transmission CAPEX ($000)**		
	MW	**Base ($250/kW)**	**Low ($100/kW)**	**High ($500/kW)**
Year 1	833	$208,333	$83,333	$416,667
Year 4	833	$208,333	$83,333	$416,667
Year 7	833	$208,333	$83,333	$416,667
	2,500	**$625,000**	**$250,000**	**$1,250,000**

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1. Data center transmission investment

→High/low transmission costs have a $0.50-$2/MWh impact on the total system cost, or within±2% in all cases
→Generation costs are significantly higher than transmission costs, even for the “high cost” transmission case

System Cost Rate (Nominal $/MWh)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	15-Year Levelized ($/MWh)	Diff. from Mid Cost
No Data Center Load	**$149**	**$145**	**$148**	**$149**	**$150**	**$150**	**$148**	**$150**	**$152**	**$152**	**$156**	**$159**	**$160**	**$164**	**$166**	**$152**	**-**
Low Data Center Load																	
Mid Cost	$149	$145	$147	$145	$144	$143	$140	$142	$140	$142	$142	$145	$146	$148	$150	$145	-
Low Cost	$149	$145	$147	$145	$144	$142	$140	$142	$140	$142	$142	$144	$145	$148	$150	$145	-0.2%
High Cost	$149	$145	$148	$146	$145	$143	$141	$143	$141	$143	$143	$145	$146	$149	$151	$145	0.5%
Mid Data Center Load																	
Mid Cost	$149	$146	$144	$139	$136	$132	$136	$129	$128	$126	$128	$129	$130	$131	$133	$136	-
Low Cost	$149	$145	$144	$138	$135	$131	$135	$129	$127	$125	$127	$128	$130	$131	$132	$135	-0.5%
High Cost	$149	$147	$145	$140	$138	$134	$137	$131	$130	$128	$129	$131	$132	$133	$134	$137	1.4%
High Data Center Load																	
Mid Cost	$149	$146	$142	$134	$137	$126	$126	$121	$125	$119	$121	$122	$122	$122	$123	$131	-
Low Cost	$149	$145	$141	$134	$135	$125	$125	$120	$123	$117	$120	$121	$121	$121	$122	$130	-0.8%
High Cost	$149	$148	$144	$136	$139	$129	$128	$123	$127	$121	$123	$124	$124	$124	$125	$133	2.0%

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2. SMR breakeven analysis

SMRs were not selected in any scenario, primarily due to high capital cost

Question AES Indiana wanted to evaluate: what cost would SMR need to be to break even with the optimized portfolios?
- Two items to consider any resource: cost and value

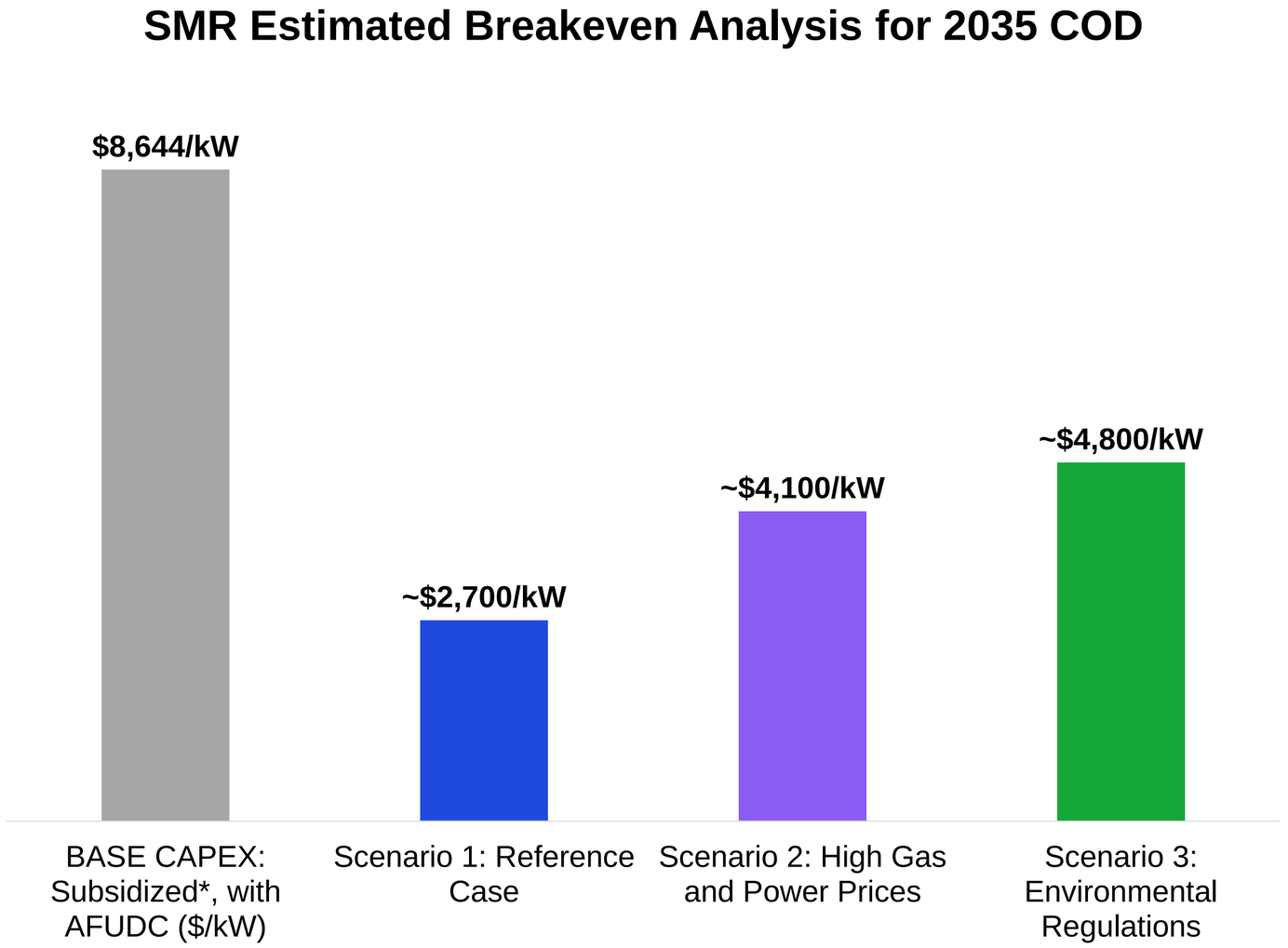
Items to consider for SMR valuation:
- Production Tax Credits (PTC) or Investment Tax Credits (ITC) weigh significantly on the cost
- Natural gas and power prices: higher natural gas, and therefore power prices, would improve the value of new nuclear
- Carbon/GHG legislation: nuclear is a zero-carbon resource, so policy or regulation that hinders the ability of thermal assets to be built and/or produce energy would improve the value of new nuclear in the future

2. SMR breakeven analysis

For the High Data Center load scenarios, AES Indiana “forced on” a 470 MW SMR in 2035

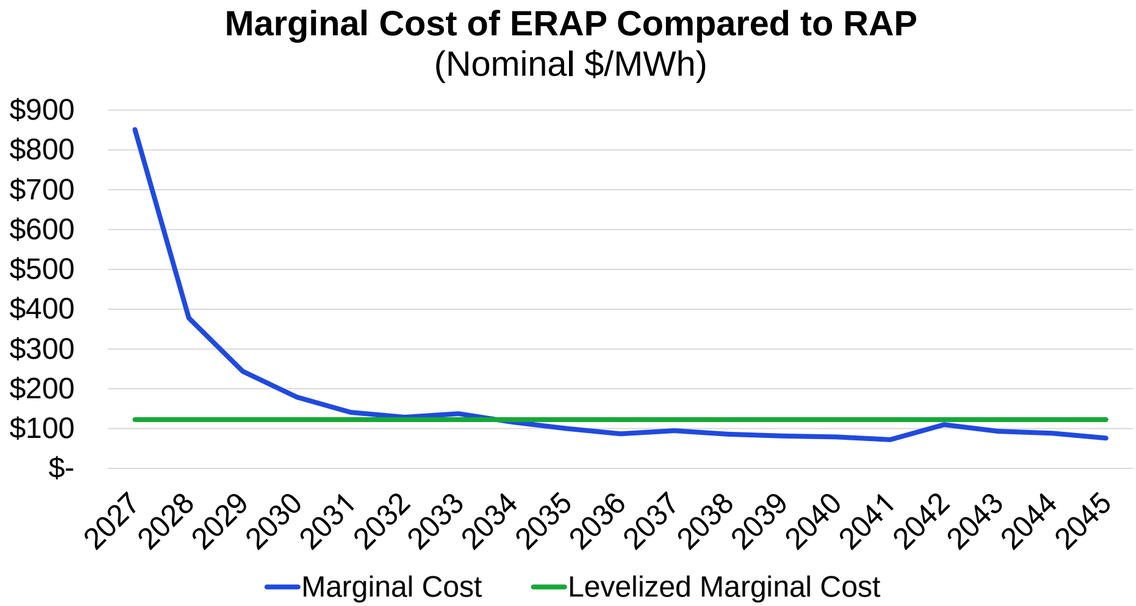
The breakeven cost was solved for so the NPV from 2035-2050 would be the same for the optimized portfolio

The breakeven cost is higher, requiring less of a reduction from the Base assumption, in the High Gas and Environmental Regulation scenarios due to increased value for SMRs in those scenarios



3. ERAP vs. RAP

- → Enhanced RAP (ERAP) was modeled in place of RAP in the no, low, mid and high data center loads
- → ERAP gets selected in all portfolios
- → However, the system rate is higher than the RAP cases
- → This is because there is a marginal cost to support ERAP over RAP
- → Furthermore, enhanced RAP (ERAP) was modeled in place of RAP in the no, low, mid and high data center loads *only* for the first vintage (2027-2029)



10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	With RAP	With ONLY FIRST ERAP (CI_V1)	With ERAP
No Load	149.08	149.41	149.54
Low Load	144.44	144.71	144.71
Mid Load	137.86	138.03	138.04
High Load	134.37	134.48	134.49

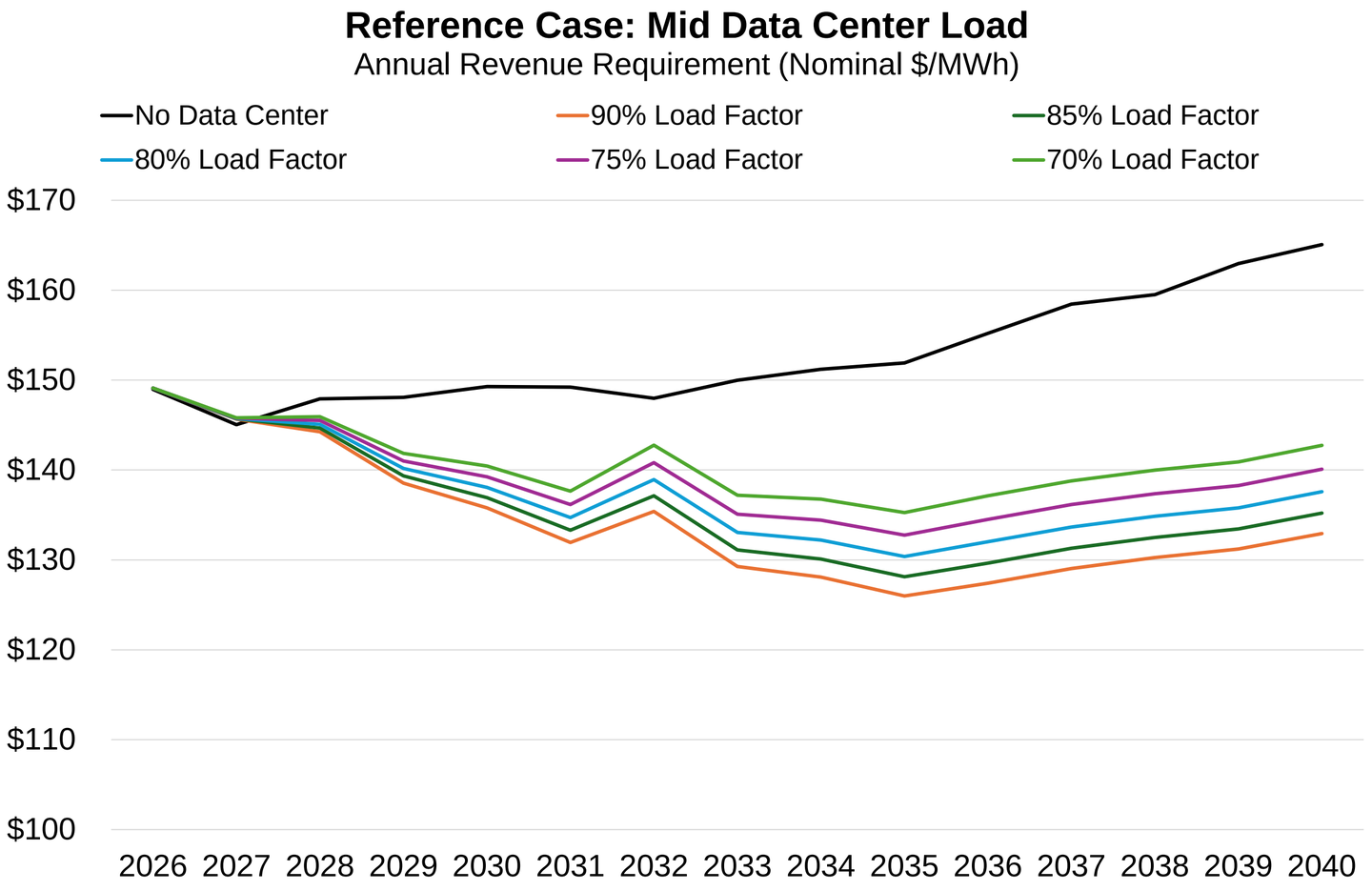
4. Reinstatement of tax credits

- Reinstating and extending tax credits does not materially change wind and solar installed in the Reference Case
- At what price would solar get selected?
  - Ran capacity expansions assuming solar ranges from $30/MWh to $90/MWh, in $10/MWh increments
  - At $50/MWh, solar is selected
- New solar limited by future accreditation risk, particularly in winter when new firm capacity is needed in most scenarios
- Individual solar projects will be evaluated on a per project basis

Annual New Solar Installed Capacity (MW)

	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
No Data Center Load														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	25	50	50	50	50	50
Low Data Center														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Data Center														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Data Center														
Ref. Case	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ref Case w/ Tax Credits reinstated and extended	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Data Center: Reference Case														
Mid DC: $30/MWh Solar	1,000	2,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Mid DC: $40/MWh Solar	1,000	2,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Mid DC: $50/MWh Solar	150	350	350	350	350	350	350	350	350	350	350	350	350	350
Mid DC: $60/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid DC: $70/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid DC: $80/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid DC: $90/MWh Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5. Data center load factor



- → Optimize for the reference portfolio
  - → 90% energy capacity factor for the data centers is base case
- → Reduce the capacity factor of the data centers, and re-dispatch the portfolio
  - → Vary the capacity factors from 90% to 70%, in 5% decrements
  - → A capacity factor of 70% shows a lower system cost rate compared to a no data center case

10-Year Levelized Supply Cost (2026$/MWh, 2025-2035) [1]						
	0%	70%	75%	80%	85%	90%
No DC	$149					
Low DC		$146	$146	$145	$145	$144
Mid DC		$142	$141	$140	$139	$138
High DC		$140	$139	$137	$136	$134

[1] Mid Data Center ($250/kW) transmission cost assumption.

6. Data center leaves sensitivity

→ Rates for data centers and other customers will be addressed in future regulatory filings

→ Stakeholders requested a scenario where the data center load does not materialize or ends early

→ Customers can be protected during the contracting phase with new load customers by requiring large load customers to provide coverage for certain costs

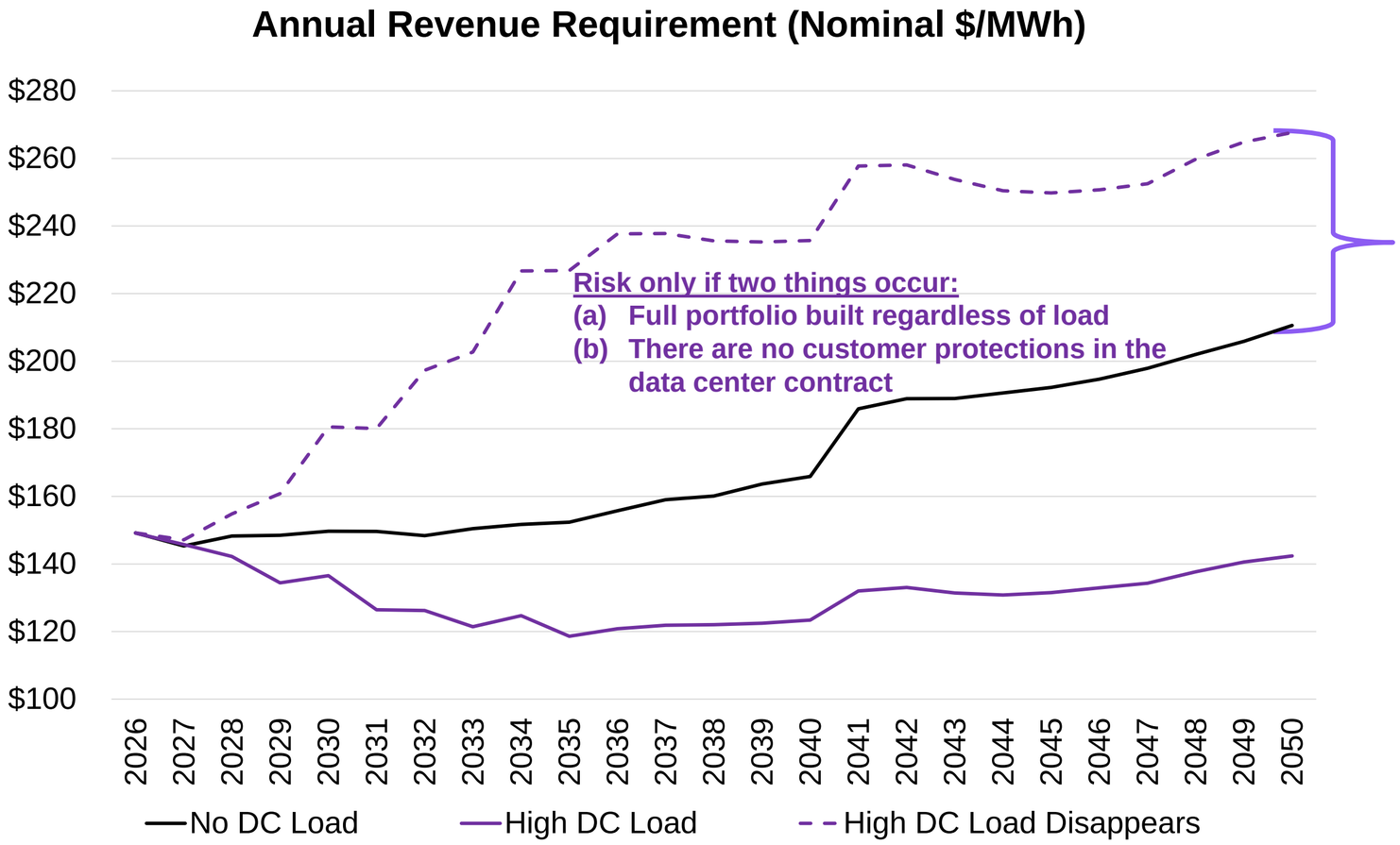
→ **Ways to mitigate risk include, but are not limited to, the following:**

- Minimum contract terms
- Exit and/or contract volume reductions
- Consistent and more frequent re-evaluation of supply and demand
- Market capacity purchases and sales
- Economic development integration (e.g. finding new large load customers)
- Potential retirement of existing units

[1] IURC.

6. Data center leaves sensitivity

What if AES Indiana builds for data centers and the load does not materialize?



2026$/MWh	No Data Center Load	High Data Center Load	High Data Center Load Does Not Materialize
10-Year Levelized Supply Cost[1]	$149	$134	$178
25-Year Supply Cost[2]	$161	$132	$206

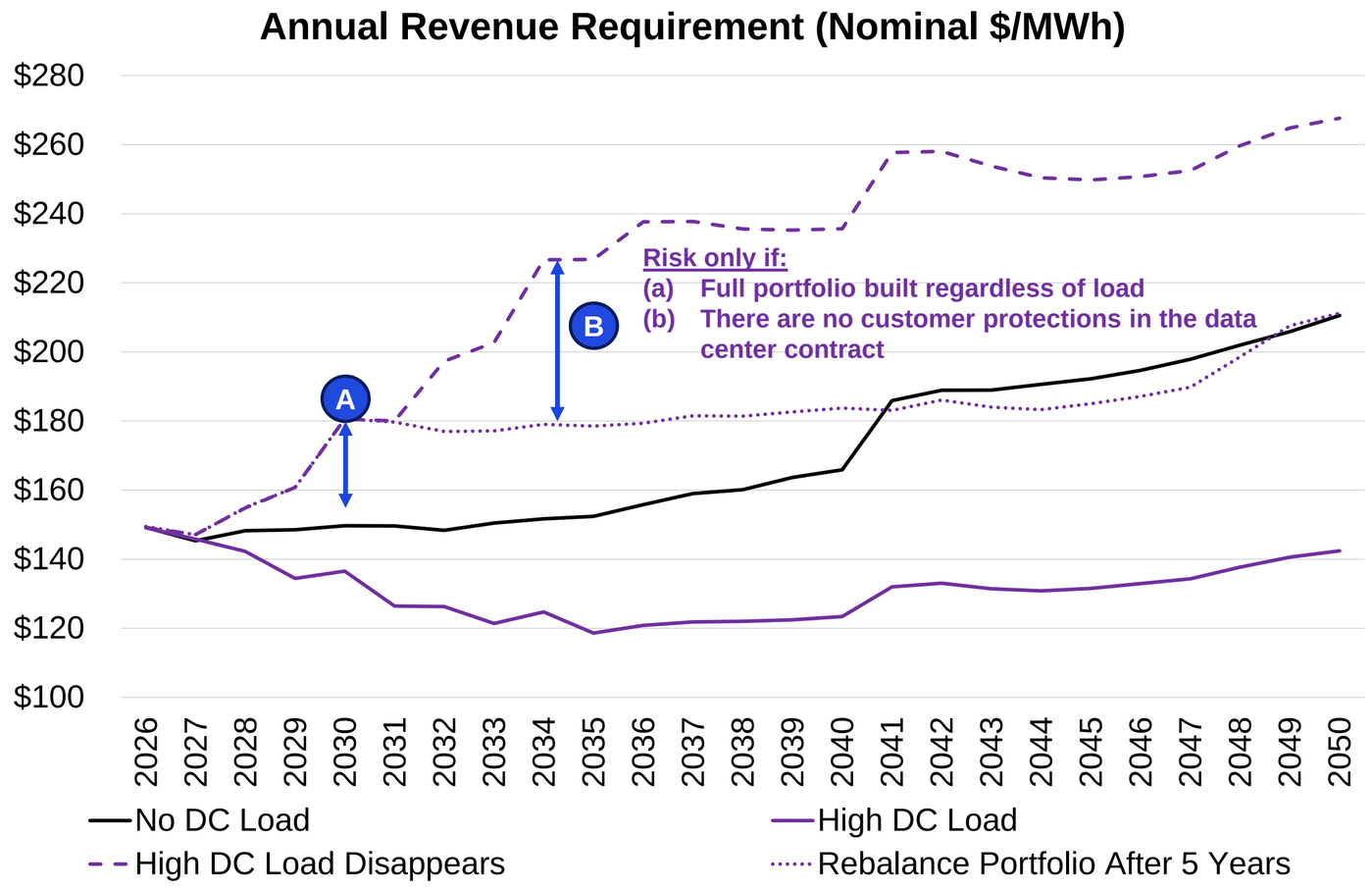
→ If AES Indiana plans for data centers, and they do not materialize, system rates would be more expensive compared to a world where AES Indiana did *not* plan for those data centers

→ **This represents an *extreme* or *bookend* scenario**

Illustrative examples based on stakeholder requested analysis. Contract terms, customer protections, and retail rate impacts would be part of a future regulatory filing if a data center customer is signed

[1] 2026-2035.
[2] 2026 – 2050.

6. Data center leaves sensitivity



2026$/MWh	No Data Center Load	High Data Center Load	High Data Center Load Does Not Materialize	High Data Center: AES Rebalances After 5 Years
10-Year Levelized Supply Cost[1]	$149	$134	$178	$166
25-Year Supply Cost[2]	$161	$132	$206	$175

→ Assume that AES contracted resources for the next five years due to supply chain constraints. Then, assume that the load does not materialize, and AES Indiana rebalances the portfolio in Year 6 (in 2031)

A If the data center does not show up, the costs are higher than if AES did not plan for data centers

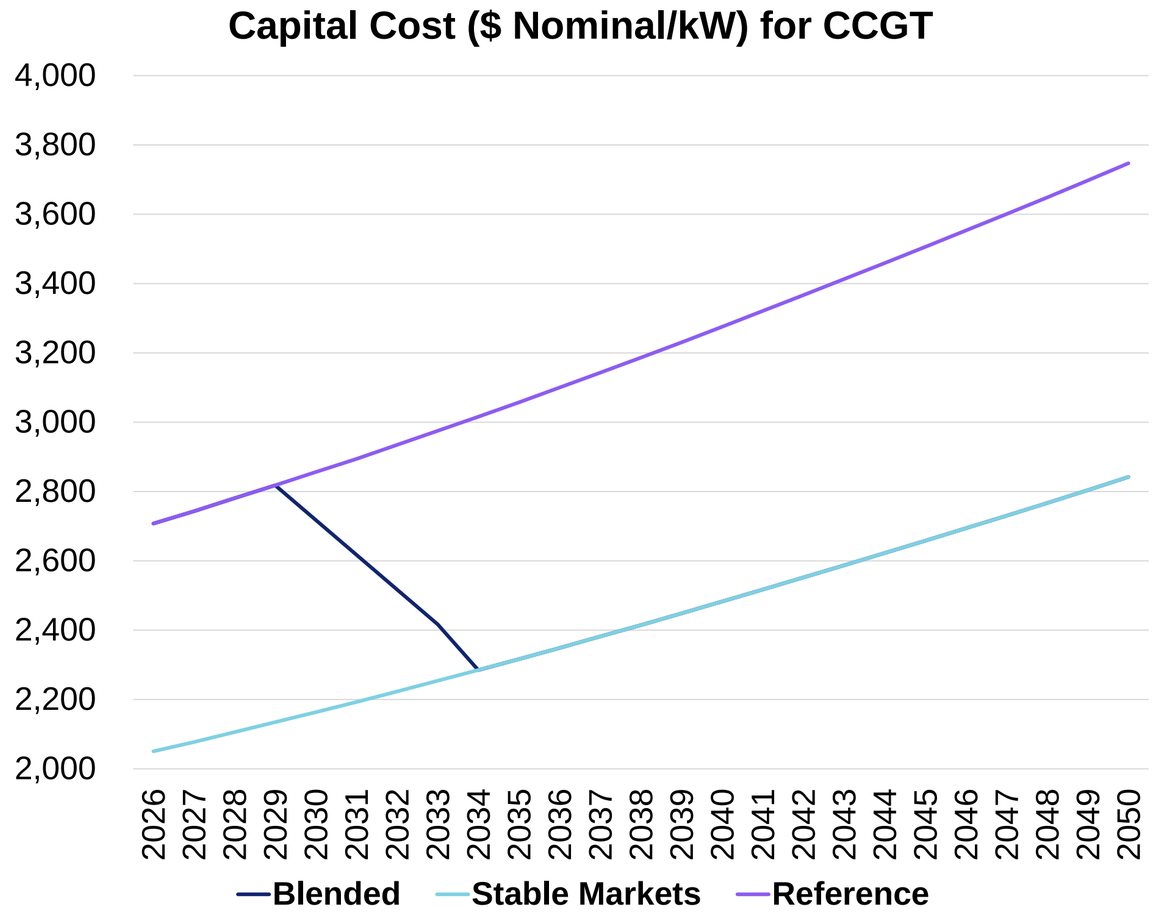
B AES would rebalance the portfolio, meaning the costs would be lower than the case where the data centers didn't show up

Illustrative examples based on stakeholder requested analysis. Contract terms, customer protections, and retail rate impacts would be part of a future regulatory filing if a data center customer is signed

[1] 2026-2035.
[2] 2026 – 2050.

7. Stable markets: Blended cost scenario

- →It was requested that AES Indiana modify new thermal capital costs in the Stable Market portfolio to *not* reflect any capital cost declines until after 2031
  - →The intention is to maintain the supply chain constraints facing new resources in the short term
- →AES Indiana adjusted capital costs for all resources
  - →Costs were Reference costs from 2026-2030, then straight line blended into Stable Market costs by 2035
  - →A CCGT is shown as an example in the graph to the right



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7. Stable markets: Blended cost scenario

- →The Blended portfolio has a higher rate than the Stable Markets portfolio
- →For resource selections, the different data center (DC) load portfolios see tradeoffs between solar, storage, and natural gas
  - →Overall, less solar is installed
  - →The low DC portfolio prefers batteries over CTs
  - →The mid DC portfolio prefers CTs over batteries
  - →The high DC portfolio has slight differences in CCGT and CT install timing, with slightly more batteries
  - →Differences before 2035 impact later year decisions

10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)		
	Blended	Stable Markets
No DC	$153.90	$153.90
Low DC	$146.37 (A)	$146.34 (A)
Mid DC	$136.40	$135.26
High DC	$131.31	$129.46

25-Year Supply Cost (2026$/MWh, 2026-2050)		
	Blended	Stable Markets
No DC	$167.36	$167.34
Low DC	$151.61	$151.16
Mid DC	$133.86	$132.61
High DC	$125.48	$123.54

(A) Same portfolio by 2035

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IRP results review

Patrick Maguire

Senior Director of Commercial, AES Indiana

Scorecard review

The Scorecard evaluates portfolios to select the Preferred Resource Portfolio

→ The scorecard analysis is performed on the Reference case portfolios

→ Scorecard categories align with the Five Pillars of Utility Electric Service as required by statute
  → Additional categories measure that Risk & Opportunity are also included to comply with IURC rules

→ Scorecard evaluation helps select the Preferred Resource Portfolio and Short-Term Action Plan

[1] From July 17, 2025 Technical Meeting #2 and July 24, 2025 Public Advisory Meeting #2.

IRP scorecard results

		AFFORDABILITY				RELIABILITY, RESILIENCY, AND STABILITY					RISK & OPPORTUNITY				ENVIRONMENTAL	
Data Center Case	Portfolio	10-Year Levelized Supply Cost (2026$/MWh, 2025-2035)	25-Year Supply Cost (2026$/MWh, 2026-2050)	10-Year PVRR (2026$MM, 2026-2035)	25-Year PVRR (2026$MM, 2026-2050)	25-year Market Interaction: Purchases+ Sales	25-yr energy purchases	25-yr energy sales	Dispatchable Capacity Divided by Peak Load (2035)	Dispatchable FIRM Capacity Divided by Peak Load (2035)	Opportunity (Mean - P5): % of PVRR	Risk (P95-Mean): % of PVRR	Environmental Scenario Risk	Mean PVRR % Difference from Optimal	Total CO2 Emissions (Million Tons)	Total CO2 Emissions (lb/MWh, Study Average)
No Data Center Load	Reference Case	$149	$161	$5,126	$10,092	26%	16%	10%	110.7%	90.5%	17%	18%	$234	3%	147	772
	Gas Infrastructure Challenges	$149	$162	$5,154	$10,161	21%	13%	8%	110.7%	90.5%	17%	18%	$237	4%	146	766
	High Regulatory: Environmental	$156	$188	$5,906	$15,455	25%	11%	14%	111.4%	91.0%	7%	9%	$0	52%	99	523
	Stable Markets Scenario	$149	$161	$5,126	$10,070	27%	18%	9%	110.7%	90.5%	17%	19%	$57	0%	153	805
Low Data Center	Reference Case	$144	$151	$5,985	$12,654	23%	15%	8%	121%	99%	14%	18%	$239	3%	183	806
	Gas Infrastructure Challenges	$148	$153	$6,400	$13,047	21%	11%	10%	118%	98%	12%	15%	$970	7%	177	777
	High Regulatory: Environmental	$153	$180	$7,099	$19,827	26%	12%	14%	117%	96%	6%	8%	$0	53%	111	486
	Stable Markets Scenario	$145	$151	$6,020	$12,699	23%	15%	8%	119%	97%	15%	18%	$196	1%	194	854
Mid Data Center	Reference Case	$138	$139	$7,971	$18,187	17%	12%	5%	122%	102%	11%	16%	$658	3%	247	812
	Gas Infrastructure Challenges	$139	$140	$8,220	$18,499	17%	10%	7%	117%	99%	11%	15%	$1,217	6%	232	763
	High Regulatory: Environmental	$151	$174	$10,236	$30,040	21%	10%	11%	118%	98%	4%	6%	$0	60%	117	384
	Stable Markets Scenario	$138	$139	$7,967	$18,266	17%	12%	4%	121%	100%	12%	18%	$209	2%	278	914
High Data Center	Reference Case	$134	$132	$9,975	$23,754	15%	10%	5%	118%	102%	11%	15%	$1,434	3%	295	779
	Gas Infrastructure Challenges	$135	$133	$10,132	$24,032	14%	8%	7%	125%	109%	10%	14%	$1,851	5%	292	770
	High Regulatory: Environmental	$145	$164	$12,246	$37,871	18%	10%	8%	120%	99%	4%	7%	$0	52%	149	394
	Stable Markets Scenario	$134	$133	$9,959	$23,990	14%	10%	4%	133%	112%	11%	16%	$590	2%	333	879

Preferred resource portfolio

Patrick Maguire

Senior Director of Commercial, AES Indiana

Preferred resource portfolio

→ "'Preferred resource portfolio' means the utility's selected long term supply-side and demand-side resource mix that safely, reliably, efficiently, and cost-effectively meets the electric system demand, taking cost, risk, and uncertainty into consideration." IAC 4-7-1-1-cc

→ AES has chosen two Preferred Portfolios:

- Reference Case, No Data Center Load
- Reference Case, Mid Data Center Load

REFERENCE CASE PORTFOLIO ADDITIONS: INSTALLED CAPACITY (MW)

		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	44	61	105	124	133	138	138	139	140	140	141	140	139	140
Energy Efficiency	No Data Center Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		20	20	20	20	40	100	100	100	100	100	100	100	100
	Mid DC Load		200	360	580	860	860	860	860	860	860	860	860	860	860
Gas CCGT	No Data Center Load														
	Mid DC Load						700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load														
	Mid DC Load								240	480	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load										54	54	54	108	108
	Mid DC Load												54	54	108
Solar	No Data Center Load														
	Mid DC Load														
Wind	No Data Center Load														
	Mid DC Load														
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)	(50)	(50)	(50)	(50)	(50)	(47)	(50)	(39)
	Mid DC Load	2	34	49	48	(0)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44	16	37	50	19	28	50	13	40
	Mid DC Load	23	(43)	22	49	48	(50)	(38)	(5)	12	18	43	31	50	44

Preferred resource portfolio

→ The Preferred Resource Portfolio will be largely dependent on new, signed data center customers

→ To the extent AES Indiana reaches agreement with a new data center customer, resources will be pursued in line with the Reference Case portfolios, particularly the Mid Data Center Case

→ All resources additions via PPA, acquisition, or self-development will be subject to IURC approval in a future regulatory filing

REFERENCE CASE PORTFOLIO ADDITIONS: INSTALLED CAPACITY (MW)

		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Demand Response	No Data Center Load	44	61	107	130	144	152	154	155	156	157	158	158	156	158
	Mid DC Load	44	61	105	124	133	138	138	139	140	140	141	140	139	140
Energy Efficiency	No Data Center Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
	Mid DC Load	34	57	78	98	116	133	154	173	191	209	226	241	255	267
Battery Storage	No Data Center Load		20	20	20	20	40	100	100	100	100	100	100	100	100
	Mid DC Load		200	360	580	860	860	860	860	860	860	860	860	860	860
Gas CCGT	No Data Center Load														
	Mid DC Load						700	700	700	700	700	700	700	700	700
Gas CT	No Data Center Load														
	Mid DC Load								240	480	720	720	720	720	720
Gas Reciprocating Engines	No Data Center Load										54	54	54	108	108
	Mid DC Load												54	54	108
Solar	No Data Center Load														
	Mid DC Load														
Wind	No Data Center Load														
	Mid DC Load														
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)	(50)	(50)	(50)	(50)	(50)	(47)	(50)	(39)
	Mid DC Load	2	34	49	48	(0)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44	16	37	50	19	28	50	13	40
	Mid DC Load	23	(43)	22	49	48	(50)	(38)	(5)	12	18	43	31	50	44

Preferred resource portfolio

→Key factors that could change the Preferred Resource Portfolio over time:

- Resource accreditation: higher or lower firm capacity value for storage, gas, or existing resources could impact AES Indiana's capacity position, requiring more or less additions in the future
- MISO Reserve Margins: MISO is moving to the DLOL method for PY 28/29 forward. A reserve margin different than what was modeled in the IRP could require a different volume of resource additions
- Market Availability/Resource Feasibility: AES Indiana will have to evaluate the likelihood of being able to contract for or construct the resources identified in the IRP
- Data Center Load Ramp: the IRP modeled new, generic data center load ramps at different volumes, ramping up linearly over time. If a new data center customer is signed, AES Indiana will calibrate the Preferred Resource Portfolio to match the actual projected ramp from the new customer

Portfolio variability: no data center load

		2026	2027	2028	2029	2030	2031	2032
Reference Case	Solar	-	-	-	-	-	-	-
Reference Case	Wind	-	-	-	-	-	-	-
Gas Infrastructure Challenges	Solar	-	-	-	-	-	-	-
Gas Infrastructure Challenges	Wind	-	-	-	-	-	-	-
High Regulatory: Environmental	Solar	-	25	25	25	25	25	25
High Regulatory: Environmental	Wind	-	-	-	-	50	50	350
Stable Markets Scenario	Solar	-	-	-	-	-	-	-
Stable Markets Scenario	Wind	-	-	-	-	-	-	-

Wind and solar is needed only in a High Regulatory: Environmental world, where 75 MW should be acquired by 2030/2031

Reference Case	DR & EE	96	152	188	239	273	299	322
Gas Infrastructure Challenges		96	152	188	239	273	299	322
High Regulatory: Environmental		96	152	188	239	273	299	322
Stable Markets Scenario		96	147	171	195	216	236	255

Unless the market loosens, 275 MW of demand management and energy efficiency is needed by 2030, and 300 MW by 2031

Reference Case	Storage	-	-	20	20	20	20	40
Gas Infrastructure Challenges		-	-	20	20	20	20	40
High Regulatory: Environmental		-	40	100	100	100	120	120
Stable Markets Scenario		-	-	-	-	-	-	-

20 MW of storage is needed by 2030/2031

Reference Case	Gas Peaking	-	-	-	-	-	-	-
Gas Infrastructure Challenges		-	-	-	-	-	-	-
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	-
Reference Case	Gas CCGT	-	-	-	-	-	-	-
Gas Infrastructure Challenges		-	-	-	-	-	-	-
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	-

No natural gas added

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Portfolio variability: mid data center load

		2026	2027	2028	2029	2030	2031	2032
Reference Case	Solar	-	-	-	-	-	-	-
Reference Case	Wind	-	-	-	-	-	-	-
Gas Infrastructure Challenges	Solar	-	-	50	50	50	50	50
Gas Infrastructure Challenges	Wind	-	-	-	-	-	-	-
High Regulatory: Environmental	Solar	-	25	50	50	50	50	50
High Regulatory: Environmental	Wind	-	-	-	-	350	750	1,250
Stable Markets Scenario	Solar	-	-	100	100	100	100	100
Stable Markets Scenario	Wind	-	-	-	-	-	-	-

If the market environment begins shift away from current conditions, consider adding 50 to 100 MW of solar. If policies look like those in 2020s, then also consider adding up to 350 MW of wind

Reference Case	DR & EE	96	152	188	237	269	292	312
Gas Infrastructure Challenges		96	152	188	239	273	299	322
High Regulatory: Environmental		96	152	188	239	277	308	335
Stable Markets Scenario		96	152	188	239	273	299	322

Similar acquisition to the no DC case; no matter the large load, acquire around 300 MW of DSM/EE

Reference Case	Storage	-	-	200	360	580	860	860
Gas Infrastructure Challenges		-	-	140	320	320	320	380
High Regulatory: Environmental		-	40	180	420	640	840	1,120
Stable Markets Scenario		-	-	80	180	400	660	700

Build 300 MW to 650 MW of storage

Reference Case	Gas Peaking	-	-	-	-	-	-	-
Gas Infrastructure Challenges		-	-	-	-	-	-	-
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	240

No gas peaking until 2033+ in all scenarios except Stable Market

Reference Case	Gas CCGT	-	-	-	-	-	-	700
Gas Infrastructure Challenges		-	-	-	-	700	700	700
High Regulatory: Environmental		-	-	-	-	-	-	-
Stable Markets Scenario		-	-	-	-	-	-	-

In 2032, a 700 MW CCGT comes online in the Reference Case. In the Gas Infrastructure Challenges, a CCGT comes online earlier, because more economic energy from the lower heat rate is needed

Short term action plan

Patrick Maguire

Senior Director of Commercial, AES Indiana

Short term action plan

REFERENCE CASE PORTFOLIO ADDITIONS: INSTALLED CAPACITY (MW)

		2027	2028	2029	2030	2031	2032
Demand Response	No Data Center Load	44	61	107	130	144	152
	Mid DC Load	44	61	105	124	133	138
Energy Efficiency	No Data Center Load	34	57	78	98	116	133
	Mid DC Load	34	57	78	98	116	133
Battery Storage	No Data Center Load		20	20	20	20	40
	Mid DC Load		200	360	580	860	860
Gas CCGT	No Data Center Load						
	Mid DC Load						700
Gas CT	No Data Center Load						
	Mid DC Load						
Gas Reciprocating Engines	No Data Center Load						
	Mid DC Load						
Solar	No Data Center Load						
	Mid DC Load						
Wind	No Data Center Load						
	Mid DC Load						
Summer Capacity Market Purchases/(Sales)	No Data Center Load	2	27	(10)	(15)	(17)	(33)
	Mid DC Load	2	34	49	48	(0)	(50)
Winter Capacity Market Purchases/(Sales)	No Data Center Load	22	41	31	28	32	44
	Mid DC Load	23	(43)	22	49	48	(50)

AES Indiana will pursue resource selections according to the Preferred Plans.

→ Resource selection will be subject to large load contracting, availability, and cost-benefit analysis

Short-term capacity market purchases or sales would be used only for rebalancing capacity positions and is subject to change based on resource accreditation, load forecast, MISO PRM, or other MISO capacity market rule changes

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Energy efficiency selection by scenario

	Reference Case				Gas Infrastructure Challenges				High Regulatory: Environmental				Stable Markets			
	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC
Energy Efficiency																
C&I V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C&I V2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C&I V3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res BEH Tier1 V3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Res Tier2 V1																
Res Tier2 V2								X			X	X				
Res Tier2 V3									X	X	X	X				
IQW V1*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQW V2*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQW V3*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V1*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V2*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IQ HEAR V3*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* Income Qualified Weatherization (IQW) bundles are forced through the model. Income Qualified, Indiana Home Appliance Rebate (IQ HEAR) bundle are forced through the model, but at no cost.

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AES Proprietary & Confidential/Not for Distribution

Short-term action plan: energy efficiency

Energy Efficiency Bundles	Vintage 1 (2027- 2029) Cumulative Savings (MWh)	Vintage 1 (2027- 2029) Summer 2029 Capacity (MW)
C&I V1	**418,275**	**23**
Res BEH Tier1 V1	**219,603**	**16**
IQW V1	**57,656**	**6**
IQ HEAR V1	**12,927**	**0.2**
Total Selected Energy Efficiency	**708,461**	**45.2**

Energy Efficiency Bundles	Vintage 2 (2030- 2032) Cumulative Savings (MWh)	Vintage 2 (2030- 2032) Summer 2032 Capacity (MW)
C&I V2	**324,800**	**26**
Res BEH Tier1 V2	**222,944**	**15**
IQW V2	**47,924**	**5**
IQ HEAR V1	**17,624**	**0.4**
Total Selected Energy Efficiency	**613,292**	**43.4**

Notes:
- Reference Case, Mid DC Load DSM Selected Resources
- IQ HEAR bundles were forced through the model, but at no cost. Bundle is not utility-sponsored DSM.

Demand response selection by scenario

	Reference Case				Gas Infrastructure Challenges				High Regulatory: Environmental				Stable Markets			
	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC	Base	Low DC	Mid DC	High DC
Demand Response																
DR Thermostat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DR Battery	X				X		X	X	X	X	X	X			X	
DR Load Curtailment	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
DR Capacity Bidding												X				
DR BDR	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
DR PTR	X	X		X	X	X	X	X	X	X	X	X		X	X	X
DR TOU	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Resources Not Selected in any scenario:

- → AC Switch One Way
- → AC Switch Two Way
- → Water Heaters
- → Smart App
- → Room AC
- → Lighting
- → EV
- → C&I TES

AES Proprietary & Confidential/Not for Distribution

Short-term action plan: demand response

	2027		2028		2029		2030		2031		2032	
Demand Response Bundles	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**	**Summer MW**	**Winter MW**
DR Thermostat	**37.6**	**16.8**	**39.3**	**18.3**	**41.3**	**20.3**	**42.9**	**20.3**	**44.0**	**20.3**	**44.9**	**20.3**
DR Load Curtailment	**6.6**	**5.1**	**21.3**	**16.6**	**44.5**	**34.1**	**59.5**	**45.2**	**63.8**	**48.7**	**64.9**	**49.9**
DR BDR	**-**	**-**	**-**	**-**	**18.1**	**8.1**	**17.3**	**7.5**	**15.8**	**6.7**	**14.8**	**6.8**
DR TOU	**-**	**-**	**-**	**-**	**1.4**	**0.6**	**4.7**	**2.0**	**9.8**	**4.1**	**13.0**	**5.7**
Total Selected DR	***44.2***	***21.9***	***60.6***	***34.9***	***105.3***	***63.1***	***124.4***	***75.0***	***133.4***	***79.8***	***137.6***	***82.7***

Notes:
- Reference Case, Mid DC Load DSM Selected Resources
- MWs are cumlative capacity of the resource.

Q&A

IRP acronyms

IRP acronyms

- ACEE: The American Council for an Energy-Efficient Economy
- AMI: Advanced Metering Infrastructure
- BESS: Battery Energy Storage System
- BNEF: Bloomberg New Energy Finance
- BTA: Build-Transfer Agreement
- C&I: Commercial and Industrial
- CAA: Clean Air Act
- CAGR: Compound Annual Growth Rate
- CCGT: Combined Cycle Gas Turbines
- CCS: Carbon Dioxide Capture and Storage
- CDD: Cooling Degree Day
- COD: Commercial Operation Date
- CONE: Cost of New Entry
- CP: Coincident Peak
- CPCN: Certificate of Public Convenience and Necessity
- CT: Combustion Turbine
- CVR: Conservation Voltage Reduction
- CX: Capacity Expansion
- DC: Data center
- DER: Distributed Energy Resource
- DG: Distributed Generation
- DGPV: Distributed Generation Photovoltaic System
- DLC: Direct Load Control
- DOE: U.S. Department of Energy
- DR: Demand Response
- DRR: Demand Response Resource
- DSM: Demand-Side Management
- DSP: Distribution System Planning
- EE: Energy Efficiency
- EFORd: Equivalent Forced Outage Rate Demand
- EIA: Energy Information Administration
- ELCC: Effective Load Carrying Capability
- EM&V: Evaluation Measurement and Verification
- EV: Electric Vehicle
- GDP: Gross Domestic Product
- GT: Gas Turbine
- HDD: Heating Degree Day
- HVAC: Heating, Ventilation, and Air Conditioning
- IAC: Indiana Administrative Code
- IC: Indiana Code
- ICAP: Installed Capacity
- ICE: Internal Combustion Engine
- IRP: Integrated Resource Plan
- ITC: Investment Tax Credit
- IURC: Indiana Utility Regulatory Commission
- kW: Kilowatt
- kWh: Kilowatt-Hour
- LED: Light Emitting Diode
- LMR: Load Modifying Resource
- LNBL: Lawrence Berkeley National Laboratory
- Max Gen: Maximum Generation Emergency Warning
- MIP: Mixed Integer Programming
- MISO: Midcontinent Independent System Operator
- MPS: Market Potential Study
- MW: Megawatt
- NDA: Nondisclosure Agreement
- NOX: Nitrogen Oxides
- NREL: National Renewable Energy Laboratory
- NSPS: New Source Performance Standards
- PPA: Power Purchase Agreement
- PRA: Planning Resource Auction
- PTC: Renewable Electricity Production Tax Credit
- PRMR: Planning Reserve Margin Requirement
- PV: Photovoltaic
- PVRR: Present Value Revenue Requirement
- PY: Planning Year
- RA: Resource Adequacy
- RAN: Resource Availability and Need
- REC: Renewable Energy Credit
- REP: Renewable Energy Production
- RFP: Request for Proposals
- RIIA: MISO's Renewable Integration Impact Assessment
- SAC: MISO's Seasonal Accredited Capacity
- SCR: Selective Catalytic Reduction System
- SMR: Small Modular Reactors
- ST: Steam Turbine
- SUFG: State Utility Forecasting Group
- TRM: Technical Resource Manual
- UCT: Utility Cost Test
- UCAP: Unforced Capacity
- WTP: Willingness to Participate
- XEFORd: Equivalent Forced Outage Rate Demand excluding causes of outages that are outside management control

Appendix

Solar resource additions

INSTALLED INCREMENTAL SOLAR CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	25	25	25	25	25	25	25	25	25	25	25	50	50	50	50	200	200	275	275	350	375	475	725	1,225
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	350	350	375	375	375	375	475	575	675	675	675	950	950	950	1,150	1,450
	Stable Markets Scenario	-	-	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Mid DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	High Regulatory: Environmental	-	25	50	50	50	50	50	75	75	1,050	1,425	1,475	1,525	1,525	1,525	1,550	1,550	1,550	1,600	2,025	2,025	2,025	2,025	2,075	2,075
	Stable Markets Scenario	-	-	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
High DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	High Regulatory: Environmental	-	25	50	75	100	100	100	100	225	1,225	2,200	2,275	2,500	2,500	2,500	2,500	2,525	2,600	2,600	2,600	2,625	2,625	2,750	2,750	3,025
	Stable Markets Scenario	-	-	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Wind resource additions

INSTALLED INCREMENTAL WIND CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	50	50	50	50
	High Regulatory: Environmental	-	-	-	-	50	50	350	450	700	900	1,150	1,350	1,650	1,950	2,050	2,200	2,200	2,250	2,500	2,550	2,650	2,700	2,750	2,750	2,750
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	-	50	400	850	1,300	1,350	1,750	2,050	2,150	2,450	2,650	2,650	2,750	2,750	3,000	3,250	3,400	3,400	3,500	3,600	3,650
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mid DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	350	750	1,250	1,750	2,250	2,750	3,150	3,650	3,700	4,200	4,250	4,350	4,450	4,500	4,900	5,150	5,150	5,150	5,350	5,350	5,450
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Regulatory: Environmental	-	-	-	-	400	800	1,300	1,800	2,300	2,800	3,300	3,750	4,250	4,750	5,250	5,700	5,900	5,900	6,050	6,400	6,900	6,900	7,000	7,150	7,200
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DR& EE resource additions

INSTALLED DR & EE (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
	Gas Infrastructure Challenges	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
	High Regulatory: Environmental	52	78	118	185	228	260	285	314	339	363	386	410	428	446	464	484	493	502	515	519	490	490	490	490	490
	Stable Markets Scenario	52	72	96	121	145	170	191	214	233	252	271	289	304	318	331	346	352	357	369	369	347	347	347	347	347
Low DC	Reference Case	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
	Gas Infrastructure Challenges	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
	High Regulatory: Environmental	52	78	118	185	228	260	285	314	339	363	386	410	428	446	464	484	493	502	515	519	490	490	490	490	490
	Stable Markets Scenario	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
Mid DC	Reference Case	52	78	117	183	222	249	271	292	312	331	349	367	381	394	408	422	427	432	442	442	420	420	420	420	420
	Gas Infrastructure Challenges	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
	High Regulatory: Environmental	52	78	118	185	233	269	298	326	349	373	396	419	436	454	472	491	499	507	521	524	494	494	494	494	494
	Stable Markets Scenario	52	78	118	185	228	260	285	308	328	347	366	385	398	411	425	440	445	450	460	460	438	438	438	438	438
High DC	Reference Case	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433
	Gas Infrastructure Challenges	52	78	118	185	233	269	298	319	338	357	376	393	406	419	433	447	451	455	465	465	442	442	442	442	442
	High Regulatory: Environmental	52	84	136	222	281	320	350	377	400	424	446	468	485	502	519	538	545	553	565	568	538	538	538	538	538
	Stable Markets Scenario	52	78	117	185	227	259	283	305	325	344	362	381	394	407	421	436	440	445	455	455	433	433	433	433	433

CT & RICE resource additions

INSTALLED INCREMENTAL CT & RICE CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	54	54	54	108	108	108	108	108	108	108	108	108	108	108	108
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	54	54	54	108	108	108	108	108	108	108	108	108	108	108	108
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	480	480	480	480	480	480	480	480	480	480
Low DC	Reference Case	-	-	-	-	-	-	-	240	240	480	480	480	480	534	534	534	534	534	534	534	588	588	642	642	696
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	108
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	240	240	240	480	480	480	480	480	480	960	960	960	960	960	960	960	960	960	960
Mid DC	Reference Case	-	-	-	-	-	-	-	-	240	480	720	720	774	774	828	828	828	828	828	828	882	882	1,122	1,122	1,230
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	108	348	402	402	402	402	402	402	402	402	402	456	456	456	456	510
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	240	240	480	480
	Stable Markets Scenario	-	-	-	-	-	-	240	480	720	960	1,200	1,200	1,200	1,200	1,200	1,680	1,680	1,680	1,680	1,680	1,920	1,920	1,920	1,920	1,920
High DC	Reference Case	-	-	-	-	-	-	-	240	240	294	774	774	774	774	774	774	774	774	774	774	828	828	1,068	1,176	1,176
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	54	54	108	108	108	108	108	108	348	348	348	510	510
	High Regulatory: Environmental	-	-	-	-	-	-	240	480	480	480	480	480	480	480	480	960	960	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
	Stable Markets Scenario	-	-	-	-	-	240	240	480	960	1,440	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,920	1,920

CCGT resource additions

INSTALLED INCREMENTAL CCGT CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700
	Gas Infrastructure Challenges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Low DC	Reference Case	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700
	Gas Infrastructure Challenges	-	-	-	-	-	700	700	700	700	700	700	700	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mid DC	Reference Case	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	Gas Infrastructure Challenges	-	-	-	-	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
High DC	Reference Case	-	-	-	-	700	700	1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
	Gas Infrastructure Challenges	-	-	-	-	700	700	1,400	2,100	2,100	2,800	2,800	2,800	2,800	2,800	2,800	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	High Regulatory: Environmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stable Markets Scenario	-	-	-	-	-	-	700	700	700	700	700	700	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400

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Storage resource additions

INSTALLED INCREMENTAL BATTERY CAPACITY (MW)		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
No DC	Reference Case	-	-	20	20	20	20	40	100	100	100	100	100	100	100	100	100	100	100	100	100	120	140	160	180	220
	Gas Infrastructure Challenges	-	-	20	20	20	20	40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	160	140	160	180
	High Regulatory: Environmental	-	40	100	100	100	120	120	120	120	120	120	120	120	120	180	820	880	940	960	1,000	1,080	1,100	1,100	1,120	1,160
	Stable Markets Scenario	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	60	80	80	120	120	220	240	280	300	320
Low DC	Reference Case	-	-	40	80	160	260	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	440	400	380	320
	Gas Infrastructure Challenges	-	-	20	80	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	180	220	240	180	100
	High Regulatory: Environmental	-	40	100	180	300	420	500	540	620	780	860	860	940	940	1,020	1,680	1,740	1,820	1,860	1,880	1,960	2,000	2,000	1,980	1,980
	Stable Markets Scenario	-	-	40	40	40	80	80	120	120	120	120	120	120	120	140	160	160	200	200	200	260	280	280	300	320
Mid DC	Reference Case	-	-	200	360	580	860	860	860	860	860	860	860	860	860	860	860	860	860	860	860	880	900	700	540	340
	Gas Infrastructure Challenges	-	-	140	320	320	320	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	440	460	460
	High Regulatory: Environmental	-	40	180	420	640	840	1,120	1,360	1,660	1,840	2,080	2,080	2,200	2,200	2,340	3,020	3,120	3,240	3,240	3,240	3,240	3,200	3,180	2,940	2,780
	Stable Markets Scenario	-	-	80	180	400	660	700	720	720	720	720	720	740	740	780	860	880	900	940	940	940	940	860	760	660
High DC	Reference Case	-	-	300	620	620	640	640	640	640	640	640	640	640	640	680	680	680	680	680	680	680	720	420	120	160
	Gas Infrastructure Challenges	-	-	260	560	560	620	620	620	620	620	620	620	620	620	620	620	620	620	620	620	620	620	360	60	80
	High Regulatory: Environmental	-	20	240	580	940	1,340	1,700	1,700	2,140	2,480	2,820	2,820	2,880	2,880	2,960	3,060	3,140	3,140	3,140	3,140	3,140	3,180	3,200	3,220	3,120
	Stable Markets Scenario	-	-	120	420	780	960	960	960	960	960	960	960	960	980	1,020	1,020	1,020	1,020	1,020	1,020	1,040	1,080	1,040	740	560

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