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A NiSource Company

OUR VISION IS TO BE A
PREMIER, INNOVATIVE & TRUSTED
ENERGY PARTNER

2024 NIPSCO INTEGRATED RESOURCE PLAN

Fifth Stakeholder Advisory Meeting

October 28th , 2024
9 A.M.-3:30 P.M. CT

These modeled portfolios are regulatory requirements made in connection with integrated resource planning that contain the company's forward-looking assumptions. These modeled portfolios are not an indication of actual future events and should not be relied upon as such.

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WELCOME & INTRODUCTION

Tara McElmurry, Manager Communications, NiSource

FAIR OAKS FARMS

NIPSCO MEETSAFE

LOCATION OF **NEAREST EXIT**

NEAREST PLACE TO **SEEK SHELTER**

IN AN EMERGENCY, **WHO WILL DIAL 911**

WHO WILL DIRECT THE **EMERGENCY RESPONDER**

LOCATION OF THE **AUTOMATED EXTERNAL DEFIBRILLATOR (AED)**

WHO CAN **PERFORM CPR**

OTHER **POTENTIAL HAZARDS**

Fire: Exit out any door that is furthest away from the fire. Gather as a group in the front parking lot – near the Tesla chargers.

Shelter: Restrooms, Jasper Ballroom (if closed), Employee Banquet Hallway.

AED Location: On the wall in the Employee Banquet Hallway.

Other Hazards: N/A

Dial 911:

Direct Responders:

CPR:

SAFETY MOMENT

Parking Lot Safety

Don't be fooled by slow-moving vehicles: 1 in 5 accidents occur in a parking lot

- Don't become distracted by your cell phone or headphones.
- Be aware of your surroundings. Walk with confidence to buildings and to your car.
- Keep your car locked, even if you are running a quick errand.
- Park near the building in a visible and well-lit area.
- Look twice for pedestrians, bicycles, and other vehicles.
- Drive slowly and obey posted speed limits and signs.
- Stay in lanes and avoid cutting across lots.

Source: Oceaneering

STAKEHOLDER ADVISORY MEETING PROTOCOLS

- **Your input and feedback is critical to NIPSCO's Integrated Resource Plan (IRP) Process.**
- **The Public Advisory Process provides NIPSCO with feedback on its assumptions and sources of data. This helps inform the modeling process and overall IRP.**
- **We set aside time at the end of each section to ask questions.**
- **Your candid and ongoing feedback is key to this process:**
  - Please ask questions and make comments on the content presented
  - Please provide feedback on the process itself
- **Please identify yourself by name prior to speaking. This will help keep track of comments and follow up actions.**
- **If you wish to make a presentation during a meeting, please reach out to Erin Whitehead (ewhitehead@nisource.com).**

AGENDA

Time *Central Time	Topic	Speaker
9:00AM-9:05AM	Welcome & Introduction	Tara McElmurry, Manager Communications, NiSource
9:05AM-9:10AM	Kick Off	Vince Parisi, President & COO, NIPSCO
9:10AM-9:20AM	Recap of 2024 IRP Process	Abe Lang, Manger Strategy & Risk, NiSource
9:20AM-9:40AM	Public Advisory Process and Responses to Fourth Stakeholder Meeting Comments	Abe Lang, Manager Strategy & Risk, NiSource
9:40AM–11:00AM	Portfolio Recap and Portfolio Scenario Analysis	Abe Lang, Manager Strategy & Risk, NiSource Pat Augustine, Vice President, CRA
11:00AM-12:00PM	Lunch	
12:00PM–12:45PM	Stochastic Risk Analysis	Abe Lang, Manager Strategy & Risk, NiSource Pat Augustine, Vice President, CRA
12:45PM-1:30PM	Sensitivities – High Emerging Load and DSM	Abe Lang, Manager Strategy & Risk, NiSource Pat Augustine, Vice President, CRA
1:30PM-1:40PM	Break	
1:40PM-3:00PM	Scorecard Summary, Preferred Portfolio, and Short-Term Action Plan	Abe Lang, Manager Strategy & Risk, NiSource Pat Augustine, Vice President, CRA
3:00PM – 3:30PM	Closing & Stakeholder Comments	

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KICK OFF

Vince Parisi, President & COO, NIPSCO

PREMIER REGULATED UTILITY BUSINESS

NiSource

- NATURAL GAS
  - COLUMBIA GAS OF KENTUCKY
  - COLUMBIA GAS OF MARYLAND
  - COLUMBIA GAS OF OHIO
  - COLUMBIA GAS OF PENNSYLVANIA
  - COLUMBIA GAS OF VIRGINIA
  - NIPSCO GAS
- NIPSCO
- ELECTRIC
  - NIPSCO ELECTRIC

SIGNIFICANT SCALE ACROSS 6 STATES

~3.2M

GAS CUSTOMERS

~500K

ELECTRIC CUSTOMERS

NIPSCO PROFILE

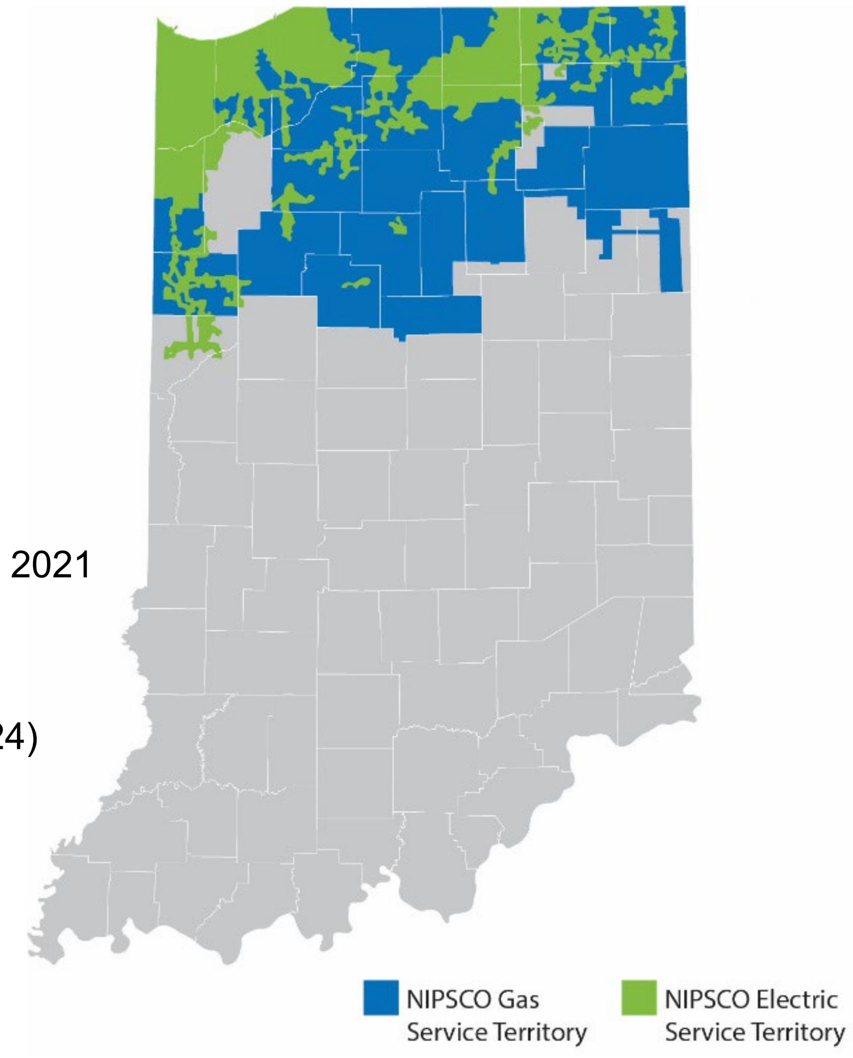
- **Working to Become Indiana's Premier Utility**

Electric

- 483,000 Electric Customers in 20 Counties
- 3,625 MW Generating Capacity
  - 12 Electric Generating Facilities
    (2 coal, 1 natural gas, 2 hydro, 4 wind, 2 solar, and 1 solar-plus-storage)
  - 1,000 MW of New Wind Energy
    (Rosewater, Jordan Creek and Indiana Crossroads Wind I & II online in 2020 2021 and 2023)
  - 665 MW of New Solar Energy
    (Dunns Bridge I, Indiana Crossroads solar online in 2023, and Cavalry in 2024)
- 12,800 Miles of Transmission and Distribution
  - Interconnect with 5 Major Utilities (3 MISO; 2 PJM)
  - Serves 2 Network Customers and Other Independent Power Producers

Natural Gas

- 859,000 Natural Gas Customers; 32 Counties
- 17,000 Miles of Transmission and Distribution Line/Main
- Interconnections with Seven Major Interstate Pipelines
- Two On-System Storage Facilities



2,900
Employees

Merrillville, Ind.
Headquarters

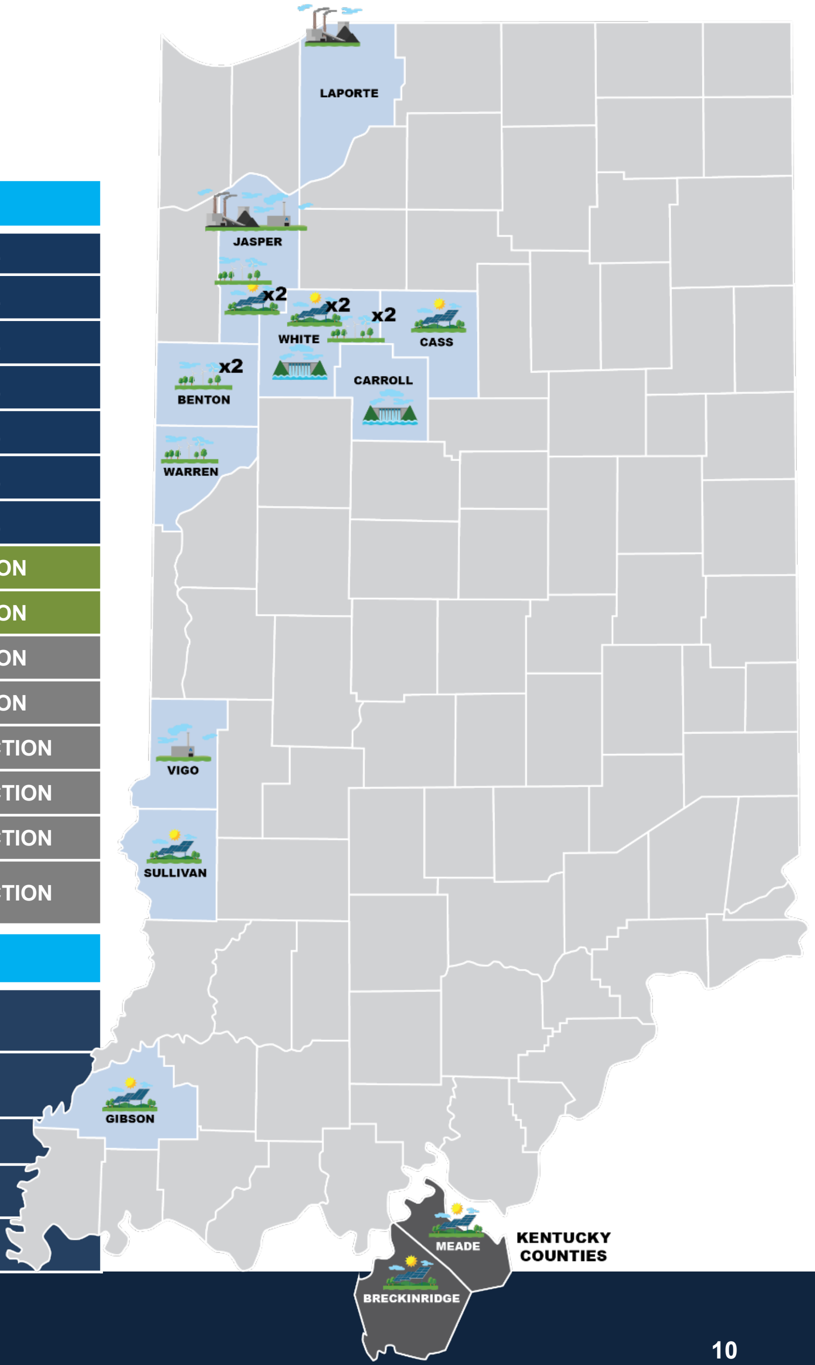
CURRENT & FUTURE NIPSCO GENERATION PORTFOLIO

- Robust Renewable Investments in Indiana

NEW GENERATION FACILITIES*	INSTALLED CAPACITY (MW)	COUNTY	IN SERVICE
ROSEWATER WIND	102 MW	WHITE	2020 COMPLETE
JORDAN CREEK WIND	400 MW	BENTON & WARREN	2020 COMPLETE
INDIANA CROSSROADS WIND	302 MW	WHITE	2021 COMPLETE
DUNNS BRIDGE SOLAR I	265 MW	JASPER	2022 COMPLETE
INDIANA CROSSROADS SOLAR	200 MW	WHITE	2023 COMPLETE
INDIANA CROSSROADS II WIND	200 MW	WHITE	2023 COMPLETE
CAVALRY SOLAR	200 MW + 45 MW BATTERY	WHITE	2024 COMPLETE
GREEN RIVER SOLAR	200 MW	BRECKINRIDGE & MEADE (KY)	2025 CONSTRUCTION
DUNNS BRIDGE SOLAR II	435 MW + 56.25 MW BATTERY	JASPER	2025 CONSTRUCTION
GIBSON SOLAR	200 MW	GIBSON	2025 CONSTRUCTION
FAIRBANKS SOLAR	250 MW	SULLIVAN	2025 CONSTRUCTION
APPLESEED SOLAR	200 MW	CASS	2025 PRE-CONSTRUCTION
CARPENTER WIND	200 MW	JASPER	2025 PRE-CONSTRUCTION
TEMPLETON WIND	200 MW	BENTON	2025 PRE-CONSTRUCTION
GAS PEAKING RESOURCE	400 MW	JASPER	2027 PRE-CONSTRUCTION

GENERATION FACILITIES	INSTALLED CAPACITY (MW)	FUEL	COUNTY
MICHIGAN CITY RETIRING 2028	455 MW	COAL	LAPORTE
R.M. SCHAFHER RETIRING 2025 (COAL) – 2028 (NG)	722 MW + 155 MW	COAL + NATURAL GAS	JASPER
SUGAR CREEK	563 MW	NATURAL GAS	VIGO
NORWAY HYDRO	7.2 MW	WATER	WHITE
OAKDALE HYDRO	9.2 MW	WATER	CARROLL

* Since 2018



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PILLARS OF OUR ONGOING GENERATION TRANSITION PLAN

This plan creates a vision for the future that is better for our customers and it's consistent with our goal to transition to the best cost and cleanest electric supply mix available while maintaining reliability, diversity and flexibility for the technology and market changes on the horizon.

Reliable and sustainable	Flexibility for the future	Local and statewide economic benefits	Best plan for customers and the company

RECAP OF STAKEHOLDER PROCESS

Abe Lang, Manager Strategy & Risk, NiSource

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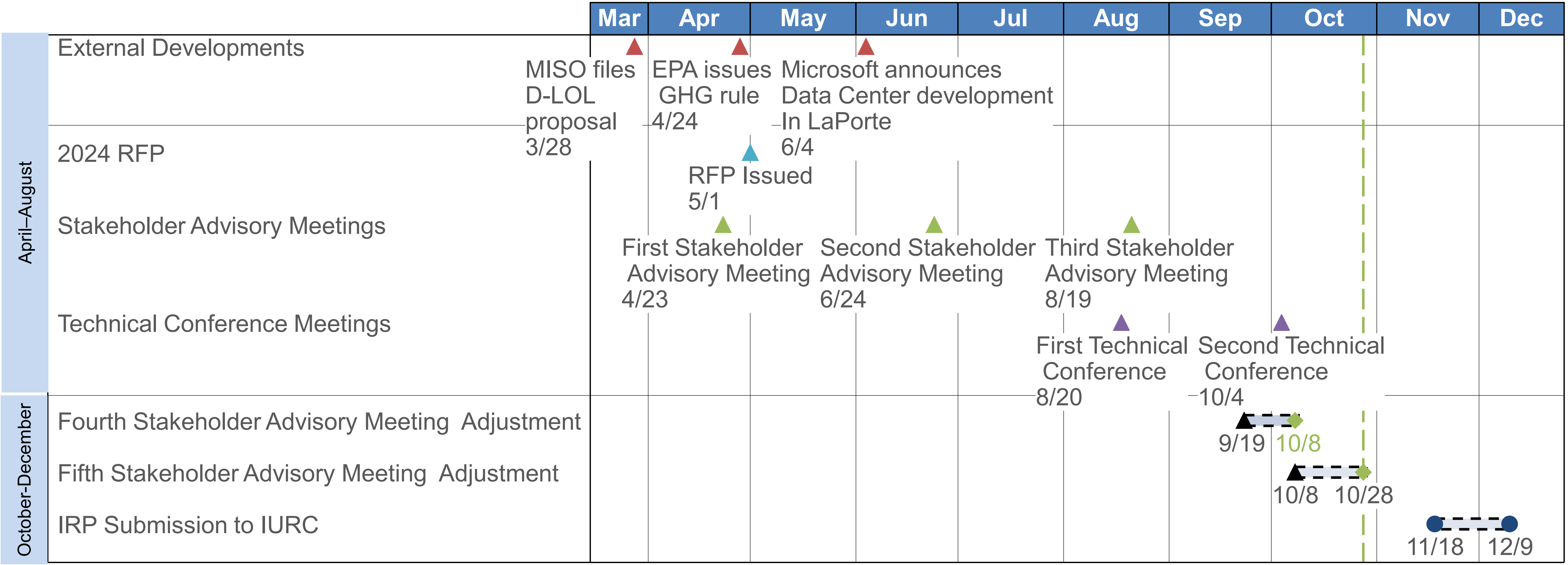
RECAP: 2024 IRP STAKEHOLDER ADVISORY PROCESS TIMELINE & ADJUSTMENTS

To afford NIPSCO and Stakeholders additional time to analyze the impacts of several significant external developments impacting the long-term planning to maintain reliable and affordable energy for our customers, the Indiana Commission has approved NIPSCO's request to adjust the 2024 IRP submission date from November 18th to December 9th



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PUBLIC ADVISORY PROCESS AND RESPONSES TO FOURTH STAKEHOLDER MEETING COMMENTS

Abe Lang, Manager Strategy & Risk, NiSource

SUMMARY OF STAKEHOLDER FEEDBACK SINCE MEETING #4

Category	Stakeholder Comments	NIPSCO Responses
CCGT Resource Options	• Less than 2,300 MW of thermal bid into the RFP, but portfolios have 2,600 MW+ of thermal capacity. Is this feasible? • What is the configuration of the CC options? • Data center load may not materialize, and would these CCGT additions be needed without the new loads? • Most portfolios contemplate a CCGT in 2028. Is that feasible? • What is assumed about the GHG rulemaking underway for existing NG plants?	• CCGT installed capacity in excess of the installed capacity bid into the RFP is modeled as generic "self-build." • The 650 MW blocks evaluated were modeled generally under a 2x1 configuration. That may change as needs dictate; however, the block size was modeled at 650 MW for planning purposes. • In response to similar previous feedback, we are working on views of the portfolio without any data center load included and what the resources would look like under that scenario, and we are sharing those publicly at Stakeholder Meeting #5. • NIPSCO appreciates the development risk. The date modeled was based on consultation with NIPSCO and NiSource internal Major Projects and Supply Chain teams. Other considerations may have to be taken into account during project execution. • The EPA GHG rule was changed to exempt existing gas-fired plants, and we have modeled the GHG rule accordingly.

SUMMARY OF STAKEHOLDER FEEDBACK SINCE MEETING #4

Category	Stakeholder Comments	NIPSCO Responses
Renewable Resource Options	• A 10-hour and 100-hour duration battery were bid into the RFP, which is being selected? • Can NIPSCO self build wind? • In Portfolio D, to what extent could Lithium-ion batteries be used rather than the gas peaker?	• The 100-hour battery option was generally selected when LDES was part of portfolios (either in the near-term or over the longer-term). However, the values in this IRP may be thought of as placeholders for LDES technology generally, while the eventual technology will undergo further due diligence. • Current land limitations hinder wind development. Additionally, a CCGT or CT can be sited at existing NIPSCO-owned facilities. • MISO's D-LOL proposal discounts storage more than CTs/CCs in the winter, and CTs do provide incremental energy to the portfolio which batteries cannot. Given that the model selected large amounts of storage, however, storage and gas peaking remain comparable resources that offer similar attributes.
Bill Impact/Cost to Customer	• Will there be a bill impact analysis? • Please confirm you will be doing a ratepayer cost analysis by customer class?	• NPVRR results will be provided at the Fifth Stakeholder meeting across all the scenarios (with annual revenue requirements in supporting data files). • NIPSCO will ensure it includes all legally required customer cost information as a part of its final IRP report on December 9th.

SUMMARY OF STAKEHOLDER FEEDBACK SINCE MEETING #4

Category	Stakeholder Comments	NIPSCO Responses
Other Questions Raised	• Could you share seasonal target reserve margins in Stakeholder meeting #5?	• Seasonal Target Reserve Margins: 9% in Summer, 27% in Winter, 14% in Fall, 27% in Spring – based on the current MISO capacity accreditation and resource adequacy rules. For D-LOL, NIPSCO utilized guidance from MISO on the impacts to NIPSO's obligation as shown in the supply-demand graphics.
	• What are the carbon tax/cost assumptions?	• The Reference Case has no CO2 price, although the AER scenario has a CO2 price starting in 2030 and ramping up to a significant level (~$100/tonne by 2035 in real $). See Stakeholder Meeting #2 slides for more detail.
	• Can you provide more color on the assumptions driving the Emerging Load Sensitivity?	• NIPSCO evaluated potential large load projects in the queue and built its Reference Case under the assumption of 2-3 new large projects. The Emerging Load Sensitivity evaluates the potential for 6 new data center projects.

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PORTFOLIO DEFINITION

Abe Lang, Manager Strategy & Risk, NiSource
Pat Augustine, Vice President, CRA

OVERALL RESOURCE PLANNING APPROACH

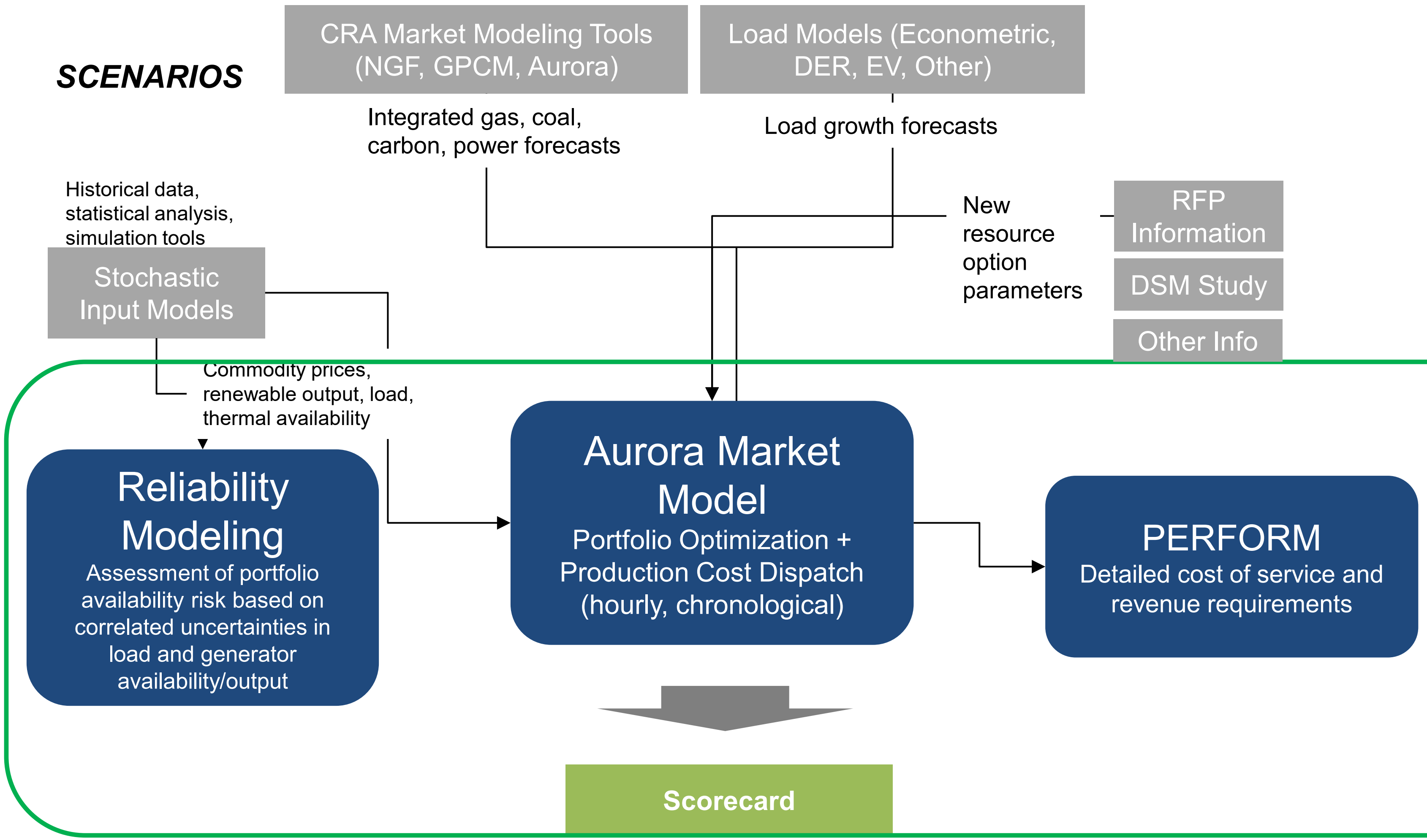
Meetings 1-4

Today's Meeting

STEPS:

1. Identify Planning Objectives and Key Questions
2. Develop Market Perspectives (External Scenarios)
3. Develop Integrated Resource Strategies (NIPSCO Portfolios)
4. Portfolio Modeling and Analysis
5. Evaluate Tradeoffs and Select Preferred Plan

RESOURCE PLANNING APPROACH



1. **Identify key planning questions and approach**
2. **Develop market perspectives (external scenarios)**
3. **Develop integrated resource strategies (NIPSCO portfolios)**
4. **Portfolio modeling and analysis**
   - **Detailed scenario dispatch**
   - **Stochastic simulations**
5. **Evaluate trade-offs and select preferred plan**

RECAP: PORTFOLIO CONSIDERATIONS

Six original portfolios were constructed to highlight the two primary constraints:

1) MISO's proposed D-LOL rules: reduce the capacity value, primarily for solar and wind resources
2) EPA's GHG emissions rules: constrain output or increase cost of new gas generation

Higher **MISO Capacity Accreditation** *Lower*

Emissions Intensity (*High* → *Low/zero*)

	Current Market Rules	Direct Loss of Load
No Constraints	Portfolio A	Portfolio B
Current EPA Rules Constraints on New Builds	Portfolio C	Portfolio D
No New Fossil without Emission Controls at Start-Up (Net Zero)	Portfolio E	Portfolio F

Two additional portfolios were developed to evaluate:

- Portfolio variants between D and F but with a more gradual reduction to Net Zero by 2040

Portfolio D - CCUS

Portfolio D - Hydrogen

RECAP: PORTFOLIO COMPARISON – RESOURCE ADDITIONS ABOVE CURRENT PLAN

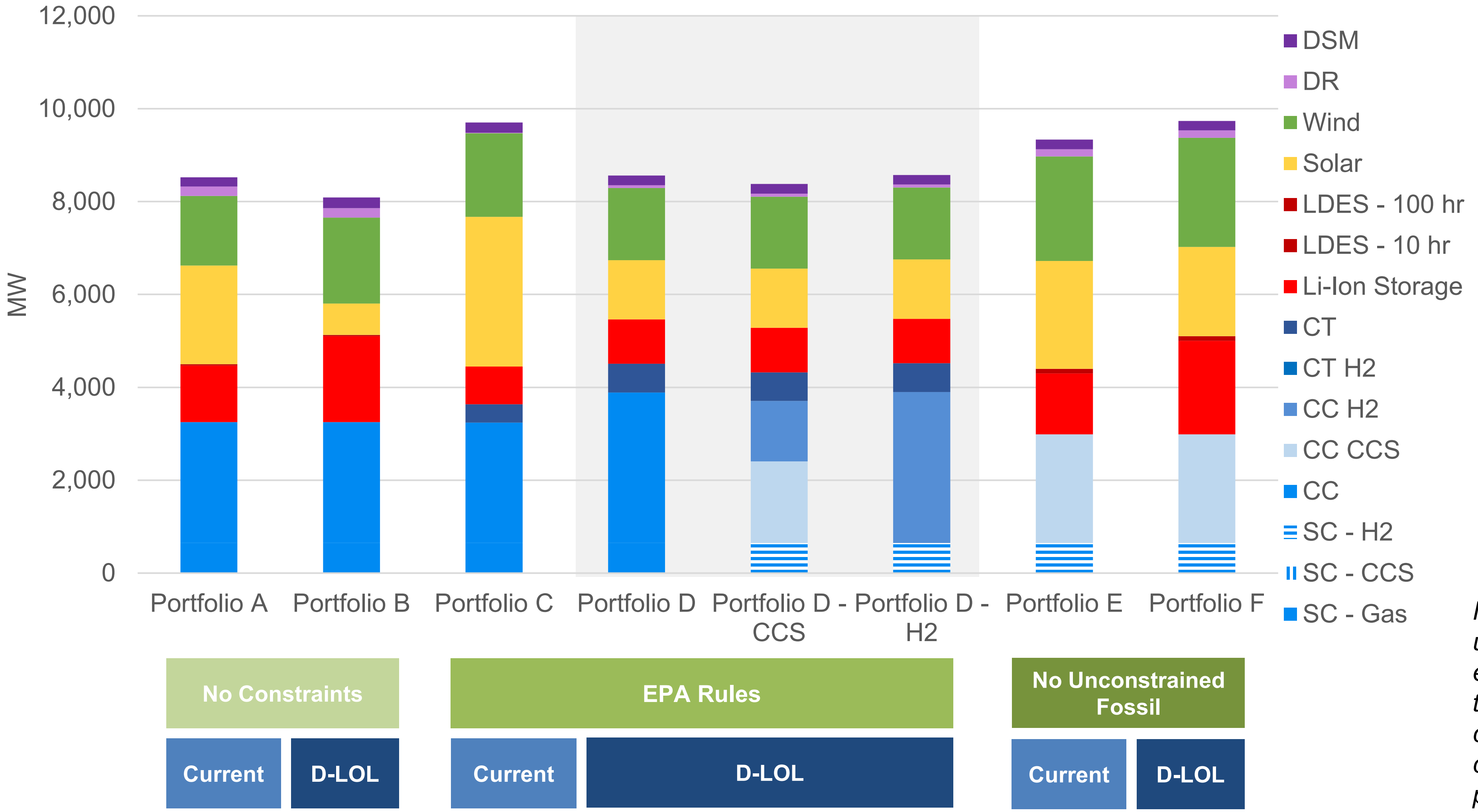
Given the lower seasonal capacity credit of renewables with or without MISO's D-LOL rule, NIPSCO would need to add installed capacity that is around double its supply-demand gap (summer) in almost all portfolios.

	A	B	C	D (all)*	E	F
MISO Capacity Rules	**Current**	**D-LOL**	**Current**	**D-LOL**	**Current**	**D-LOL**
EPA GHG rule constraints (capacity factor)	**None**	**None**	**CCGT<40%**	**CCGT<40%**	**CCGT<40%**	**CCGT<40%**
New gas emissions controls	**None**	**None**	**None**	**Late 2030s**	**At Start-up**	**At Start-up**
Wind	1,500	1,850	1,800	1,550	2,250	2,350
Solar	2,125	675	3,235	1,275	2,322	1,922
Storage[1]	1,249	1,882	811	959	1,410	2,111
Gas CCGT	2,600	2,600	2,585	3,235		
Gas Peaking			400	618		
Gas CCGT w/CCUS					2,340	2,340
Sugar Creek	Extend on Gas	Extend on Gas	Extend on Gas	H2 (or CCUS) Retrofit	H2 Retrofit	H2 Retrofit
DR / DSM[2]	400	430	230	270	365	365
Total ICAP Additions (excl. DSM/DR)	7,474 MW	7,007 MW	8,831 MW	7,637 MW	8,322 MW	8,723 MW
2035 Supply-Demand Capacity Gap (Summer)	~3,500 MW	~4,000 MW	~3,500 MW	~4,000 MW	~3,500 MW	~4,000 MW

[1] *Includes both 4-hour Lithium-ion and long-duration storage*
[2] *DR/DSM additions calculated as peak capacity contribution in summer of 2043*

* Portfolio D contains 3 variants one with CCUS, one with Hydrogen, and one without any carbon abatement: all have the same base resource mix, outside of the emissions controls.

RESOURCE ADDITIONS COMPARISON ACROSS PORTFOLIOS – CUMULATIVE NAMEPLATE THROUGH 2043

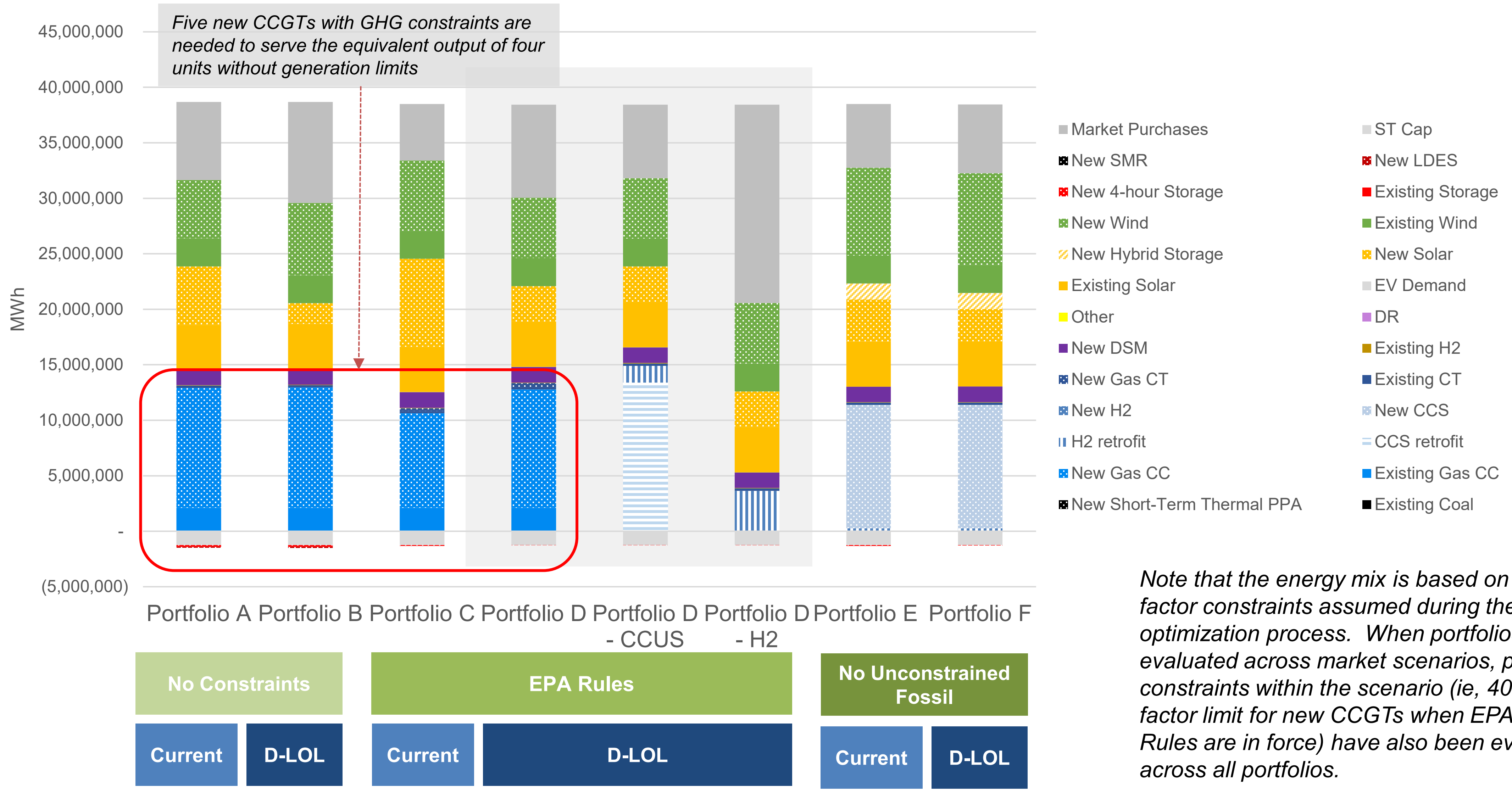


- Portfolio D variants would retrofit new CCGT capacity additions with CCUS or hydrogen capability.

Note that the three converted CCUS units in the D-CCUS Portfolio would be expected to be de-rated from 650 MW to 585 MW. Small resulting seasonal capacity shortfalls are assumed to be covered via short-term capacity purchases for modeling purposes.

**Sugar Creek capacity is included for all portfolios.*

ENERGY MIX ACROSS PORTFOLIOS – ANNUAL SNAPSHOT 2043



Note that the energy mix is based on capacity factor constraints assumed during the portfolio optimization process. When portfolios are evaluated across market scenarios, prevailing constraints within the scenario (ie, 40% capacity factor limit for new CCGTs when EPA GHG Rules are in force) have also been evaluated across all portfolios.

ADDITIONAL PORTFOLIO CONSIDERATIONS – FLAT LOAD

In addition to the Portfolio D variants, stakeholders have expressed interest in understanding the portfolio implications if new large loads do not materialize in NIPSCO's service territory.

Higher **MISO Capacity Accreditation** *Lower*

Emissions Intensity: *High* → *Low/zero*

	Current Market Rules	**Direct Loss of Load**
No Constraints	Portfolio A	Portfolio B
Current EPA Rules Constraints on New Builds	Portfolio C	Portfolio D
No New Fossil without Emission Controls at Start-Up (Net Zero)	Portfolio E	Portfolio F

Two additional portfolios were developed to highlight:

Portfolios with EPA rules and under the D-LOL construct (the "D" theme), but without data center load (Flat Load).

- Portfolio Flat Load
- Portfolio Flat Load - DLOL
- Portfolio D - CCUS
- Portfolio D - Hydrogen

FLAT LOAD 1 – RESOURCE ADDITIONS (NAMEPLATE MW)

Flat Load | 1 Current Market Rules

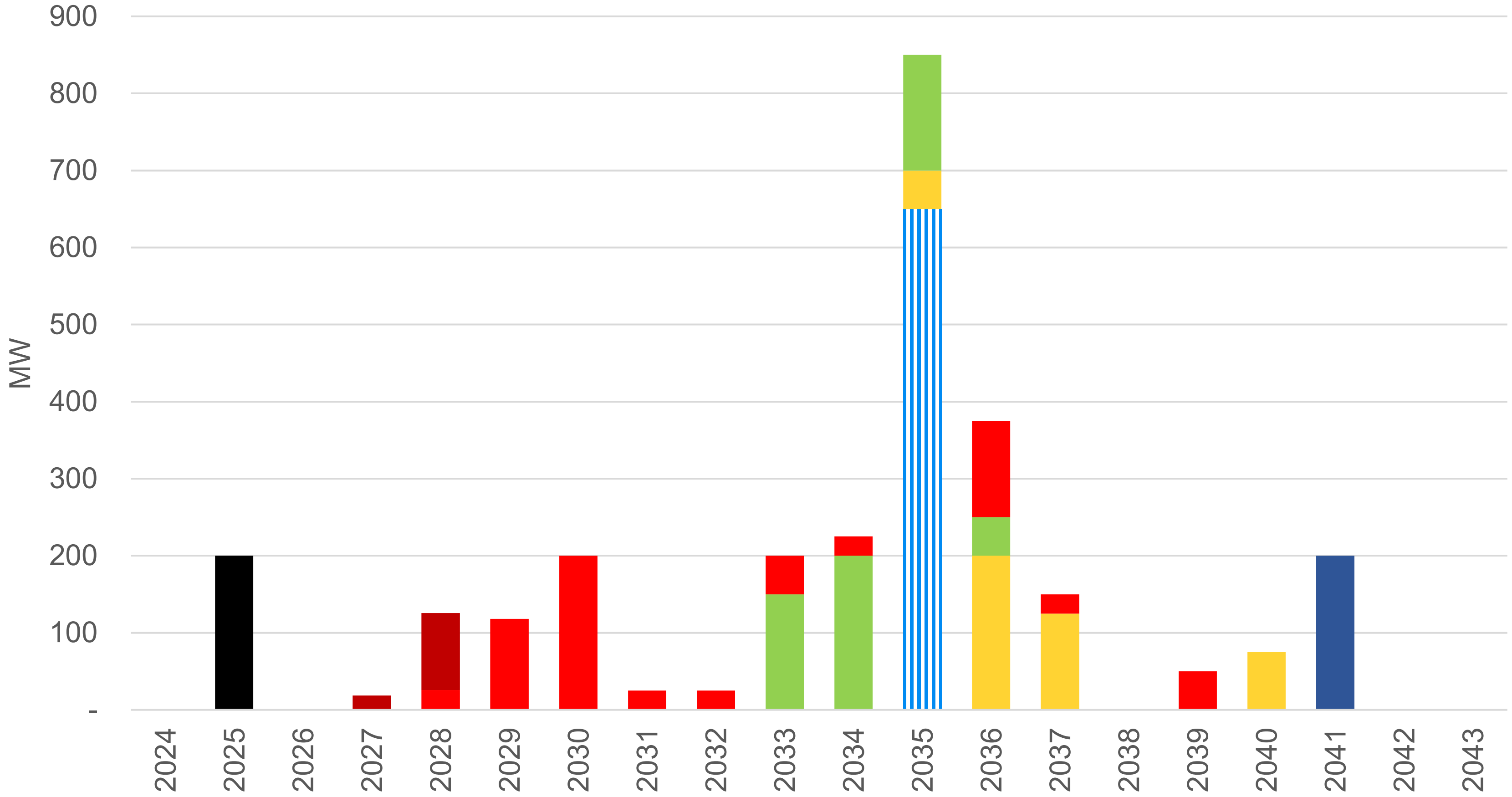
Resource	Through 2029[1]	2030-2034	2035+
Wind		350	200
Solar			450
4-hr Li-Ion Storage	143	325	200
Long Duration Energy Storage	118		
Gas CCGT			
Gas Peaking			200
Short-Term Thermal PPA & ZRCs	200[2]		
Gas CCGT w/ CCUS			
H2-enabled CC			
Sugar Creek			650[3]

1: All resources through 2029 are from the RFP.
2: Includes 200 MW ZRC.
3: Retrofitted to H2-enabled CCGT in 2035

Note: All EE programs selected except for first tranche of C&I (2027-2029) and all Residential High and Behavioral. All DR selected except for Water Heaters, EV Charging, and BTM Storage

FLAT LOAD 1 – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

Flat Load | 1 Current Market Rules



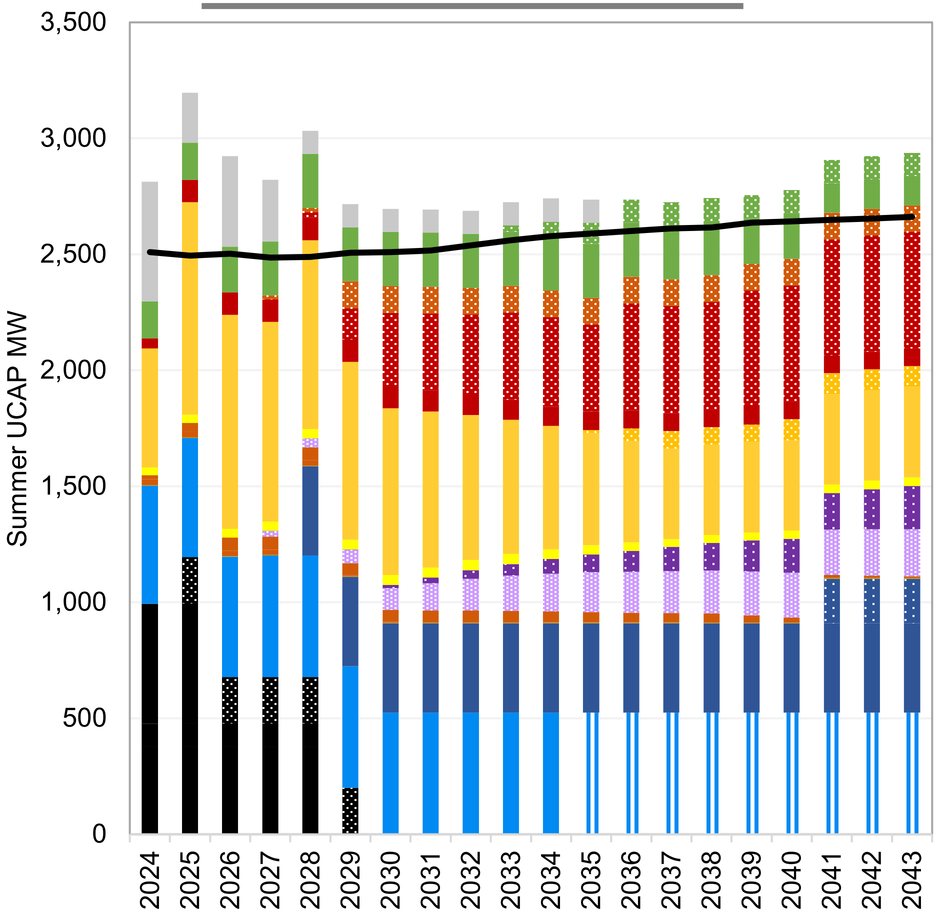
	*Summer Credit**	*Winter Credit**
New LDES	97%	97%
New 4-hour Storage	85%	85%
New Wind	18%	53%
New Solar	28%	12%
New Gas CT	96%	90%
New Short-Term Thermal PPA	100%	100%
H2 Retrofit	85%	77%

Note: The 2025 short-term PPA lasts through 2029.
**Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.*

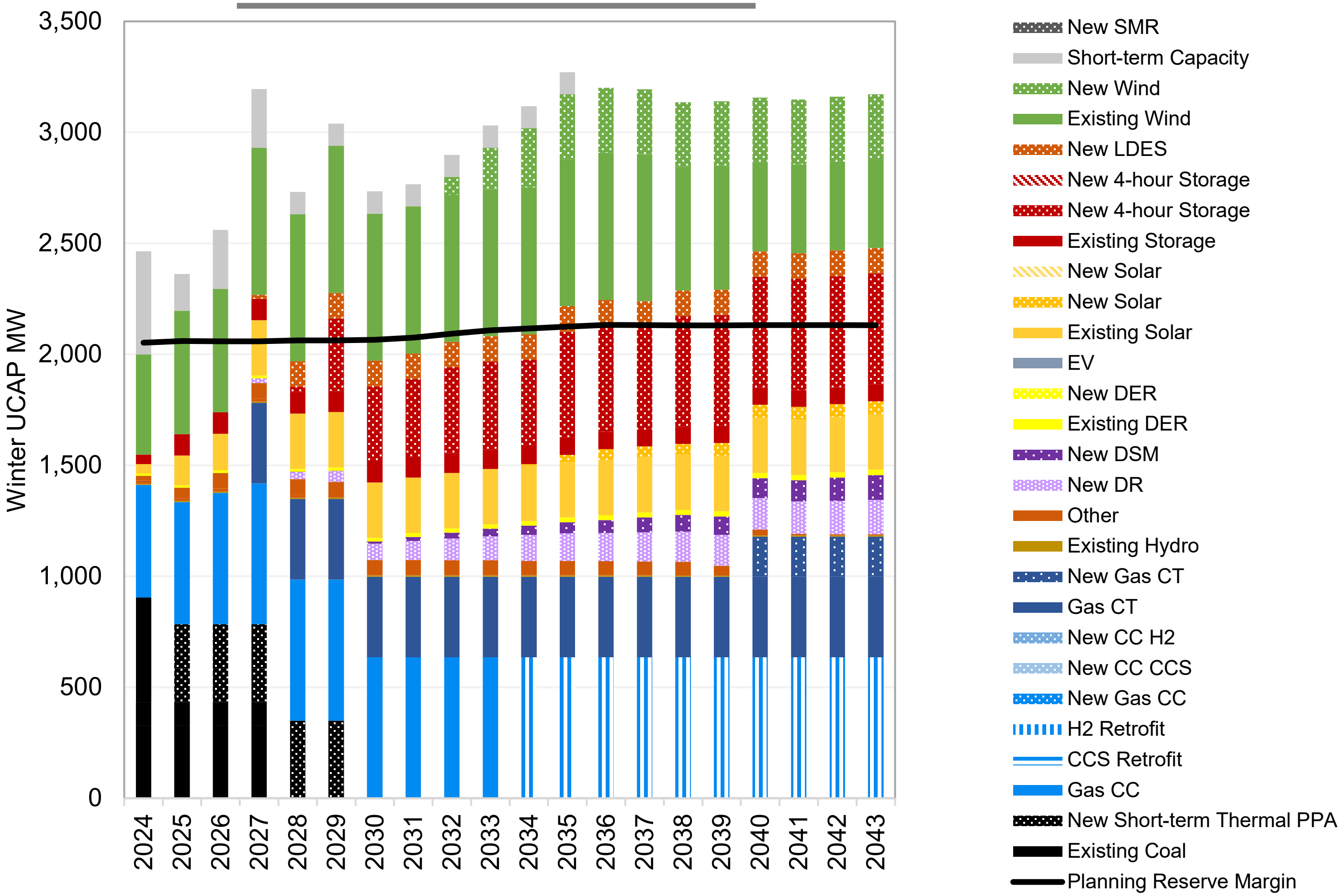
FLAT LOAD 1 – SUPPLY-DEMAND BALANCE

Flat Load | 1 Current Market Rules

Summer Cap. vs. PRM

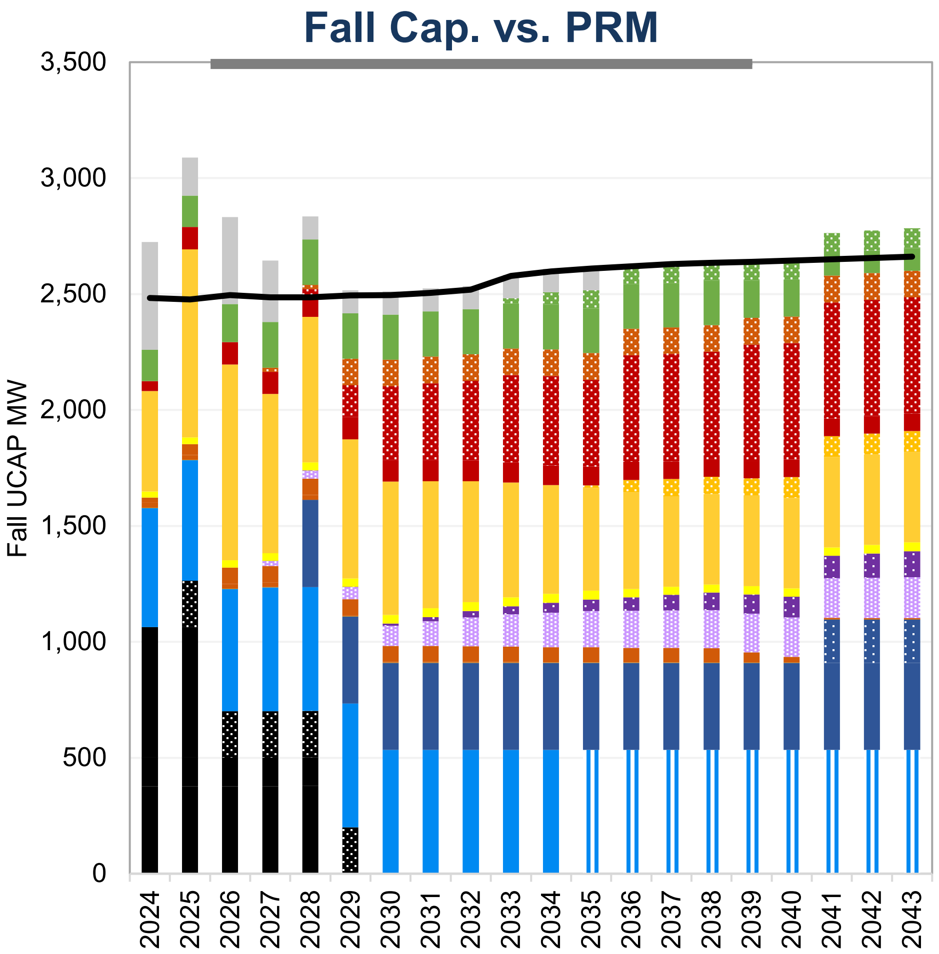


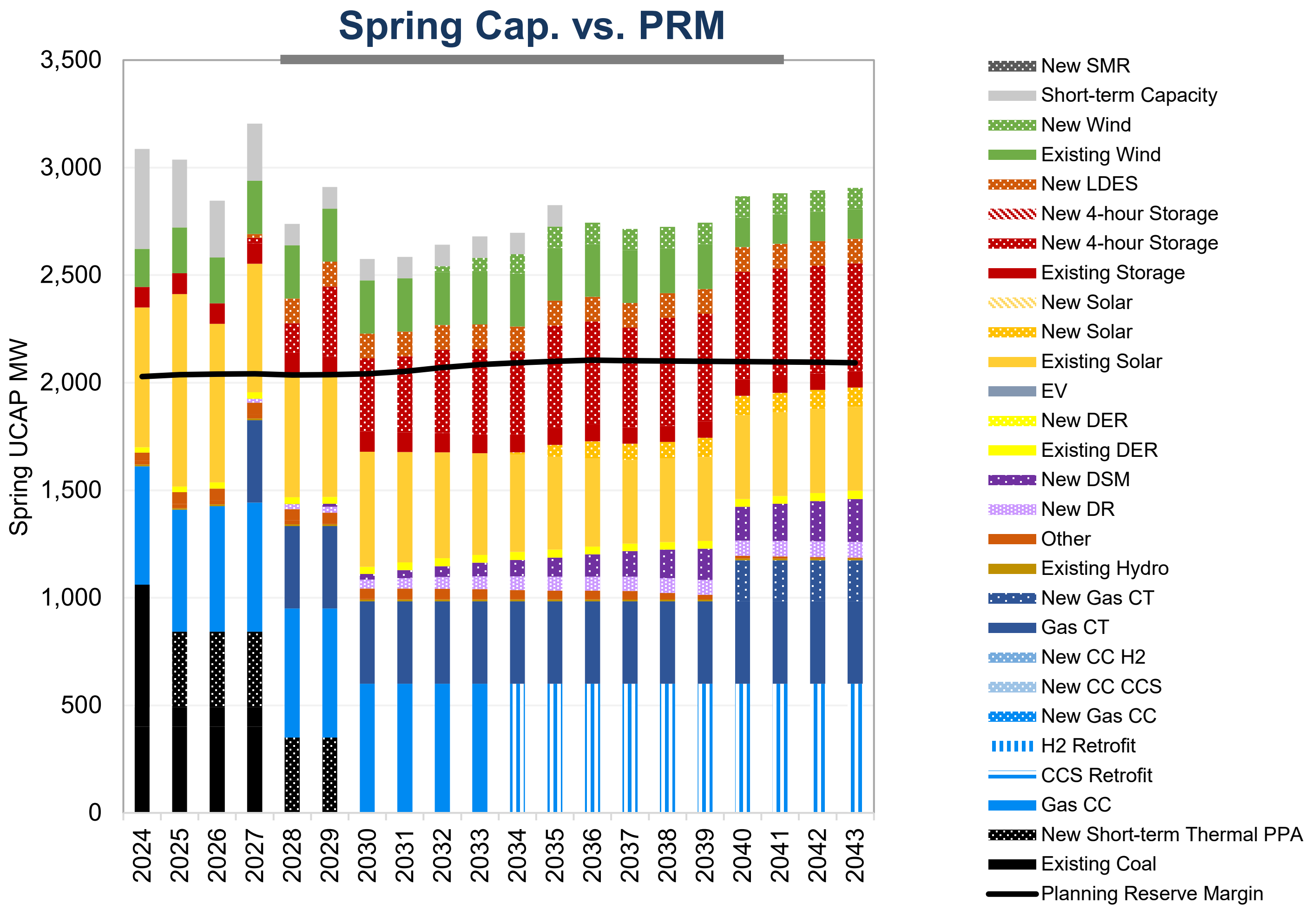
Winter Cap. vs. PRM



FLAT LOAD 1 – SUPPLY-DEMAND BALANCE

Flat Load | 1 Current Market Rules

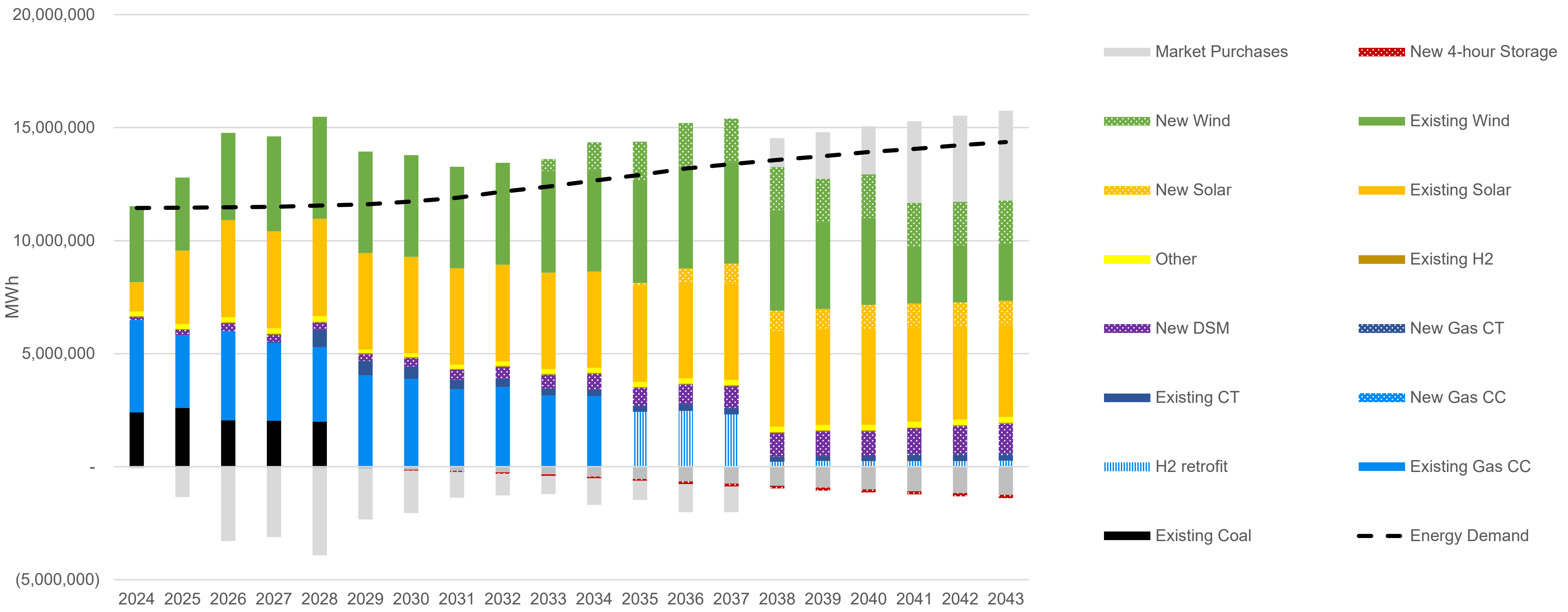




Generally Binding Season

FLAT LOAD 1 – ENERGY POSITION

Flat Load | 1 Current Market Rules



Notes:

- *The net impact of storage is shown, which results in an energy "loss," given efficiency less than 100%. Over the course of a day or year, storage is charging during some hours and discharging during others.*
- *The portfolio was optimized under an assumption that Sugar Creek continues operating on natural gas. This display shows potential hydrogen blending under the Reference Case, which could leave the portfolio energy short.*
-

FLAT LOAD 2 – RESOURCE ADDITIONS (NAMEPLATE MW)

Flat Load 2 Direct Loss of Load

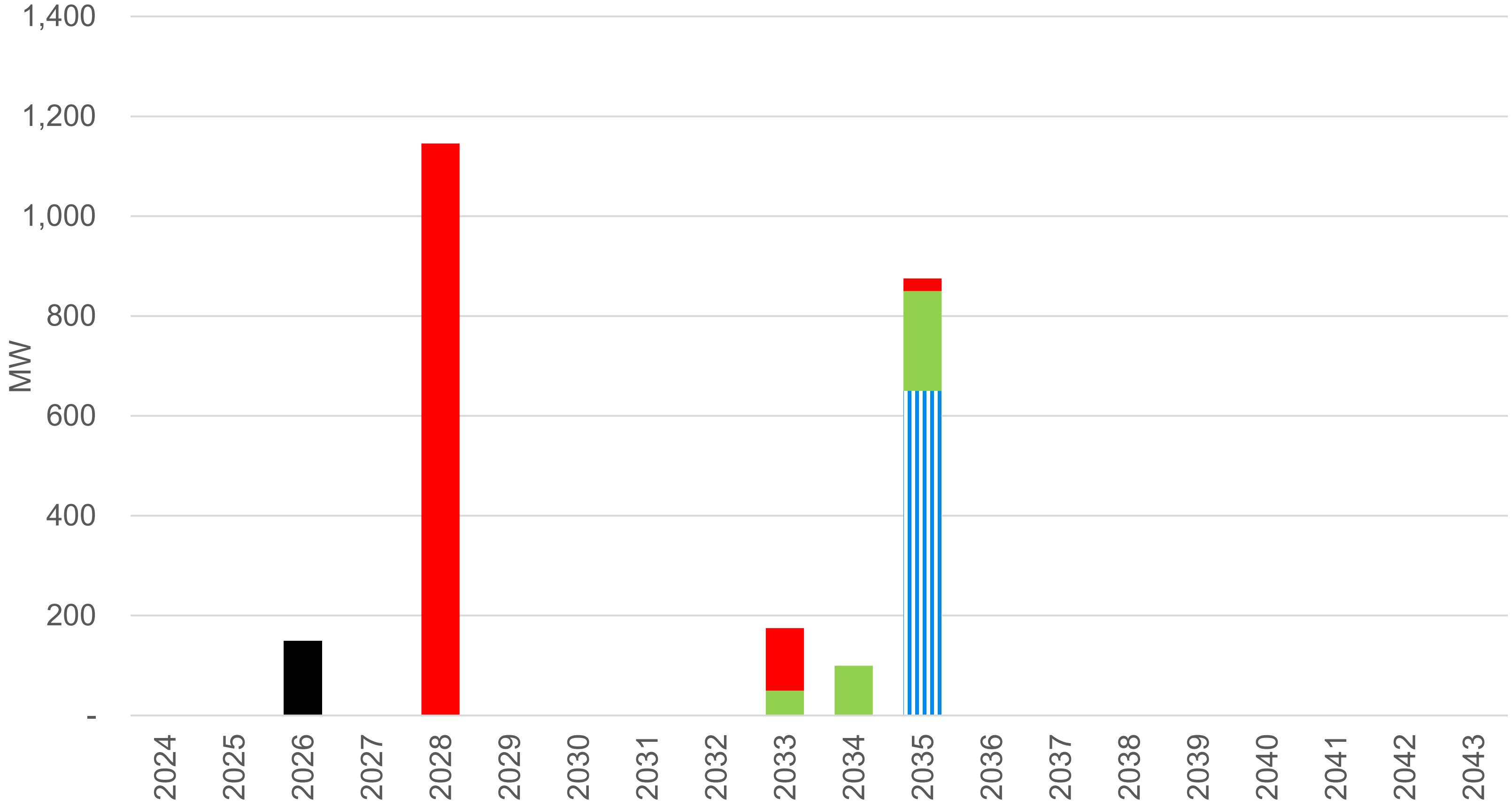
Resource	Through 2029[1]	2030-2034	2035+
Wind		150	200
Solar			
4-hr Li-Ion Storage	1,146	125	25
Long Duration Energy Storage			
Gas CCGT			
Gas Peaking			
Short-Term Thermal PPA & ZRCs	150[2]		
Gas CCGT w/ CCUS			
H2-enabled CC			
Sugar Creek			650[3]

1: All resources through 2029 are from the RFP.
2: Includes 150 MW of thermal PPA.
3: Retrofitted to H2-enabled CCGT in 2035

Note: All EE programs selected except for first tranche of C&I and Residential High (2027-2029) and first two tranches of Behavioral DSM (2027-2032). All DR selected except for Water Heaters, EV Charging, and BTM Storage

FLAT LOAD 2 – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

Flat Load | 2 Direct Loss of Load

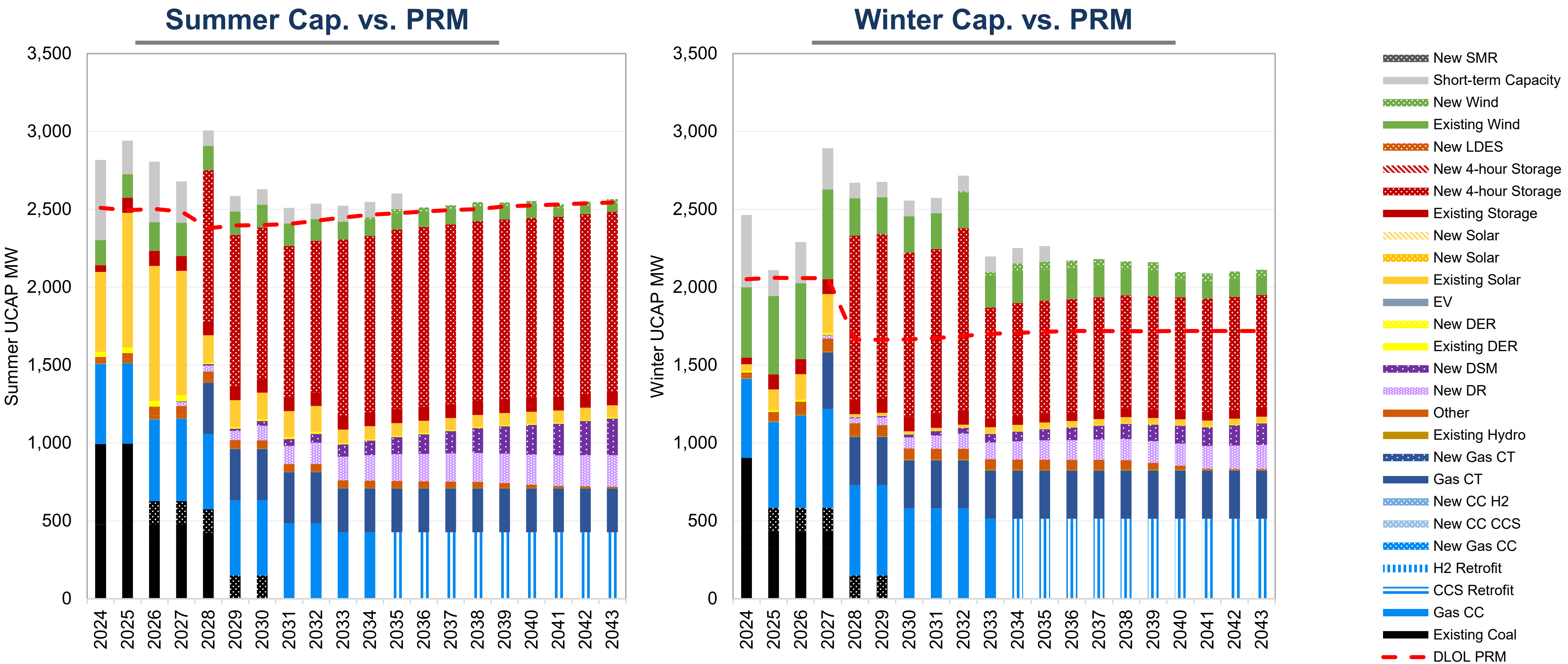


	*Summer Credit**	*Winter Credit**
New 4-hour Storage	89%	56%
New Wind	7%	14%
New Short-Term Thermal PPA	100%	100%
H2 Retrofit	85%	77%

Note: The 2026 short-term PPA lasts from 2026-2030.
**Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.*

FLAT LOAD 2 – SUPPLY-DEMAND BALANCE

Flat Load 2 Direct Loss of Load

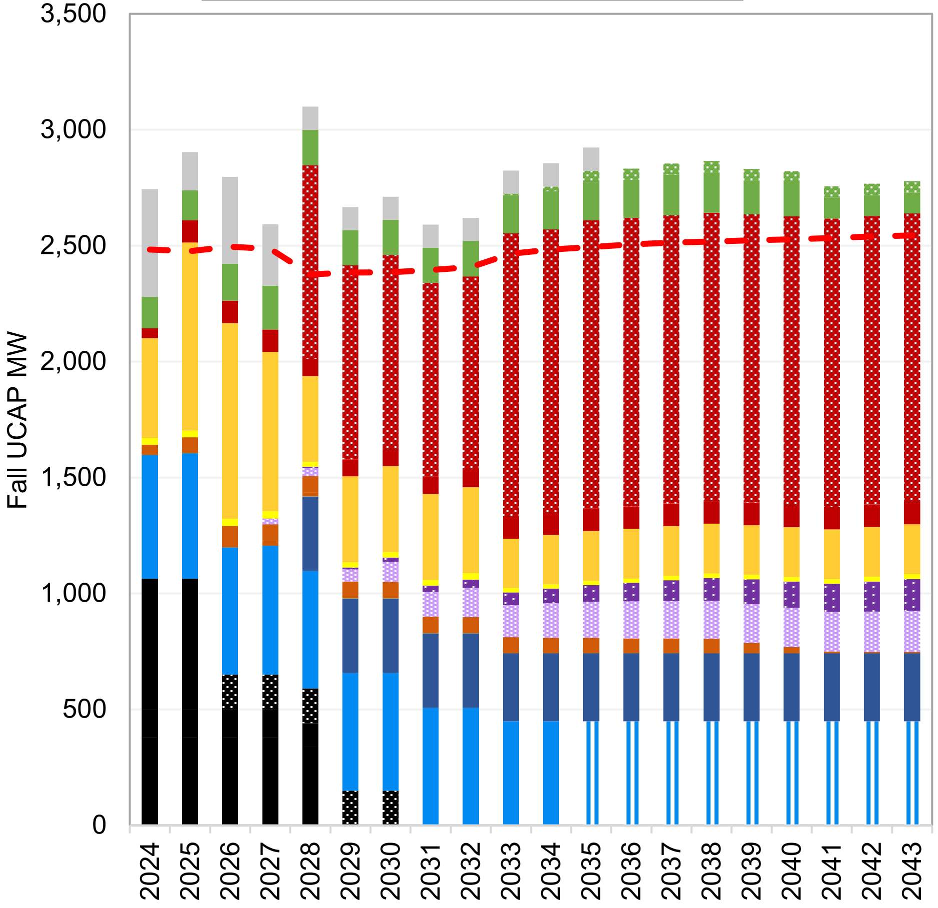


Generally Binding Season

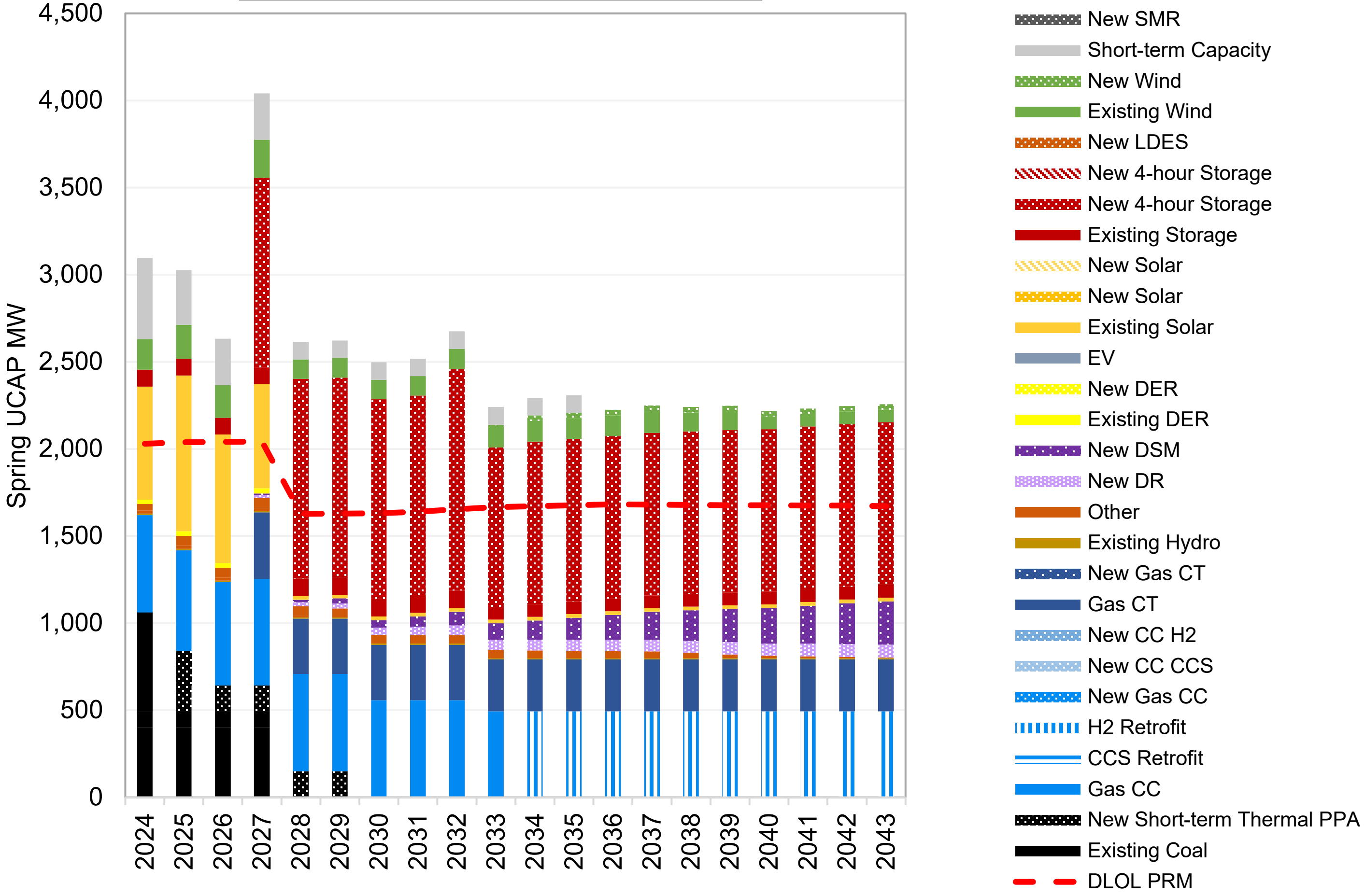
FLAT LOAD 2 – SUPPLY-DEMAND BALANCE

Flat Load | 2 Direct Loss of Load

Fall Cap. vs. PRM

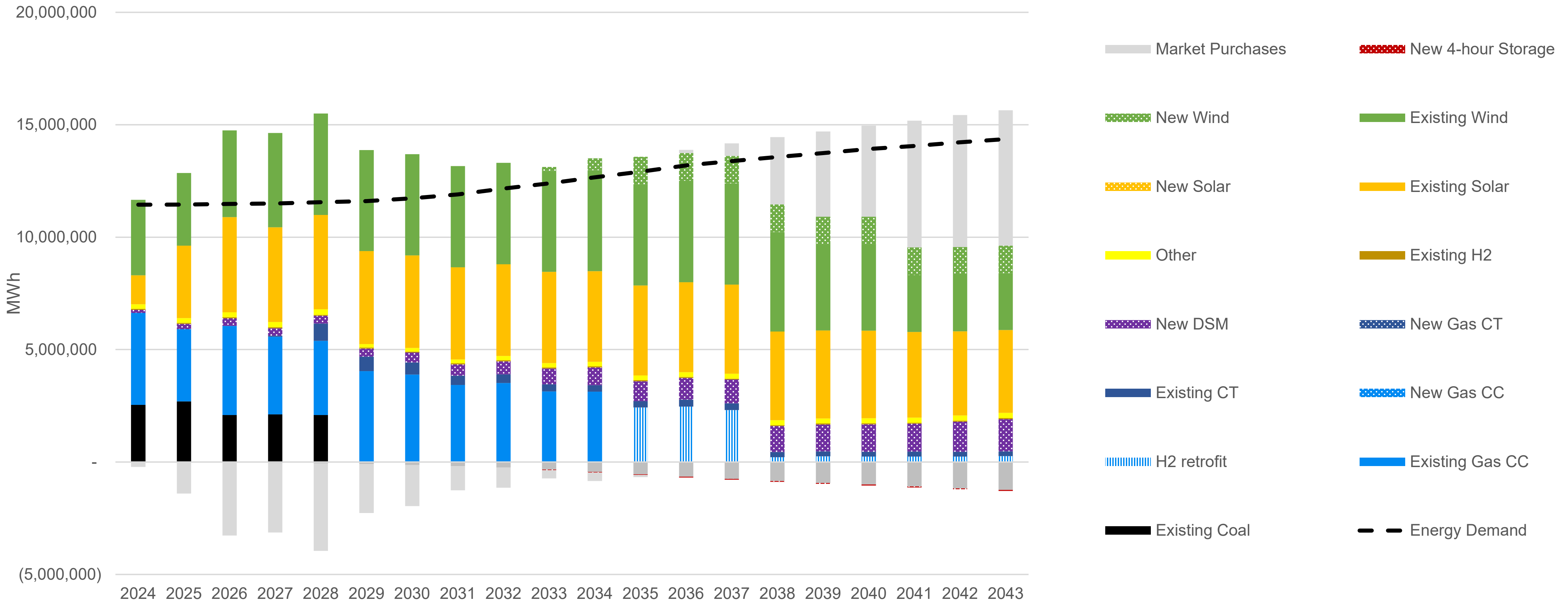


Spring Cap. vs. PRM



FLAT LOAD 2 – ENERGY POSITION

Flat Load | 2 Direct Loss of Load



Notes:

- *The net impact of storage is shown, which results in an energy "loss," given efficiency less than 100%. Over the course of a day or year, storage is charging during some hours and discharging during others.*
- *The portfolio was optimized under an assumption that Sugar Creek continues operating on natural gas. This display shows potential hydrogen blending under the Reference Case, which could leave the portfolio energy short.*

PORTFOLIO COMPARISON – RESOURCE ADDITIONS ABOVE CURRENT PLAN

	Flat Load	Flat Load DLOL	A	B	C	D (all)*	E	F
Data Center Load	None	None	2,600 MW	2,600 MW	2,600 MW	2,600 MW	2,600 MW	2,600 MW
MISO Capacity Rules	Current	D-LOL	Current	D-LOL	Current	D-LOL	Current	D-LOL
EPA GHG rule constraints (capacity factor)	CCGT<40%	CCGT<40%	None	None	CCGT<40%	CCGT<40%	CCGT<40%	CCGT<40%
New gas emissions controls	None	None	None	None	None	Late 2030s	At Start-up	At Start-up
Wind	550	350	1,500	1,850	1,800	1,550	2,250	2,350
Solar	450		2,125	675	3,235	1,275	2,322	1,922
Storage[1]	786	1,296	1,249	1,882	811	959	1,409	2,111
Gas CCGT			2,600	2,600	2,585	3,235		
Gas Peaking	200				400	618		
Gas CCGT w/CCUS							2,340	2,340
Sugar Creek	H2 (or CCUS) Retrofit	H2 (or CCUS) Retrofit	Extend on Gas	Extend on Gas	Extend on Gas	H2 (or CCUS) Retrofit	H2 Retrofit	H2 Retrofit
DSM (DR/EE)[2]	390	440	400	430	230	270	365	365
Total ICAP Additions Through 2043 (excl. DSM/DR)	1,986 MW	1,646 MW	7,474 MW	7,007 MW	8,831 MW	7,637 MW	8,322 MW	8,723 MW
2035 Supply-Demand Capacity Gap (Summer) Covered	~850 MW	~1,350 MW	~3,500 MW	~4,000 MW	~3,500 MW	~4,000 MW	~3,500 MW	~4,000 MW

[1] *Includes both 4-hour Lithium-ion and long-duration storage*
[2] *DSM additions calculated as peak capacity contribution in summer of 2043*

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* Portfolio D contains 3 variants one with CCUS, one with Hydrogen, and one without any carbon abatement: all have the same base resource mix, outside of the emissions controls.

KEY SUMMARY OBSERVATIONS AND CONCLUSIONS

- **Capacity purchases will serve as an effective bridge to new resources and could allow NIPSCO to firm up its near-term capacity position as needed, given the uncertainty in D-LOL accreditation and large load growth potential.**
- **Storage additions will play a major role in meeting incremental capacity requirements through the end of the decade <u>with or without new large loads</u>.**
  - NIPSCO will need to be flexible around the quantities of new storage to be procured from the RFP, as storage additions will be positioned as a key "swing resource" to meet evolving capacity needs that will be heavily influenced by D-LOL accreditation reforms.
  - Long duration energy storage (LDES) was selected in certain portfolios and will likely have a role to play in the mid term. NIPSCO will need to track technology developments, costs, and accreditation data for different storage technologies and adapt resource additions accordingly.
- **New natural gas combined cycle capacity is needed to meet potentially significant energy and capacity needs associated with new large load growth across all MISO accreditation and emission reduction portfolio concepts.**
- **Significant energy efficiency and demand response is included across all portfolios and is likely to continue to play an important role in NIPSCO's portfolio.**

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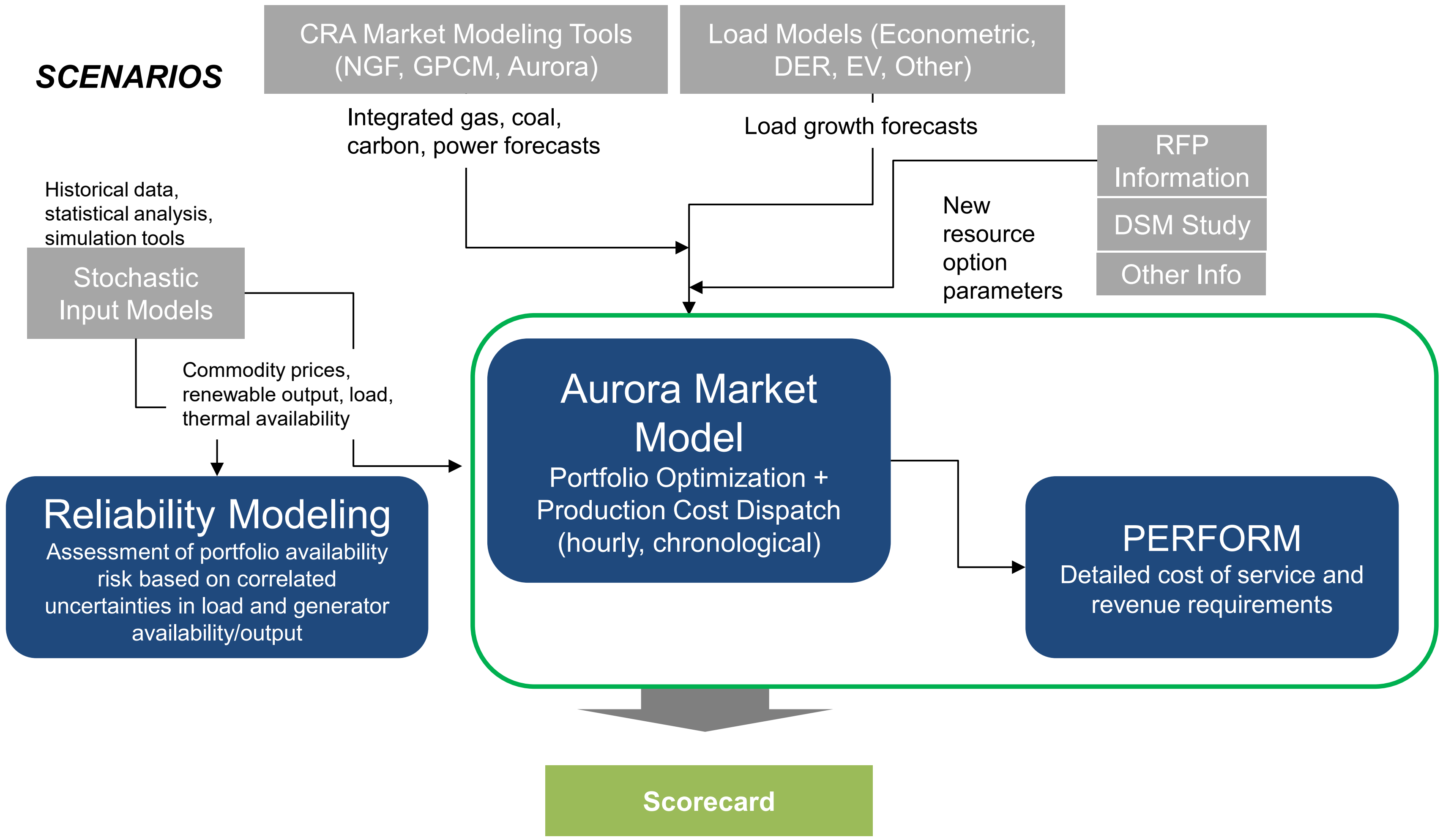
PORTFOLIO ANALYSIS – SCENARIOS

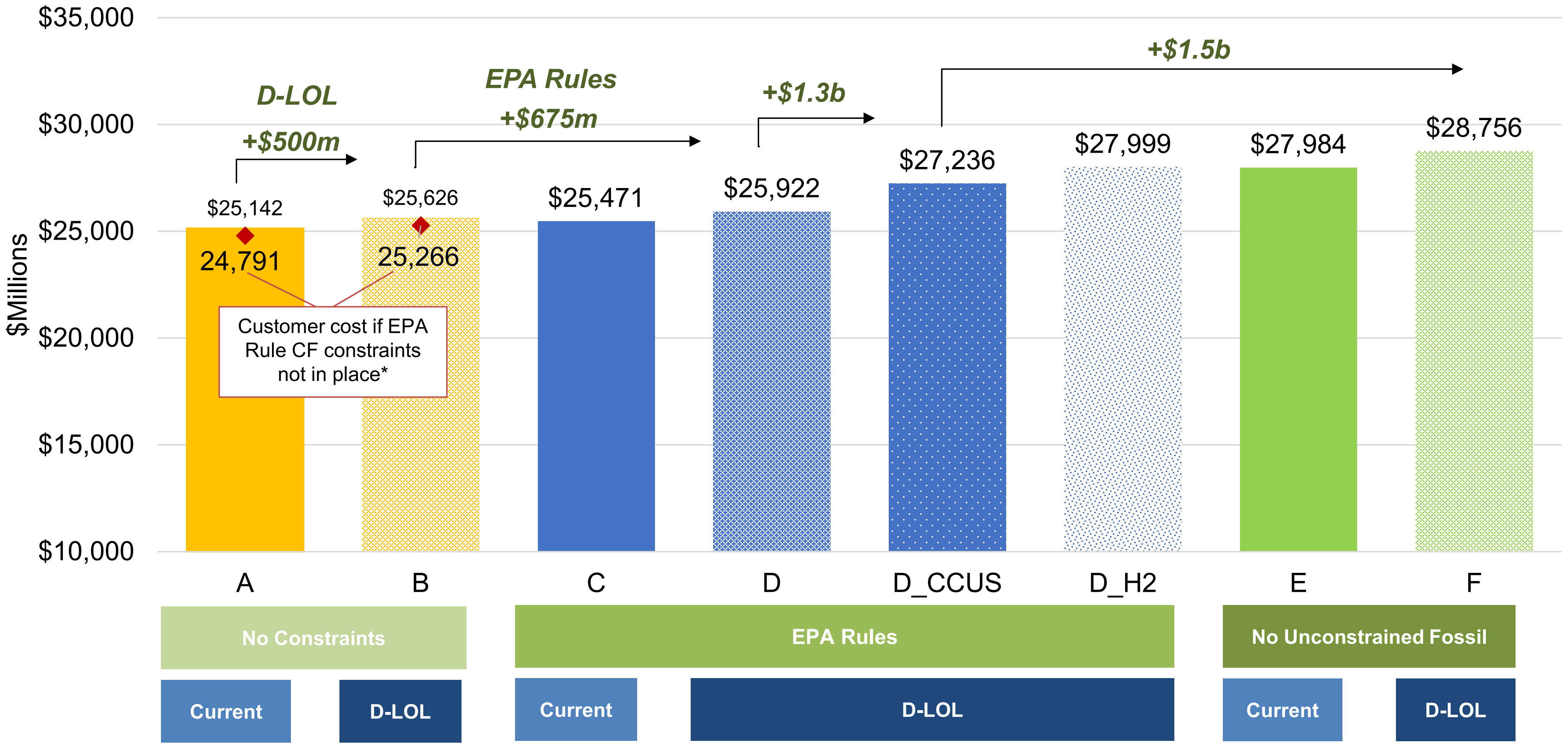
Abe Lang, Manager Strategy & Risk, NiSource
Pat Augustine, Vice President, CRA

RESOURCE PLANNING APPROACH



1. Identify key planning questions and approach
2. Develop market perspectives (external scenarios)
3. Develop integrated resource strategies (NIPSCO portfolios)
4. Portfolio modeling and analysis
   - Detailed scenario dispatch
   - Stochastic simulations
5. Evaluate trade-offs and select preferred plan

30-YR NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – REFERENCE CASE



*EPA GHG Rules implementation assumes new CCGTs can run without capacity factor limits through 2031 and then are limited to 40% in 2032+. Portfolios A and B were also evaluated without capacity factor limits for the entire study period (as represented by the red diamonds above).

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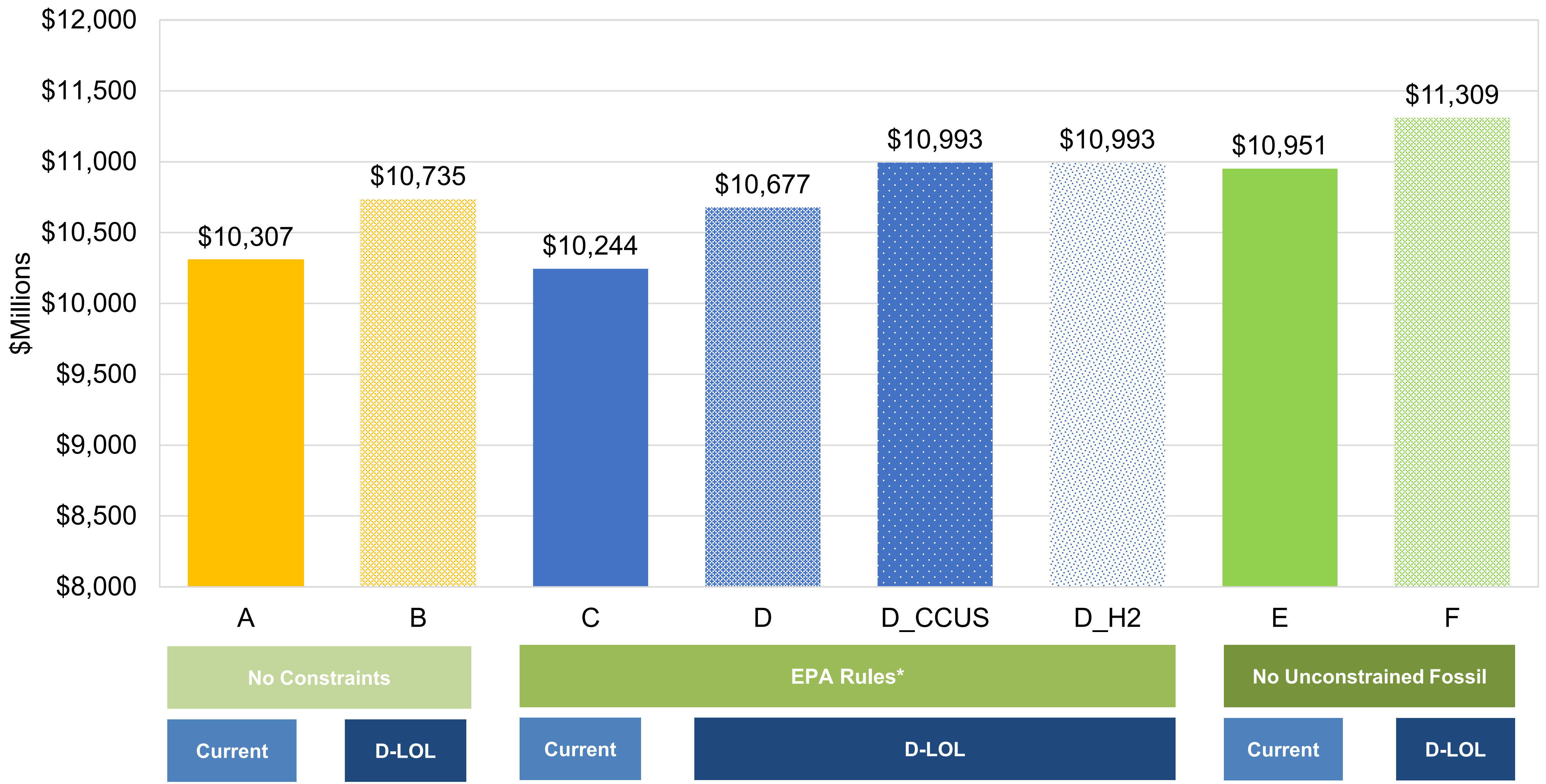
10-YR NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – REFERENCE CASE



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**EPA GHG Rules implementation assumes new CCGTs can run without capacity factor limits through 2031 and then are limited to 40% in 2032+. Portfolios A and B were also evaluated without capacity factor limits for the entire study period (as represented by the red diamonds above).*

KEY SUMMARY OBSERVATIONS AND CONCLUSIONS – REFERENCE CASE

- **Implementation of D-LOL would drive more capacity additions and raise portfolio costs**
  - Over the 30-year NPVRR period, portfolio costs are projected to be ~$450-500 million higher in Portfolios B and D relative to A and C; a similar cost increase is evident over the initial 10 years of the study period as well due to additional near-term capacity needs.
- **Customer costs are projected to be higher in Portfolios C/D relative to Portfolios A/B due to new EPA GHG rules**
  - The level of cost premium is around $675 million in NPV assuming no constraints on combined cycle operation under Reference Case market conditions. If the optimized portfolios were held to the 40% capacity factor constraints, available energy market purchases would still result in lower costs for A and B relative to C and D.
- **With the assumed load growth, a cost premium is associated with meeting net zero goals and restricting new fossil resources to only those with emission controls. Assuming no technology cost and performance risk with CCUS and assuming full monetization of all 45Q tax credits:**
  - There is a ~$1.3 billion 30-year NPVRR premium associated with achieving net zero with CCUS and H2 relative to continuing to operate Portfolio D with combined cycle additions and no subsequent retrofits.
  - There is an *incremental* ~$1.5 billion 30-year NPVRR premium associated with restricting new fossil resources to only those with emission controls (Portfolio F). Over the first 10 years, the *incremental* NPVRR impact is about $300 million.

RECAP: 2024 IRP SCENARIOS

Reference Case (REF)

- The MISO market continues to evolve based on current expectations for load growth, commodity price trajectories, technology development, and policy change (IRA incentives continue, EPA power sector rules advance, and MISO resource adequacy enhancements proceed)

Slower Transition (ST)

- IRA incentives are reduced or ended early, and EPA power sector rules are overturned or rescinded; natural gas prices remain low and result in new gas additions remaining competitive versus renewables in the broader region, as coal capacity more gradually fades from the MISO market

Domestic Resiliency (DR)

- Continued geopolitical uncertainty and volatility drives a focus on “domestic energy independence”; electric power demand grows because of onshoring and other large loads; gas prices are higher due to strong demand

Aggressive Environmental Regulation (AER)

- Carbon emissions from the power sector are regulated more heavily, including through a CO_2 price; restrictions on natural gas production increase gas prices

Accelerated Innovation (AI)

- Federal subsidies continue as a bridge until technology breakthroughs drive broad economy-wide decarbonization (including via electrification); new power sector technologies are commercialized, and DER, EV, microgrid, and EE adoption all increase, transforming wholesale load requirements as “Grid Edge” innovations and enabling policy advance

DIRECTIONAL SCENARIO VARIABLE INPUTS

Scenario		Commodity Prices	Carbon Policies	MISO-wide & NIPSCO Demand
	**Reference Scenario (REF)**	Baseline	Current Policy, including EPA power sector CO2 emission rules	Baseline
	**Slower Transition (ST)**	Low gas price due to abundant resource	IRA Pull-Back and withdrawn EPA power sector rules	Low DER and EV
	**Domestic Resiliency (DR)**	Higher gas price due to strong demand	Current Policy, including EPA power sector CO2 emission rules	High load from new large loads and industrial onshoring ***MISO-wide**** Higher EV
	**Aggressive Environ. Regulation (AER)**	Highest gas price due to production restrictions	EPA power sector CO2 emission rules *plus* carbon price	Higher DER and EV
	**Accelerated Innovation (AI)**	Lower gas price due to demand erosion	Current Policy, including EPA power sector CO2 emission rules	High EV and electrification; higher DER

**Note that data center load growth uncertainty is separately modeled for NIPSCO as a sensitivity.*

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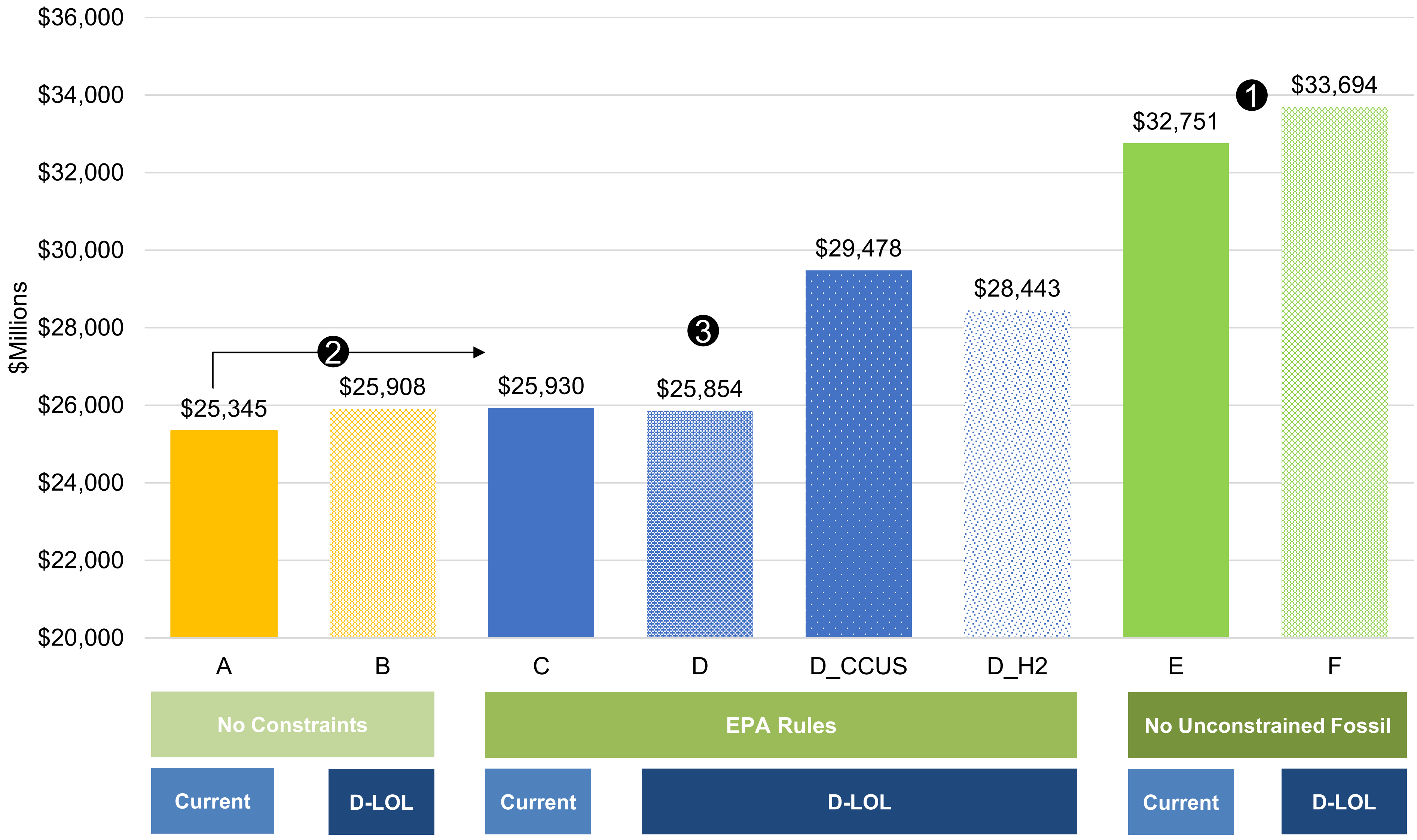
NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – ST SCENARIO

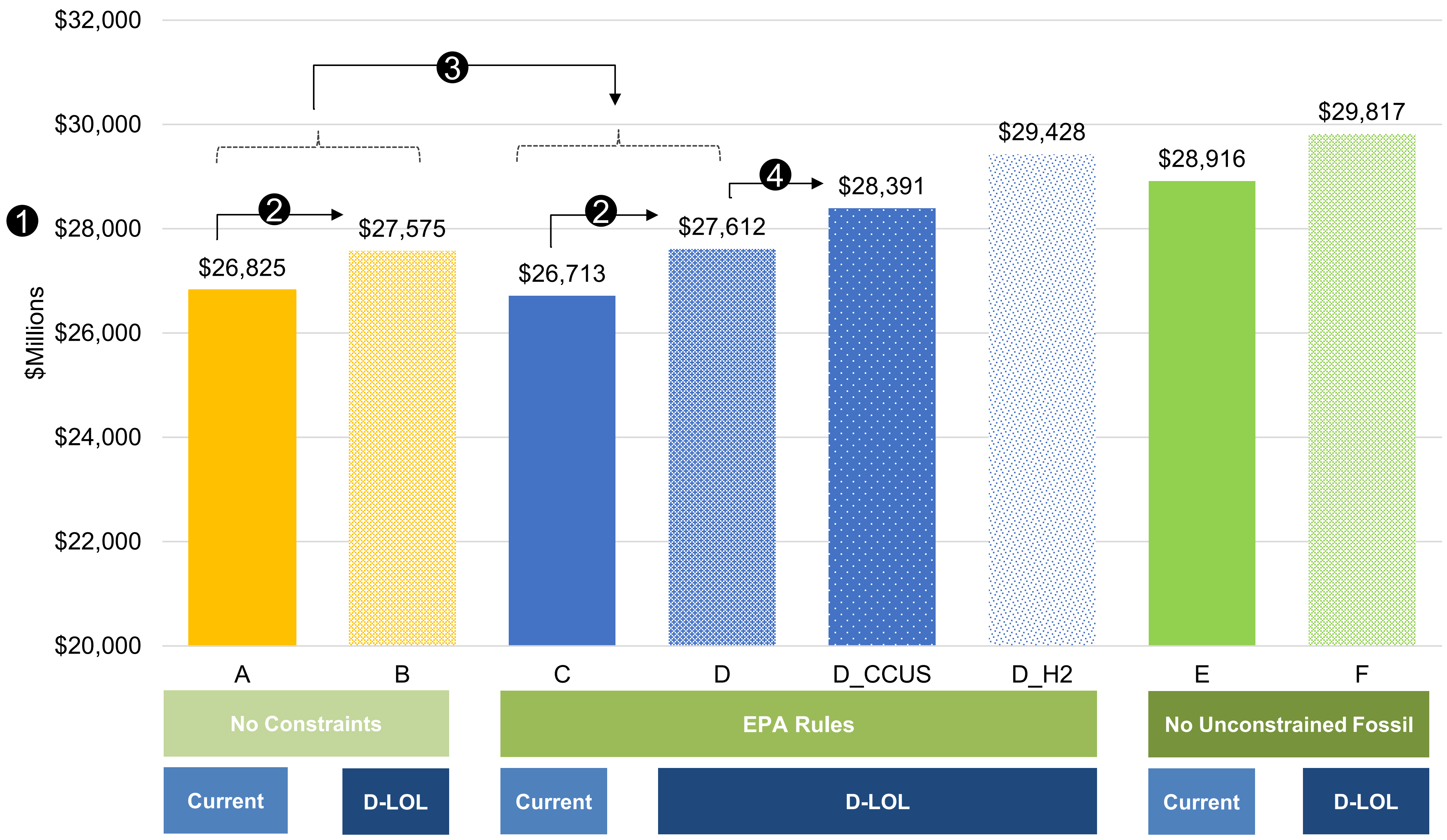


Relative to the Reference Case:

1. Costs for portfolios (E, F, and D_CCUS) that rely heavily on federal tax credits for significant clean energy additions face the largest cost increases.
2. The premium associated with Portfolio C (developed under EPA Rule constraints) relative to Portfolio A decreases when both portfolios are not subject to capacity factor constraints.
3. Portfolio D (with an additional CCGT built under D-LOL) is lower cost than Portfolio C, given no constraints on capacity factor and lower gas prices.

**No EPA GHG Rule limitations are enforced in this scenario.*

NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – DR SCENARIO

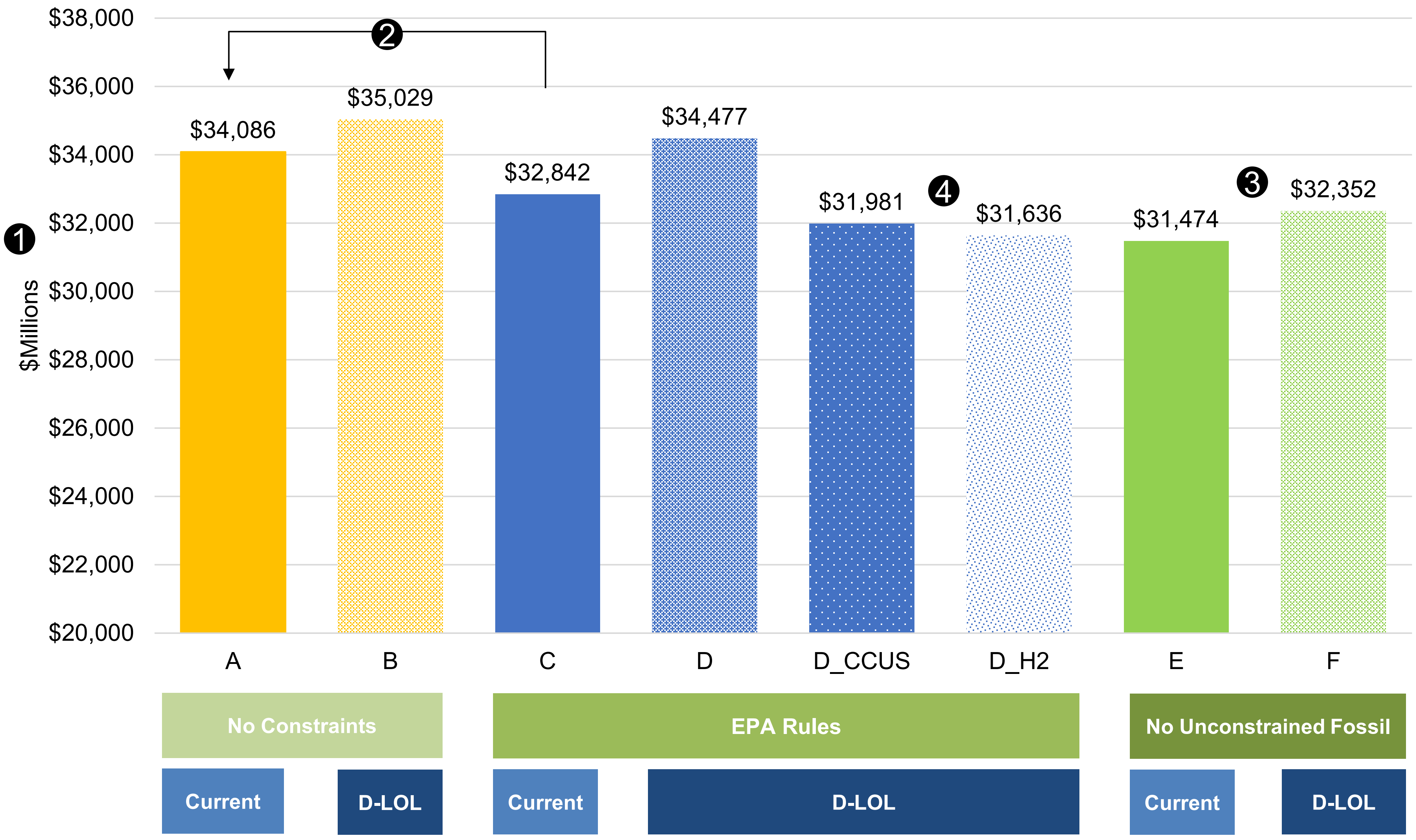


Relative to the Reference Case:

1. Overall portfolio costs are higher, driven by elevated natural gas and power prices.
2. There is a greater premium associated with D-LOL portfolios, as they have fewer renewable additions and are more exposed to higher gas and power prices.
3. The cost premium for portfolios constructed under EPA Rules (C/D) is lower, as the cost of market purchases for A/B is higher. Portfolio C is lower cost than A.
4. The cost premium for D_CCUS relative to D is lower, as higher MISO prices advantage high CCUS CFs relative to CCGT capped at 40% CF.

**EPA GHG Rules implementation assumes new CCGTs can run without capacity factor limits through 2031 and then are limited to 40% in 2032+.*

NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – AER SCENARIO

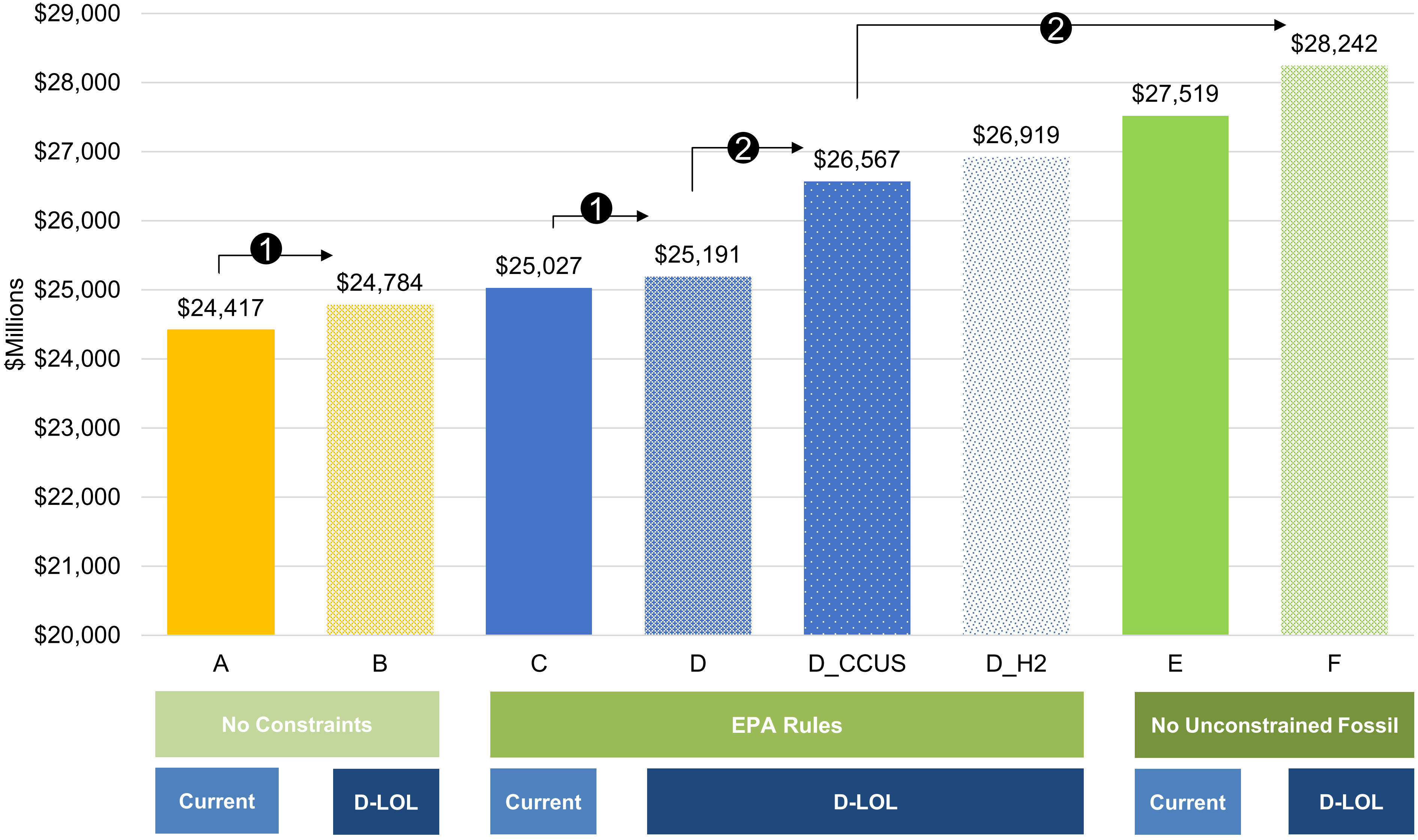


Relative to the Reference Case:

1. Overall portfolio costs are significantly higher, driven by higher natural gas prices and implementation of a CO2 price.
2. Costs for portfolios optimized without EPA Rules are higher than those optimized with the rules in place; Portfolio A/B higher cost than Portfolio C/D.
3. Portfolios E and F are lower cost than A/B and C/D due to the high CO2 price.
4. Hydrogen optionality lowers long term costs for D variants when natural gas and carbon prices are high. Both are lower cost than F.

**EPA GHG Rules implementation assumes new CCGTs are limited to 40% capacity factor immediately upon start of operation.*

NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – AI SCENARIO



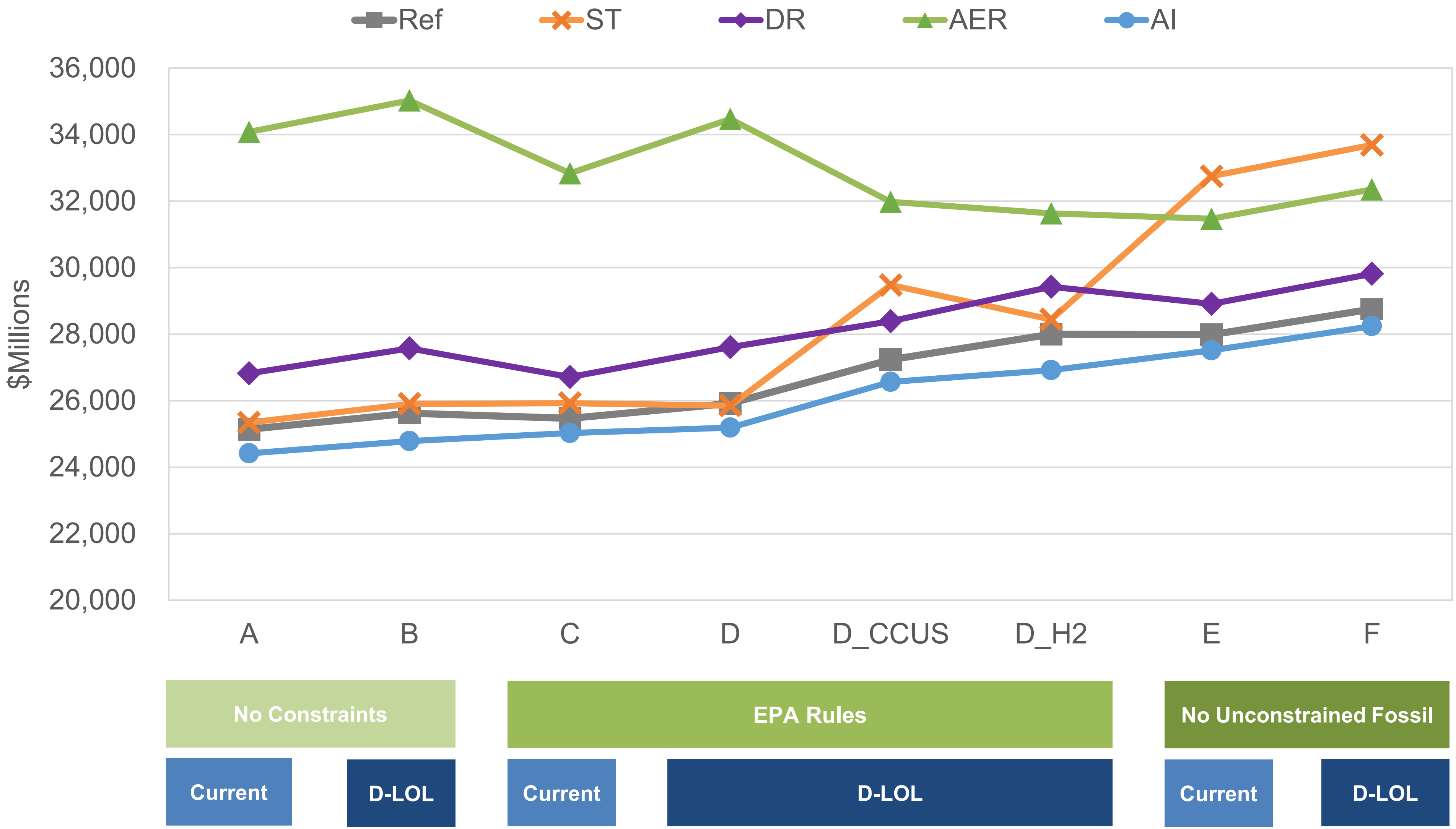
Relative to the Reference Case:

1. Higher overall load growth increases costs for portfolios with fewer capacity additions (A & C) relative to those with more (B & D), and the "D-LOL premium" is narrower.

2. Lower long-term natural gas prices slightly increase the premium associated with the portfolios that move towards net zero by 2040.

**EPA GHG Rules implementation assumes new CCGTs can run without capacity factor limits through 2031 and then are limited to 40% in 2032+.*

NET PRESENT VALUE OF REVENUE REQUIREMENT SUMMARY – SCENARIO ANALYSIS



- **Portfolios that do not control long-term CO2 emissions (A,B,C,D) are highest cost in AER**
- **Portfolios relying heavily on near-to-mid-term tax credits (E,F) are highest cost in ST**
- **Optionality embedded in D_CCUS and D_H2 concepts result in a low scenario range**

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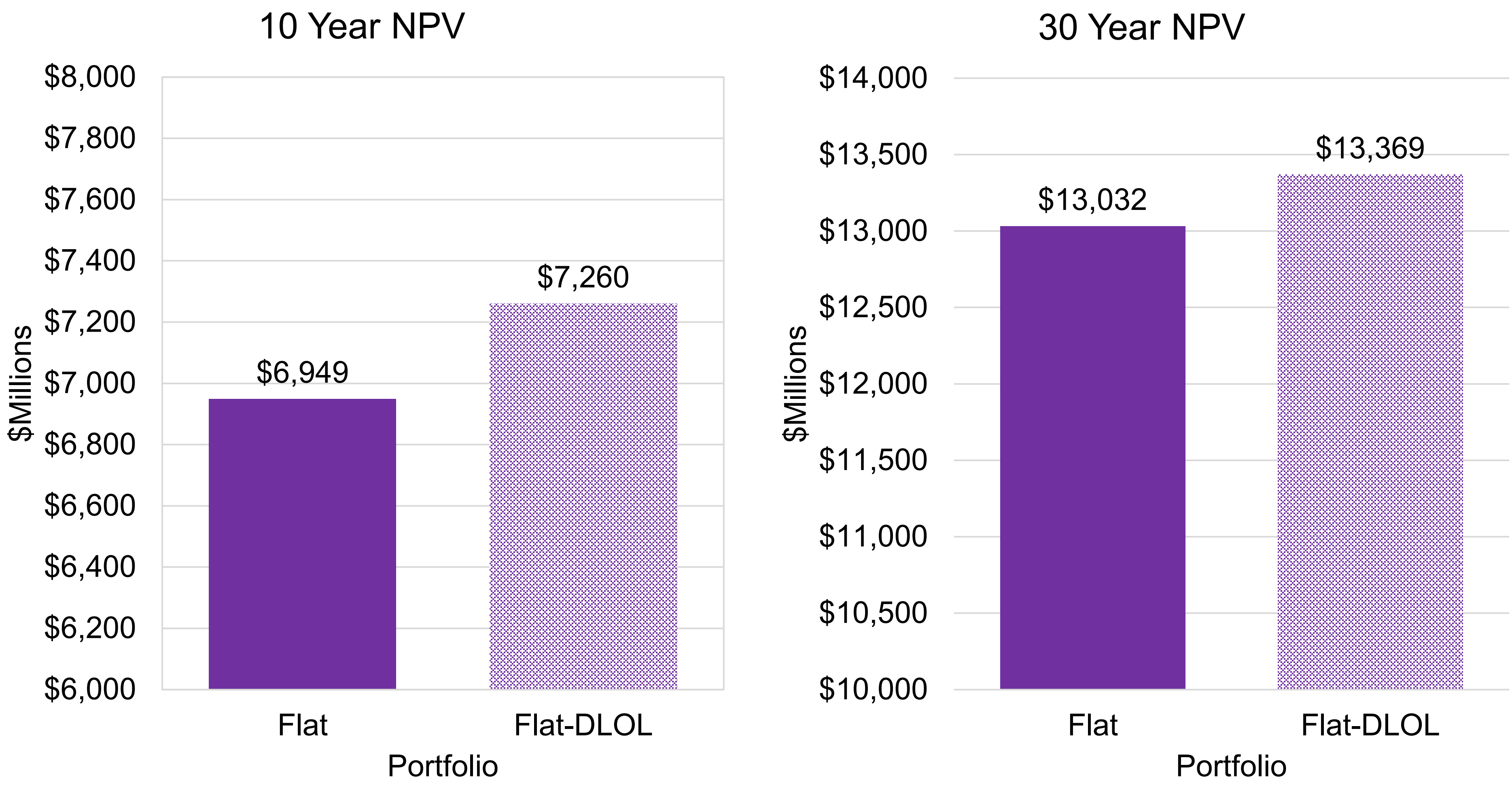
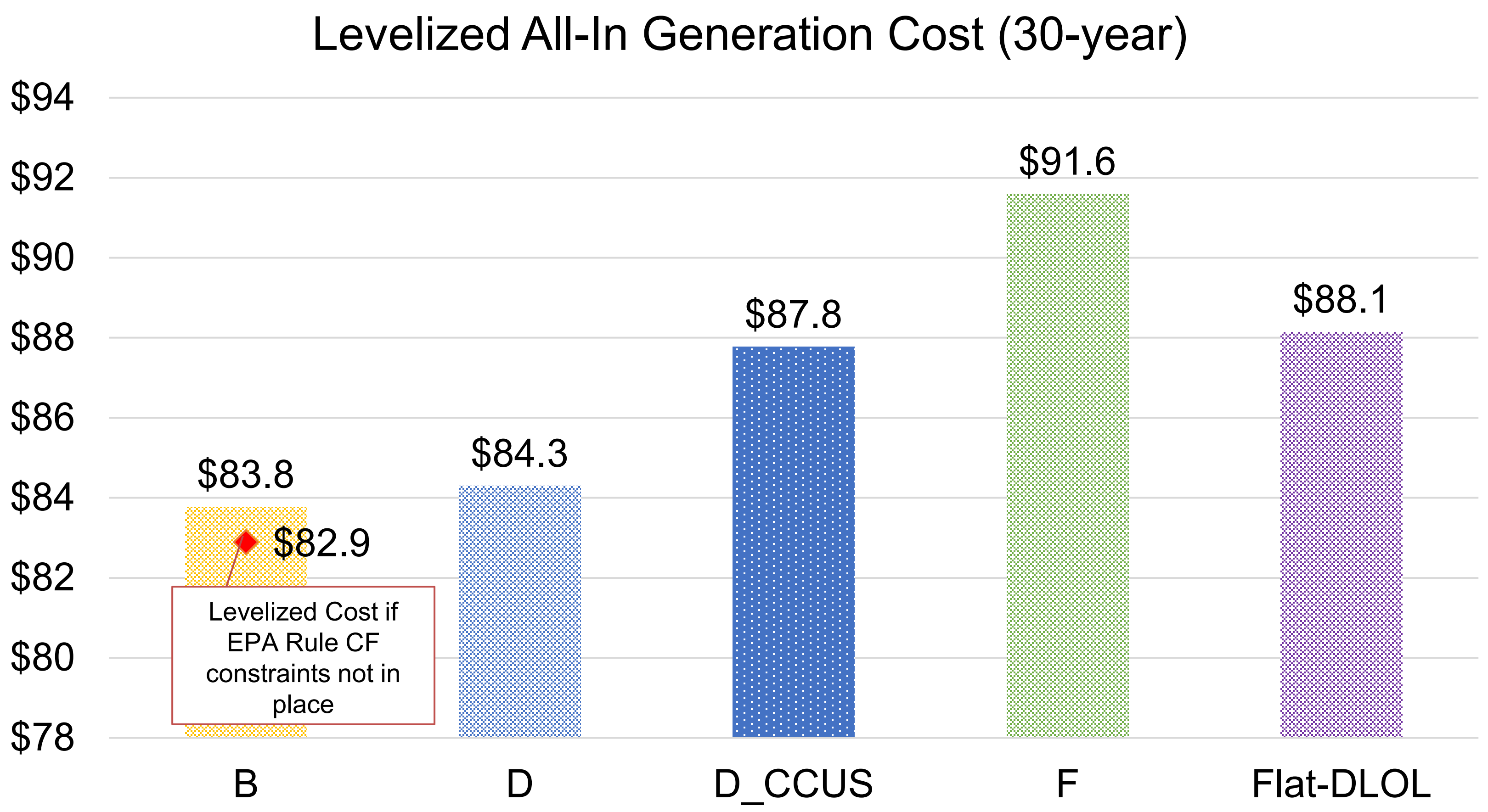
FLAT LOAD PORTFOLIO COSTS



- **Total revenue requirements are lower overall with less load to serve**
  - ~65% of the total revenue requirement over ten years
  - ~50% of the total revenue requirement over 30 years

PORTFOLIO LEVELIZED COST OF ENERGY – REFERENCE CASE (D-LOL)



- **Over the 30-year planning horizon, the levelized cost per MWh for the Flat Load portfolio is higher than all other concepts aside from Portfolio F.**

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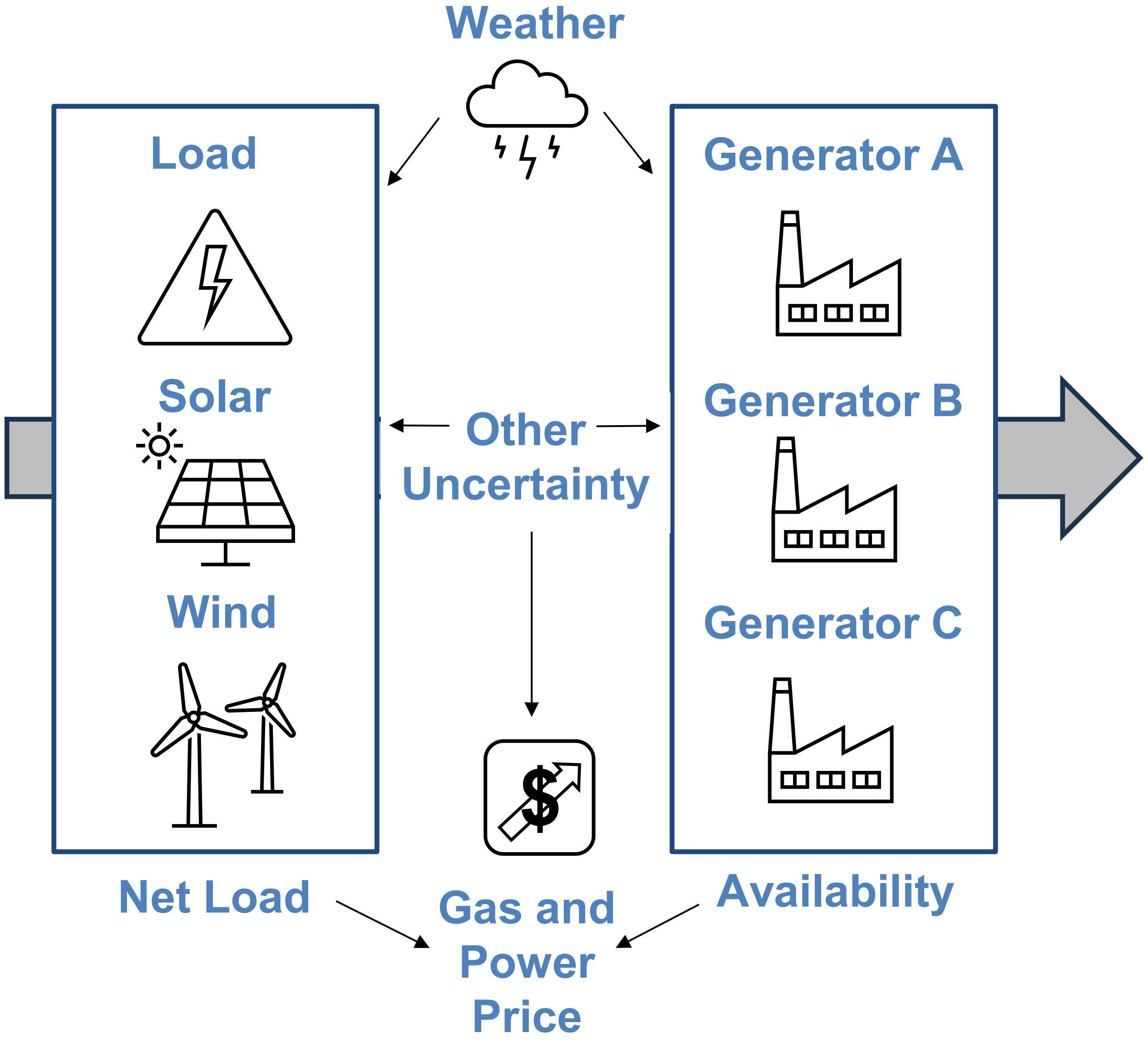
PORTFOLIO ANALYSIS – STOCHASTIC RISK

Abe Lang, Manager Strategy & Risk, NiSource
Pat Augustine, Vice President, CRA

RECAP: STOCHASTIC ANALYSIS OVERVIEW

- **Each of the eight portfolios has been evaluated across the stochastic distribution of key variables for the 2030 sample year:**
  - Fuel prices
  - MISO power prices
  - Load
  - Solar and wind output
  - Thermal resource availability



Key Outputs

- **Forced market exposure metrics**
- **95th and 5th percentile cost metrics**

RECAP: STOCHASTIC ANALYSIS APPROACH

Reviewed during Meeting #2

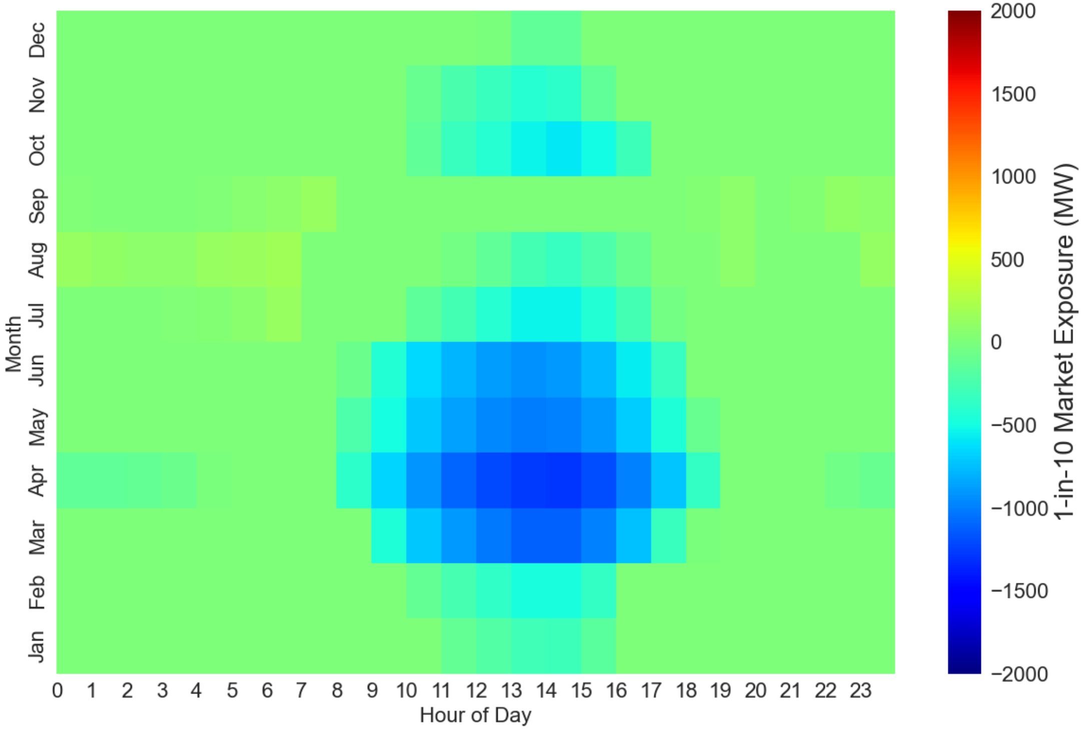
1. **Evaluate historical data and employ machine learning to generate a large number of potential "iterations"**
   - Wind and solar output
   - Energy demand - adjust for possible load futures
   - Thermal unit outages
   - Integration of commodity price stochastic uncertainty and market pricing data (gas prices and MISO power prices based on fundamental Aurora runs and historical time series analysis)
2. **Evaluate performance of candidate portfolios against distributions**
3. **Record key output metrics for the scorecard**

PORTFOLIOS A AND B – 90TH PERCENTILE FORCED MARKET EXPOSURE

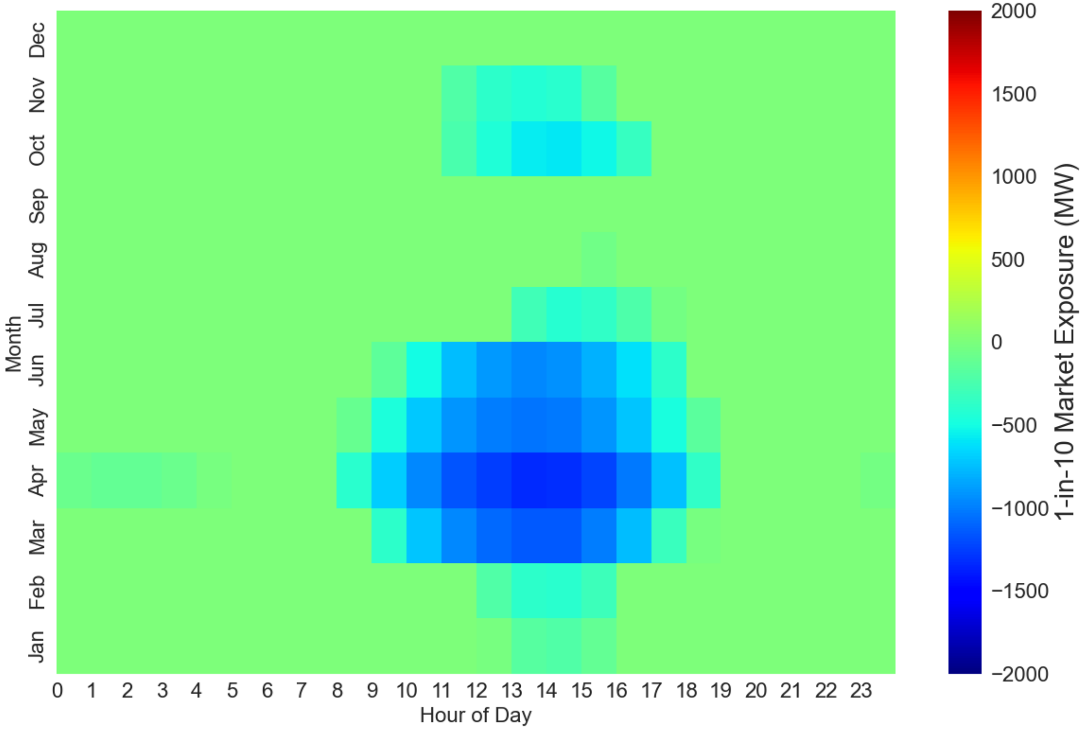
No EPA GHG Constraints

- Under extreme conditions, the portfolios have modest forced market exposure during hours without solar resources.

Portfolio A



Portfolio B

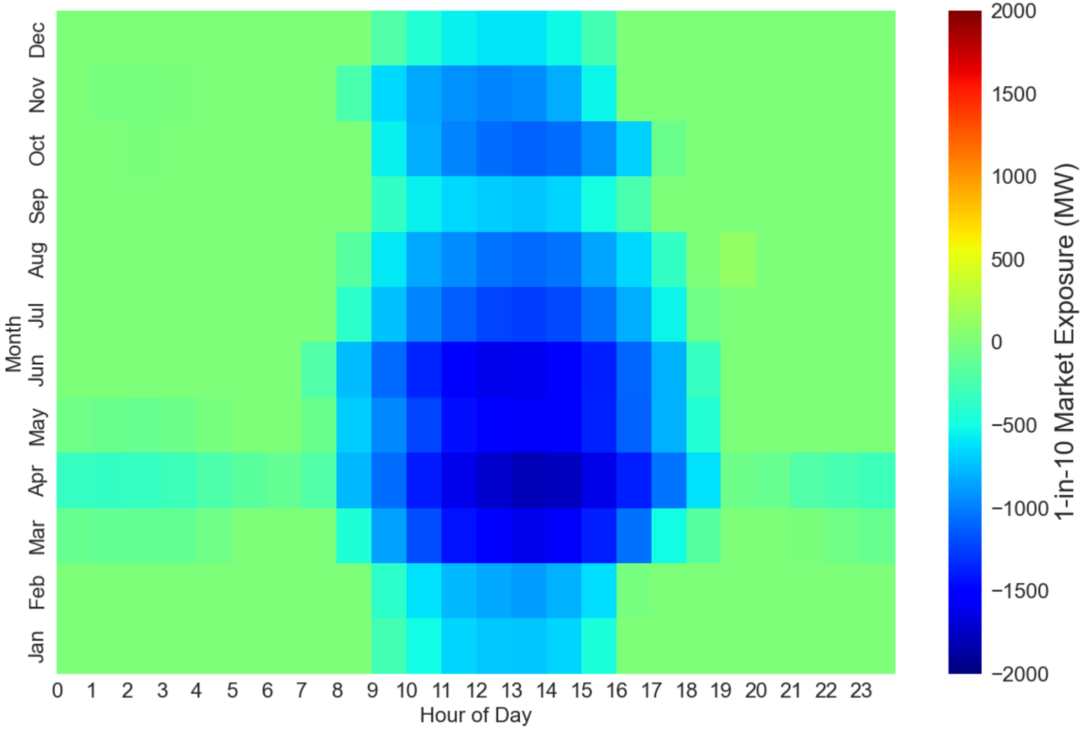


PORTFOLIOS C AND D (ALL VARIANTS) – 90TH PERCENTILE FORCED MARKET EXPOSURE

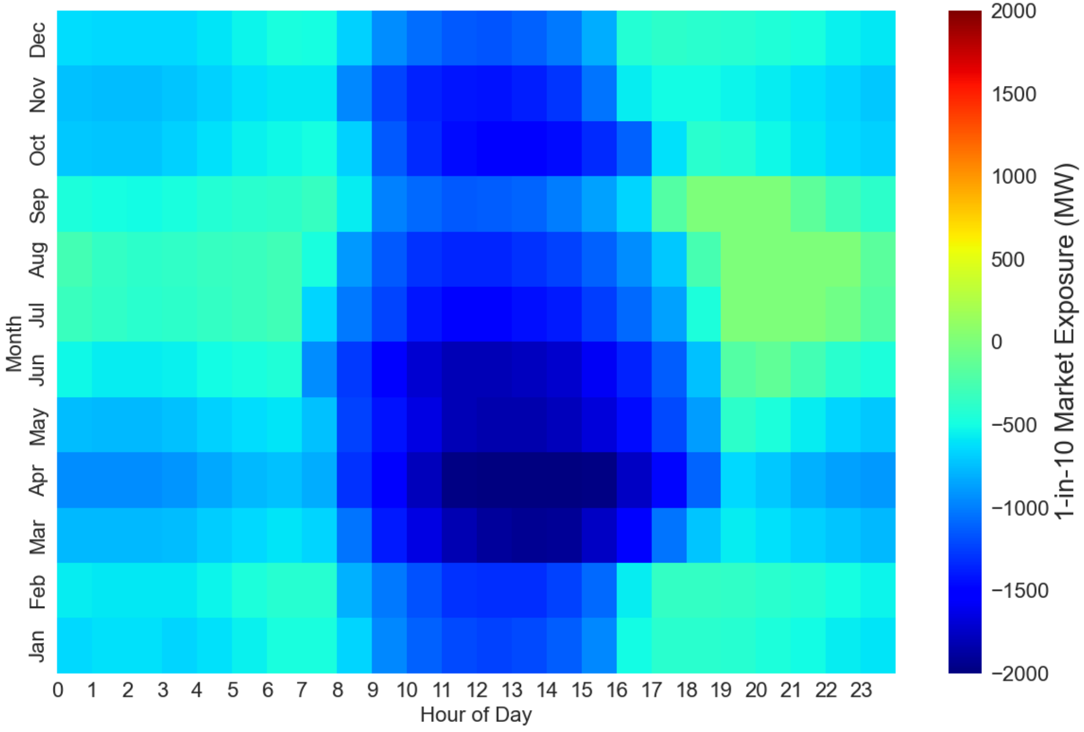
EPA GHG Rules

- Additional solar in C firms up the mid-day exposure risk in fall relative to A and B.
- Additional dispatchable capacity in D reduces risk across the board, with modest exposure only in the summer evenings.

Portfolio C



Portfolio D

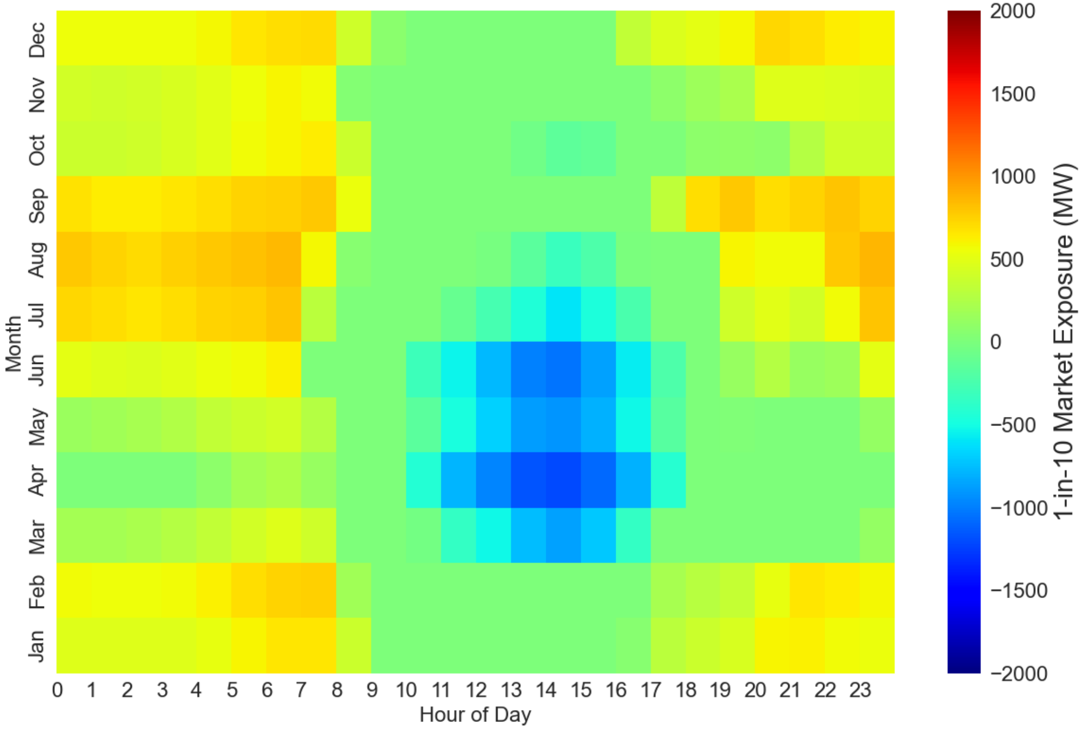


PORTFOLIOS E AND F – 90TH PERCENTILE FORCED MARKET EXPOSURE

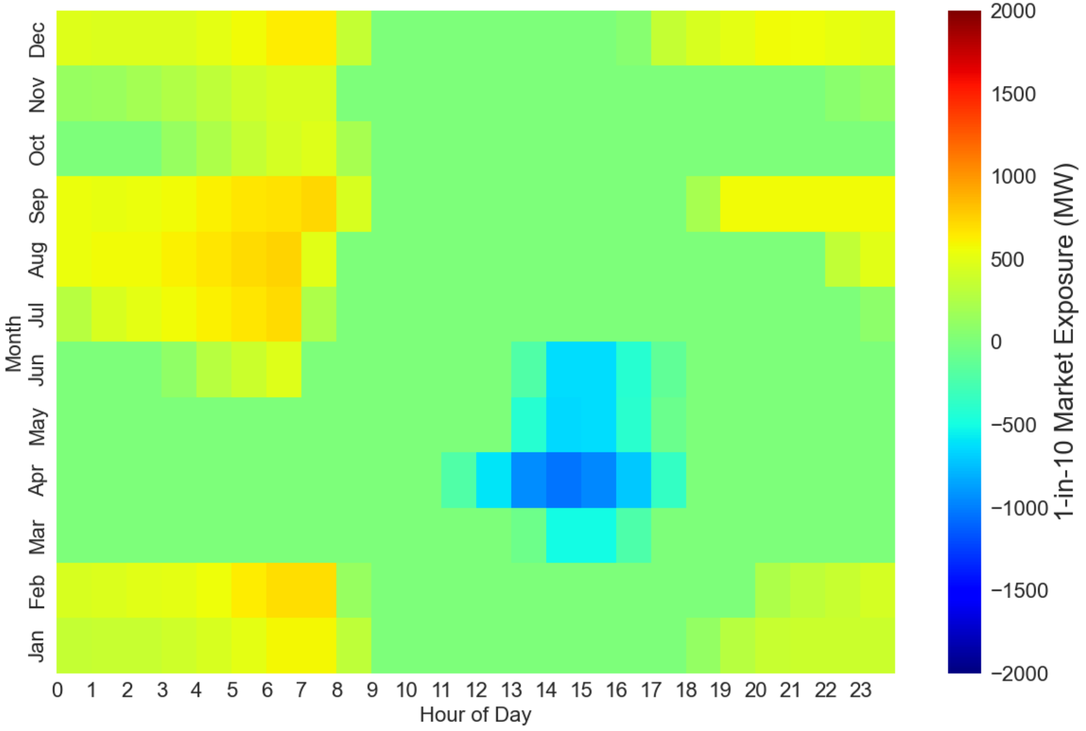
No New Uncontrolled Fossil

- Portfolio E has the greatest risk during evening and overnight hours, particularly in the summer and winter due to less long-duration dispatchable capacity.
- Portfolio F is relatively less exposed due to additional storage capacity, although modest overnight forced exposure risk is present in certain summer and winter months.

Portfolio E



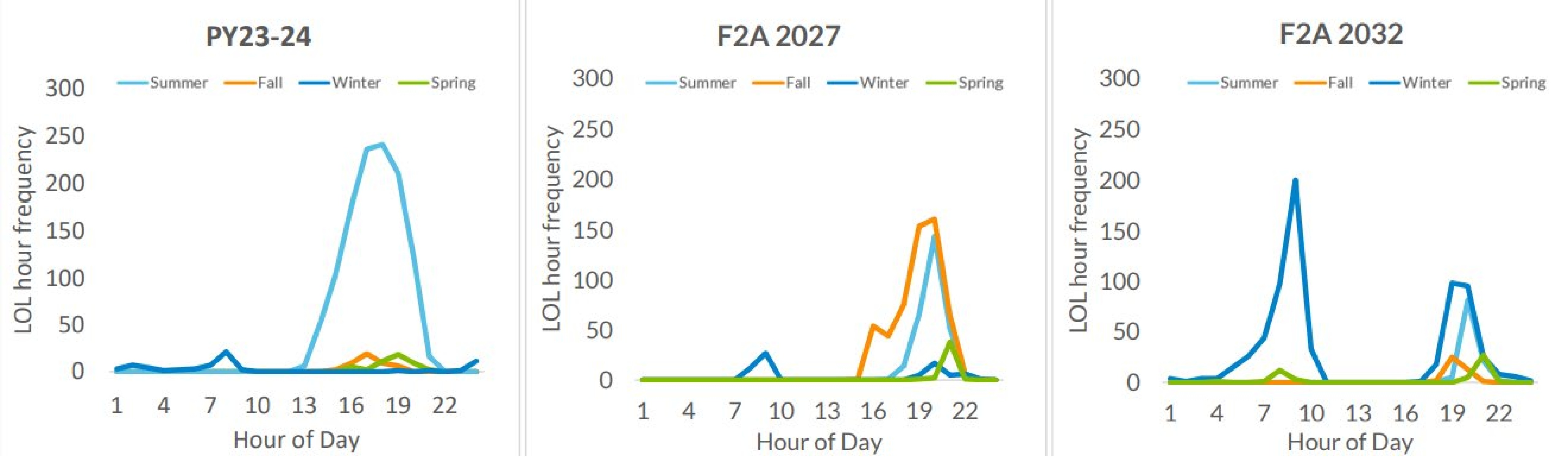
Portfolio F



Lower Risk Higher Risk

MISO EXPECTS SYSTEM RISK HOURS TO SHIFT LATER IN THE EVENINGS AND OVERNIGHT

- MISO expects risk hours to shift primarily from summer afternoons to periods of time later in the evening and during overnight hours.
- Fall and winter seasons are expected to contain many risk hours in the future.



Source: MISO RASC Meeting, November 7-8, 2023
https://cdn.misoenergy.org/20231107-08%20RASC%20Item%2011ai%20Resource%20Accreditation%20Presentation%20(RASC-2020-4%202019-2)630757.pdf

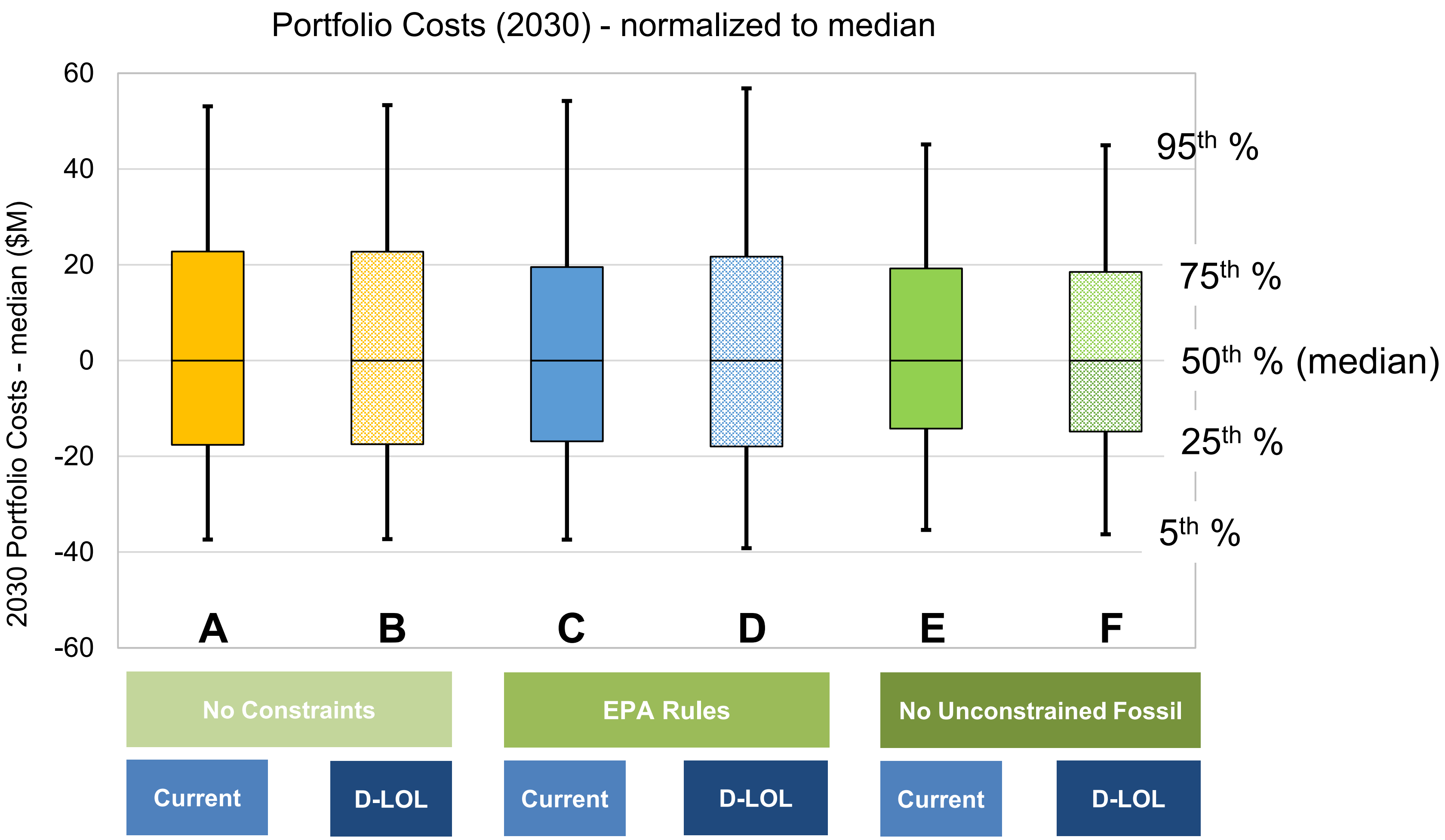
RELIABILITY SCORECARD METRIC – FORCED MARKET EXPOSURE

- Portfolios E and F are at risk of experiencing the most significant forced market exposure, amounting to between 2-3% of total MWh served in 2030.
- The D Portfolios are in the strongest position to mitigate against forced market exposure risk and be “in control of their own destiny.”

Portfolio	Forced Market Exposure – Expected Value (GWh)	Forced Market Exposure Relative to Total Load (%)
A	235	0.91
B	86	0.33
C	89	0.34
D (all variants)	4	0.02
E	793	3.08
F	515	2.00

COST RISK

A sample of iterations were evaluated in the Aurora model with full economic dispatch to assess portfolio variable cost risk in the year 2030 (prior to EPA Rules driving capacity factor constraints for new CCGTs)



- **Portfolios A through D have broader distributions of cost uncertainty overall (higher and lower) as a result of the impact of natural gas price uncertainty.**
- **Portfolios E and F have more comparable 75th percentile risk due to significant MISO market exposure, but both have lower tail risk than A-D.**

COST RISK SUMMARY METRICS

- Portfolios E and F have less upside cost risk, particularly at the 95th percentile.
- Portfolios A through D have wider tails, given more exposure to natural gas commodity price uncertainty. This means higher 95th percentile cost risk, but also greater downside cost opportunity at the 5th percentile.

Portfolio	50th Percentile *minus* 5th Percentile	75th Percentile *minus* 50th Percentile	95th Percentile *minus* 50th Percentile
A	37.4	22.8	53.1
B	37.3	22.7	53.3
C	37.4	19.5	54.2
D	39.2	21.7	56.8
E	35.4	19.2	45.1
F	36.3	18.5	45.0

Values represent nominal 2030 portfolio costs in $M

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PORTFOLIO ANALYSIS – SENSITIVITIES

Abe Lang, Manager Strategy & Risk, NiSource
Pat Augustine, Vice President, CRA

EMERGING HIGH LOAD SENSITIVITY

- Given the potential opportunities in the pipeline from NIPSCO's Economic Development team, a High Emerging Load Sensitivity was developed.
- To assess the potential impacts for NIPSCO's portfolio, an optimization analysis was performed under the "D" concept: EPA Rules and D-LOL.

	2028	2030	2035
IRP Peak Load – Flat Load*	~2,300 MW	~2,300 MW	~2,500 MW
+New Load Added for Reference Case	*+600 MW*	*+1,600 MW*	*+2,600 MW*
IRP Peak Load – New Reference Case	**~2,900 MW**	**3,900 MW**	**5,100 MW**
+Emerging Load Sensitivity	*+2,600 MW*	*+4,500 MW*	*+6,000 MW*
Total IRP Peak Load With Emerging Load Sensitivity	**5,500 MW**	**8,400 MW**	**11,100 MW**

Incremental to Reference Case

** Rounded estimate of peak load forecast originally shared with stakeholders at the April 23rd IRP Stakeholder Advisory meeting and recently referred to as the "Flat Load" sensitivity.*

HIGH LOAD – RESOURCE ADDITIONS (NAMEPLATE MW)

EPA GHG Rules | D Direct Loss of Load

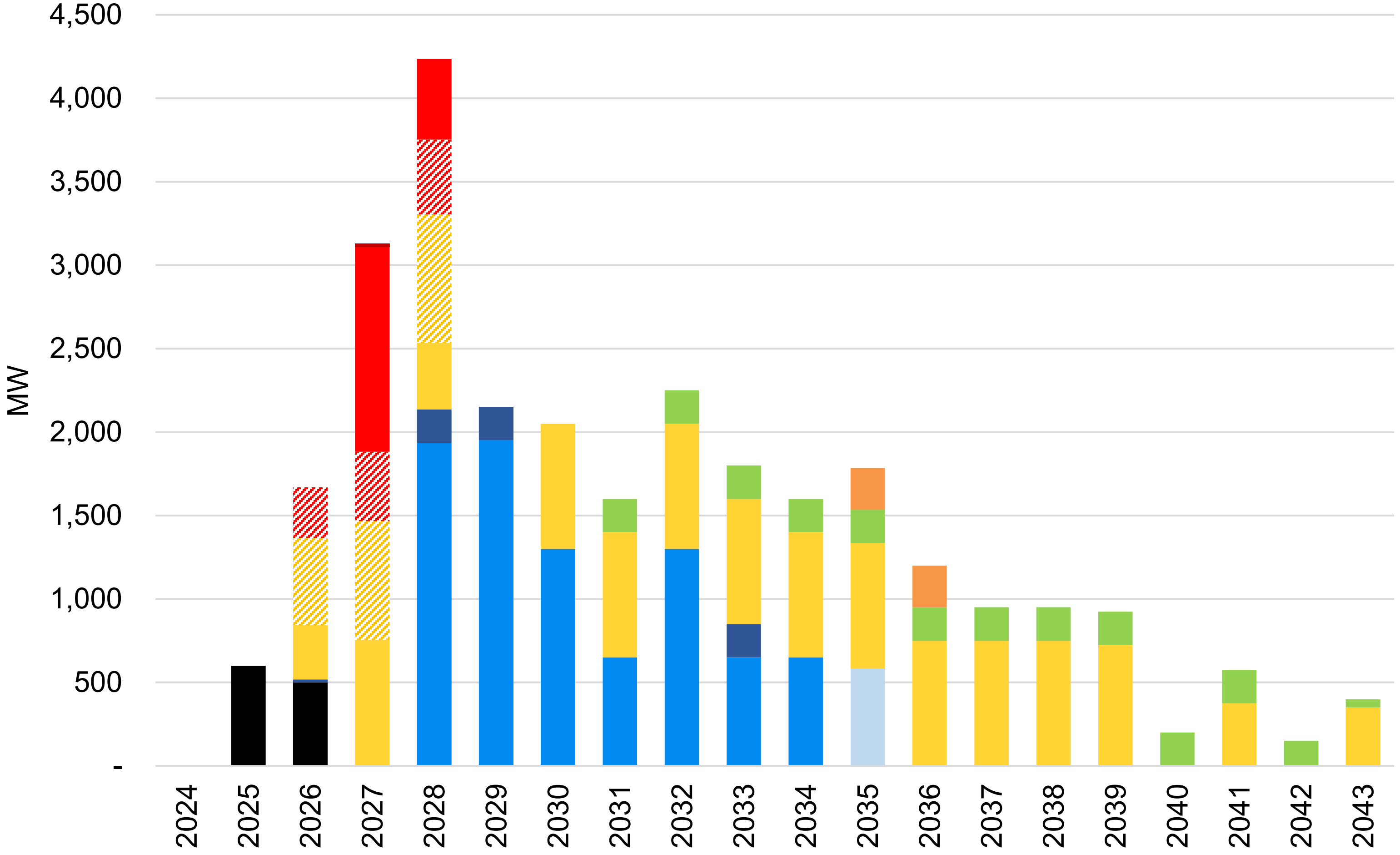
Resource	Through 2029[1]	2030-2034	2035+
Wind		800	1,600
Solar	3,494	3,750	4,450
4-hr Li-Ion Storage	2,868		
Long Duration Energy Storage	18		
Gas CCGT	3,885	4,550	
Gas Peaking	420	200	
Short-Term Thermal PPA & ZRCs	1,100[2]		
Gas CCGT w/ CCUS			585
Nuclear (SMR)			500
H2-enabled CC			
Sugar Creek			650[3]

1: Note that Solar, 4-hr Li-Ion Storage, 635 MW of Gas CCGT PPA, ~20 MW of Gas Peaking, and Short-Term Thermal PPA & ZRCs are RFP tranches. The remaining Gas CCGT and Gas Peaking are generic resource additions.
2: Includes 300 MW of thermal PPA and two groups of ZRCs (600 MW in 2025-2027, 200 MW in 2026-2029).
3: Extended on natural gas

Note: All EE programs selected except for final tranche of C&I, Residential High, and Residential Low-Medium (2033-2046). All DR selected except for Dynamic Rates.

HIGH LOAD – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

EPA GHG Rules | D Direct Loss of Load



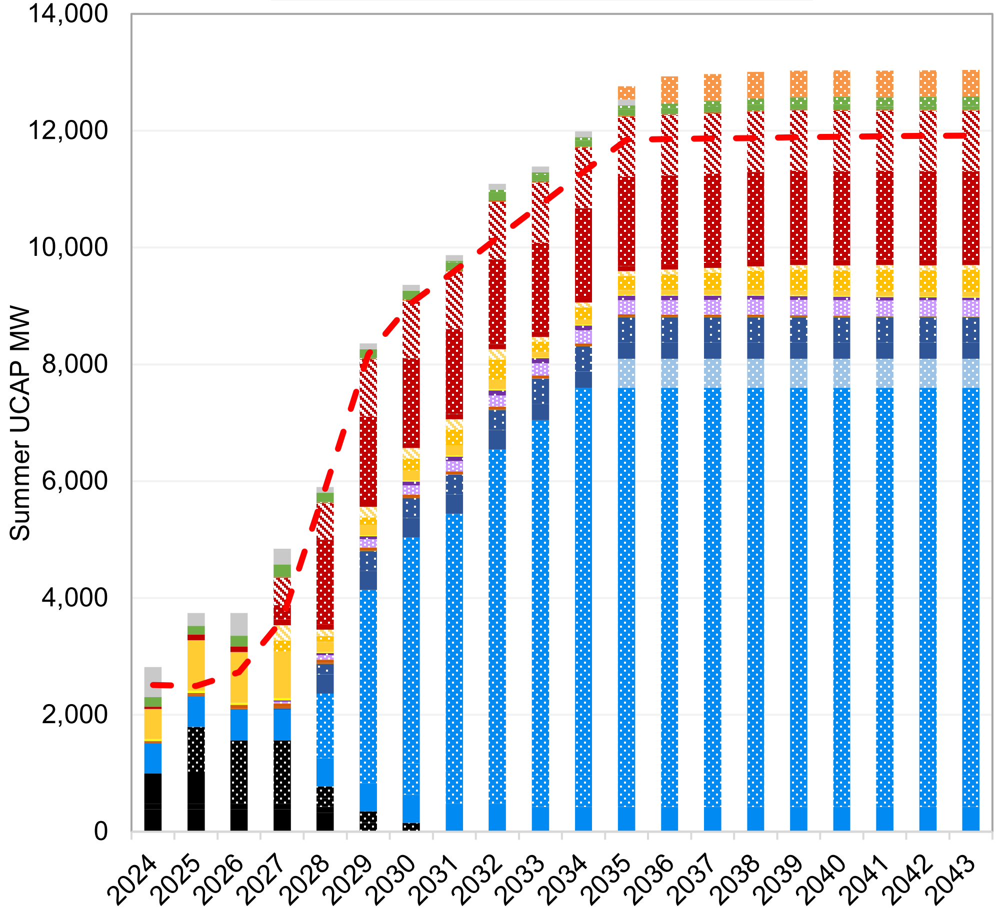
	*Summer Credit**	*Winter Credit**
New SMR	91%	90%
New LDES	97%	97%
New 4-hour Storage	89%	56%
New Hybrid-Storage	89%	56%
New Wind	7%	14%
New Hybrid-Solar	4%	2%
New Solar	4%	2%
New CCS	85%	77%
New Gas CT	70%	77%
New Gas CC	85%	77%
New Short-Term Thermal PPA	100%	100%

Note: The short-term PPAs have various durations through 2030.
**Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.*

HIGH LOAD – SUPPLY-DEMAND BALANCE

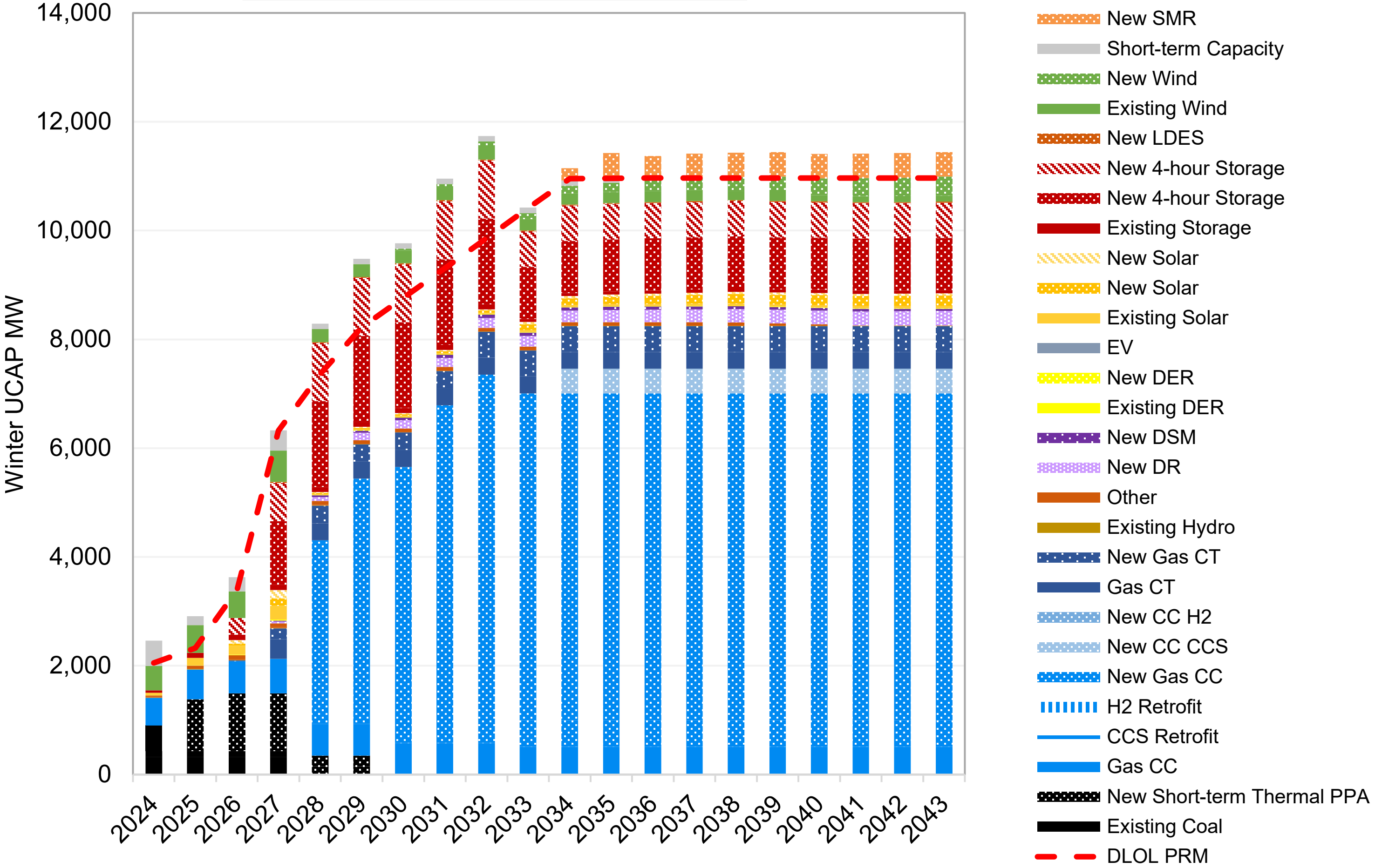
EPA GHG Rules | D Direct Loss of Load

Summer Cap. vs. PRM



Generally Binding through 2035

Winter Cap. vs. PRM

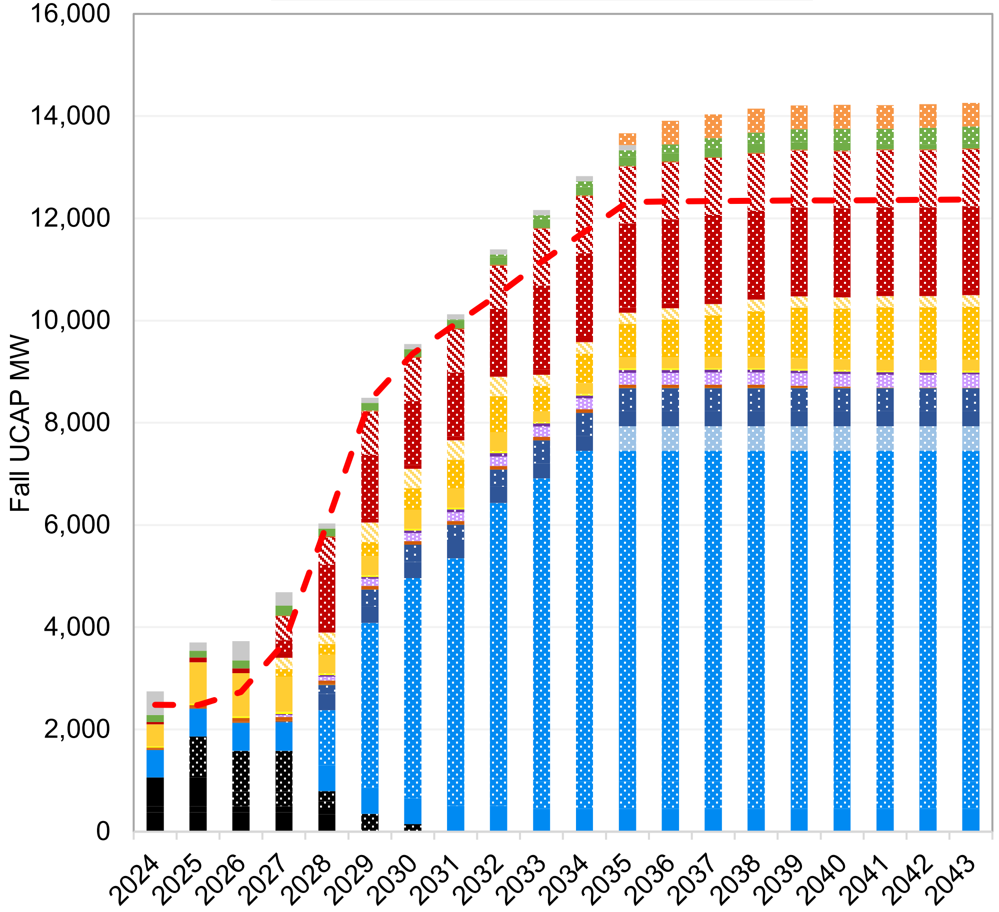


Generally Binding post-2035

HIGH LOAD – SUPPLY-DEMAND BALANCE

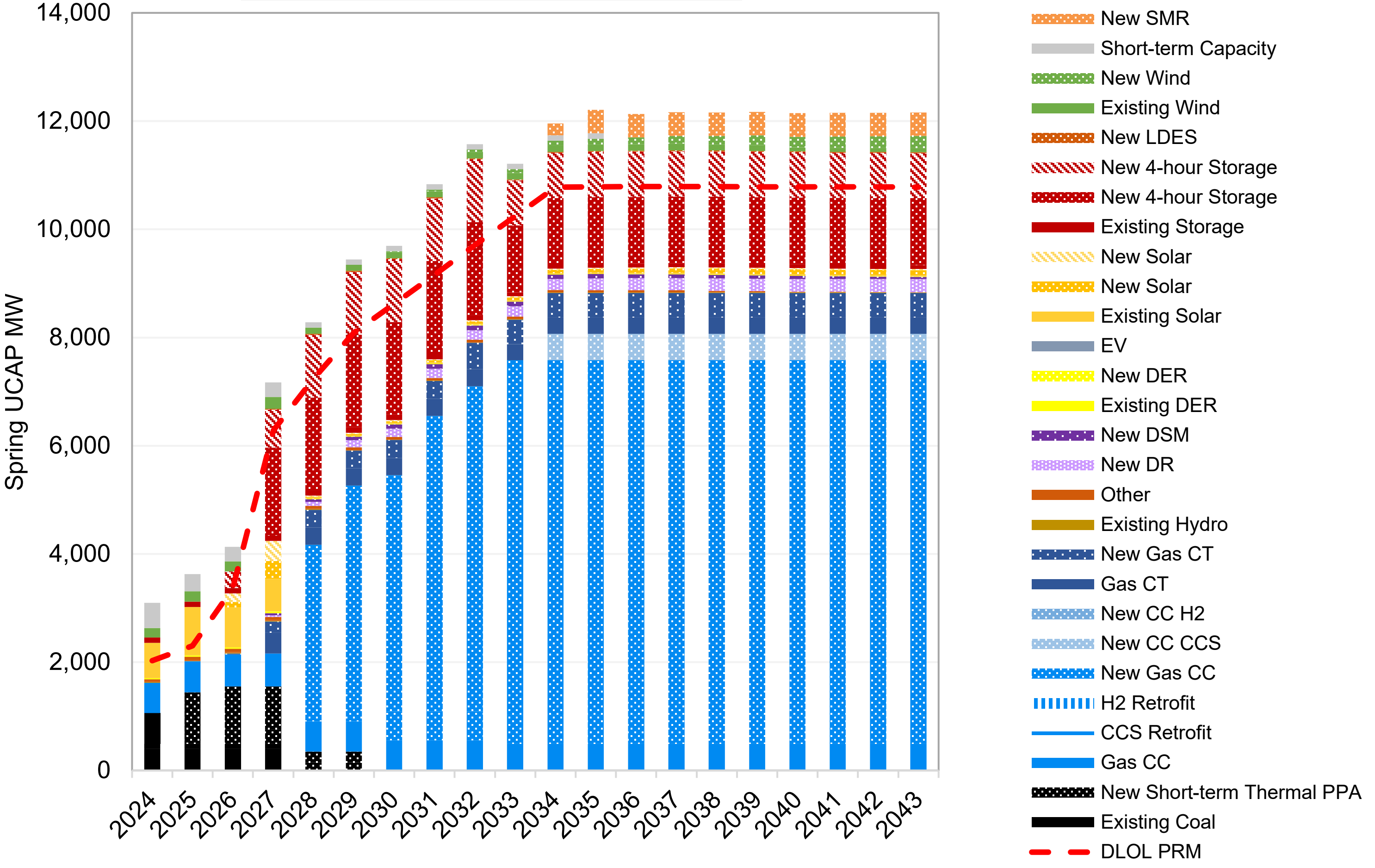
EPA GHG Rules | D Direct Loss of Load

Fall Cap. vs. PRM



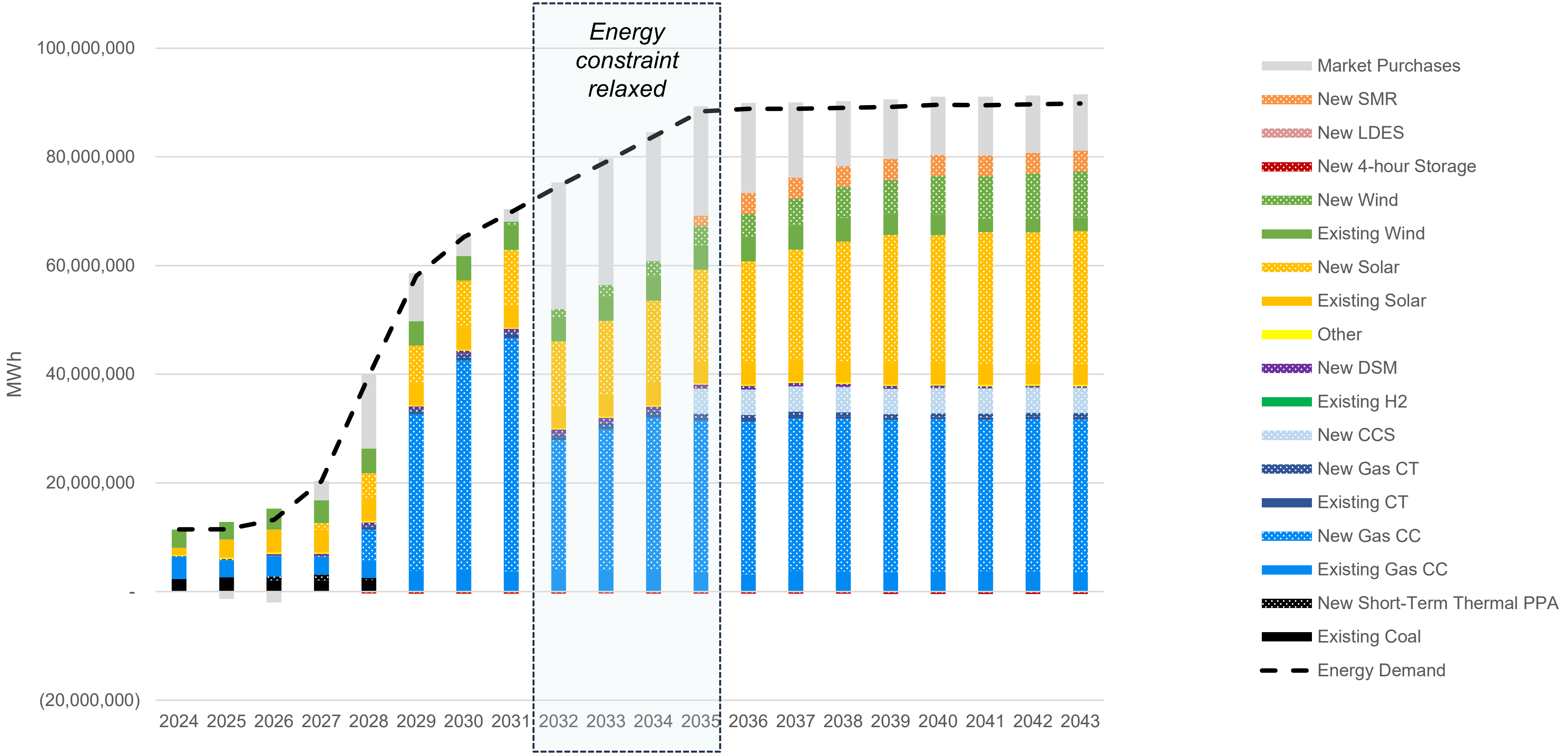
Binding through 2030

Spring Cap. vs. PRM



HIGH LOAD – ENERGY POSITION

EPA GHG Rules | D Direct Loss of Load



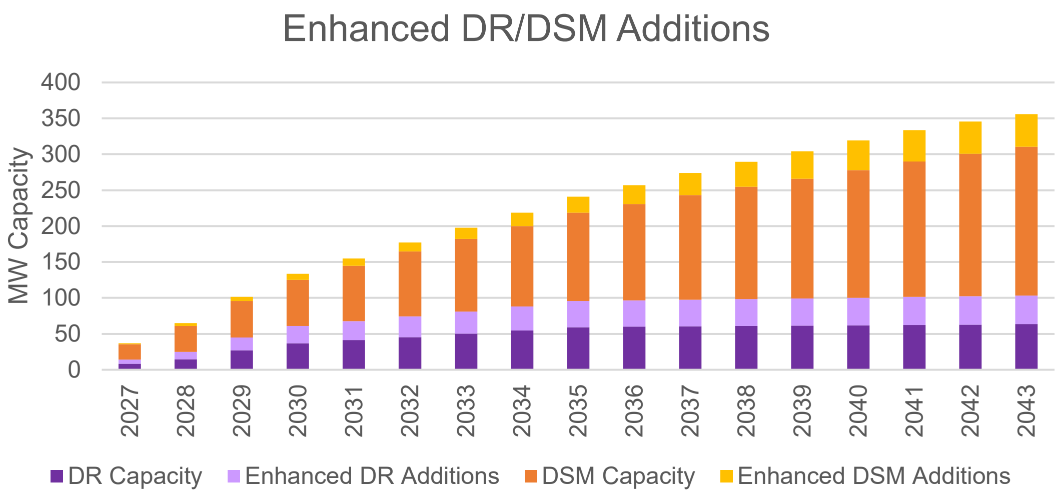
Note: The net impact of storage is shown, which results in an energy "loss," given efficiency less than 100%. Over the course of a day or year, storage is charging during some hours and discharging during others.

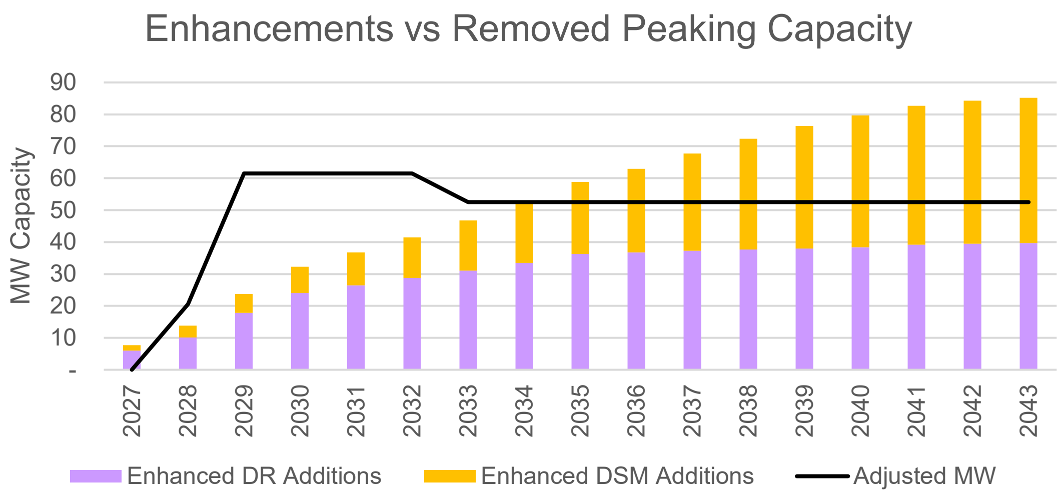
KEY OBSERVATIONS – EMERGING HIGH LOAD SENSITIVITY

- **Significant near-term load growth would require large capacity additions through 2029.**
  - Over 1,000 MW of Thermal PPAs and ZRCs
  - Nearly 3,500 MW of solar and nearly 3,000 MW of storage
  - Over 4,000 MW of natural gas capacity
- **New combined cycle capacity is needed for near-term energy requirements.**
  - The portfolio could be short energy for periods of time depending on the pace of new CCGT additions
  - Flexibility to operate CCGTs above 40% prior to 2032 could allow for most energy needs to be met, but EPA Rules on capacity factor constraints thereafter could result in higher levels of energy market purchases
- **A diverse mix of long-term resource additions would be required, contingent upon resource availability constraints and technological advancement.**
  - Additional CCGT and gas peaking capacity
  - Significant amounts of post-2030 solar (8,200 MW) and wind (2,400 MW)
  - CCUS and SMR capacity in 2035+ as it becomes available
- **Significant energy efficiency and demand response additions would be expected to support portfolio requirements.**

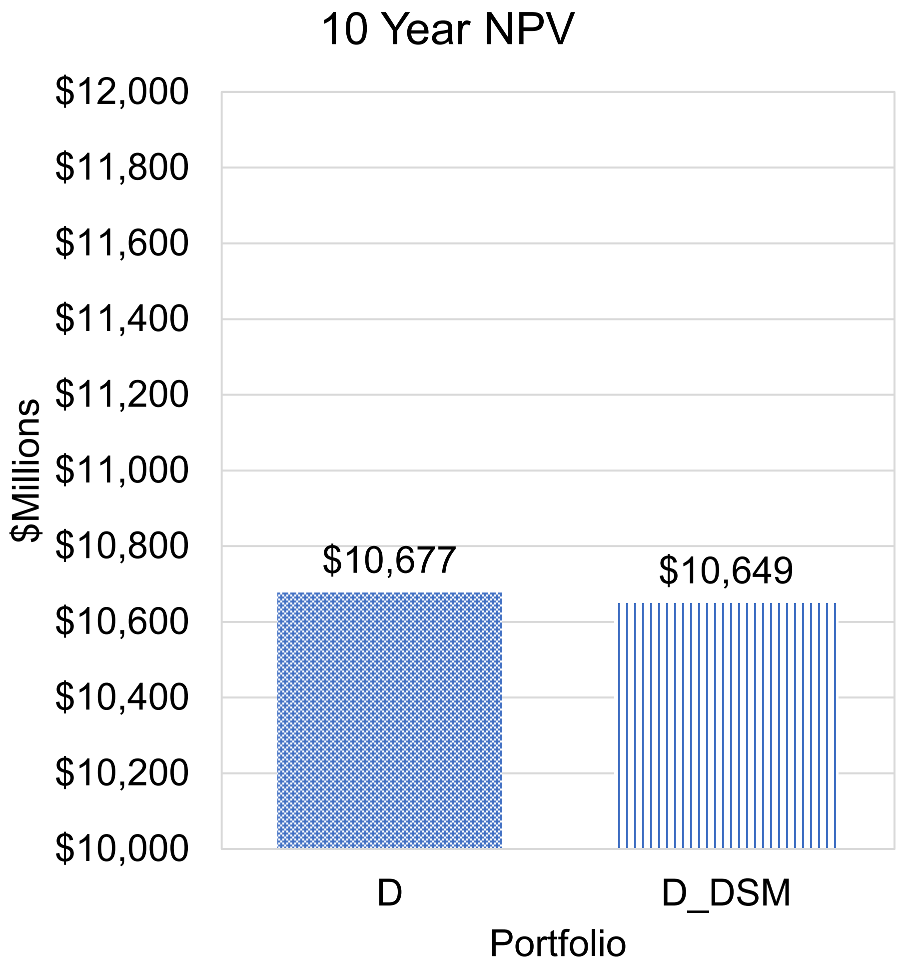
DSM SENSITIVITY

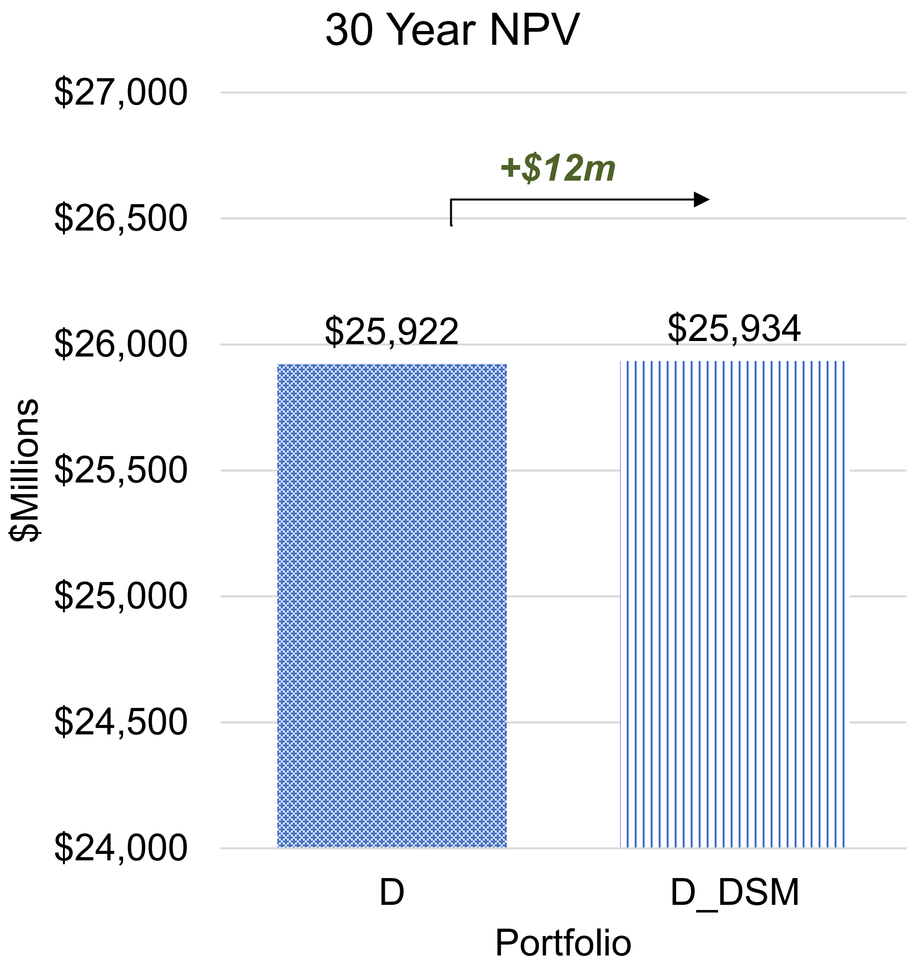
- **NIPSCO performed a DSM sensitivity analysis based on the inputs reviewed in Stakeholder Meeting #3:**
  - Moving from RAP → Enhanced RAP for energy efficiency (“EE”)
  - RAP → MAP for Demand Response (“DR”)
- **Under Portfolio D:**
  - Enhanced RAP EE and MAP DR would result in ~85 MW of additional capacity by 2043.
  - This would allow for a reduction in marginal natural gas peaking additions of 75 MW ICAP.





DSM SENSITIVITY RESULTS





- **In the first 10 years, total revenue requirement for the D_DSM portfolio is lower than D due to avoided capital and O&M costs from reduced gas capacity.**
- **Over 30 years, D_DSM portfolio costs are higher than portfolio D as higher DSM costs outweigh capital cost savings.**

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SCORECARD SUMMARY

Abe Lang, Manager Strategy & Risk, NiSource
Pat Augustine, Vice President, CRA

PORTFOLIO PERFORMANCE IS DISTILLED INTO AN INTEGRATED SCORECARD

Objectives	Indicators	Metrics
Affordability	**Cost to Customer**	• Near-term and long-term Impact to customer bills • Metric: 10-year and 30-year NPV of revenue requirement (Reference Case scenario deterministic results)
Rate Stability	**Cost Certainty**	• Certainty that revenue requirement within the most likely range of outcomes • Metric: Scenario range NPVRR
	Cost Risk	• Risk of unacceptable, high-cost outcomes • Metric: 95th%-50th% cost risk from probabilistic analysis
	Lower Cost Opportunity	• Potential for lower cost outcomes • Metric: 50th%-5th% cost risk from probabilistic analysis
Environmental Sustainability	**Carbon Emissions**	• Carbon intensity of portfolio • Metric: Cumulative carbon emissions / cumulative generation (2024-40 short tons/MWh of CO2)
Reliable, Flexible, and Resilient Supply	**Reliability, Flexibility**	• The ability of the portfolio to provide reliable and flexible supply for NIPSCO in light of evolving market conditions and rules • Metric: Loss of Load Expectation proxy ("Forced market exposure“) metrics for NIPSCO system from probabilistic reliability analysis • Metric: Capacity able to respond within 30 mins
Positive Social, & Economic Impacts	**Local Investment in Economy**	• The effect on the local economy from new projects and ongoing property taxes and targeted investment • Metric: NPV of property taxes from the entire portfolio

SCORECARD

	A	B	C	D	D-CCUS	D-H2	E	F
Carbon Emissions Constraint	No EPA GHG Constraints		EPA GHG Rules				Emissions Controls At Start-Up	
MISO Market Rules	Current Market Rules	Direct Loss of Load	Current Market Rules	Direct Loss of Load			Current Market Rules	Direct Loss of Load
Cost To Customer 10-year NPVRR (Ref Case) $M	$10,307 +$62	$10,735 +$491	$10,244 -	$10,677 +$433	$10,993 +$749	$10,993 +$749	$10,951 +$705	$11,309 +$1,065
Cost To Customer 30-year NPVRR (Ref Case) $M	$25,142 -	$25,626 +$484	$25,471 +$329	$25,922 +$780	$27,236 +$2,094	$27,999 +$2,857	$27,984 +$2,842	$28,756 +$3,614
Cost Certainty 30-year Scenario Range NPVRR $M	$9,669 +$4,952	$10,245 +$5,529	$7,815 $3,098	$9,286 $4,569	$5,414 $697	$4,717 -	$5,232 $516	$5,451 +$735
Cost Risk 95th % Cost Risk	$53.1 +$8.1	$53.3 +$8.4	$54.2 +$9.2	$56.8 +$11.9	$54.1 +9.2	$54.1 +9.2	$45.1 +$0.2	$45.0 -
Lower Cost Opp. 5th % Cost Risk	-$37.4 +$1.8	-$37.3 +$1.9	-$37.4 +$1.8	-$39.2 -	-$38.9 +$0.3	-$38.9 +$0.3	-$35.4 +$3.8	-$36.3 +$2.9
Carbon Emissions M of tons/MWh 2024-40 Cum. (Scenario Avg.)	0.21 +0.12	0.22 +0.13	0.19 +0.10	0.22 +0.13	0.18 +0.09	0.20 +0.11	0.09 -	0.09 -
Reliability Forced Market Exposure (GWh)	235 +231	86 +82	89 +85	4 -	4 -	4 -	793 +789	515 +511
Flexibility New capacity able to respond within 30 mins (MW)	3,849 -963	4,482 -330	4,121 -691	4,812 -	4,632 -180	4,812 -	3,905 -907	4,456 -356
Local Economy NPV of property taxes	$1,849 -$849	$1,853 -$845	$1,938 -$760	$1,840 -$858	$2,229 -$484	$2,097 -$609	$2,619 -$79	$2,698 -

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NIPSCO PREFERRED PORTFOLIO AND SHORT-TERM ACTION PLAN

Abe Lang, Manager Strategy & Risk, NiSource

PORTFOLIO D AND PORTFOLIO F: PROVIDE CAPACITY AND EMISSIONS COMPLIANCE

	A	B	C	D*	E	F
Data Center Load	2,600 MW	2,600 MW	2,600 MW	2,600 MW	2,600 MW	2,600 MW
MISO Capacity Rules	Current	D-LOL	Current	D-LOL	Current	D-LOL
EPA rule constraints (capacity factor)	None	None	CCGT<40%	CCGT<40%	CCGT<40%	CCGT<40%

Given the need for dispatchable capacity in MISO, NIPSCO should plan for compliance with the D-LOL rule (or a similar rule), focusing on portfolios B, D, and F.

New ICAP through 2029	B	D*	F
EPA rule constraints (capacity factor)	None	CCGT<40%	CCGT<40%
Solar			797
Storage	1,227	909	1,986
Gas CCGT	1,300	1,285	
Gas Peaking		418	

Portfolio B does not prepare to comply with EPA rule constraints (as it would need additional peaking capacity or additional solar + storage to make up for the capacity factor limitations on CCGTs)

New ICAP through 2030	D	D-CCUS	D-H2	F
Emission Controls on new Fossil	None	Later in 2030s	Later in 2030s	At Start-up
Solar				797
Storage	909	909	909	1,986
Gas CCGT	1,935	1,935	1,935	
Gas Peaking	620	620	620	
Gas CCGT w/CCUS				1,170

Portfolio D variants have the same resource mix through 2030, but portfolio D without CCUS or Hydrogen does not reduce emissions over time. Also, future hydrogen supply is more uncertain than CCUS, leaving portfolio D-CCUS and Portfolio F.

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* Portfolio D contains 3 variants one with CCUS, one with Hydrogen, and one without any carbon abatement: all have the same base resource mix, outside of the emissions controls.

PORTFOLIO D-CCUS: LOWER COST AND MORE RELIABLE THAN PORTFOLIO F

		D	D-CCUS	D-H2	F
Data Center Load		2,600 MW	2,600 MW	2,600 MW	2,600 MW
MISO Capacity Rules		D-LOL	D-LOL	D-LOL	D-LOL
EPA rule constraints (capacity factor)		CCGT<40%	CCGT<40%	CCGT<40%	CCGT<40%
Emission Controls on new Fossil		None	Later in 2030s	Later in 2030s	At Start-up
Cost To Customer	10-year NPVRR (Ref Case) $M	$10,677	$10,993	$10,993	$11,309
	30-year NPVRR (Ref Case) $M	$25,922	$27,236	$27,999	$28,756
Cost Certainty 30-year Scenario Range NPVRR $M		$9,286	$5,414	$4,717	$5,451
Cost Risk 95th % Cost Risk $M		$56.8	$54.1	$54.1	$45.0
Lower Cost Opp. 5th % Cost Risk $M		-$39.2	-$38.9	-$38.9	-$36.3
Carbon Emissions M of tons/MWh 2024-40 Cum. (Scenario Avg.)		0.22	0.18	0.20	0.09
Reliability Forced Market Exposure (GWh)		4	4	4	515
Flexibility New capacity able to respond within 30 mins (MW)		4,812	4,632	4,812	4,456
Local Economy NPV of property taxes $M		$1,840	$2,229	$2,097	$2,698

Portfolio D variants and portfolio F are both compliant with the EPA rule and MISO's D-LOL rule. Portfolio D variants provide more optionality around decarbonization.

Portfolio D CCUS has:

Lower customer cost due to lower storage needs through 2030 and due to delaying decarbonization retrofits until they are more feasible in the 2030s.

Comparable cost certainty to Portfolio F, if emissions controls are installed, given it would reduce potential impacts from any new GHG regulation.

Marginally higher annual cost risk due to higher commodity price risk.

Higher emission intensity due to additional gas generation, but still decarbonizes by end of 2030s.

Significantly higher reliability due to more dispatchable gas-fired capacity.

Better resource flexibility due to more dispatchable gas-fired capacity.

Lower local property tax revenue due to lower capital spend.

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PREFERRED PLAN (PORTFOLIO D-CCUS): NIPSCO SUPPLY RESOURCE PLAN AND TIMING

Given the decarbonization pathway and customer cost considerations, the following actions are proposed to maximize optionality:

Timing	Near Term 2025-2029	Mid Term 2030-2034	Long Term 2035 & Beyond
Retirements	• Schahfer Units 17, 18 (by 2025) • Schahfer Units 16A/B (by 2027) • Michigan City Unit 12 (by 2028)	• N/A	• N/A
Preferred Plan – Capacity Additions	• *Storage (500-900MW)** • *Thermal Contracts (350 MW)** • Gas CCGT (1,285 MW) • Gas Peaking (420 MW)	• *Storage (125 MW)** • *Wind (150-650MW)** • Solar (750 MW) • Gas CCGT (1,950 MW) • Gas Peaking (200 MW)	• *Storage (25 MW)** • *Wind (200-900 MW)** • Solar (525 MW) • Sugar Creek Retrofit - Hydrogen • CCGT Retrofits – CCUS

Other Activities	• Monitor changing regulatory policy (MISO, EPA, local) and technology advancements
	• Previously planned additions (~2,100 MW)
	    • ~1,700 MW of renewable projects
	    • ~400 MW gas peaker
		• Reevaluate decarbonization options including CCUS, H2 and other emerging technologies for best fit
		• Add additional renewables as needed to support higher energy needs
			• Implement most cost-effective retrofits
			• Determine final steps to achieve net zero

Storage Investment	CCGT / Gas Peaking Investment	Monitor / Respond To Changes	Execute Previously Planned Activities
~500-900 MW of storage, contingent on MISO capacity accreditation	CCGT additions to support data center load and gas peaking investment as needed for additional capacity	MISO rules; EPA rules; Long-duration energy storage; Hydrogen; Carbon capture; Nuclear	Schahfer & Michigan City retirements; Renewable Projects ~1,700 MW, ~400 MW Gas Peaker

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** Italicized resources listed above would be needed under all portfolios (including those without data center load).*

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CLOSING & STAKEHOLDER COMMENTS

NEXT STEPS

Seeking Feedback

- Seeking feedback regarding the plan presented today
- Reach out to Erin Whitehead (ewhitehead@nisource.com) for 1x1 meetings
- NIPSCO IRP Email: nipsco_irp@nisource.com

IRP Submission

- NIPSCO will submit its 2024 IRP report to the IURC by **December 9th**
- IRP Website: www.nipsco.com/irp

Stakeholder engagement is a critical part of the IRP process

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APPENDIX

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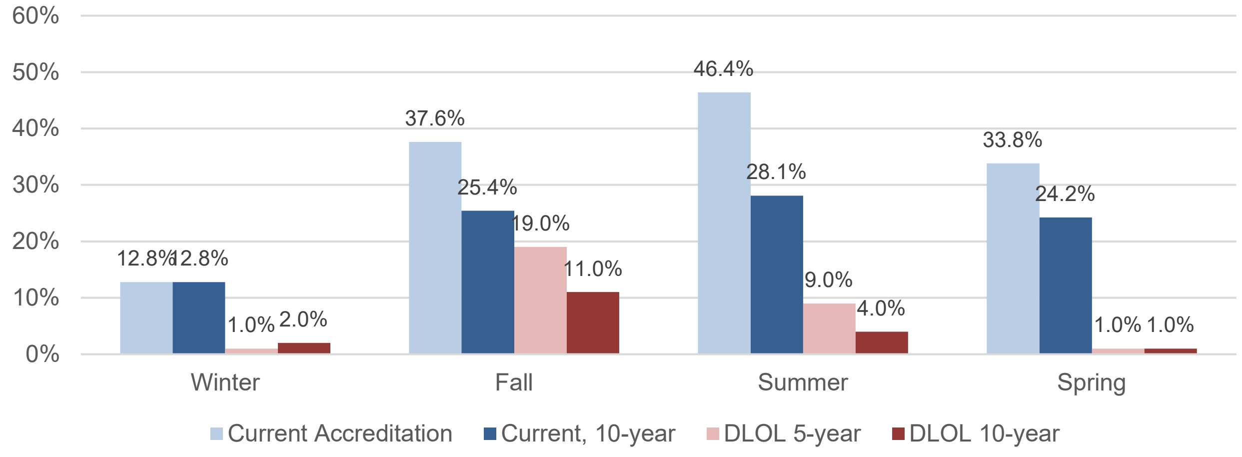
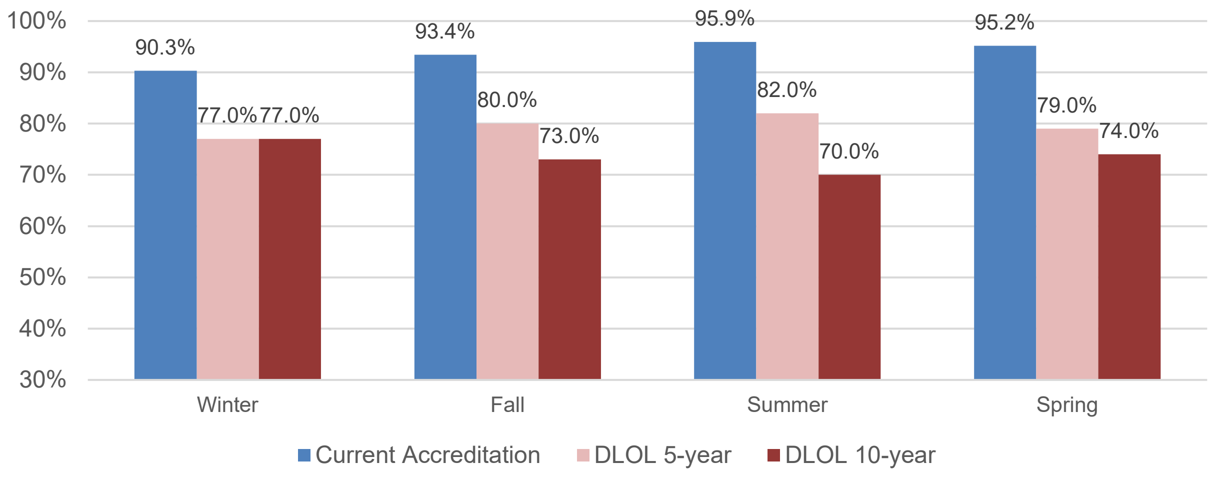
CAPACITY ACCREDITATION TRAJECTORIES UNDER D-LOL

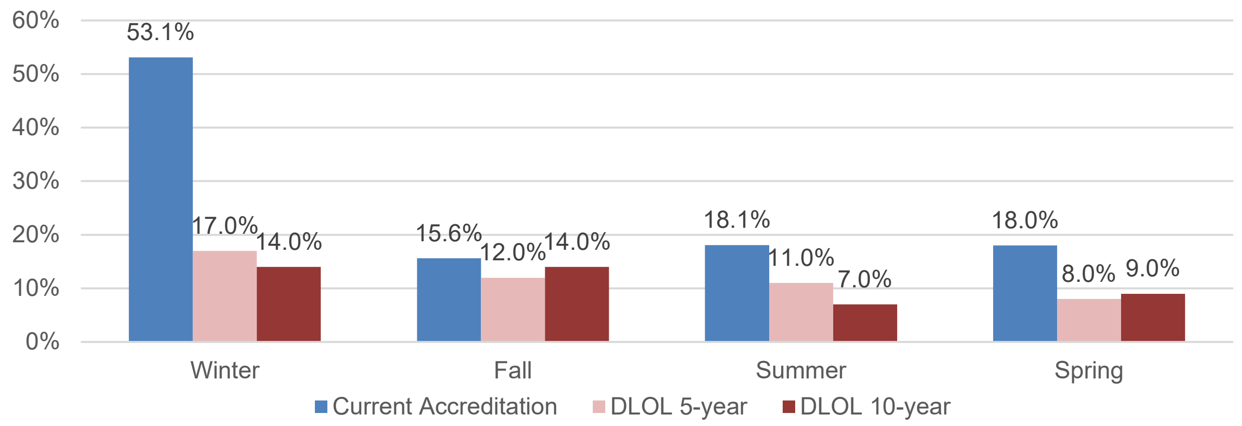
Indicative Seasonal Capacity Accreditation - Solar



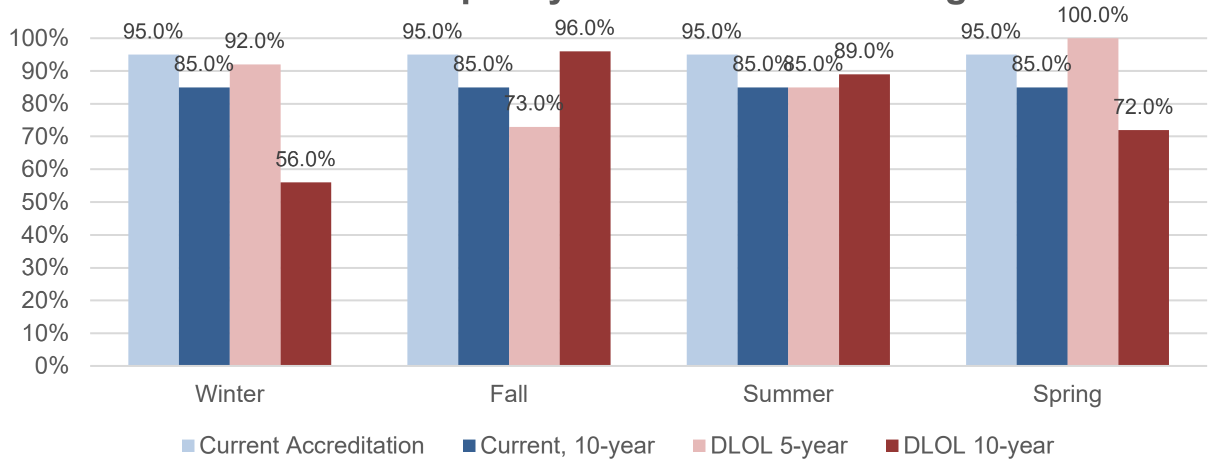
Seasonal Capacity Accreditation - Gas CT



Indicative Seasonal Capacity Accreditation - Wind



Seasonal Capacity Accreditation - Storage



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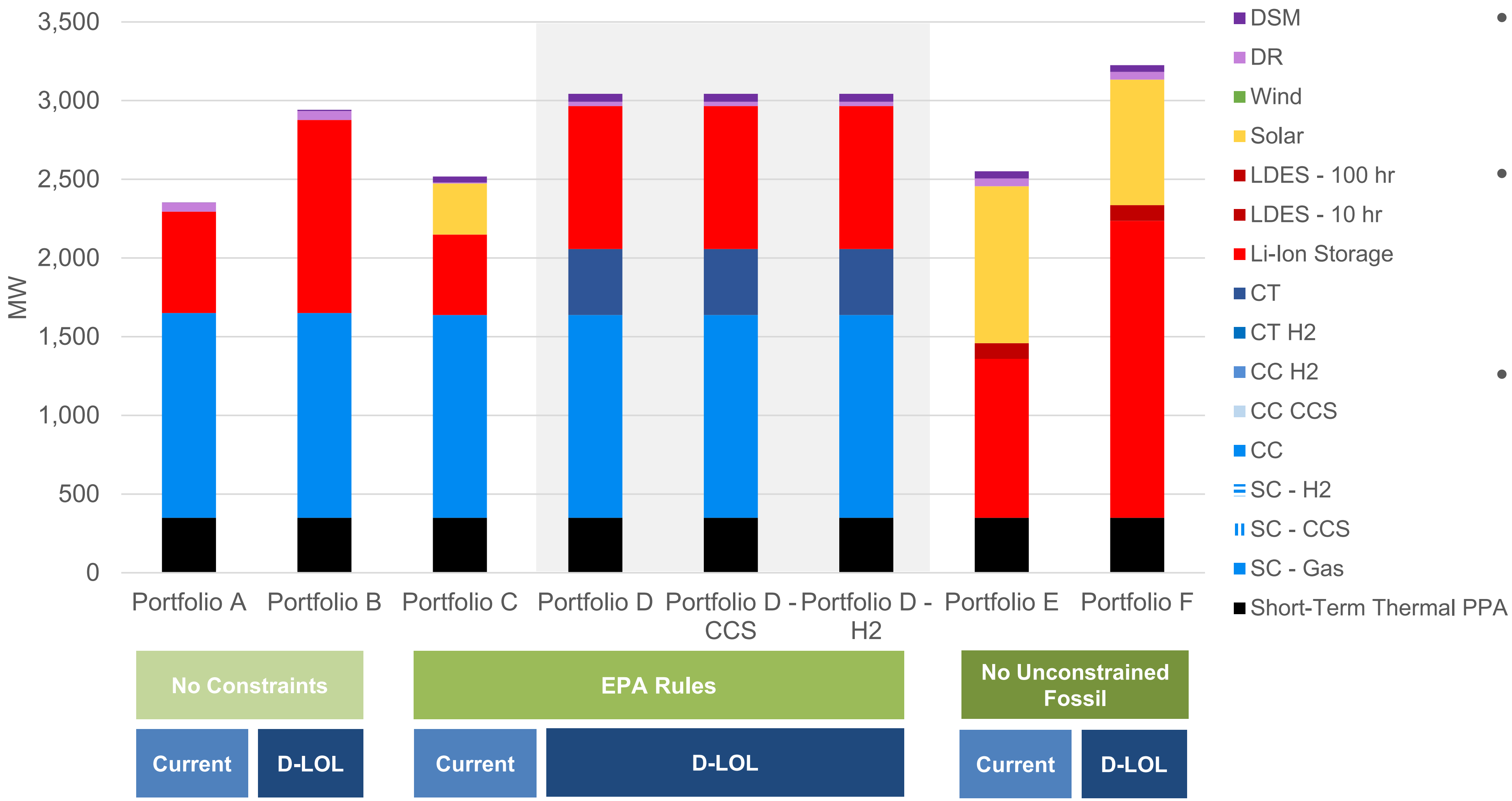
RESOURCE ADDITIONS COMPARISON ACROSS PORTFOLIOS – CUMULATIVE NAMEPLATE THROUGH 2029



- D-LOL portfolios have more capacity overall.
- Portfolios with greatest emissions restrictions add more solar.
- Portfolios E and F would rely exclusively on solar, storage, short-term contracts, and EE/DSM through 2029.

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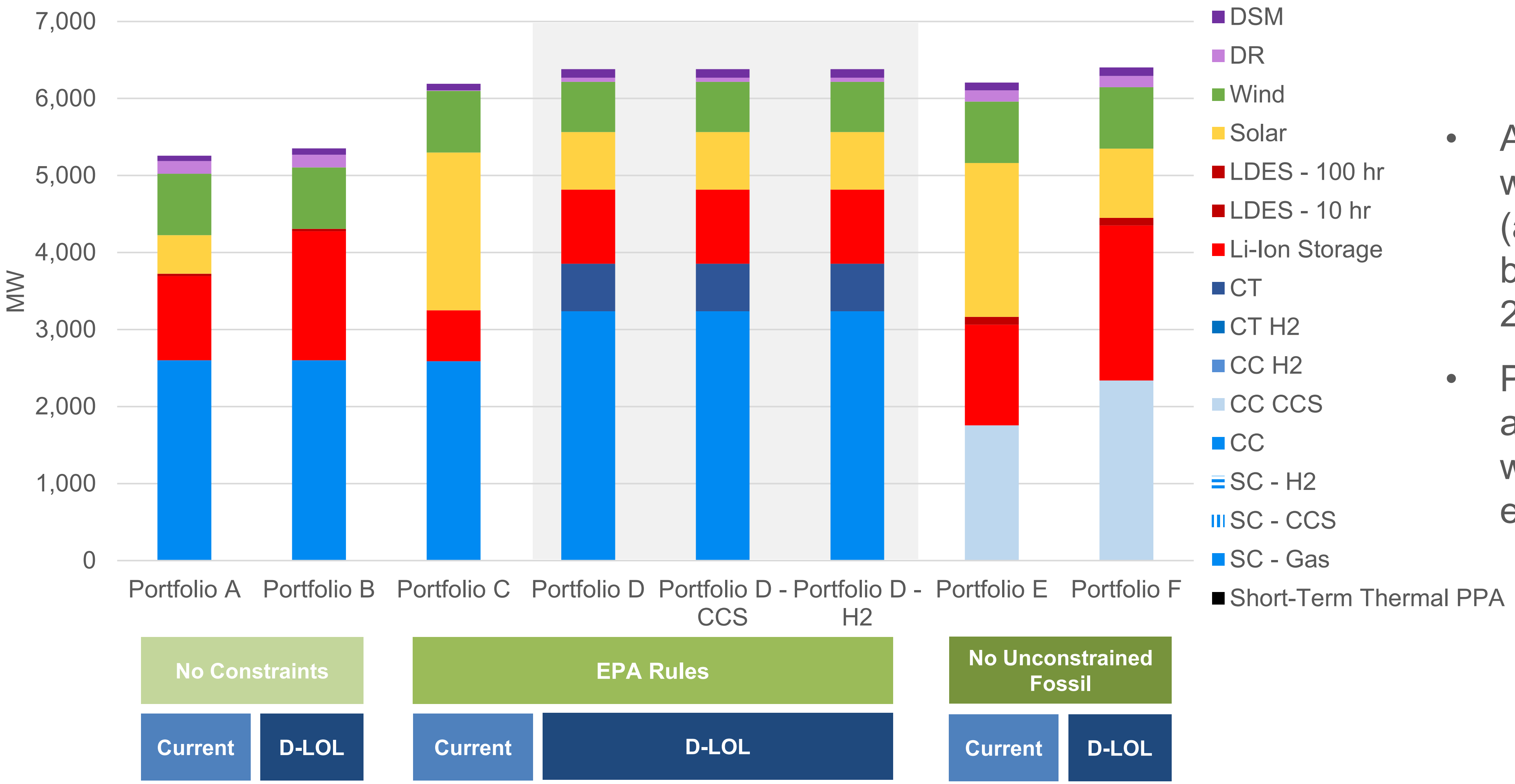
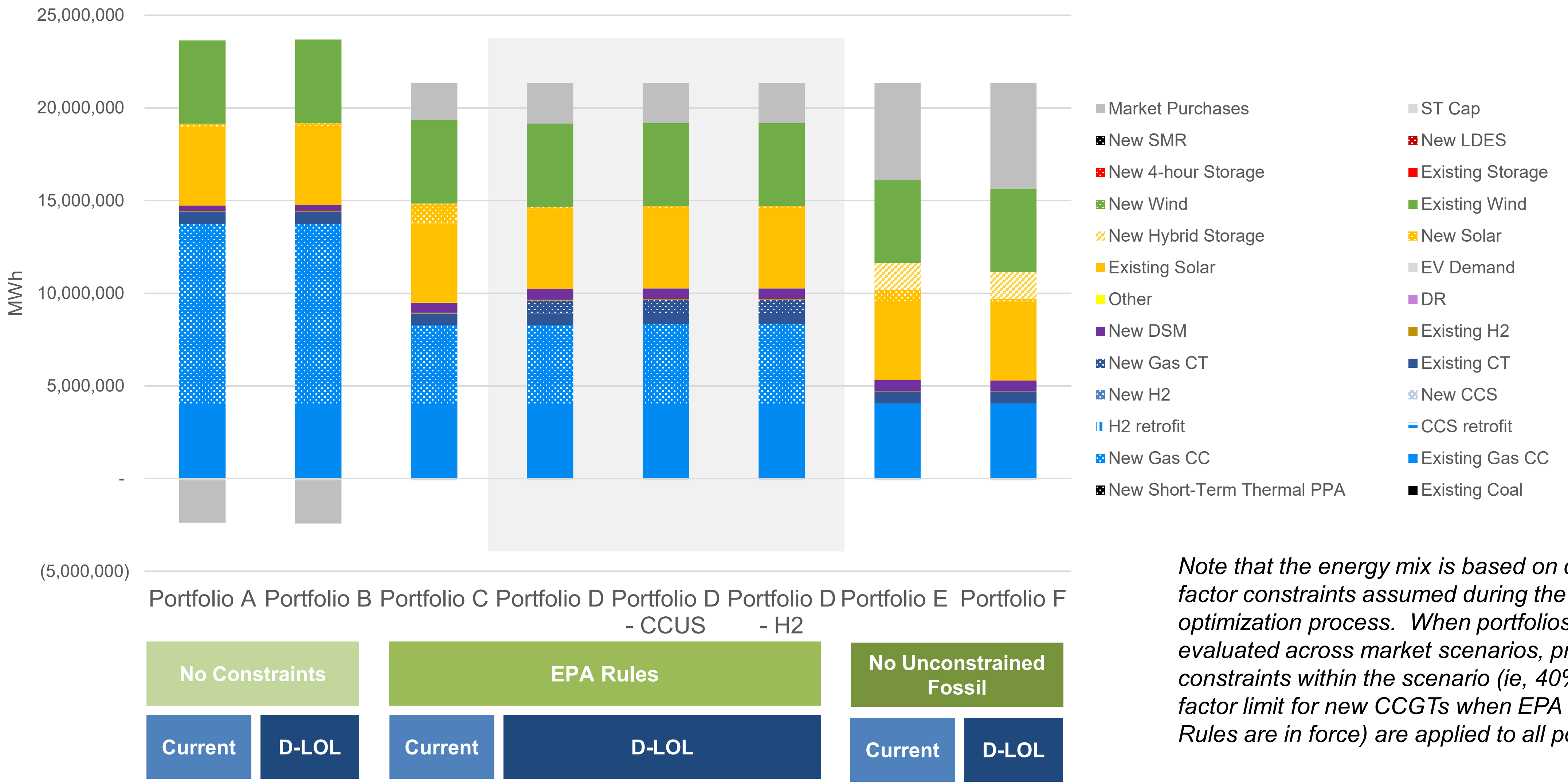
RESOURCE ADDITIONS COMPARISON ACROSS PORTFOLIOS – CUMULATIVE NAMEPLATE THROUGH - 2034



- All portfolios add wind and solar (aside from B) between 2030 and 2034.
- Portfolios E and F add natural gas CC with CCUS in the early 2030s.

ENERGY MIX ACROSS PORTFOLIOS - *2029*



Note that the energy mix is based on capacity factor constraints assumed during the portfolio optimization process. When portfolios are evaluated across market scenarios, prevailing constraints within the scenario (ie, 40% capacity factor limit for new CCGTs when EPA GHG Rules are in force) are applied to all portfolios.

ENERGY EFFICIENCY SELECTION

- The Low/Med Residential and C&I bundles are generally selected
- High Residential and Behavioral bundles are more marginal, but still selected across many years/portfolios

Program	Portfolio A			Portfolio B			Portfolio C			Portfolio D			Portfolio E			Portfolio F		
	’27-’29	‘30-’32	‘33-’46	’27-’29	‘30-’32	‘33-’46	’27-’29	‘30-’32	‘33-’46	’27-’29	‘30-’32	‘33-’46	’27-’29	‘30-’32	‘33-’46	’27-’29	‘30-’32	‘33-’46
Res (Low/Med)	o	x	x	o	x	x	o	o	x	x	x	x	x	x	x	x	x	x
Res (High)	o	o	o	o	x	x	x	o	x	x	x	o	o	o	o	x	x	o
Res (Behavioral)	o	o	x	x	o	x	x	x	x	x	x	x	x	o	x	o	x	x
C&I	o	x	x	o	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IQW	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IQHear	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

X = Selected
o = Not Selected

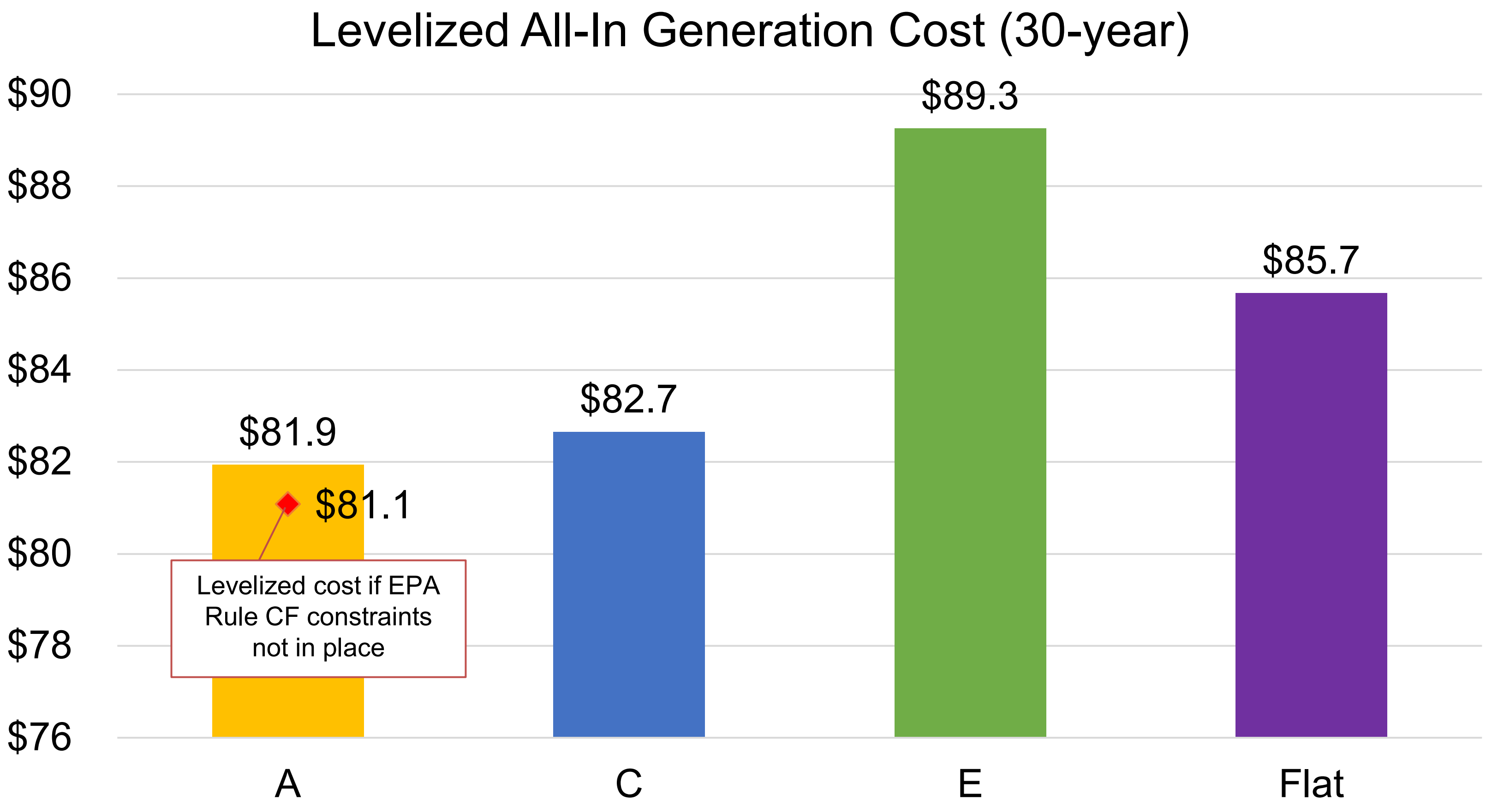
DEMAND RESPONSE SELECTION ACROSS PORTFOLIOS

Program	Portfolio A	Portfolio B	Portfolio C	Portfolio D	Portfolio E	Portfolio F
RAP Thermostats	x	x	o	o	o	o
RAP Water Heaters	o	o	o	o	o	o
RAP Behavioral	x	x	x	x	x	x
RAP Dynamic Rates	x	x	o	o	x	x
RAP EV Managed Charging	o	o	o	o	o	o
RAP BTM Storage	o	o	o	o	o	o
RAP C&I	x	x	o	o	x	x
RAP Data Center	x	x	o	x	x	x

X = Selected
O = Not Selected

- Behavioral, data center, C&I, and dynamic rates demand response programs are most often selected across portfolios and will be considered as NIPSCO evaluates its preferred portfolio
- The thermostat program is selected in Portfolios A & B
- Water heater, EV managed charging, and BTM storage programs are not selected

PORTFOLIO LEVELIZED COST OF ENERGY – REFERENCE CASE (CURRENT MKT RULES)

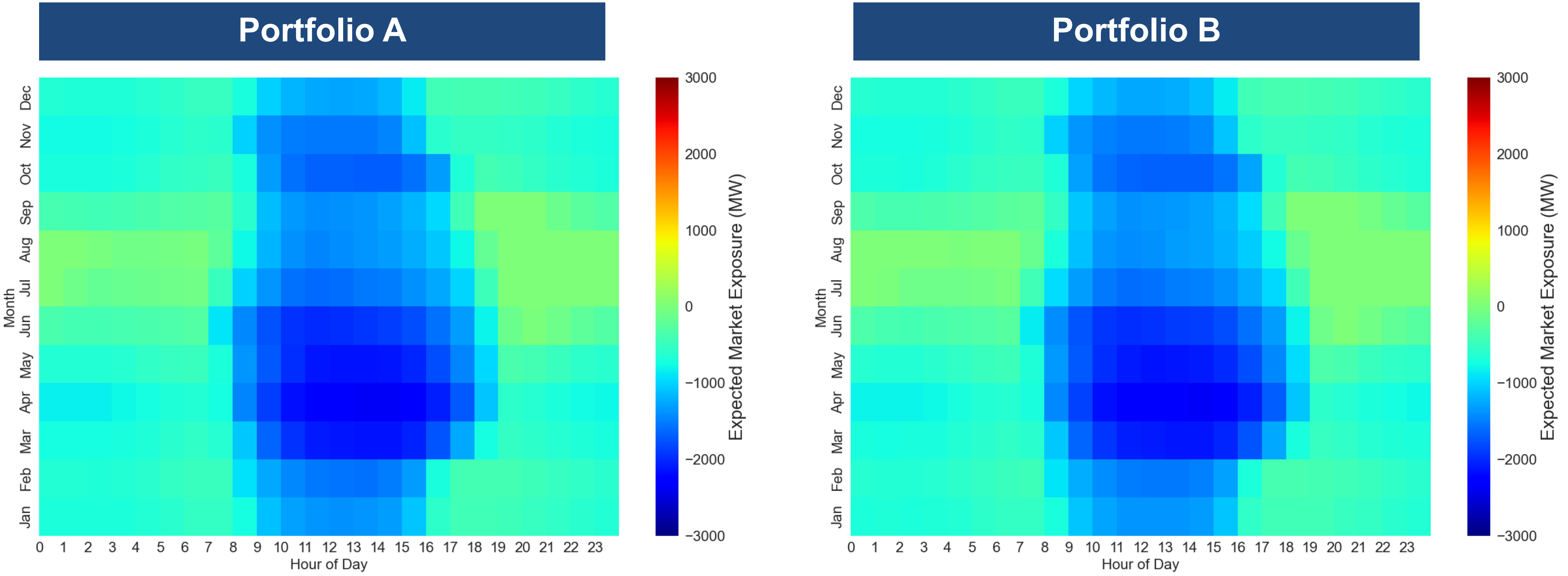


- **Over the 30-year planning horizon, the levelized cost per MWh for the Flat Load portfolio is higher than Portfolios A and C.**

PORTFOLIOS A AND B – 50TH PERCENTILE FORCED MARKET EXPOSURE

No EPA GHG Constraints

- At the 50th percentile, the portfolios have modest forced market exposure during summer evenings and overnight hours

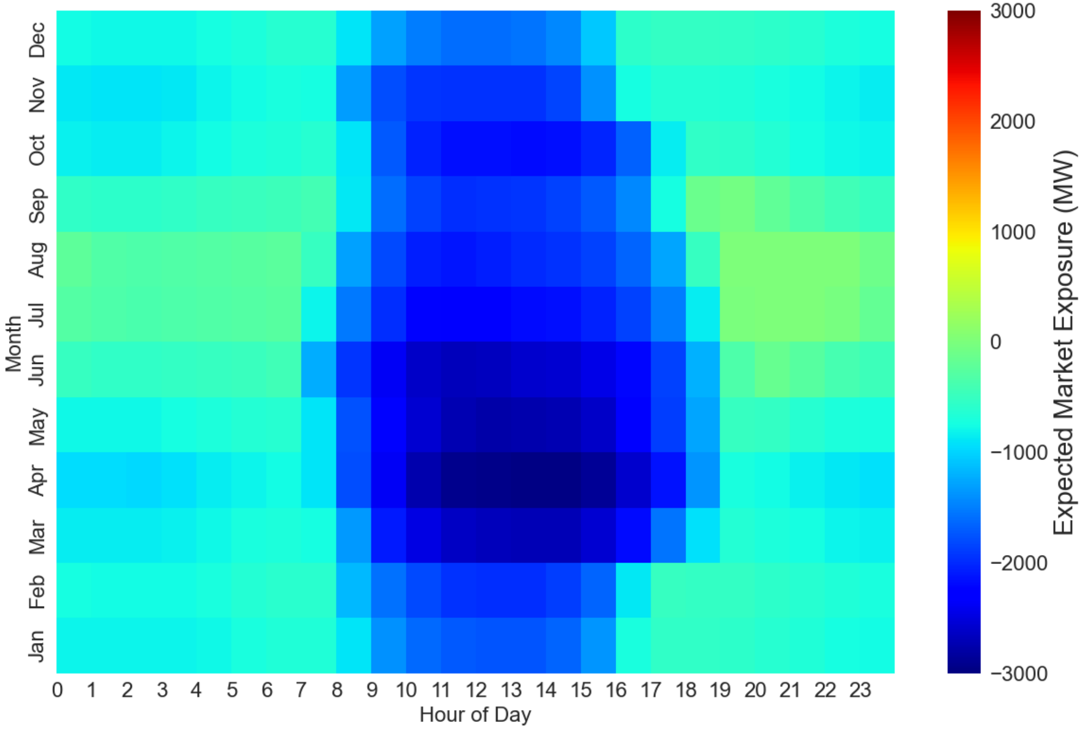


Lower Risk — Higher Risk

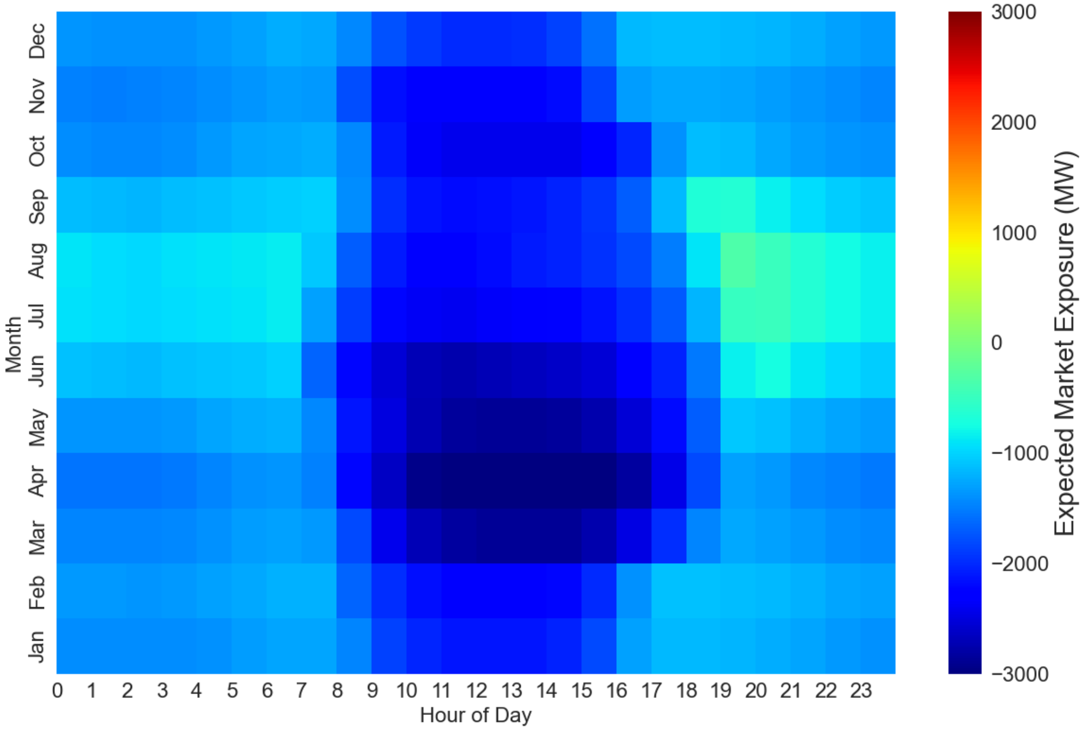
PORTFOLIOS C AND D (ALL VARIANTS) – 50TH PERCENTILE FORCED MARKET EXPOSURE

- At the 50th percentile, Portfolio C has modest forced market exposure risk in the summer evenings and overnight hours, while Portfolio D is covered across all hours

Portfolio C



Portfolio D



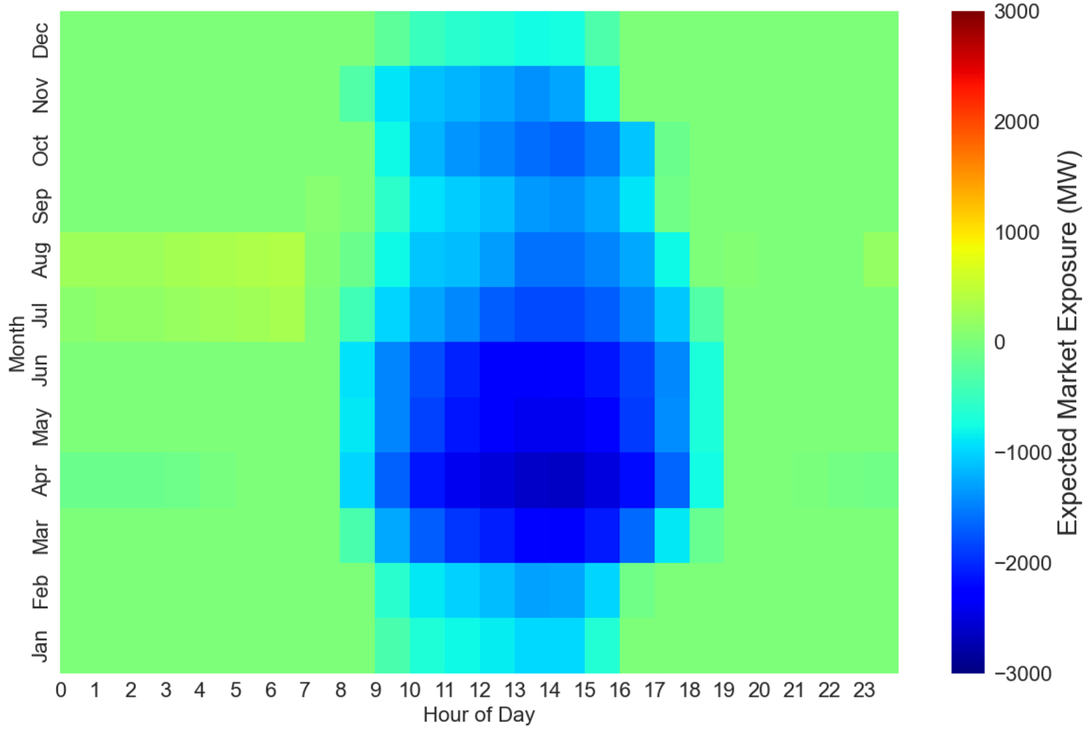
Lower Risk Higher Risk

PORTFOLIOS E AND F – 50TH PERCENTILE FORCED MARKET EXPOSURE

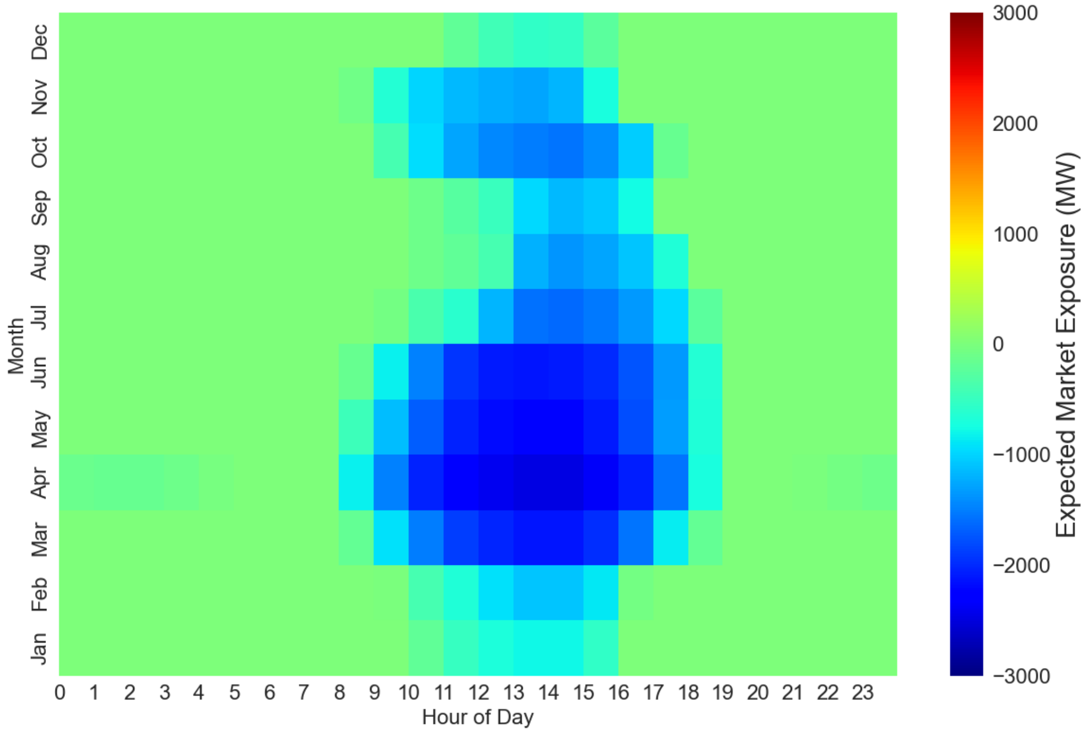
No New Uncontrolled Fossil

- At the 50th percentile, the portfolios have modest forced market exposure during evenings and overnight hours throughout the year

Portfolio E



Portfolio F

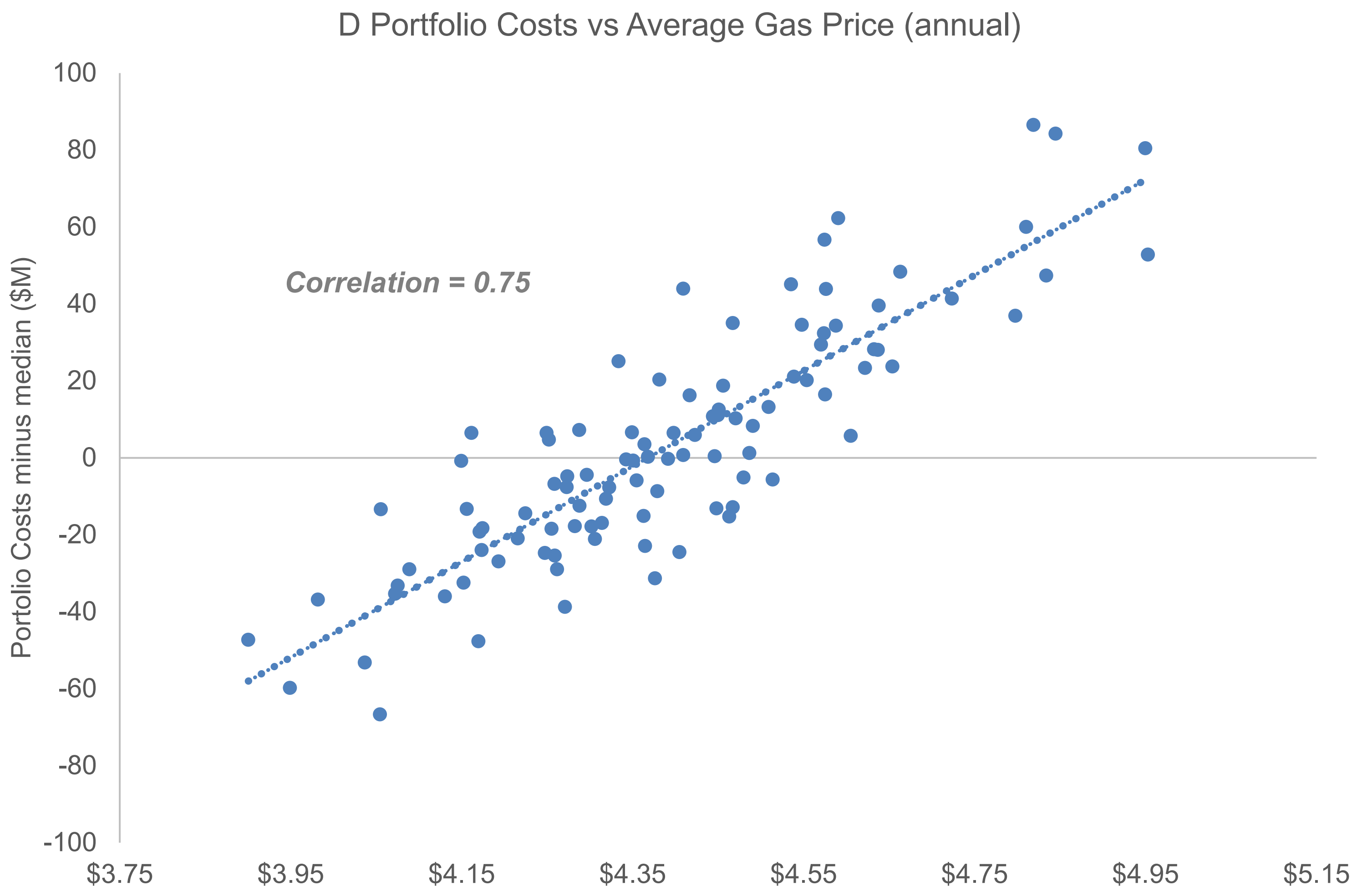


KEY RELIABILITY METRICS

- Portfolios E and F could experience significant forced market exposure risk. The event magnitude could be substantial, but their expected duration is usually relatively short
- The D Portfolios are best suited to mitigate against potential forced market exposure risk and are largely "in control of their own destiny."

Portfolio	LOLE (days/year)	Forced Market Exposure (GWh)	Forced Market Exposure Relative to Total Load (%)	Forced market exposure (MM$) (50/90%)
A	57	235	0.91	10.9/16.0
B	24	86	0.33	3.9/7.0
C	41	89	0.34	4.1/6.9
D (all variants)	2	4	0.02	0.1/0.6
E	192	793	3.08	37.8/47.6
F	100	515	2.00	24.4/33.7

COST RISK – IMPACTS OF NATURAL GAS ON PORTFOLIO COSTS



- **All portfolios had a strong correlation between total costs and natural gas prices**
- **For portfolio D, a $1 increase in gas price corresponds to an expected $125M increase in portfolio costs**