Santee Cooper Resource Planning

Stakeholder Working Group Meeting #7

June 4, 2025

Welcome and Agenda

Stewart Ramsay, Facilitator, VANRY Associates

Meeting Agenda

1:00 – 1:10	**Welcome and Agenda**	**Stewart Ramsay, VANRY**
1:10 – 2:10	**Working Group Business**	**Clay Settle**
2:10 – 2:20	**BREAK**	
2:20 – 3:30	**2025 IRP Update** **Assumptions, Portfolios, Sensitivities, and Metrics** **Greenhouse Gas Rule Update**	**Clay Settle** **Bob Davis, nFront**
3:30 – 3:40	**BREAK**	
3:40 – 4:15	**2025 IRP Update Continued**	**Clay Settle** **Bob Davis, nFront**
4:15 – 4:50	**2025 Load Forecast**	**Carl Ciullo**
4:50 – 5:00	**Meeting Closeout**	**Stewart Ramsay, VANRY**

Guest Speakers

Carl Ciullo
Financial Analyst

Working Group Business

Clay Settle, Senior Manager Resource Planning

Review of Action Items

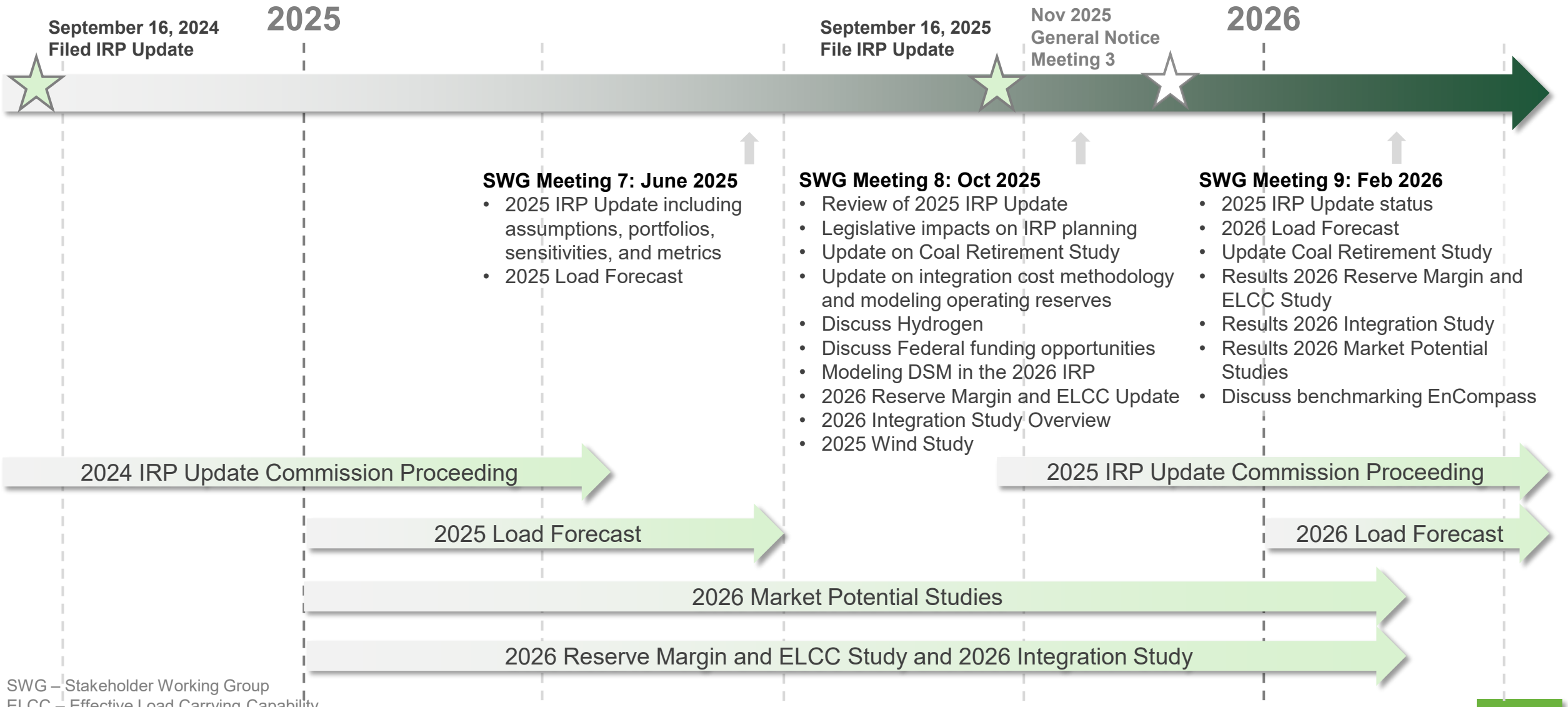
Meeting Identified	Action Item	Progress
Meeting 6	Members to send Santee Cooper specific requests or recommendations on the information presented at the April 10, 2025 Coal Retirement Technical Meeting prior to May 24, 2025.	Done: Comments received from CCL and SACE and discussed at the May 29th Technical Meeting.
Meeting 6	Resource Planning will share the request for an RFP summary of the Jeffries-based BESS project with the RFP team and report back to members at the next working group meeting if this summary will be prepared, and if so, when it will be shared.	Update to be provided today.
Meeting 6	Resource Planning will share member feedback regarding tracking potential economic development load with the Load Forecast group.	Discussion today during Load Forecast presentation.
Meeting 6	For the next working group meeting, Resource Planning will consider presenting the 2024 cost assumptions alongside the 2025 assumptions for thermal resources.	Done: See assumptions section.
Meeting 6	Resource Planning will share member feedback regarding Energy Resource Interconnection Service (ERIS) and Provisional Interconnection Service with appropriate internal subject matter experts (SMEs). Members are to send information they would like shared to Clay and Will.	Done: Docket 2019-326-E shared with Santee Cooper SMEs. No other feedback received.

Review of Feedback Received

Date Received and Source	Feedback Received	Update on Evaluating Feedback
5/2/2025 and 5/16/2025 – Letters from CCL & SACE	Feedback on modeling the results of the Market Potential Studies as part of the 2026 IRP analytics and demand side management (DSM) programs for wholesale and industrial customers. Note that feedback related to the Market Potential Studies is handled through the Technical Meetings.	See schedule of upcoming meetings. Plan to discuss modeling of MPS results at SWG Meeting 8. Reviewing and evaluating the feedback related to DSM programs for wholesale and industrial customers.
5/23/2025 – Letter from CCL & SACE	Feedback on the Coal Retirement Study, reliability assessment, large load forecasting and interconnection, and renewable integration study.	Feedback on the Coal Retirement Study was discussed at the May 29th Technical Meeting. Reviewing and evaluating the remaining items.

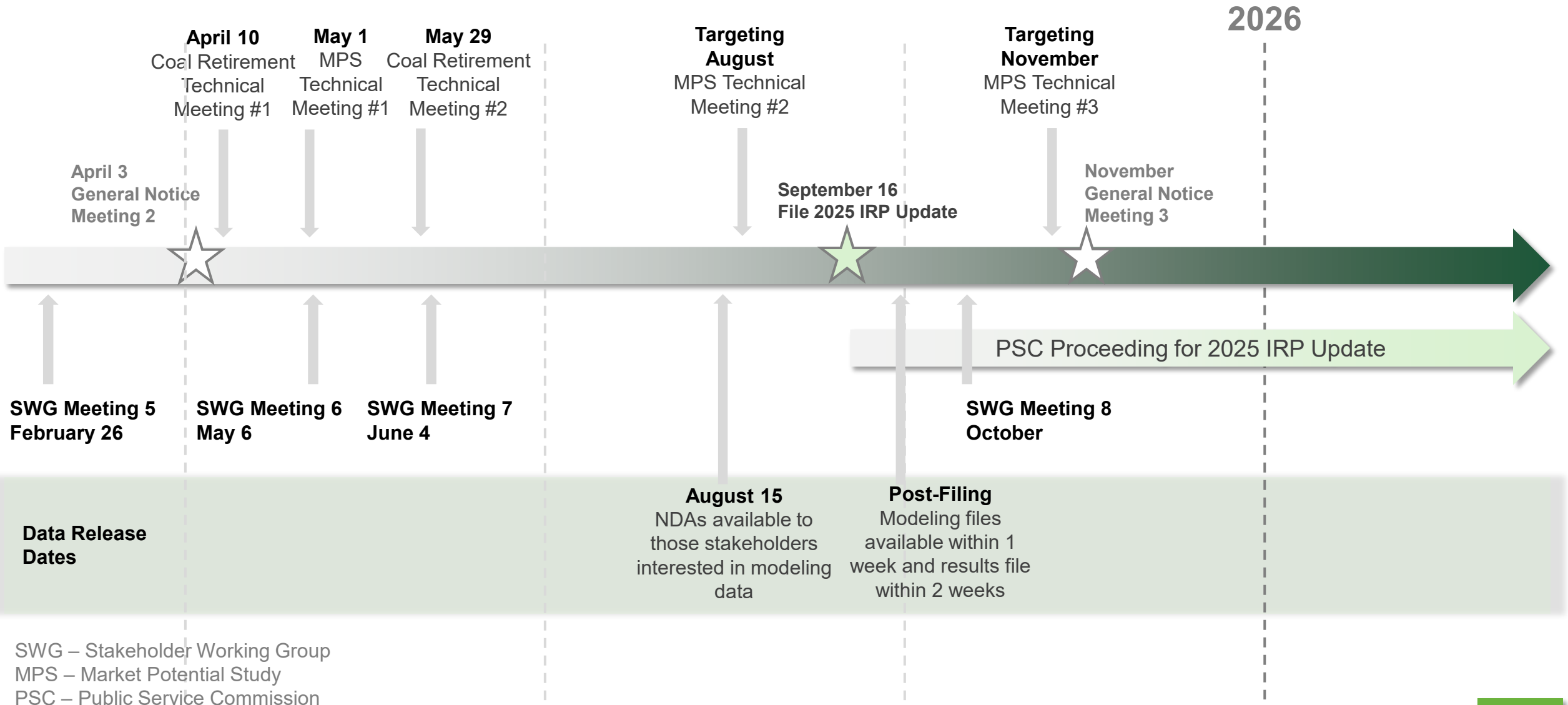
CCL – Coastal Conservation League
SACE – Southern Alliance for Clean Energy

SWG Schedule



SWG – Stakeholder Working Group
ELCC – Effective Load Carrying Capability

2025 Schedule



SWG – Stakeholder Working Group
MPS – Market Potential Study
PSC – Public Service Commission

Break

Returning at 2:20

2025 IRP Update

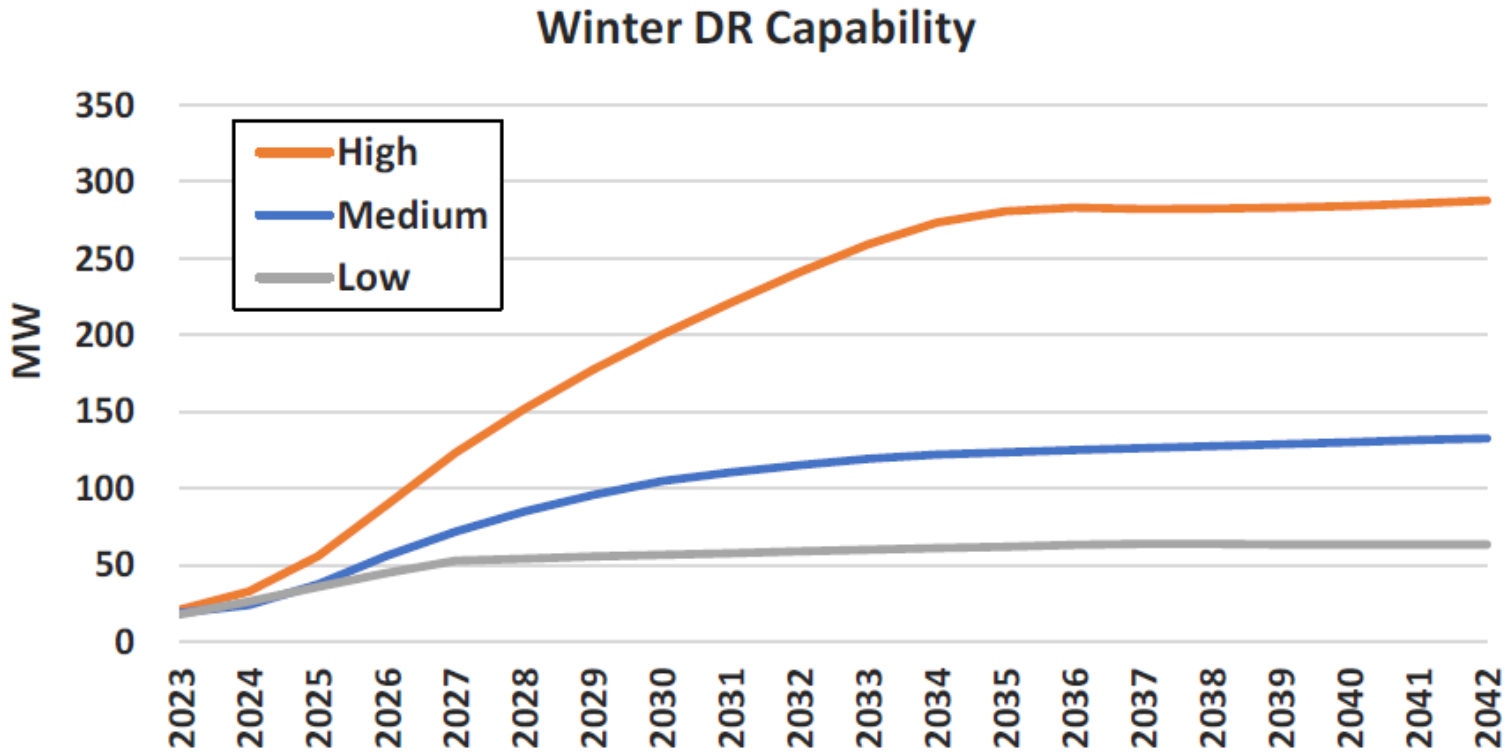
Clay Settle, Senior Manager Resource Planning
Bob Davis, Executive Consultant, nFront

Economic and Financial

Assumption	Annual Rate	Source
Santee Cooper Weighted Cost of Debt	5.00%	Santee Cooper's financial advisor
Weighted Cost of Short-term Commercial Paper	4.00%	Santee Cooper's financial advisor
Santee Cooper Discount Rate	5.00%	Same as weighted cost of debt
General Inflation Rate	2.60%	Santee Cooper corporate escalation (previously used Philly Fed forward looking survey)

Demand Side Management

SC is using the same projections assumed in the 2023 IRP from the 2022 Demand Response (DR) and Energy Efficiency (EE) Market Potential Studies (MPS)

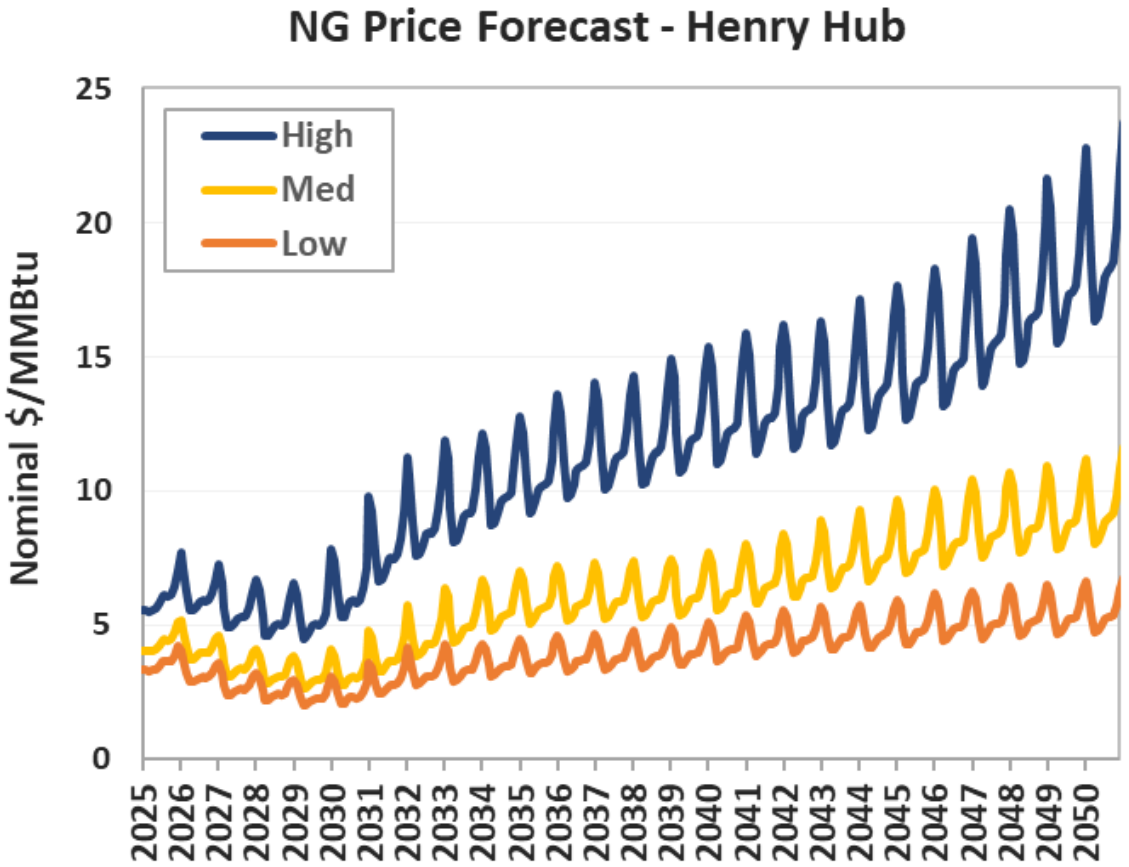


Planning and Operating Reserves

- Utilizing the Planning Reserve margins from the 2023 IRP of 18% Winter and 15% Summer
- Santee Cooper is part of the Carolinas Reserve Sharing Group (“CRSG”) along with Duke Energy, and Dominion Energy South Carolina
  - Contingency reserves are recalculated annually or when there is a material change to the Most Severe Single Contingency (MSSC)
  - Each participating member is required to carry its load ratio share of the total contingency reserve requirement for the combined systems based on the previous year’s peak load

Operating Reserves			
Time Frame	**CRSG Requirement**	**Spin Reserves**	**Non-Spin Reserves**
2025-2027	235	117.5	117.5
2028	255	127.5	127.5
2029	275	137.5	137.5
2030 & Beyond	295	147.5	147.5

Delivered Natural Gas Price Forecast

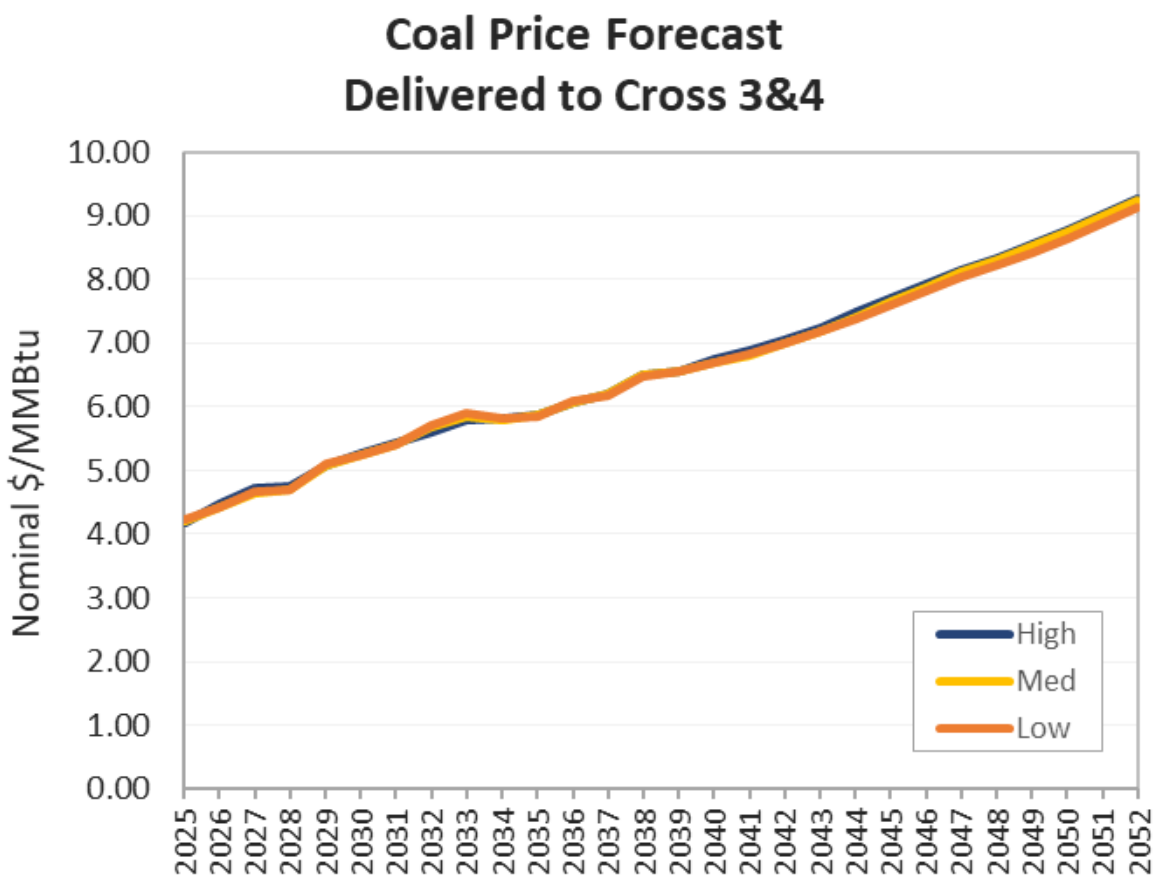


Similar process as used for 2023 and 2024 IRPs

- Fundamental long-term price forecast from EIA AEO
- NG prices for 2025-2029 based on CME/NYMEX forward prices for Henry Hub
- Forecast NG hub basis for Transco Z4 and Z5 from S&P Global Platts
- Monthly NG price patterns developed from CME/NYMEX forward prices and S&P hub price forecasts
- Low and High prices derived from AEO High/Low NG and Oil Technology cases
- Delivered NG prices include commodity prices plus variable pipeline tariff charges
- Delivered NG prices for the Medium Case are approximately 27% higher on average than used for 2024 IRP Update

EIA AEO – Energy Information Administration Annual Energy Outlook

Delivered Coal Price Forecast

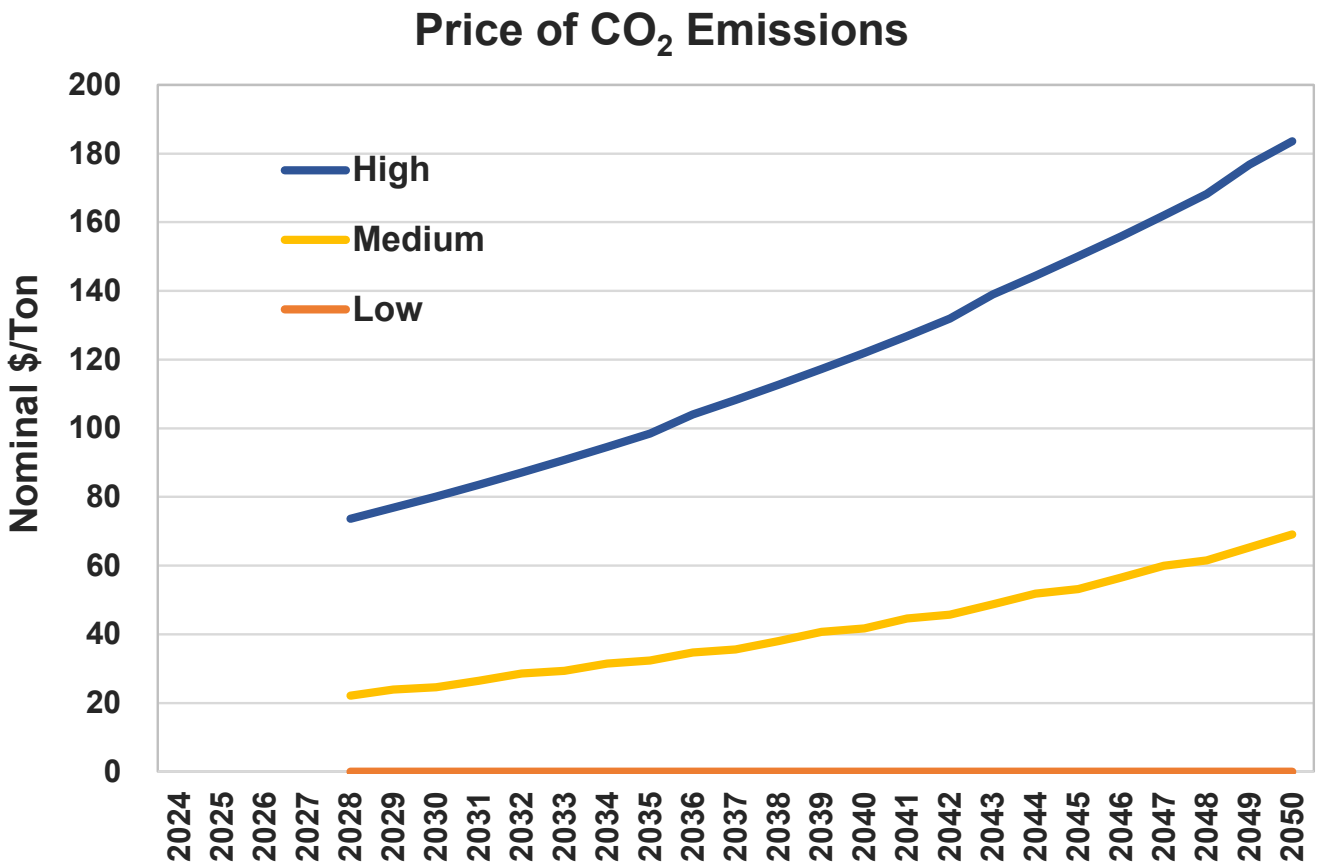


Similar process as used for 2023 and 2024 IRPs

- Fundamental long-term coal basin price forecast from EIA AEO
- Basin price blending for low/high sulfur coal consistent with Santee Cooper Budget assumptions
- Freight costs consistent with terms of Santee Cooper CSX contract
- Includes cost for fuel handling and railcar maintenance consistent with Santee Cooper Budget
- Delivered coal prices for the Med Case are approximately 32% higher on average than used for the 2024 IRP Update

CO2 Pricing

- Assumptions for price of CO_2 emissions are unchanged from 2023 IRP
  - No CO_2 Cost assumption used in the Reference Case
  - Medium and High CO_2 price assumptions are based on estimates of the social cost of CO_2 released in February 2021 by the Interagency Working Group on Social Cost of Greenhouse Gases



Existing Resources

	Generating Station	Unit #	Service Date	Fuel Type	Technology	Winter Rating (MW)	Retirement Date for IRP
	**Cross** Pineville, SC	1	1995	Coal	ST	585	2052 By 2032 (for GHG)
		2	1983	Coal	ST	570	
		3	2007	Coal	ST	580	
		4	2008	Coal	ST	595	
	**Rainey** Iva, SC	1	2002	NG	CC	520	2052
		2A, 2B, 3-5	2002 - 2004	NG	CT	630	
	**Winyah** Georgetown, SC	1	1975	Coal	ST	280	By 2032
		2	1977	Coal	ST	290	
		3	1980	Coal	ST	290	
		4	1981	Coal	ST	290	
	**Cherokee** Gaffney, SC	1	1998	NG	CC	98	2052
	**Summer Nuclear Unit 1** Jenkinsville, SC	1	1983	Uranium	NUC	322	2052
	**Jefferies,** Lake Moultrie	1-4, 6	1942	Water	Hydro	140	2052
	Spillway, Lake Marion	-	1950	Water	Hydro	2	
	**Landfill Gas** (multiple sites)	-	2001 - 2011	LFG	CT, IC	26	Unit Specific considering gas contract terms
	**Myrtle Beach**	1,2,3,5	1962 - 1976	Oil/NG	CT	65	By 2034
	Hilton Head	1-3	1973 - 1979	Oil	CT	100	
	Total Capacity					5,383	

Existing Power Purchase Agreements

Generating Facilities	Term End Date/Year	Nameplate Capacity (MW)	Winter Capacity (MW)	Energy Source
Long-term Contracts				
Domtar	2028	38	38	Biomass
EDF Renewables	2043	36	36	Biomass
Southeastern Power Administration (SEPA)	Indefinite	305	305	Hydro
St. Stephen Hydro (1)	2035	84	84	Hydro
Total Long-term Contracts		463	463	
Solar Purchases				
Solar Qualifying Facilities (2,3)	Various	287	12	Solar
Solar Power Purchase Agreements (3, 4)	2026-2046	200	8	Solar
Total Solar		487	20	
Central NSR	2029-2052	672	672	Multiplie
Purchase Contracts				
Purchase 1	2024-2028	200	200	System Purch.
Purchase 2	2024-2028	50	50	Natural Gas
Purchase 3	2025-2028	150	150	Nuclear
Purchase 4	2024	47	47	Natural Gas
Total Purchases		447	447	
Total PPAs (5)		2,069	1602	

(1) Santee Cooper anticipates taking ownership of St. Stephens by 2035.

(2) Solar Qualifying Facilities contracts of varying lengths.

(3) Winter firm capacity based on the effective load carrying capability study discussed herein.

(4) Central is a counterparty for its share of solar resources as its NSR.

(5) Totals may not add due to rounding.

Resource Options Conventional & Nuclear

IRP Capital and O&M Costs Methodology			
	2023 IRP	**2024 IRP Update**	**2025 IRP Update**
Operating Characteristics and O&M Costs	• EPRI TAGWeb, Black and Veatch Front End Engineering and Design (FEED) Study, Santee Cooper engineering estimates		• Sargent and Lundy (S&L) cost estimates and engineering recommendations
Capital Costs	• EPRI TAGWeb, Black and Veatch Front End Engineering and Design (FEED) Study, Santee Cooper engineering estimates	• Adjusted to be generally consistent with per-unit costs used for the DESC 2024 IRP Annual Update	• Sargent and Lundy (S&L) cost estimates and engineering recommendations • Joint NGCC consistent with DESC 2025 IRP capital cost assumptions

S&L Thermal Resource Summary

Type	Resource	Capacity (MW, Avg. Amb.)	Capital Overnight Costs ($/kW)	VOM ($/MWh)	FOM ($/kW-yr)
1x1 NGCC	(1) 1x1 7HA.03	652	1,719	2.57	17.91
	(2) 1x1 7HA.03	1,303	1,576	2.33	13.81
	(3) 1x1 7HA.03 (Joint w/ DESC)*	1,955	1,453	2.20	11.93
H-Class CT	1x0 7HA.03	442	1,240	1.15	7.02
F-Class CT	1x0 7FA.05	236	1,448	1.14	11.70
Aeroderivative	(2) LM6000	108	2,445	7.99	16.80
RICE	6x8V50DF	106	2,467	7.28	23.40
Nuclear	1x300 SMR	300	11,512	3.11	177.09

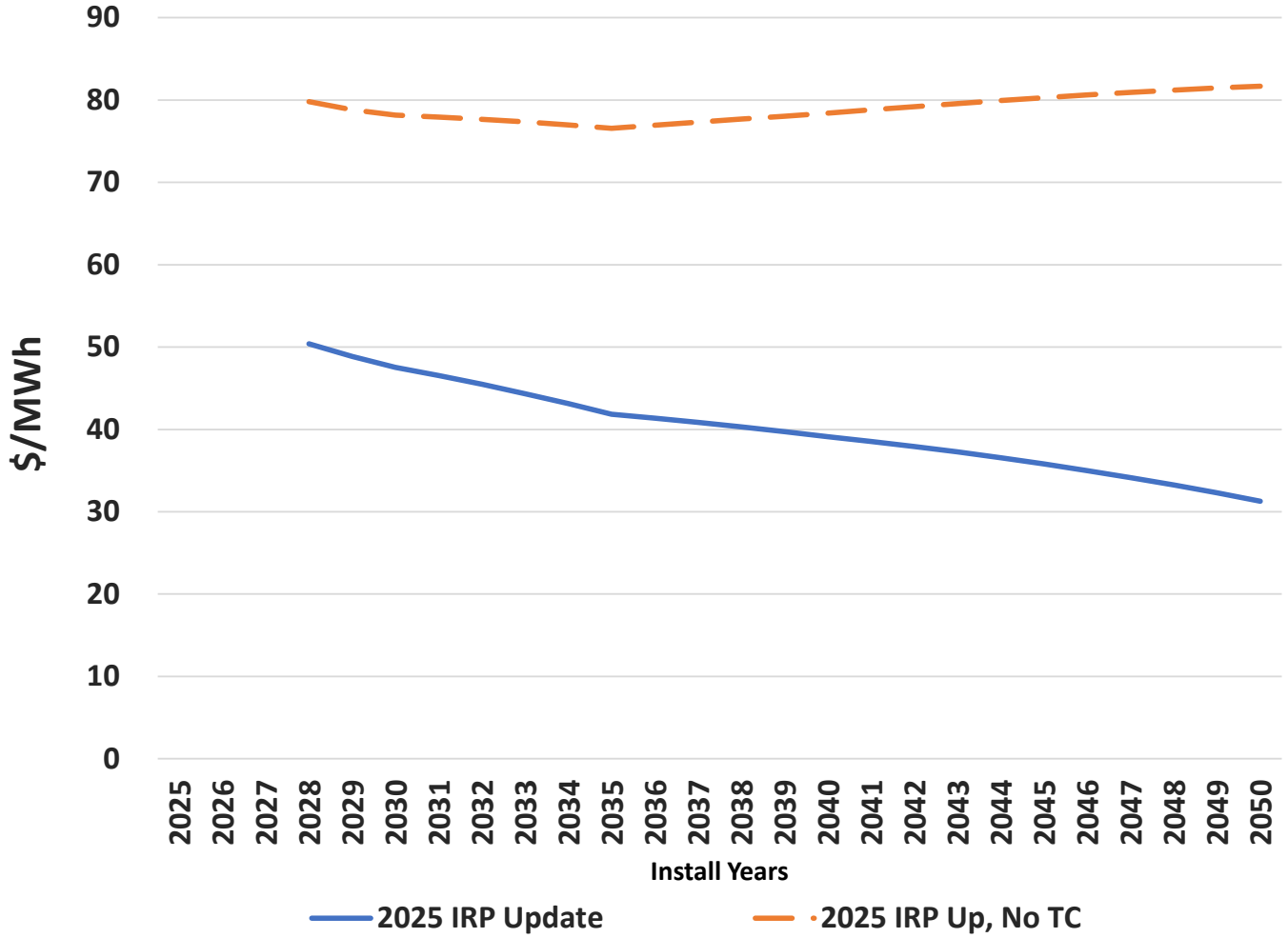
* 50% of (3) 1x1 NGCC will be assumed.
** Capital and O&M costs in 2025 $.
** Capital costs exclude costs for land; interconnections for transmission, natural gas, and water; financing issuance costs; and interest during construction. These costs items will be reflected in the costs for the IRP analysis.

Comparison to 2024 Resource Assumptions

Technology	2025 Net Capacity (MW)	2024 Update Net Capacity (MW)	2025 Overnight Capital Cost ($/kW)	2024 Update Overnight Capital Cost ($/kW)
Combined Cycle, 2x1 H-class	-	1,264	-	1,179
Combined Cycle, 1x1 H-class	652	630	1,719	1,493
Combined Cycle, (2) 1x1 H-class	1,303	-	1,576	-
Combined Cycle, (3) 1x1 H-class	1,955	-	1,453	-
Combustion Turbine, H-class	442	402	1,240	1,447
Combustion Turbine, F-class	236	230	1,448	1,600
Aeroderivative CT, (1) LM6000	-	40	-	2,319
Aeroderivative CT, (2) LM6000	108	-	2,445	-
RICE, 6x8V50DF	106	-	2,467	-
Small Modular Nuclear Reactors	300	683	11,512	6,464

Average ambient capacity ratings.
All cost in 2025 $s. Per-unit costs at average ambient ratings.
Capital costs excludes costs for land; interconnections for transmission, natural gas and water; and financing costs and interest during construction.

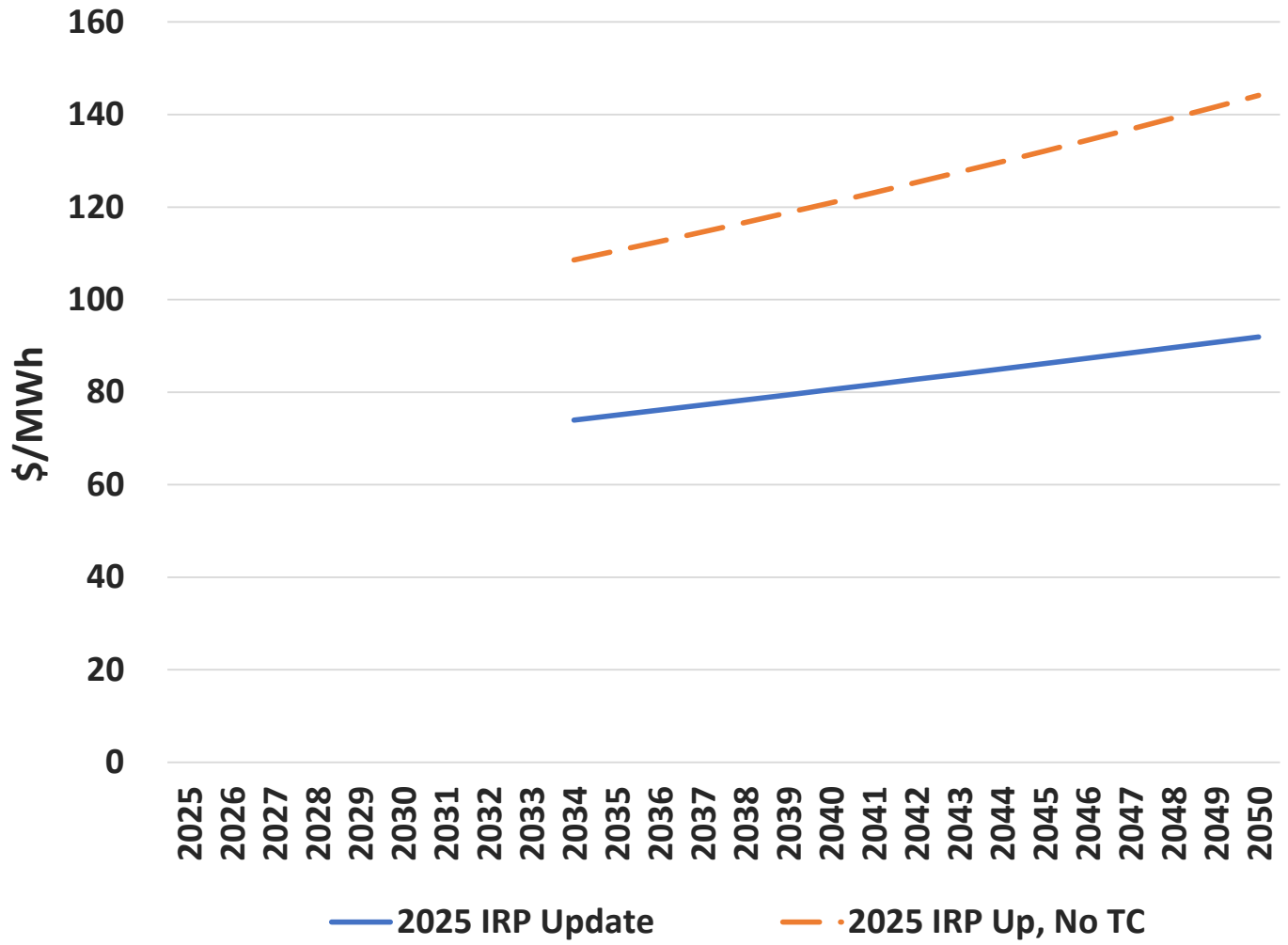
Utility-Scale Solar PV (class 5)



- Projections Reflect PPA Pricing
  - Base year capital costs from S&L
  - Capital and FOM cost trends from 2024 ATB Conservative Case
  - Developer finance assumptions
  - 30-year service life
- Cost Projections for Two Cases
  - With PTCs (1st 10 years of operation, all install years)
  - No PTCs (potential sensitivity)
- Projections are 37% Higher on Average than 2024 IRP Update

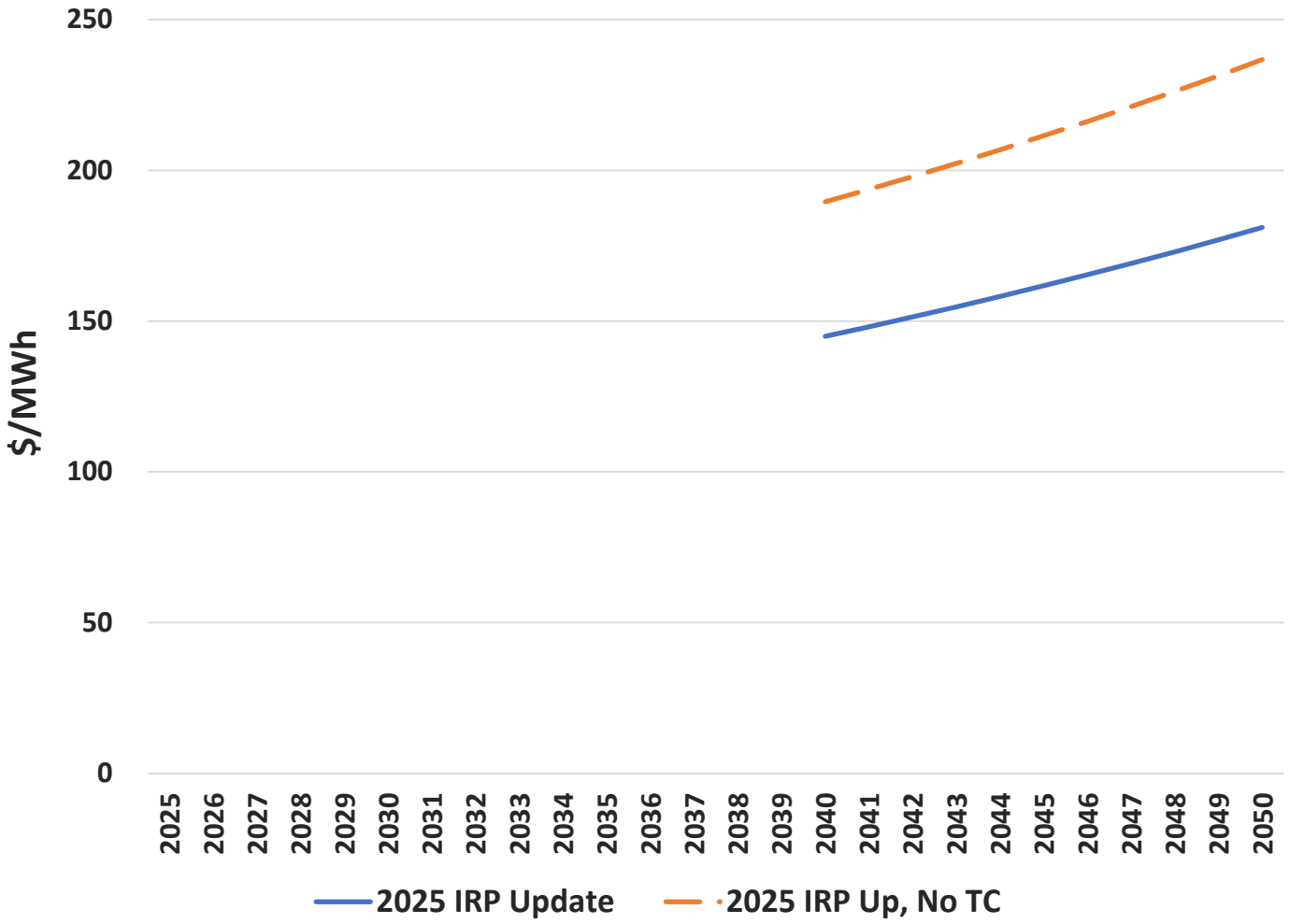
FOM – Fixed Operations and Maintenance
ATB – Annual Technology Baseline
PTC – Production Tax Credit TC – Tax Credit

Onshore Wind (class 9)



- Projections Reflect PPA Pricing
  - Base year capital costs from S&L
  - Capital and FOM cost trends from 2024 ATB Conservative Case
  - Developer finance assumptions
  - 30-year service life
- Cost Projections for Two Cases
  - PTCs (1st 10 years of operation, all install years)
  - No PTCs (potential sensitivity)
- Projections are 24% Higher than 2024 IRP Update

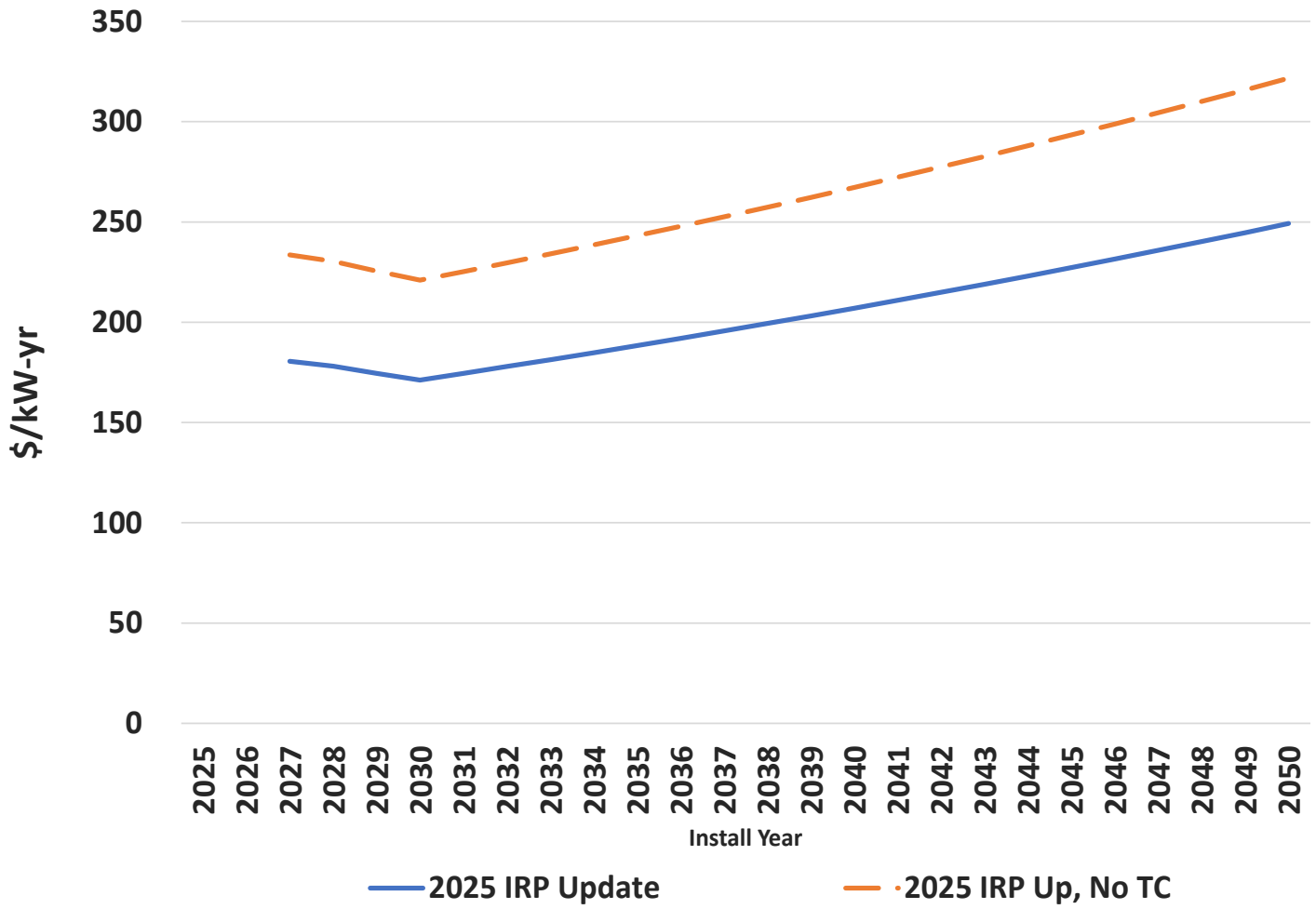
Offshore Wind (class 5)



- Projections Reflect PPA Pricing
  - Base year capital costs from S&L
  - Capital and FOM cost trends from 2024 ATB Conservative Case
  - Developer finance assumptions
  - 30-year service life
- Cost Projections for Two Cases
  - 30% ITC for all install years
  - No ITC (potential sensitivity)
- Projections are 39% Higher than 2024 IRP Update

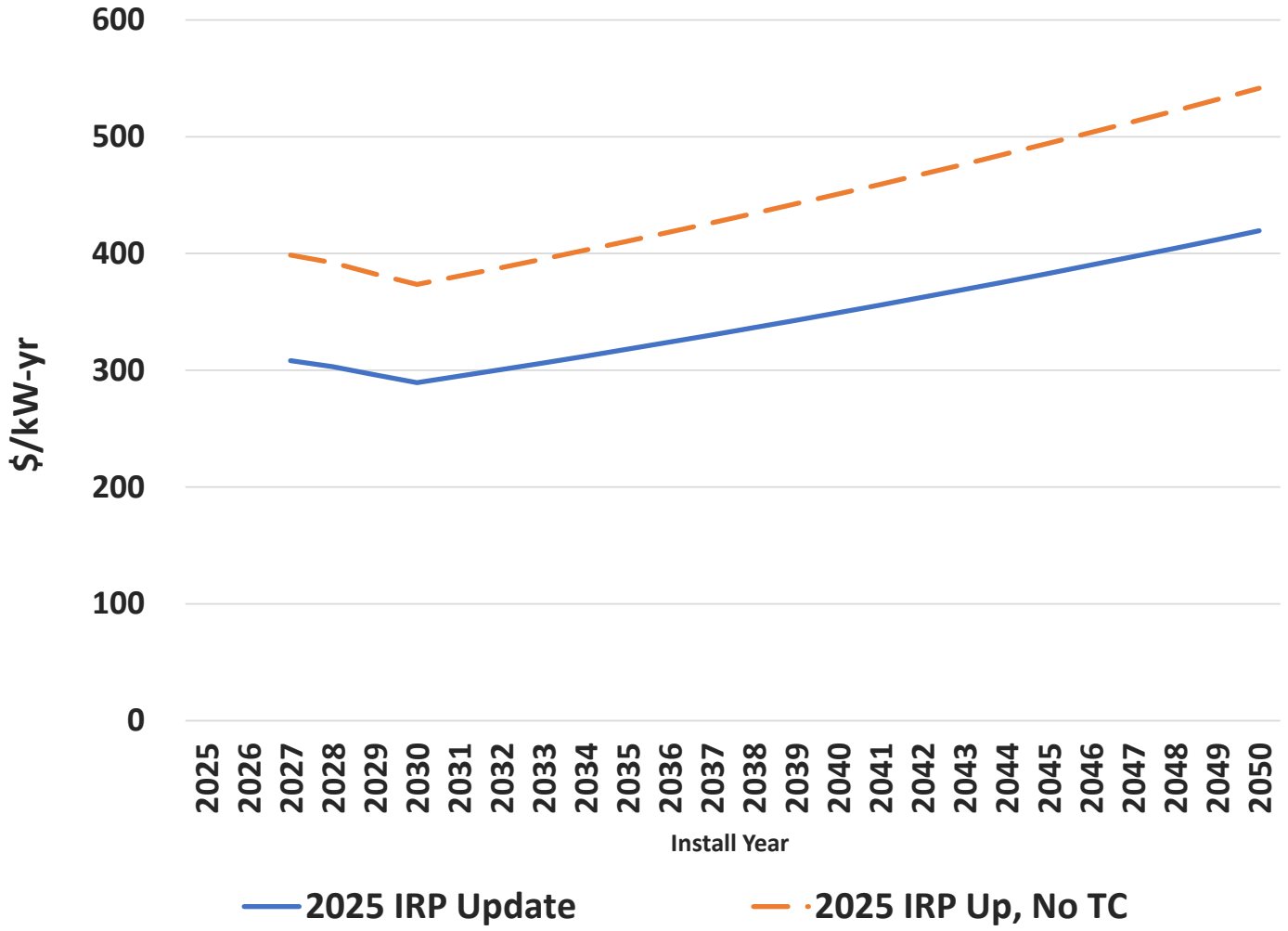
ITC – Investment Tax Credit

BESS (4-hr)



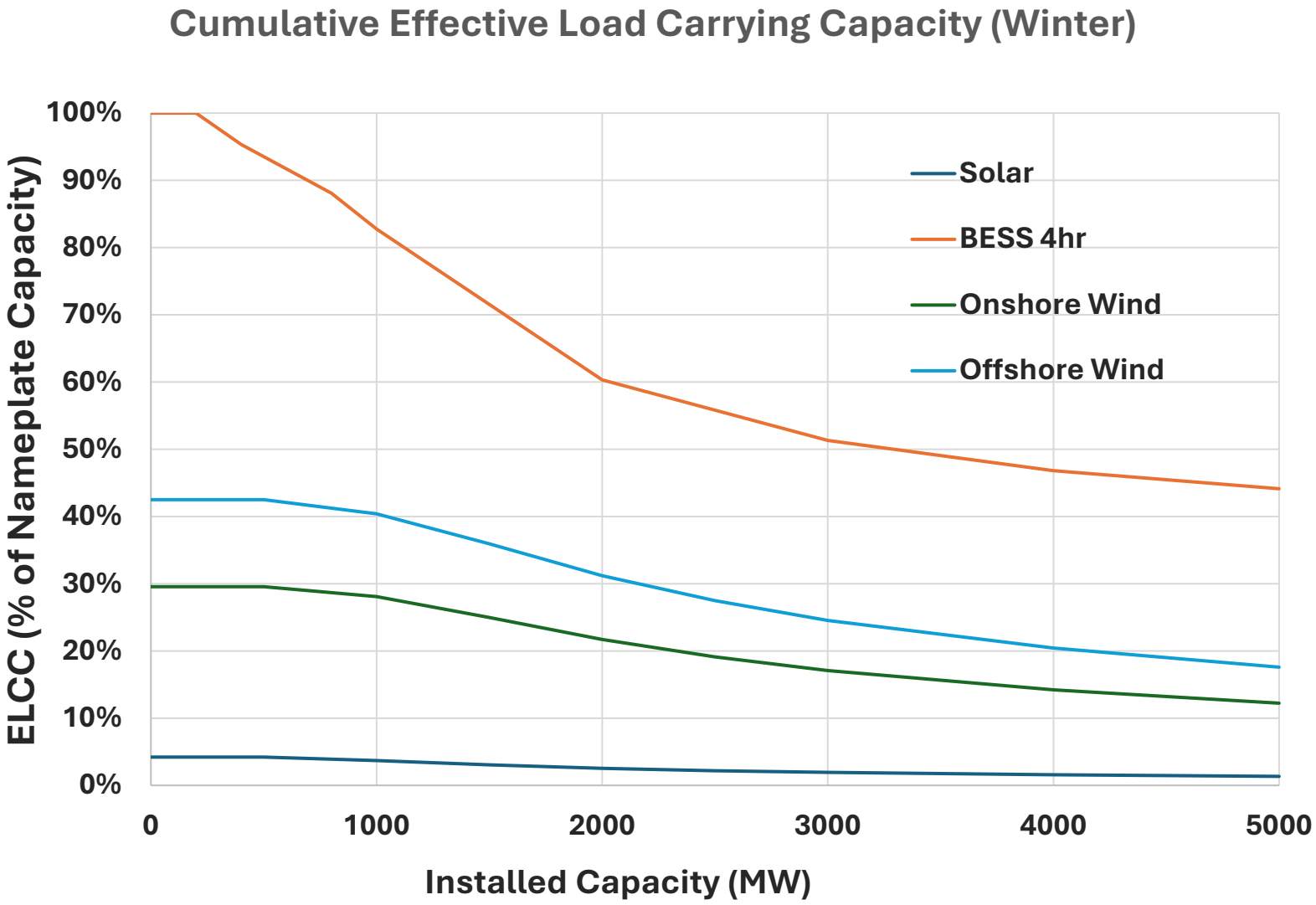
- Projections Reflect PPA Pricing
  - Base year capital costs from S&L
  - Capital and FOM cost trends from 2024 ATB Conservative Case
  - Representative finance assumptions
  - 20-year service life
- Cost Projections for Two Cases
  - 30% ITC for all Install Years
  - No ITC (potential sensitivity)
- Projections are 17% Higher than 2024 IRP Update

BESS (8-hr)



- Projections Reflect PPA Pricing
  - Base year capital costs from S&L
  - Capital and FOM cost trends from 2024 ATB Conservative Case
  - Developer finance assumptions
  - 20-year service life
- Cost Projections for Two Cases
  - 30% ITC for all install years
  - No ITC (potential sensitivity)
- Projections are 14% Higher than 2024 IRP Update

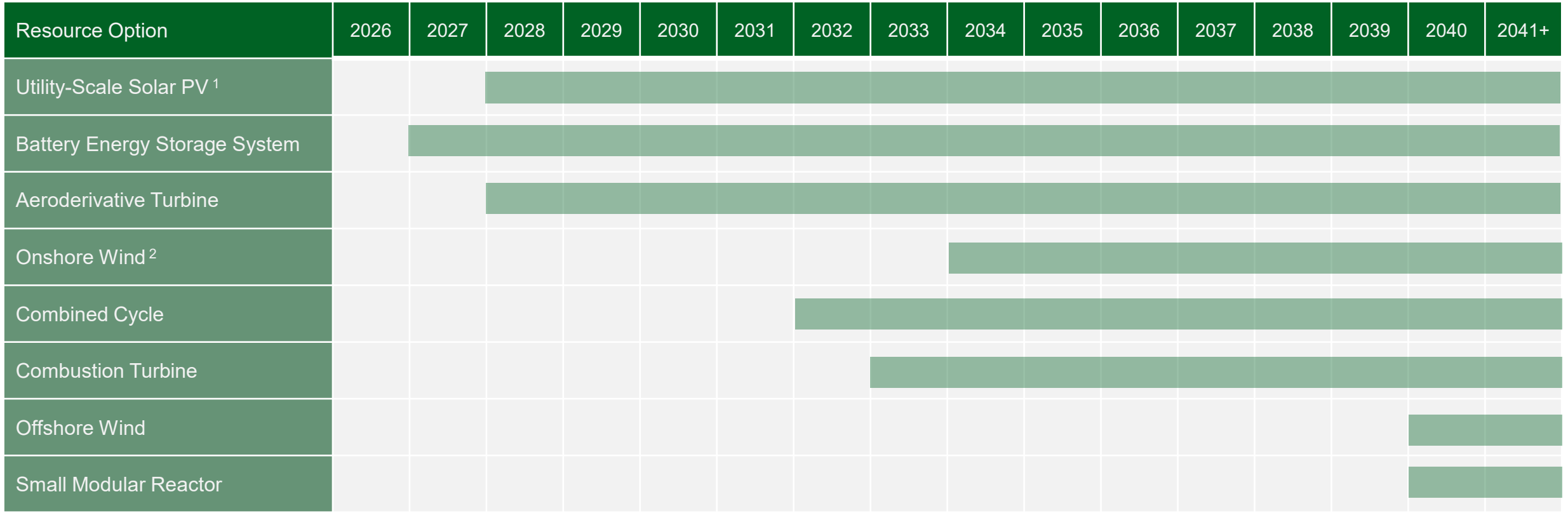
Effective Load Carrying Capability (ELCC)



- 2025 IRP Update will assume ELCC projections consistent with the 2023 IRP and 2024 IRP Update

Resource Availability Assumptions

Year First Available by Resource Option



Resource Option	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041+
Utility-Scale Solar PV [1]			■	■	■	■	■	■	■	■	■	■	■	■	■	■
Battery Energy Storage System		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Aeroderivative Turbine			■	■	■	■	■	■	■	■	■	■	■	■	■	■
Onshore Wind [2]									■	■	■	■	■	■	■	■
Combined Cycle							■	■	■	■	■	■	■	■	■	■
Combustion Turbine								■	■	■	■	■	■	■	■	■
Offshore Wind															■	■
Small Modular Reactor															■	■

[1] Utility-scale solar PV resources can be added in increments of up to 300 MWs per year.
[2] Onshore wind resources can be added in increments of up to 100 MWs per year.

Break

Returning at 3:40

2025 IRP Update

Clay Settle, Senior Manager Resource Planning
Bob Davis, Executive Consultant, nFront

Modeling Strategy Summary

2025 IRP Update

Update the Commission about how recent changes in market conditions and modeling assumptions affect the Preferred Portfolio recommended through the 2023 IRP

Portfolios

- 2023 IRP Preferred Portfolio (updated for new market conditions and assumptions)
- Optimized Portfolio (derived under new market conditions and assumptions)
- Green House Gas (GHG) Portfolio (meeting requirements of the EPA GHG Rule at the time of modeling)

Reference Case

A business-as-usual case that assumes the EPA's recent GHG regulation is stayed

- Retire Winyah as planned by 2032
- Retire MB and HH Combustion Turbines (CTs) by 2034

EPA GHG Case

Assume EPA's recent GHG Rule is implemented as currently filed

- Retire Winyah and MB and HH consistent with Reference Case
- Retire Cross by 2032
- Limit new Combined Cycles and H-class CTs to 40% Capacity Factor (CF)
- Limit other new CTs to 20% CF

Sensitivity Analyses

- Load Forecast
- Fuel Prices

Portfolio Evaluation Metrics

- Metrics evaluated for the 2023 IRP and 2024 IRP Update
  - Net Present Value (NPV) Power Costs
  - Mini-max Regret
  - Reliability Uncertainty
  - Fixed Cost Obligations
  - Fuel Cost Resiliency
  - CO_2 Emissions
  - Generation Diversity
  - Clean Energy
  - Load Uncertainty
  - Average Cost / Rate Impact
- For the 2025 IRP Update, Santee Cooper will continue to evaluate and report on these metrics

2025 Load Forecast

Carl Ciullo, Financial Analyst

Load Forecast | Timeline

2023 IRP

- Load Forecast was prepared in May 2022

2023 Load Forecast

- Base load forecast was prepared in May 2023
- Revised twice during 2023 to incorporate new large customer signings

2024 Load Forecast

- Load Forecast was prepared in May 2024
- Incorporated feedback from SCPSC, stakeholders, Central, and other experts to reflect potential new large loads

2025 Load Forecast

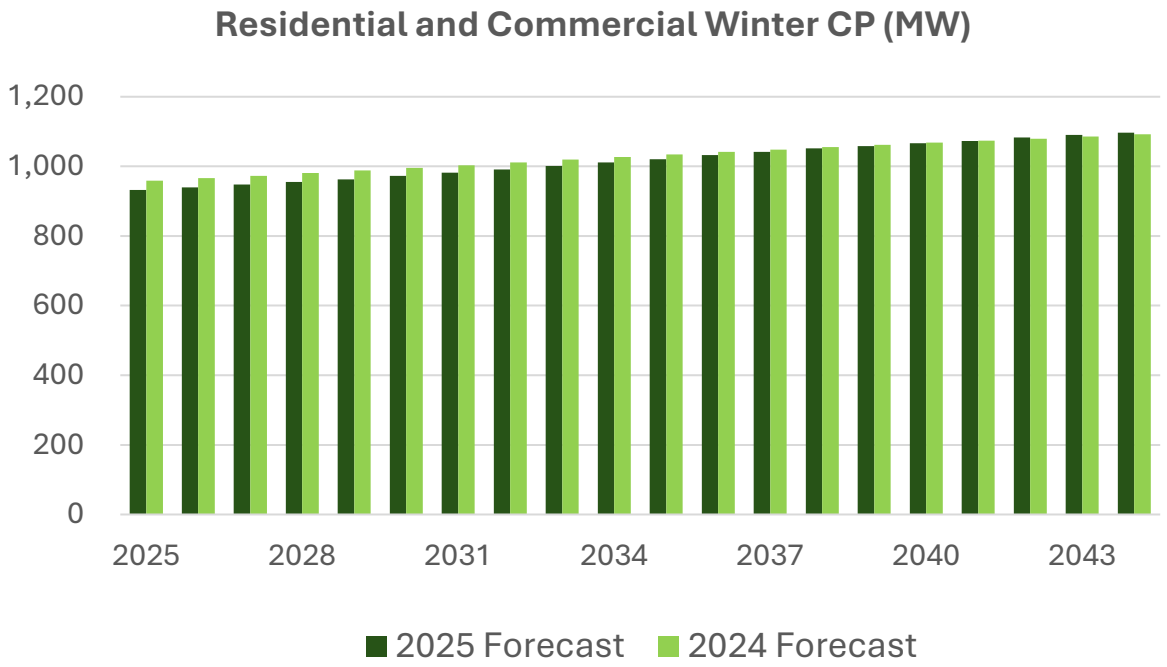
- Load Forecast was prepared in May 2025
- High and Low forecast scenarios are underway

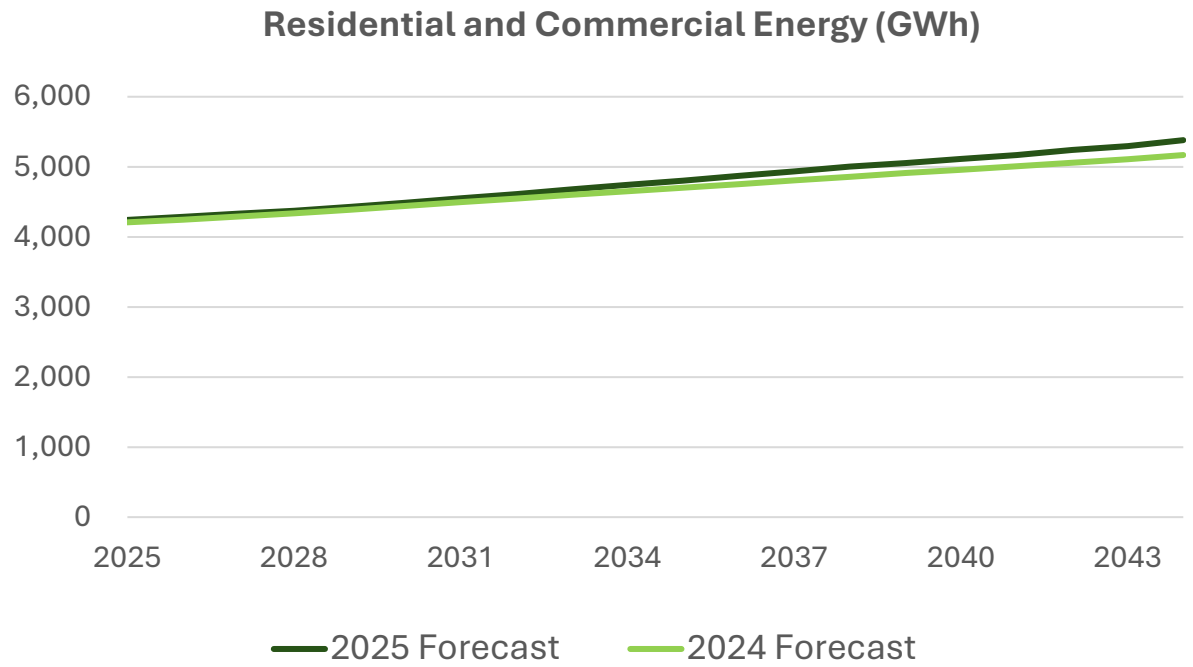
- Base load forecast is completed
  - Methodologies are consistent with 2024 Load Forecast
- 2025 Load Forecast is the basis for 2025 IRP Annual Update

SCPSC means the South Carolina Public Service Commission

Residential and Commercial

- End Use (SAE) results consistent with prior forecast
  - Continued strong outlook for Myrtle Beach
  - Slightly improved customer outlook

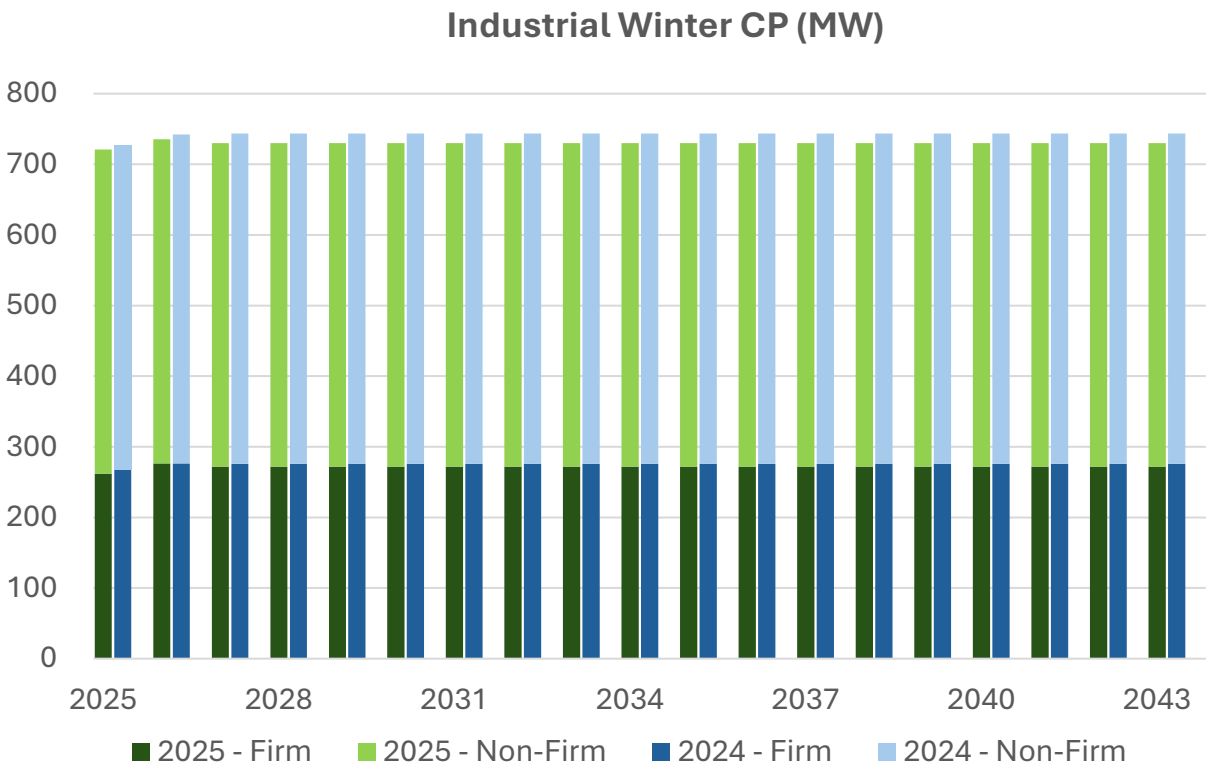


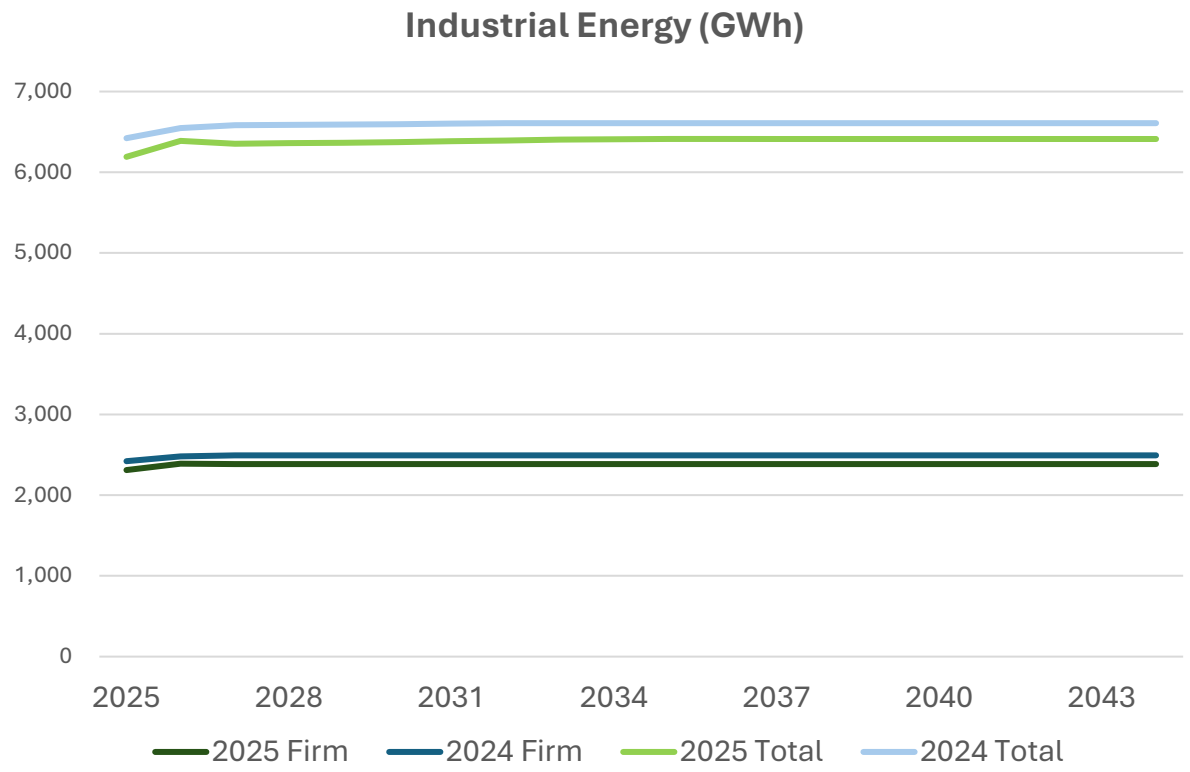


1. *Transmission level; includes preliminary estimates of impacts of Demand Side Management*

Industrial

- Slight decline in expected usage, particularly non-firm, to reflect historical trends



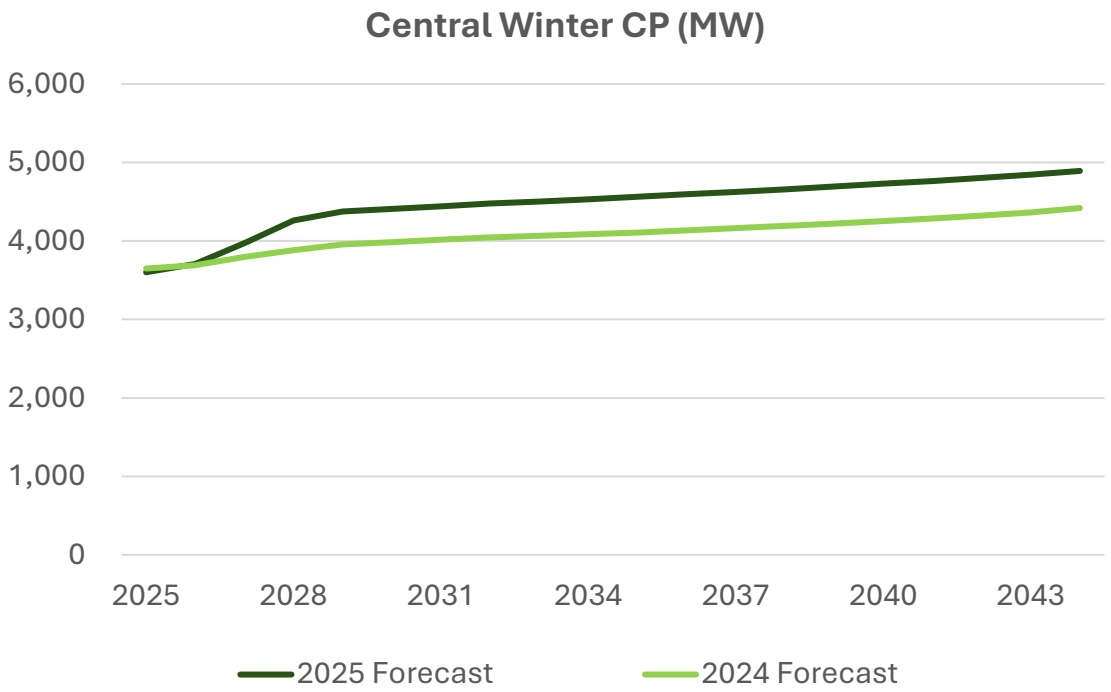


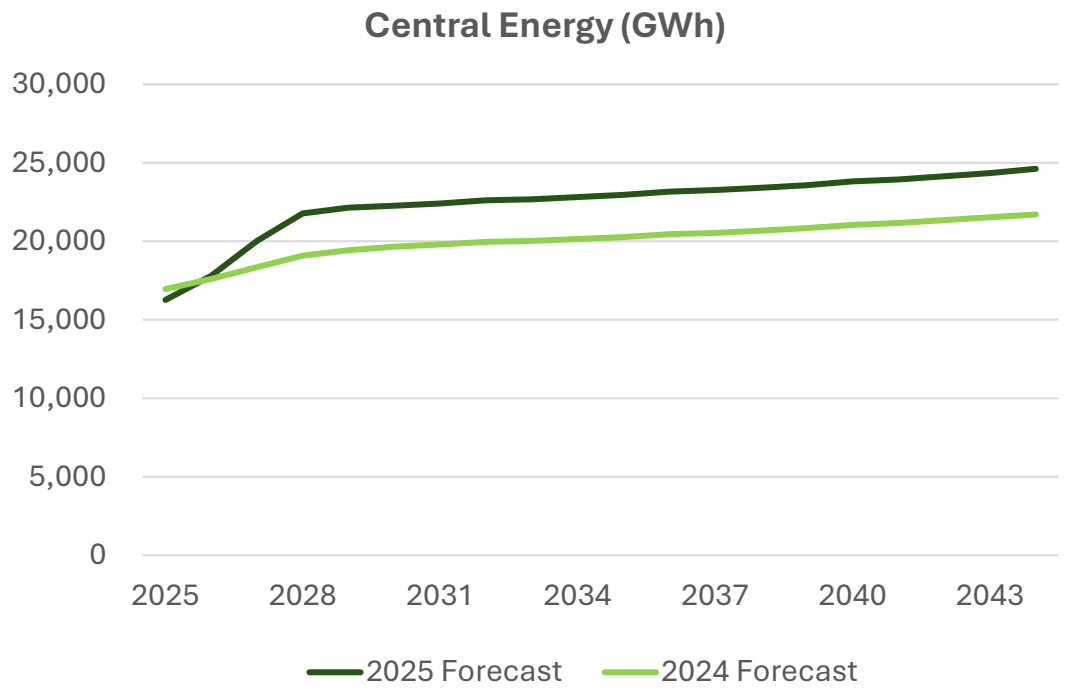
1. Transmission level; excludes Potential New Large Loads

Load Forecast Review | Central Load Forecast[1]

Central

- End Use (SAE) results consistent with prior forecast
  - Continued strong outlook
- Two customers from the 2024 Potential New Large Load adjustment moved to Central's forecast

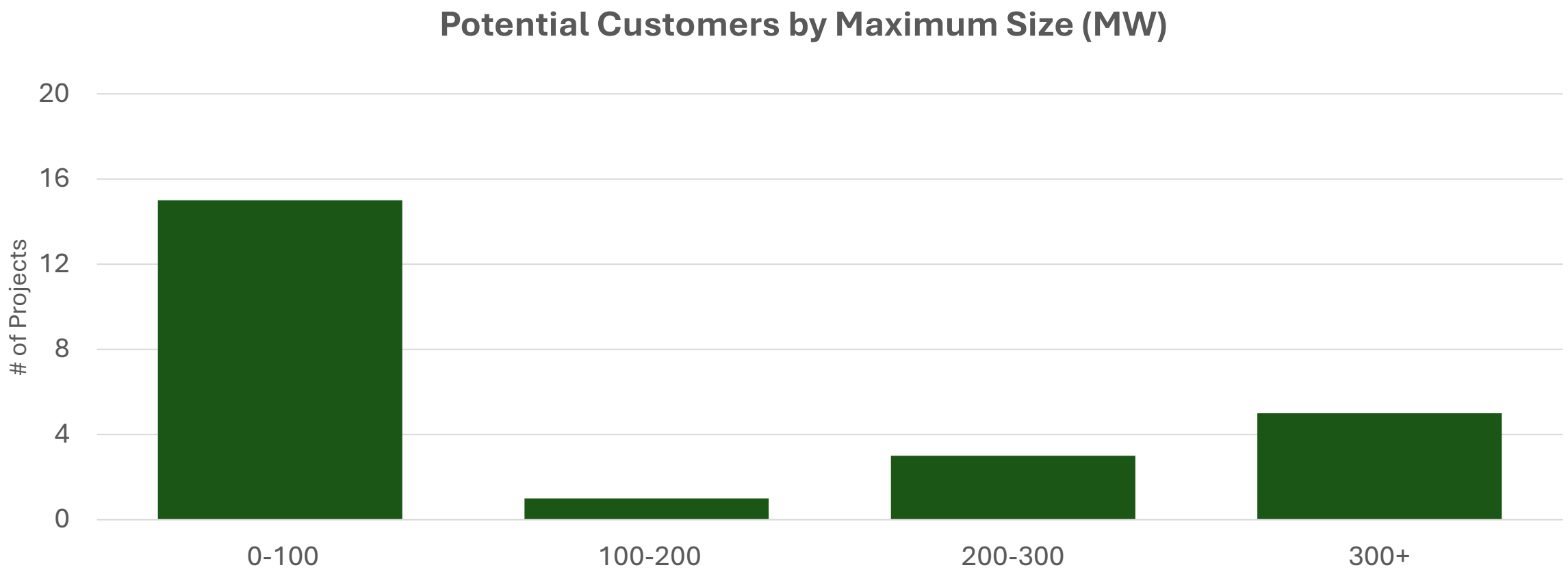




1. Transmission level; excludes Potential New Large Loads

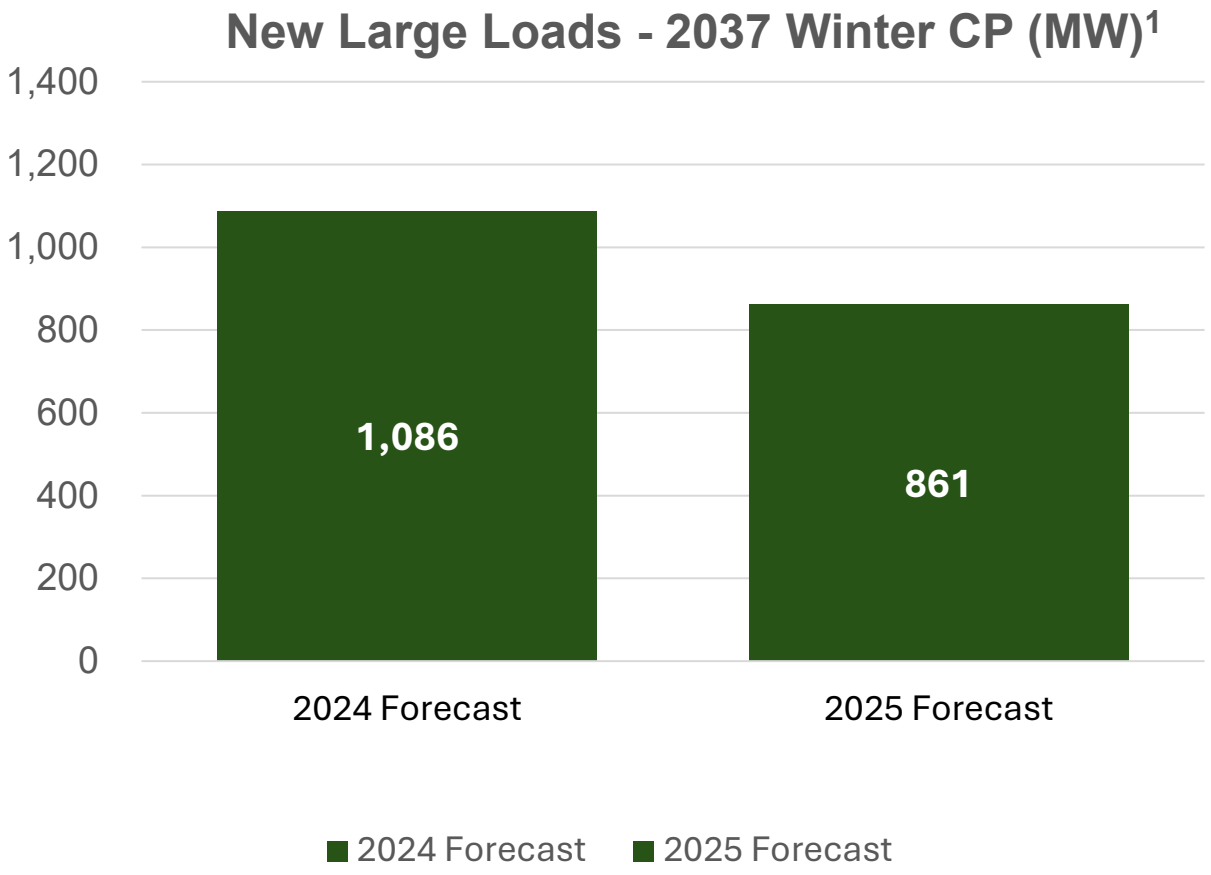
Potential New Large Loads (PNLL)

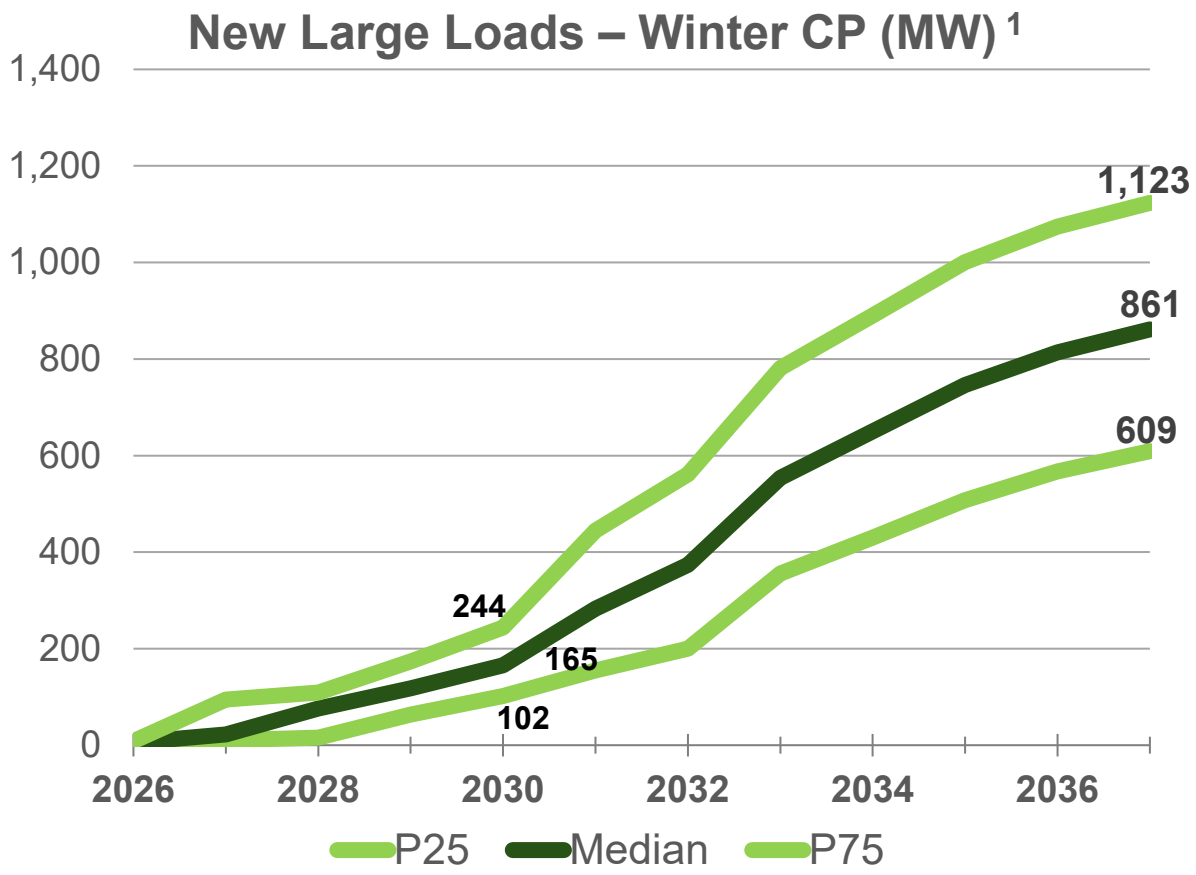
Santee Cooper is currently evaluating **24 potential customers**
with a maximum size of **3,900 MW** included in the stochastic analysis.



Potential New Large Loads (PNLL)

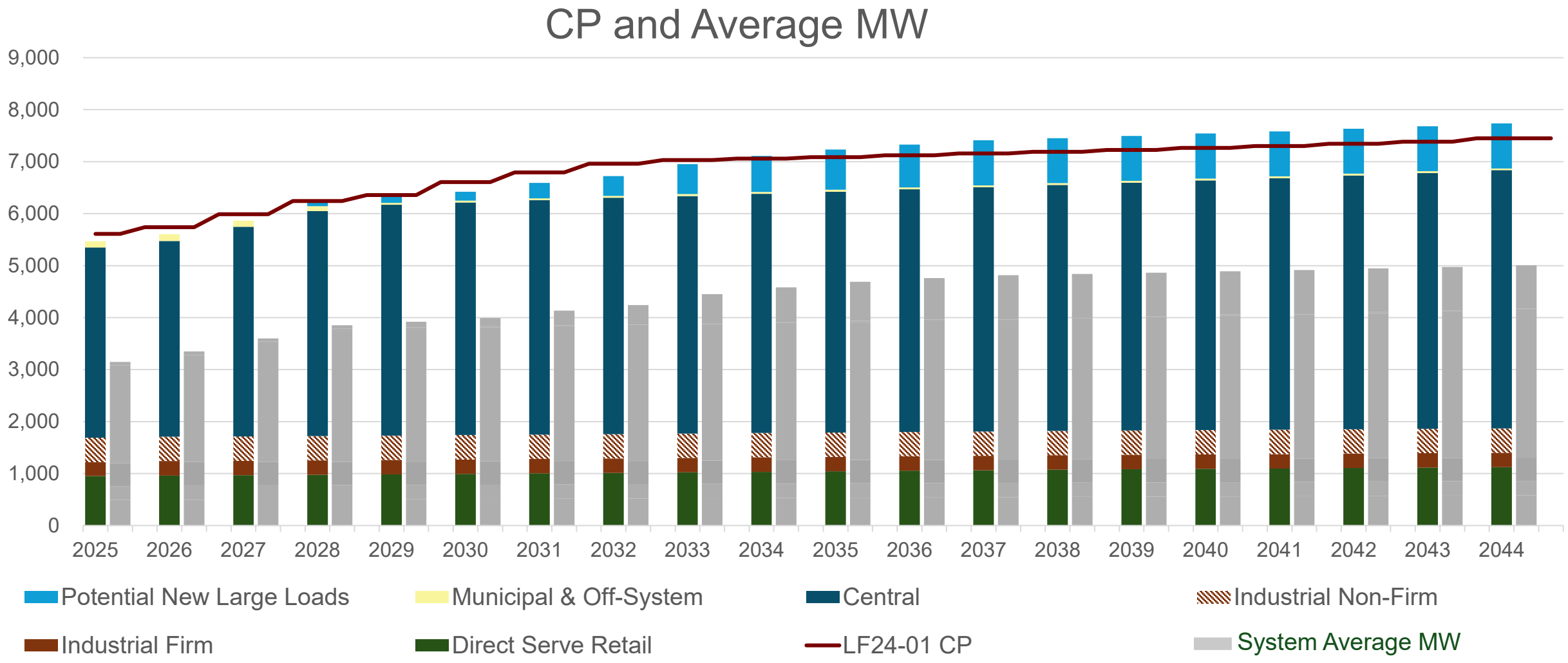
The PNLL adjustment is lower in this forecast as a significant portion of the 2024 adjustment has signed with Central and the current potential customers have a lower average likelihood of connecting.





1. *Generation level*

Load Forecast | Forecast with Potential Large Load[1]



1. *Generation level. Excluding DSM/EE*

Meeting Closeout

Stewart Ramsay, Facilitator, VANRY Associates

Meeting Closeout

- Review and agreement for meeting action items
- Vanry will send the meeting summary to members for review
- Next working group meeting
  - Targeting October
  - Please let us know if a member would like to present on a topic
- Next general notice meeting targeted for November

Thank you!

Please complete our survey
that will appear in your browser as you leave the meeting

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