

# SOUTHWESTERN PUBLIC SERVICE COMPANY 2026 INTEGRATED RESOURCE PLAN

Workshop #5 Facilitated Stakeholder Process

June 23-24, 2026

Hobbs, New Mexico



# IMPORTANT NOTES

Although the modeling presented today incorporates updated modeling assumptions, the results are still considered draft. SPS will continue to check the model inputs and outputs for accuracy. Any corrections or changes to the modeling inputs and assumptions may change the results. SPS will present full and final results prior to filing the IRP.

When determining the most cost-effective portfolio of resources in the IRP process, SPS relies upon generic cost estimates for modeling new generating resources. Future resource acquisitions will be dependent upon the firm pricing and availability of new resources (i.e., actual bids).

# OPEN ITEMS

- Define the timeline: planning horizon, resource acquisition period, and action plan
  - By rule, Planning Horizon is twenty years
  - By rule, Action Plan Period is three years after IRP filed (2027-2029)
  - Actions during the Action Plan Period may include issuance of a Request For Proposals (RFP) if indicated necessary by Statement of Need
  - IRP Rules include directives on RFP process, including opportunity for public comments
  - RFP focuses in on resource acquisition period
  - SPS would like to discuss four-year action plan period to extend timeline for needed actions and to get back on staggered schedule intended in IRP Rule.
- SPP Market Interaction, Islanded Scenario, SPS-specific Reliability Metrics
  - ✓ Addressed in today's presentation.
- Extension of Thermal Resources
  - ✓ Existing resource changes, Stakeholder Requested and to be discussed today.
- Sensitivities with Longer Battery Duration
  - ✓ Addressed in today's presentation.
- NM Law, EPA Standards, Base Case Assumptions, Carbon-Free Requirement by 2045
  - ✓ Addressed in today's presentation.



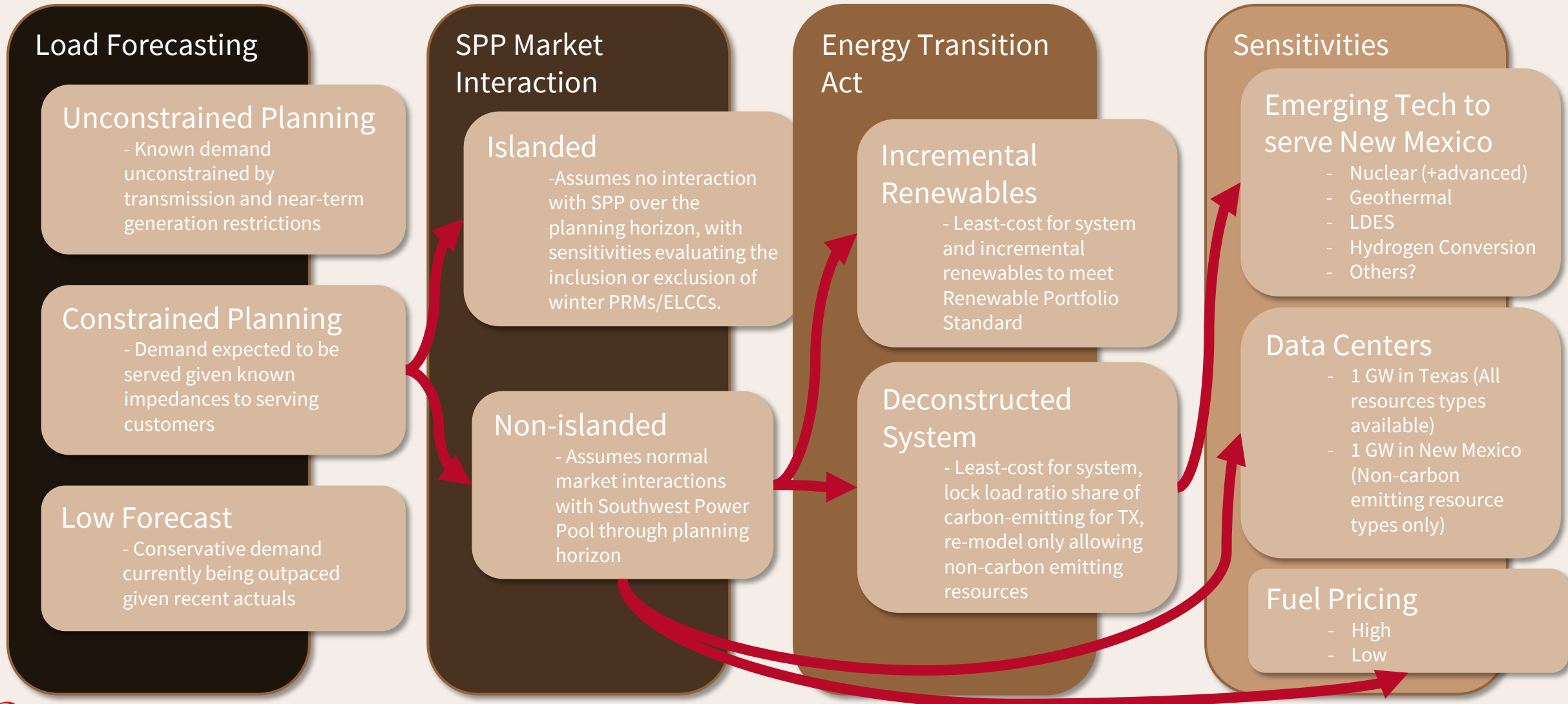
# MODELING TREE

## PRELIMINARY RESULTS

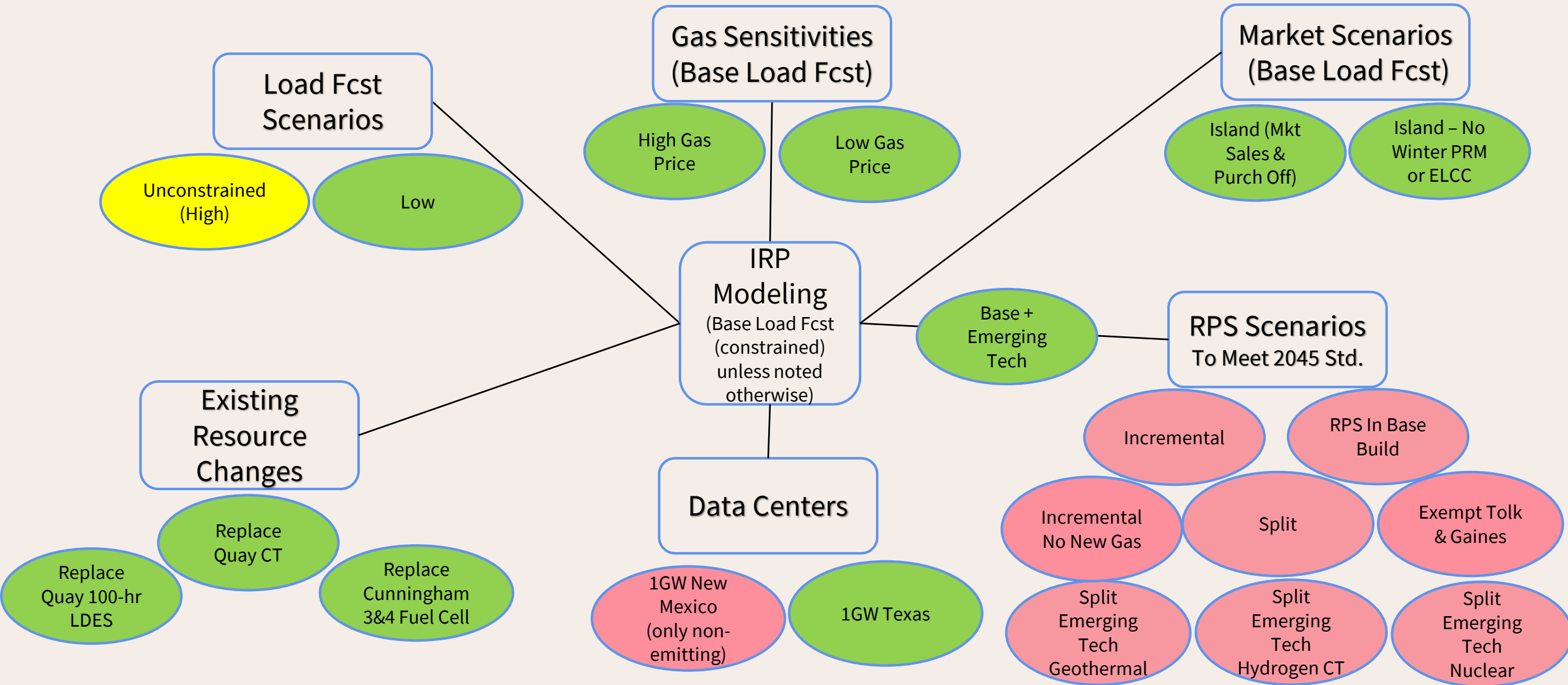


# CONCEPTUAL MODELING TREE

All resource types available in all models except where otherwise noted.



# IRP MODELING “MIND MAP”



# NAMEPLATE ADDITIONS

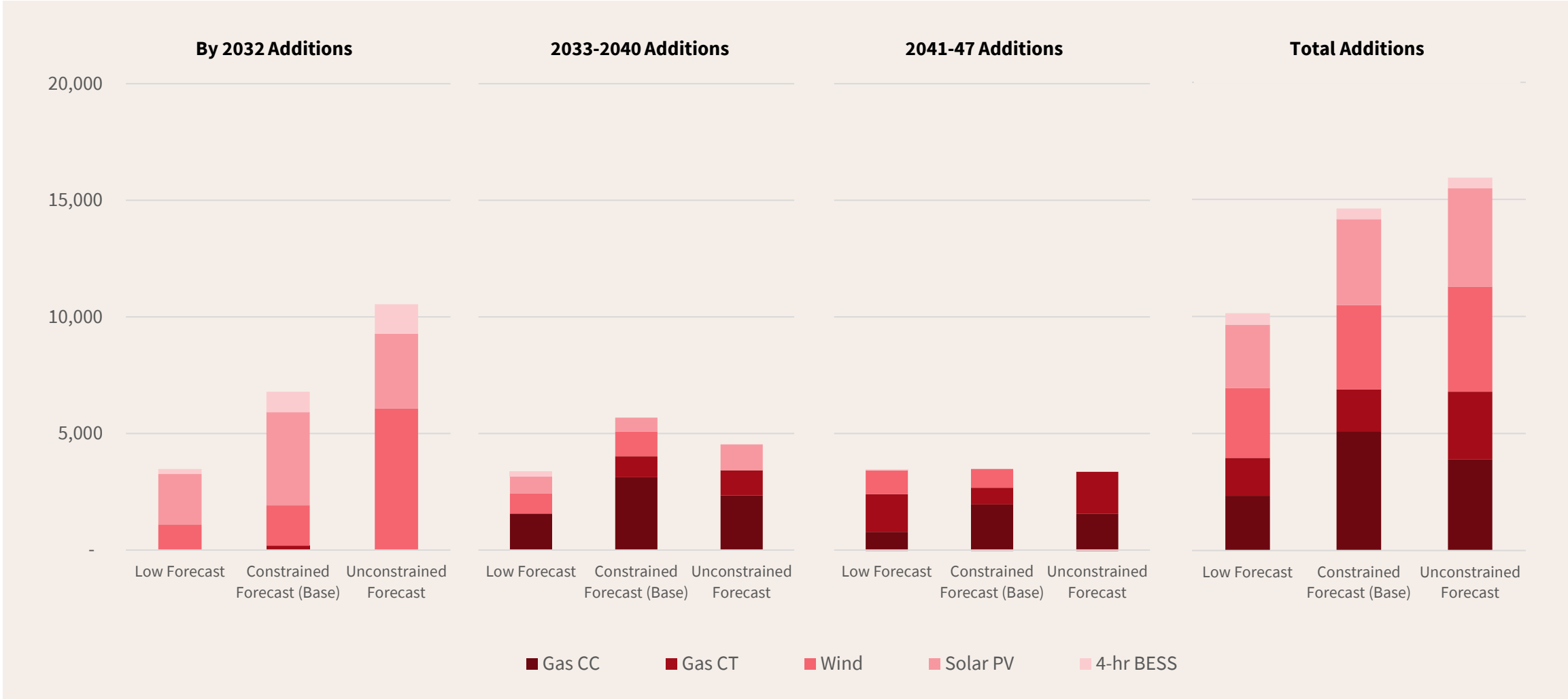
## PRELIMINARY RESULTS

Summary of Grouped Scenarios



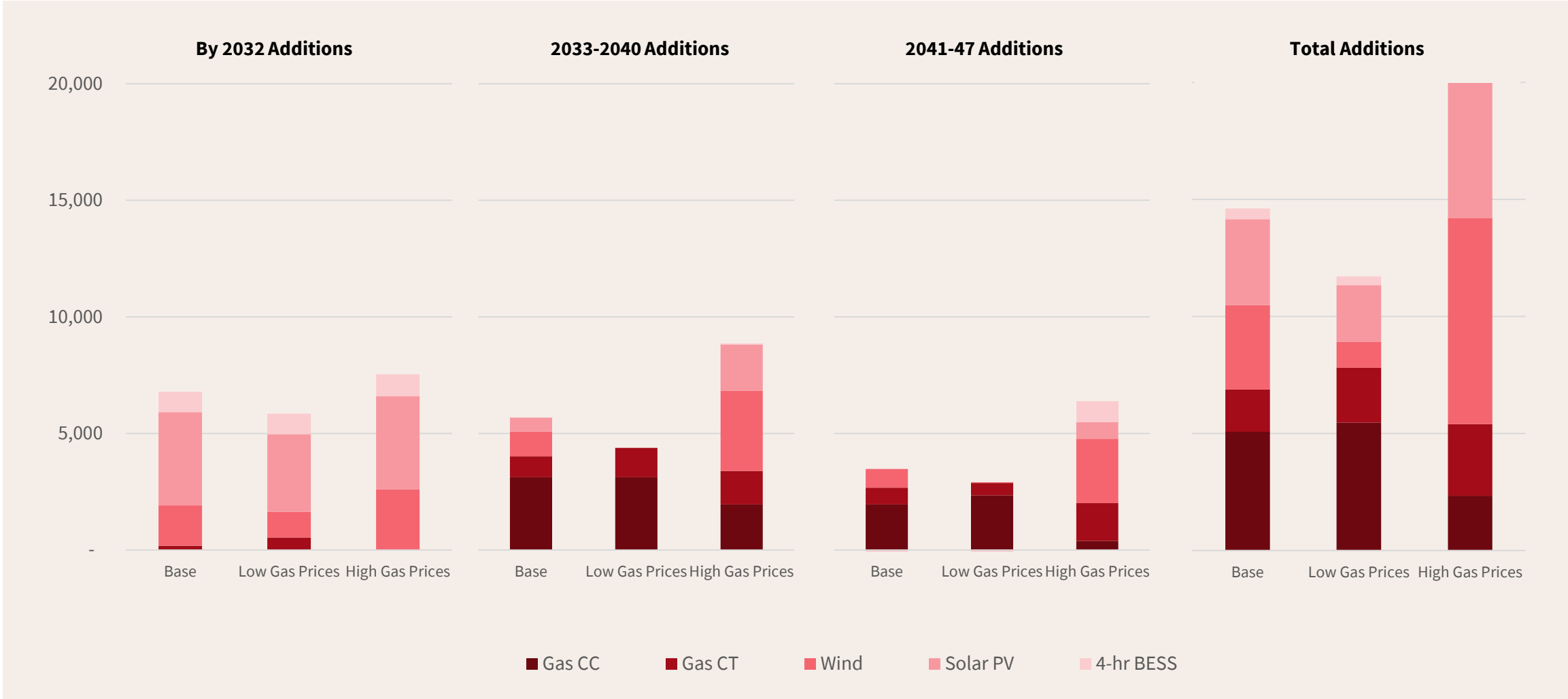
# NAMEPLATE ADDITIONS (MW) – LOAD SCENARIOS

Incremental Resources Over the IRP Horizon



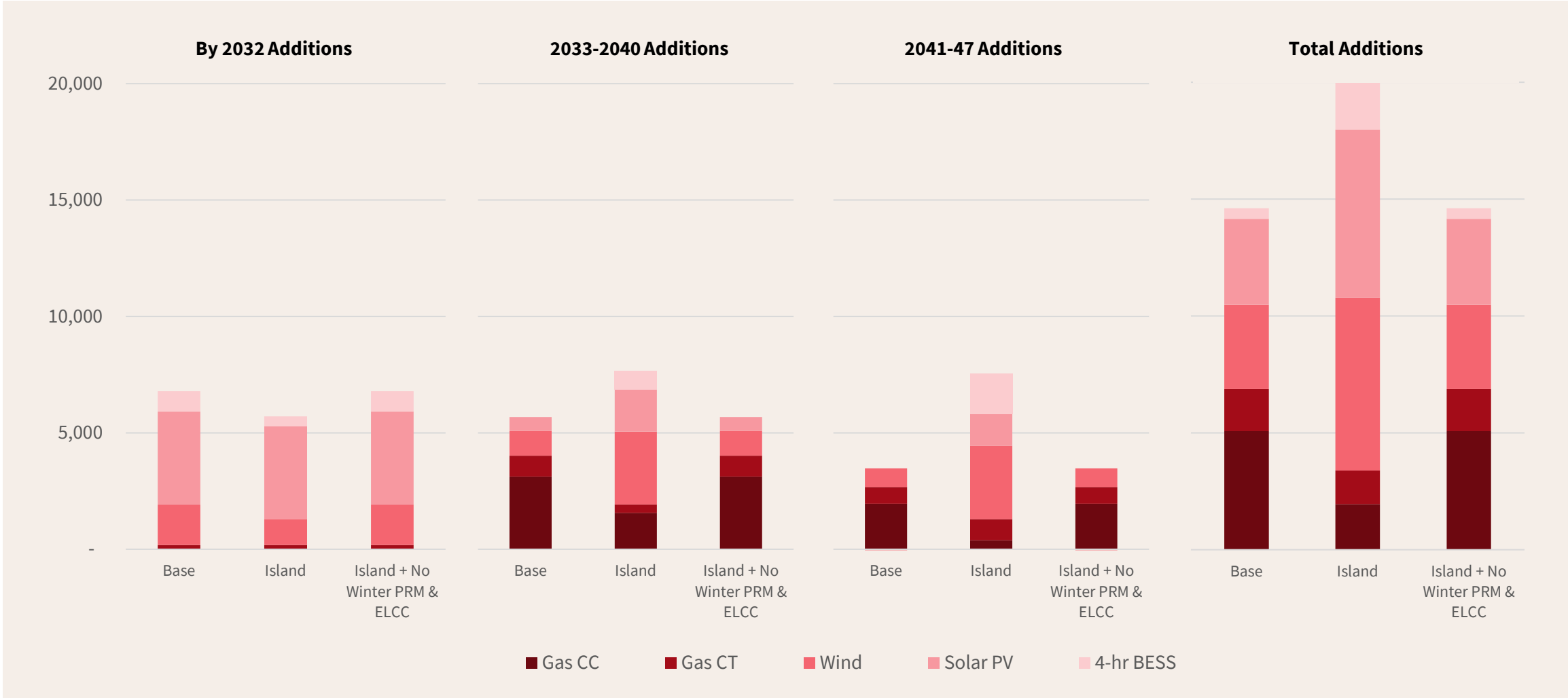
# NAMEPLATE ADDITIONS (MW) – GAS PRICES

Incremental Resources Over the IRP Horizon



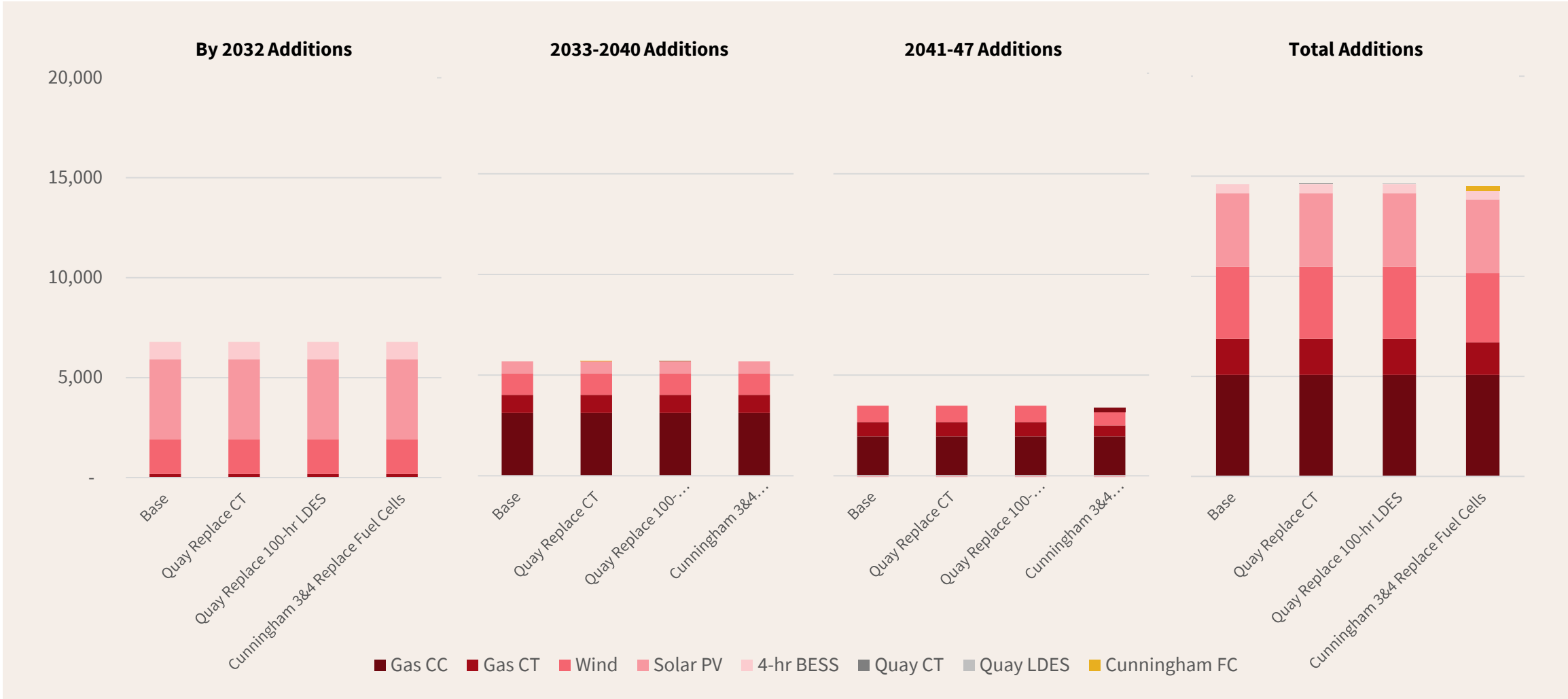
# NAMEPLATE ADDITIONS (MW) – ISLANDED SCENARIOS

Incremental Resources Over the IRP Horizon



# NAMEPLATE ADDITIONS (MW) – EXISTING RESOURCE CHANGES

Incremental Resources Over the IRP Horizon



# NPV COMPARISONS

## PRELIMINARY RESULTS

Summary of Grouped Scenarios



# SUMMARY NPV COMPARISONS FOR 2026 V1 LOAD SCENARIOS

## Least Cost Portfolio to meet a Multi Jurisdictional Baseline

Name of Scenario	Description	Emerging Tech Available	NPV through 2047 (\$BB)
Constrained (Base)	<ul style="list-style-type: none"><li>2026 V1 Constrained Load Forecast</li><li>Least-cost portfolio with only currently available technologies</li></ul>	No	\$51.46
Unconstrained (High)	<ul style="list-style-type: none"><li>2026 V1 Unconstrained Load Forecast</li><li>Least-cost portfolio with only currently available technologies</li></ul>	No	
Low	<ul style="list-style-type: none"><li>2026 V1 Low Load Forecast</li><li>Least-cost portfolio with only currently available technologies</li></ul>	No	\$33.19 ↓ \$18.27

NPV totals include \$2M of EUE cost for the *Constrained (Base)* scenario and zero EUE cost for the *Low* scenario.

**Capacity Payment Cost Assumption (2 X CONE):**  $\$139.85 \times 2 = \$279.70/\text{kW-year}$

**Expected Unserved Energy (EUE) Cost Assumption:**  $\$2,000/\text{MWh}$



# SUMMARY NPV COMPARISONS FOR GAS PRICE SCENARIOS

## Least Cost Portfolio to meet a Multi Jurisdictional Baseline

Name of Scenario	Description	Emerging Tech Available	NPV through 2047 (\$BB)
Base	<ul style="list-style-type: none"><li>Least-cost portfolio with only currently available technologies</li></ul>	No	\$51.46
High Gas Price	<ul style="list-style-type: none"><li>50% increased gas and energy prices</li></ul>	No	\$52.84 <span style="color: red;">↑ \$1.38</span>
Low Gas Price	<ul style="list-style-type: none"><li>50% decreased gas and energy prices</li></ul>	No	\$49.99 <span style="color: green;">↓ \$1.47</span>

NPV totals include \$2M of EUE cost for the *Base* scenario, \$200K of EUE cost for the *High Gas Price* scenario, and zero EUE cost for the *Low Gas Price* scenario

**Capacity Payment Cost Assumption (2 X CONE):**  $\$139.85 \times 2 = \$279.70/\text{kW-year}$

**Expected Unserved Energy (EUE) Cost Assumption:** \$2,000/MWh



# SUMMARY NPV COMPARISONS FOR ISLAND SCENARIOS

## Least Cost Portfolio to meet a Multi Jurisdictional Baseline

Name of Scenario	Description	Emerging Tech Available	NPV through 2047 (\$BB)
Base	<ul style="list-style-type: none"><li>Least-cost portfolio with only currently available technologies</li></ul>	No	\$51.46
Island – No Winter PRM or ELCC	<ul style="list-style-type: none"><li>Market sales and purchases turned off</li><li>Winter PRM and Winter ELCC reduction curves turned off</li></ul>	No	\$72.03 ↑ \$20.57
Island	<ul style="list-style-type: none"><li>Market sales and purchases turned off</li></ul>	No	\$60.43 ↑ \$ 8.97

NPV totals include \$2M of EUE cost for the *Base* scenario, \$18.4B of EUE cost for the *Island – No Winter PRM or ELCC* scenario and \$3.8B of EUE cost for the *Island* scenario




**Capacity Payment Cost Assumption (2 X CONE):**  $\$139.85 \times 2 = \$279.70/\text{kW-year}$

**Expected Unserved Energy (EUE) Cost Assumption:** \$2,000/MWh



# SUMMARY NPV COMPARISONS FOR EXISTING RESOURCE CHANGES

## Least Cost Portfolio to meet a Multi Jurisdictional Baseline

Name of Scenario	Description	Emerging Tech Available	NPV through 2047 (\$BB)
Base	<ul style="list-style-type: none"> <li>Least-cost portfolio with only currently available technologies</li> </ul>	No	\$51.463
Quay Replace LDES	<ul style="list-style-type: none"> <li>Replace Quay County 23MW Oil CT unit with 23MW 100hr BESS in 2035</li> </ul>	No	\$51.460  \$3M
Quay Replace CT	<ul style="list-style-type: none"> <li>Replace Quay County 23MW Oil CT unit with 23MW NG CT unit in 2035</li> </ul>	No	\$51.520  \$57M
Cunningham 3&4 Replace Fuel Cell	<ul style="list-style-type: none"> <li>Replace Cunningham 3&amp;4 NG CT units with 221MW Fuel Cells in 2041. Model is allowed to select Hydrogen (H2) or Natural gas</li> </ul>		\$51.270  \$193M

NPV totals include \$2.03M of EUE cost for the *Base* scenario, \$1.97M of EUE cost for the *Quay Replace LDES* scenario, \$1.97M of EUE cost for the *Quay Replace CT* scenario and \$1.97M of EUE cost for the *Cunningham 3&4 Replace Fuel Cell* scenario


**Capacity Payment Cost Assumption (2 X CONE):**  $\$139.85 \times 2 = \$279.70/\text{kW-year}$

**Expected Unserved Energy (EUE) Cost Assumption:** \$2,000/MWh



# SUMMARY NPV COMPARISONS FOR DATA CENTERS

## Least Cost Portfolio to Serve Data Centers

Name of Scenario	Description	Emerging Tech Available	NPV through 2047 (\$BB)
Base + Emerging Tech Available (B+ET)	<ul style="list-style-type: none"> <li>Least-cost portfolio with all technologies</li> </ul>	Yes	\$51.16
Data Center – TX	<ul style="list-style-type: none"> <li>B+ET Portfolio locked</li> <li>1GW incremental load ramped up 2031-2035, leveled off through 2047</li> <li><b>All resource types available for solving 1GW load</b></li> </ul>	Yes	\$55.74  <b>\$4.58</b>
Data Center – NM	<ul style="list-style-type: none"> <li>B+ET Portfolio locked</li> <li>1GW incremental load ramped up 2031-2035, leveled off through 2047</li> <li><b>Only non-carbon emitting resources available for solving 1GW load</b></li> </ul>	Yes	





# PLANT UPGRADES



# JONES 3 & 4 FX UPGRADE

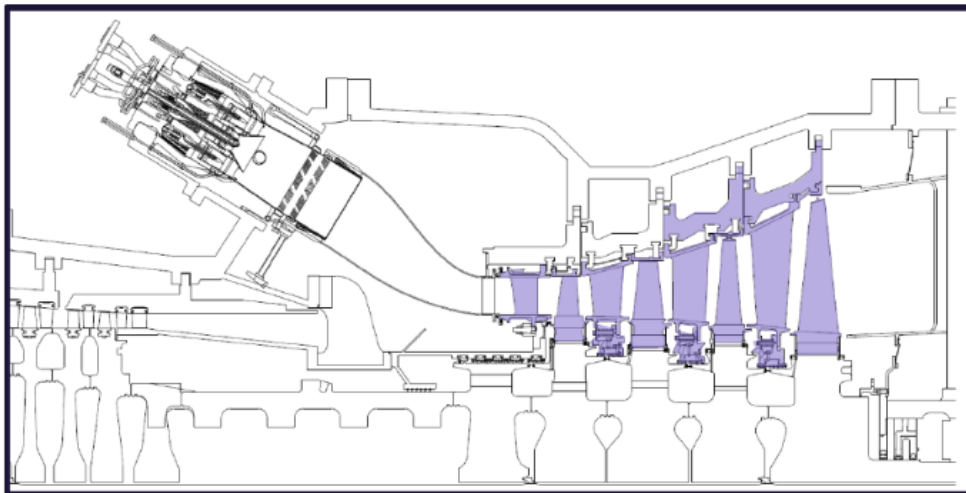
**ISD:** JONES 3 (10/2029) JONES 4 (10/2030)

WITH OEM MILESTONES IN FALL OF 2028 AND 2029

**COST RECOVERY MECHANISM(S):** RATE CASE

## PROJECT NEED:

- THE F(X) ATEP IS A HARDWARE UPGRADE FOR THE SGT6-5000F GAS TURBINE FLEET
- UPGRADE WILL INCREASE POWER OUTPUT (UP TO 19.5 MW PER UNIT), IMPROVED EFFICIENCY, REDUCING FUEL CONSUMPTION AND EMISSIONS, AND LOWERING OPERATIONAL COSTS.



## PROJECT SCOPE:

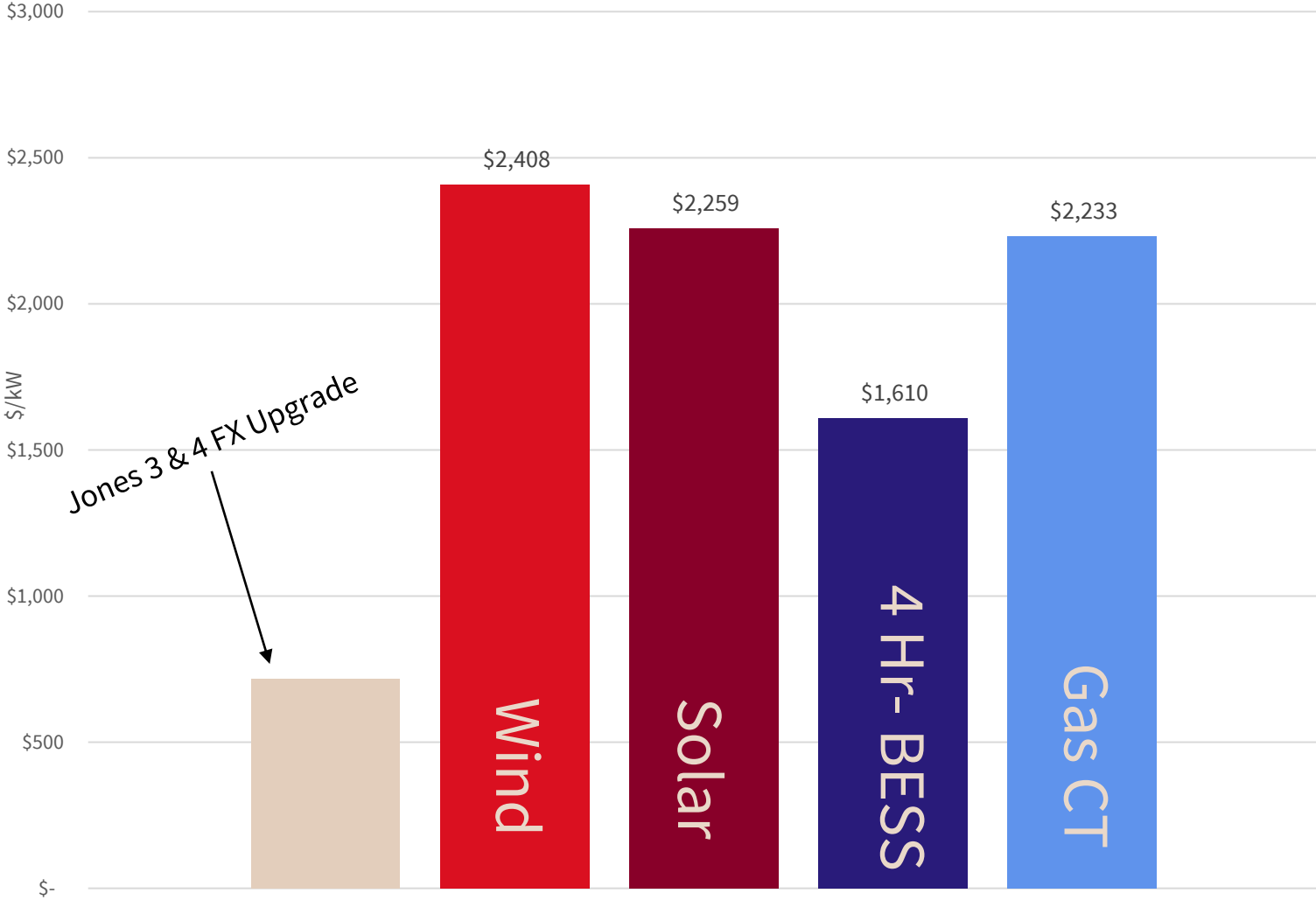
JONES 3 AND 4 WILL BE AT ALLOWABLE HOURS AND STARTS AND NEEDS TO HAVE A HOT GAS PATH (HGP) FOR CONTINUED OPERATION STARTING IN 2029. THIS PROJECT WILL UPGRADE THE HGP COMPONENTS AND PROVIDE PARTS COMMONALITY WITH GAINES AND TOLK WHICH WILL PROVIDE PARTS PRIORITY. THIS UPGRADE WILL INCREASE OUTPUT AND INCREASE FUEL EFFICIENCY.



# JONES 3 & 4 UPGRADE COST COMPARISON

- With this upgrade, the SPS system’s capacity could increase by **39 MW**.
- Potential inclusion in the Action Plan.

Jones Units 3 & 4 FX Upgrade Cost vs. 2024 RFP Bid Pricing



# PROJECT OVERVIEW & JUSTIFICATION

Question:	Answer:
Why is this project needed?	Jones 3 and 4 will be at allowable run hours and need to have a Hot Gas Path (HGP) for continued operation in 2029. This project will upgrade the HGP components and provide parts commonality with Gaines and Tolk which will provide parts priority. This upgrade will increase output and increase fuel efficiency. This project will likely increase the Net Dependable Capacity of the units, improve the capacity accreditation, and improve the SPS capacity position withing the SPP Resource Adequacy Requirements.
What concerns/risks does this project address/mitigate?	Aging units would require more expensive Hot Gas Path (HGP) parts and greater chance of unknown cost escalation due to discovery work and required parts upgrade to meet Siemens technical bulletins. Would lose parts commonality with Gaines and Tolk if we don't perform FX upgrade.
What customer benefits does this project provide (reliability, resiliency, affordability, savings safety, etc.)?	Better heat rate means fuel cost savings for customers while meeting emissions requirements. Higher output will provide an estimated additional 39 MW of quick dispatchable power to support our renewable portfolio.
What are the consequences of NOT doing this project?	Will not be as fuel efficient as newer GTs at Gaines and Tolk affecting market availability and with older parts will increase HGP costs. Older design will require extended overhauls and more frequent inspections, increasing O&M costs.
Were alternative projects evaluated? What were the primary alternatives and why were they not chosen?	No, only whether to upgrade the GT or not. A HGP would be required anyway for the same O&M costs but without the benefits of increased efficiency and output.

# PROJECT OVERVIEW & JUSTIFICATION (CONT.)

Question:	Answer:
How does this align with our Strategic Priorities?	This project will provide cost effective, reliable power for our customers. New reliable machines will realize fuel savings for rate payers and increased output is competitive \$/MWH installed cost.
Does this directly impact safety and/or reliability?	Increase reliability and efficiency
Describe aesthetics and wildfire considerations, as applicable.	No change
Is this project directly related to, or does it support, another project? If yes, explain.	No
How does this project fit into the broader portfolio prioritization for your business area?	The Jones 3 and 4 FX Upgrade is a high-priority investment within the SPS Energy Supply portfolio, adding approximately 39 MW of fast-dispatchable capacity and improved fuel efficiency to reliably balance growing renewable generation across the SPP market. The upgrade also creates parts commonality with Gaines and Tolk, reducing spare-parts lead times and long-term maintenance costs across the gas turbine fleet. This project will strengthen SPS's position in meeting SPP Resource Adequacy Requirements while keeping customer costs competitive. This project will use blended labor between Siemens Technical Field Advisors and our turbine plant personnel; allowing SPS to develop a Center of Excellence (COE) for gas turbines. This gas turbine COE would decrease response time to unplanned outages decreasing Equivalent Unplanned Outage Factor (EUOF).



# STAKEHOLDER PROPOSED SCENARIOS



# PROPOSED SCENARIOS SUMMARY & STAKEHOLDER FEEDBACK

Stakeholder	Scenario #	Model Updates
CCAIE-EFG*	1	Alternative Load Forecast
CCAIE-EFG	2	Alternative Load Forecast + New Emerging Tech Assumptions
CCAIE-EFG	3	SPS Constrained Planning Load Forecast + New Generic Emerging Tech Assumptions
CCAIE-EFG	4	Alternative Load Forecast + New Emerging Tech Assumptions + Existing Resource Extensions
CCAIE-EFG	5	Alternative Load Forecast + New Emerging Tech Assumptions + Existing Resource Extensions + Alternative Islanded
CCAIE-EFG	6	SPS Constrained Planning Load Forecast + Alternative Islanded

*\*All CCAIE-EFG scenarios include a proposal to allow the model to select 6-hr and 8-hr BESS*

Stakeholder	Item #	Feedback
NM PRC STAFF	7	Would like to see a build decoupled from SPP RPM and accreditation requirements and or removing locational transmission constraints
FORM ENERGY	8	Desire to see multi-day storage modeled in the IRP

# INCLUDE 6-HR AND 8-HR BESS – STAKEHOLDER PROPOSED

Allow all six and eight-hour battery storage projects represented in EnCompass and model the capital costs with these increases to the 4-hour storage capital cost:

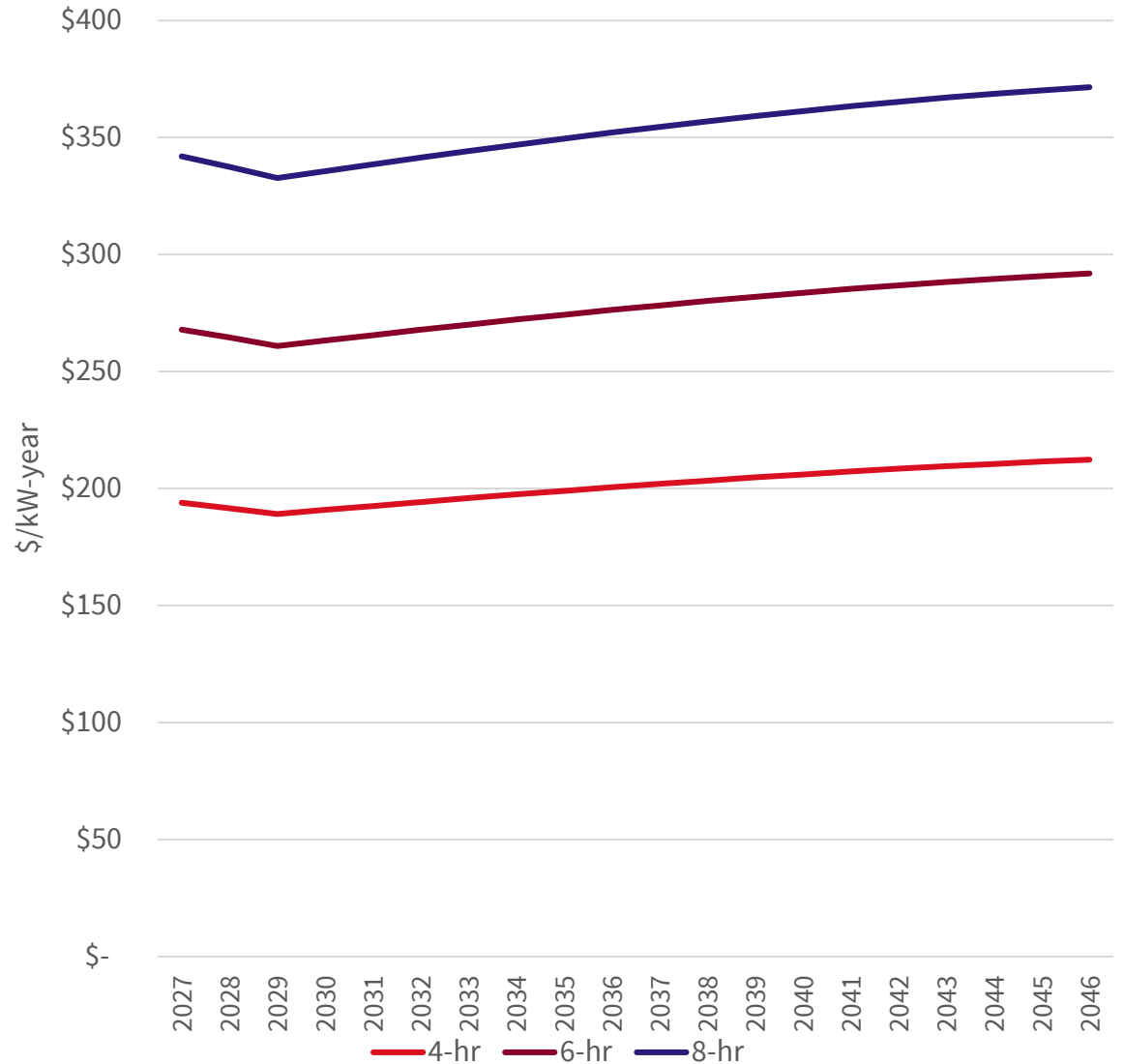
6-hour = 38% increase

8-hour = 76% increase

BESS Duration (Hrs)	Incremental Cost to 4-hr BESS	Proposed CAPEX \$2028 (\$/kW)	Fixed O&M \$2028 (\$/kW-year)	Proposed Total LCOE \$2028 (\$/kW-year)
4		\$1,624.19	\$40.60	\$193.91
6	+38%	\$2,241.38	\$56.35	\$267.92
8	+76%	\$2,858.57	\$72.09	\$341.92

# STAKEHOLDER PROPOSED BESS TOTAL LCOE (\$/KW-YEAR)

Year	4-Hr	6-Hr	8-Hr
2027	\$ 196	N/A	N/A
2028	\$ 194	\$ 268	\$ 342
2029	\$ 192	\$ 265	\$ 338
2030	\$ 189	\$ 261	\$ 333
2031	\$ 191	\$ 263	\$ 336
2032	\$ 193	\$ 266	\$ 339
2033	\$ 194	\$ 268	\$ 341
2034	\$ 196	\$ 270	\$ 344
2035	\$ 197	\$ 272	\$ 347
2036	\$ 199	\$ 274	\$ 350
2037	\$ 201	\$ 276	\$ 352
2038	\$ 202	\$ 278	\$ 355
2039	\$ 203	\$ 280	\$ 357
2040	\$ 205	\$ 282	\$ 359
2041	\$ 206	\$ 284	\$ 361
2042	\$ 207	\$ 285	\$ 363
2043	\$ 208	\$ 287	\$ 365
2044	\$ 210	\$ 288	\$ 367
2045	\$ 211	\$ 290	\$ 369
2046	\$ 212	\$ 291	\$ 370
2047	\$ 212	\$ 292	\$ 372



# ALTERNATIVE LOAD FORECAST – STAKEHOLDER PROPOSED

- 1. Remove all probabilistic load
- 2. Remove any customer request from the large loads (“Oil/Gas” and “DC/Crypto/Other”) that does not have a signed Electric Service Agreement with SPS
- 3. Modify the Electric Vehicle forecast to have the SPS trajectory until 2039 and then replace the SPS values with the peak demand trajectory below:

Year	Peak Trajectory (MW)
2040	228
2041	328
2042	428
2043	528
2044	628
2045	728
2046	828

# NEW GENERIC EMERGING TECH ASSUMPTIONS REQUESTED

Technology	Stakeholder Proposed Changes
Hydrogen CT	<ul style="list-style-type: none"> <li>• Make not available for selection</li> </ul>
Geothermal	<ul style="list-style-type: none"> <li>• Decrease CAPEX in first year available (2032) from <b>\$7,418/kW</b> to <b>\$6,100/kW</b> add SPS TX adder and escalate for inflation</li> <li>• Add in tax credits through <b>2035</b></li> <li>• Decrease annual capacity degradation from <b>2%</b> to <b>0%</b></li> <li>• Decrease annual maximum project additions from <b>2.88 GW</b> to <b>350 MW</b></li> <li>• Decrease starting VO&amp;M in first year available (2032) from <b>\$10/MWh</b> to <b>\$2/MWh</b> and escalate for inflation</li> </ul>
LDES (100-hr)	<ul style="list-style-type: none"> <li>• Add in tax credits through <b>2035</b></li> <li>• Decrease maximum annual project additions from <b>no cap</b> to <b>100 MW</b> per year through 2030, <b>200 MW</b> per year through 2035, and <b>400 MW</b> per year in 2036–2047</li> <li>• Decrease firm (accredited) capacity from <b>100%</b> to <b>90%</b></li> </ul>
Nuclear (SMR)	<ul style="list-style-type: none"> <li>• Change first year available from <b>2032</b> to <b>2040</b></li> <li>• Decrease maximum annual project additions from <b>10 (3 GW)</b> to <b>1 (300 MW)</b></li> <li>• Increase CAPEX in proposed first year available (2040) from <b>\$8,971/kW</b> to <b>\$13,000/kW</b> and escalate for inflation</li> </ul>
Fuel Cells	<ul style="list-style-type: none"> <li>• Change first year available from <b>2028</b> to <b>2030</b></li> <li>• Decrease maximum annual project additions from <b>no cap</b> to <b>300 MW</b></li> <li>• Increase CAPEX in proposed first year available (2030) from <b>\$2,148/kW</b> to <b>\$4,000/kW</b> and escalate for inflation</li> </ul>



# EMERGING TECH MODIFICATIONS P1 (DISCUSS)

## Geothermal

Stakeholder Proposed Changes	Current SPS Modifications
<ul style="list-style-type: none"> <li>Decrease CAPEX in first year available (2032) from <b>\$7,418/kW</b> to <b>\$6,100/kW</b> add SPS TX adder and escalate for inflation</li> <li>Add in tax credits through <b>2035</b></li> </ul>	<ul style="list-style-type: none"> <li>Modified CAPEX. In first year available (2035) value is \$9,742/kW – includes 15% ITC, \$1,700/kW TX cost adder and 2.5% annual inflation</li> <li>Added base ITC (30%) through 2035 - 100% 2027-2033, 75% in 2034 and 50% 2035</li> </ul>
<ul style="list-style-type: none"> <li>Decrease annual capacity degradation from <b>2%</b> to <b>0%</b></li> <li>Decrease annual maximum project additions from <b>2.88 GW</b> to <b>350 MW</b></li> <li>Decrease starting VO&amp;M in first year available (2032) from <b>\$10/MWh</b> to <b>\$2/MWh</b> and escalate for inflation</li> </ul>	<ul style="list-style-type: none"> <li>No modifications</li> </ul>
<p><b>ADDITIONAL MODIFICATIONS</b></p>	<ul style="list-style-type: none"> <li>Changed first year available from 2032 to 2035</li> <li>Changed force-in year from 2036 to 2035 for EGS Force-In Scenario</li> <li>Adjusted starting VO&amp;M for inflation</li> <li>Changed generic nameplate project size from 40MW to 250MW</li> </ul>

# EMERGING TECH MODIFICATIONS P2 (DISCUSS)

## 100-hr LDES

Stakeholder Proposed Changes	Current SPS Modifications
<ul style="list-style-type: none"> <li>Add in tax credits through <b>2035</b></li> <li>Decrease maximum annual project additions from <b>no cap</b> to <b>100 MW</b> per year through 2030, <b>200 MW</b> per year through 2035, and <b>400 MW</b> per year in 2036–2047</li> <li>Decrease firm (accredited) capacity from <b>100%</b> to <b>90%</b></li> </ul>	<ul style="list-style-type: none"> <li>Added base ITC (30%) through 2035 - <i>100% 2027-2033, 75% in 2034 and 50% 2035</i></li> <li>No modifications</li> </ul>
<b>ADDITIONAL MODIFICATIONS</b>	<ul style="list-style-type: none"> <li>Adjusted starting FO&amp;M for inflation</li> </ul>

## Fuel Cells

Stakeholder Proposed Changes	Current SPS Modifications
<ul style="list-style-type: none"> <li>Increase CAPEX in proposed first year available (2030) from <b>\$2,148/kW</b> to <b>\$4,000/kW</b> and escalate for inflation</li> <li>Change first year available from <b>2028</b> to <b>2030</b></li> <li>Decrease maximum annual project additions from <b>no cap</b> to <b>300 MW</b></li> </ul>	<ul style="list-style-type: none"> <li>Modified CAPEX. In first year available (2028) value is \$2,655/kW – <i>includes 2.5% annual inflation</i></li> <li>Removed base ITC (30%) benefit from CAPEX in post-tax credit eligible years - <i>+50% 2034, +75% in 2035 and +100% 2036-2047</i></li> <li>No modifications</li> </ul>
<b>ADDITIONAL MODIFICATIONS</b>	<ul style="list-style-type: none"> <li>Adjusted starting FO&amp;M for inflation</li> </ul>



# EMERGING TECH MODIFICATIONS P3 (DISCUSS)

## Nuclear (SMR)

Stakeholder Proposed Changes	Current SPS Modifications
<ul style="list-style-type: none"><li>• Change first year available from <b>2032</b> to <b>2040</b></li><li>• Decrease maximum annual project additions from <b>10 (3 GW)</b> to <b>1 (300 MW)</b></li><li>• Increase CAPEX in proposed first year available (2040) from <b>\$8,971/kW</b> to <b>\$13,000/kW</b> and escalate for inflation</li></ul>	<ul style="list-style-type: none"><li>• No modifications</li></ul>

## Hydrogen CT

Stakeholder Proposed Changes	Current SPS Modifications
<ul style="list-style-type: none"><li>• Not available for selection</li></ul>	<ul style="list-style-type: none"><li>• No modifications</li></ul>

# EXISTING RESOURCE EXTENSIONS – STAKEHOLDER PROPOSED (DISCUSS)

1. Extend Hobbs CC PPA by ten years
2. Extend/repower existing wind resources including (Wildorado, Mammoth, Palo Duro, Roosevelt) for 20 years

# STAKEHOLDER PROPOSED RESOURCE EXTENSIONS NAMEPLATE CAPACITY (MW)

Year	Hobbs	Wildorado	Mammoth	Palo Duro	Roosevelt	Total Current	Total w/Extension	Delta
2027	531	161	199	250	250	1,391	1,391	-
2028	531	161	199	250	250	1,391	1,391	-
2029	531	161	199	250	250	1,391	1,391	-
2030	531	161	199	250	250	1,391	1,391	-
2031	531	161	199	250	250	1,230	1,391	+161
2032	531	161	199	250	250	1,230	1,391	+161
2033	531	161	199	250	250	1,230	1,391	+161
2034	531	161	199	250	250	699	1,391	+692
2035	531	161	199	250	250	250	1,391	+1,141
2036	531	161	199	250	250	-	1,391	+1,391
2037	531	161	199	250	250	-	1,391	+1,391
2038	531	161	199	250	250	-	1,391	+1,391
2039	531	161	199	250	250	-	1,391	+1,391
2040	531	161	199	250	250	-	1,391	+1,391
2041	531	161	199	250	250	-	1,391	+1,391
2042	531	161	199	250	250	-	1,391	+1,391
2043	531	161	199	250	250	-	1,391	+1,391
2044	531	161	199	250	250	-	1,391	+1,391
2045	531	161	199	250	250	-	1,391	+1,391
2046	531	161	199	250	250	-	1,391	+1,391
2047	531	161	199	250	250	-	1,391	+1,391



# ALTERNATIVE ISLANDED – STAKEHOLDER PROPOSED

Model the winter Planning Reserve Margin (“PRM”) to have the same value as the summer PRM starting in 2031



**QUESTIONS?**





# APPENDIX





# **APPENDIX**

# **EMERGING TECH GENERICS**



# METHOD FOR ENSURING QUALITY DATA FOR EMERGING TECH GENERICS

1

## Start with trusted third-party analyses

Pull data from multiple public reports published by organizations such as IEA, EIA, DOE, NREL, industry specific groups

2

## Get developer inputs

Gather inputs from relevant technology developers via the emerging tech RFI

*Note: we assume that the values provided are equivalent to an AACE Class 5 TEA and therefore has an error of +40/-20%*

3

## Augment

Shift weighting of third-party analyses towards more optimistic or pessimistic scenarios based on developer inputs

4

## Include Tax Credits, Adders

Modify the cost curve to include any relevant tax credits and any technology specific adders (e.g. transmission)



# EMERGING TECH GENERICS

## 100hr Long Duration Energy Storage

### Operational Data:

- DOE Energy Earth Shots: Storage (2024)
- MPSC Study of Long-Duration and Multiday Energy Storage (2025)
- Industry feedback

### Cost Data:

- NYSERDA/EPRI 0x40 Technoeconomic Assessment (2025)
- EPRI Benchmarking (2025)
- Industry feedback

## Enhanced Geothermal Systems (EGS)

### Operational Data:

- IRENA Renewable Power Generation Costs (2022)
- IEA The Future of Geothermal Energy (2024)
- S&P Global
- Fervo public data (Earth ArXiv)
- Industry feedback

### Cost Data:

- 2024 NREL ATB: Deep and Shallow EGS
- IEA The Future of Geothermal Energy
- DOE Liftoff Report
- Fervo public data (IPO)
- Industry feedback

## Small Modular Reactor (SMR)

### Operational Data:

- GE-Vernova Hitachi public BWRX-300 General Description
- 2024 NREL ATB: Nuclear – Small
- DOE Advanced Nuclear Liftoff Report (2024)
- Industry feedback

### Cost Data:

- INL Meta-Analysis of Advanced Nuclear Reactor Cost Estimations (2024)
- 2024 NREL ATB: Nuclear – Small
- Industry feedback



# EMERGING TECH GENERICS

## Hydrogen

### Conversion Adder Data:

- EPRI US Regen Model (2025)
- DNV Hydrogen in the Electricity Value Chain (2020)

### Fuel Cost Data:

- DNV Hydrogen Forecast 2022 to 2050
- Bloomberg NEF (2024)
- IRENA Green Hydrogen Cost Reduction (2020)
- IEA Global Hydrogen Review (2025)

## Fuel Cells

### Operational Data:

- NREL ATB
- Industry feedback

### Cost Data:

- 2024 NREL ATB
- IEA Stationary Fuel Cell Applications (2021)
- Industry feedback

## Point Source Carbon Capture

### NGCC Operation Modifier Data:

- NETL Eliminating the Derate of Carbon Capture Retrofits (2023)
- NYSERDA/EPRI 0x40 Technoeconomic Assessment (2025)
- Industry feedback

### Cost Data:

- 2024 NREL ATB: F class and H class
- DOE OCED Portfolio Insights: Carbon Capture in the Power Sector (2024)
- Industry feedback





# **APPENDIX**

# **SCENARIO RESULTS**



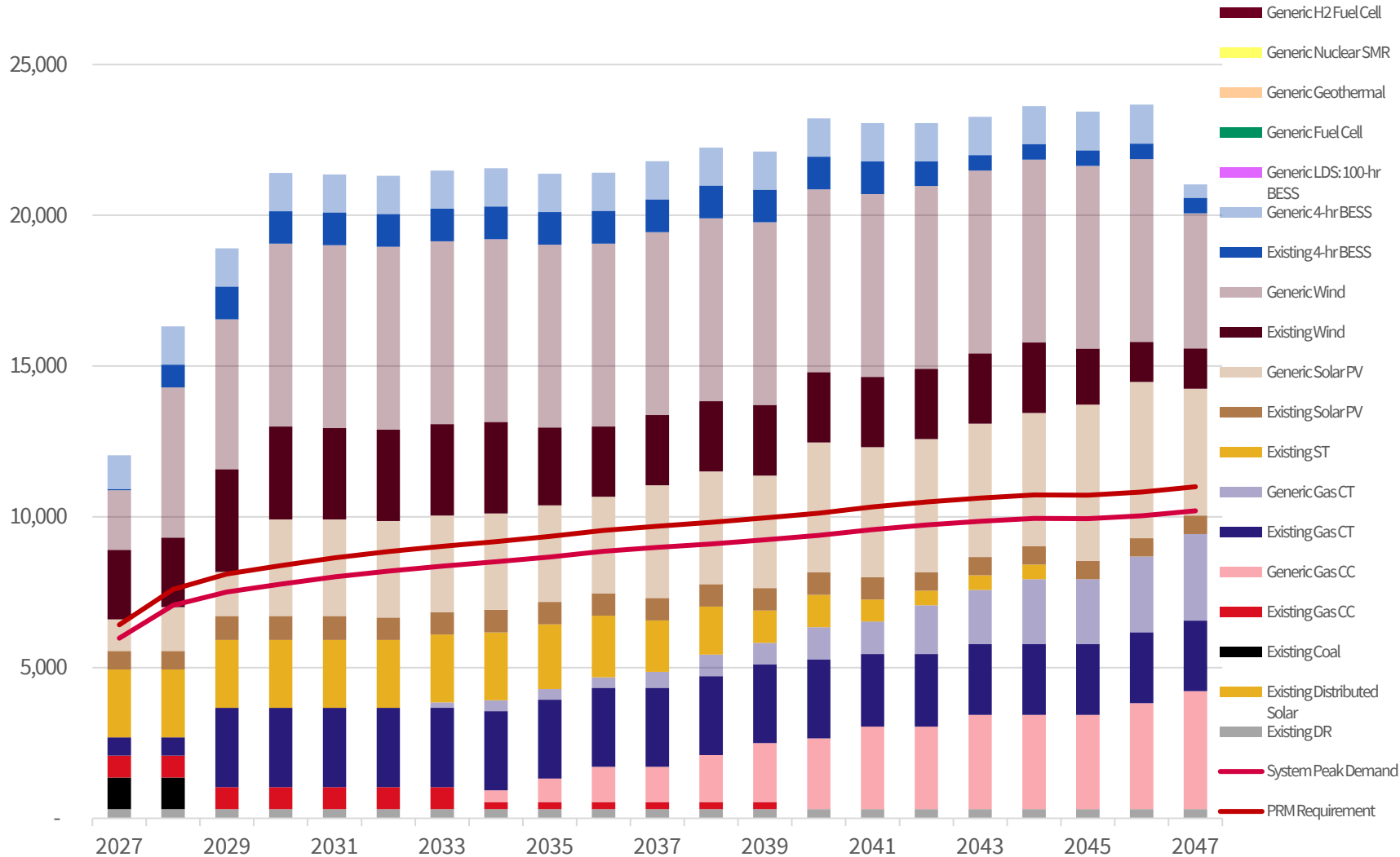
# UNCONSTRAINED PLANNING

## PRELIMINARY RESULTS



# UNCONSTRAINED PLANNING BASE CASE

Nameplate Additions through 2047



**Forecast Assumption:**  
2026 V1 Unconstrained Planning Forecast

**Description:**  
Base model to meet Unconstrained (high) load forecast

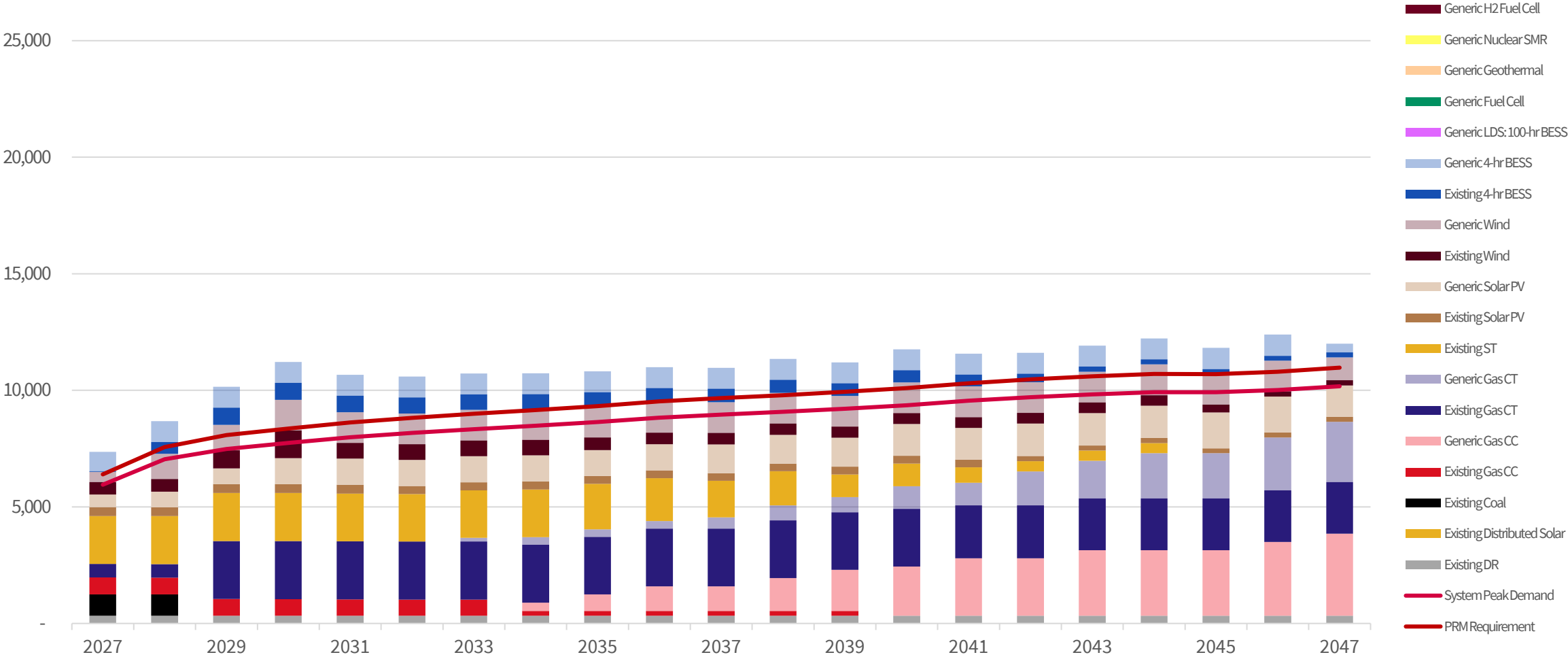
**NPV through 2047 (\$M):**

**EUE MWh:**

**EUE NPV (\$M):**

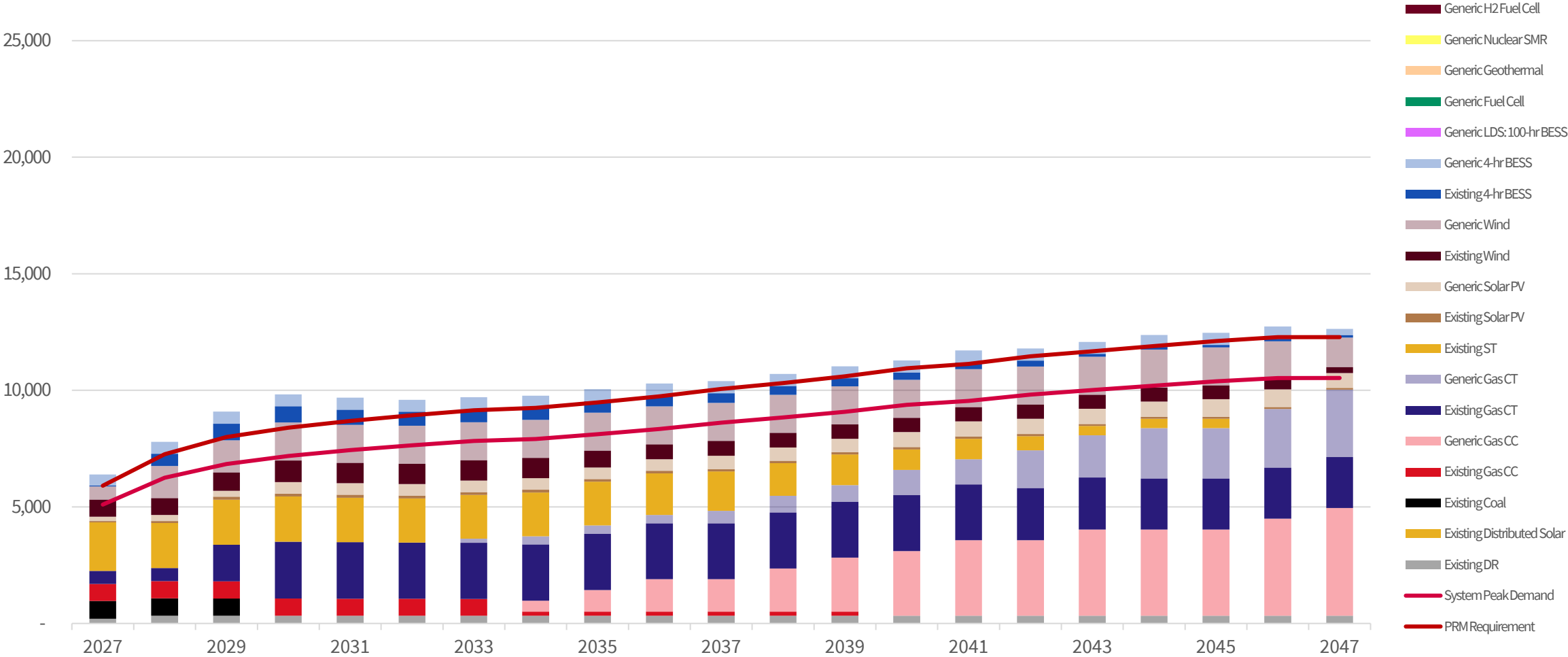
# SUMMER ACCREDITED CAPACITY (MW)

## Unconstrained Planning Base Case



# WINTER ACCREDITED CAPACITY (MW)

## Unconstrained Planning Base Case



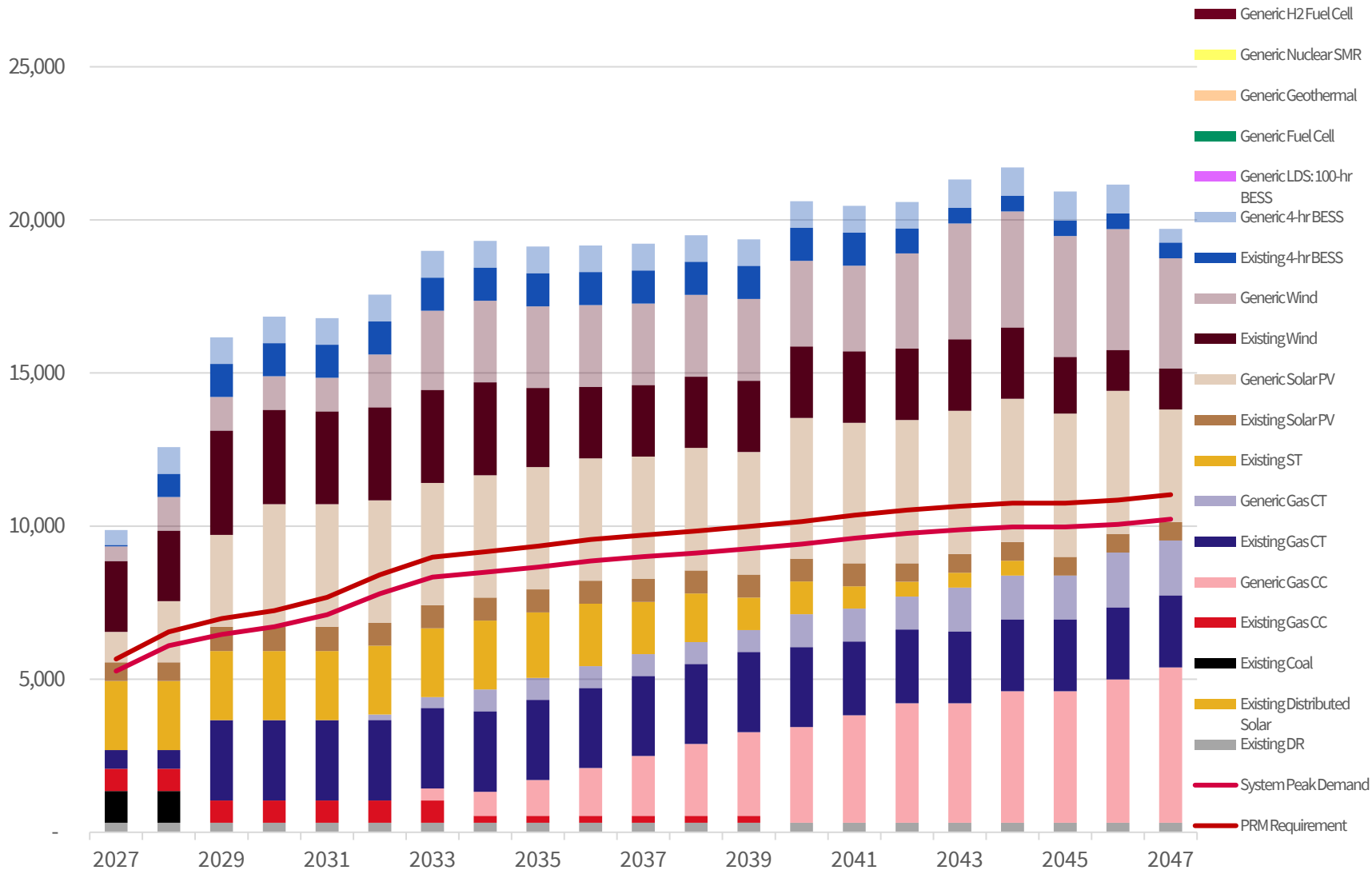
# CONSTRAINED PLANNING

## PRELIMINARY RESULTS



# CONSTRAINED PLANNING BASE CASE

Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

**Description:**  
Base model to meet  
Constrained load forecast

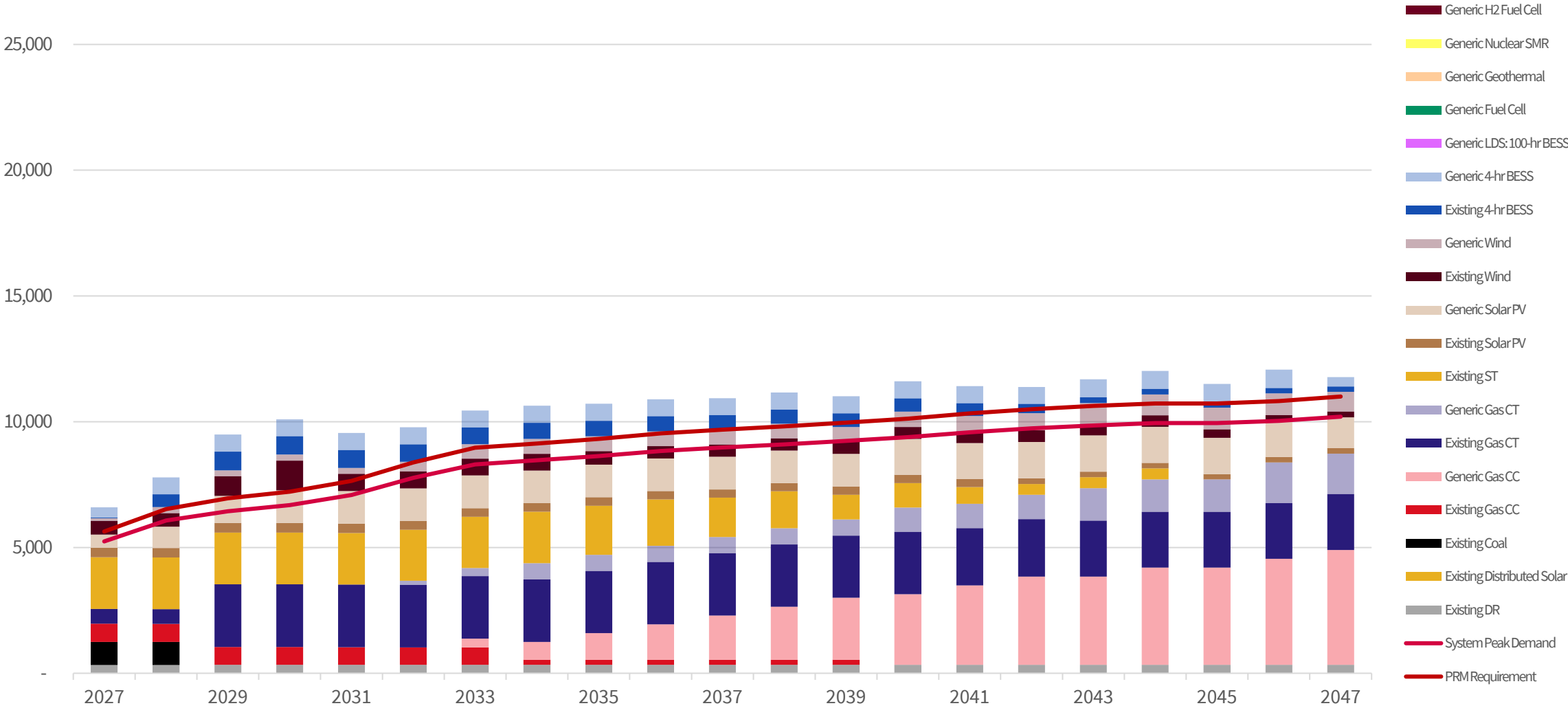
**NPV through 2047 (\$M):**  
\$51,463

**EUE MWh: 1,443**  
**EUE NPV (\$M): \$2.03**



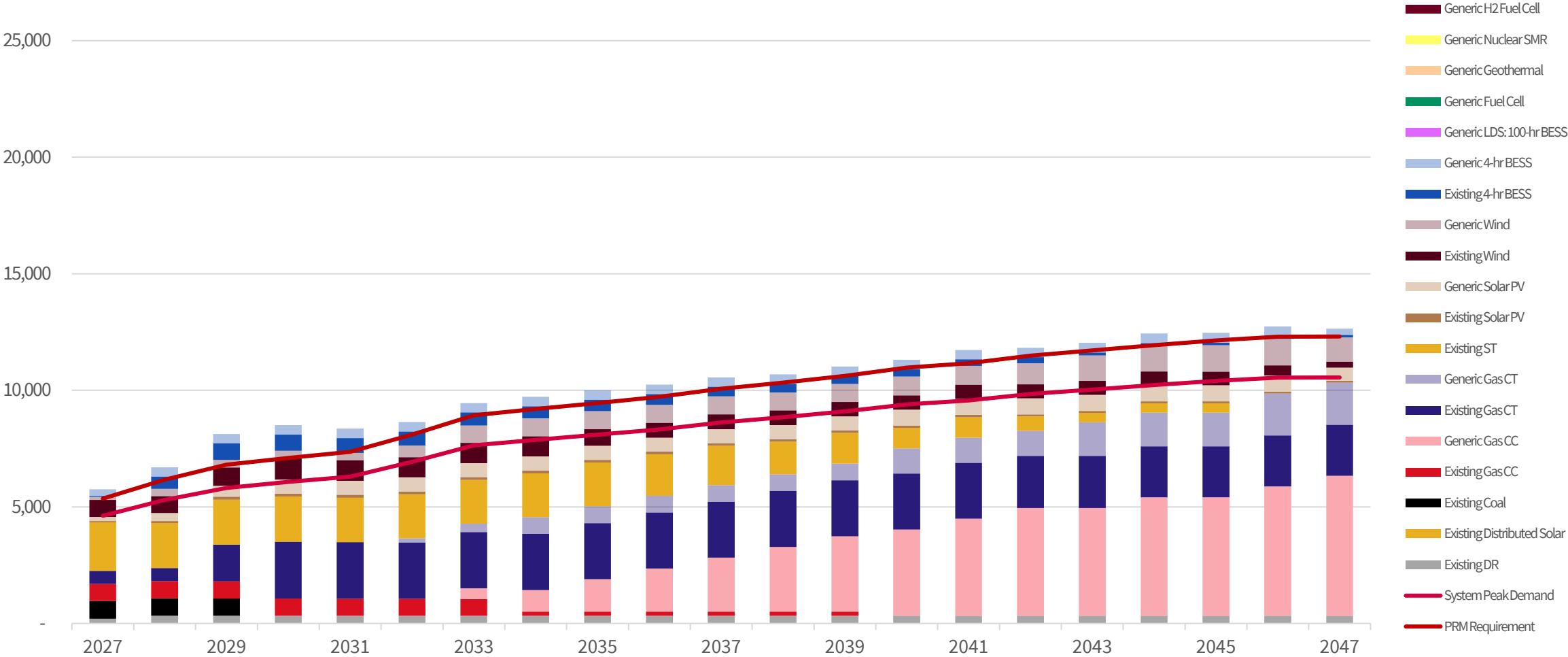
# SUMMER ACCREDITED CAPACITY (MW)

## Constrained Planning Base Case



# WINTER ACCREDITED CAPACITY (MW)

## Constrained Planning Base Case



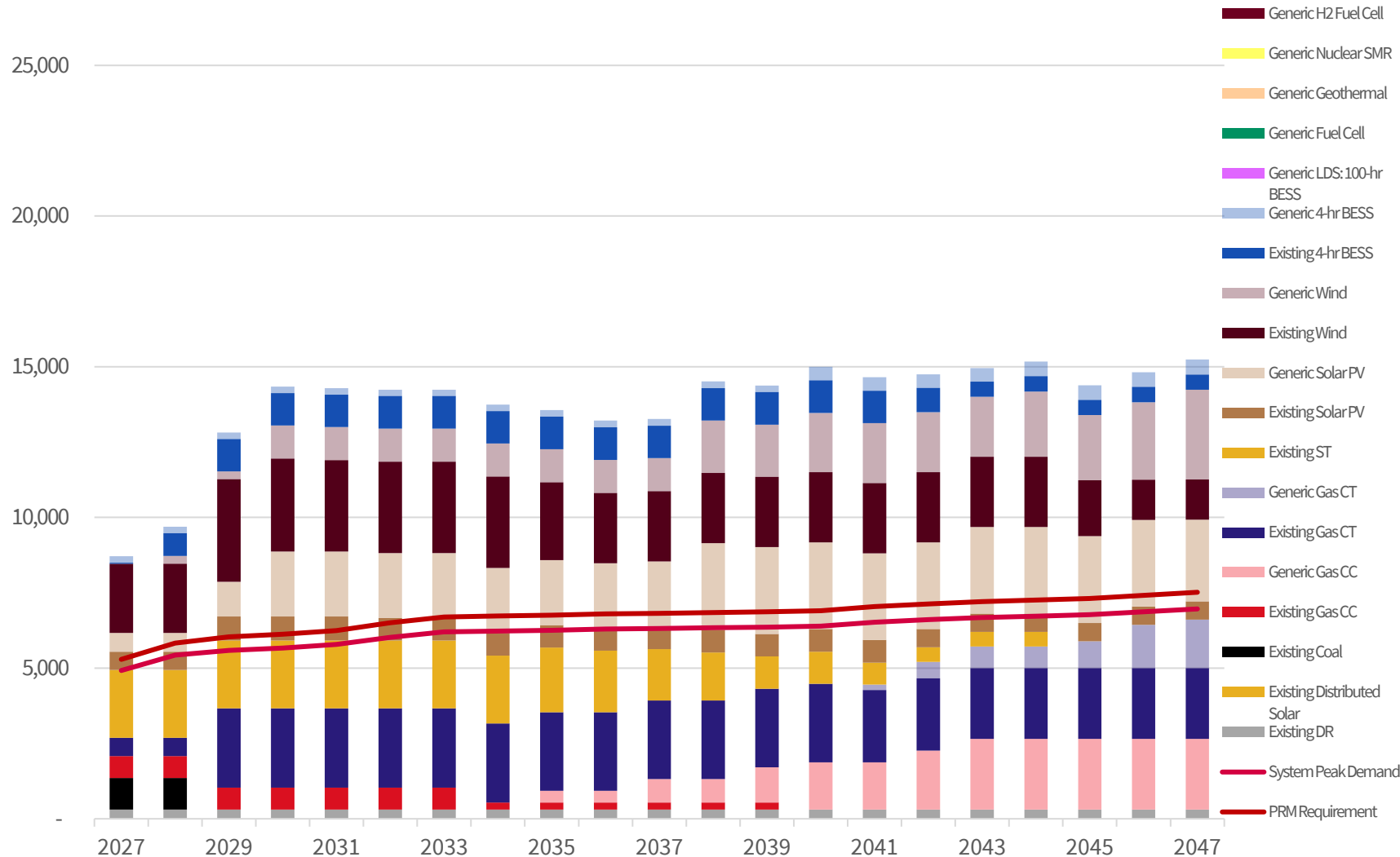
# LOW PLANNING

## PRELIMINARY RESULTS



# LOW PLANNING BASE CASE

Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Low Planning Forecast

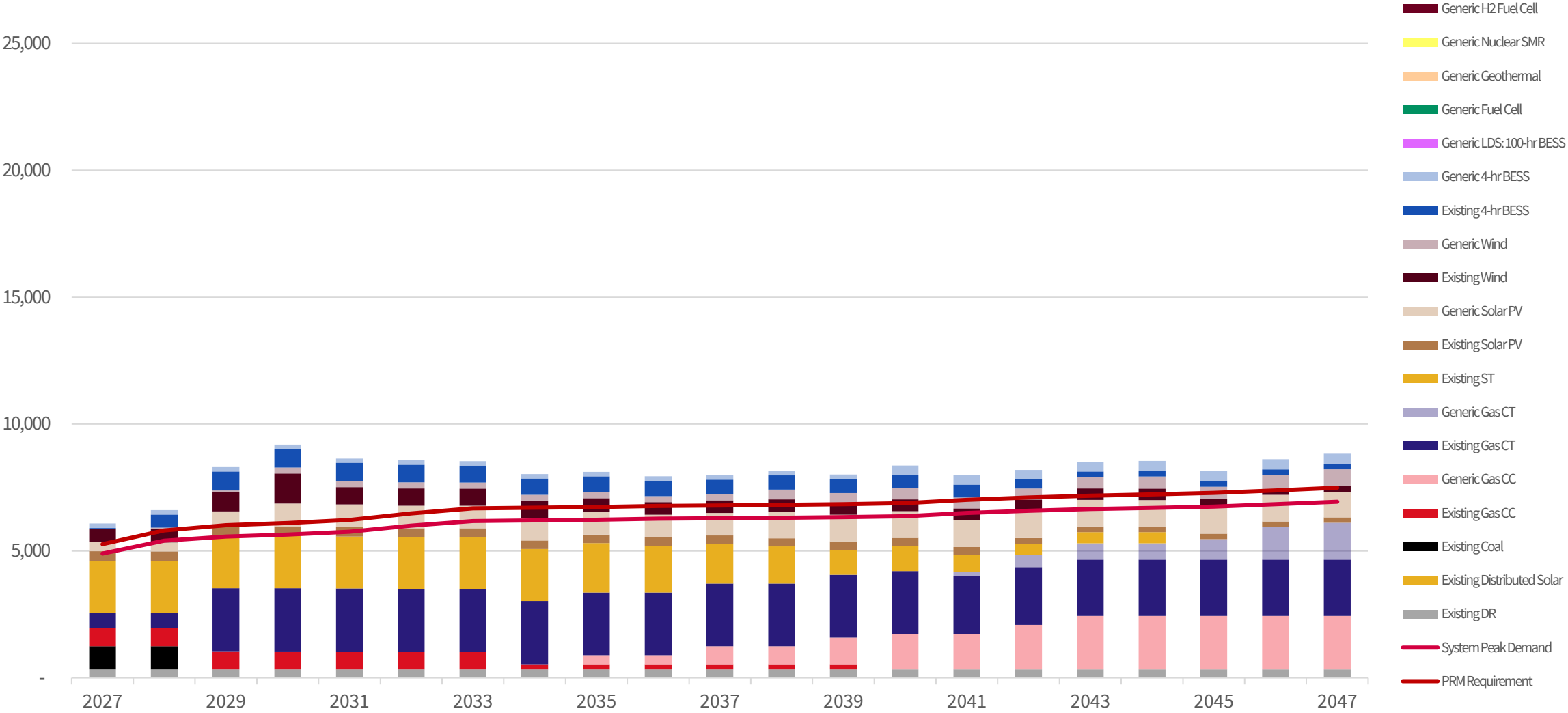
**Description:**  
Base model to meet Low load forecast

**NPV through 2047 (\$M):**  
\$33,194

**Zero EUE**

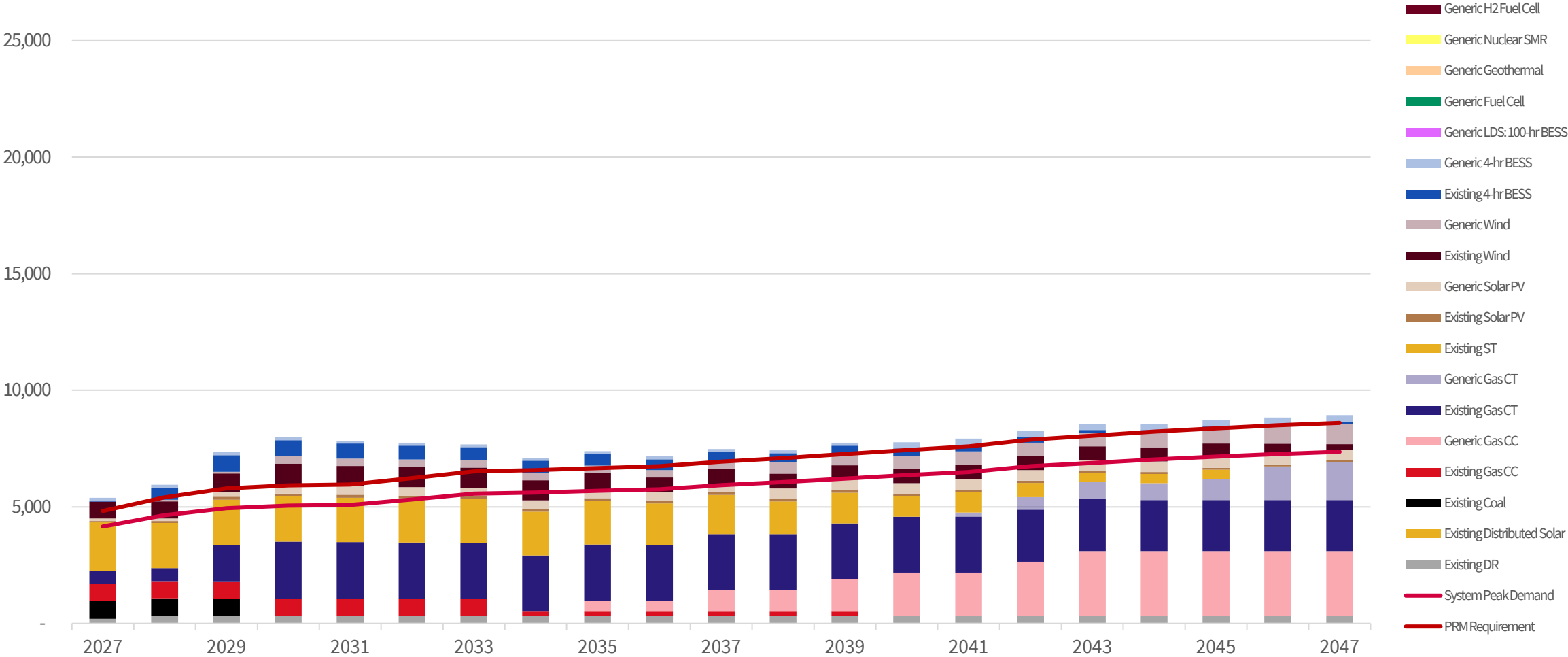
# SUMMER ACCREDITED CAPACITY (MW)

## Low Planning Base Case



# WINTER ACCREDITED CAPACITY (MW)

## Low Planning Base Case





# MODELING SENSITIVITIES

Preliminary Results



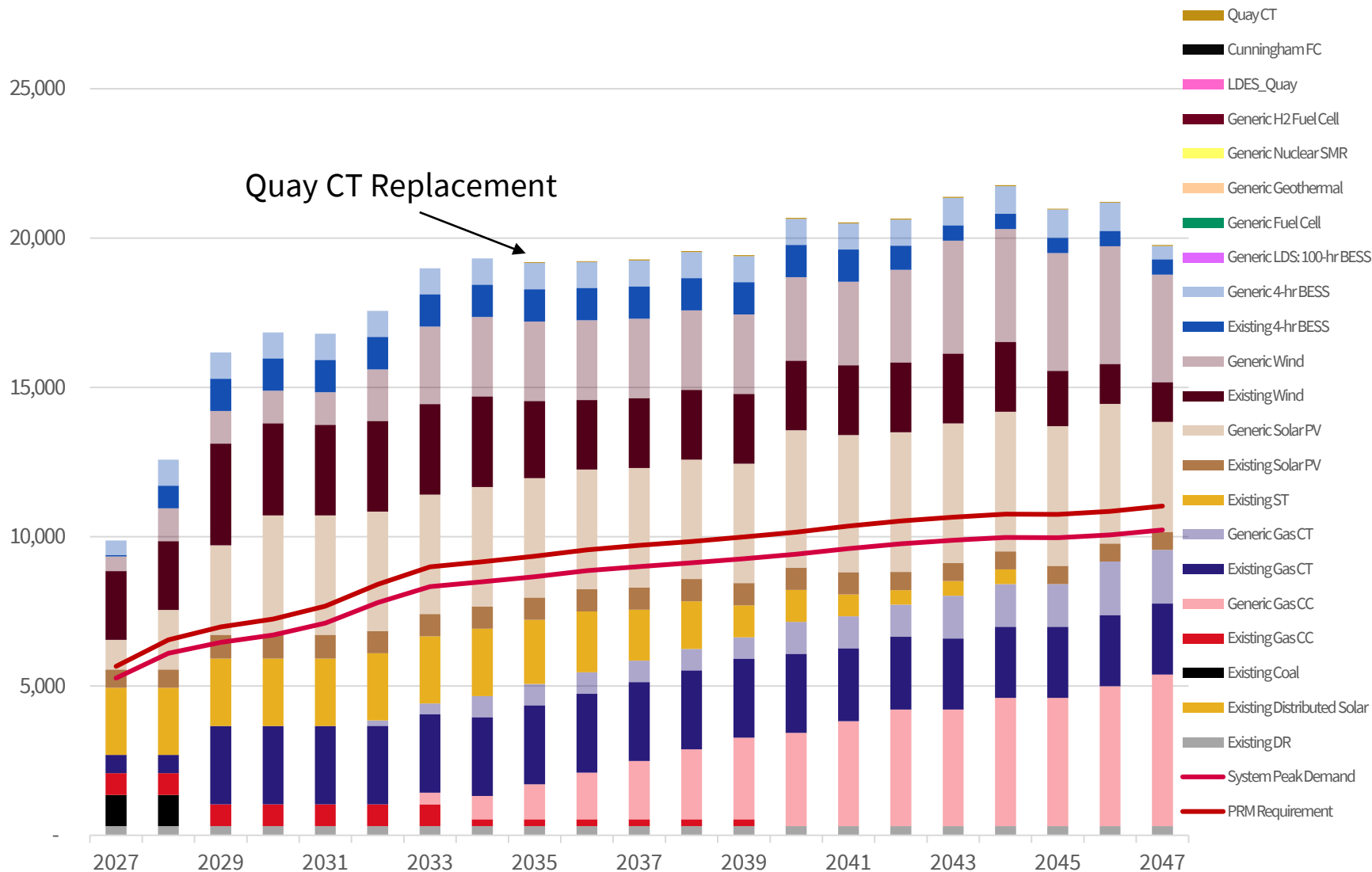
# QUAY COUNTY CT REPLACEMENT

## PRELIMINARY RESULTS



# QUAY COUNTY CT REPLACEMENT

Nameplate Additions through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

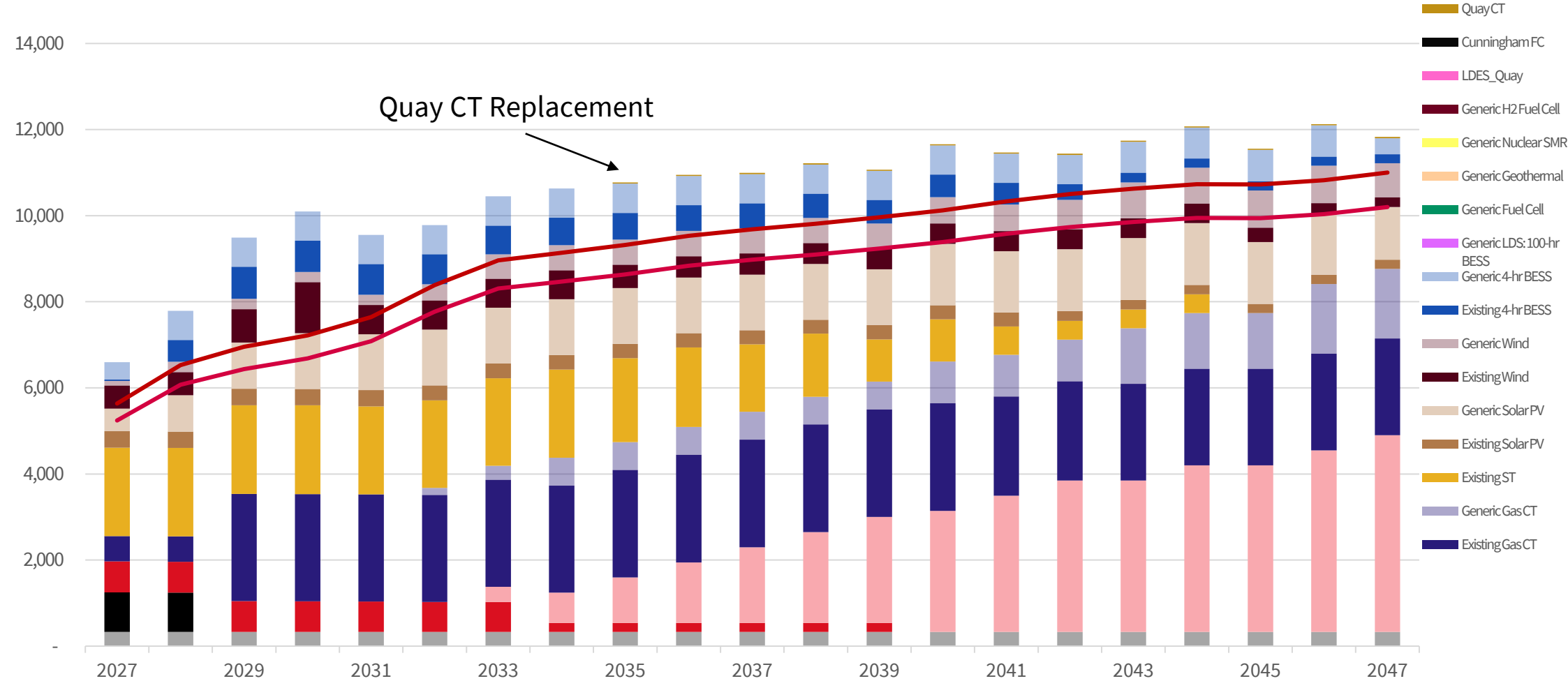
**Description:**  
Replaces 23MW QF CT at  
Quay with 23MW NG CT in  
2035

**NPV through 2047 (\$M):**  
\$51,520

**EUE MWh: 1,384**  
**EUE NPV (\$M): \$1.97**

# SUMMER ACCREDITED CAPACITY

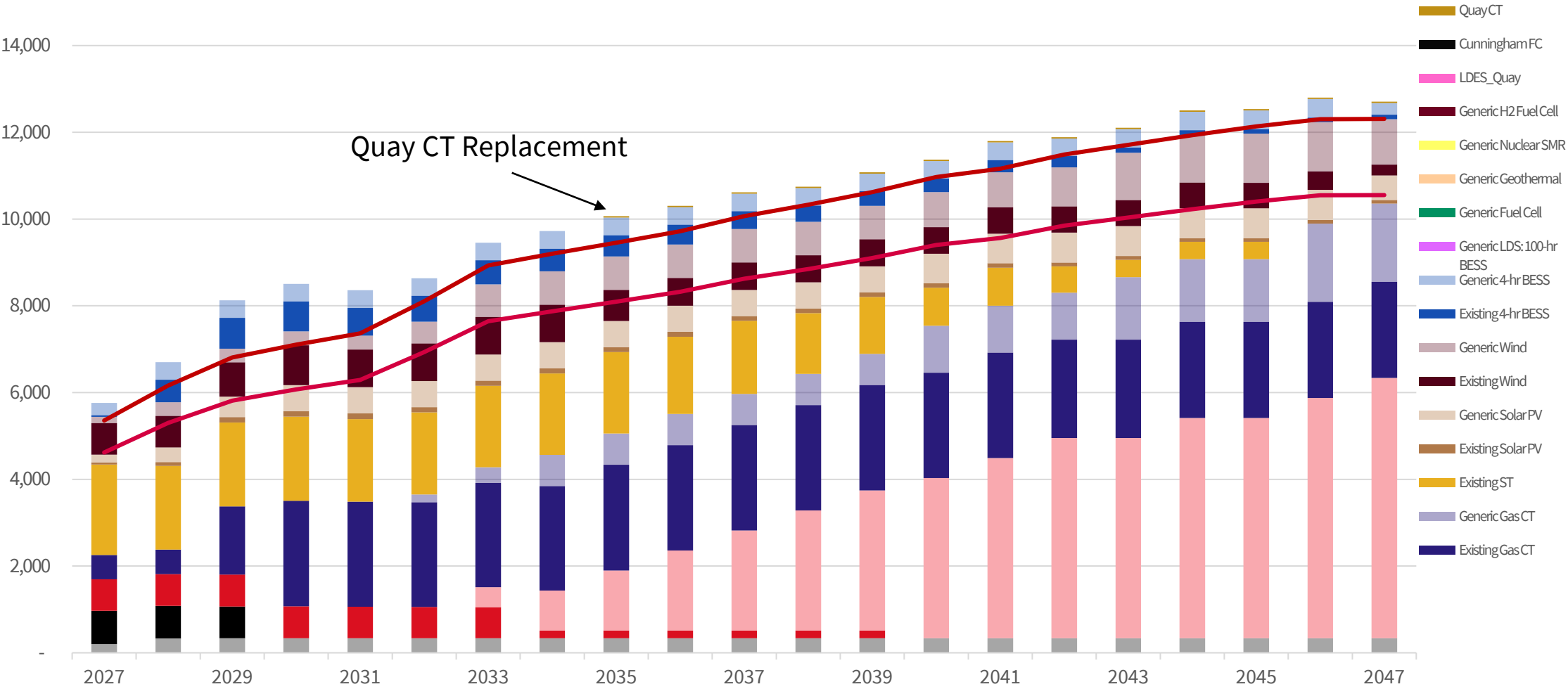
## Quay County CT Replacement



Quay CT Replacement

# WINTER ACCREDITED CAPACITY

## Quay County CT Replacement



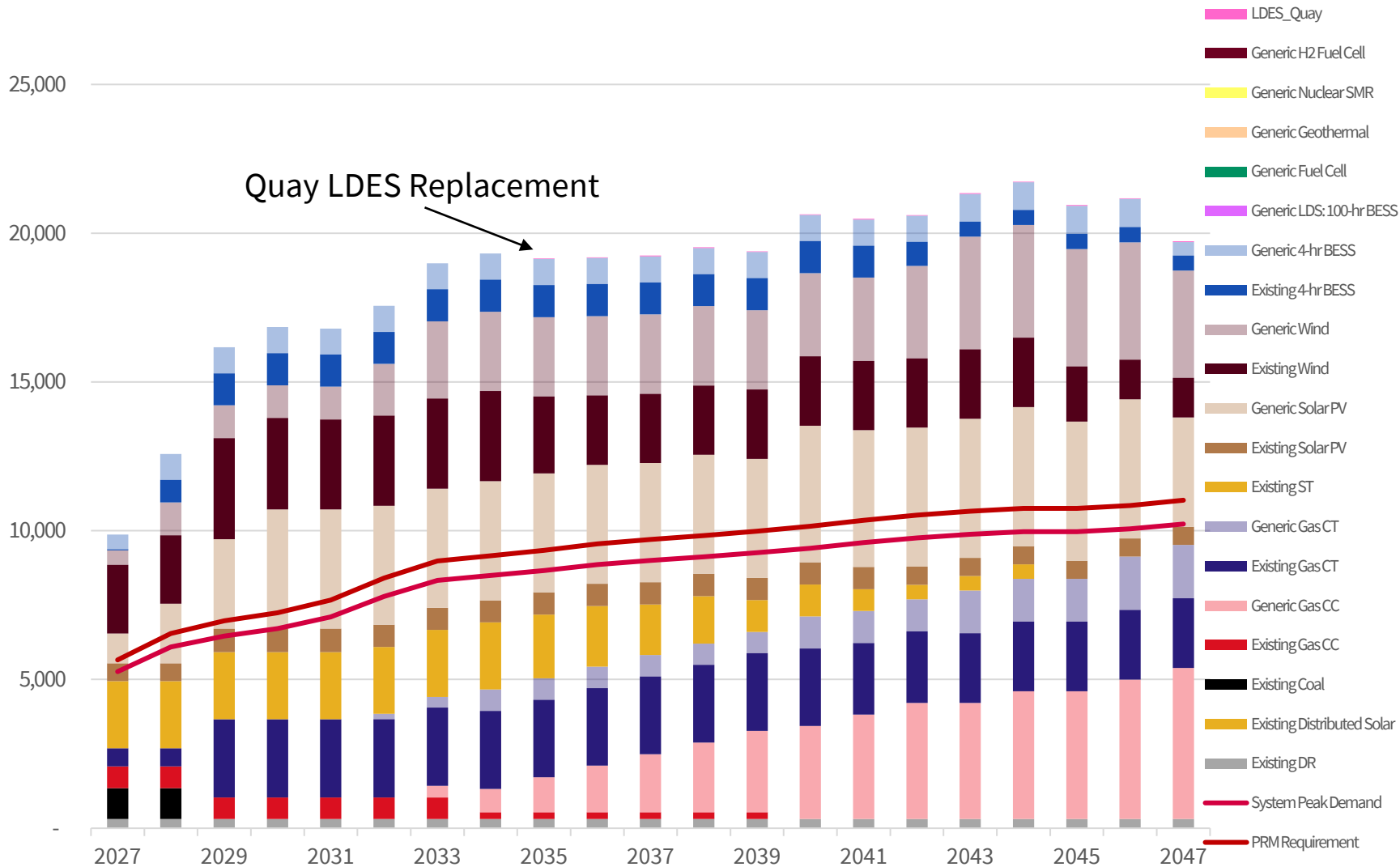
# QUAY COUNTY 100-HR LDES REPLACEMENT

## PRELIMINARY RESULTS



# QUAY COUNTY 100-HR LDES REPLACEMENT

Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

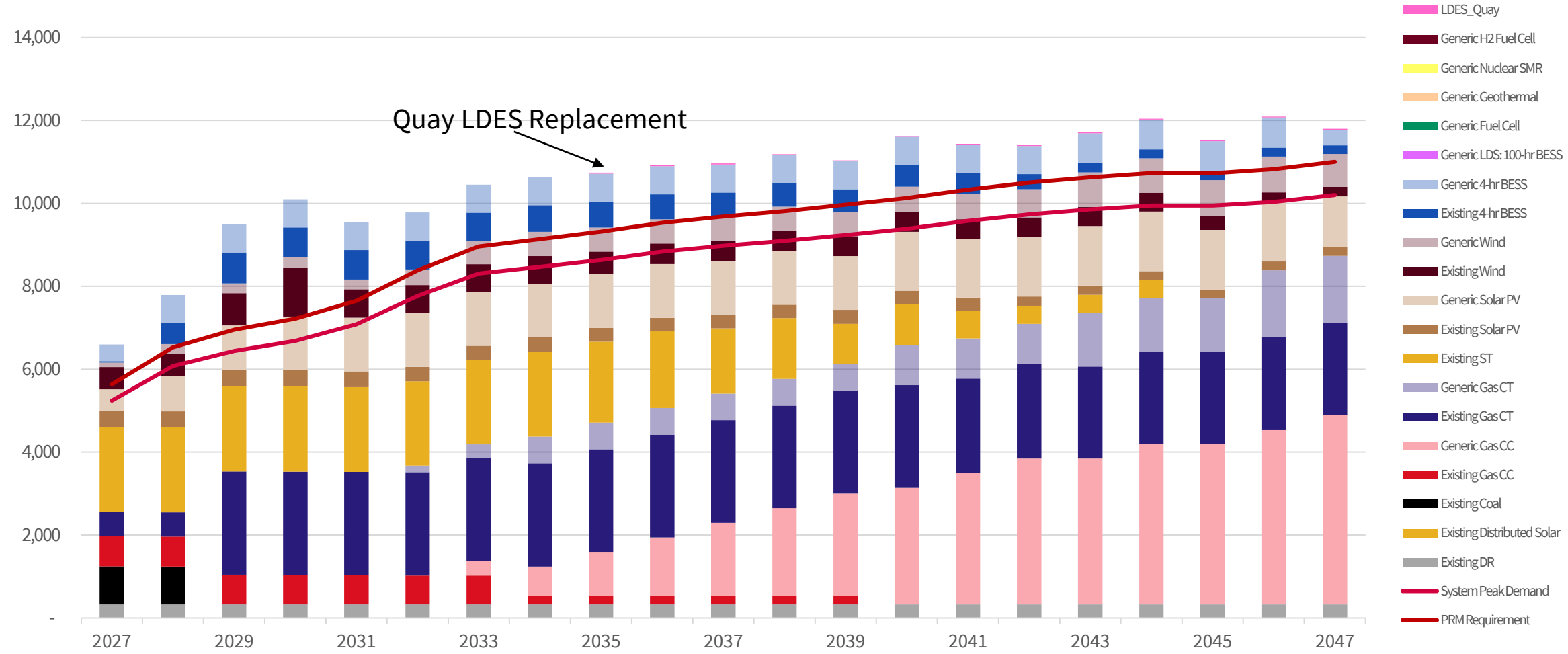
**Description:**  
Replaces 23 QF CT at  
Quay with 23MW 100hr  
LDES in 2035

**NPV through 2047 (\$M):**  
\$51,460

**EUE MWh: 1,384**  
**EUE NPV (\$M): \$1.97**

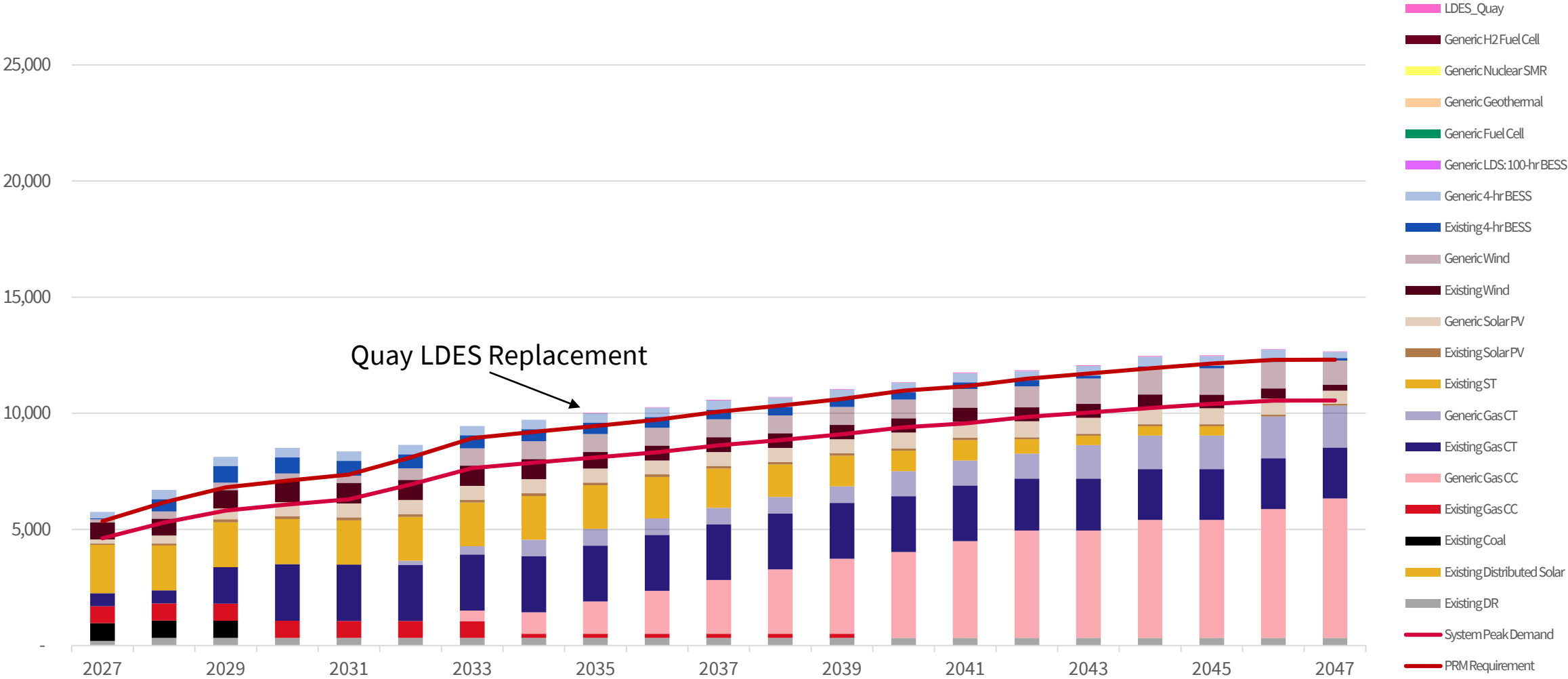
# SUMMER ACCREDITED CAPACITY (MW)

## Quay County 100-hr LDES Replacement



# WINTER ACCREDITED CAPACITY (MW)

## Quay County 100-hr LDES Replacement



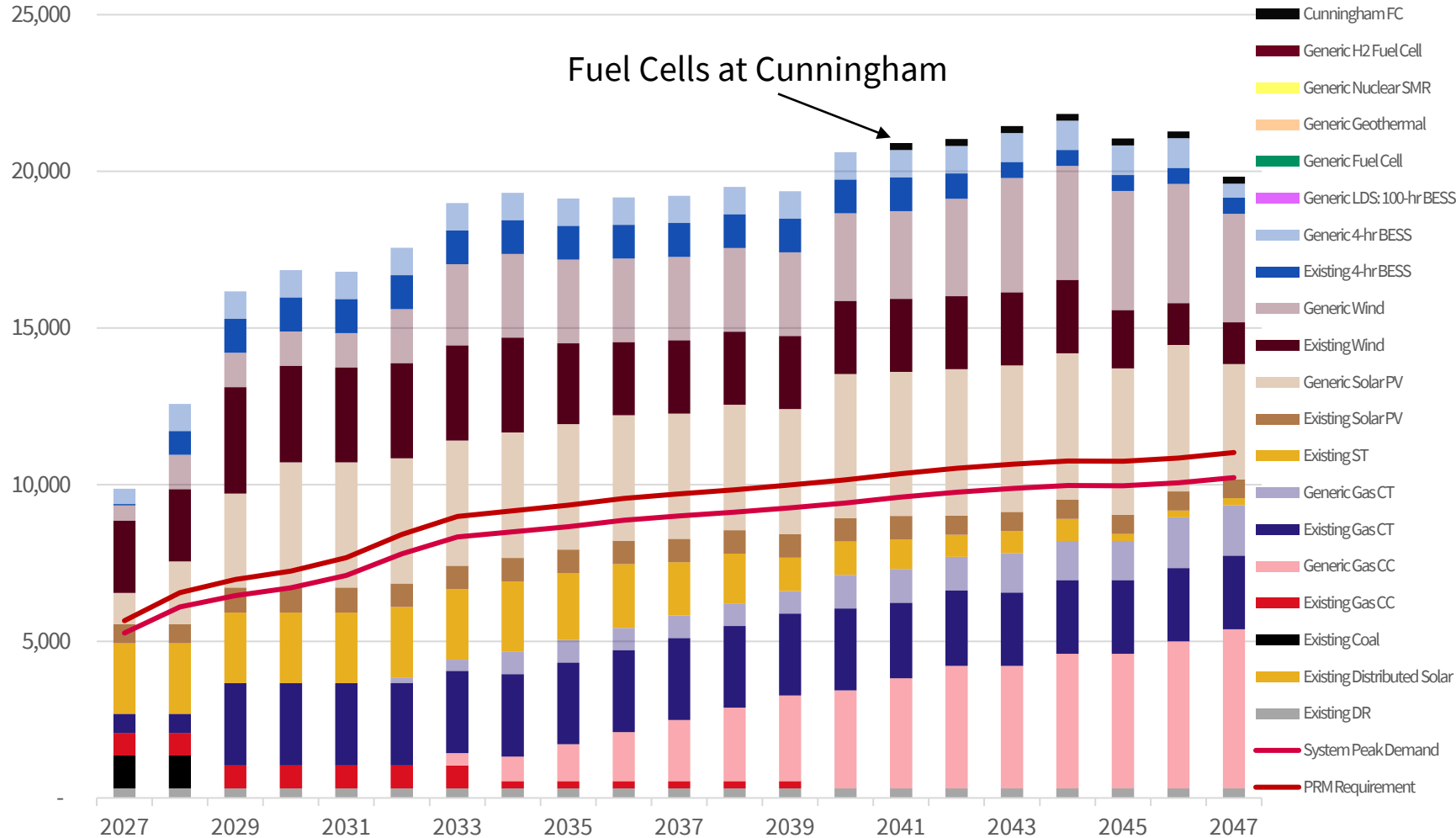
# REPLACE CUNNINGHAM 3 & 4 WITH FUEL CELLS

## PRELIMINARY RESULTS



# REPLACE CUNNINGHAM 3 & 4 WITH FUEL CELLS

Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

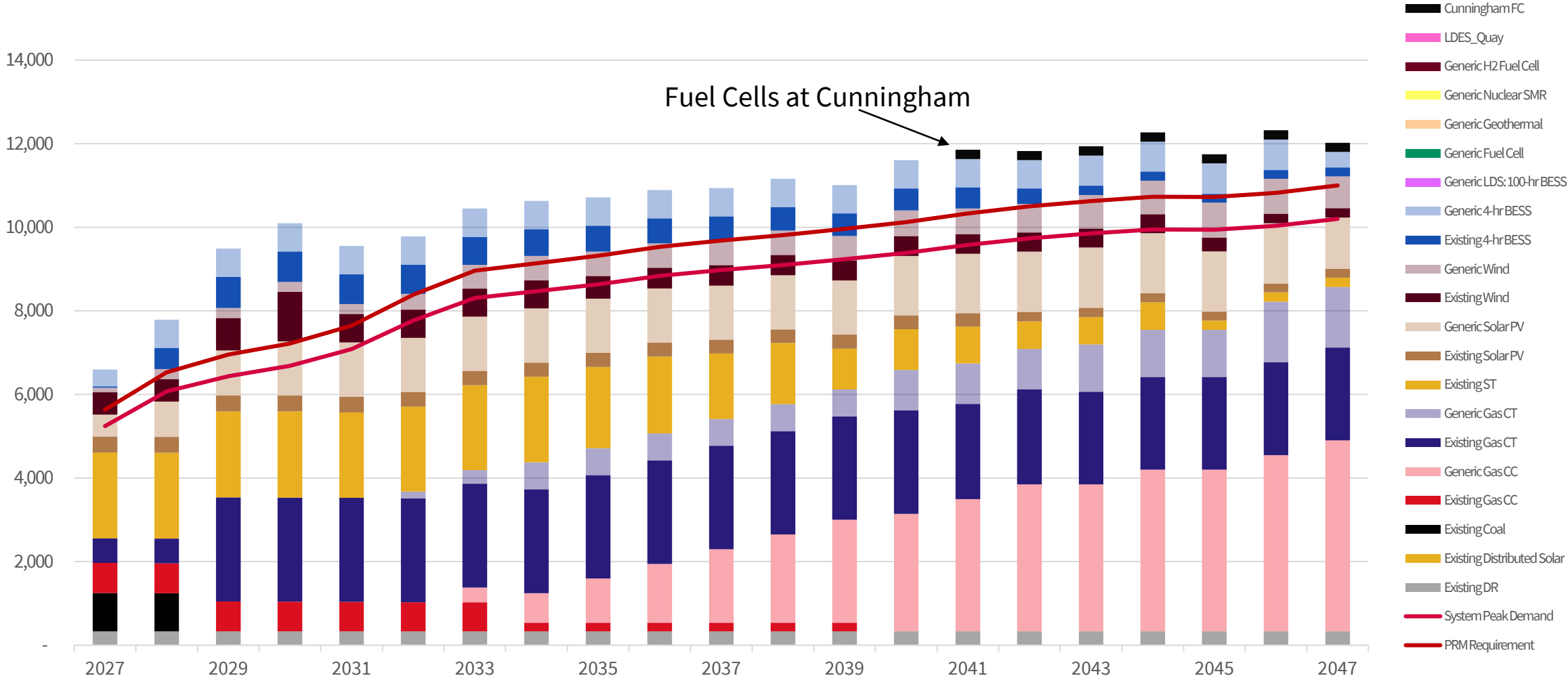
**Description:**  
Replaces Cunningham  
3&4 CTs with 221 MW Fuel  
Cell in 2041. Model  
selected NG over H2

**NPV through 2047 (\$M):**  
\$51,270

**EUE MWh: 1,384**  
**EUE NPV (\$M): \$1.97**

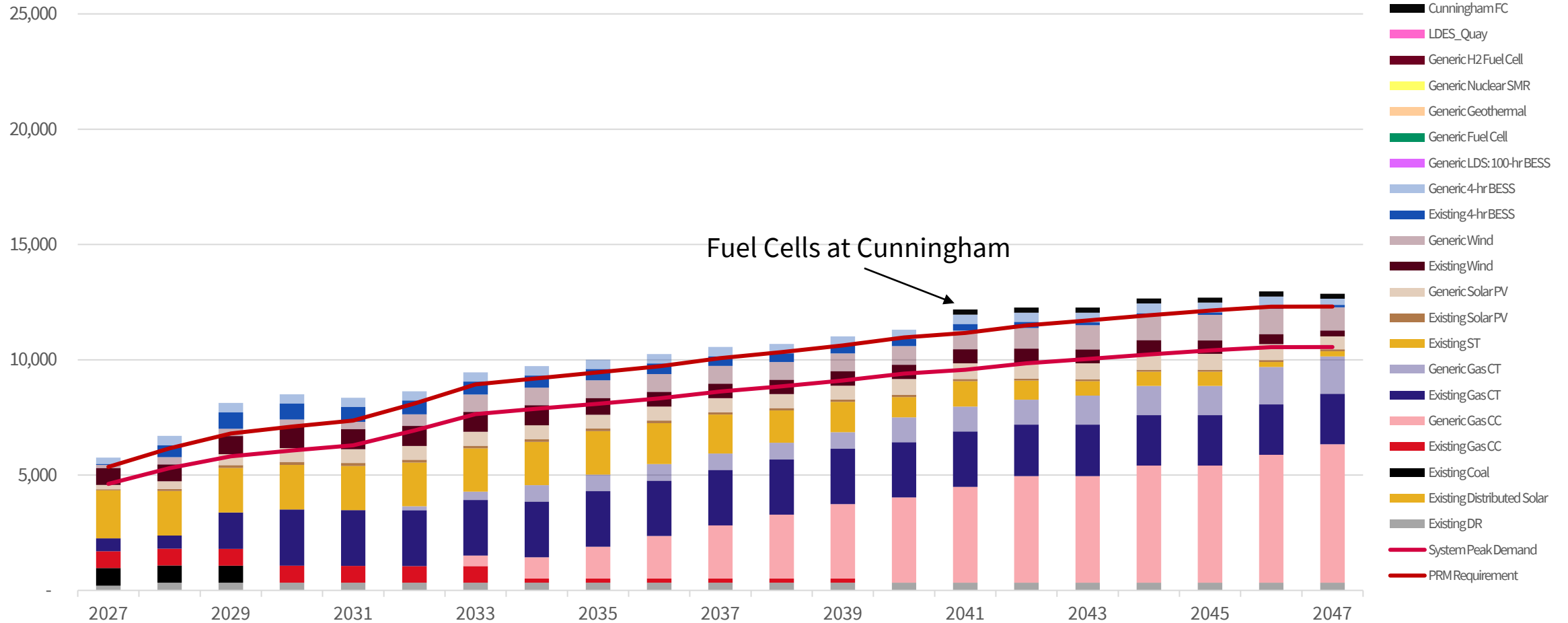
# SUMMER ACCREDITED CAPACITY

## Replace Cunningham 3 & 4 With Fuel Cells



# WINTER ACCREDITED CAPACITY

## Replace Cunningham 3 & 4 With Fuel Cells



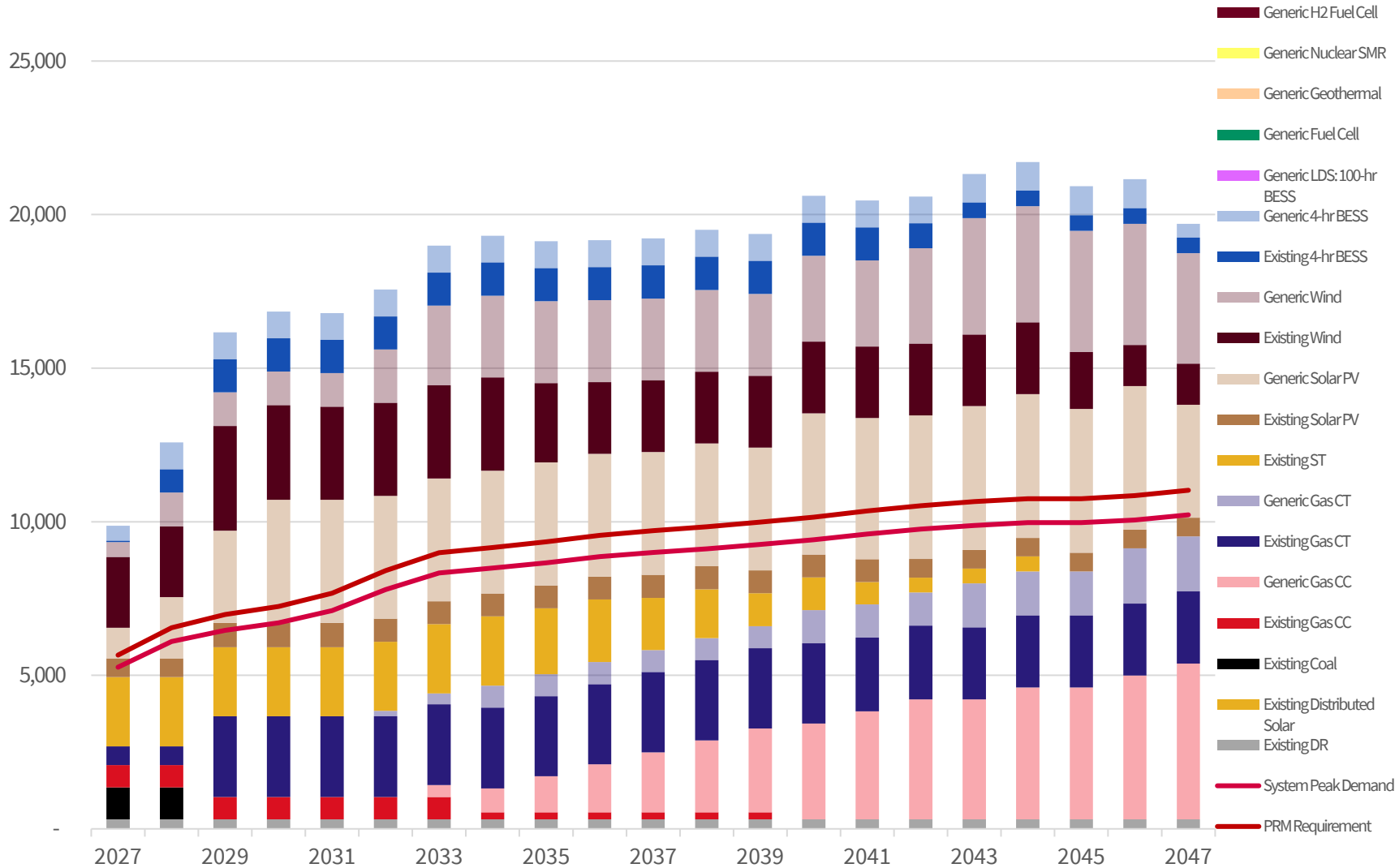
# ISLANDED SYSTEM

## PRELIMINARY RESULTS



# ISLANDED SYSTEM

## Nameplate (MW) Additions through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

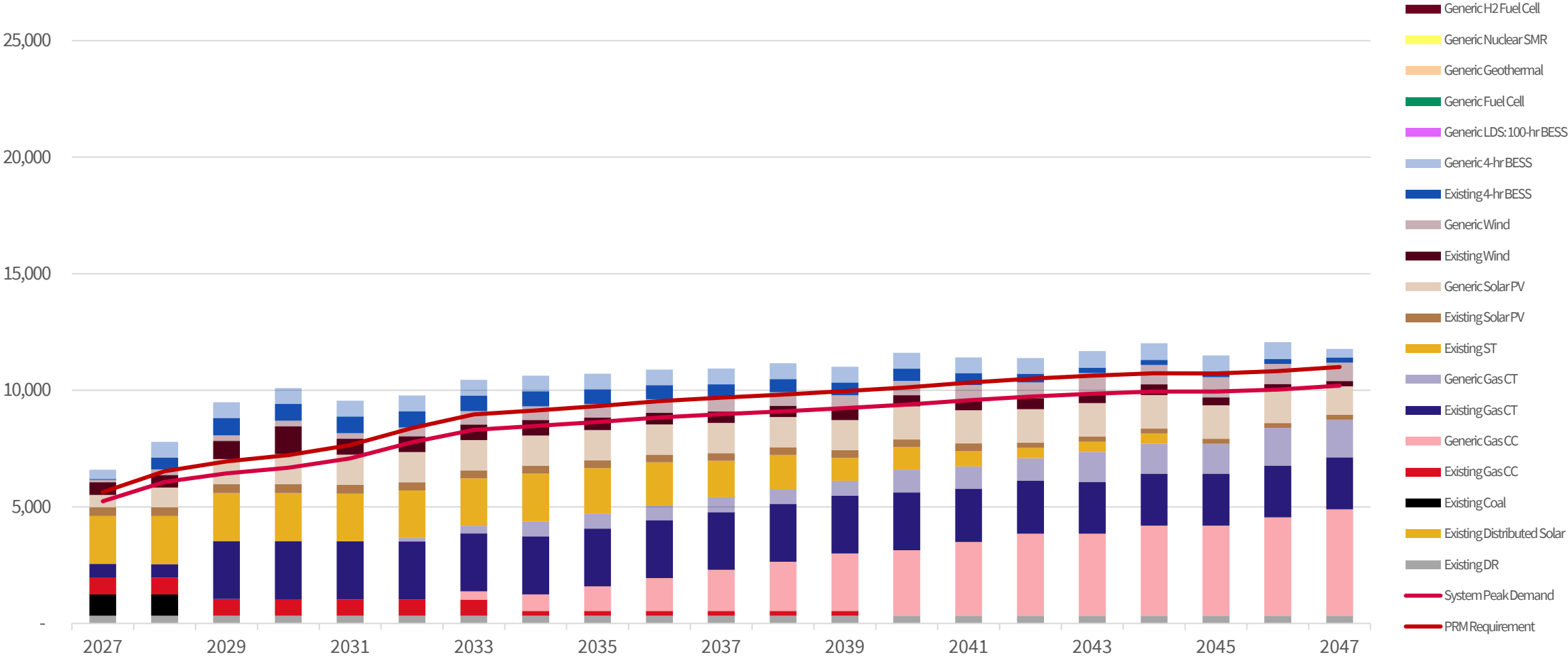
**Description:**  
No market access

**NPV through 2047 (\$M):**  
\$60,434

**EUE MWh: 3,136,234**  
**EUE NPV (\$M): \$3,849**

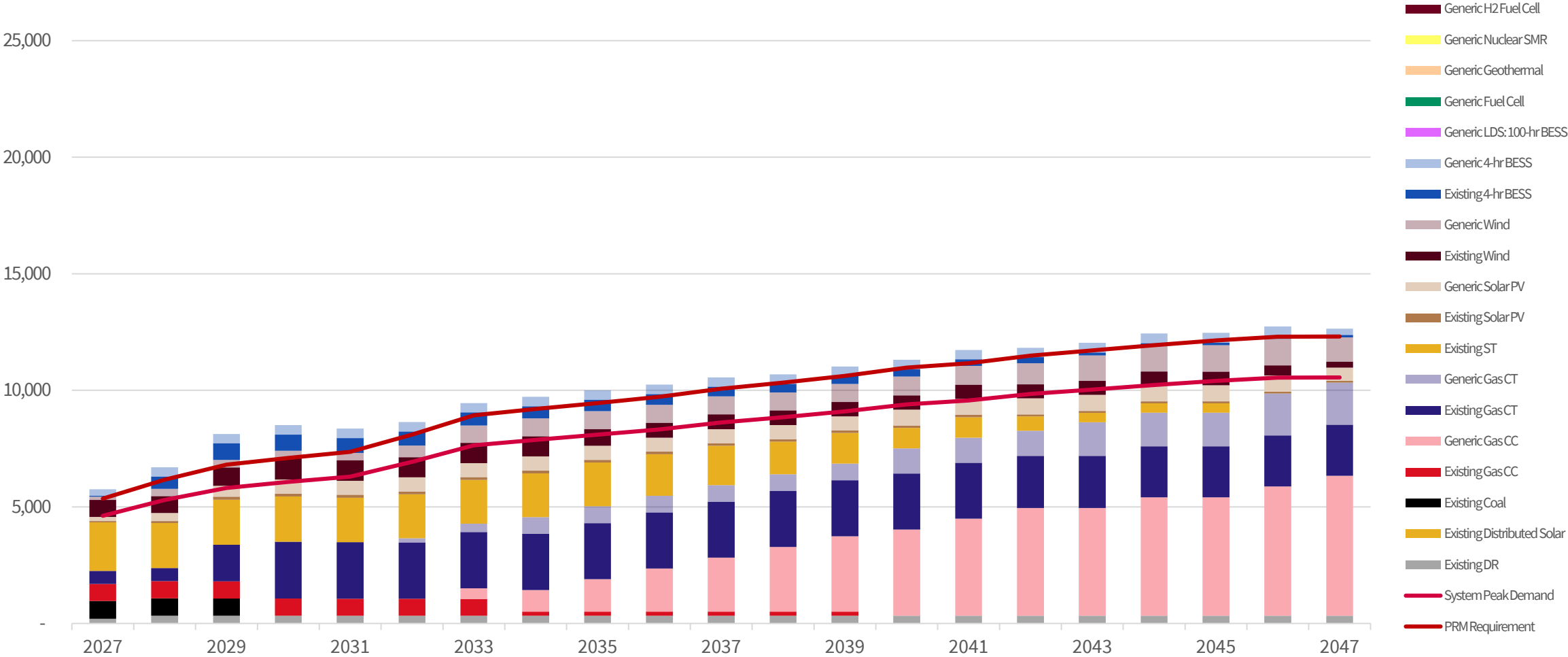
# SUMMER ACCREDITED CAPACITY (MW)

## Islanded System



# WINTER ACCREDITED CAPACITY (MW)

## Islanded System



# ISLANDED SYSTEM WITHOUT WINTER RESERVE MARGIN OR ELCC

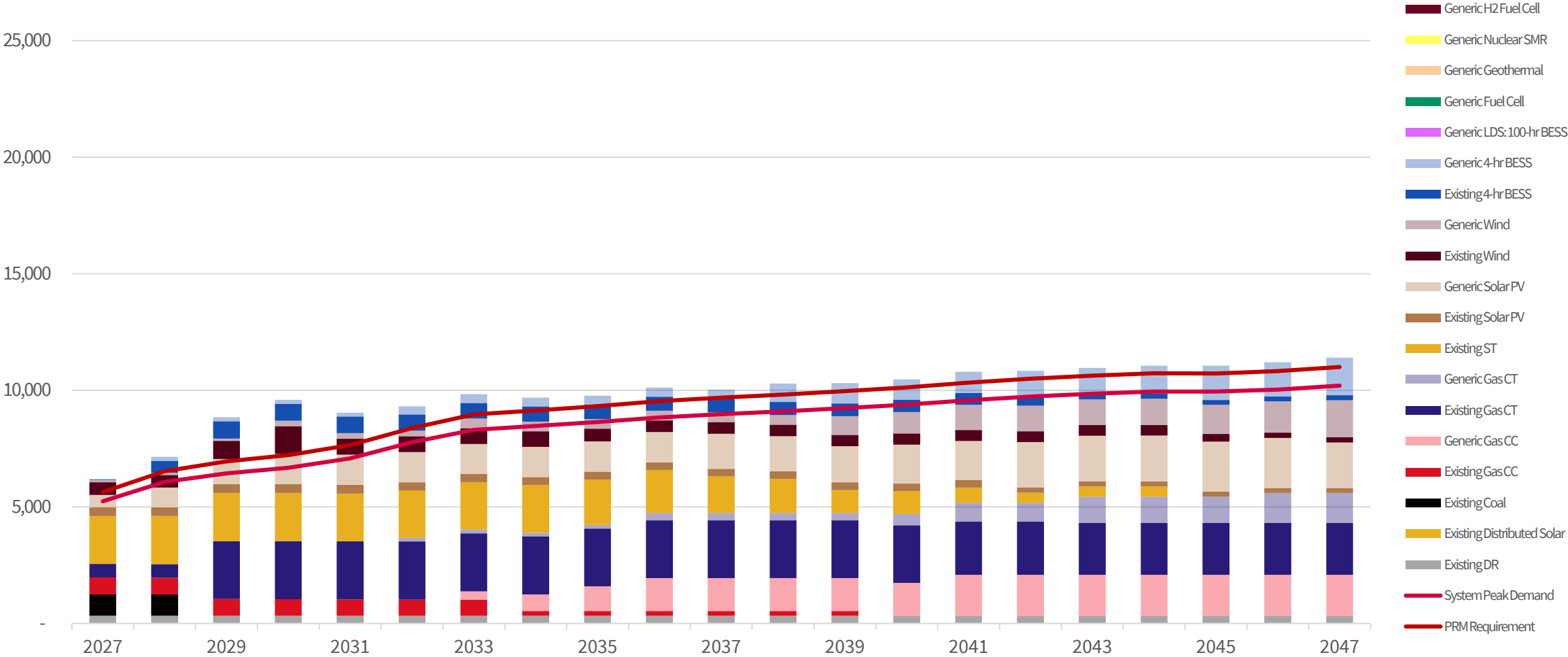
## PRELIMINARY RESULTS





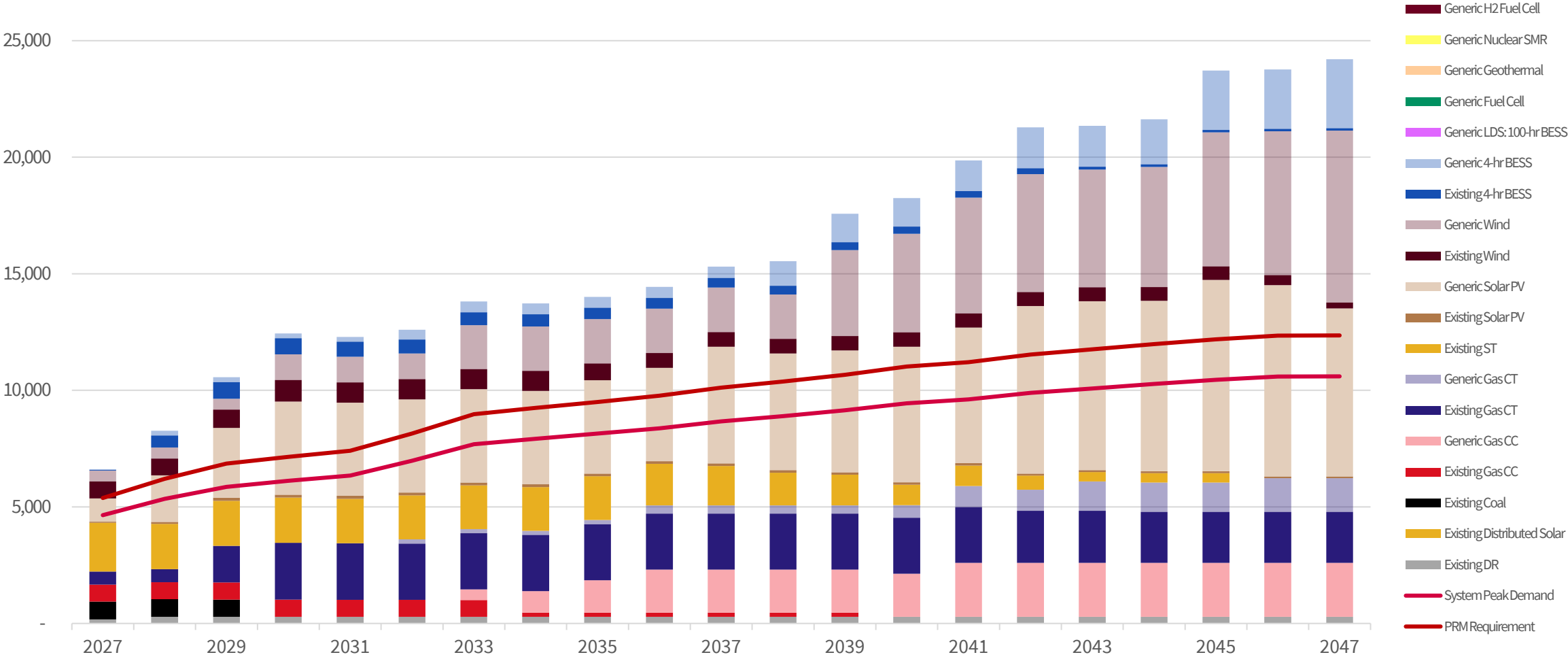
# SUMMER ACCREDITED CAPACITY (MW)

Islanded System with No Winter Reserve Margin or ELCC



# WINTER ACCREDITED CAPACITY (MW)

Islanded System with No Winter Reserve Margin or ELCC



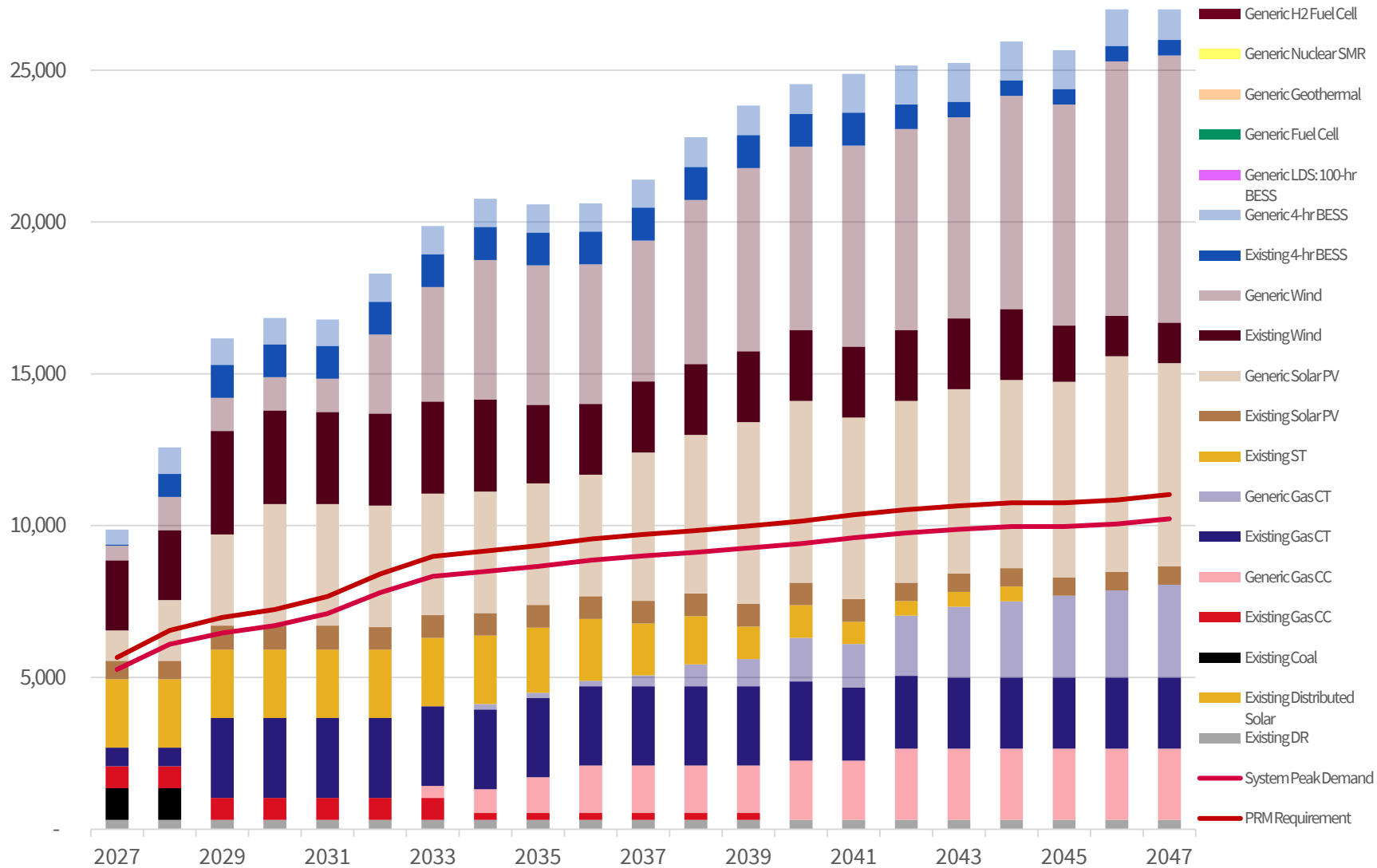
# HIGH MARKET GAS PRICES

## PRELIMINARY RESULTS



# HIGH MARKET GAS PRICES

Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

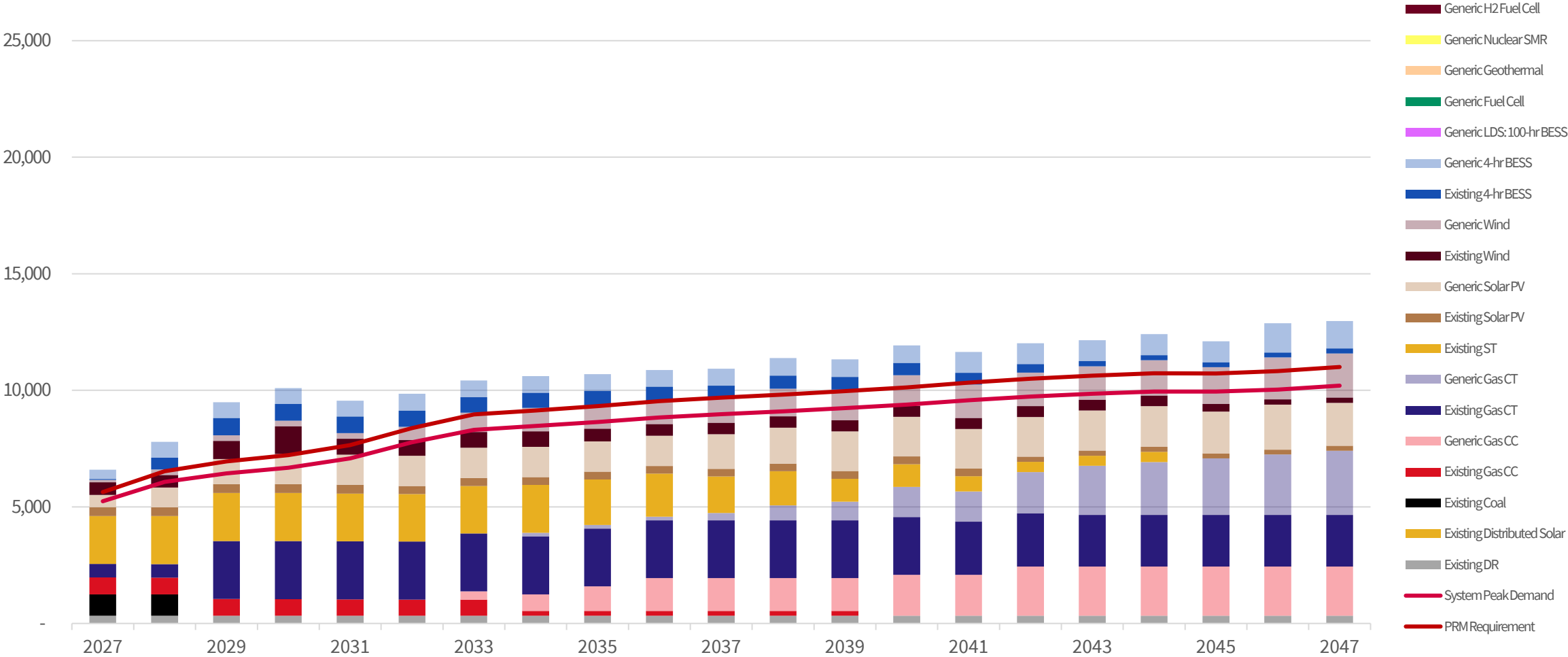
**Description:**  
50% increase to gas &  
market energy prices

**NPV through 2047 (\$M):**  
\$52,836

**EUE MWh:** 257  
**EUE NPV (\$M):** \$0.23

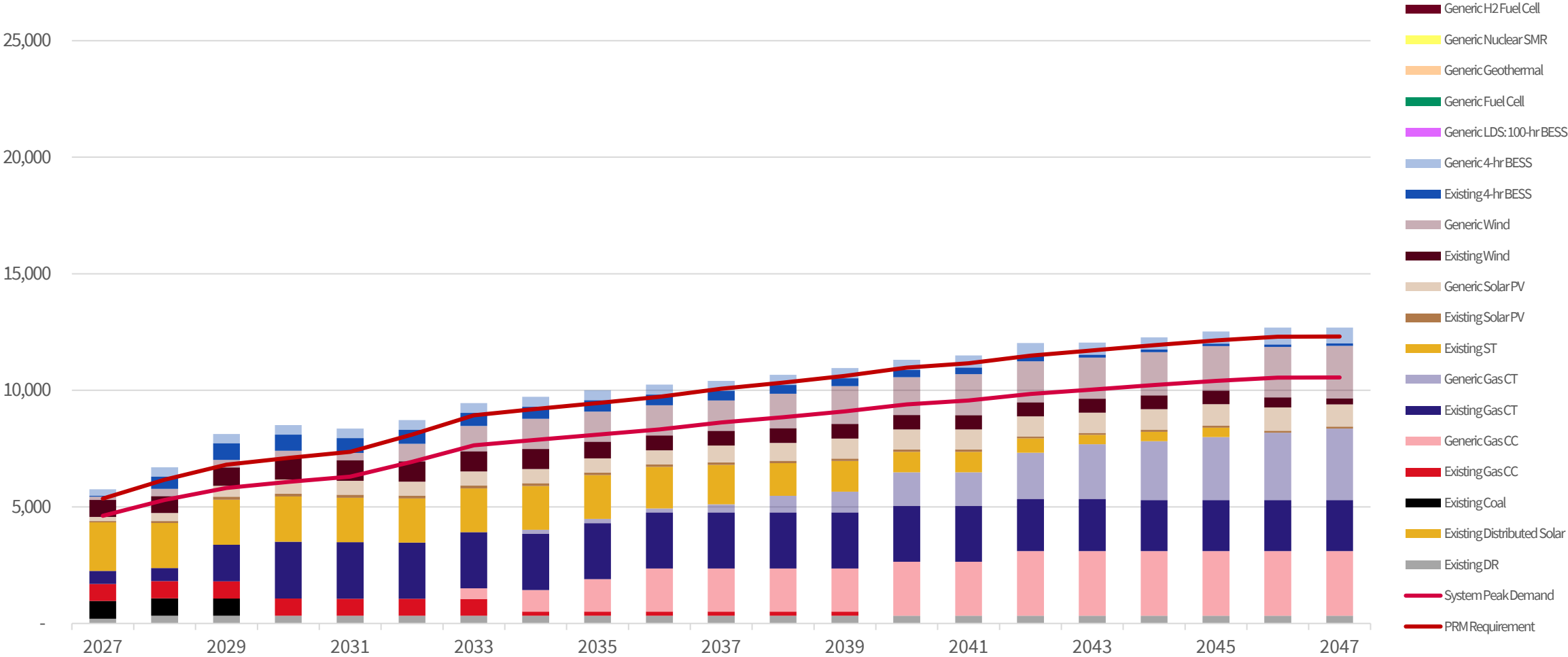
# SUMMER ACCREDITED CAPACITY (MW)

High Market Gas Prices



# WINTER ACCREDITED CAPACITY (MW)

High Market Gas Prices



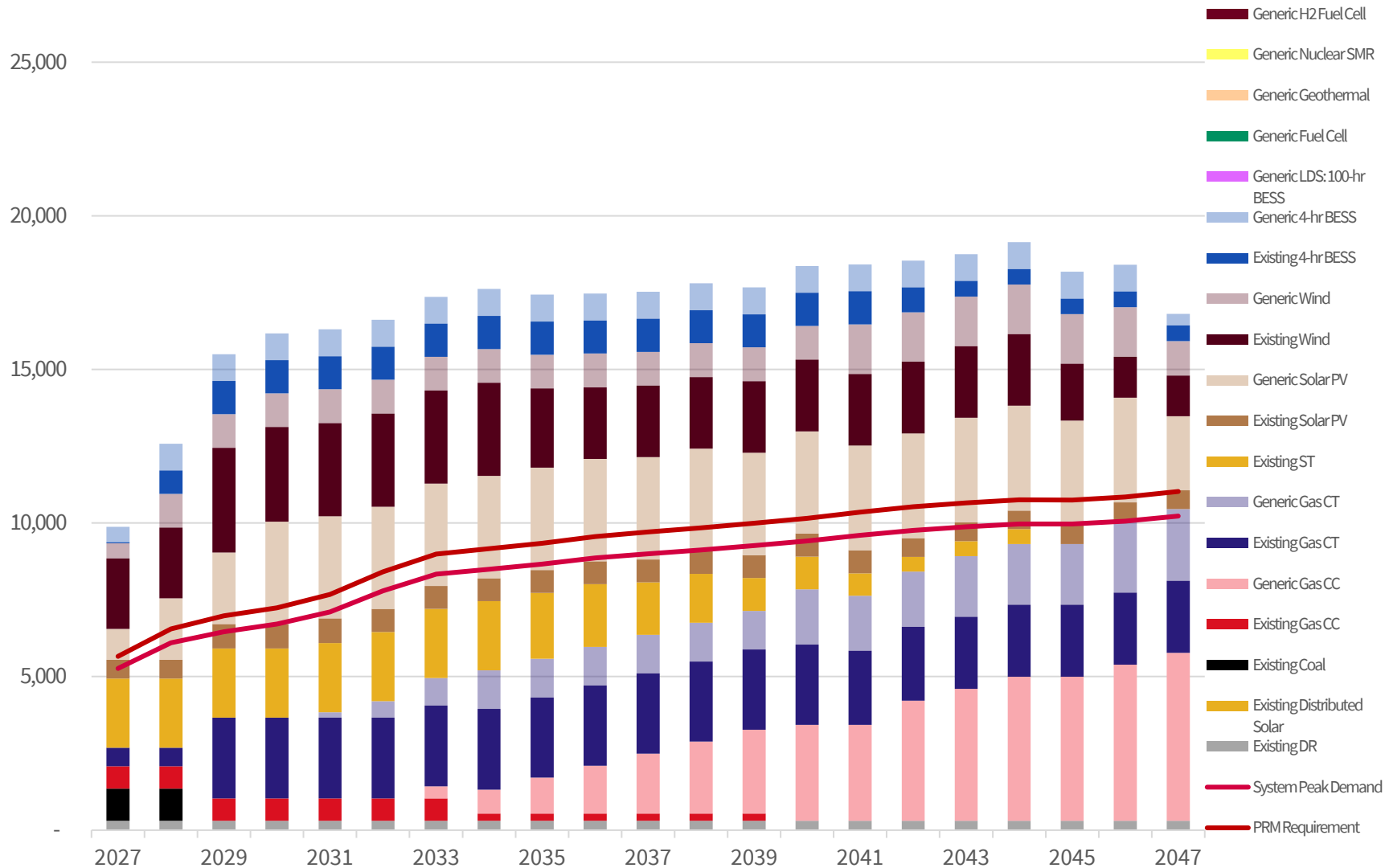
# LOW MARKET GAS PRICES

## PRELIMINARY RESULTS



# LOW MARKET GAS PRICES

## Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

**Description:**  
50% decrease to gas &  
market energy prices

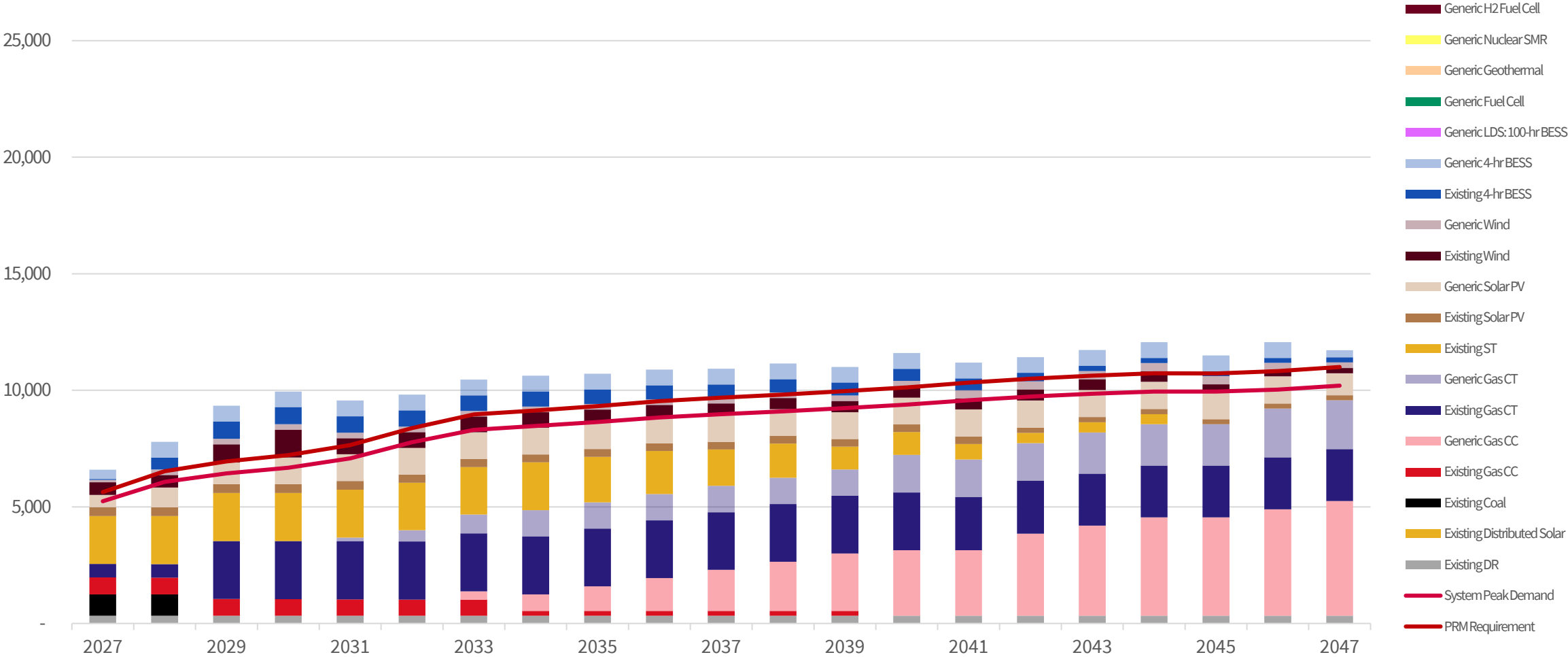
**NPV through 2047 (\$M):**  
\$49,988

**Zero EUE**



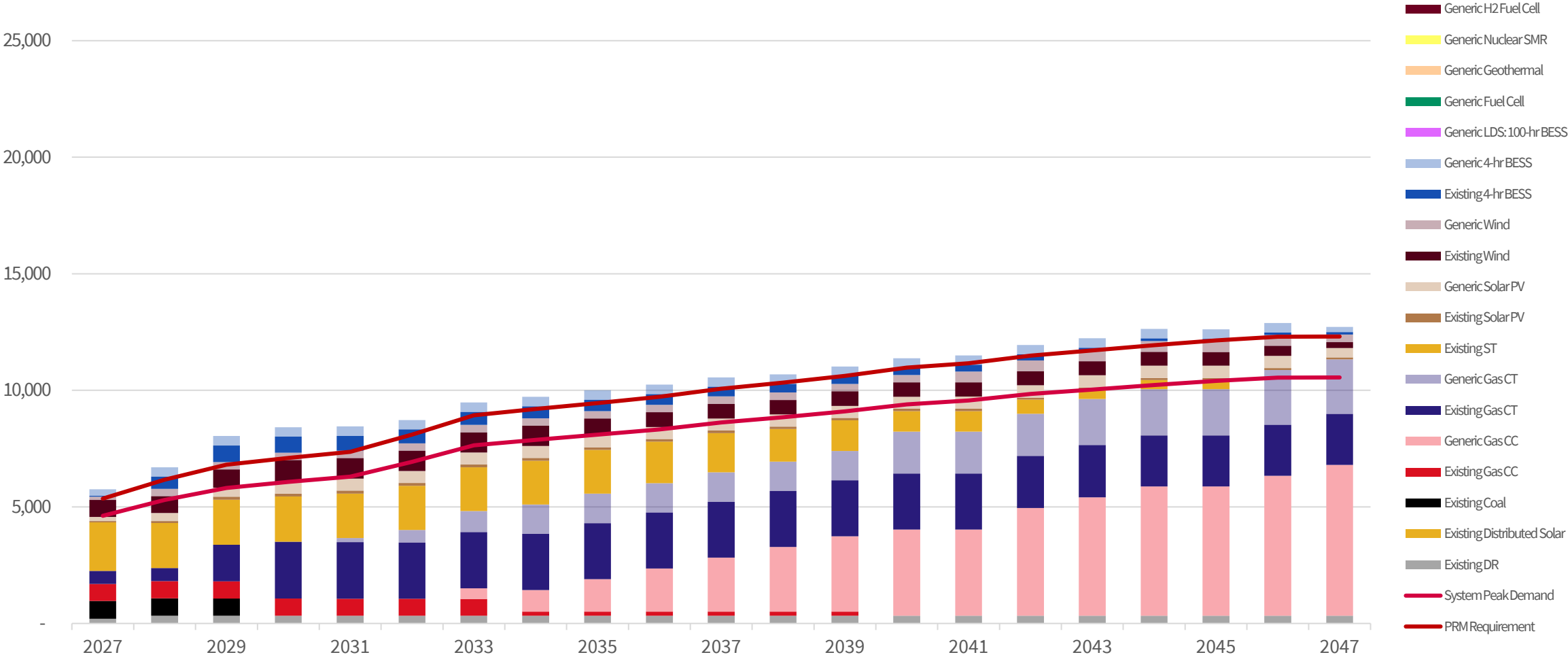
# SUMMER ACCREDITED CAPACITY (MW)

## Low Market Gas Prices



# WINTER ACCREDITED CAPACITY (MW)

Low Market Gas Prices



# EMERGING TECHNOLOGY AVAILABLE IN BASE CASE

## PRELIMINARY RESULTS



# EMERGING TECHNOLOGY AVAILABLE IN BASE CASE

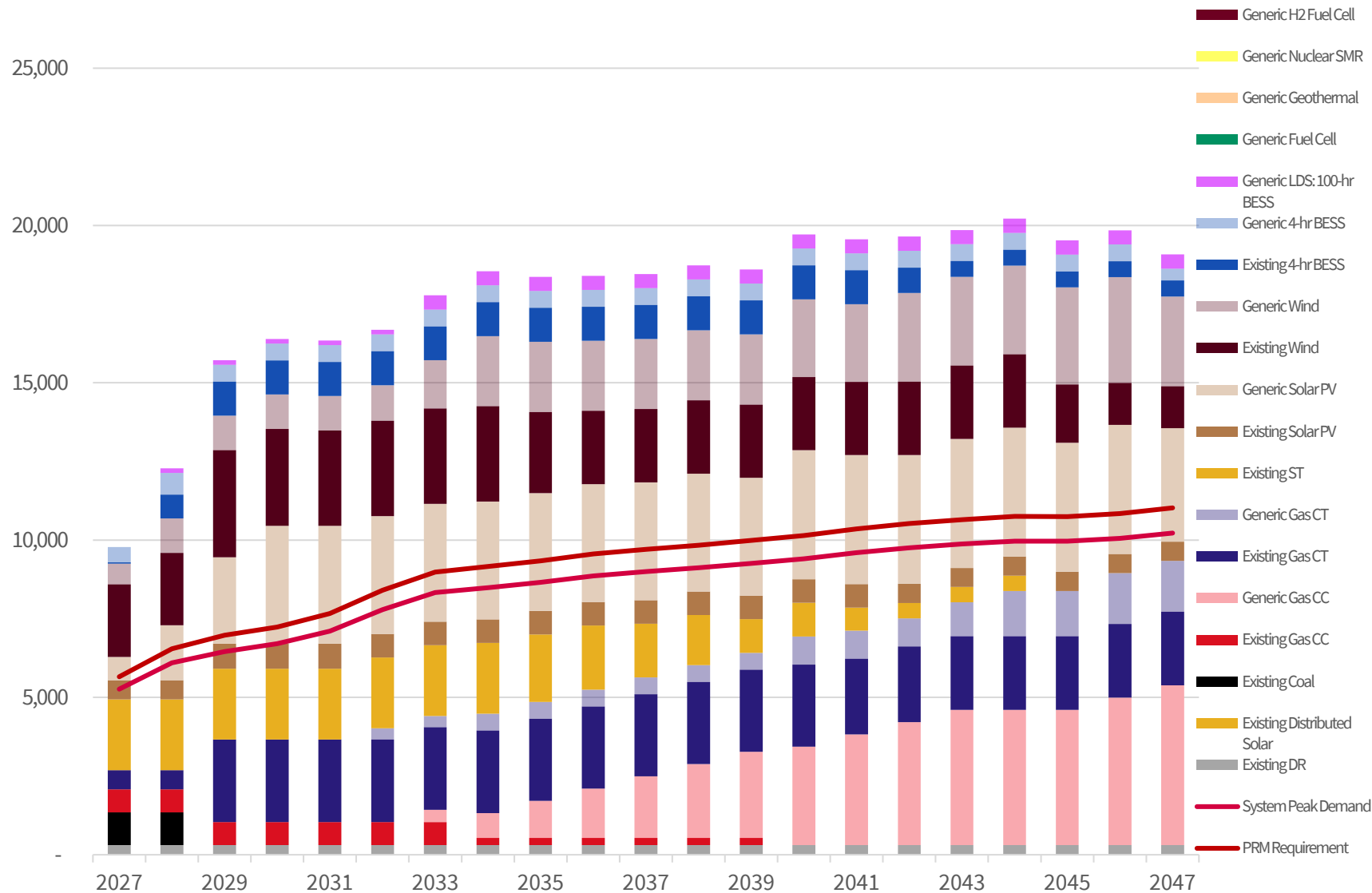
Nameplate Additions (MW) through 2047

**Forecast Assumption:**  
2026 V1 Constrained  
Planning Forecast

**Description:**  
Base model to meet  
Constrained PL with  
emerging technology  
available

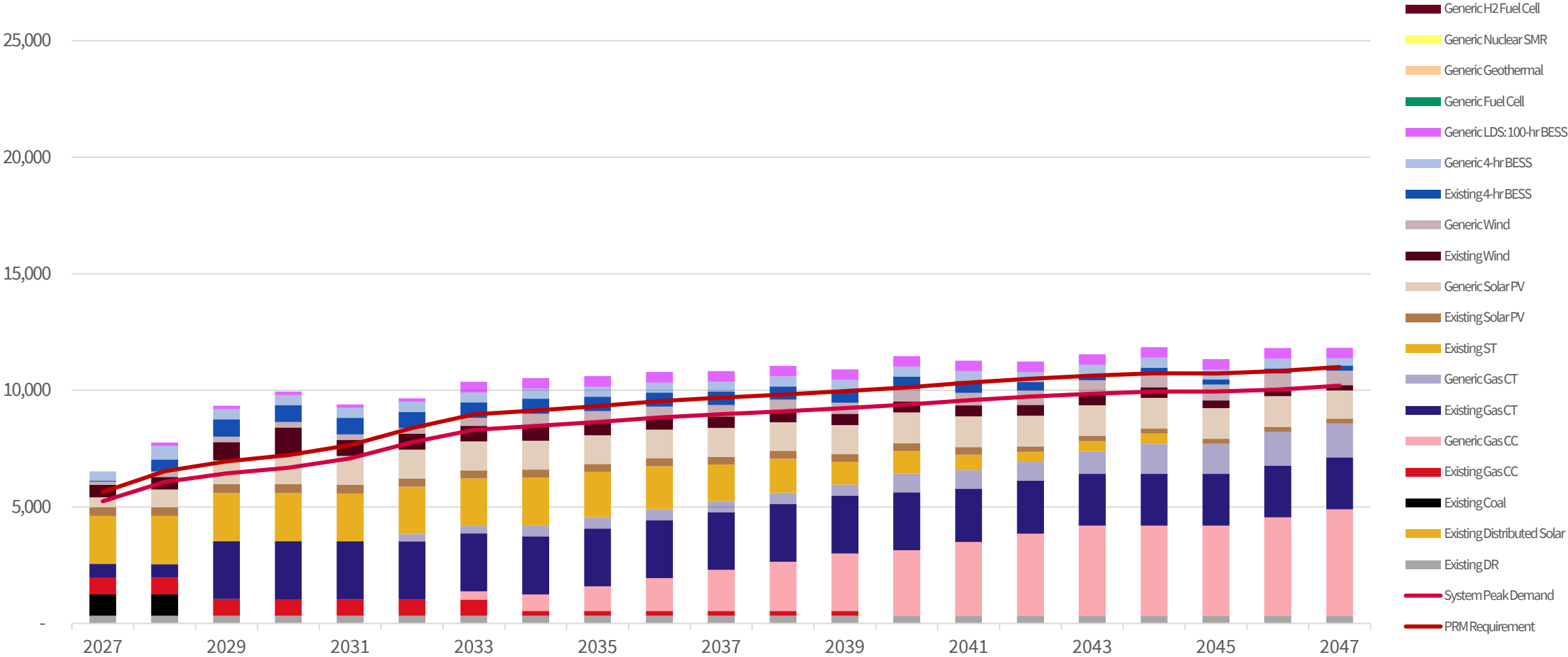
**NPV through 2047:**  
\$51,157

**Zero EUE**



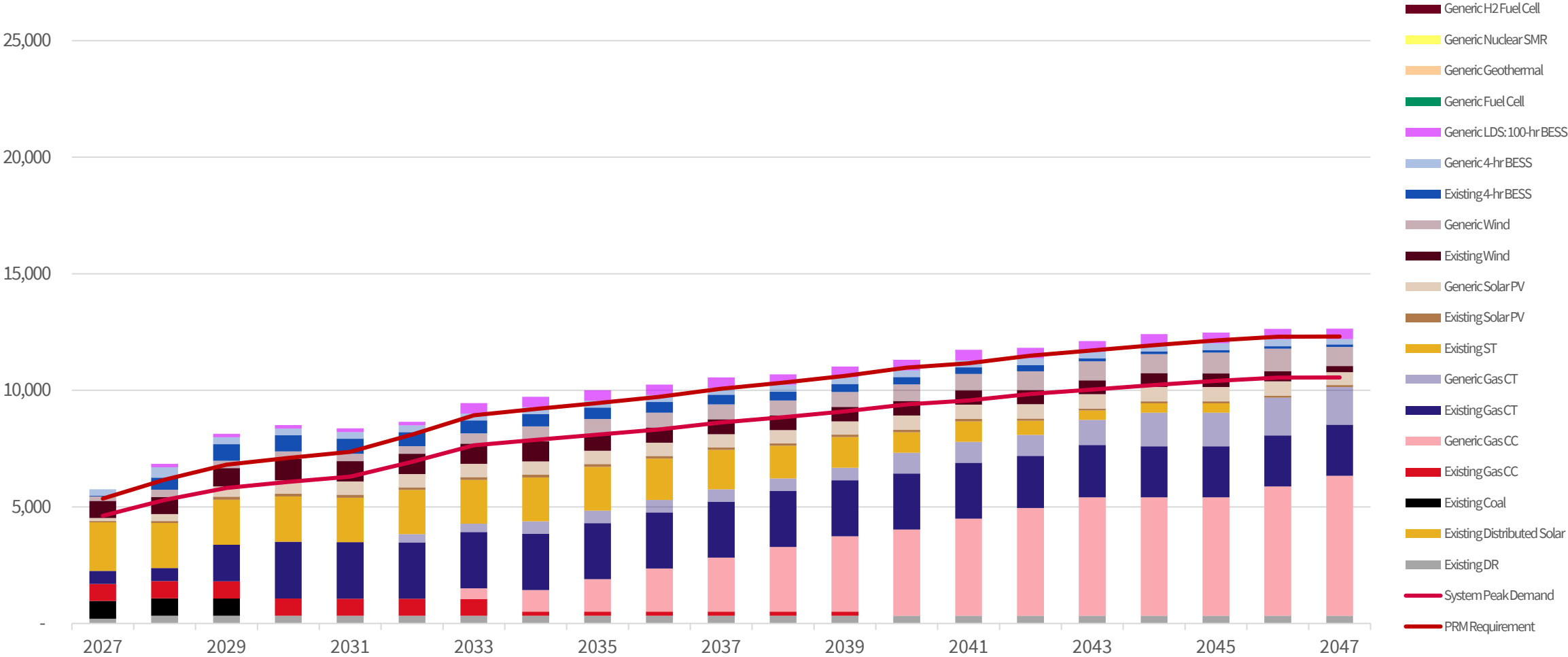
# SUMMER ACCREDITED CAPACITY (MW)

Emerging Technology Available in Base Case



# WINTER ACCREDITED CAPACITY (MW)

Emerging Technology Available in Base Case





# DATA CENTERS

Summary of Grouped Scenarios



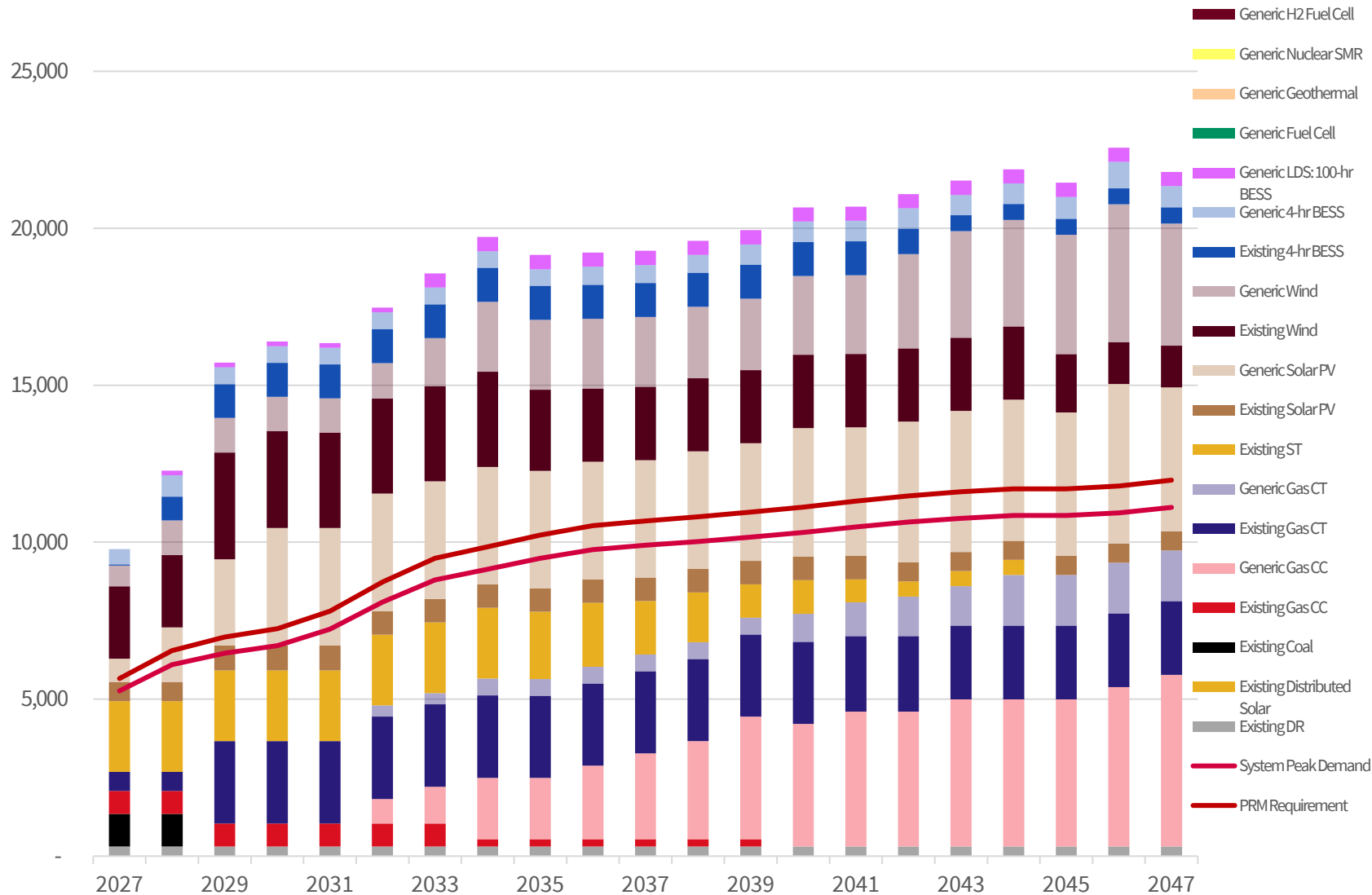
# 1 GW DATA CENTER LOAD IN TEXAS

## PRELIMINARY RESULTS



# 1 GW DATA CENTER LOAD IN TEXAS

Nameplate Additions (MW) through 2047



**Forecast Assumption:**  
2026 V1 Constrained Planning Forecast

**Description:**  
All types of resources are selectable. Locks in base plan with emerging tech available and incrementally optimizes to solve DC.

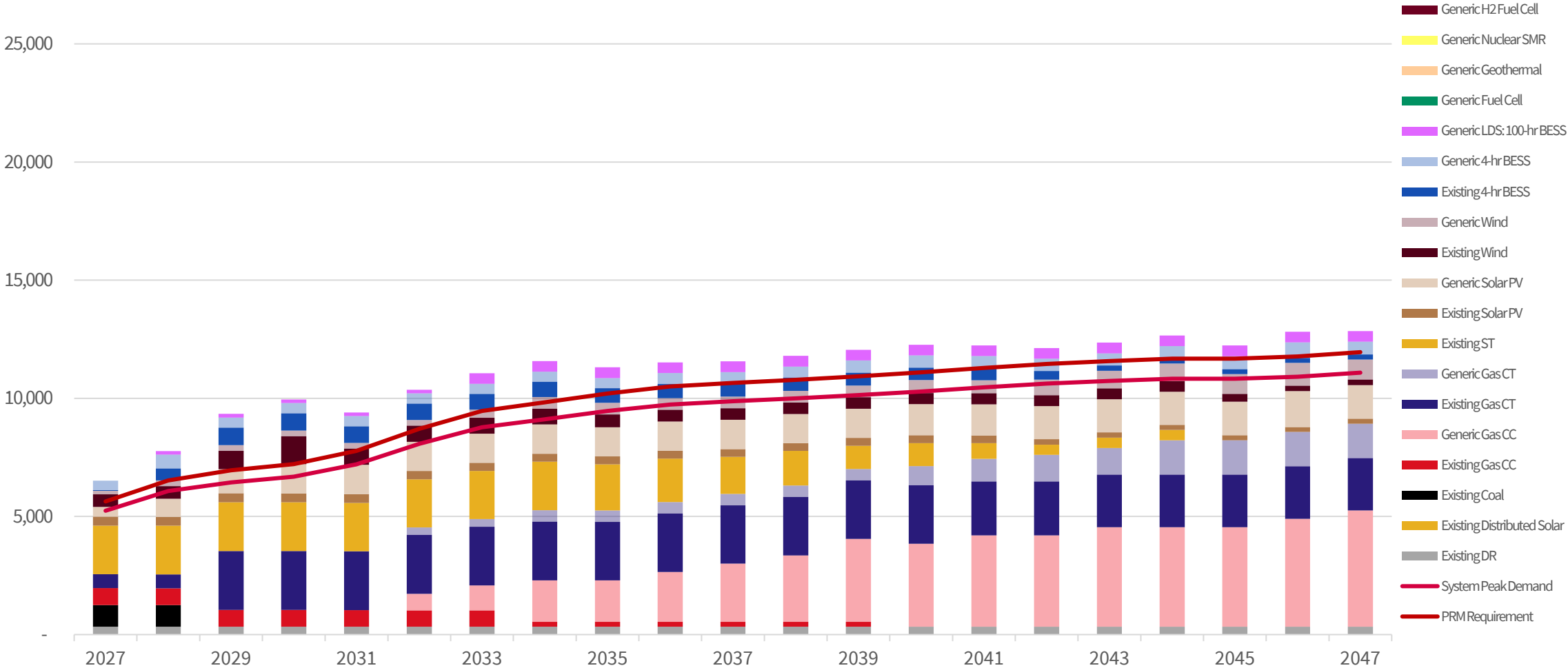
**NPV through 2047 (\$M):**  
\$55,740

**Zero EUE**



# SUMMER ACCREDITED CAPACITY (MW)

## 1 GW Data Center Load in Texas



# WINTER ACCREDITED CAPACITY (MW)

## 1 GW Data Center Load in Texas

