

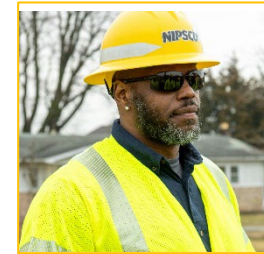
OUR VISION IS TO BE A  
**PREMIER, INNOVATIVE & TRUSTED**  
**ENERGY PARTNER**

## 2024 NIPSCO INTEGRATED RESOURCE PLAN

Fourth Stakeholder Advisory Meeting

October 8<sup>th</sup>, 2024  
9 A.M.-1 P.M. CT





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

## WELCOME & INTRODUCTION

Tara McElmurry, Communications Manager, NiSource



# FAIR OAKS FARMS



---

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:**



# FIVE TIPS TO IMPROVE YOUR MENTAL HEALTH



### PHYSICAL

Exercise (think "baby steps!"... even a short walk helps), drink lots of water, see your doctor, eat foods that make you healthier, take time to stretch throughout the day



### MINDFUL

Try yoga, meditation, make a list of three things you are grateful for, engage in random acts of kindness, spend time in nature or outdoors when possible



### SOCIAL

Try something new and creative, call a friend/family member, send a card/note, organize lunch/dinner over video chat with friends or family



### EMOTIONAL

Focus on the present moment, not what might happen; increase positive self-talk—be a cheerleader for yourself or a friend, find activities that relieve stress and tension, journal, try therapy or support group



### MENTAL

Try something new and creative, call a friend/family member, send a card/note, organize lunch/dinner over video chat with friends or family

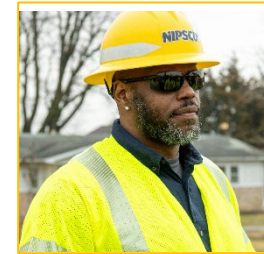


# STAKEHOLDER ADVISORY MEETING PROTOCOLS

- 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](mailto:ewhitehead@nisource.com)).

# AGENDA

Time *Central Time	Topic	Speaker
9:00AM-9:05AM	Welcome & Introduction	Tara McElmurry, Communications Manager, NiSource
9:05AM-9:10AM	Kick Off	Vince Parisi, President & COO, NIPSCO
9:10AM-9:20AM	Recap of 2024 IRP Process	Abe Lang, Manager Strategy & Risk, NiSource
9:20AM-9:40AM	Public Advisory Process and Responses to Third Stakeholder Meeting Comments	Abe Lang, Manager Strategy & Risk, NiSource
9:40AM–11:00AM	Portfolio Development Process and NIPSCO Portfolio Construction	Abe Lang, Manager Strategy & Risk, NiSource Pat Augustine, Vice President, CRA
11:00AM-12:00PM	Lunch	
12:00PM-12:45PM	NIPSCO Portfolio Construction Continued and Next Steps	Abe Lang, Manager Strategy & Risk, NiSource Pat Augustine, Vice President, CRA
12:45PM – 1:00PM	Closing & Stakeholder Comments	



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

## KICK OFF

Vince Parisi, President & COO, NIPSCO



PREMIER REGULATED UTILITY BUSINESS



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

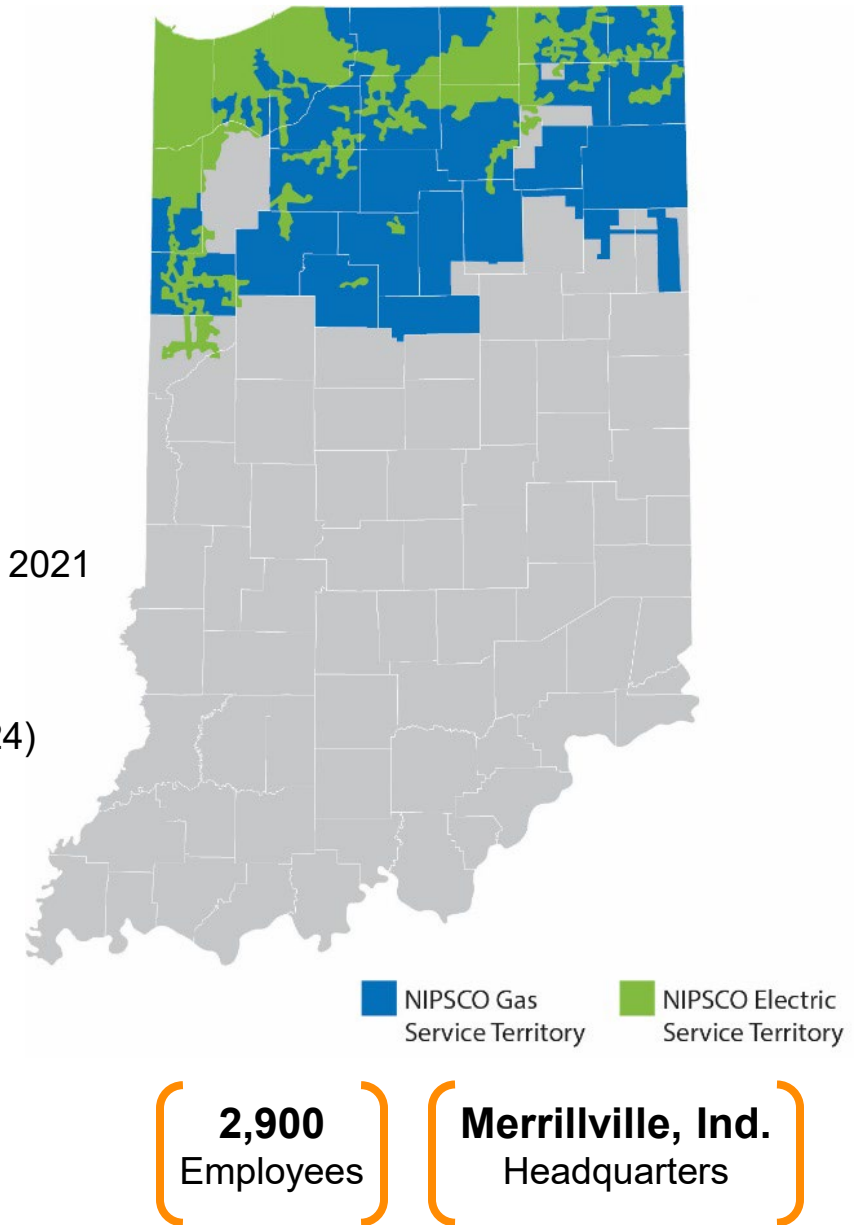
Working to Become Indiana's Premier Utility

## Electric

- Approximately 500,000 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

- Approximately 900,000 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

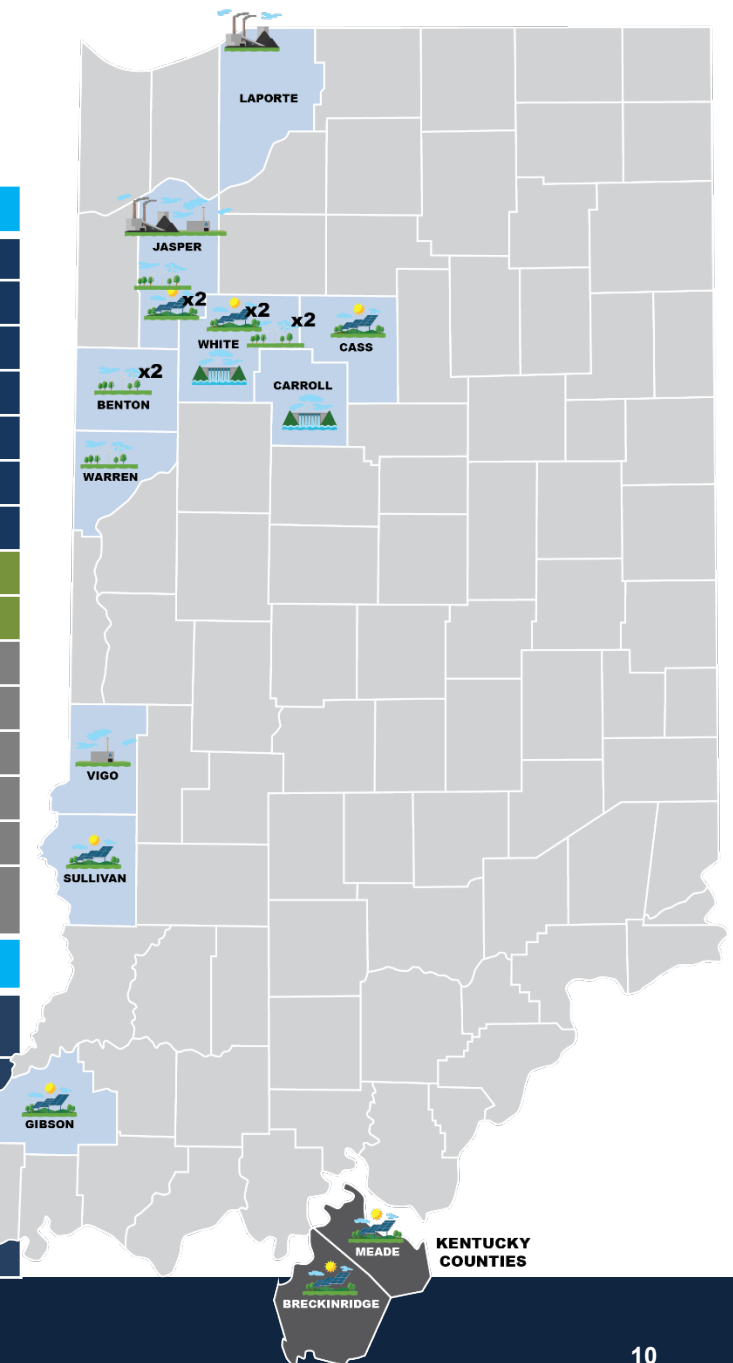


# CURRENT & FUTURE NIPSCO GENERATION PORTFOLIO

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 PRE-CONSTRUCTION
FAIRBANKS SOLAR	250 MW	SULLIVAN	2025 CONSTRUCTION
TEMPLETON WIND	200 MW	BENTON	2025 PRE-CONSTRUCTION
CARPENTER WIND	200 MW	JASPER	2025 PRE-CONSTRUCTION
APPLESEED SOLAR	200 MW	CASS	2025 PRE-CONSTRUCTION
GAS PEAKING RESOURCE	400 MW	JASPER	2027 PRE-CONSTRUCTION PENDING IURC APPROVAL

GENERATION FACILITIES	INSTALLED CAPACITY (MW)	FUEL	COUNTY
MICHIGAN CITY RETIRING 2028	455 MW	COAL	LAPORTE
R.M. SCHAHFER 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

# 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.



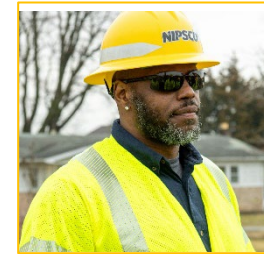
**Reliable and  
sustainable**

**Flexibility for  
the future**

**Local and statewide  
economic benefits**

**Best plan for customers  
and the company**





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

## RECAP OF STAKEHOLDER PROCESS

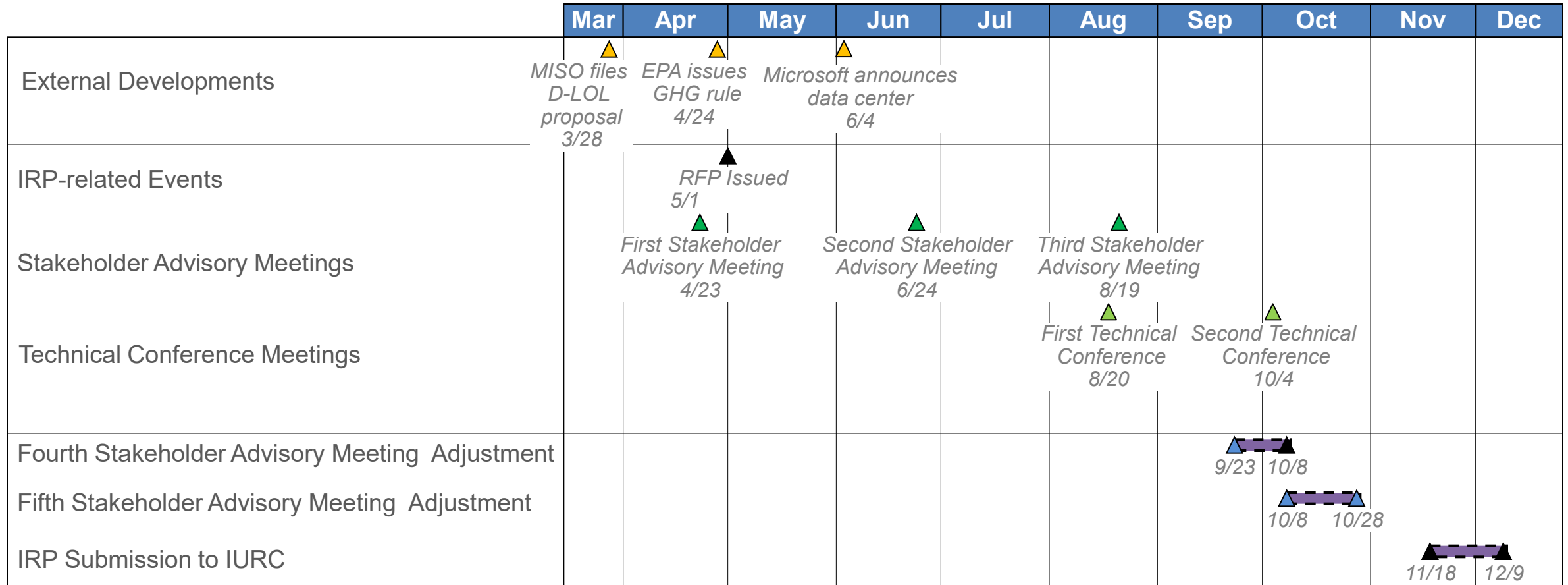
Abe Lang, Manager Strategy & Risk, NiSource





## 2024 IRP STAKEHOLDER ADVISORY PROCESS TIMELINE & ADJUSTMENTS

The Indiana Commission has approved NIPSCO's request to adjust its 2024 IRP submission date from November 18<sup>th</sup> to December 9<sup>th</sup>. This will afford NIPSCO and stakeholders additional time to analyze the impacts of several significant external developments impacting long-term planning.





# PUBLIC ADVISORY PROCESS AND RESPONSES TO THIRD STAKEHOLDER MEETING COMMENTS

Abe Lang, Manager Strategy & Risk, NiSource



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



## SUMMARY OF STAKEHOLDER FEEDBACK SINCE MEETING #3

Category	Stakeholder Comments	NIPSCO Responses
Energy Efficiency	<ul style="list-style-type: none"> <li>How are efficiency variations between commercial and industrial customers considered in the analysis?</li> <li>What was the thinking behind using the utility cost test (“UCT”) for screening instead of a total resource cost (“TRC”) test?</li> </ul>	<ul style="list-style-type: none"> <li>Tracked through the Strategic Energy Management program on the C&amp;I side, currently focused on grocery stores, schools and healthcare. The Industrial side is more difficult to benchmark among various industrial customer types.</li> <li>The UCT test is the primary test that is used in Indiana to look at energy efficiency measures.</li> </ul>
Demand Response	<ul style="list-style-type: none"> <li>Are there ways that we can throttle up or down the assumptions that you’ve included related to data center Demand Response (DR) offerings?</li> <li>How much are the UCT results sensitive to the assumed 20-year time horizon used in the study?</li> <li>Are all DR reductions considered ‘net’?</li> </ul>	<ul style="list-style-type: none"> <li>Right now, industrial DR in the Midwest is a mature market and so we are assuming that data centers will respond similarly; we will continue to refine these assumptions once data center load comes onto the system.</li> <li>UCT results are minimally impacted by the 20-year time horizon because all end-use appliances are assumed to operate for their full life.</li> <li>Yes, all DR reductions are considered ‘net.’</li> </ul>

## SUMMARY OF STAKEHOLDER FEEDBACK SINCE MEETING #3

Category	Stakeholder Comments	NIPSCO Responses
RFP & Portfolio Development	<ul style="list-style-type: none"> <li>Are the capital costs assumed for new resources before or after the ITC/PTC?</li> <li>Would NIPSCO consider a sensitivity where IRA tax credits are extended throughout the study period and then do a second sensitivity where you let them lapse, say in 2035?</li> <li>Are there any assumptions related to electrification, including gas customer base migration to electric?</li> </ul>	<ul style="list-style-type: none"> <li>Capital costs are assumed before the ITC/PTCs are factored in, but these will be included in all customer cost (NPVRR) analyses.</li> <li>NIPSCO is open to considering a sensitivity with extended IRA tax credits, but believes its core scenarios cover the appropriate range with tax credits available for key resource decisions through the next decade.</li> <li>NIPSCO's AER and AI scenarios include significant electrification growth. See slides 37 and 38 from Meeting #2.</li> <li>NIPSCO provided portfolio modeling input files to requesting stakeholders.</li> </ul>
IRP Timing	<ul style="list-style-type: none"> <li>Requested that NIPSCO extend the timing of our Integrated Resource Plan (IRP), given announcements by at least one other utility to extend their IRP into 2025, due to the significant increases in expected load.</li> <li>Certain stakeholders requested additional technical meetings to discuss large load additions and portfolio impacts.</li> </ul>	<ul style="list-style-type: none"> <li>NIPSCO extended its IRP by the following dates to allow for more time for analysis and stakeholder feedback on the significant large load additions to the portfolio: <ul style="list-style-type: none"> <li>Stakeholder Advisory meeting #4 moved from September 19<sup>th</sup> to October 8<sup>th</sup></li> <li>Stakeholder Advisory meeting #5 moved from October 8<sup>th</sup> to October 28<sup>th</sup></li> <li>IRP Report submission to the Indiana Utility Regulatory Commission (IURC) moved from November 18<sup>th</sup> to December 9<sup>th</sup></li> </ul> </li> <li>NIPSCO has scheduled technical meetings with requesting stakeholders and will continue to do so upon request.</li> </ul>





## PORTFOLIO DEVELOPMENT PROCESS AND NIPSCO PORTFOLIO CONSTRUCTION

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

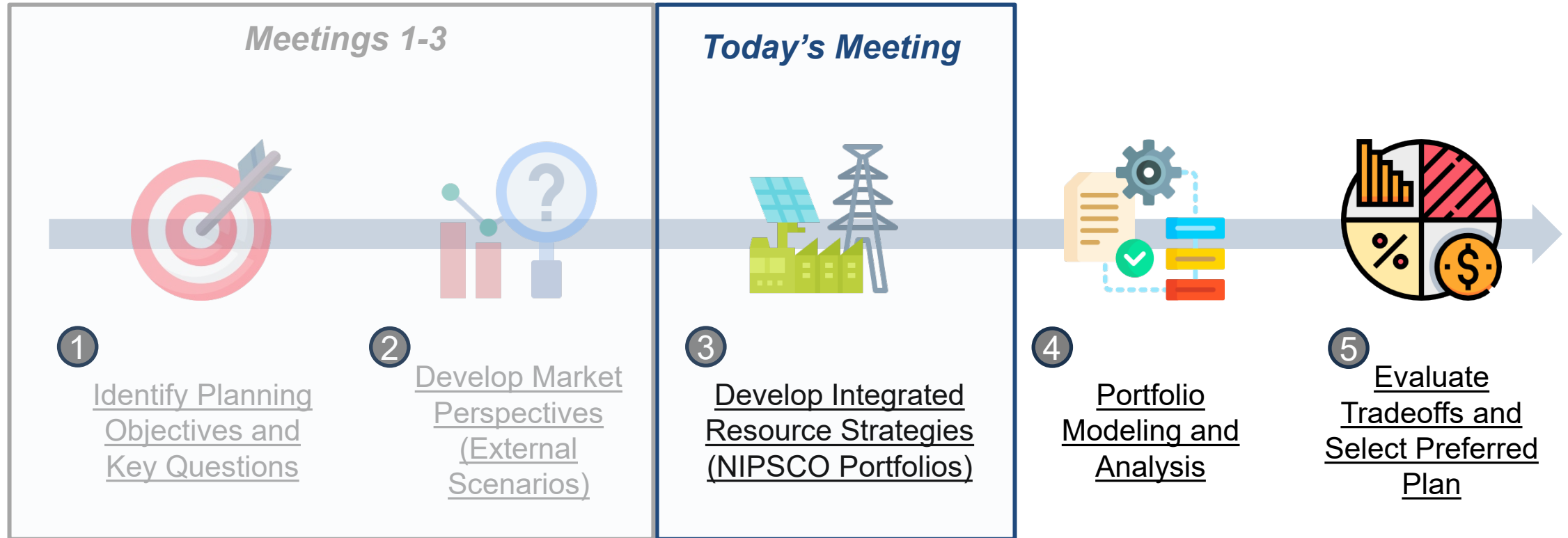


OUR VISION IS TO BE A  
**PREMIER, INNOVATIVE & TRUSTED**  
**ENERGY PARTNER**

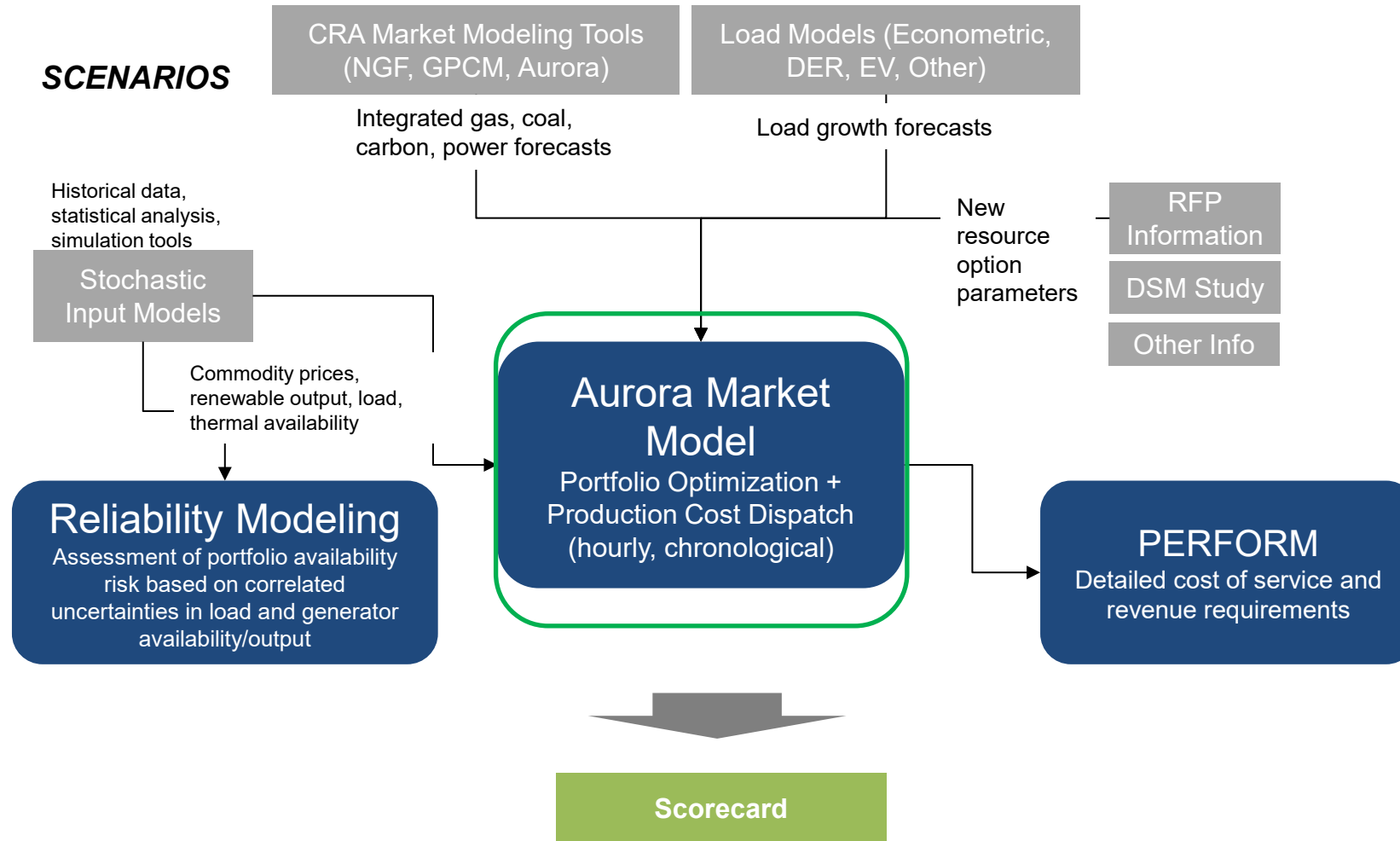


# OVERALL RESOURCE PLANNING APPROACH

## STEPS:



# 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

# KEY PORTFOLIO CONSTRUCTION CONSIDERATIONS

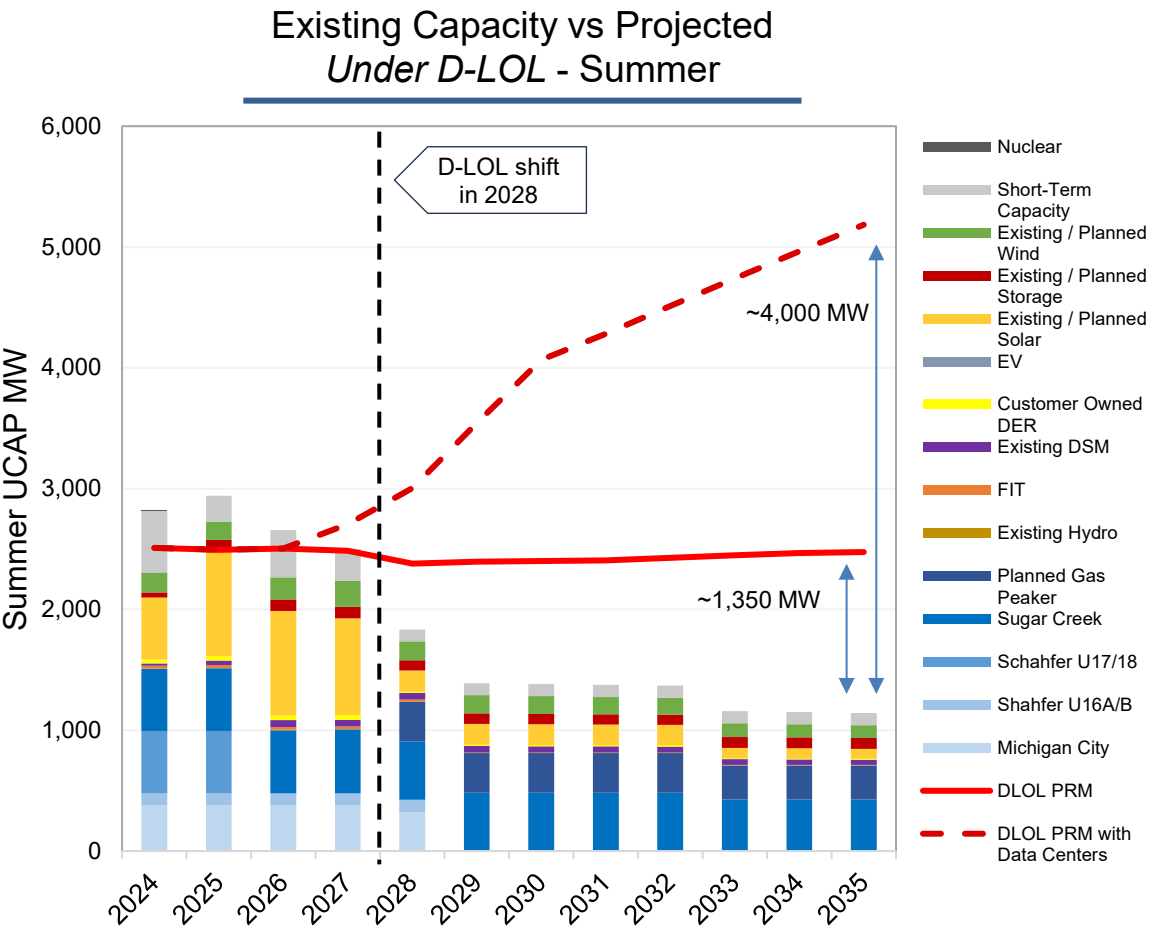
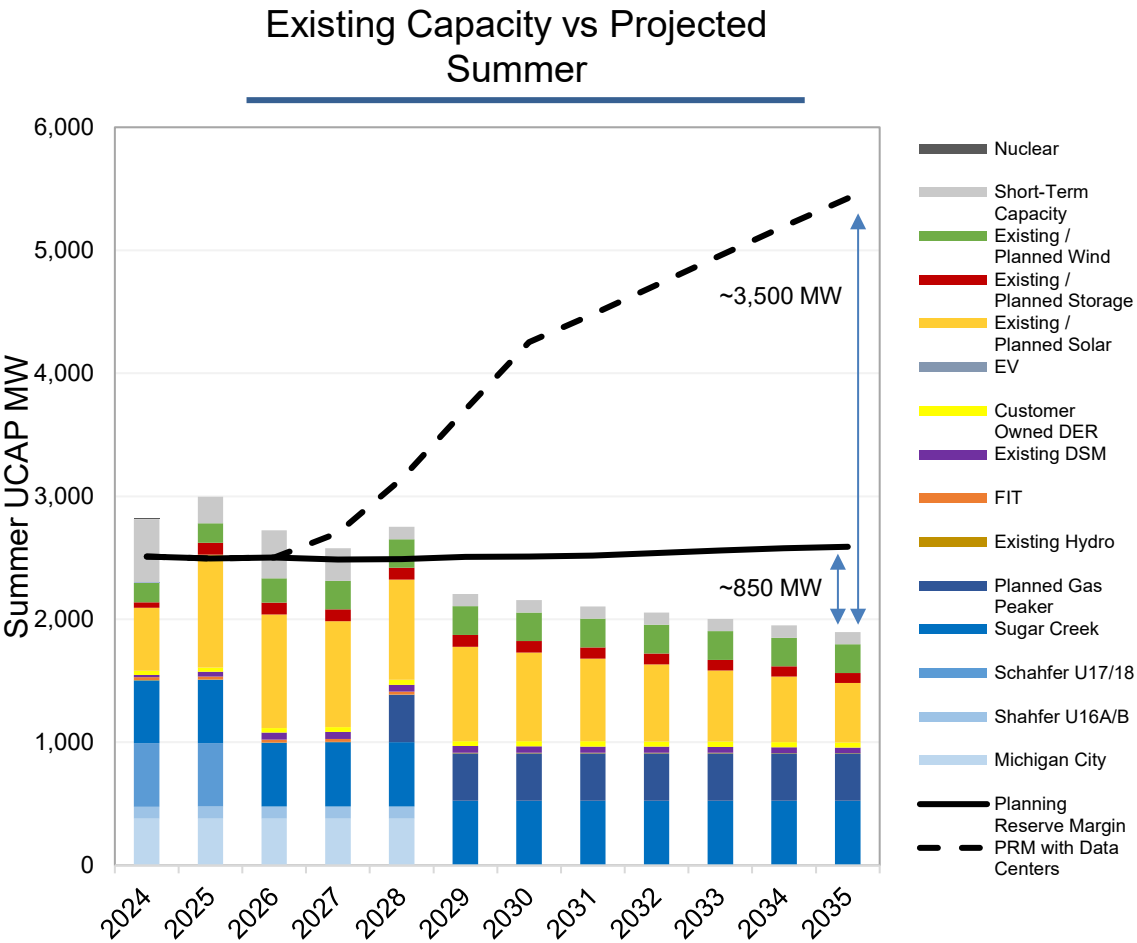
Portfolio development is based on a series of input assumptions and constraints

Key Inputs	Notes and Reminders
NIPSCO Existing Portfolio	Reviewed in Meeting #1
Reference Load Forecast	Reviewed in Meeting #1 and #2
Reference Case MISO Market Conditions	Reviewed in Meeting #2
MISO Market Rules (Current and D-LOL)	Reviewed in Meeting #2
New Resource Options (DSM, RFP, Other)	Reviewed in Meeting #3
Different Portfolio Concepts	Introduced in Meeting #3
Reserve Margin (MW) Constraints	Minimum Targets for all 4 Seasons
Energy Market Purchases/Sales	Target no more than ~20% annual purchases or ~10% annual sales (with seasonal input constraints)

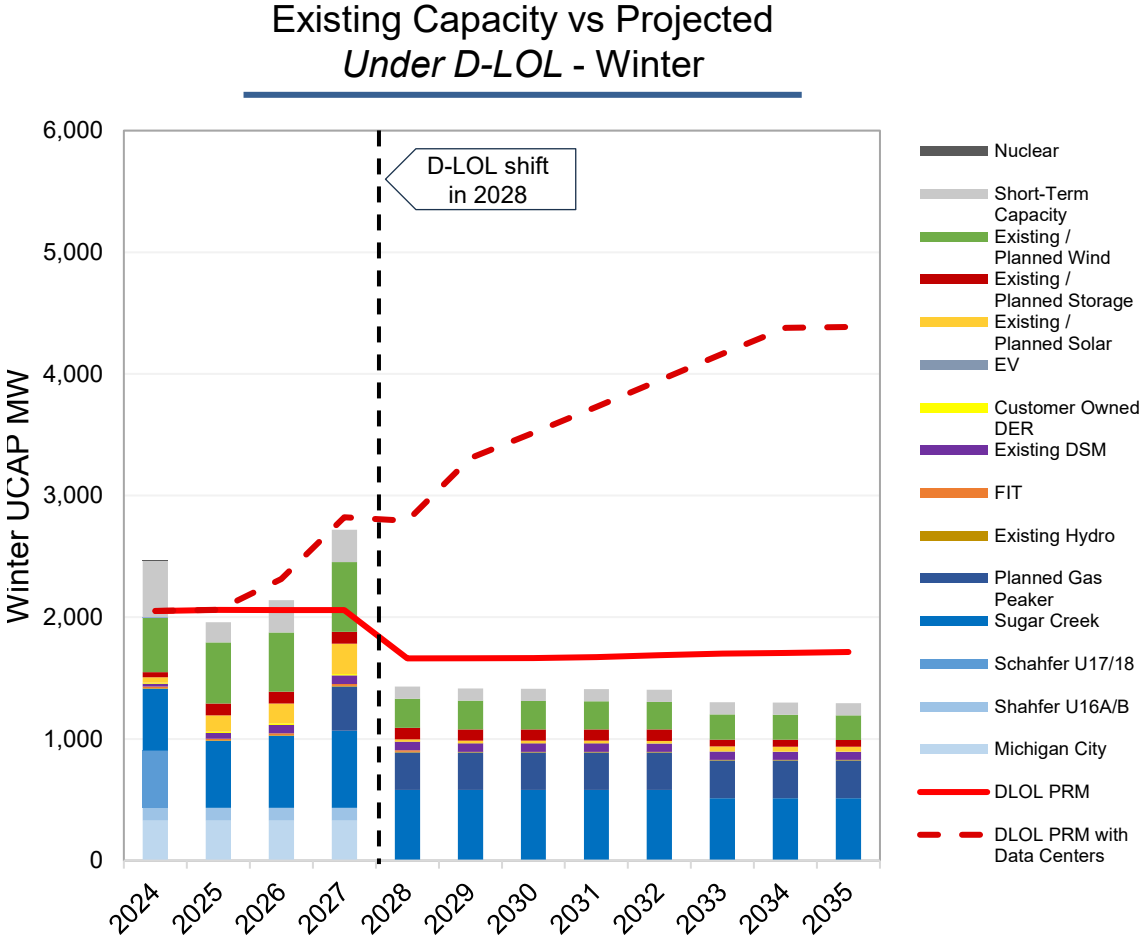
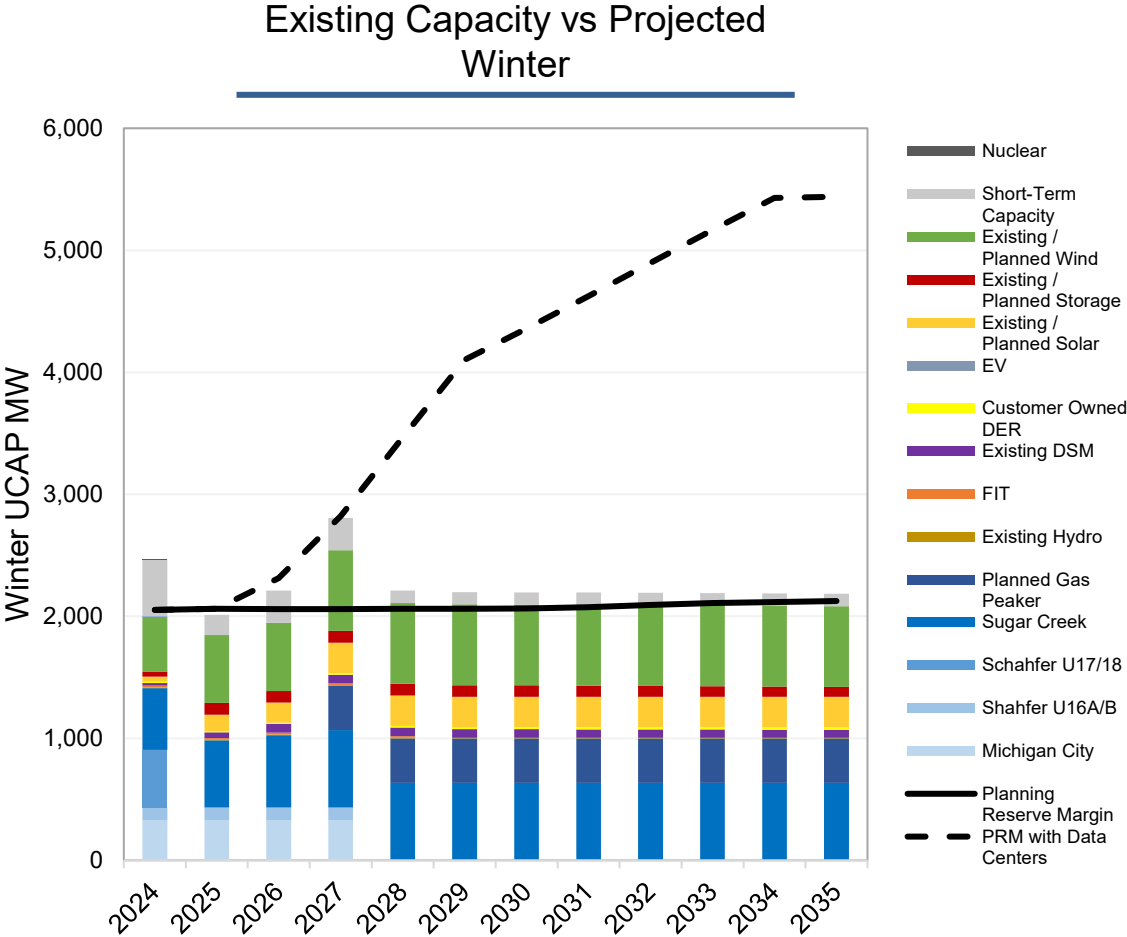


# CURRENT NIPSCO CAPACITY POSITION – REFERENCE LOAD – SUMMER

Even without data center demand, NIPSCO would need ~850 MW of additional accredited capacity for the summer season by 2035; MISO’s proposed D-LOL rule could amplify this need by up to an incremental 500 MW.



# CURRENT NIPSCO CAPACITY POSITION – REFERENCE LOAD – WINTER



# NEW RESOURCE OPTIONS

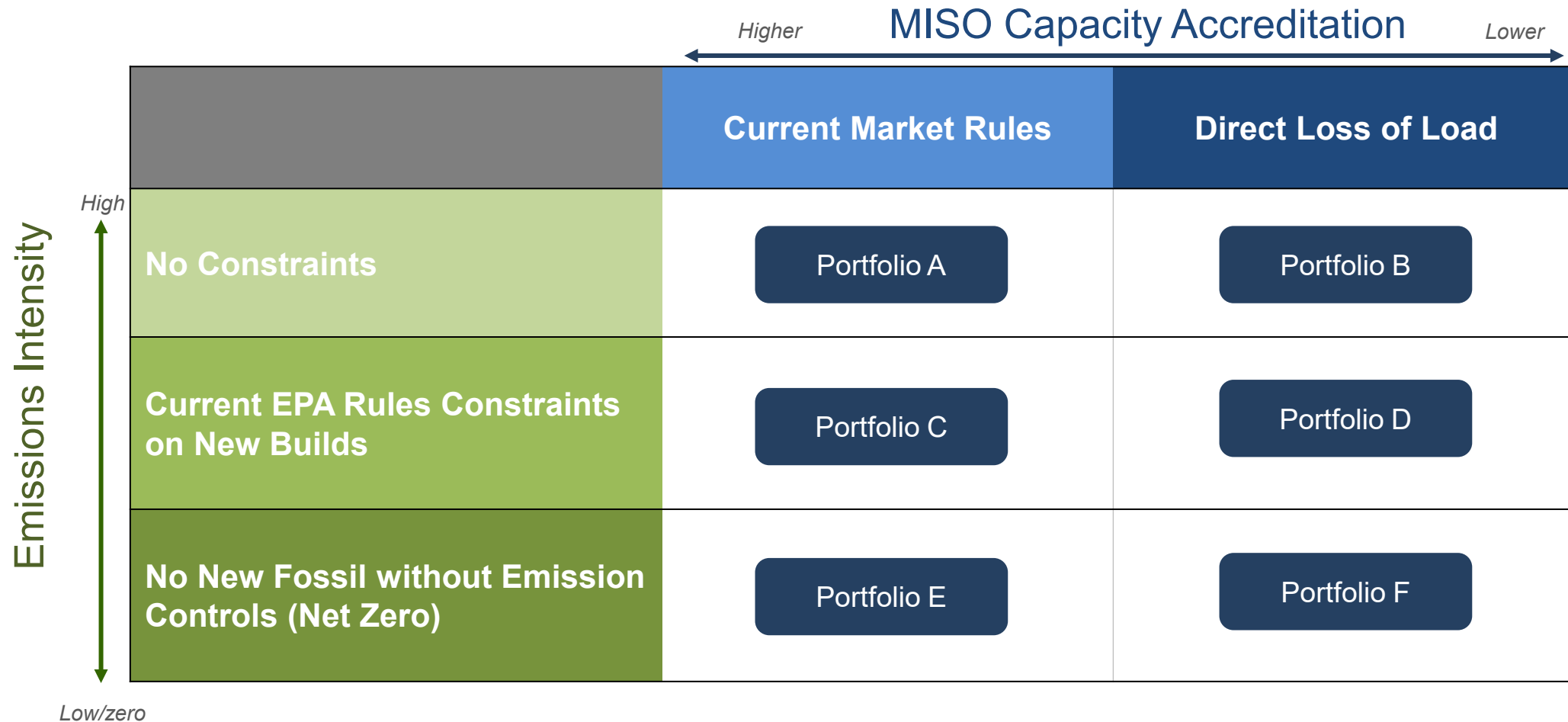
Resources offered in the RFP

Resource Option	Available through 2029	Available 2030-2034	Available 2035+
Demand side management (EE and DR) programs	From MPS and DSM Study		
Solar	From RFP Data	Benchmarked to RFP Data plus Third-Party Data Sources for the Long-Term	
Li-Ion Battery Storage			
Long Duration Storage			
Solar + Storage Hybrid			
Near-Term Thermal Options			
Near-Term Capacity Purchases (ZRCs)			
New Natural Gas Peaking Build (H2-enabled up to 30%)	From NIPSCO Internal Engineering Analysis and Project Experience		
New Gas CC Build (H2- enabled up to 30%)			
Wind		Benchmarked to NIPSCO Project Experience	
New Gas CC with CCS		From NIPSCO and Third-Party Data Sources	
New Gas with H2			
CCS Retrofit (at Sugar Creek)			
H2 Retrofit (at Sugar Creek)			
Small modular reactor (SMR)			

# PORTFOLIO CONSTRUCTION FRAMEWORK

Six 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 emissions rules: constrain output or increase cost of new gas generation





## PORTFOLIO A – RESOURCE ADDITIONS (NAMEPLATE MW)

No EPA GHG Constraints **A** Current Market Rules

Resource	Through 2029 <sup>1</sup>	2030-2034	2035+
Wind		800	700
Solar		500	1,625
4-hr Li-Ion Storage	644	450	125
Long Duration Energy Storage		30	
Gas CCGT	1,300	1,300	
Gas Peaking			
Short-Term Thermal PPA & ZRCs	350 <sup>2</sup>		
Gas CCGT w/ CCUS			
H2-enabled CC			
Sugar Creek			650 <sup>3</sup>

1: Note that 4-hr Li-Ion Storage and Short-Term Thermal PPA & ZRCs are RFP tranches. The gas CCGT is a generic resource addition.

2: Includes 150 MW of thermal PPA and 200 MW ZRC.

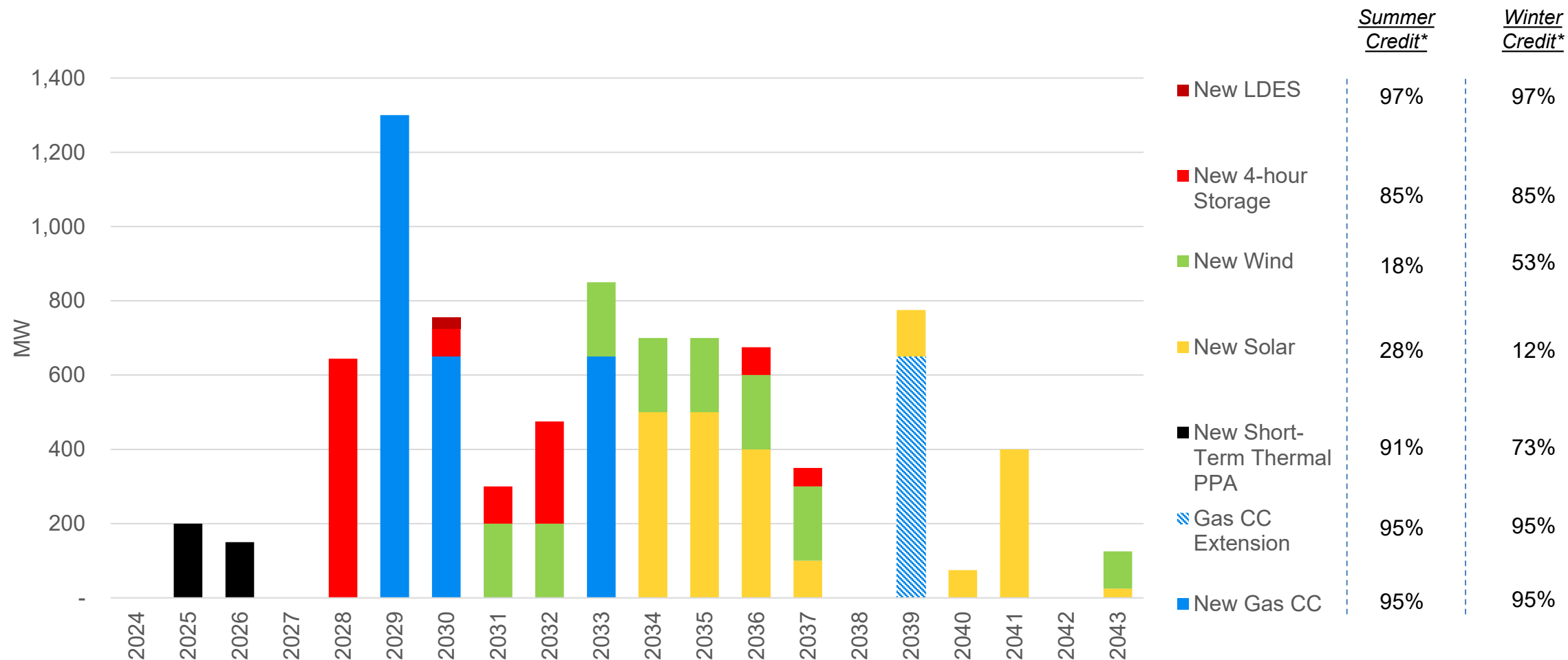
3: Extended on natural gas

Note: All selected DSM and DR are summarized separately across portfolios

# PORTFOLIO A – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

No EPA GHG Constraints

**A** Current Market Rules

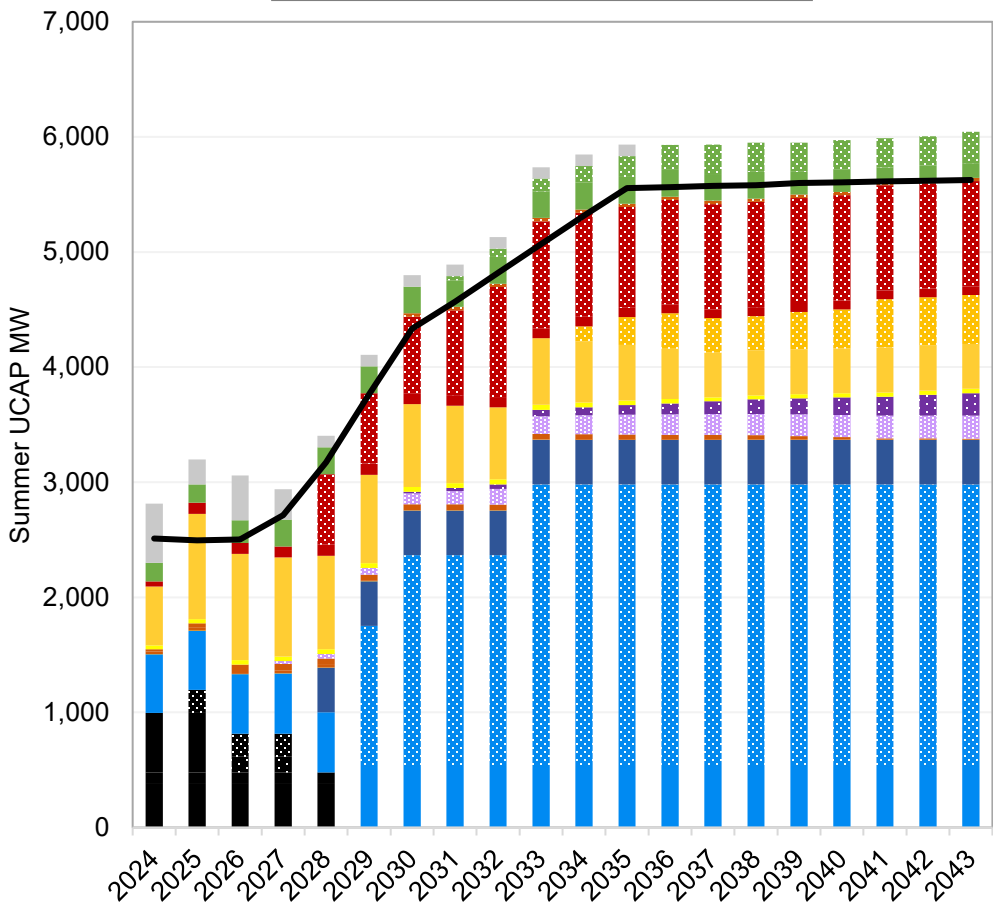


*Note: The 2025 short-term PPA lasts from 2025-2027. The 2026 short-term PPA lasts from 2026-2027.  
 \*Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.*

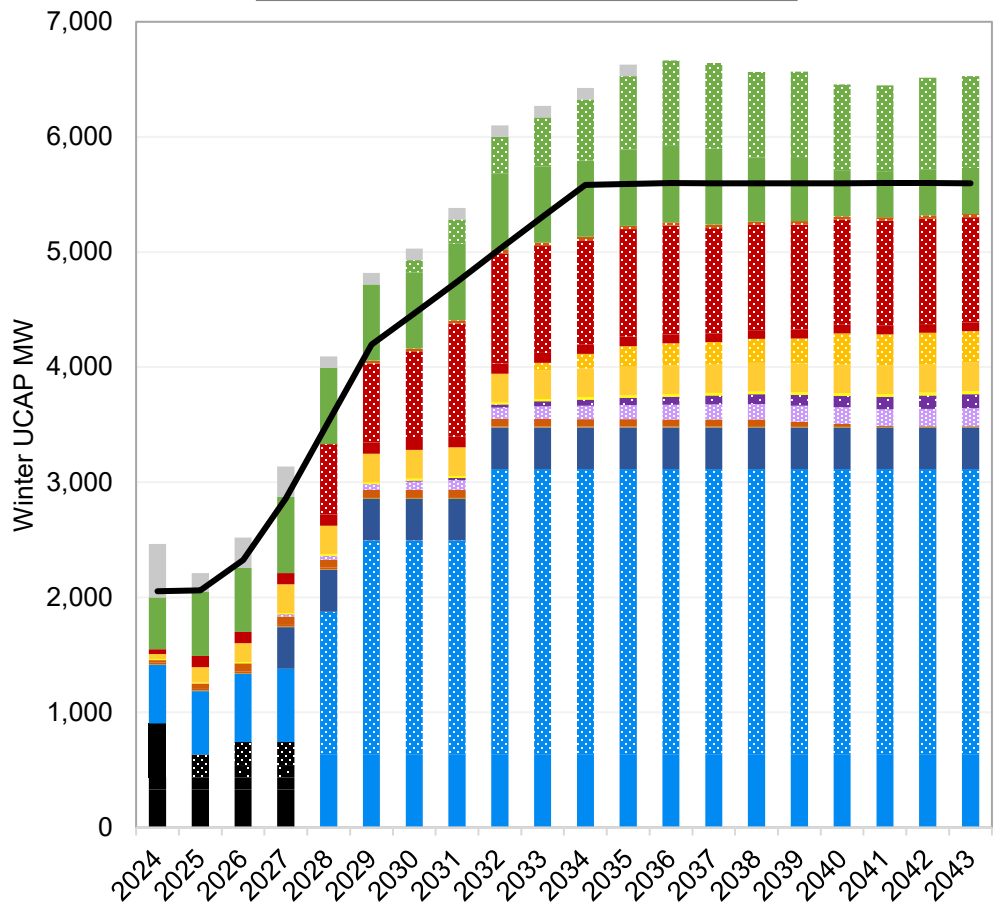
# PORTFOLIO A – SUPPLY-DEMAND BALANCE

No EPA GHG Constraints **A** Current Market Rules

### Summer Cap. vs. PRM



### Winter Cap. vs. PRM



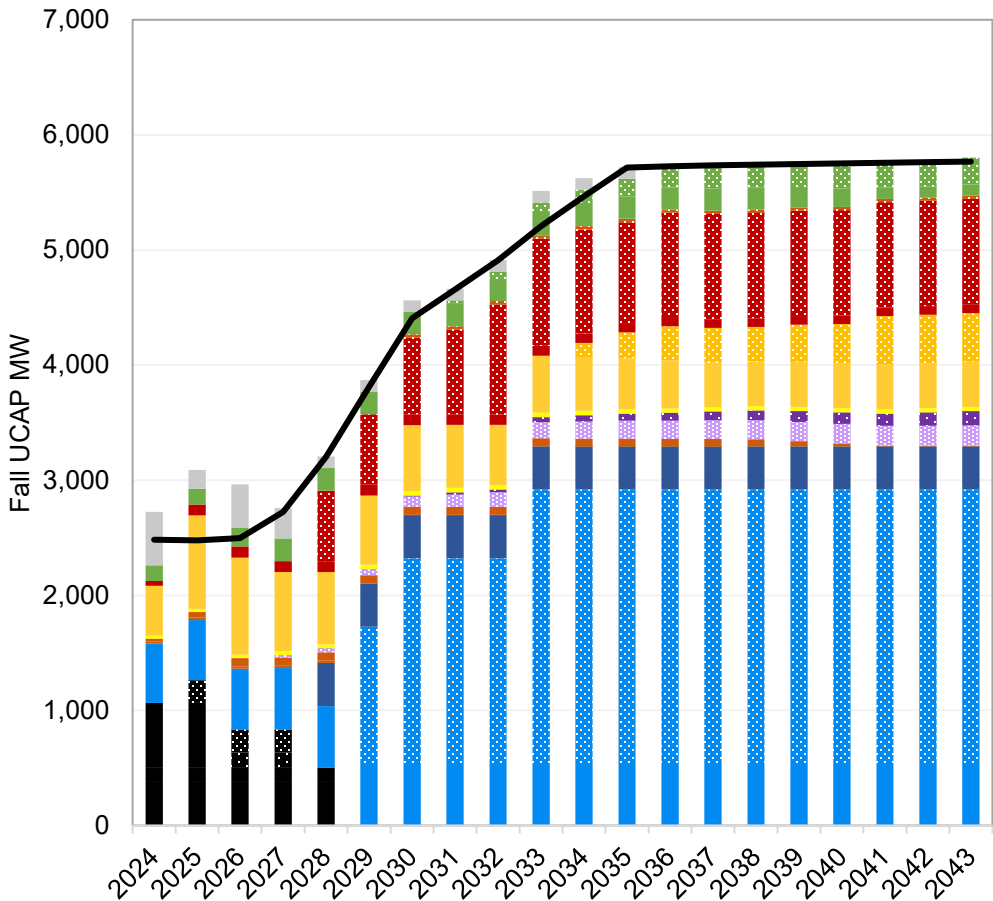
- New SMR
- Short-term Capacity
- New Wind
- Existing Wind
- New LDES
- New 4-hour Storage
- Existing Storage
- New Solar
- Existing Solar
- EV
- New DER
- Existing DER
- New DSM
- New DR
- Other
- Existing Hydro
- New Gas CT
- Gas CT
- New CC H2
- New CC CCS
- New Gas CC
- H2 Retrofit
- CCS Retrofit
- Gas CC
- New Short-term Thermal PPA
- Existing Coal
- Planning Reserve Margin

# PORTFOLIO A – SUPPLY-DEMAND BALANCE

No EPA GHG Constraints

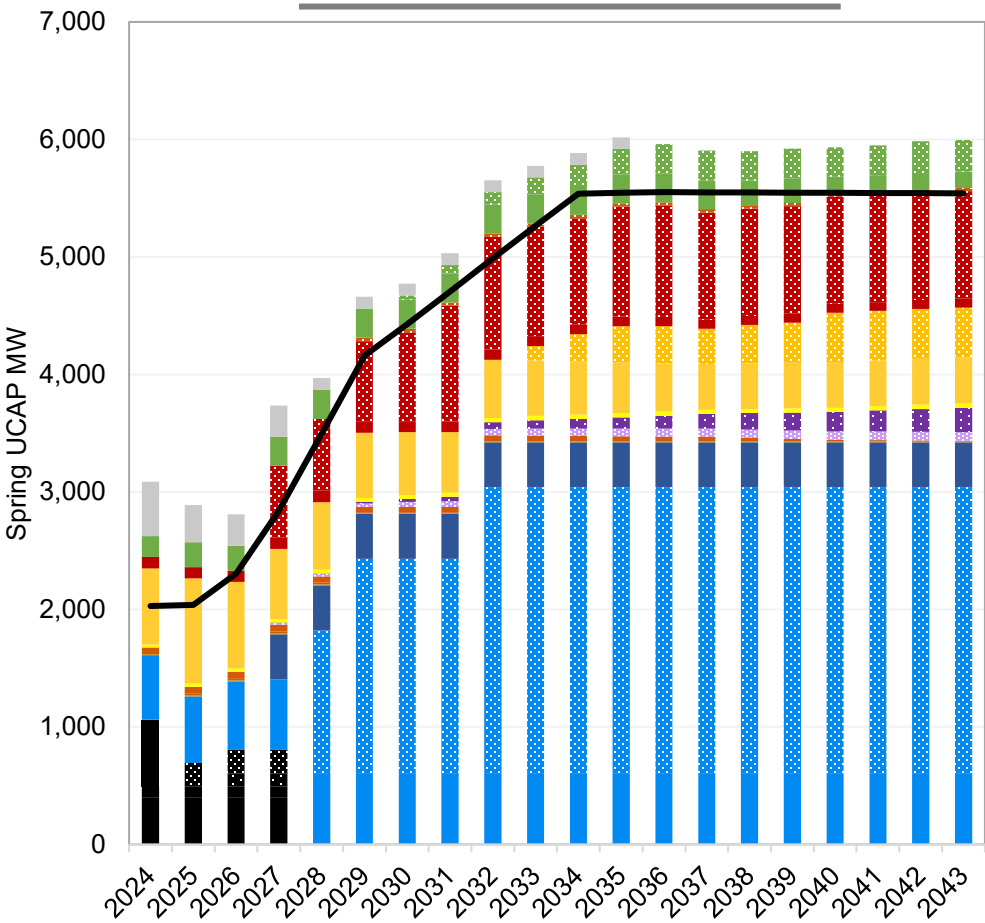
**A** Current Market Rules

Fall Cap. vs. PRM



Generally Binding Season

Spring Cap. vs. PRM

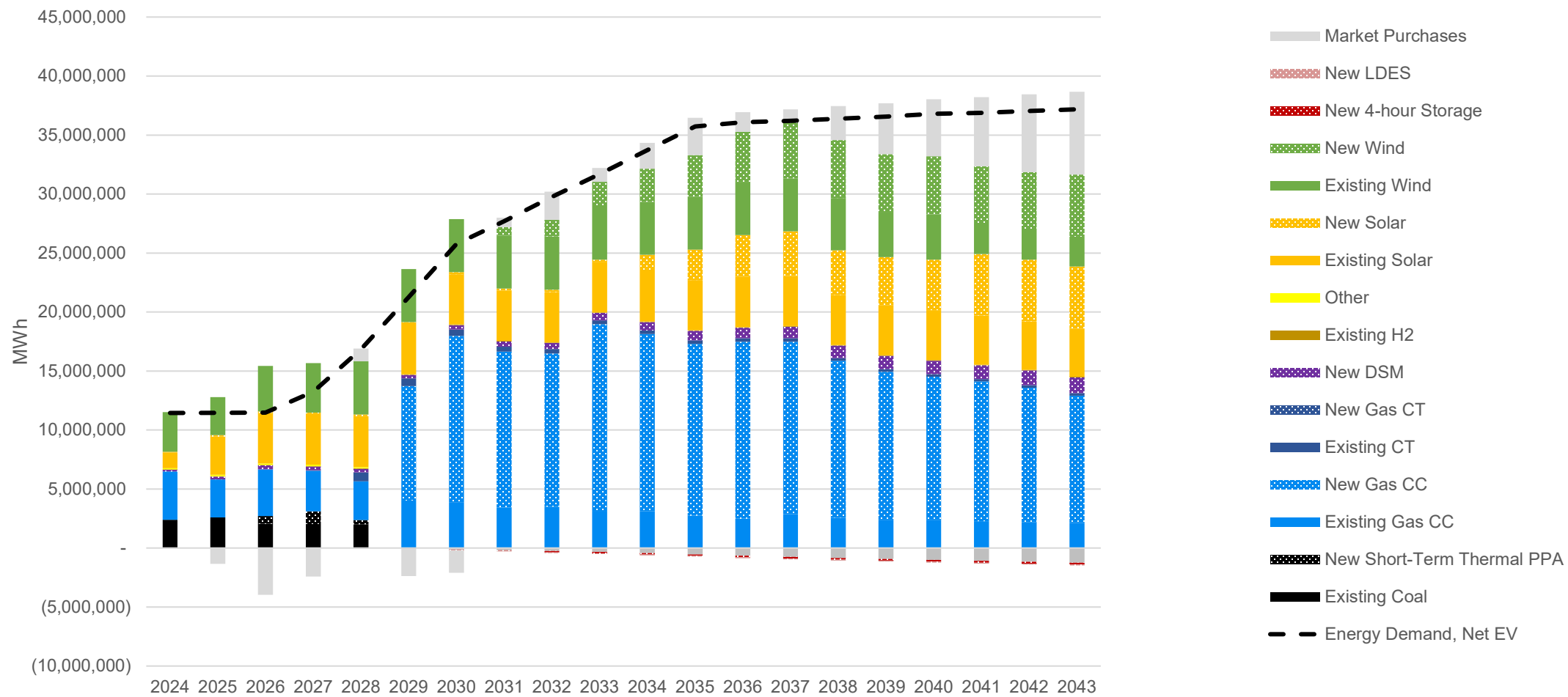


- New SMR
- Short-term Capacity
- New Wind
- Existing Wind
- New LDES
- New 4-hour Storage
- Existing Storage
- New Solar
- Existing Solar
- EV
- New DER
- Existing DER
- New DSM
- New DR
- Other
- Existing Hydro
- New Gas CT
- Gas CT
- New CC H2
- New CC CCS
- New Gas CC
- H2 Retrofit
- CCS Retrofit
- Gas CC
- New Short-term Thermal PPA
- Existing Coal
- Planning Reserve Margin

# PORTFOLIO A – ENERGY POSITION

No EPA GHG Constraints

**A** Current Market Rules



*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.*



## PORTFOLIO B – RESOURCE ADDITIONS (NAMEPLATE MW)

No EPA GHG Constraints

B

Direct Loss of Load

Resource	Through 2029 <sup>1</sup>	2030-2034	2035+
Wind		800	1,050
Solar			675
4-hr Li-Ion Storage	1,227	450	175
Long Duration Energy Storage		30	
Gas CCGT	1,300	1,300	
Gas Peaking			
Short-Term Thermal PPA & ZRCs	350 <sup>2</sup>		
Gas CCGT w/ CCUS			
H2-enabled CC			
Sugar Creek			650 <sup>3</sup>

1: Note that 4-hr Li-Ion Storage and Short-Term Thermal PPA & ZRCs are RFP tranches. The gas CCGT is a generic resource addition.

2: Includes 150 MW of thermal PPA and 200 MW ZRC.

3: Extended on natural gas

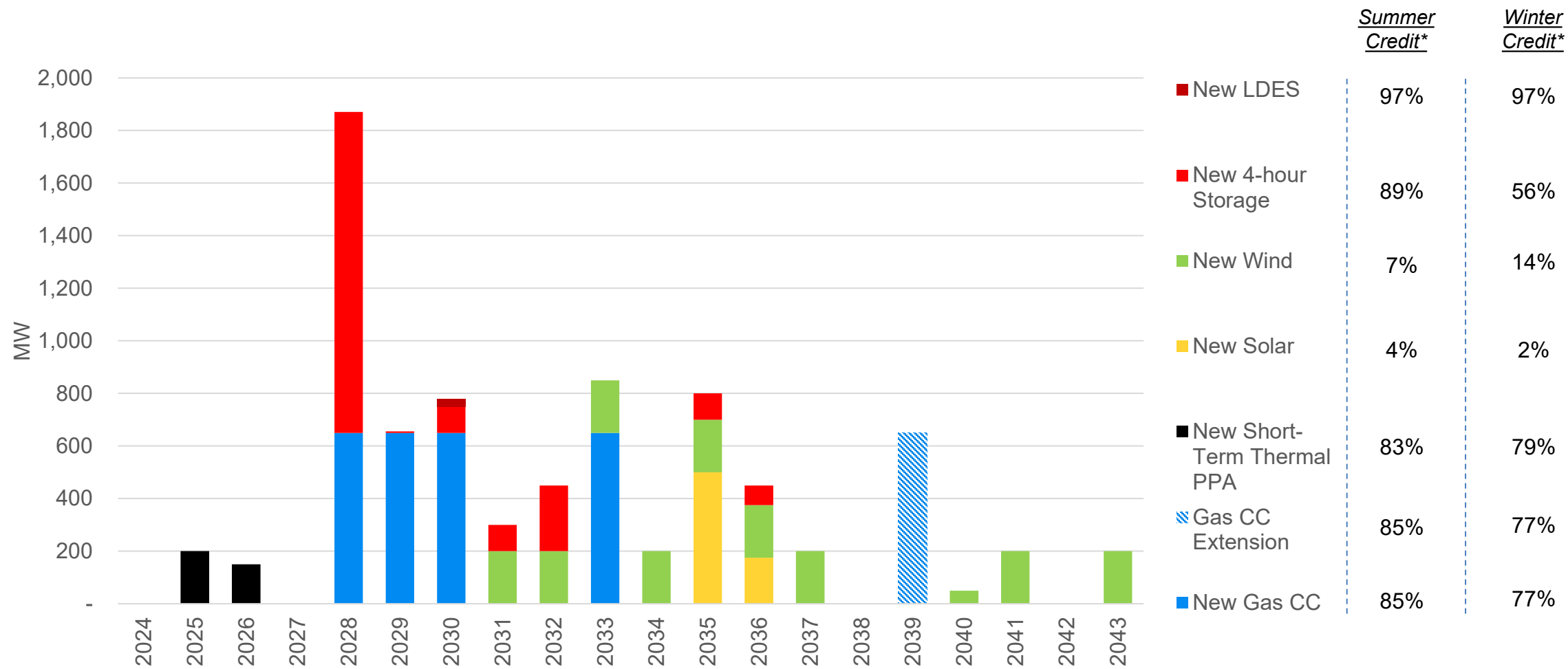
Note: All selected DSM and DR are summarized separately across portfolios

# PORTFOLIO B – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

No EPA GHG Constraints

**B**

Direct Loss of Load



*Note: The 2025 short-term PPA lasts from 2025-2027. The 2026 short-term PPA lasts from 2026-2027.  
\*Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.*

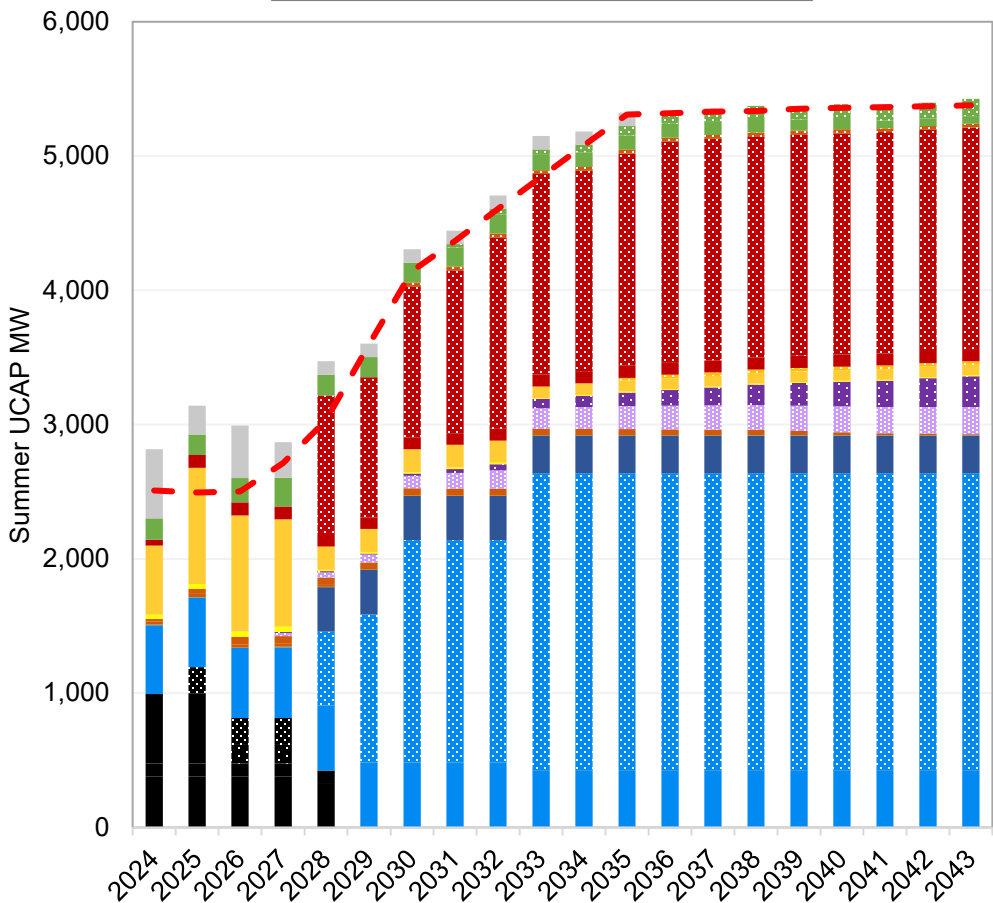
# PORTFOLIO B – SUPPLY-DEMAND BALANCE

No EPA GHG Constraints

**B**

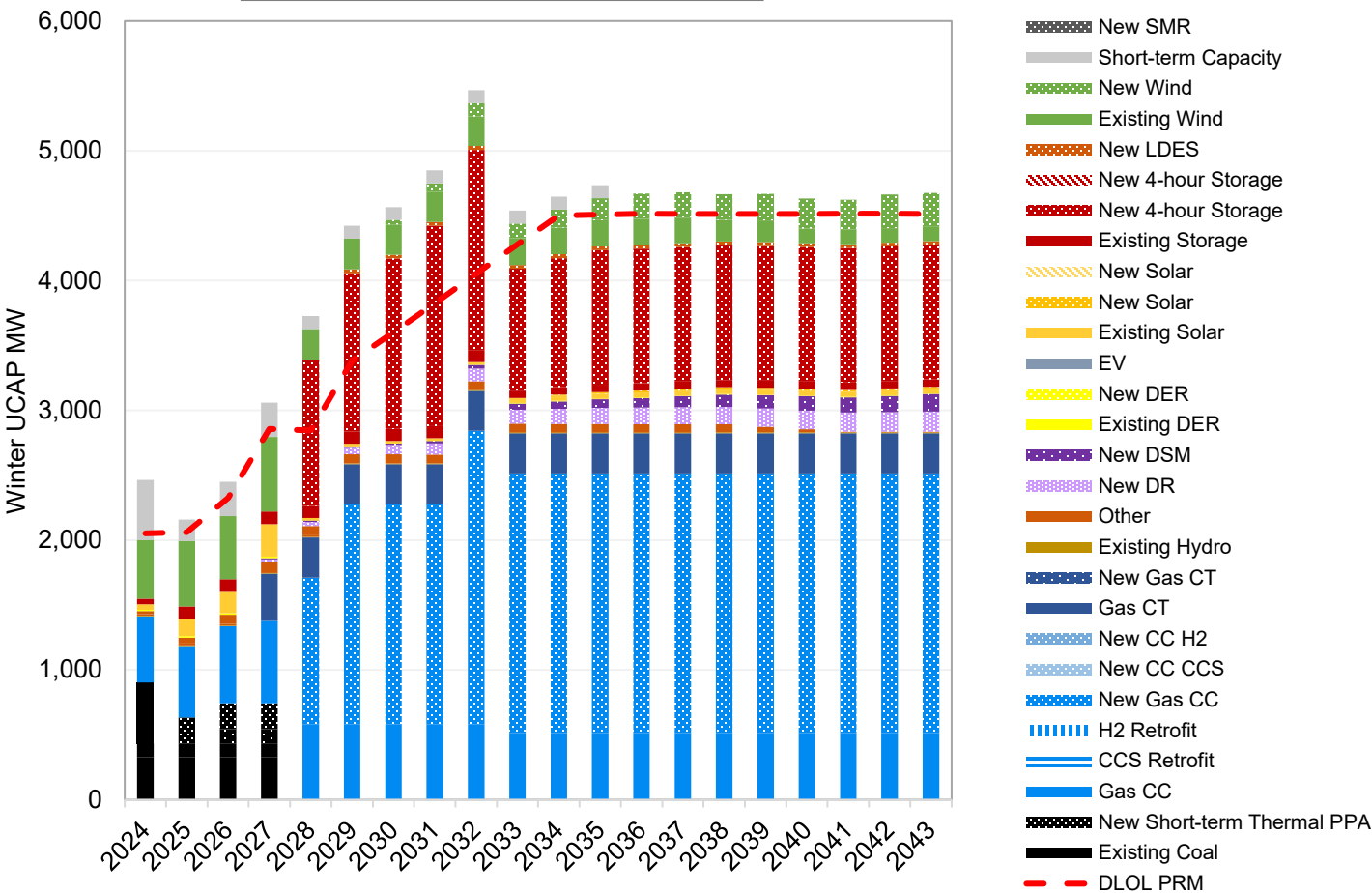
Direct Loss of Load

Summer Cap. vs. PRM



Generally Binding Season

Winter Cap. vs. PRM



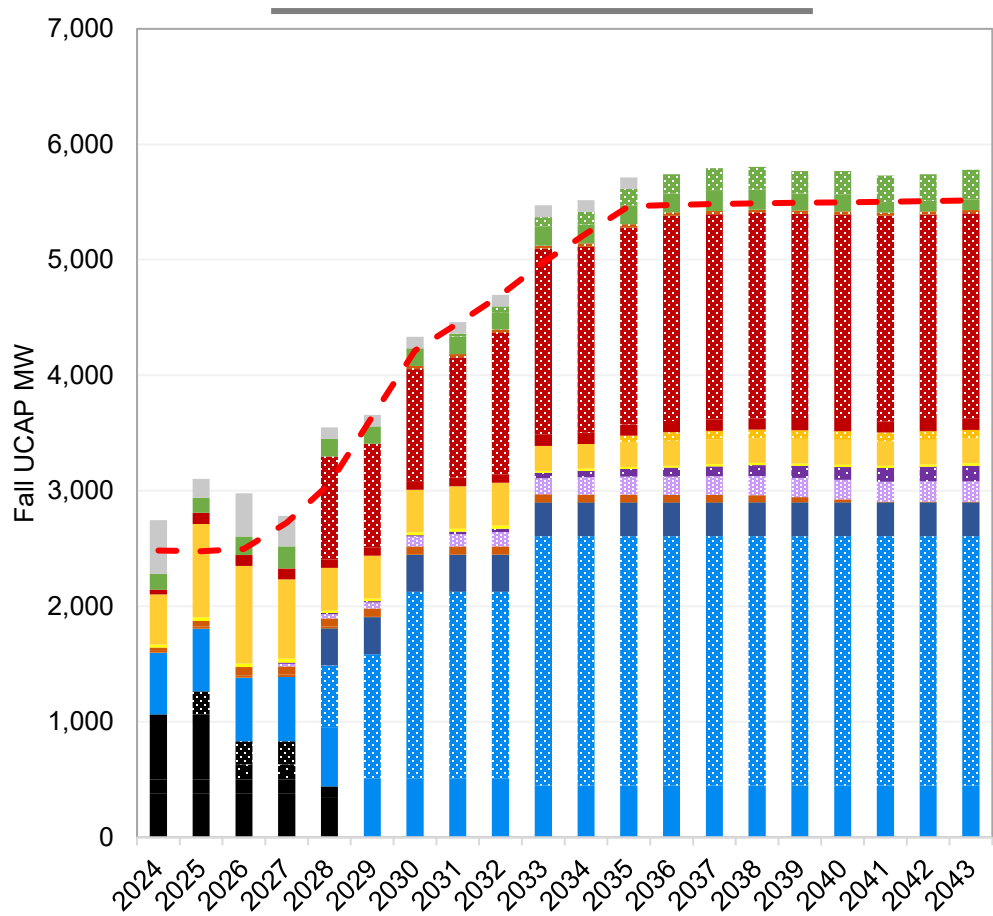
# PORTFOLIO B – SUPPLY-DEMAND BALANCE

No EPA GHG Constraints

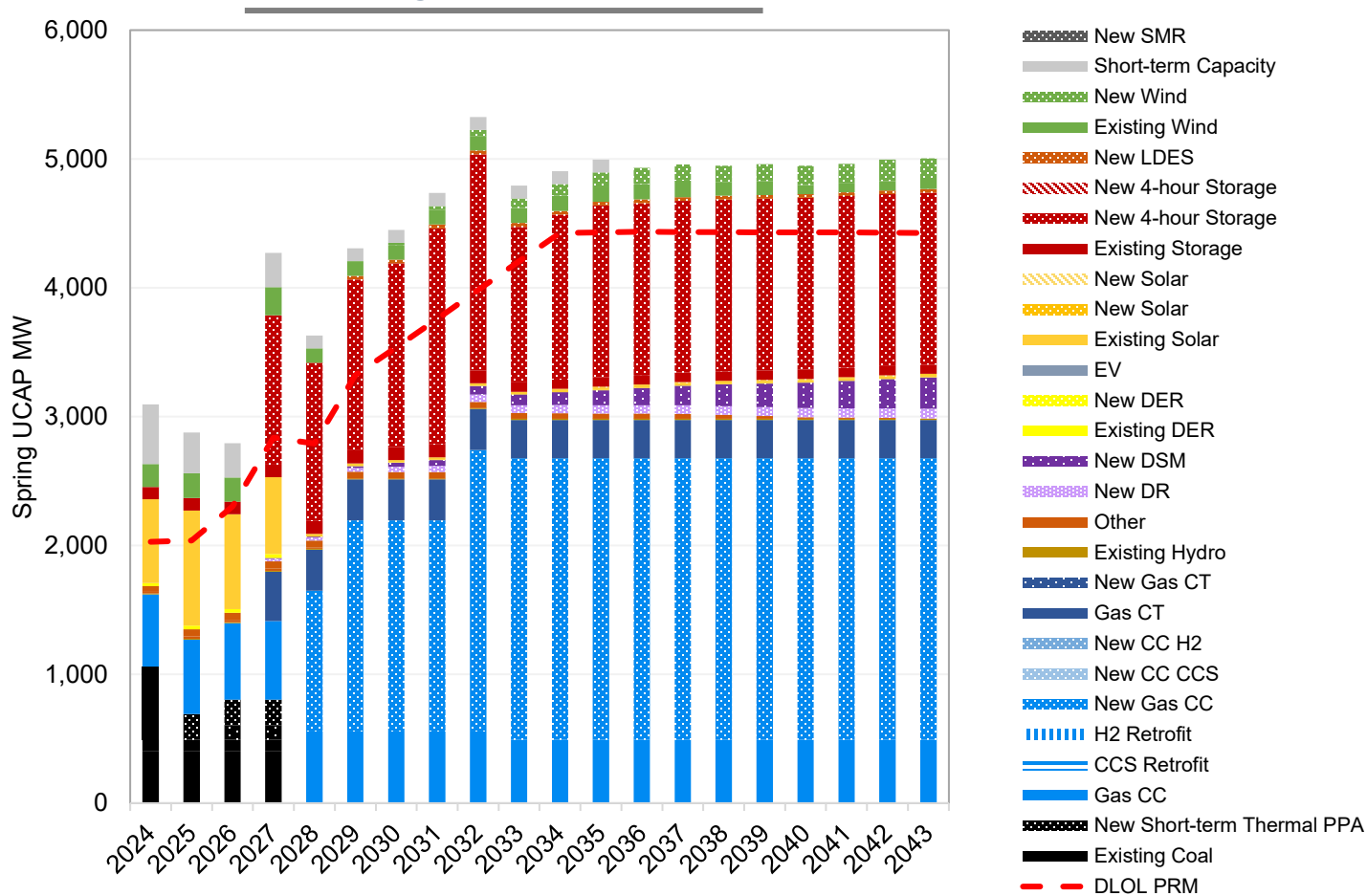
**B**

Direct Loss of Load

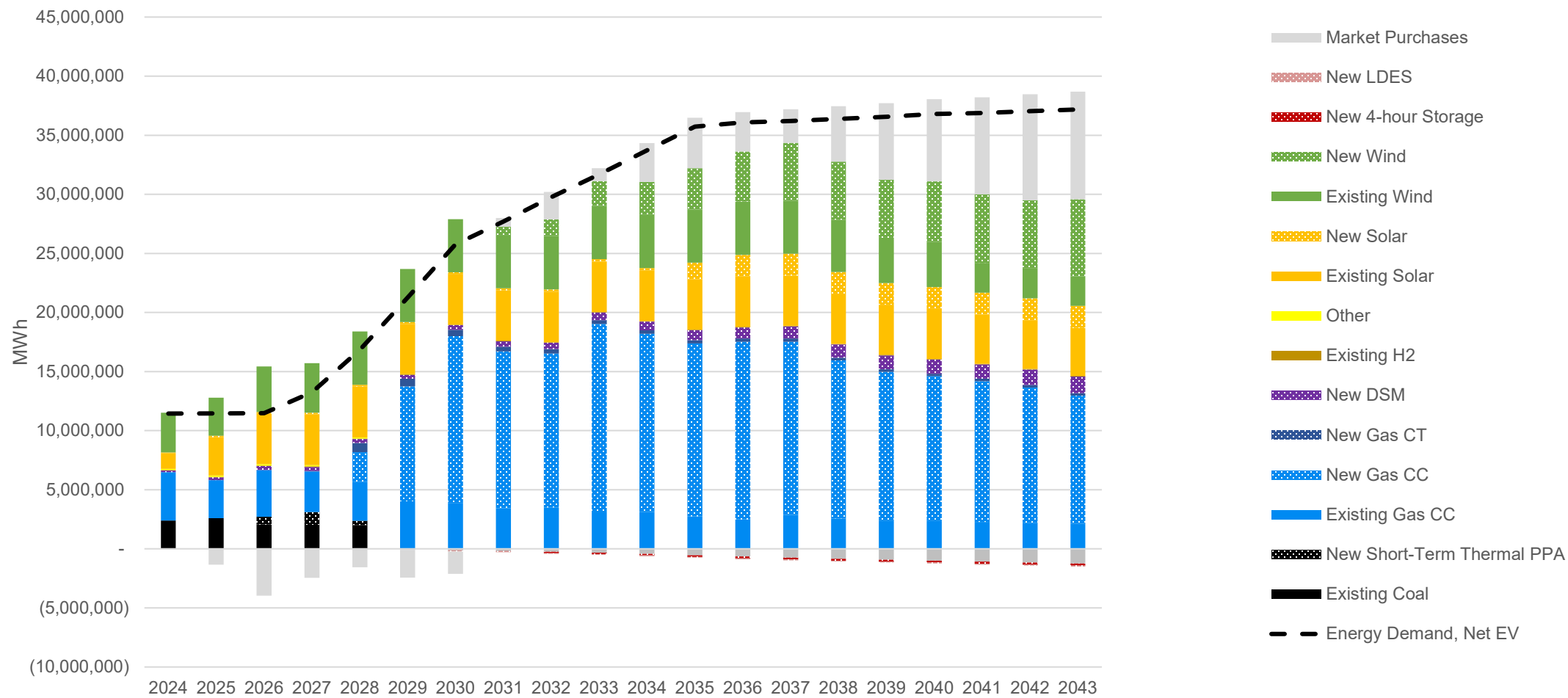
Fall Cap. vs. PRM



Spring Cap. vs. PRM



# PORTFOLIO B – ENERGY POSITION



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.



## PORTFOLIO C – RESOURCE ADDITIONS (NAMEPLATE MW)

EPA GHG Rules

**C** Current Market Rules

Resource	Through 2029 <sup>1</sup>	2030-2034	2035+
Wind		800	1,000
Solar	335	1,725	1,175
4-hr Li-Ion Storage	511	150	150
Long Duration Energy Storage			
Gas CCGT	1,285	1,300	
Gas Peaking			400
Short-Term Thermal PPA & ZRCs	350 <sup>2</sup>		
Gas CCGT w/ CCUS			
H2-enabled CC			
Sugar Creek			650 <sup>3</sup>

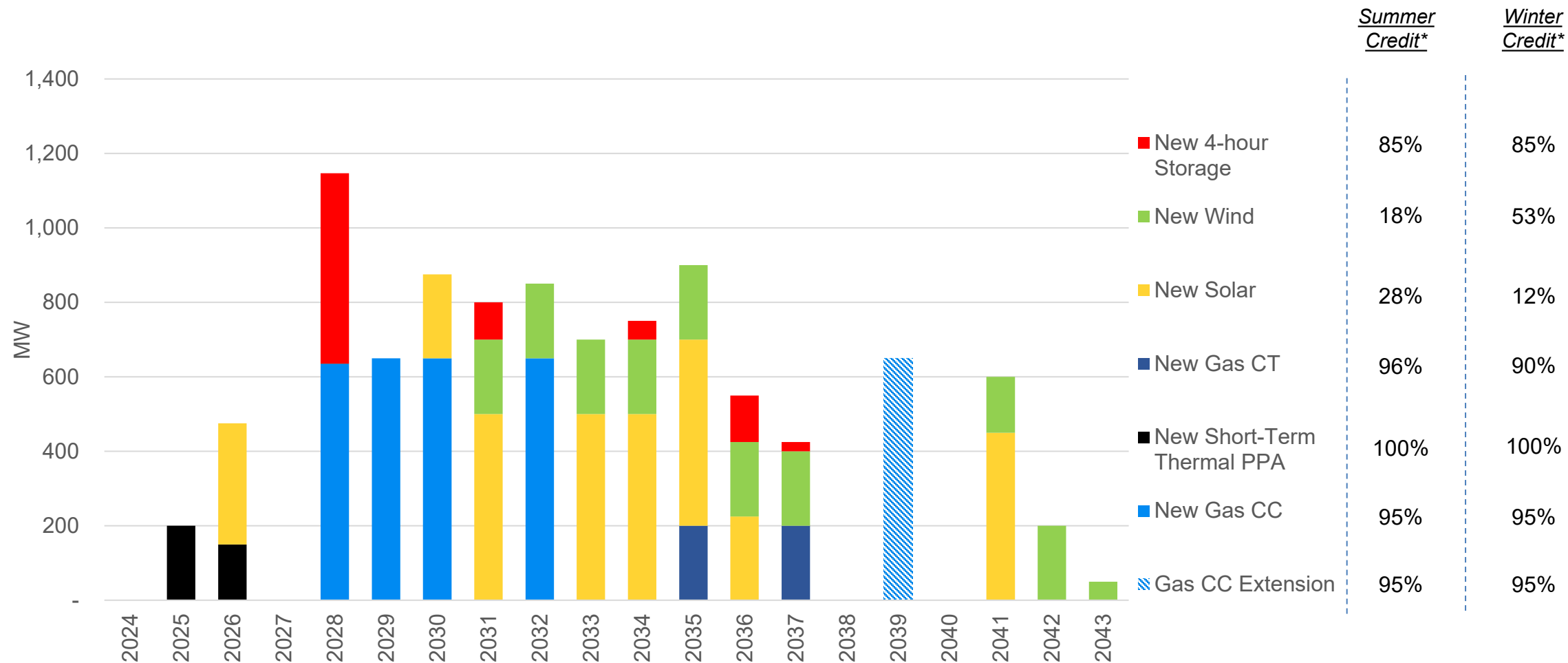
1: Note that Solar, 4-hr Li-Ion Storage, 635 MW of Gas CCGT PPA, and Short-Term Thermal PPA & ZRCs are RFP tranches. The remaining 650 MW of Gas CCGT is a generic resource addition.

2: Includes 150 MW of thermal PPA and 200 MW ZRC.

3: Extended on natural gas

Note: All selected DSM and DR are summarized separately across portfolios

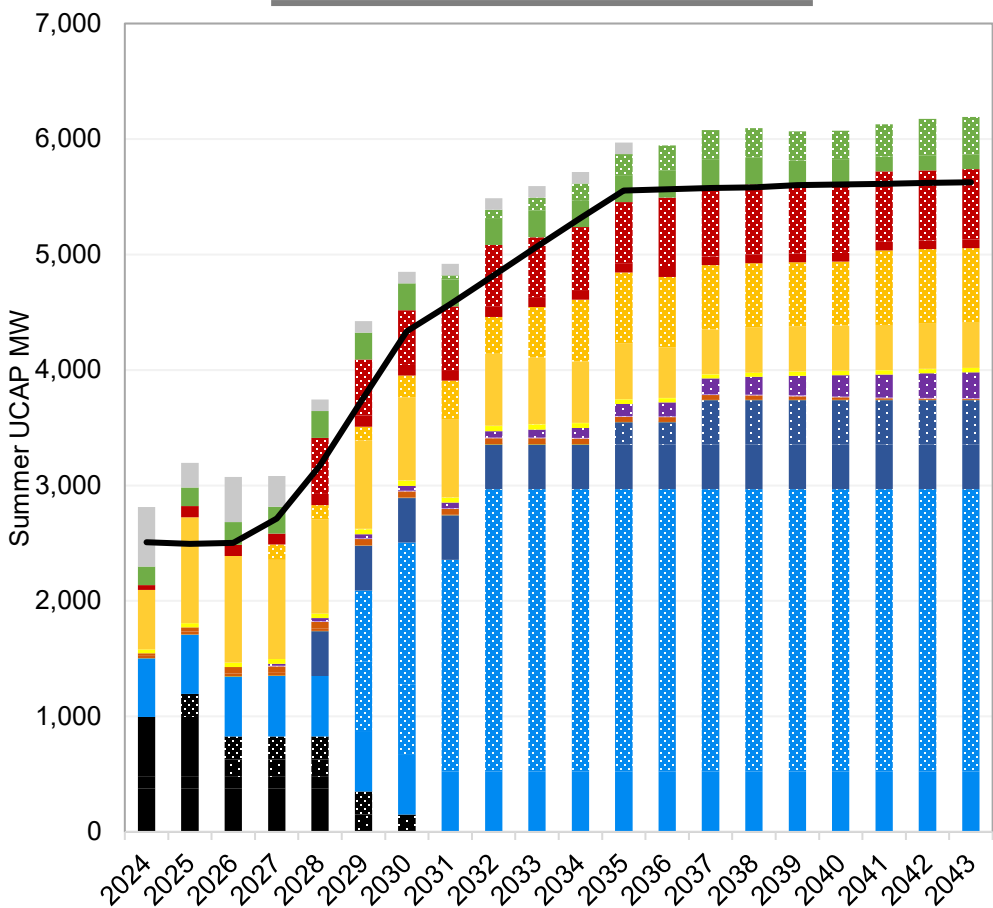
# PORTFOLIO C – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)



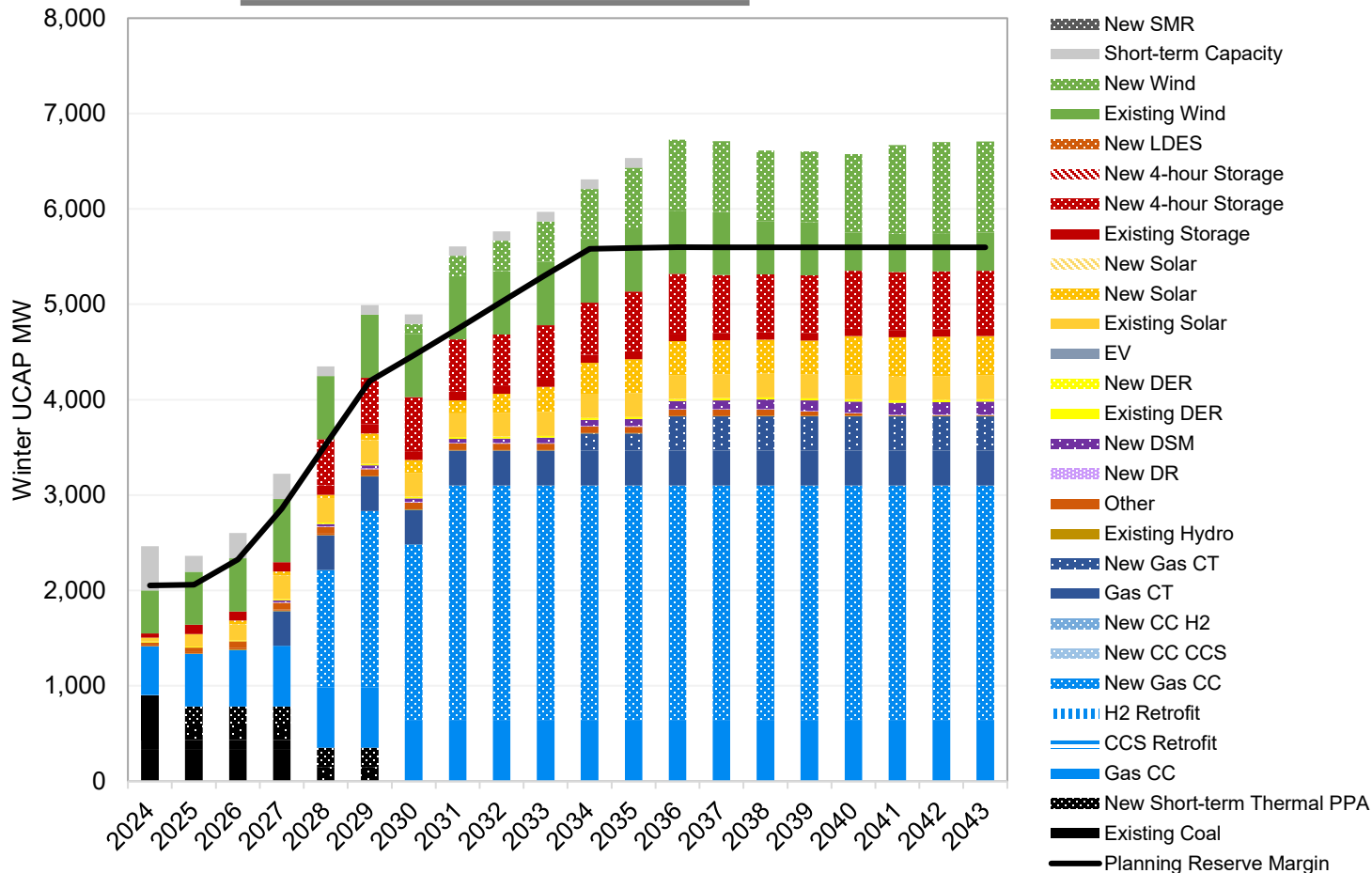
Note: The 2025 short-term PPA lasts from 2025-2029. The 2026 short-term PPA lasts from 2026-2030.  
\*Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.

# PORTFOLIO C – SUPPLY-DEMAND BALANCE

Summer Cap. vs. PRM

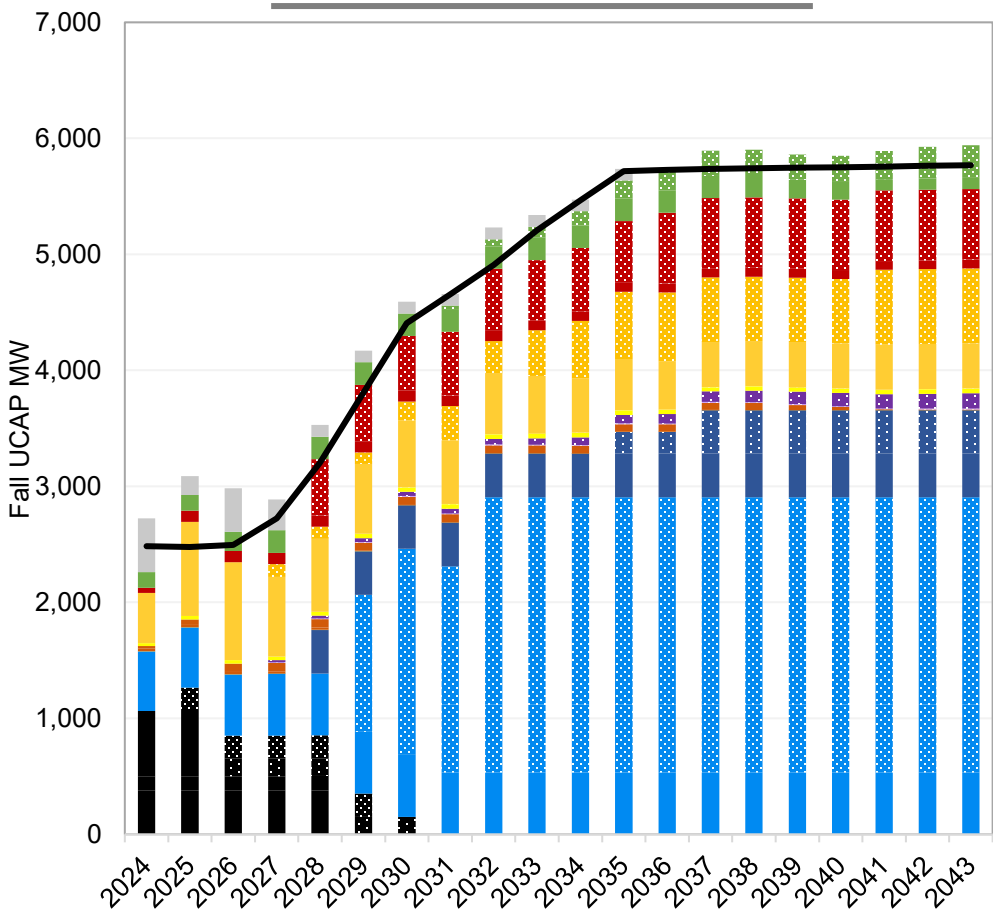


Winter Cap. vs. PRM

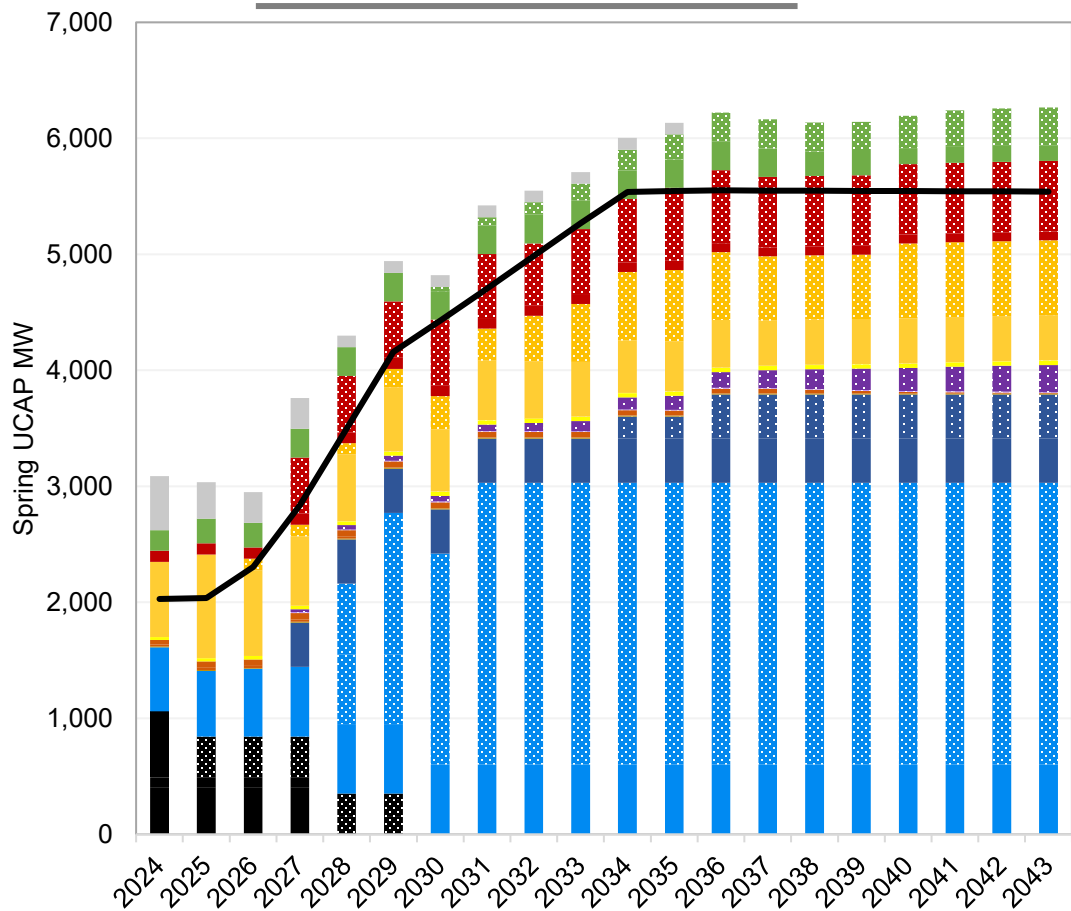


# PORTFOLIO C – SUPPLY-DEMAND BALANCE

Fall Cap. vs. PRM



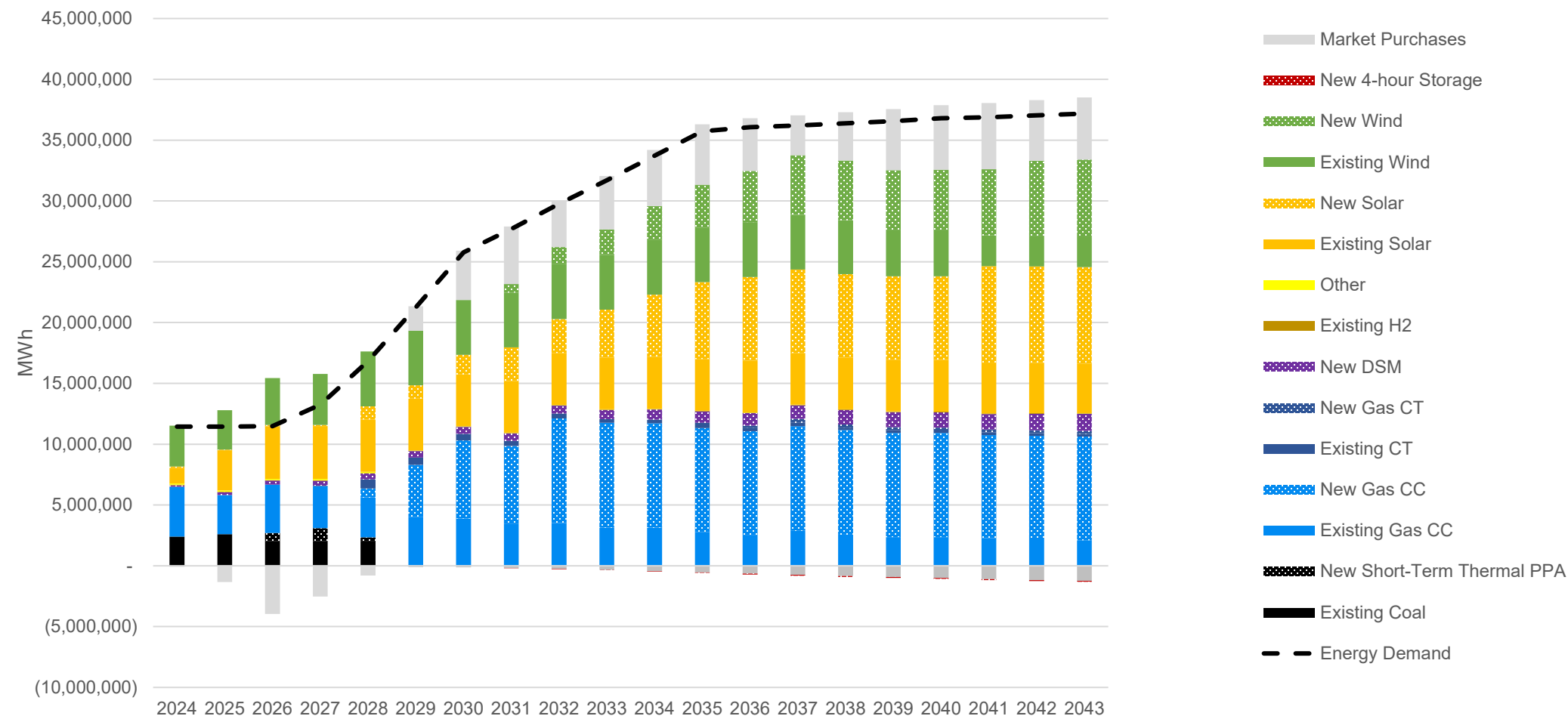
Spring Cap. vs. PRM



- New SMR
- Short-term Capacity
- New Wind
- Existing Wind
- New LDES
- New 4-hour Storage
- Existing Storage
- New Solar
- Existing Solar
- EV
- New DER
- Existing DER
- New DSM
- New DR
- Other
- Existing Hydro
- New Gas CT
- Gas CT
- New CC H2
- New CC CCS
- New Gas CC
- H2 Retrofit
- CCS Retrofit
- Gas CC
- New Short-term Thermal PPA
- Existing Coal
- Planning Reserve Margin

Generally Binding Season

# PORTFOLIO C – ENERGY POSITION



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.



## PORTFOLIO D – RESOURCE ADDITIONS (NAMEPLATE MW)

EPA GHG Rules

**D** Direct Loss of Load

Resource	Through 2029 <sup>1</sup>	2030-2034	2035+
Wind		650	900
Solar		750	525
4-hr Li-Ion Storage	909	50	
Long Duration Energy Storage			
Gas CCGT	1,285	1,950	
Gas Peaking	418	200	
Short-Term Thermal PPA & ZRCs	350 <sup>2</sup>		
Gas CCGT w/ CCUS			
H2-enabled CC			
Sugar Creek			650 <sup>3</sup>

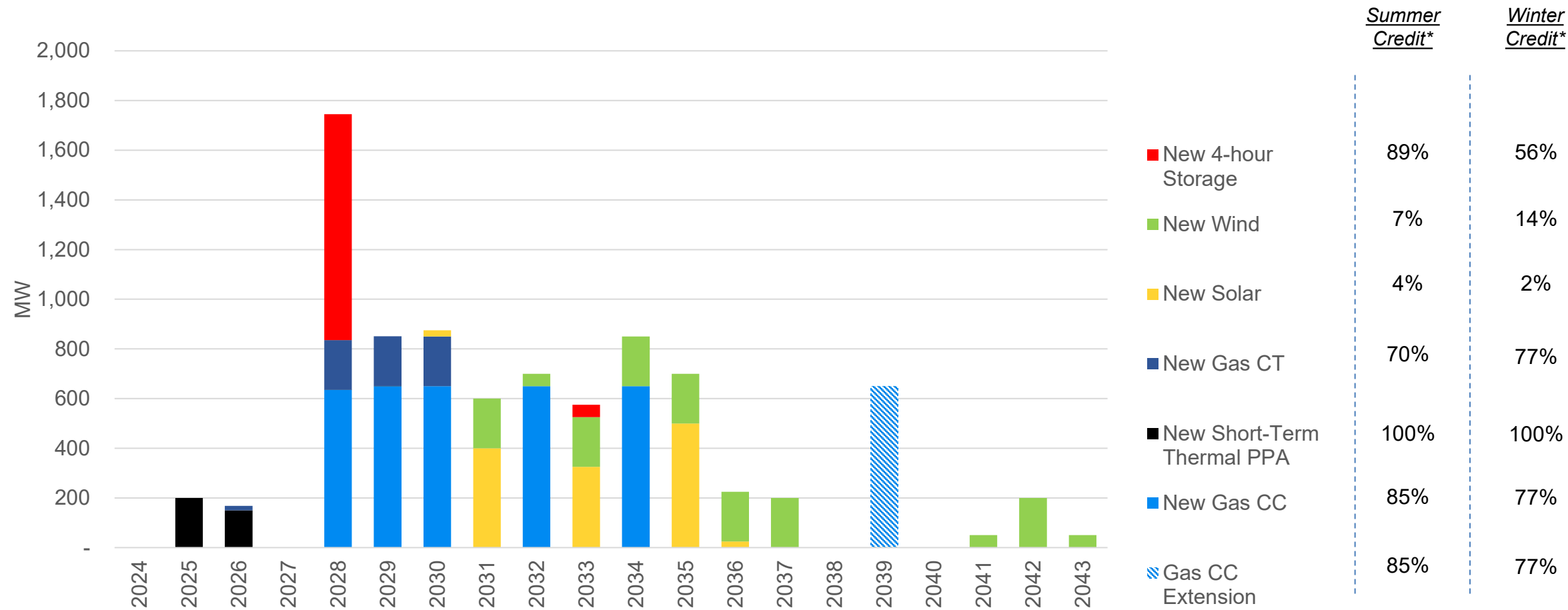
1: Note that Solar, 4-hr Li-Ion Storage, 635 MW of Gas CCGT PPA, ~20 MW of Gas Peaking, and Short-Term Thermal PPA & ZRCs are RFP tranches. The remaining 650 MW of Gas CCGT and 400 MW of Gas Peaking are generic resource additions.

2: Includes 150 MW of thermal PPA and 200 MW ZRC.

3: Extended on natural gas

Note: All selected DSM and DR are summarized separately across portfolios

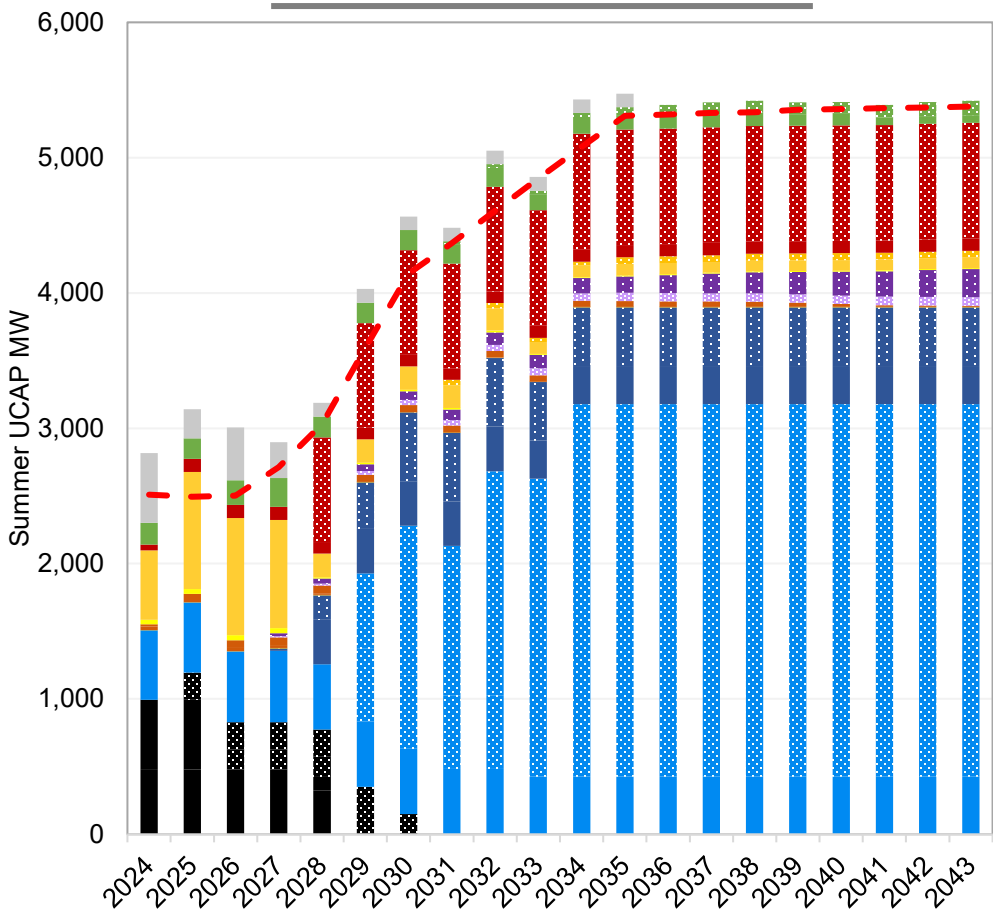
# PORTFOLIO D – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)



Note: The 2025 short-term PPA lasts from 2025-2029. The 2026 short-term PPA lasts from 2026-2030.  
\*Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.

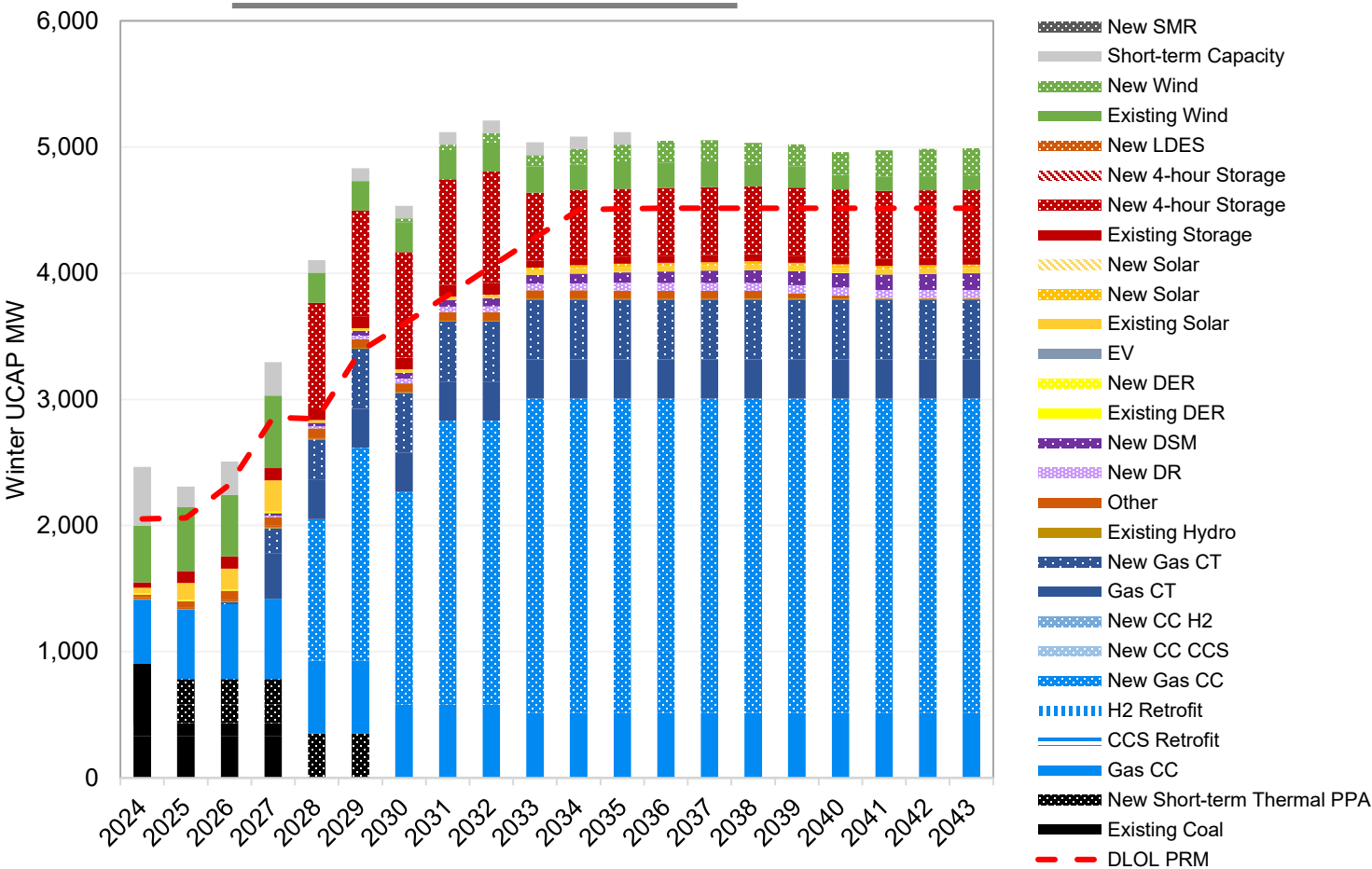
# PORTFOLIO D – SUPPLY-DEMAND BALANCE

Summer Cap. vs. PRM



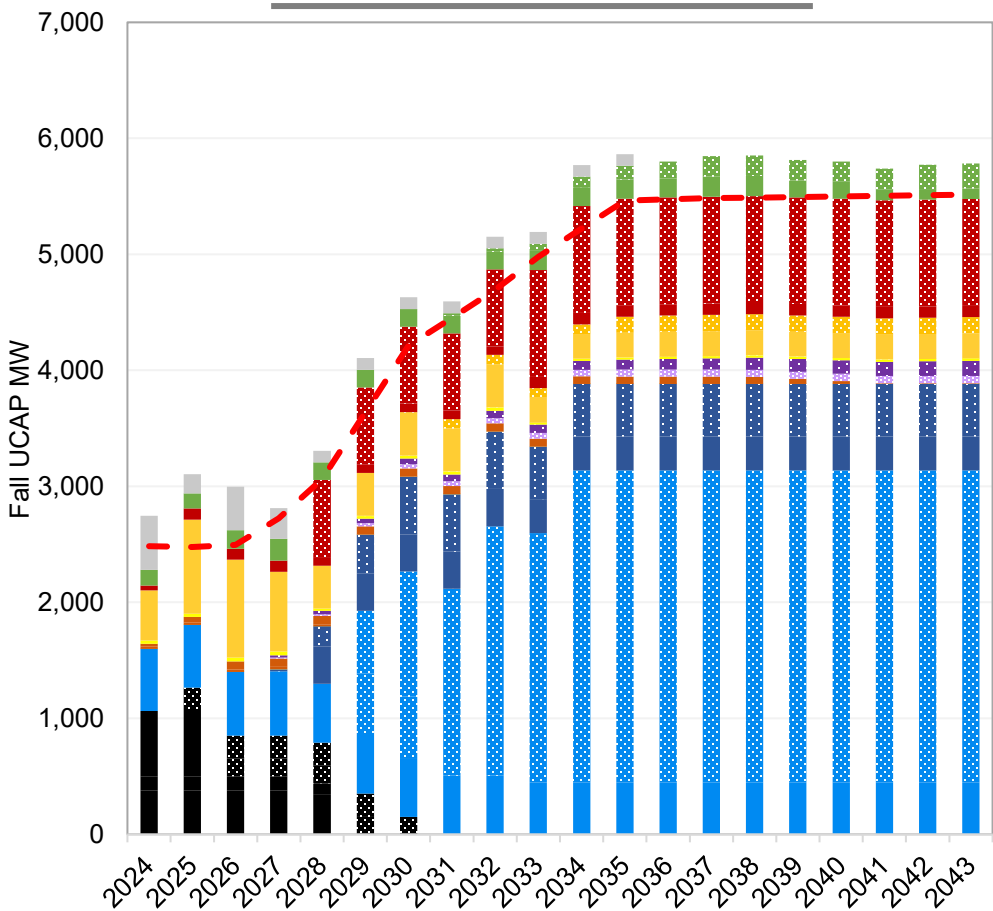
Generally Binding Season

Winter Cap. vs. PRM

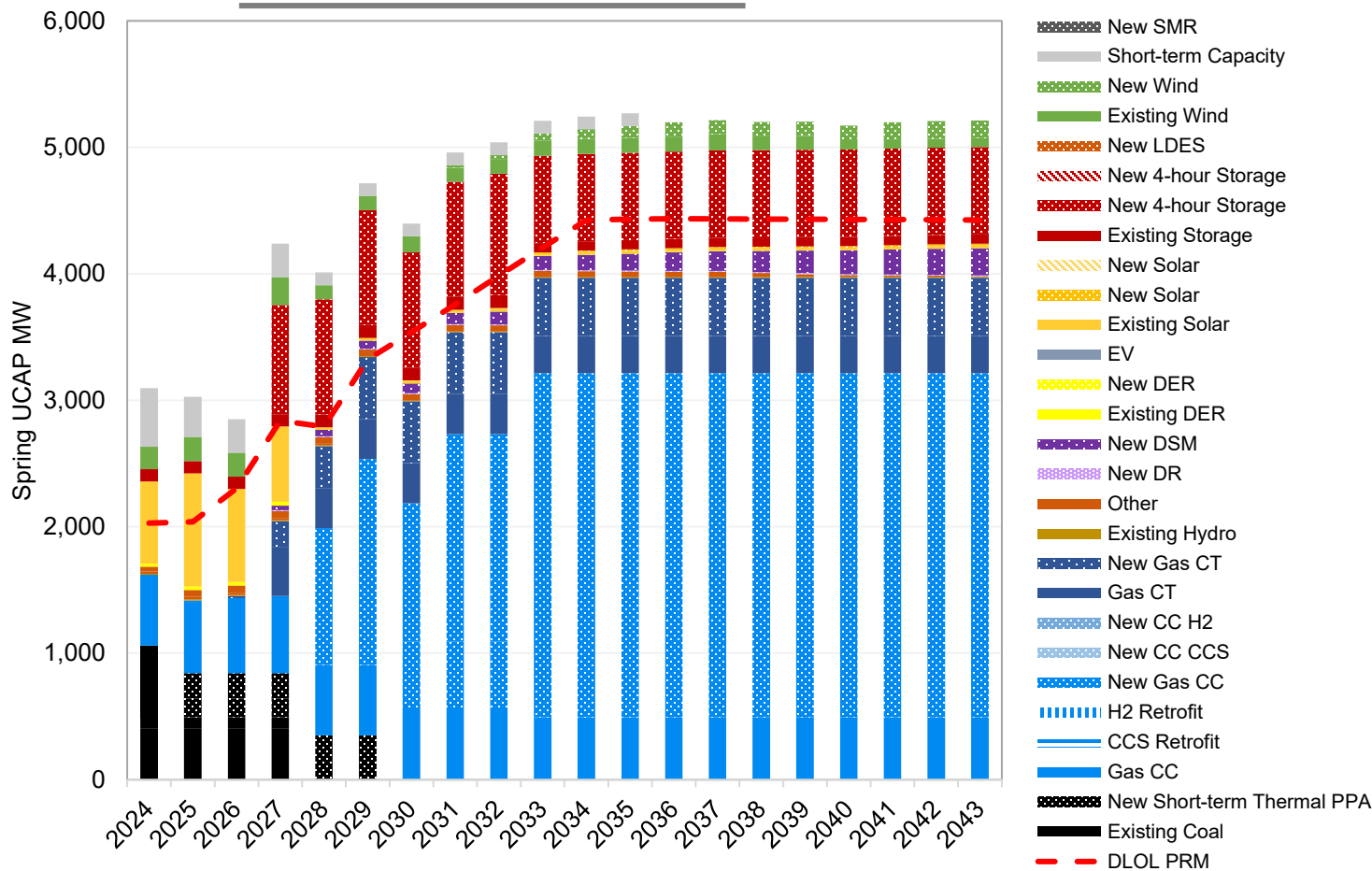


# PORTFOLIO D – SUPPLY-DEMAND BALANCE

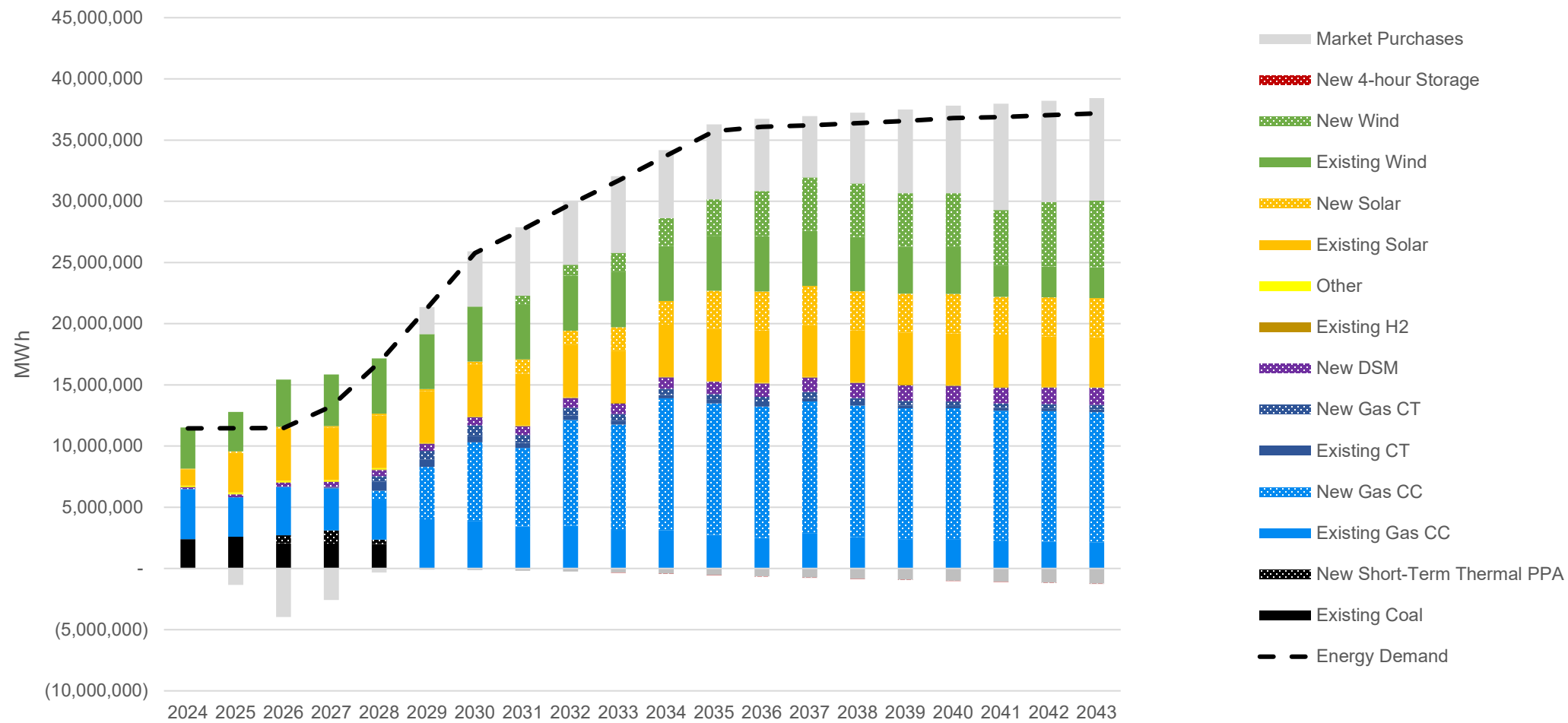
Fall Cap. vs. PRM



Spring Cap. vs. PRM



# PORTFOLIO D – ENERGY POSITION



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.



## PORTFOLIO E – RESOURCE ADDITIONS (NAMEPLATE MW)

No New Uncontrolled Fossil **E** Current Market Rules

Resource	Through 2029 <sup>1</sup>	2030-2034	2035+
Wind		800	1,450
Solar	997	1,000	325
4-hr Li-Ion Storage	1,009	300	
Long Duration Energy Storage	100		
Gas CCGT			
Gas Peaking			
Short-Term Thermal PPA & ZRCs	350 <sup>2</sup>		
Gas CCGT w/ CCUS		1,755	585
H2-enabled CC			
Sugar Creek			650 <sup>3</sup>

1: All resources through 2029 are from the RFP.

2: Includes 150 MW of thermal PPA and 200 MW ZRC.

3: Retrofit to hydrogen in 2035

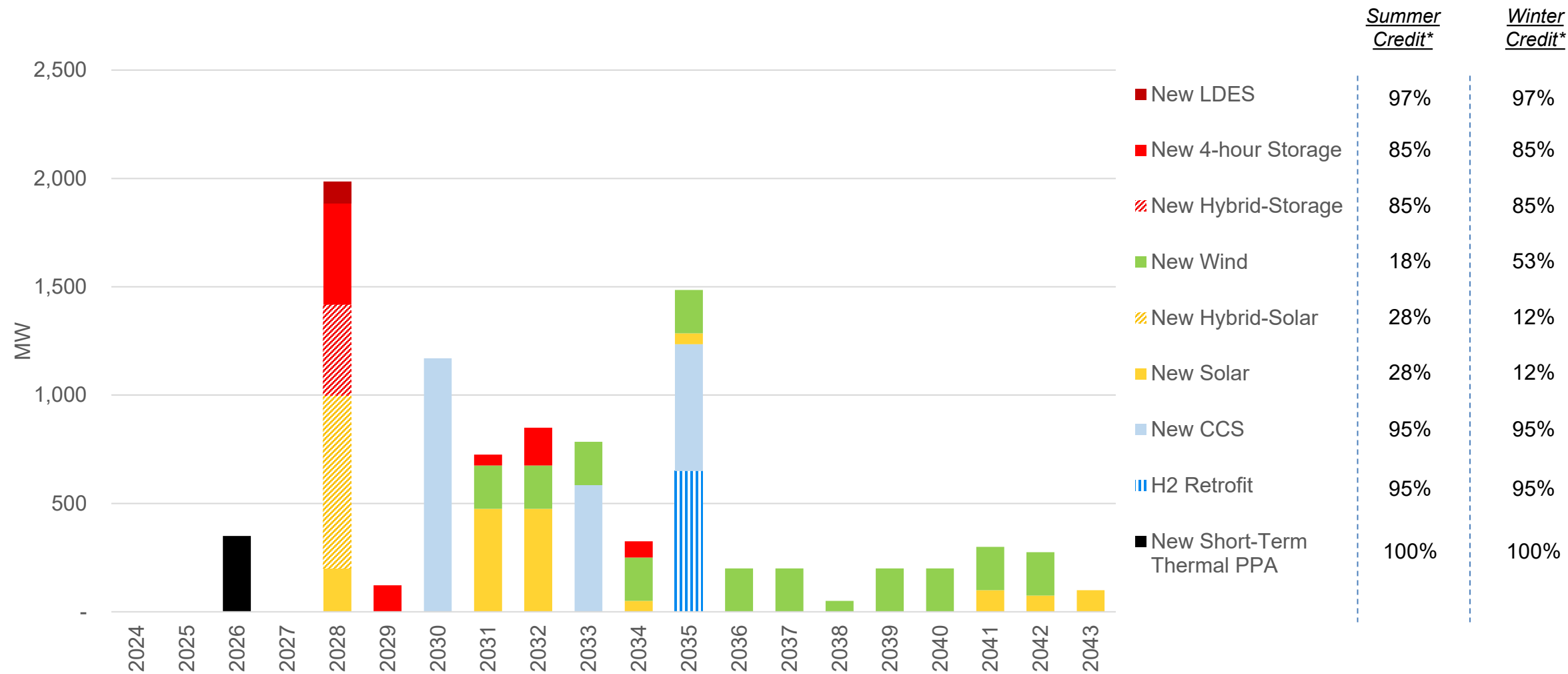
Note: All selected DSM and DR are summarized separately across portfolios

# PORTFOLIO E – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

No New Uncontrolled Fossil

**E**

Current Market Rules



Note: There are two short-term PPAs in 2026. 200 MW lasts from 2026-2029, and 150 MW lasts from 2026-2030.  
\*Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.

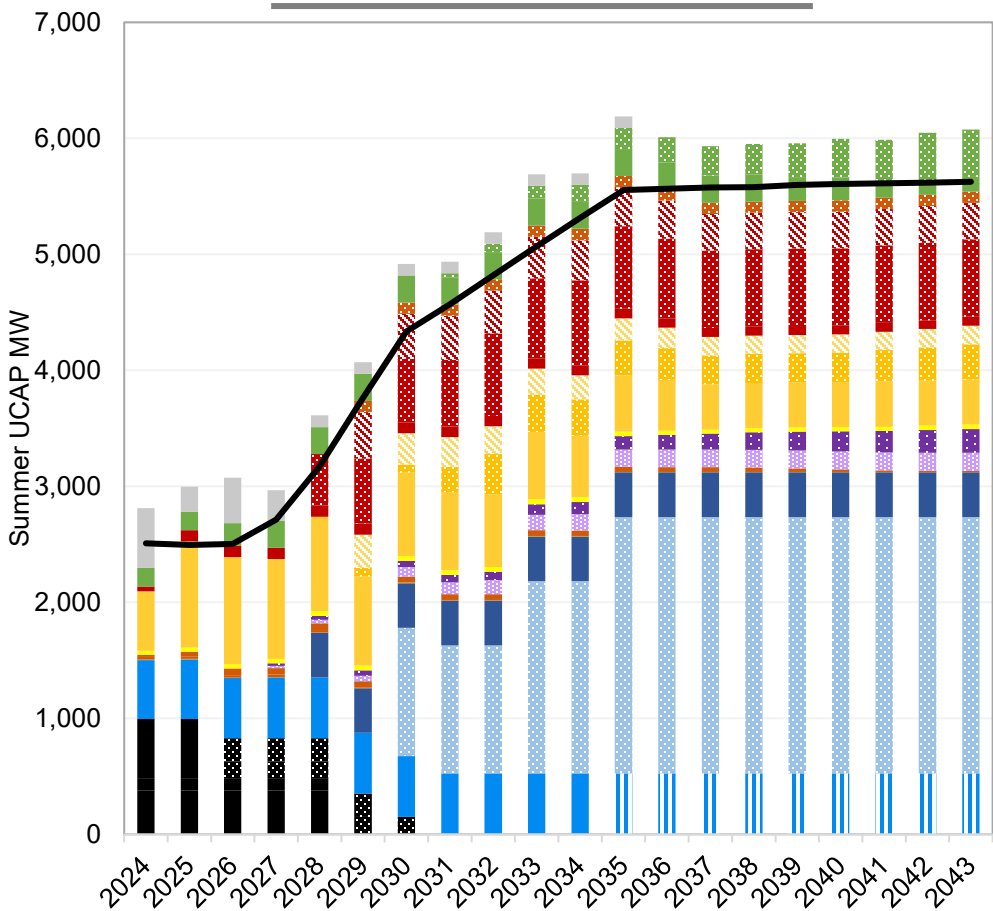
# PORTFOLIO E – SUPPLY-DEMAND BALANCE

No New Uncontrolled Fossil

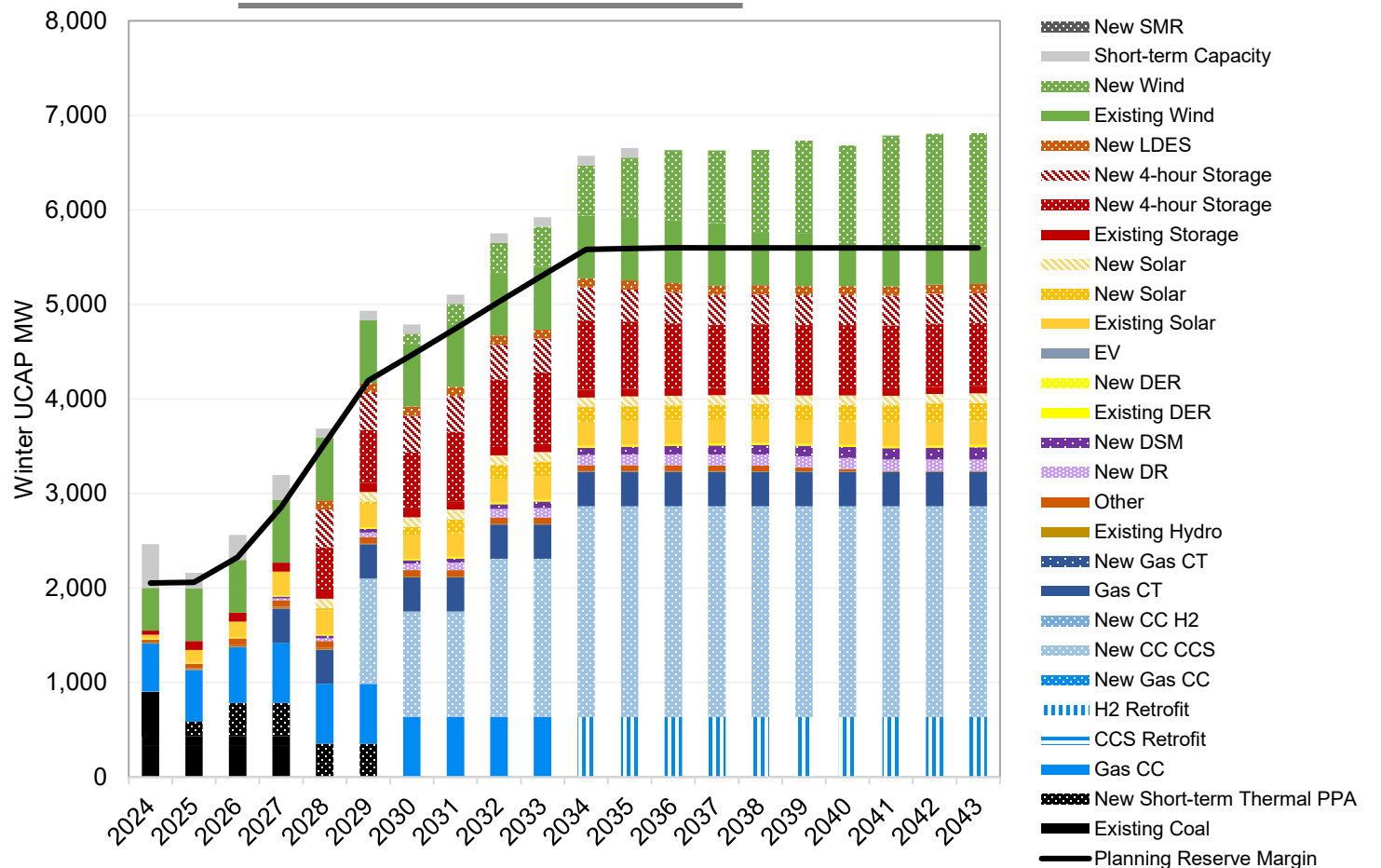
E

Current Market Rules

Summer Cap. vs. PRM



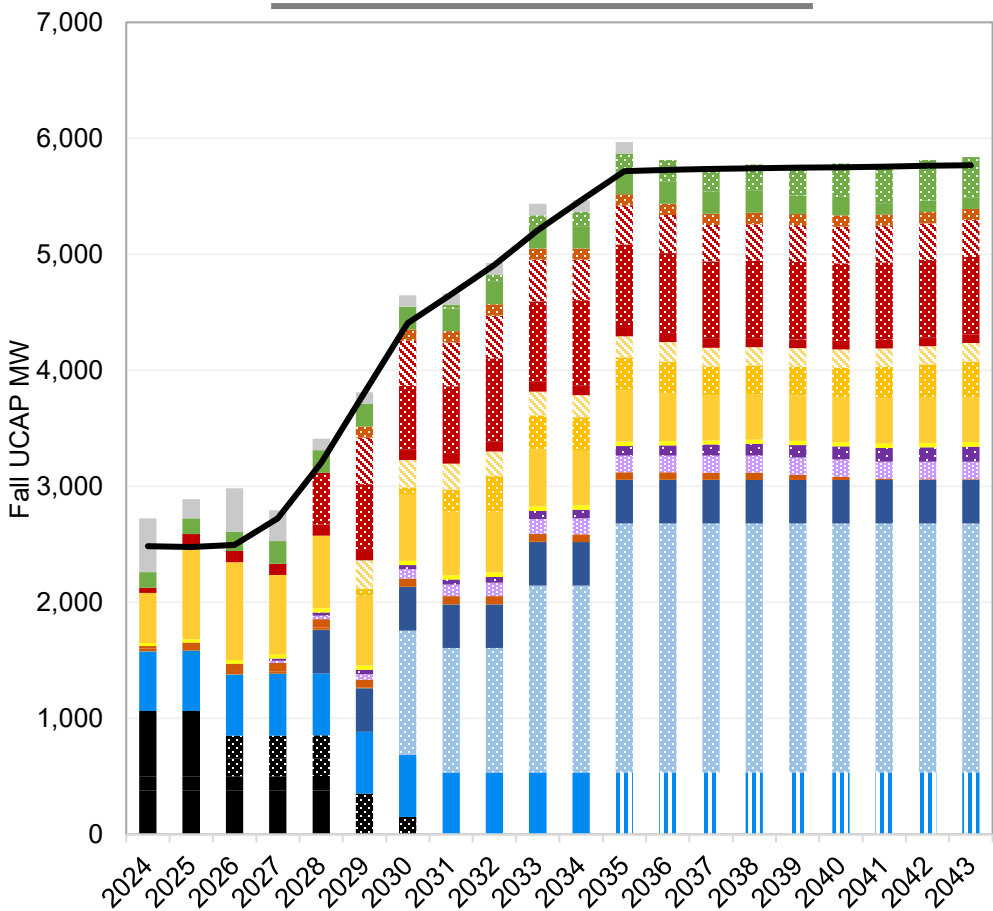
Winter Cap. vs. PRM



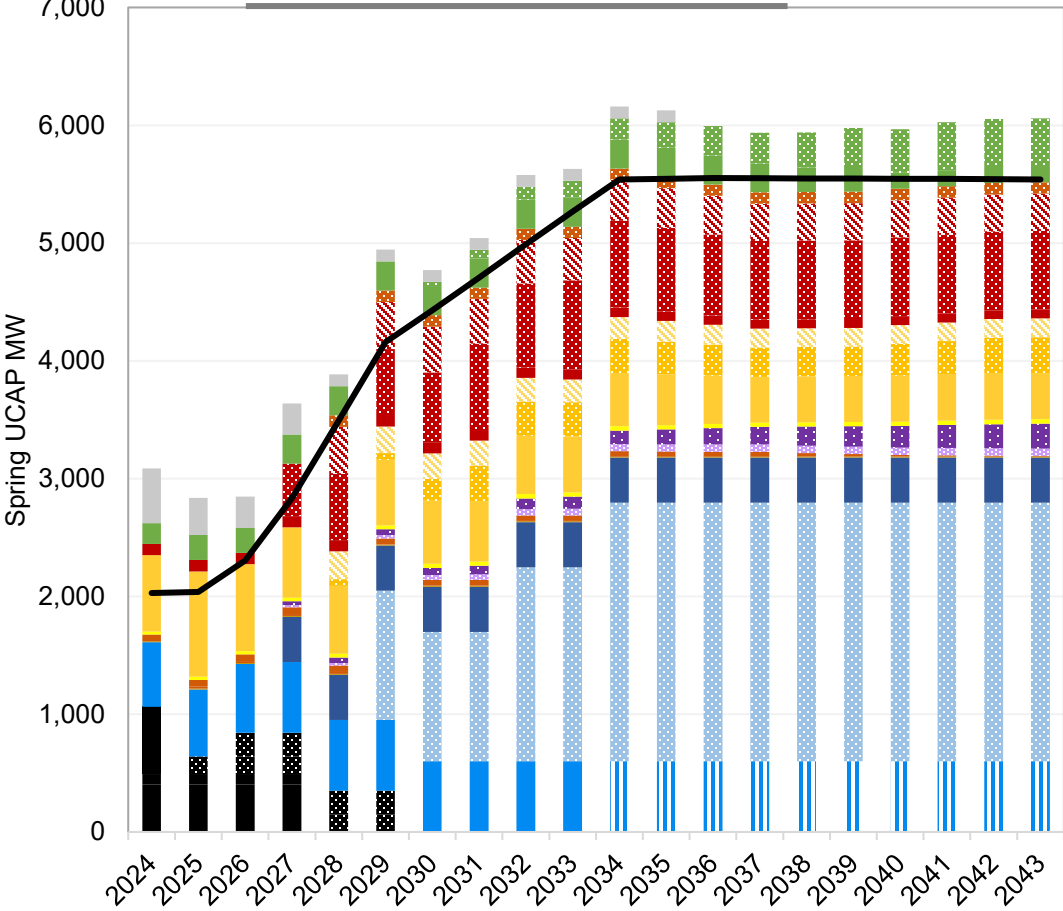
# PORTFOLIO E – SUPPLY-DEMAND BALANCE

No New Uncontrolled Fossil **E** Current Market Rules

Fall Cap. vs. PRM



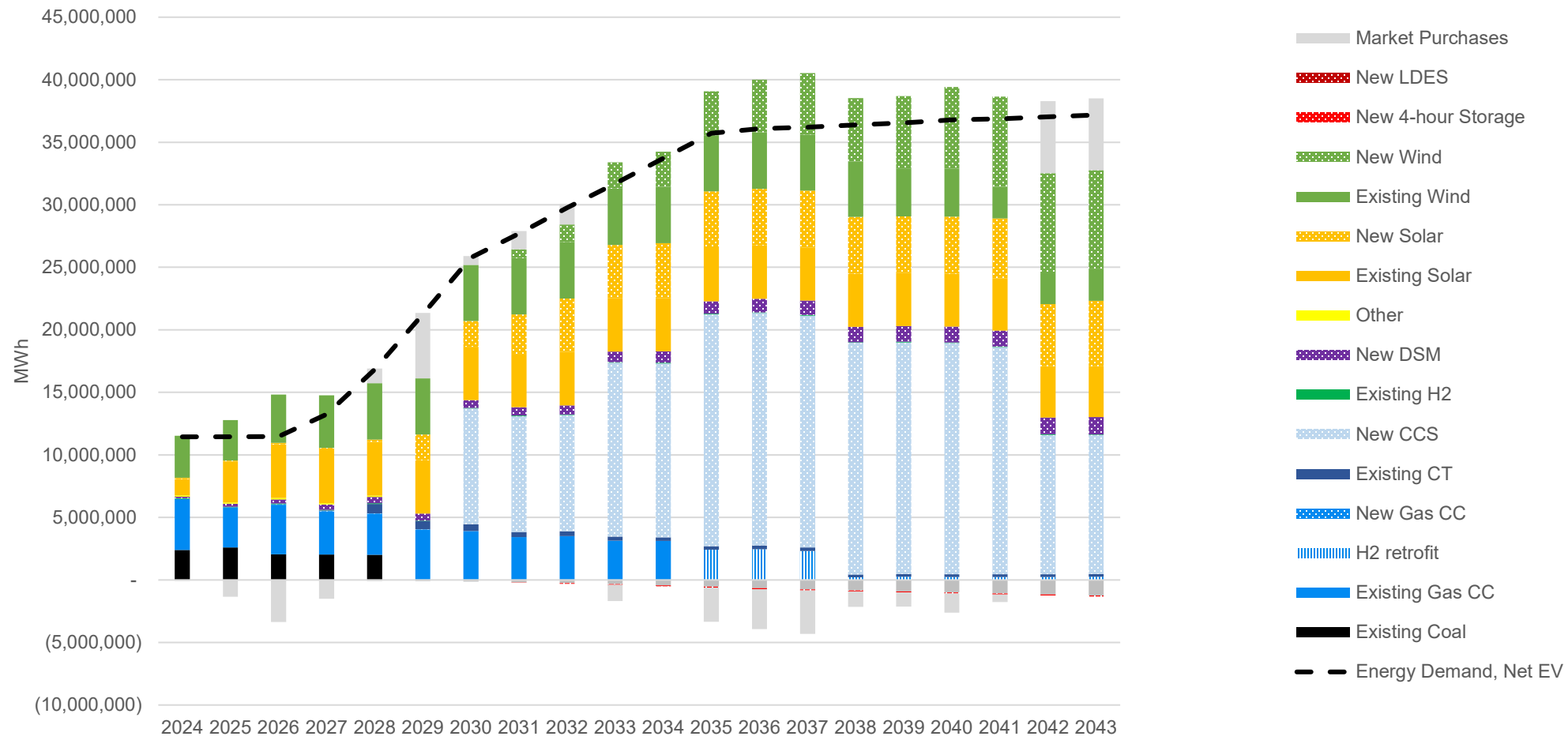
Spring Cap. vs. PRM



- New SMR
- Short-term Capacity
- New Wind
- Existing Wind
- New LDES
- New 4-hour Storage
- Existing Storage
- New Solar
- Existing Solar
- EV
- New DER
- Existing DER
- New DSM
- New DR
- Other
- Existing Hydro
- New Gas CT
- Gas CT
- New CC H2
- New CC CCS
- New Gas CC
- H2 Retrofit
- CCS Retrofit
- Gas CC
- New Short-term Thermal PPA
- Existing Coal
- Planning Reserve Margin

Generally Binding Season

# PORTFOLIO E – ENERGY POSITION



*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.*

## PORTFOLIO F – RESOURCE ADDITIONS (NAMEPLATE MW)

No New Uncontrolled Fossil **F** Direct Loss of Load

Resource	Through 2029 <sup>1</sup>	2030-2034	2035+
Wind		800	1,550
Solar	797	100	1,025
4-hr Li-Ion Storage	1,886	125	
Long Duration Energy Storage	100		
Gas CCGT			
Gas Peaking			
Short-Term Thermal PPA & ZRCs	350 <sup>2</sup>		
Gas CCGT w/ CCUS		2,340	
H2-enabled CC			
Sugar Creek			650 <sup>3</sup>

1: All resources through 2029 are from the RFP.

2: Includes 150 MW of thermal PPA and 200 MW ZRC.

3: Retrofit to hydrogen in 2035

Note: All selected DSM and DR are summarized separately across portfolios

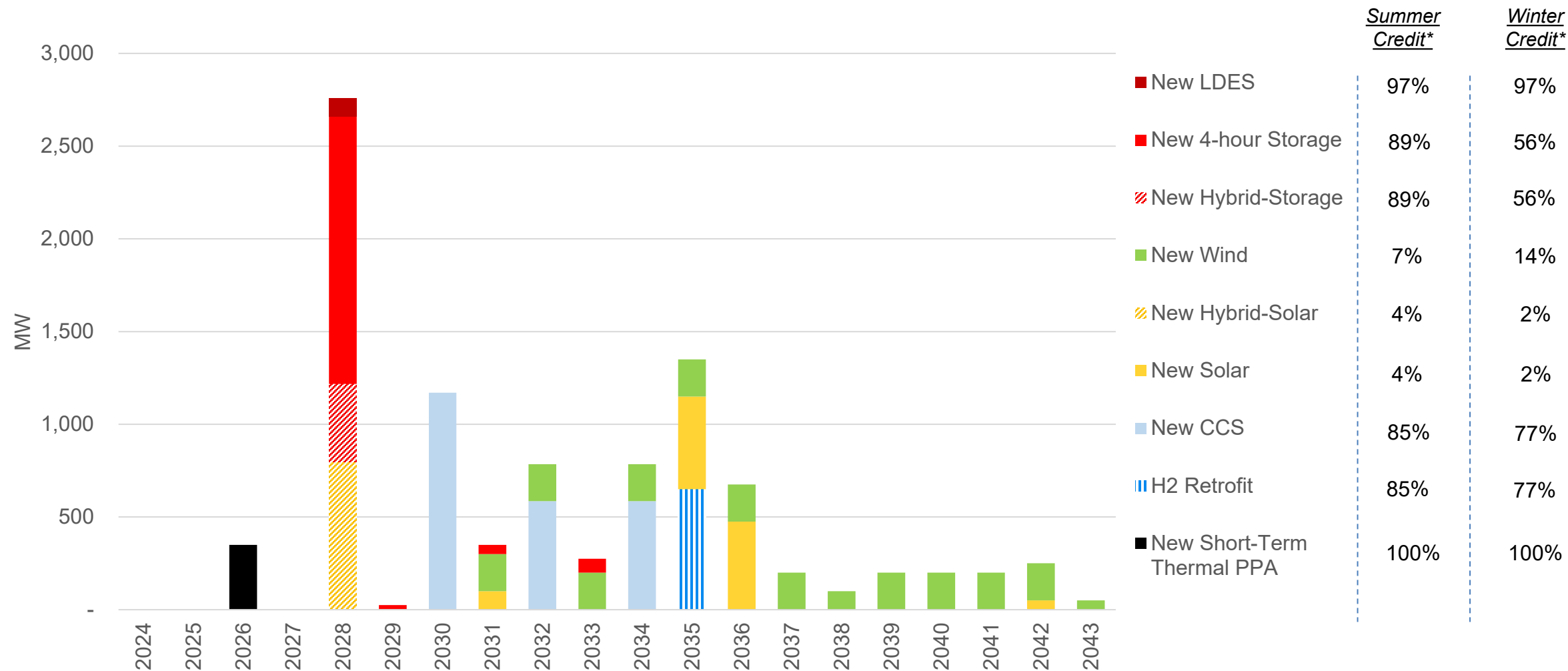


# PORTFOLIO F – ANNUAL RESOURCE ADDITIONS (NAMEPLATE MW)

No New Uncontrolled Fossil

F

Direct Loss of Load



Note: There are two short-term PPAs in 2026. 200 MW lasts from 2026-2029, and 150 MW lasts from 2026-2030.  
\*Credit represents seasonal capacity accreditation values for PY 2033 for illustration purposes.

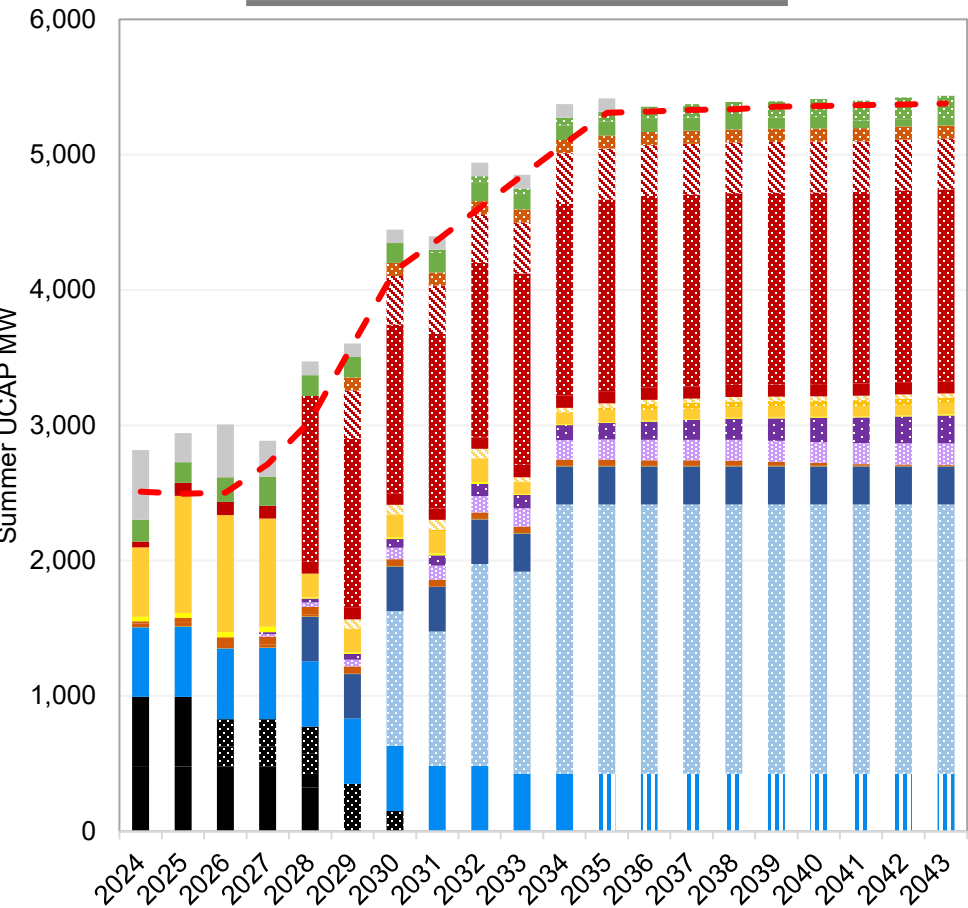
# PORTFOLIO F – SUPPLY-DEMAND BALANCE

No New Uncontrolled Fossil

F

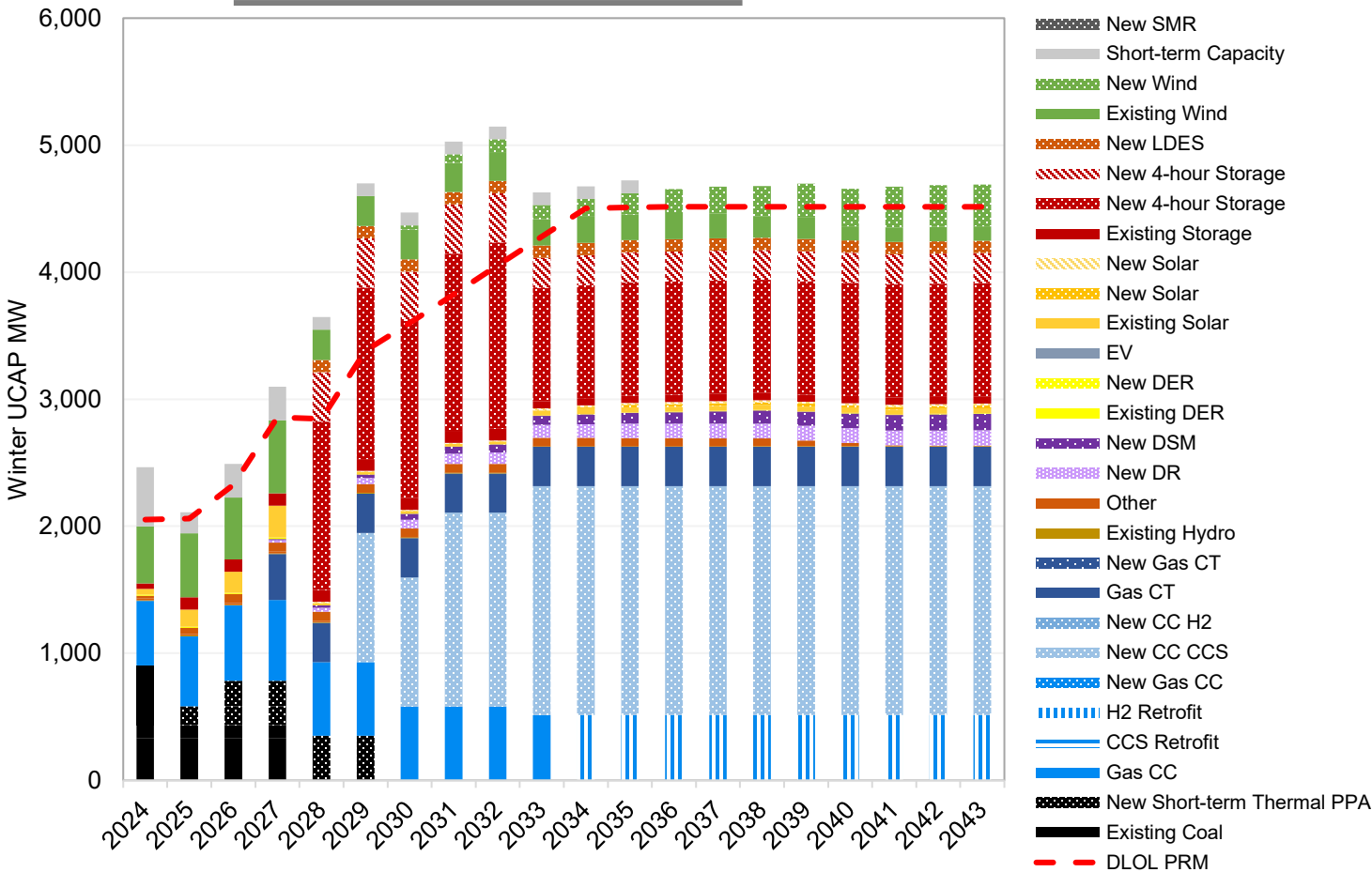
Direct Loss of Load

Summer Cap. vs. PRM



Generally Binding Season

Winter Cap. vs. PRM



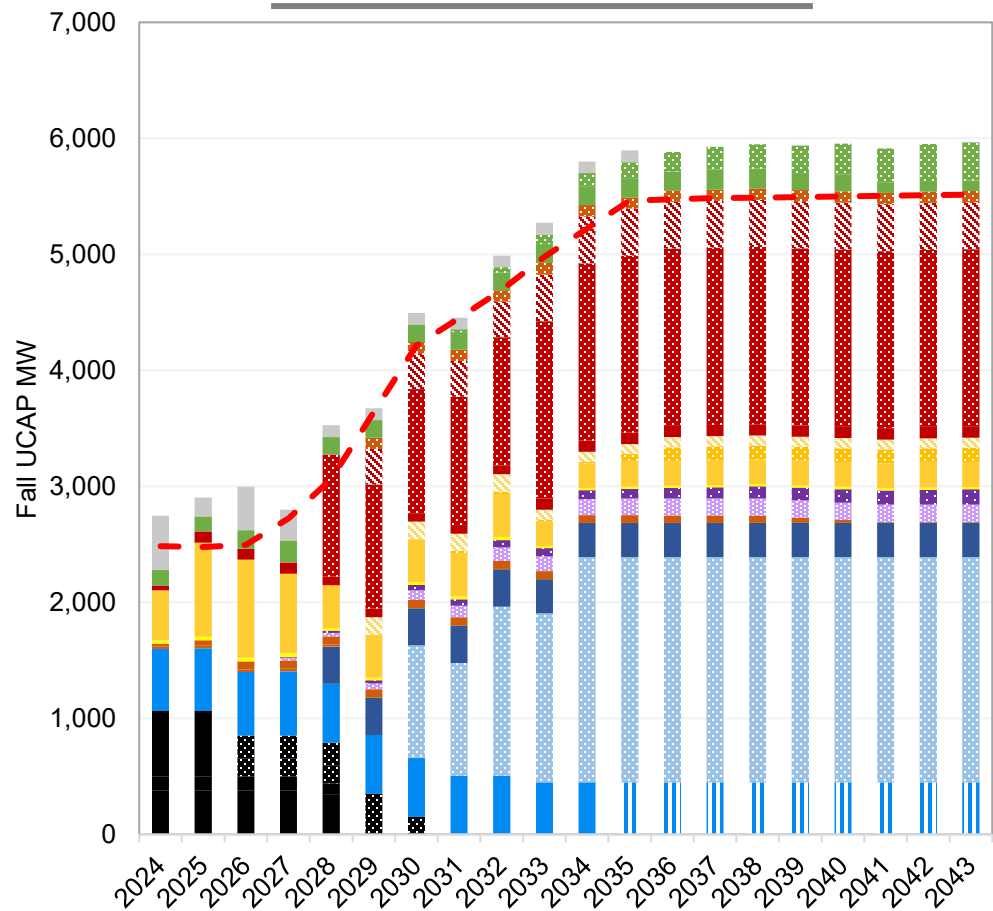
# PORTFOLIO F – SUPPLY-DEMAND BALANCE

No New Uncontrolled Fossil

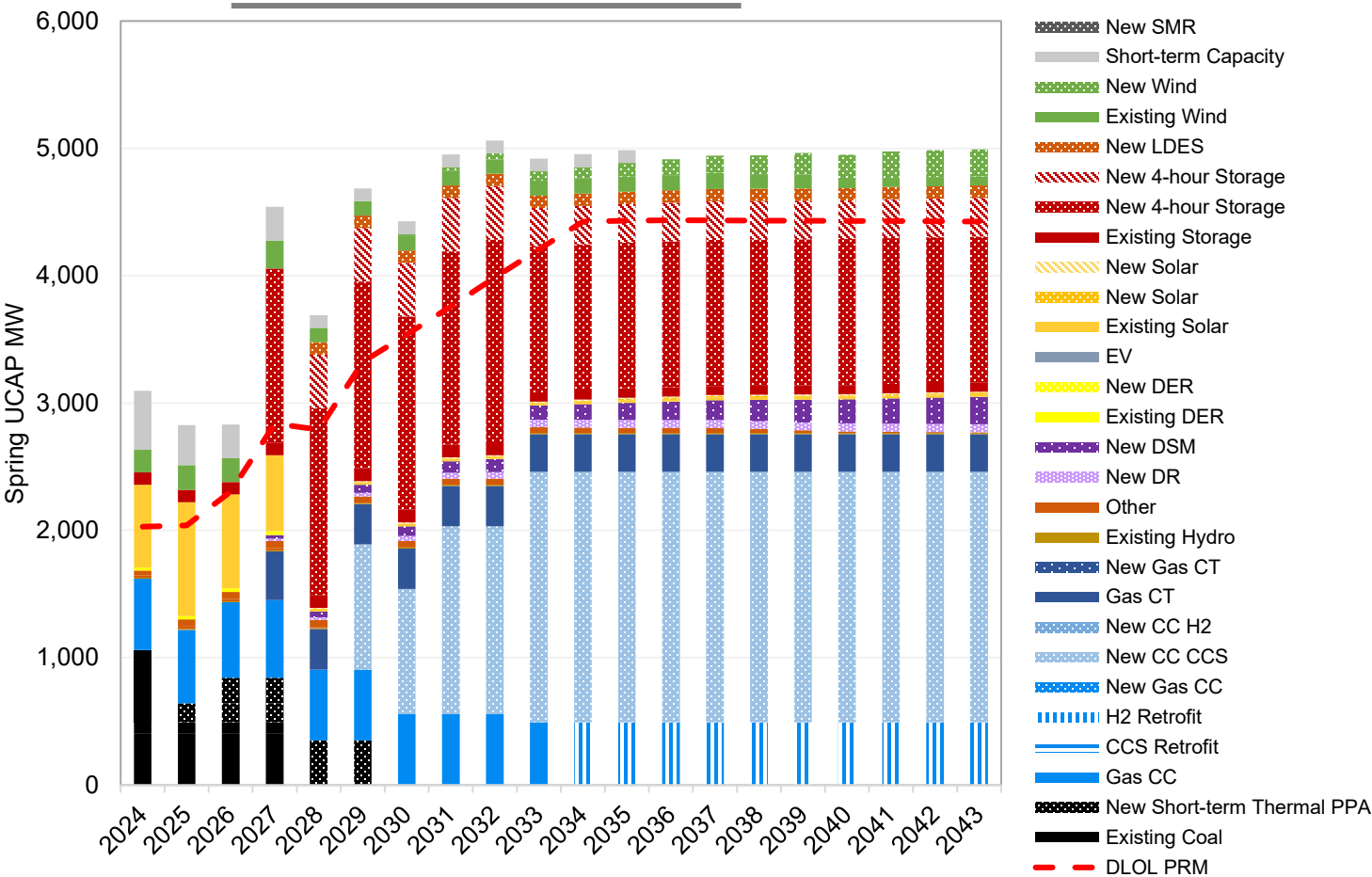
F

Direct Loss of Load

Fall Cap. vs. PRM



Spring Cap. vs. PRM

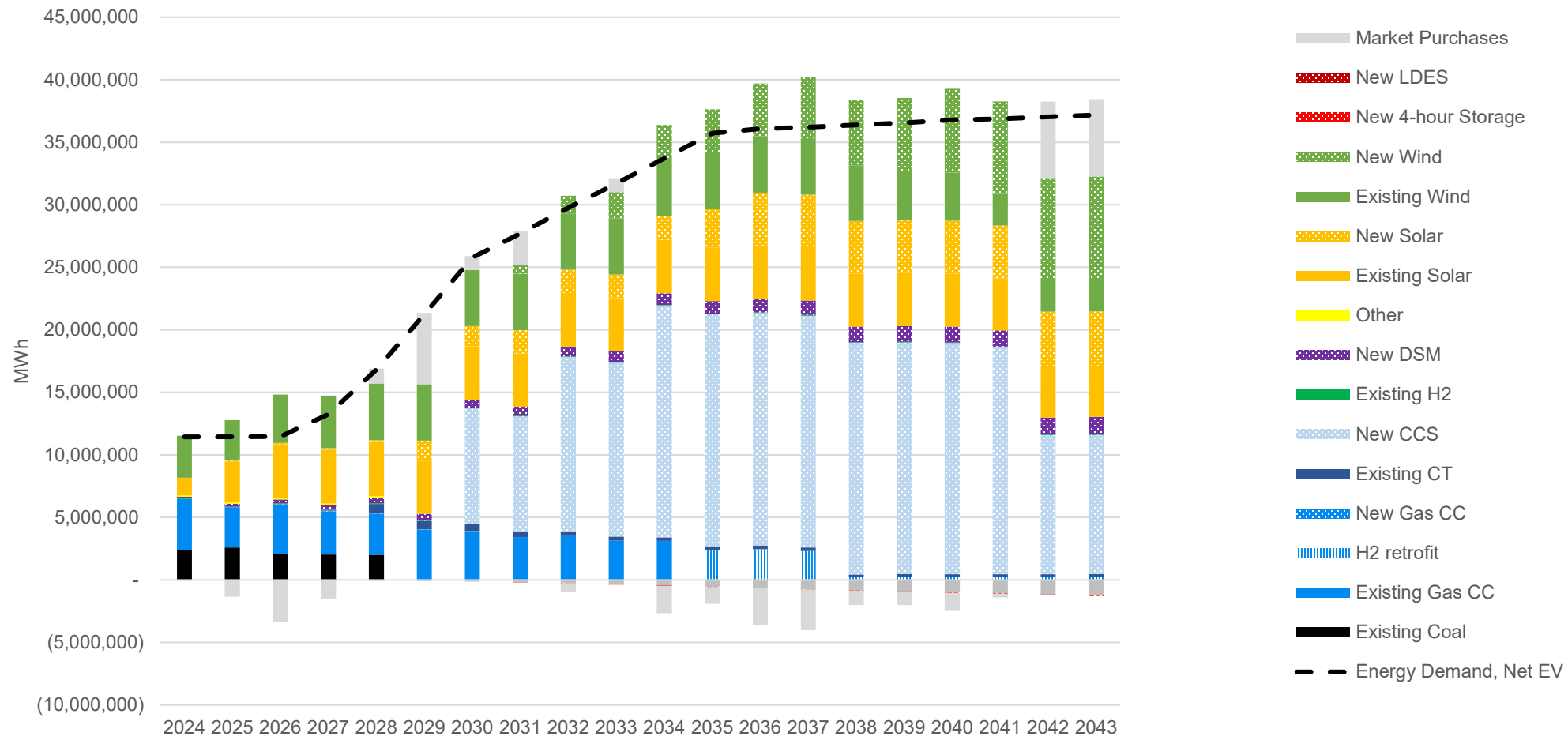


# PORTFOLIO F – ENERGY POSITION

No New Uncontrolled Fossil

F

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.

## ENERGY EFFICIENCY SELECTION

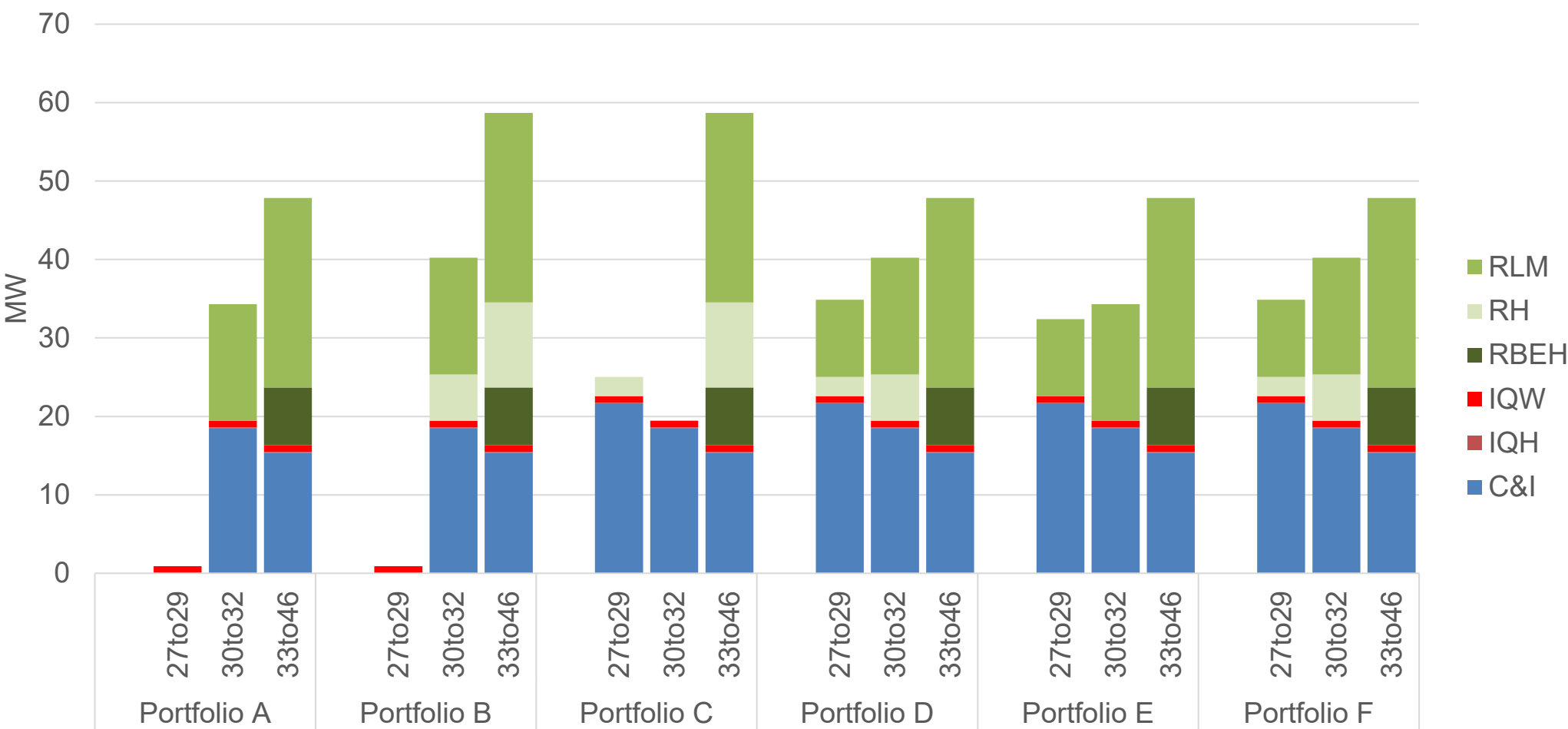
- The Low/Med Residential and C&I bundles are generally selected
- High Residential and Behavioral bundles are more marginal, but still selected across many years/portfolios

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)	○	X	X	○	X	X	○	○	X	X	X	X	X	X	X	X	X	X
Res (High)	○	○	○	○	X	X	X	○	X	X	X	○	○	○	○	X	X	○
Res (Behavioral)	○	○	X	X	○	X	X	X	X	X	X	X	X	○	X	○	X	X
C&I	○	X	X	○	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

○ = Not Selected

# ENERGY EFFICIENCY IMPACT TO SUMMER PEAK (2035 SAMPLE YEAR)





## 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

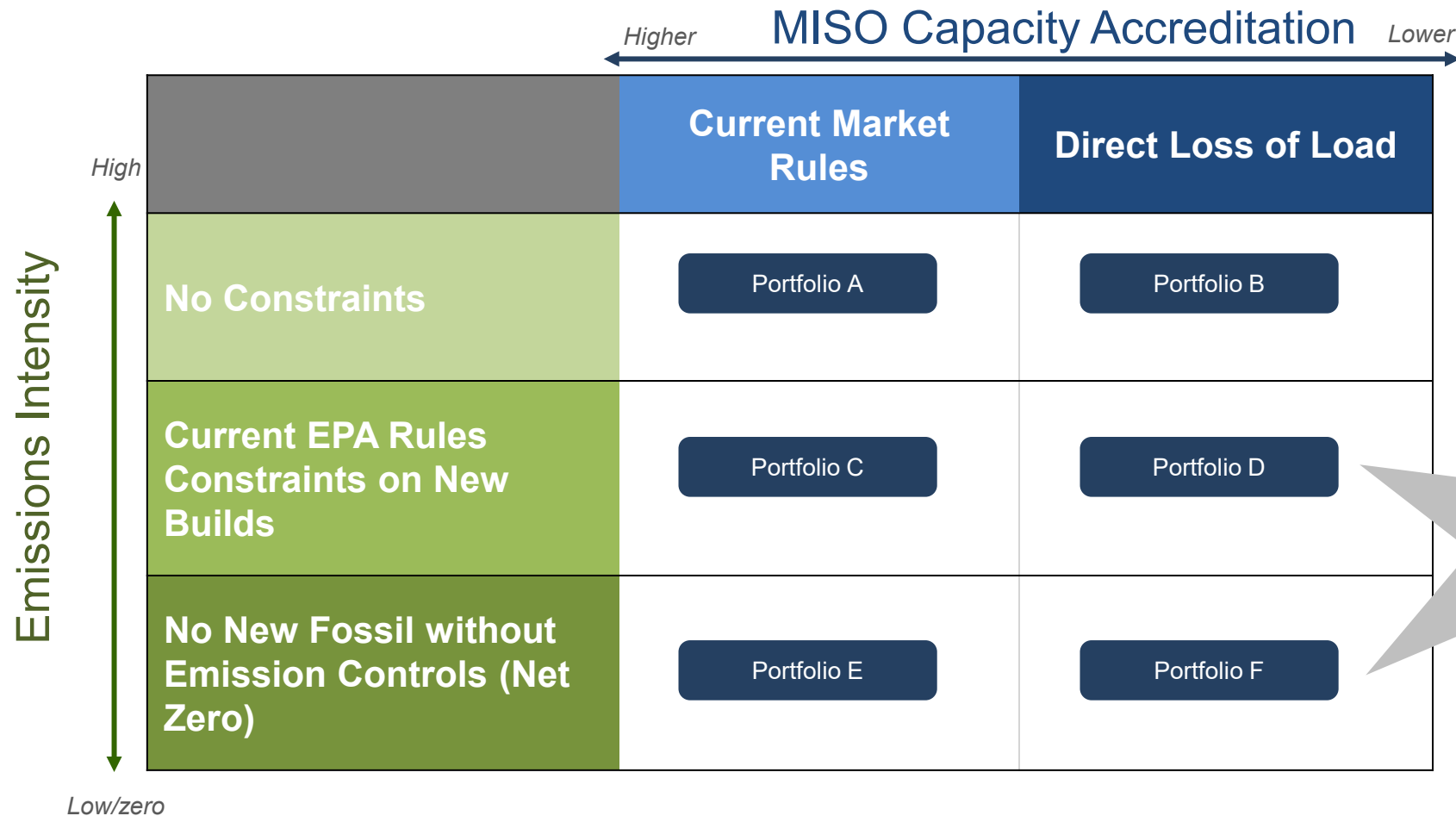
O = Not Selected

- 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

# ADDITIONAL 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 emissions rules: constrain output or increase cost of new gas generation



Two additional portfolios were developed to highlight:

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

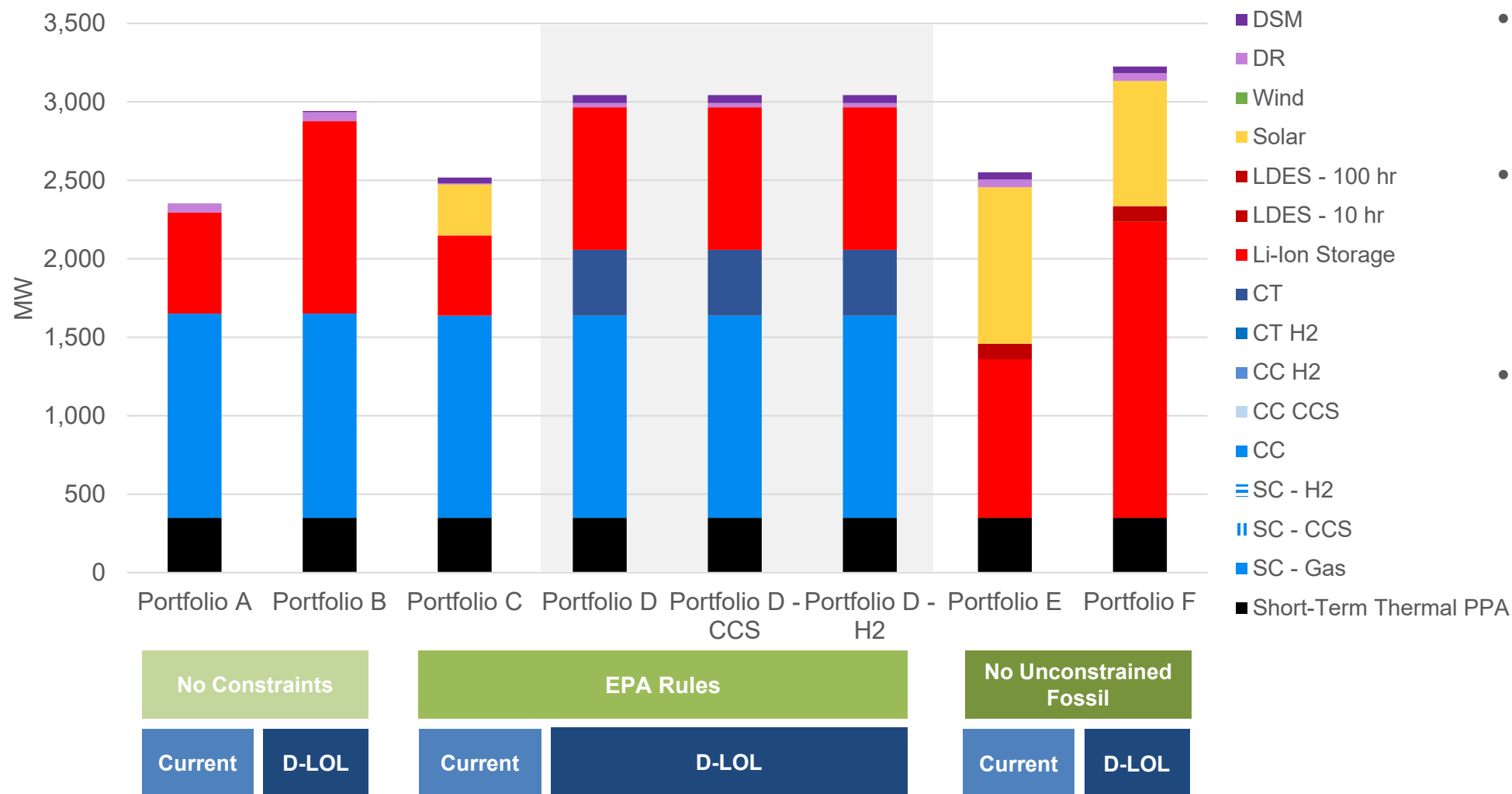
Portfolio D - CCUS

Portfolio D - Hydrogen

## PORTFOLIO D “VARIANTS”

- In order to assess potential portfolio variants that would allow new fossil resource additions without emission controls at the initial construction in the near-term, but still achieve net zero by 2040, NIPSCO contemplated variants to Portfolio D:
- **Portfolio “D\_CCUS”**
  - Preserve optimized expansion plan from original inputs and constraints
  - Assume future CCUS retrofit on up to 2,000 MW of new combined cycle capacity over the 2035-2037 time period
  - Assume remaining combined cycle and natural gas peaking capacity is retrofit to burn up to 100% hydrogen over the long-term
- **Portfolio “D\_H2”**
  - Preserve optimized expansion plan from original inputs and constraints
  - Assume all thermal resources are retrofit to burn up to 100% hydrogen over the long-term

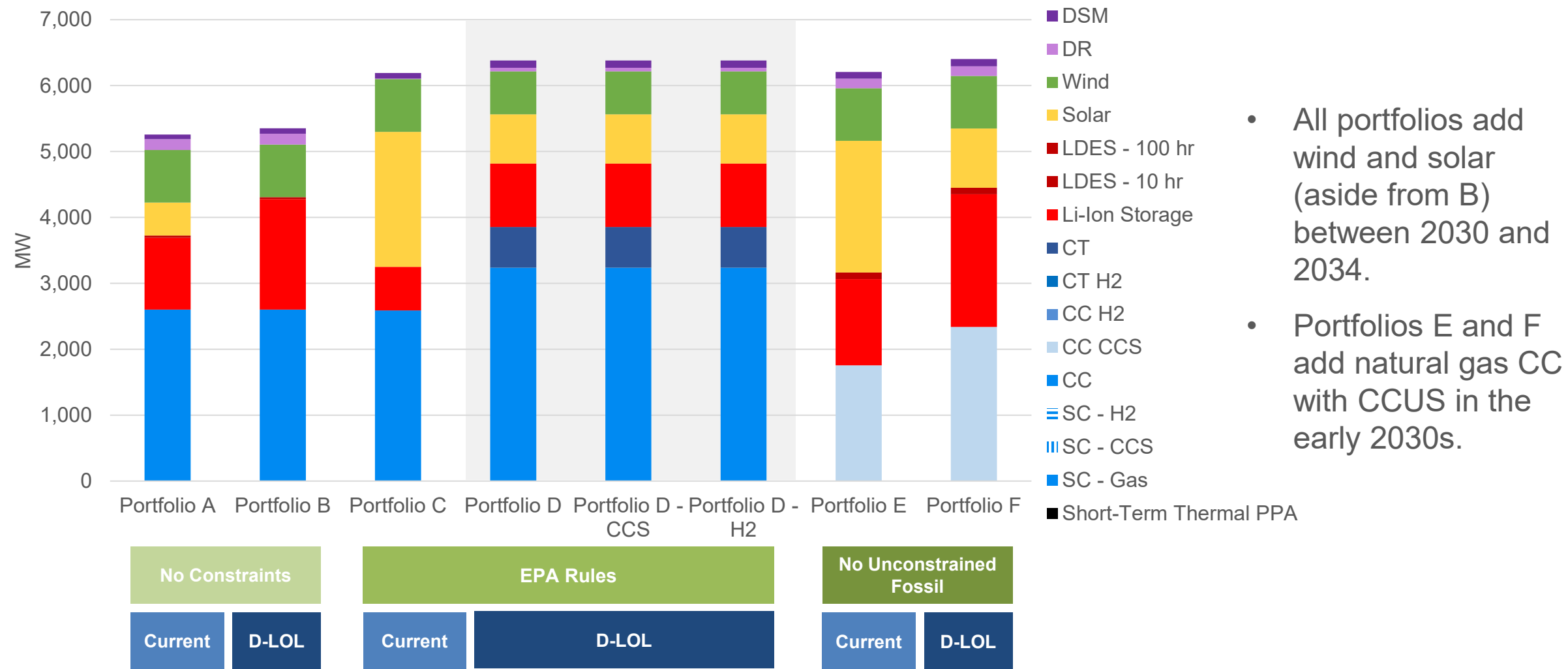
# RESOURCE ADDITIONS COMPARISON ACROSS PORTFOLIOS – CUMULATIVE NAMEPLATE Through 2029



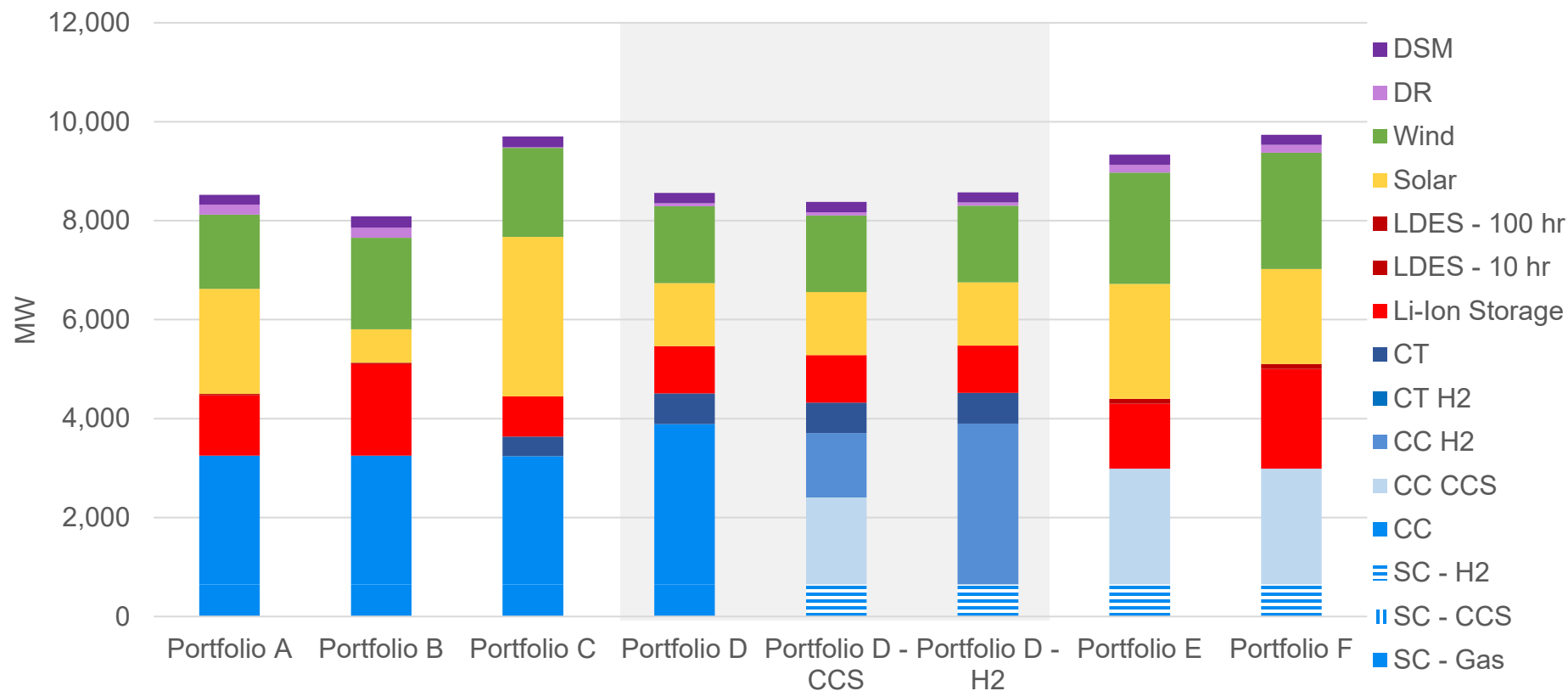
- D-LOL portfolios have more capacity overall.
- Portfolios with greatest emissions restrictions add more solar.
- Portfolios E and F would rely exclusively on solar, storage, short-term contracts, and EE/DSM through 2029.

# RESOURCE ADDITIONS COMPARISON ACROSS PORTFOLIOS – CUMULATIVE NAMEPLATE

## Through 2034



# RESOURCE ADDITIONS COMPARISON ACROSS PORTFOLIOS – CUMULATIVE NAMEPLATE Through 2043



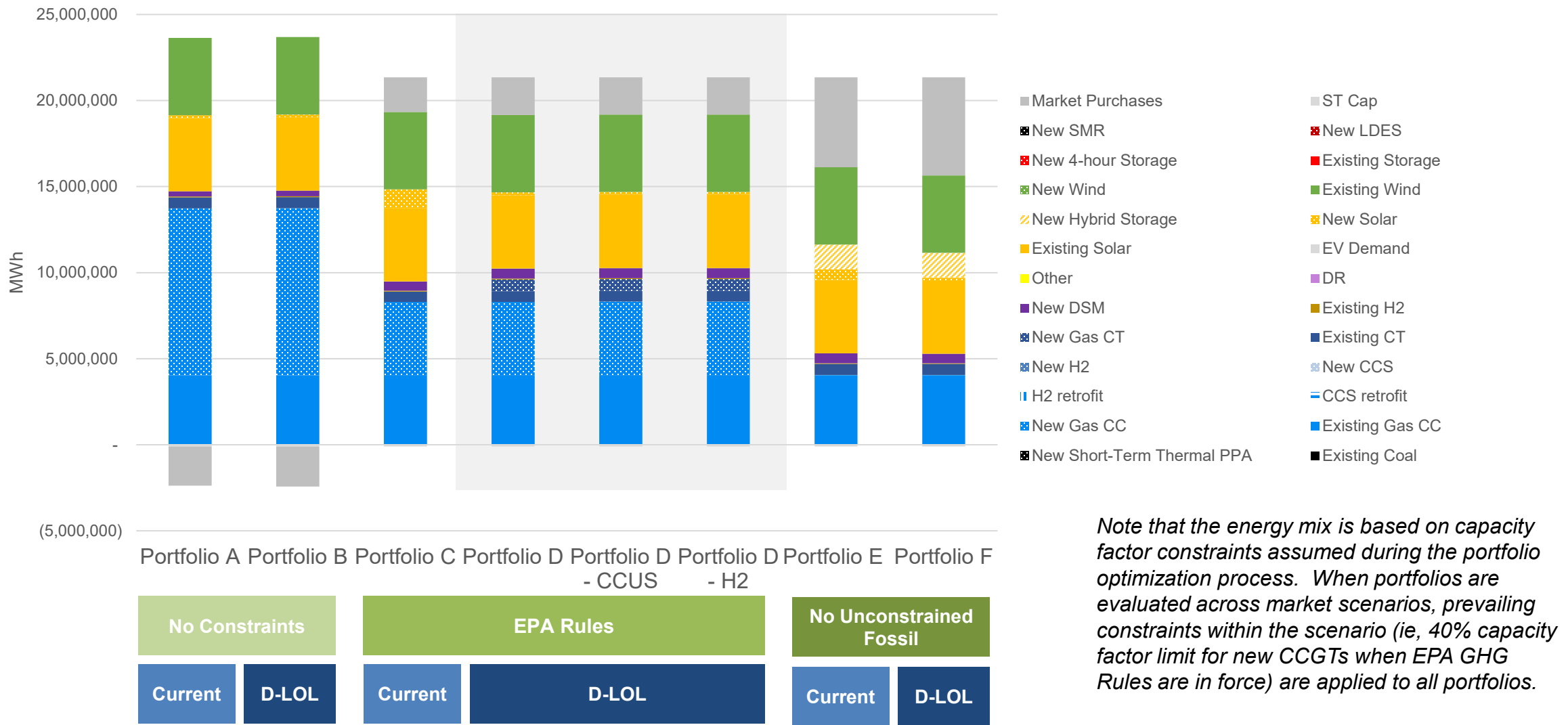
- All portfolios add long-term wind and solar.
- Portfolio D variants would retrofit CCGT or peaking capacity with CCUS or hydrogen capability.

*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.*



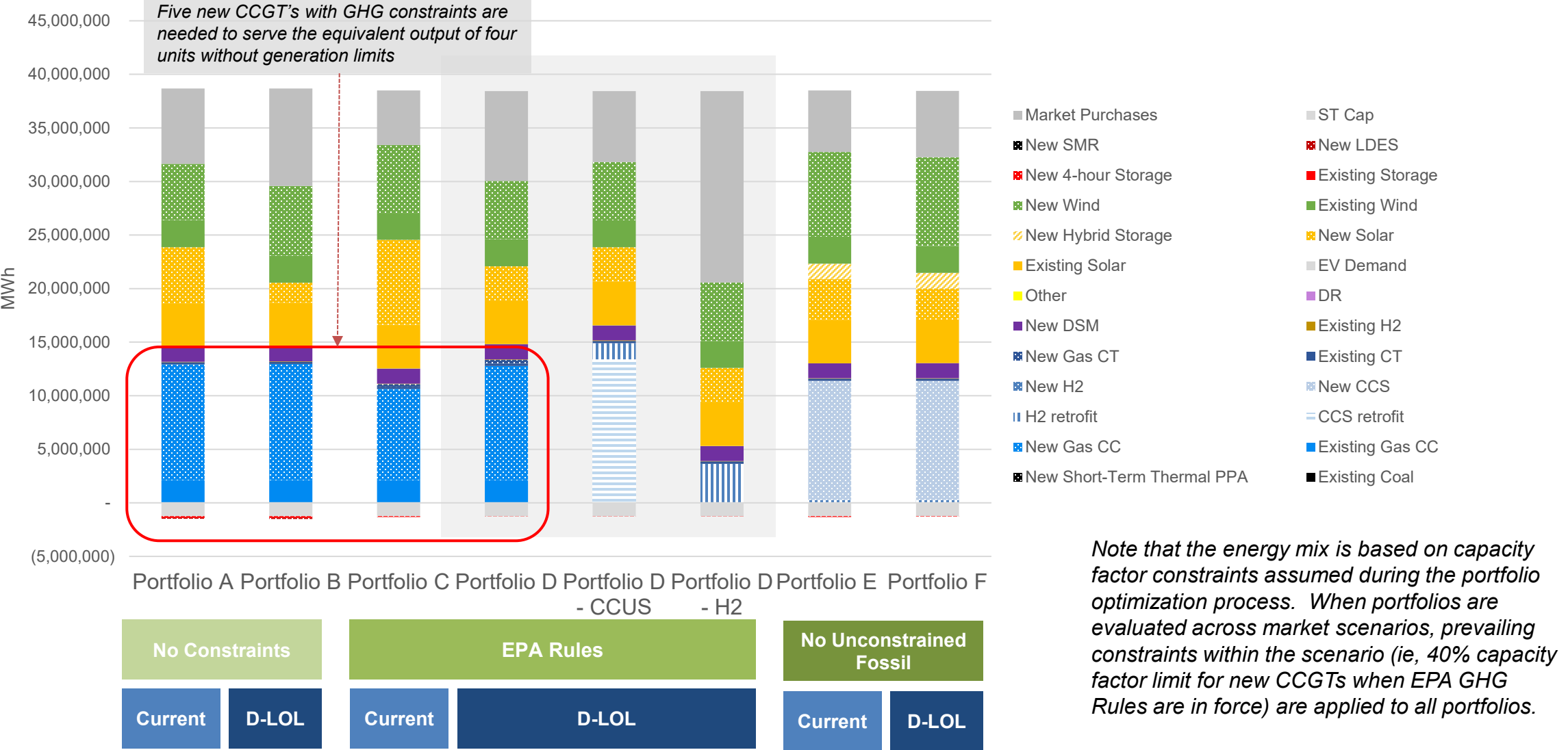
# ENERGY MIX ACROSS PORTFOLIOS

## 2029



# ENERGY MIX ACROSS PORTFOLIOS

## 2043



## PORTFOLIO COMPARISON – RESOURCE ADDITIONS ABOVE CURRENT PLAN

Given the lower expected 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*	1,249	1,882	811	959	1,409	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	440	440	330	315	370	410
Total ICAP Additions Through 2043 (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) Covered	~3,500 MW	~4,000 MW	~3,500 MW	~4,000 MW	~3,500 MW	~4,000 MW

\*Includes both 4-hour Lithium-ion and long-duration storage

## KEY SUMMARY OBSERVATIONS AND CONCLUSIONS

- **Short-term capacity purchases serve as an effective bridge to new resources, especially given 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.**
  - 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 near-to-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.**



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

LUNCH







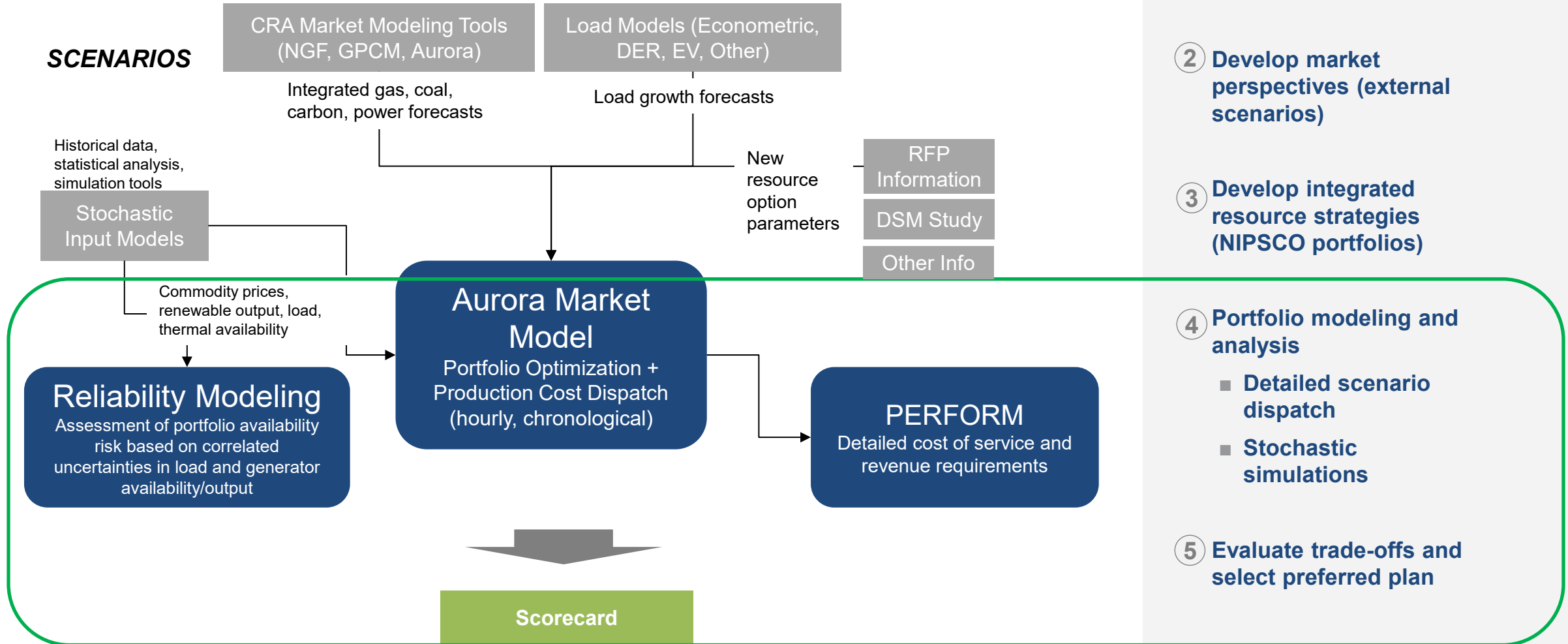
OUR VISION IS TO BE A  
**PREMIER, INNOVATIVE & TRUSTED**  
**ENERGY PARTNER**

## 2024 PUBLIC ADVISORY PROCESS NEXT STEPS

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



# RESOURCE PLANNING APPROACH





## REMAINING ANALYSIS COMPONENTS

- **Full Portfolio Analysis across Five Scenarios**
  - NIPSCO will analyze each portfolio within each scenario to assess cost and emission profiles
- **Stochastic Analysis**
  - NIPSCO will analyze stochastic risks associated with wind and solar output, load, thermal resource availability, and natural gas and power price uncertainty for Portfolios A-F for the sample year of 2030
- **Portfolio Scorecard**
  - NIPSCO will assess portfolio performance across key objectives and metrics

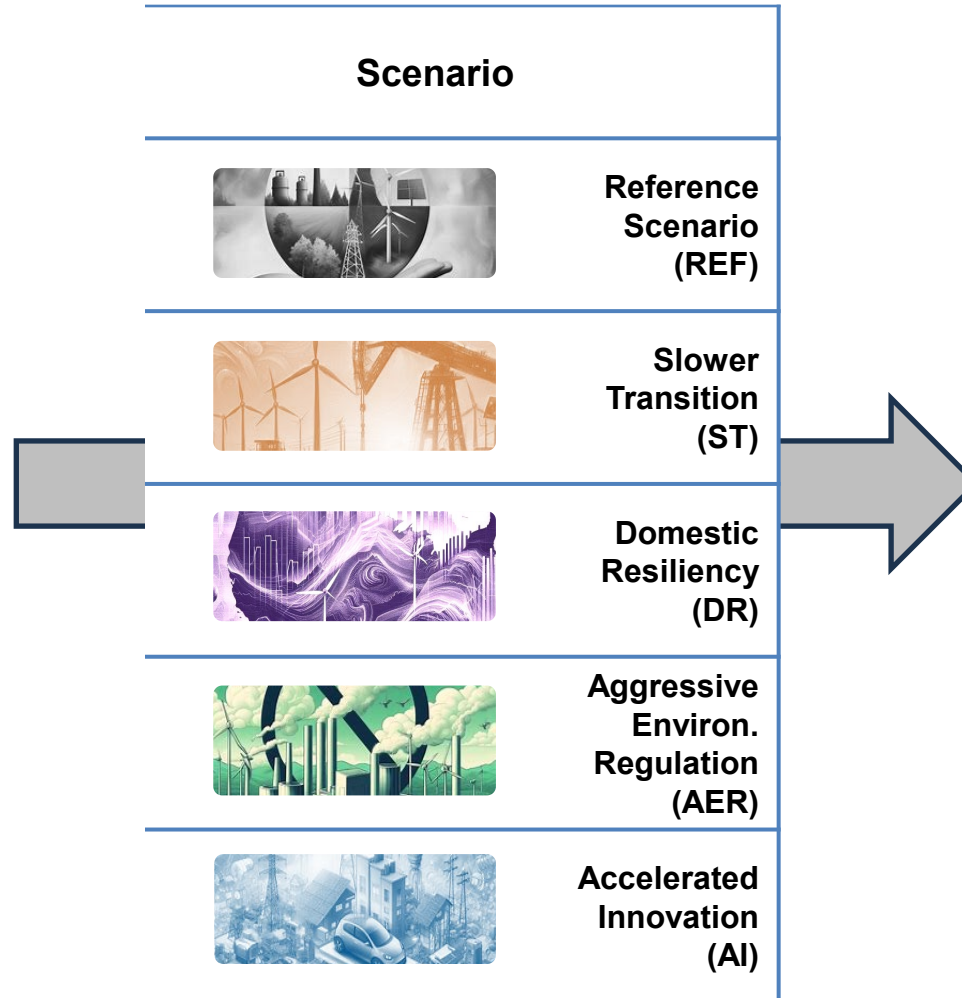
## REMAINING ANALYSIS COMPONENTS

- **Alternative “Flat Load” Portfolio Analysis**
  - Based on stakeholder input, NIPSCO will evaluate portfolio implications without the addition of new large loads
- **High Emerging Load Sensitivity Testing**
  - NIPSCO will evaluate portfolio requirements for the high emerging load sensitivity for a sample of portfolio concepts
- **DSM Sensitivity Testing**
  - NIPSCO will perform an additional DSM sensitivity evaluation for Enhanced RAP (EE) and MAP (DR) for a sample of portfolios

# SCENARIO ANALYSIS

Each of the eight portfolios will be evaluated across the five market scenarios to assess relative impacts under different states of the world with varying:

- Fuel prices
- MISO power prices
- Environmental policy (EPA rules, tax credits)
- Load

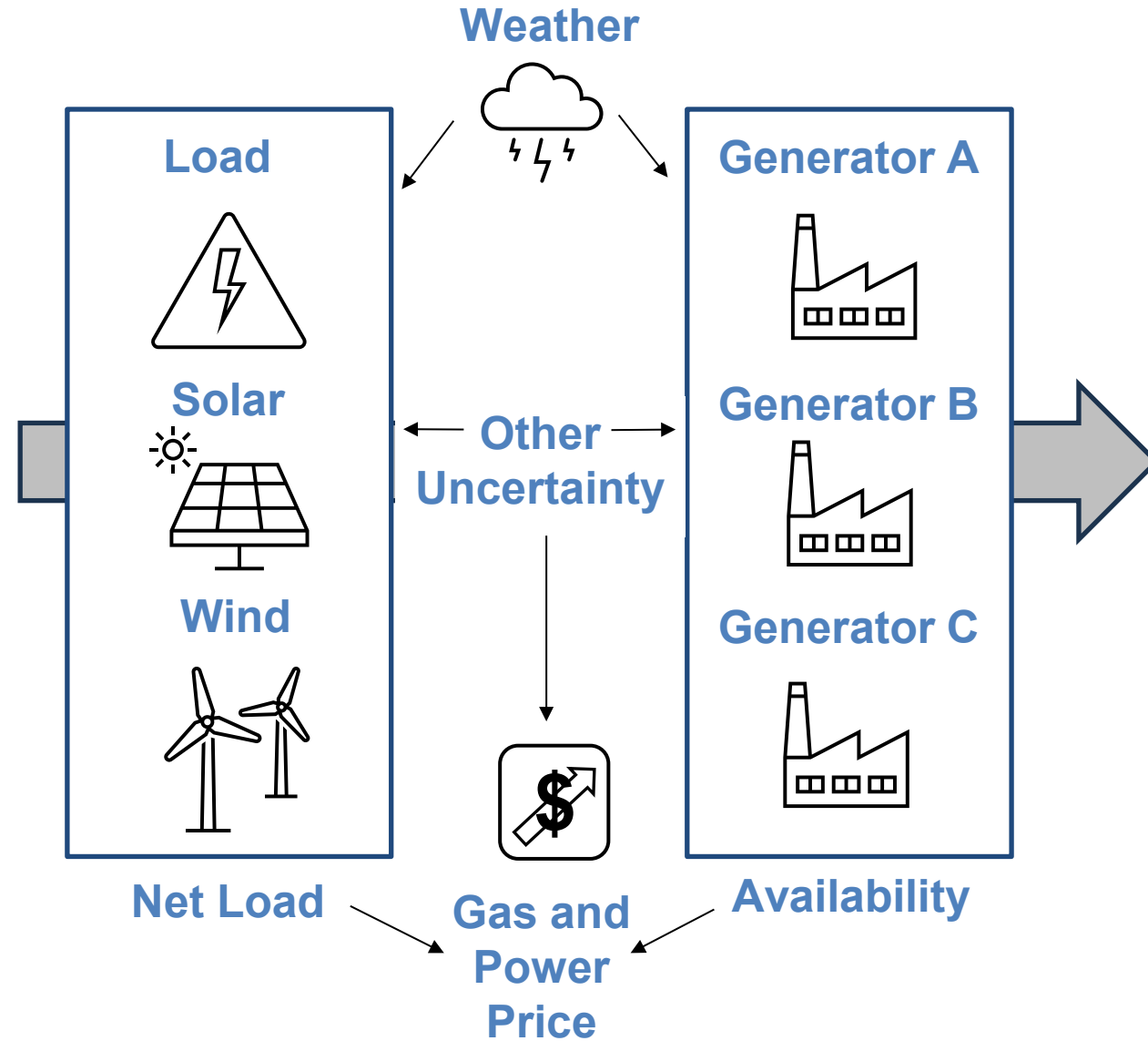


## Key Outputs

- Annual revenue requirements
- Net present value of revenue requirements (30-year and 10-year)
- CO2 Emissions
- Other portfolio performance metrics

# STOCHASTIC ANALYSIS

- Each of the eight portfolios will be 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

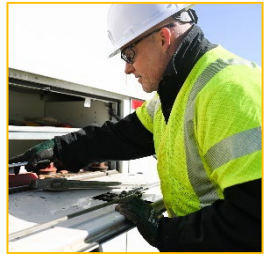
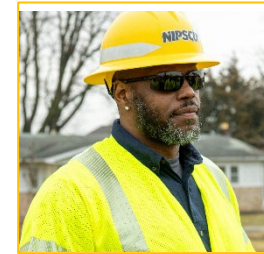
- Forced market exposure metrics
- 95<sup>th</sup> and 5<sup>th</sup> percentile cost metrics

# PORTFOLIO PERFORMANCE WILL BE DISTILLED INTO AN INTEGRATED SCORECARD

Objectives	Indicators	Metrics for 2024
<b>Affordability</b>	<b>Cost to Customer</b>	<ul style="list-style-type: none"> <li>Near-term and long-term Impact to customer bills</li> <li><b>Metric:</b> 10-year and 30-year NPV of revenue requirement (Reference Case scenario deterministic results)</li> </ul>
<b>Rate Stability</b>	<b>Cost Certainty</b>	<ul style="list-style-type: none"> <li>Certainty that revenue requirement within the most likely range of outcomes</li> <li><b>Metric:</b> Scenario range NPVRR</li> </ul>
	<b>Cost Risk</b>	<ul style="list-style-type: none"> <li>Risk of unacceptable, high-cost outcomes</li> <li><b>Metric:</b> 95th% cost risk from probabilistic analysis</li> </ul>
	<b>Lower Cost Opportunity</b>	<ul style="list-style-type: none"> <li>Potential for lower cost outcomes</li> <li><b>Metric:</b> 5th% cost risk from probabilistic analysis</li> </ul>
<b>Environmental Sustainability</b>	<b>Carbon Emissions</b>	<ul style="list-style-type: none"> <li>Carbon intensity of portfolio</li> <li><b>Metric:</b> Cumulative carbon emissions (2024-40 short tons of CO2) from the generation portfolio</li> </ul>
<b>Reliable, Flexible, and Resilient Supply</b>	<b>Reliability, Flexibility</b>	<ul style="list-style-type: none"> <li>The ability of the portfolio to provide reliable and flexible supply for NIPSCO in light of evolving market conditions and rules</li> <li><b>Metric:</b> Loss of Load Expectation proxy ("Forced market exposure") metrics for NIPSCO system from probabilistic reliability analysis</li> <li><b>Metric:</b> Capacity able to respond within 30 mins</li> </ul>
<b>Positive Social, &amp; Economic Impacts</b>	<b>Local Investment in Economy</b>	<ul style="list-style-type: none"> <li>The effect on the local economy from new projects and ongoing property taxes and targeted investment</li> <li><b>Metric:</b> NPV of property taxes from the entire portfolio</li> </ul>

# 2024 STAKEHOLDER ADVISORY MEETING ROADMAP

Meeting	Meeting 1 April 23 <sup>rd</sup>	Meeting 2 June 24 <sup>th</sup>	Meeting 3 August 21 <sup>st</sup>	Meeting 4 October 8 <sup>th</sup>	Meeting 5 October 28 <sup>th</sup>
Location	Fair Oaks Farms, 865 N 600 E, Fair Oaks, IN 47943	Fair Oaks Farms 865 N 600 E, Fair Oaks, IN 47943	Fair Oaks Farms, 865 N 600 E, Fair Oaks, IN 47943	Fair Oaks Farms, 865 N 600 E, Fair Oaks, IN 47943	Fair Oaks Farms, 865 N 600 E, Fair Oaks, IN 47943
Content	<ul style="list-style-type: none"> <li>2021 Short Term Action Plan Update (Retirements, Replacement projects)</li> <li>Resource Planning and 2024 Continuous Improvements</li> <li>2024 Public Advisory Process</li> <li>2024 Policy Update (incl. IRA and EPA)</li> <li>Update on Key Inputs/Assumptions (core demand forecast, new considerations for demand)</li> <li>Scenario Themes – Introduction</li> <li>RFP Overview</li> </ul>	<ul style="list-style-type: none"> <li>MISO Regulatory Developments and Initiatives</li> <li>Load scenarios</li> <li>Update on Key Inputs/Assumptions (commodity prices)</li> <li>Scenarios and Stochastic Analysis</li> <li>Preliminary RFP Results</li> </ul>	<ul style="list-style-type: none"> <li>DSM Modeling and Methodology</li> <li>RFP detailed update</li> <li>Portfolio modeling input review</li> </ul>	<ul style="list-style-type: none"> <li>Initial portfolio modeling results</li> </ul>	<ul style="list-style-type: none"> <li>Modeling results and scorecard</li> <li>Preferred plan and logic relative to alternatives</li> <li>2024 NIPSCO Short Term Action Plan</li> </ul>
Meeting Goals	<ul style="list-style-type: none"> <li>Communicate what has changed since the 2021 IRP (incl. IRA changes)</li> <li>Communicate environmental policy considerations</li> <li>Communicate updates to key inputs/assumptions</li> <li>Provide RFP Overview</li> <li>Communicate the 2024 public advisory process, timing, and input sought from stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Communicate resource needs due to potential demand</li> <li>Common understanding of MISO regulatory updates</li> <li>Communicate scenario themes and stochastic analysis approach, along with major input details and assumptions</li> <li>Communicate commodity prices impacts</li> <li>Communicate preliminary RFP results</li> </ul>	<ul style="list-style-type: none"> <li>Common understanding of DSM modeling methodology</li> <li>Provide detailed update on the RFP and verification</li> <li>Explain next steps for portfolio modeling</li> </ul>	<ul style="list-style-type: none"> <li>Develop a shared understanding of modeling outcomes and preliminary results to facilitate stakeholder feedback</li> </ul>	<ul style="list-style-type: none"> <li>Respond to key stakeholder comments and requests</li> <li>Communicate NIPSCO's preferred resource plan and short-term action plan</li> <li>Obtain feedback from stakeholders on preferred plan</li> </ul>



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

## CLOSING & STAKEHOLDER COMMENTS







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

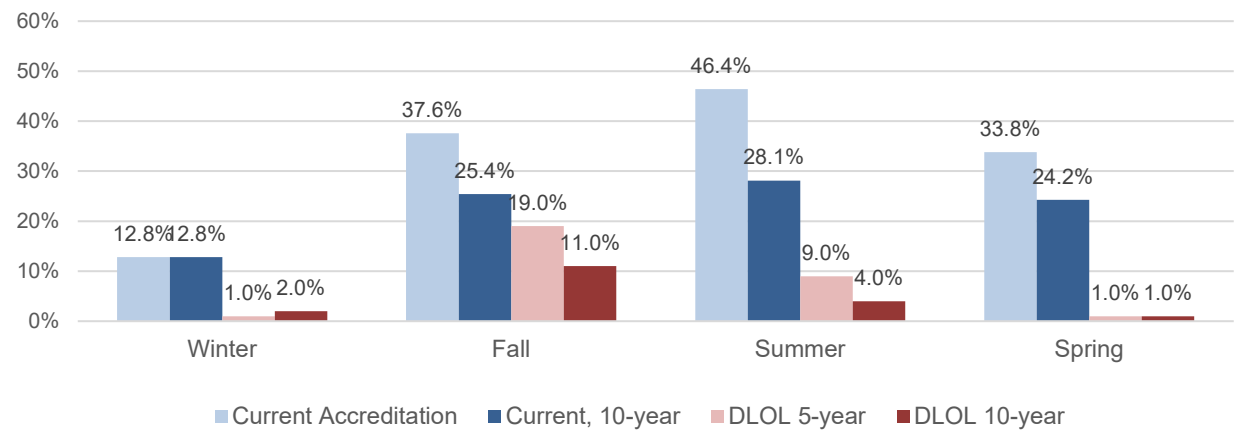
## APPENDIX



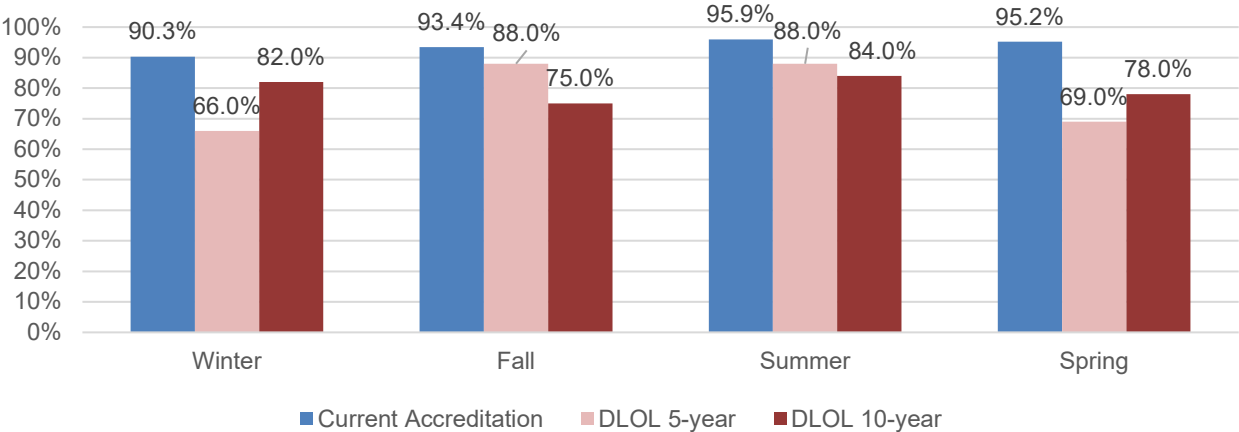


# CAPACITY ACCREDITATION TRAJECTORIES UNDER D-LOL

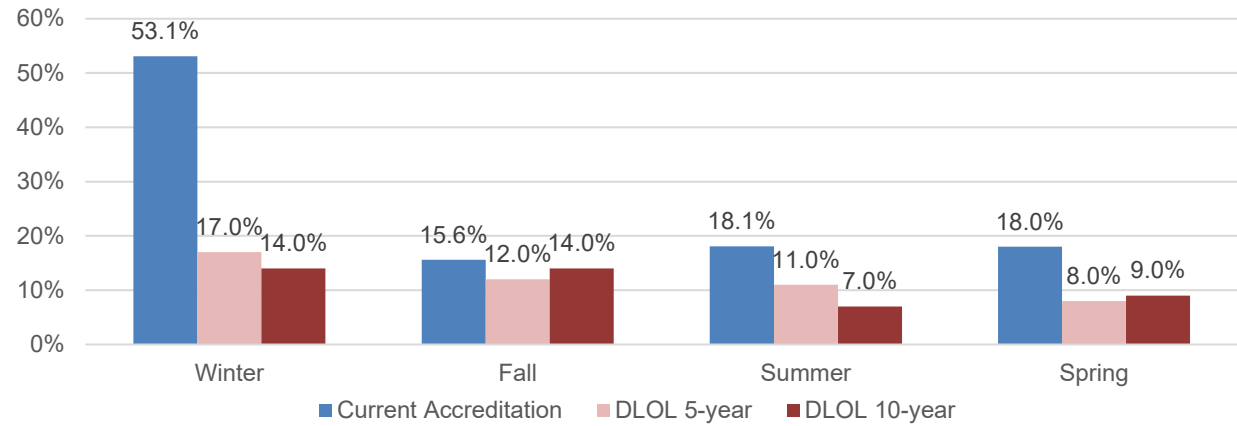
### Indicative Seasonal Capacity Accreditation - Solar



### Indicative Seasonal Capacity Accreditation – Gas CT



### Indicative Seasonal Capacity Accreditation - Wind



### Indicative Seasonal Capacity Accreditation - Storage

