Santee Cooper Resource Planning

Stakeholder Working Group Meeting #2

June 27, 2024

Welcome and Agenda

Stewart Ramsay, Meeting Facilitator
VANRY Associates

Meeting Agenda

1:00 pm	Welcome and Agenda
1:10 pm	Working Group
1:40 pm	Meeting Summaries for the Working Group
1:50 pm	Load Forecast
2:20 pm	Effective Load Carrying Capability Update
2:35 pm	BREAK
2:45 pm	Effective Load Carrying Capability Update Continued
3:00 pm	Major Assumptions for the 2024 Annual IRP Update
4:00 pm	BREAK
4:10 pm	Portfolios, Sensitivities, and Metrics for the 2024 Annual IRP Update
4:50 pm	Meeting Closeout

Guest Speakers

Greg McCormack
Senior Manager Financial Forecast
Santee Cooper

Joel Dison
Technical Manager
Astrape Consulting

Meeting Outcomes

Take care of working group matters

- Members understand the progress made on action items and feedback received from the first meeting
- We have gathered feedback regarding the working group meeting schedule and priority topics proposed by Santee Cooper

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Take care of IRP business matters

- Members understand and provide feedback to support Santee Cooper's 2024 Annual IRP Update
  - Major assumptions, portfolios, sensitivities and metrics

New Working Group Member

New Member Introduction

- Name?
- Organization?
- Role?
- Prior IRP experience?

Category	Organization/Individual
Regulatory/Government	Office of Regulatory Staff South Carolina Department of Consumer Affairs South Carolina Department of Natural Resource South Carolina Dept. of Health and Environmental Control
Central	Central Electric
Industrial Customers	Industrial Customer Association – J. Pollock Century Aluminum Nucor Messer Google
Municipal Customer	South Carolina Association of Municipal Power Systems
Residential/Commercial	3 Representatives
NGOs	Carolina Clean Energy Business Association Conservation Voters of South Carolina Coastal Conservation League Southern Alliance for Clean Energy Southern Environmental Law Center Sierra Club **Vote Solar**

Working Group

Clay Settle, Manager Resource Planning
Santee Cooper

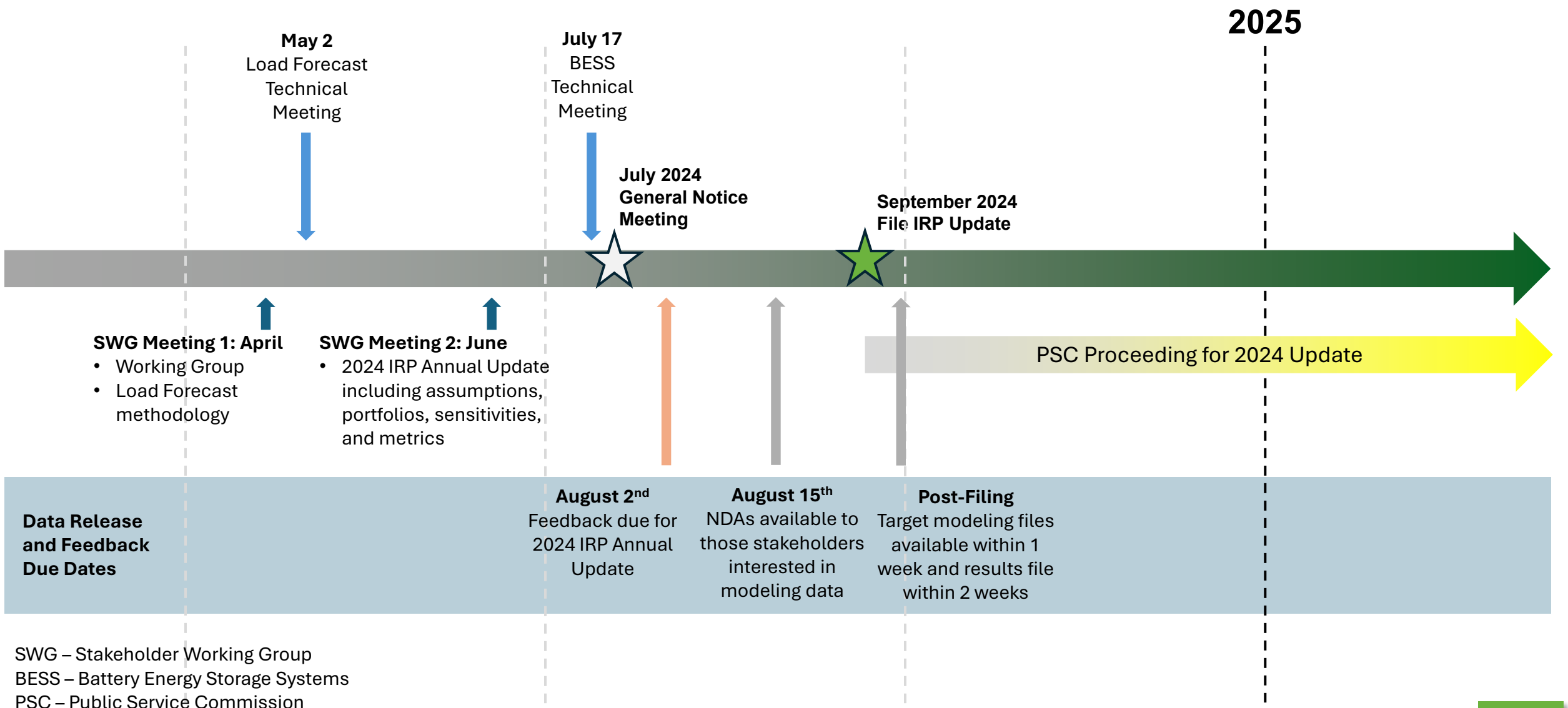
Review of Action Items

Meeting Identified	Action Item (as recorded and agreed to in Meeting 1)	Santee Cooper Response
Meeting 1	Santee Cooper Resource Planning to follow up with the Coastal Conservation League representative on ideas for involving low-income views in IRP development and potentially share that feedback internally with appropriate groups and bring it back to the group.	Underway: Santee Cooper working on this action item
Meeting 1	Resource Planning will formulate action plans to best address intervenor recommendations with the support of the working group.	Underway: Schedule and priority topics provided in presentation, see slides 10-11
Meeting 1	Resource Planning will flag site-specific geographic location as a conversation topic to consider transmission constraints and availability.	See schedule, slides 10-11
Meeting 1	Santee Cooper will review and respond about the level of confidentiality required regarding the transmission study related to the Cross retirement.	Done: The Transmission Impact Analysis study related to Cross Retirement and supporting the 2023 IRP was posted to Santee Cooper's OASIS site on 6/18/2024
Meeting 1	Resource Planning will schedule a technical meeting and invite all interested parties. Members are requested to email Will Brown by end-of-day April 26 if they are interested in participating in the Load Forecast or battery energy storage systems (BESS) technical meetings.	Done: • Load Forecast meeting held May 2 • BESS meeting scheduled for July 17
Meeting 1	There is a standing commitment to circulate a draft meeting summary for working group members to review before submitting it to the Public Service Commission.	Underway: Tabled for follow-up discussion today, slide 13

Review of Feedback

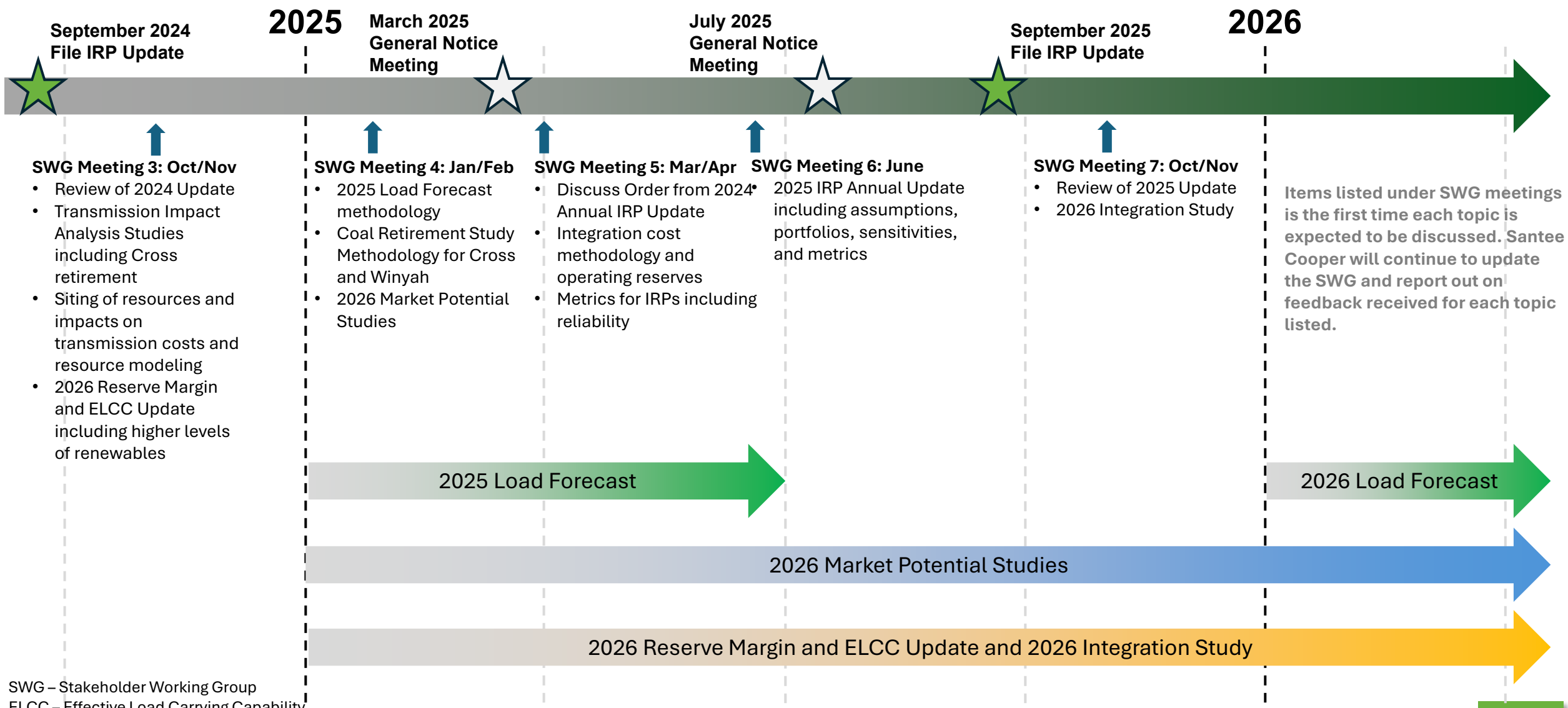
Feedback Source	Stakeholder Feedback (summarized from comments)	Santee Cooper Response
Review of Charter	Meeting schedule and topics should provide stakeholders the opportunity to provide feedback on the front-end of studies, during the development of assumptions, and prior to the filing of final IRPs	Proposed: Schedule and priority topics provided in presentation, see slides 10-11
Review of Charter	Share modeling and confidential data with stakeholders while the IRP is still in development and prior to filing	Proposed: Santee Cooper will share final modeling and results files with stakeholders after the 2024 IRP Update is filed and will setup a data room for accessing the information once an Non-Disclosure Agreement (NDA) is signed, intend to continue this practice for the 2025 Update and 2026 Triennial IRPs, Santee Cooper will evaluate sharing inputs pre-filing on a case-by-case basis and as requested
Review of Charter	Provide a schedule that includes dates for releasing data and deadlines for submitting feedback	Proposed: Schedule and priority topics provided in presentation, see slides 10-11
Review of Charter	Periodic discussions between the utility and stakeholders on feedback and any potential points of disagreement	Proposed: Santee Cooper intends to review action items and feedback at the start of each working group meeting
Load Forecast Technical Meeting	Comments submitted by several stakeholders with feedback on the load forecast methodology	Underway: See Load Forecast slides

2024 IRP Update Working Schedule

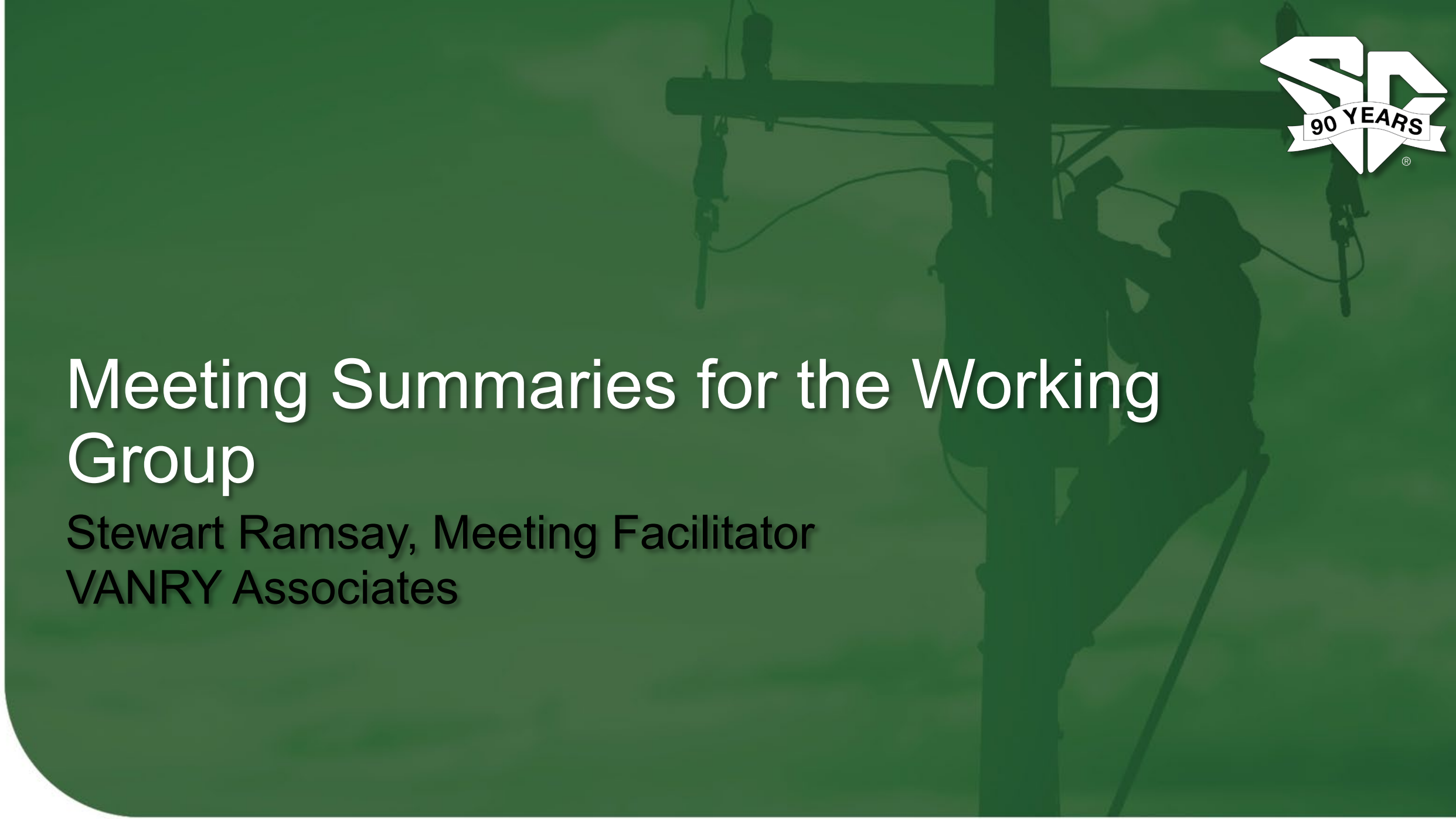


SWG – Stakeholder Working Group
BESS – Battery Energy Storage Systems
PSC – Public Service Commission

2025 IRP Update Working Schedule



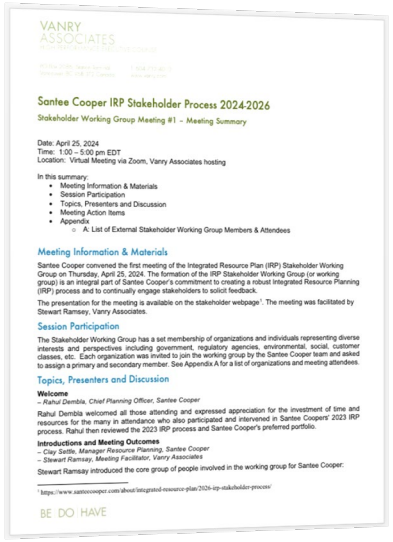
SWG – Stakeholder Working Group
ELCC – Effective Load Carrying Capability



Meeting Summaries for the Working Group

Stewart Ramsay, Meeting Facilitator
VANRY Associates

SWG Meeting Summaries



VANRY ASSOCIATES

Santee Cooper IRP Stakeholder Process 2024-2026

Stakeholder Working Group Meeting #1 – Meeting Summary

Date: April 25, 2024
Time: 1:00 – 5:00 pm EDT
Location: Virtual Meeting via Zoom, Vanry Associates hosting

In this summary:

- Meeting Information & Materials
- Session Participation
- Topics, Presenters and Discussion
- Meeting Action Items
- Appendix
  - A: List of External Stakeholder Working Group Members & Attendees

Meeting Information & Materials

Santee Cooper convened the first meeting of the Integrated Resource Plan (IRP) Stakeholder Working Group on Thursday, April 25, 2024. The formation of the IRP Stakeholder Working Group (or working group) is an integral part of Santee Cooper's commitment to creating a robust Integrated Resource Planning (IRP) process and to continually engage stakeholders to solicit feedback.

The presentation for the meeting is available on the stakeholder webpage[1]. The meeting was facilitated by Stewart Ramsey, Vanry Associates.

Session Participation

The Stakeholder Working Group has a set membership of organizations and individuals representing diverse interests and perspectives including government, regulatory agencies, environmental, social, customer classes, etc. Each organization was invited to join the working group by the Santee Cooper team and asked to assign a primary and secondary member. See Appendix A for a list of organizations and meeting attendees.

Topics, Presenters and Discussion

Welcome
– Rahul Dembla, Chief Planning Officer, Santee Cooper

Rahul Dembla welcomed all those attending and expressed appreciation for the investment of time and resources for the many in attendance who also participated and intervened in Santee Coopers' 2023 IRP process. Rahul then reviewed the 2023 IRP process and Santee Cooper's preferred portfolio.

Introductions and Meeting Outcomes
– Clay Settle, Manager Resource Planning, Santee Cooper
– Stewart Ramsay, Meeting Facilitator, Vanry Associates

Stewart Ramsay introduced the core group of people involved in the working group for Santee Cooper:

[1] https://www.santeecooper.com/about/integrated-resource-plan/2026-irp-stakeholder-process/

BE. DO. HAVE

- Meeting summaries are a Vanry product, intended to outline topics and document follow-up actions
- We understand that the summaries will be posted to the IRP webpage
- We expect that, ultimately, the meeting summaries will be included in filings with the Public Service Commission (PSC)
- Minimal feedback thus far suggesting that we add more context about the conversations

How do members propose to use the summaries?

What else might be useful?

Load Forecast

Greg McCormack, Senior Manager Financial Forecast
Santee Cooper

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

- Completed in May 2024
- Incorporated feedback from this group and necessary methodology changes

Load Forecast team presented material for 2024 Load Forecast at:

- **Working Group Meeting #1:** Reviewed changes in methodology from prior IRP load forecast, discussed preliminary results, and discussed preliminary potential large load stochastic methods and output
- **Technical Meeting:** Discussed further detail on methodology, assumptions, and results from potential large load stochastic analysis
- **Working Group Meeting #2:** Reviewing updated results for all classes in forecast, feedback from technical meeting, and final results from large load stochastic analysis.

Load Forecast | Feedback Following Technical LF Meeting

- Technical discussion
  - “Generally speaking, we encourage Santee Cooper to err on the side of selecting points lower in the ranges within each year of the preliminary simulation results, particularly in the 2030s, when there is the most uncertainty and the widest spread of 100-megawatt capacity increments.”
  - “Santee Cooper should include in its methodology an analysis of constraints that could limit the total data center capacity that could come to South Carolina.”
  - “We are interested in, and request comment on, whether and how Santee Cooper’s preliminary load forecast has taken into account the impact of these final rules, which have been issued subsequent to its last IRP filing.” (Final rules referring to new appliance and new construction standards)

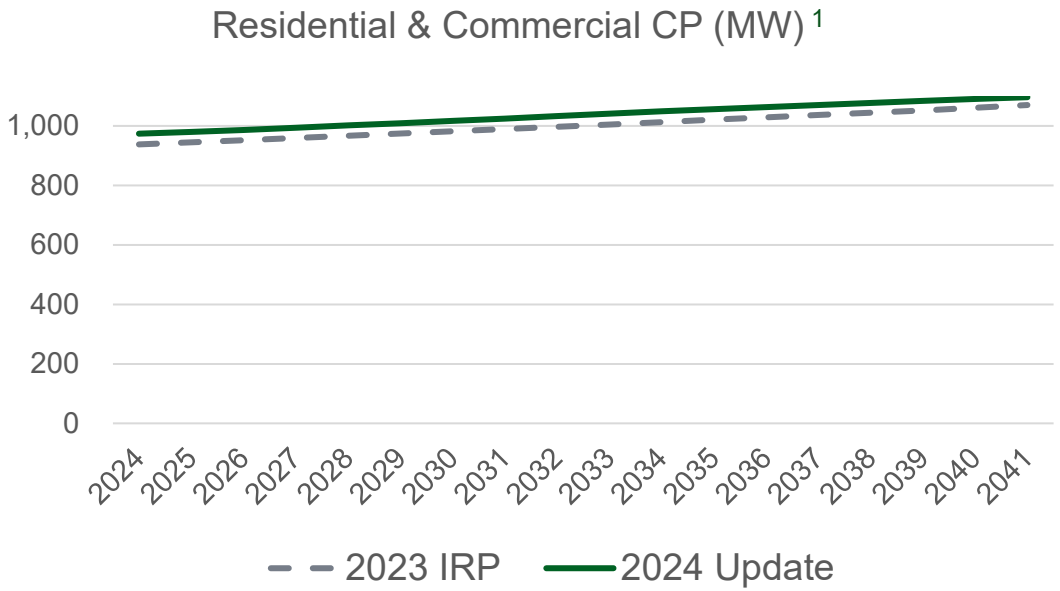
- Process discussion
  - “We would also welcome discussions on the possibility of providing anonymized or aggregated data on a non-confidential basis that might be sufficient for our analytical needs. We are also interested in discussing the economic benefits and potential indirect load impacts of different kinds of new industrial customers.”
  - “We also recommend that Santee Cooper regularly update the public regarding the progress of the industrial load increases contained within this cohort that is the basis of the load forecast…we request that Santee Cooper provide a public update of such changes at least twice per year.”

Load Forecast Results, Before Large Loads

Load Forecast | Forecast Results: Direct Serve Retail

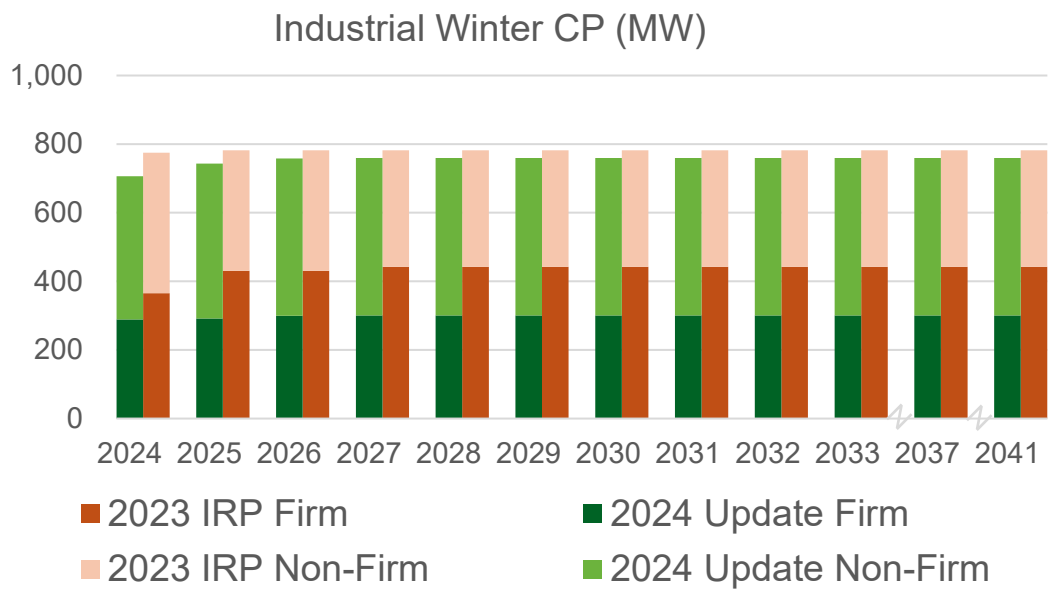
Residential and Commercial

- 3% more residential customers by 2040 than 2023 IRP
- Continued decrease in use per customer partially offsets customer growth
- No substantial change to electric vehicle forecast and rooftop solar forecast



Industrial

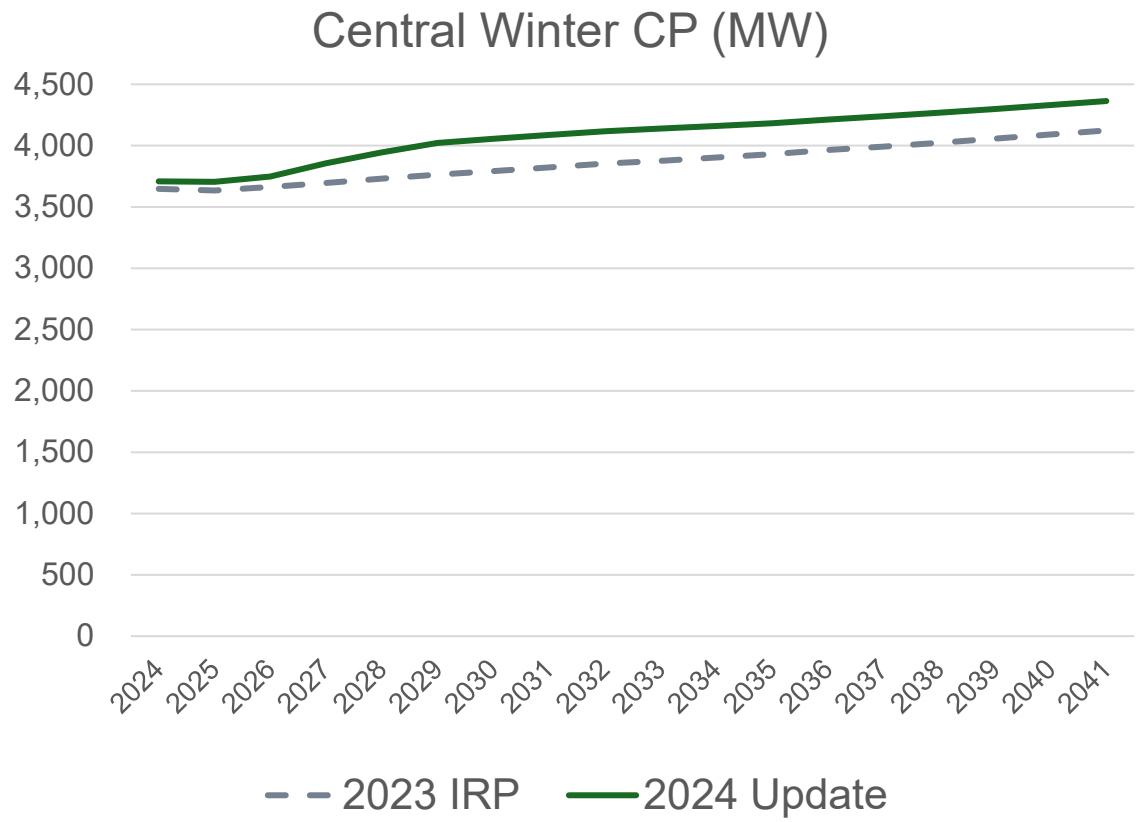
- Four new industrial customers
- Updates for contract changes and recent history

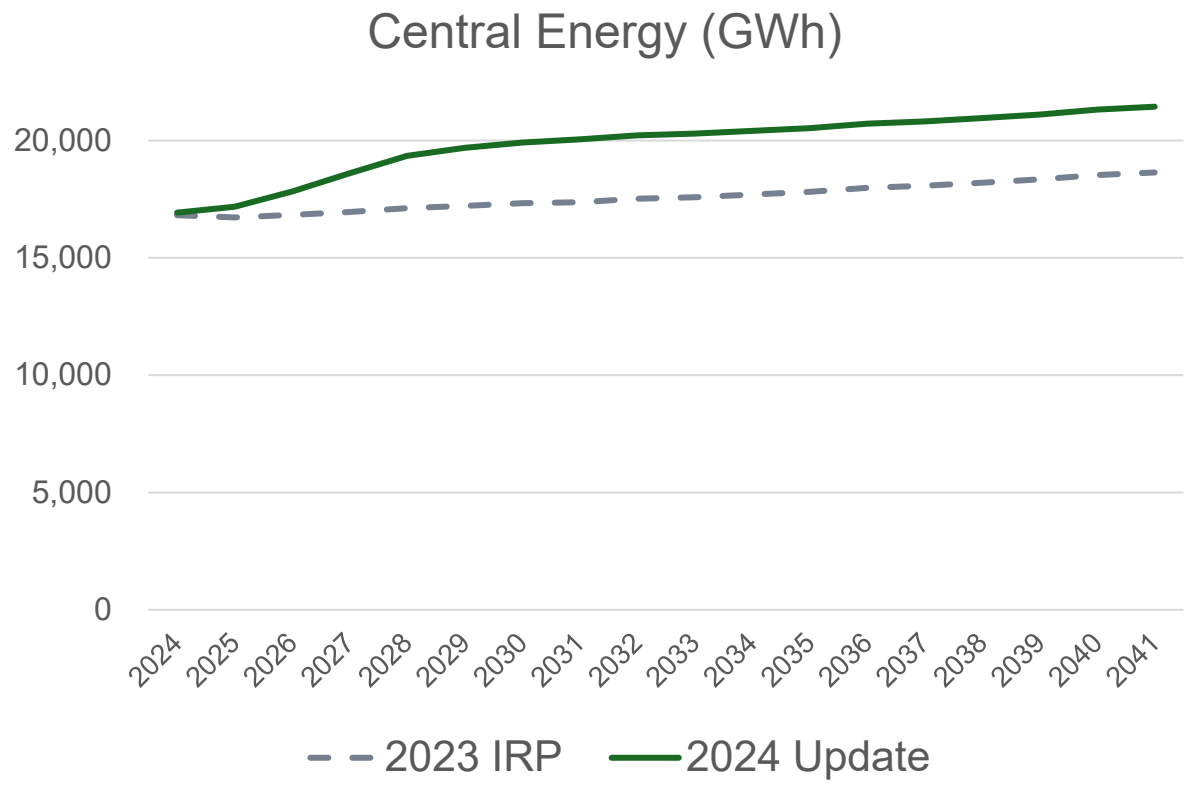


1 - Inclusive of losses and existing DSM; exclusive of future DSM

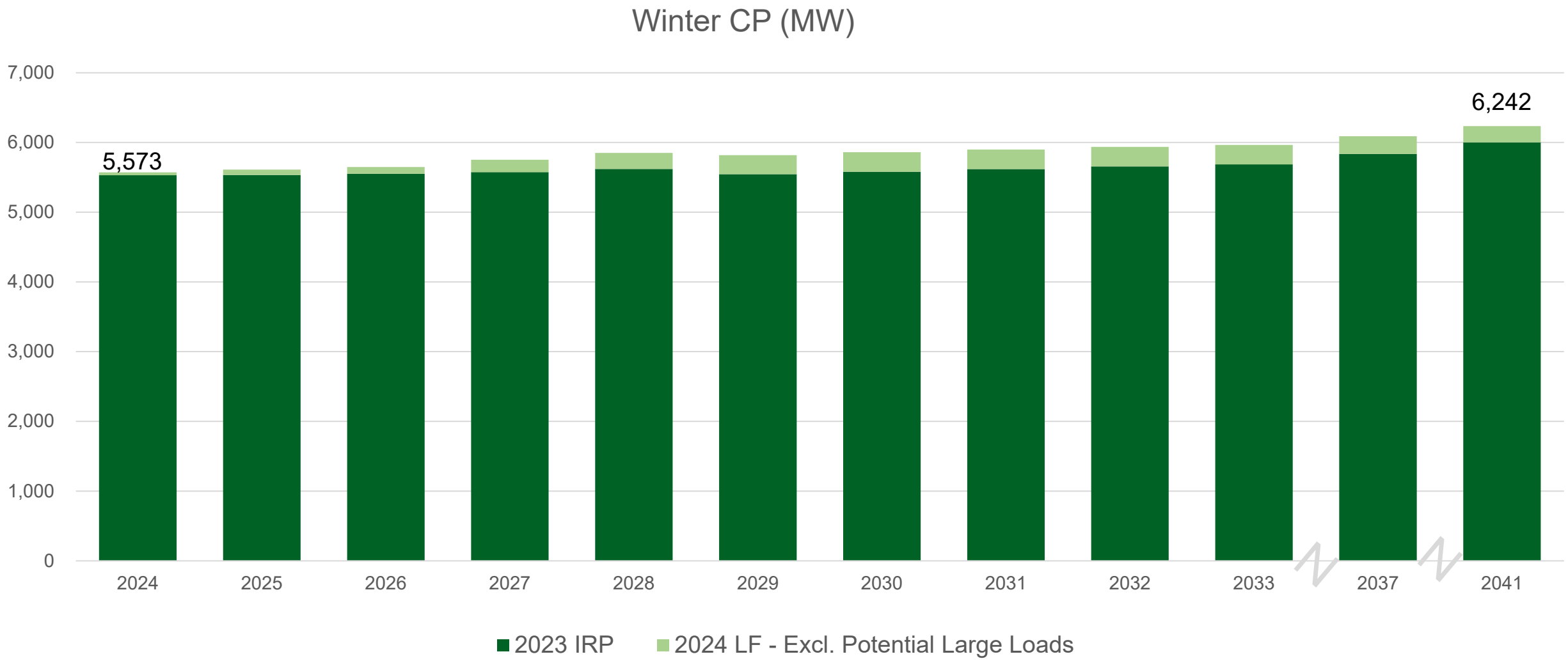
Load Forecast | Forecast Results: Central

- Two large loads added to Central load forecast
- Strong residential customer growth is forecasted through the near term
- Post-model adjustment for electric vehicles





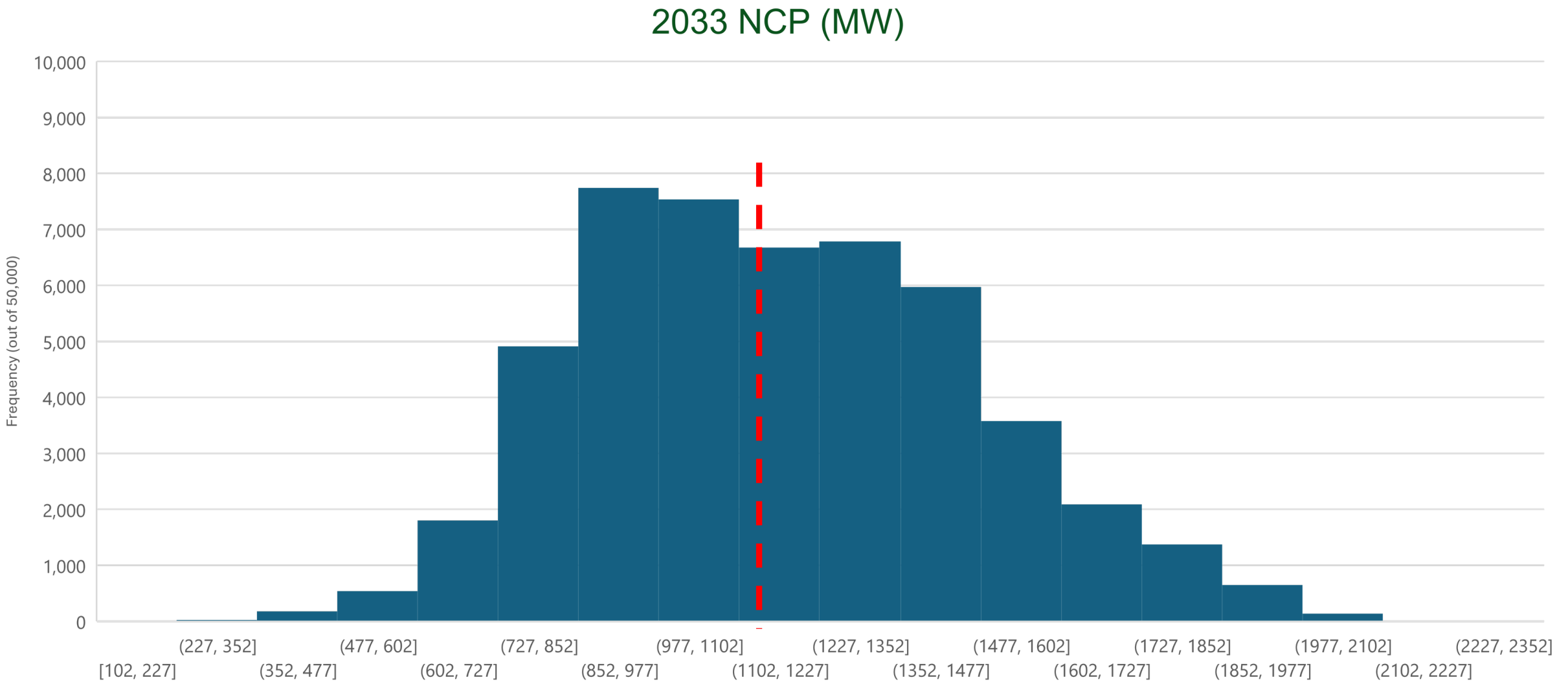
Load Forecast | Forecast Results[1] Excluding Potential Large Loads



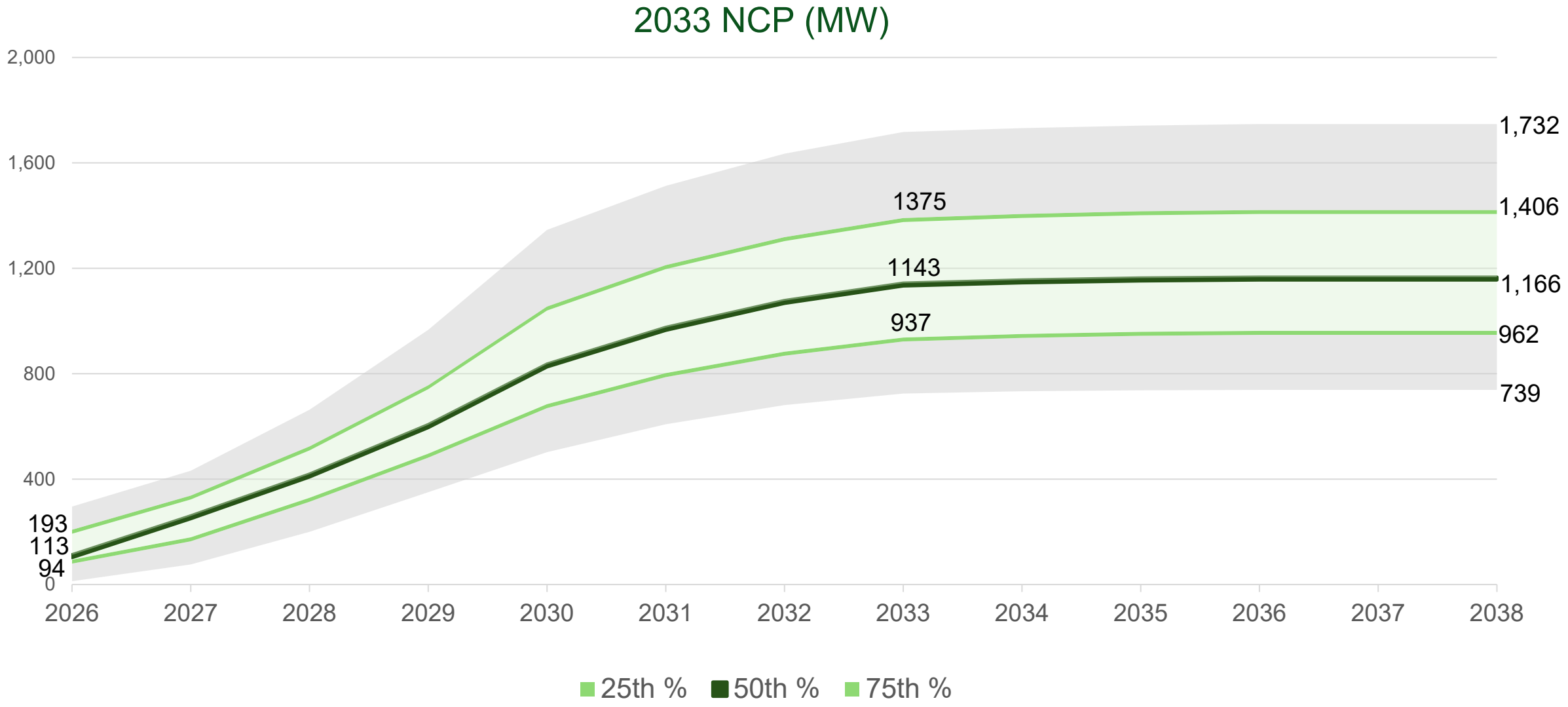
1 - Inclusive of losses and existing DSM; exclusive of future DSM

Potential Large Load Stochastic Analysis Results

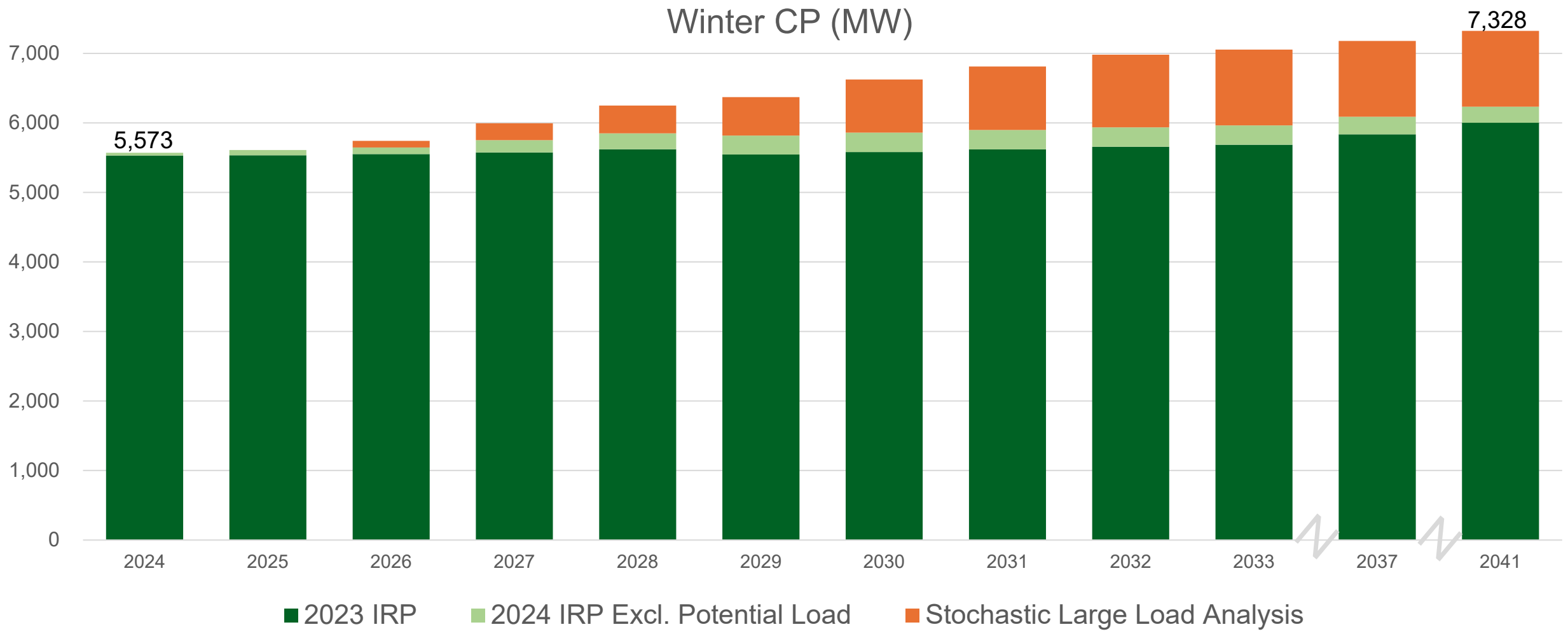
Load Forecast | Potential Large Loads



Load Forecast | Potential Large Loads



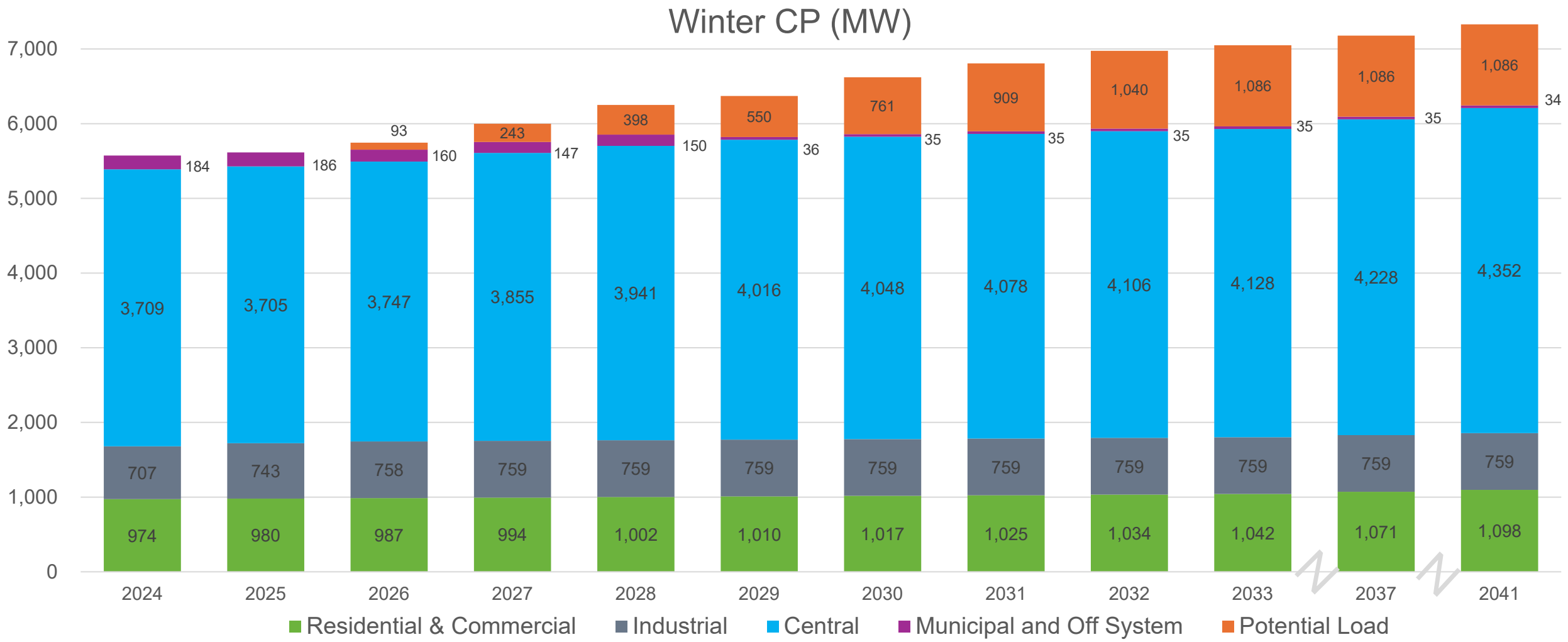
Load Forecast | Forecast with Potential Large Load[1]



1 - Inclusive of losses and existing DSM; exclusive of future DSM

Load Forecast Results

Load Forecast | Forecast with Potential Large Load[1]



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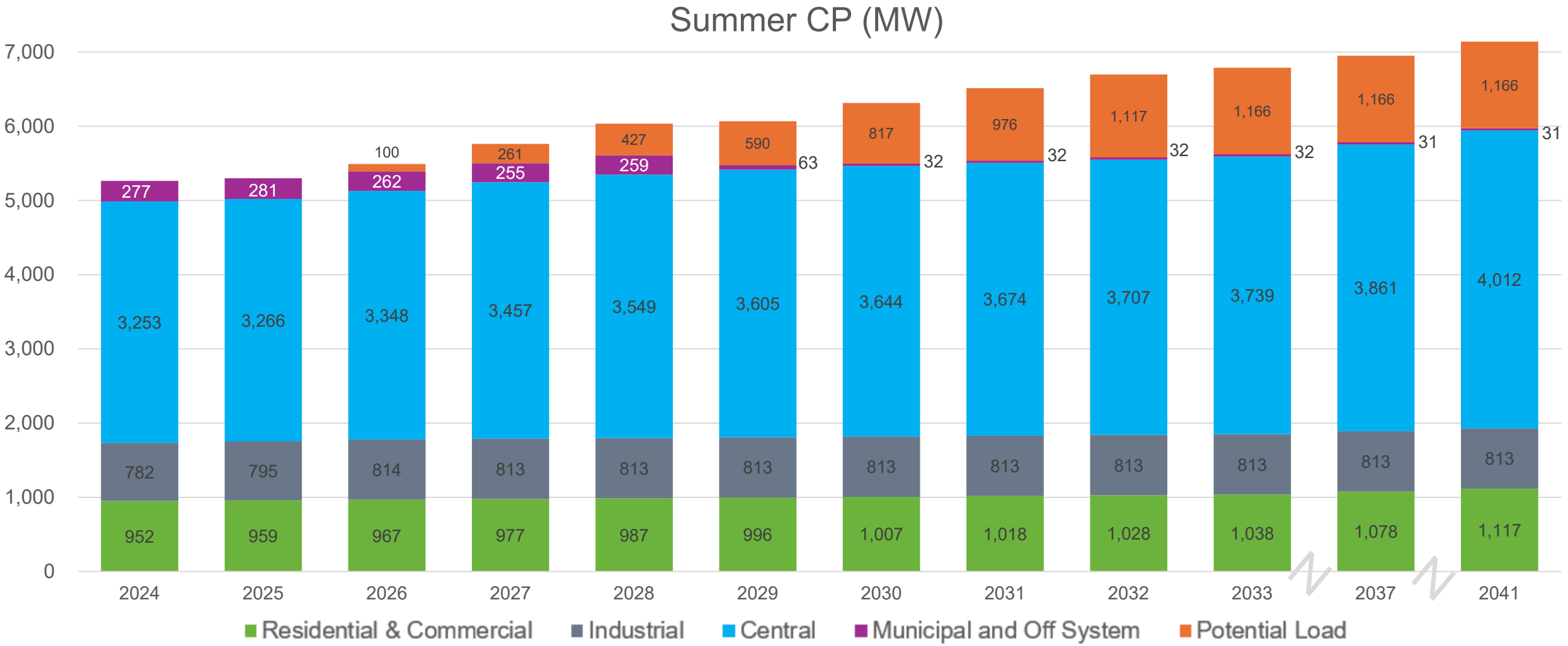
Load Forecast | Forecast with Potential Large Load[1]



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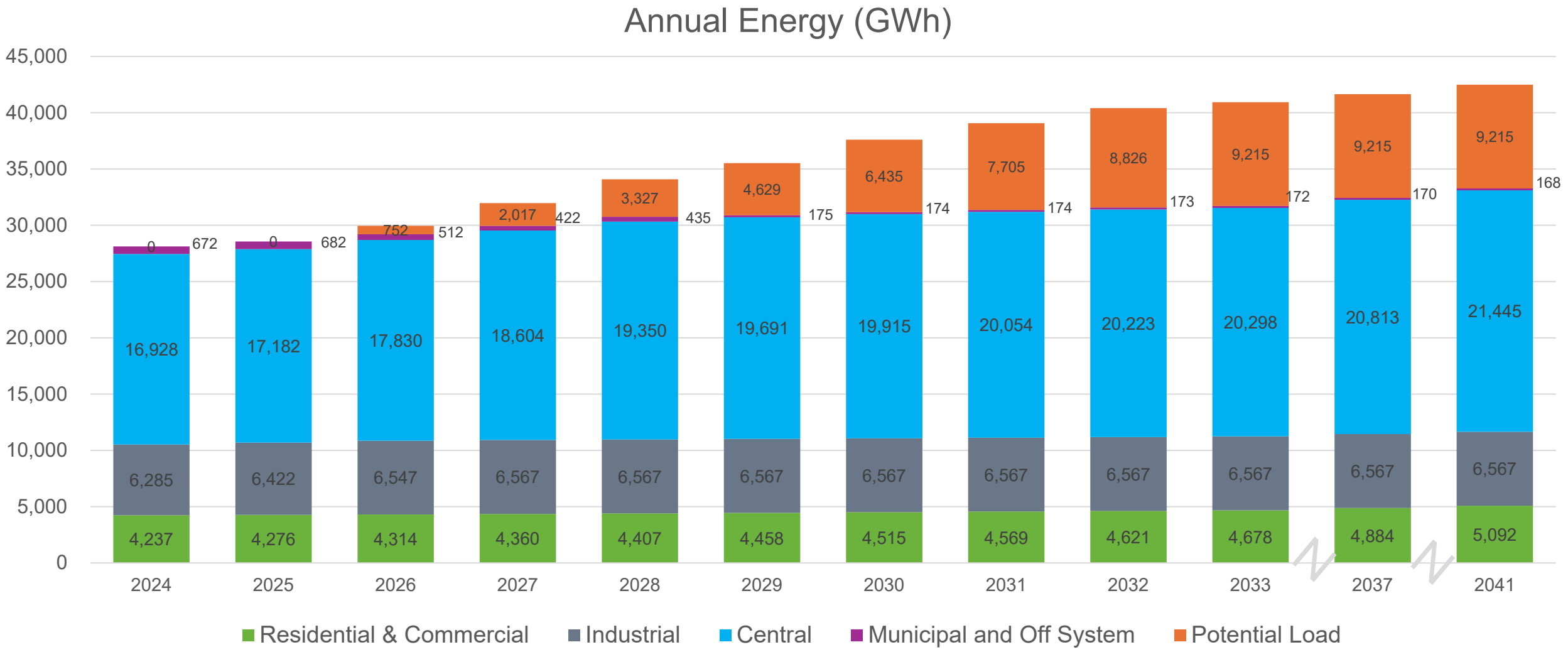
Load Forecast | Forecast with Potential Large Load[1]



1 - Inclusive of losses and existing DSM; exclusive of future DSM

Effective Load Carry Capability Update

Joel Dison, Technical Manager
Astrape Consulting

Astrapé Consulting, a part of PowerGEM

- Astrapé Consulting – owner of Strategic Energy Risk Valuation Model and provides expertise in resource adequacy and resource planning

- SERVM
  - Multi-area reliability and economic simulation tool for the bulk electric system
  - Originally developed/patented in 1980s by Southern Company
  - Owned/licensed by Astrapé Consulting with 15+ years of ongoing development
  - Capable of hourly and sub-hourly chronological resource commitment and dispatch

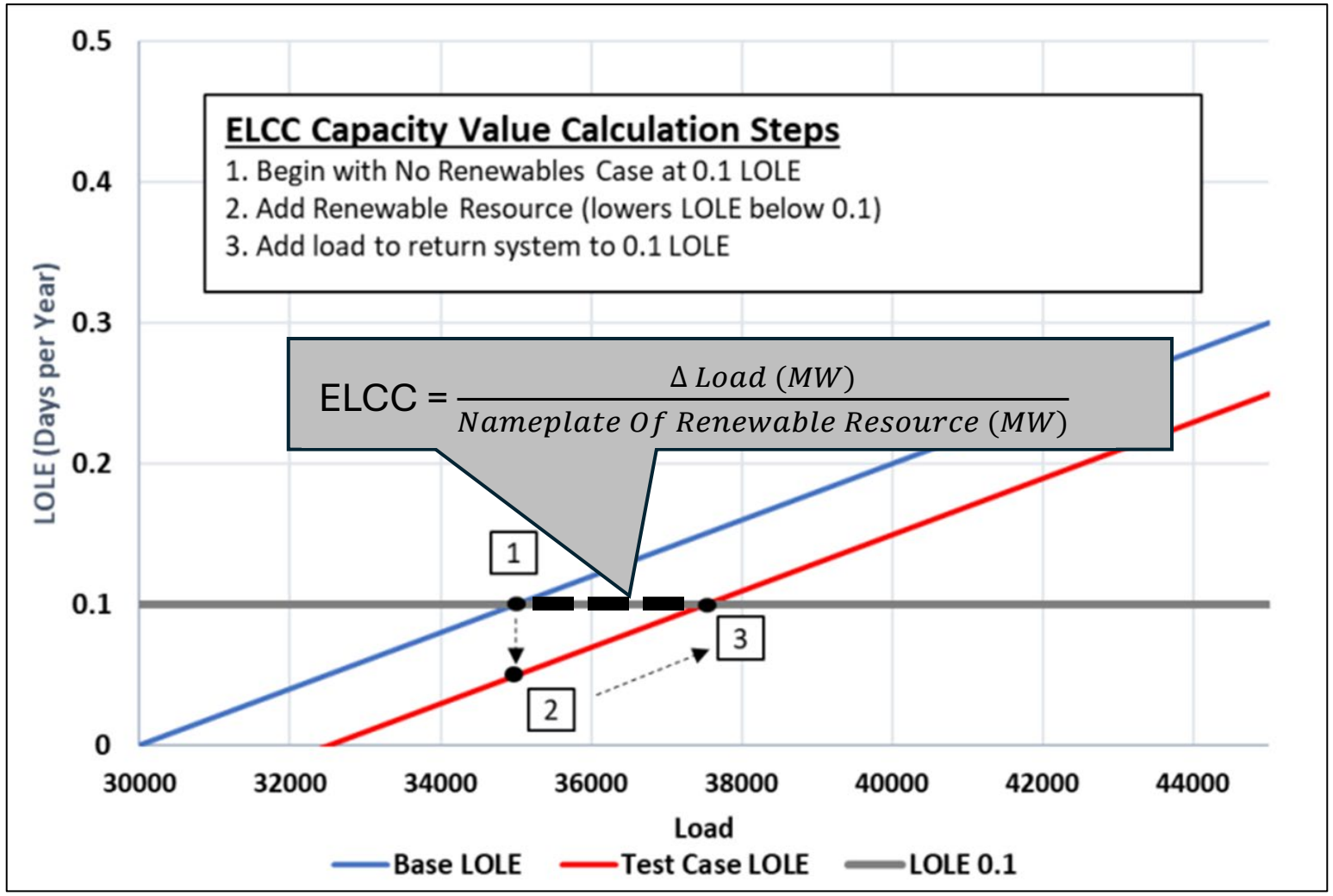
- Used by ISOs/RTOs/Utilities across the U.S.
  - Neighboring entities such as Duke Energy, Dominion Energy South Carolina, Southern Company, and TVA all use SERVM for resource adequacy analysis

Introduction

- Effective Load Carrying Capability (ELCC)
  - ELCC compares the reliability contribution of variable energy resources and energy limited resources to perfect capacity/load

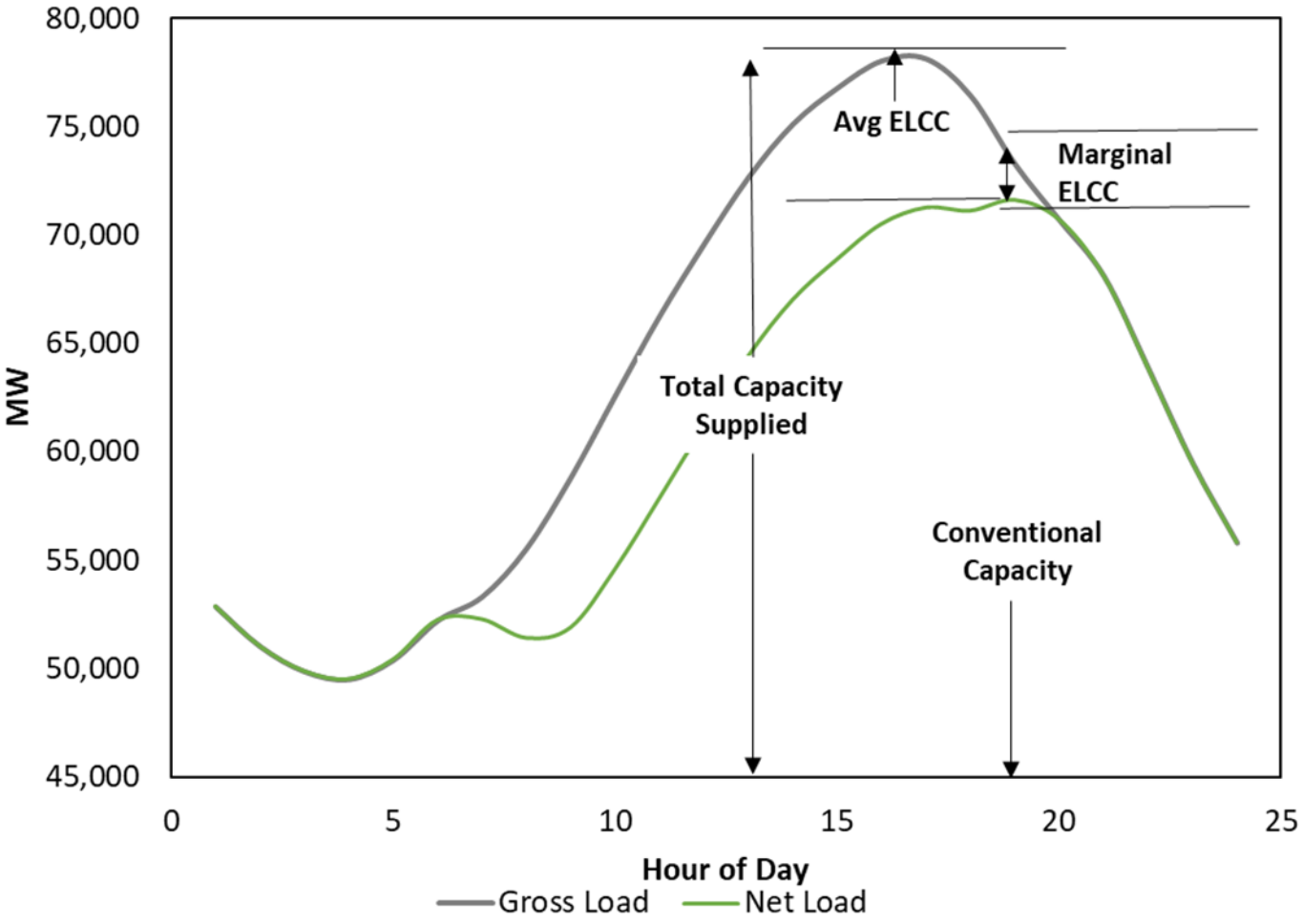
- Calculation Method
  - Winter ELCC
    - Santee Cooper resource adequacy risk is in the winter
    - Capacity value is determined for a given test resource by iteratively adding load until LOLE reliability metric returns the system to its prior state without the test resource

ELCC Methodology



Marginal vs. Average ELCC

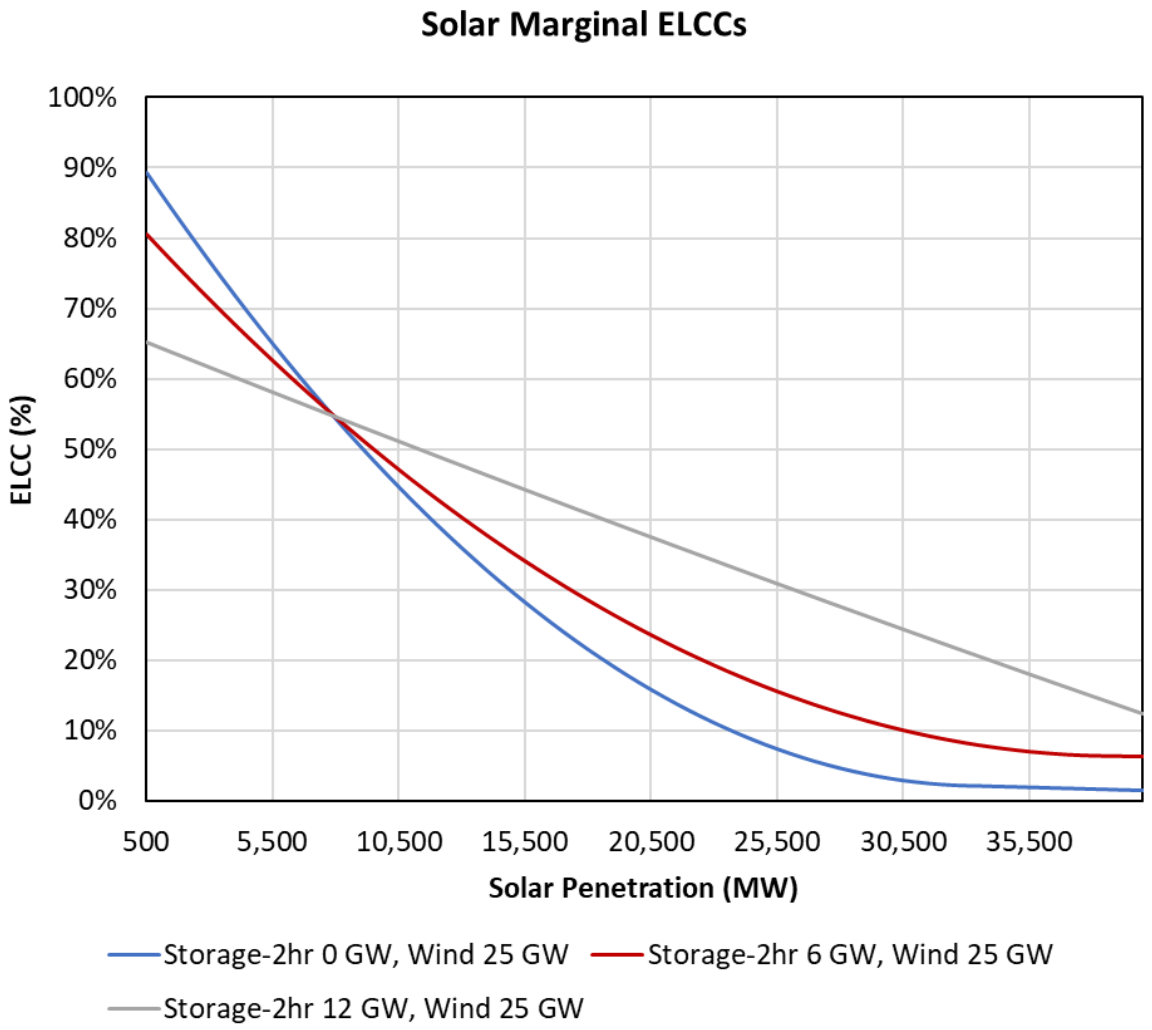
Average ELCC	Marginal ELCC
Performed as part of Monte Carlo simulation	Performed as part of Monte Carlo simulation
Resource Class is added to system at 0.1 LOLE	**Single Resource** is added to system at 0.1 LOLE
Load is added until system returns to 0.1 LOLE	Load is added until system returns to 0.1 LOLE
ELCC = Resource MW / Load Added	ELCC = Resource MW / Load Added
Summary: Measures reliability value of entire resource class to meeting total demand	**Summary:** Measures reliability value of single resource to meeting net demand (after all other resources)



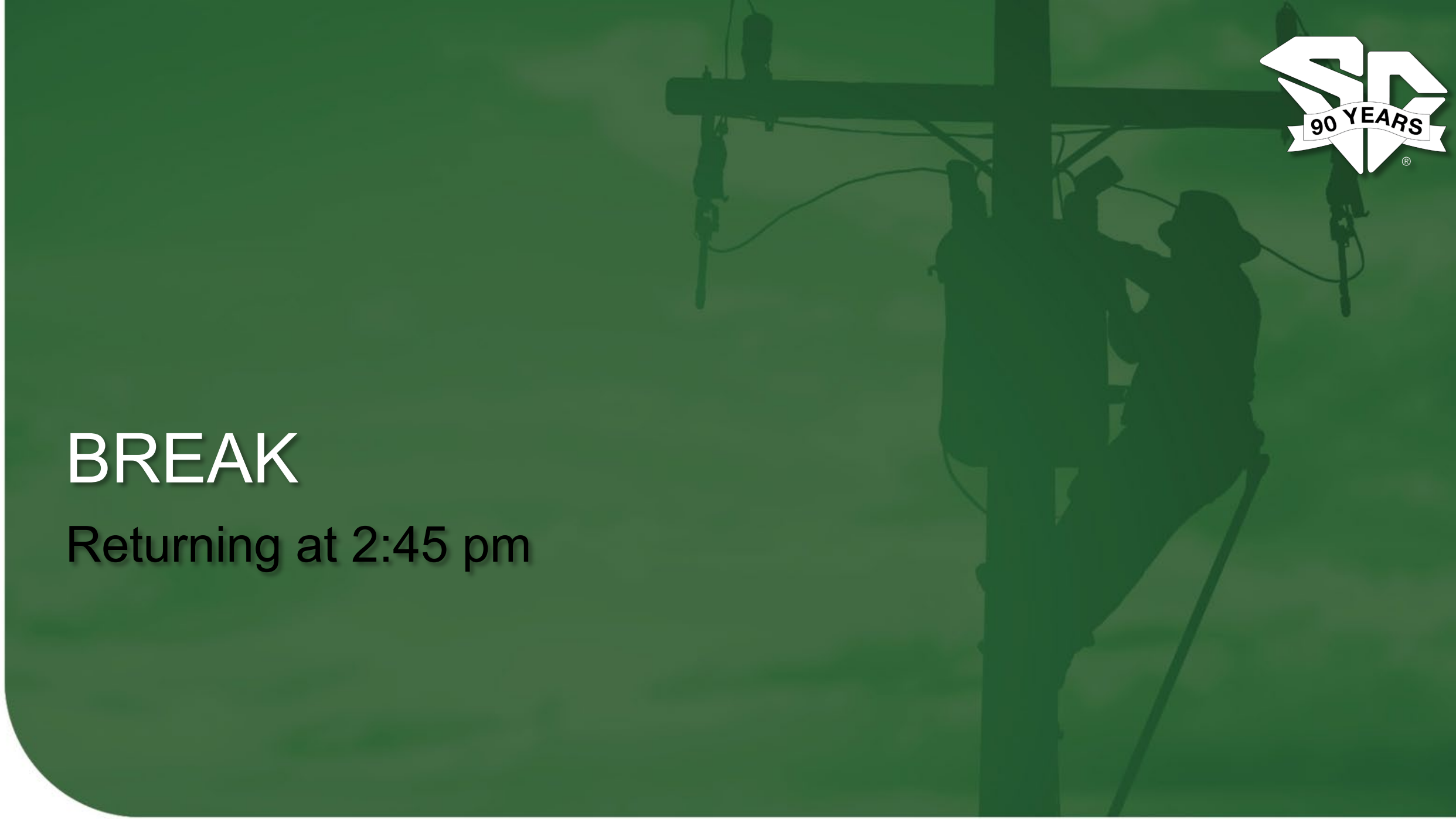
Synergy

Synergy Between Resources

- In this illustrative example, the solar marginal ELCC increases as 2hr storage is added in tranches.
- Indicates that solar gets increasing value as more storage is added to the system.
- Needs to be accounted for in the IRP process.
- Our ELCC surface methodology allows for this to be analyzed.



*Illustrative



BREAK

Returning at 2:45 pm

Effective Load Carry Capability Update Continued

Joel Dison, Technical Manager
Astrape Consulting

Scope of Work

- Focus was to expand solar/storage ELCC work compared to 2023 IRP
  - Simulate the following solar/storage matrix to determine ELCC of given portfolio.
  - Use the results to calculate any resource mix within the bound of the matrix using Astrapé's interpolation/integration method.
  - Ensures synergistic value between solar and storage is captured
  - Allows calculation of both average and marginal ELCC for any desired portfolio

0 MW Wind		Installed 4hr					
		0 MW	250 MW	500 MW	1,000 MW	1,500 MW	2,000 MW
Installed Solar	0 MW		X	X	X	X	X
	500 MW	X	X		X		X
	1,000 MW	X		X		X	
	2,000 MW	X	X		X		X
	3,000 MW	X		X		X	
	4,000 MW	X	X		X		X

- Similar methodology will be used to develop ELCC values for 8-hr battery and wind

Illustrative Example of Results

- Indicative results for **Solar Average Winter ELCC** values and are subject to change

Solar Avg ELCC Values		Installed 4hr					
		0 MW	250 MW	500 MW	1,000 MW	1,500 MW	2,000 MW
Installed Solar	0 MW						
	500 MW	3.5%	4.1%	4.8%	6.2%	7.7%	9.2%
	1,000 MW	2.9%	3.3%	3.8%	4.9%	5.9%	6.8%
	2,000 MW	2.0%	2.3%	2.6%	3.1%	3.6%	4.1%
	3,000 MW	1.6%	1.8%	1.9%	2.3%	2.6%	3.0%
	4,000 MW	1.3%	1.4%	1.5%	1.8%	2.0%	2.2%

- Similar tables will exist for 4-hr battery, 8-hr battery, and wind

Major Assumptions for the 2024 Annual IRP Update

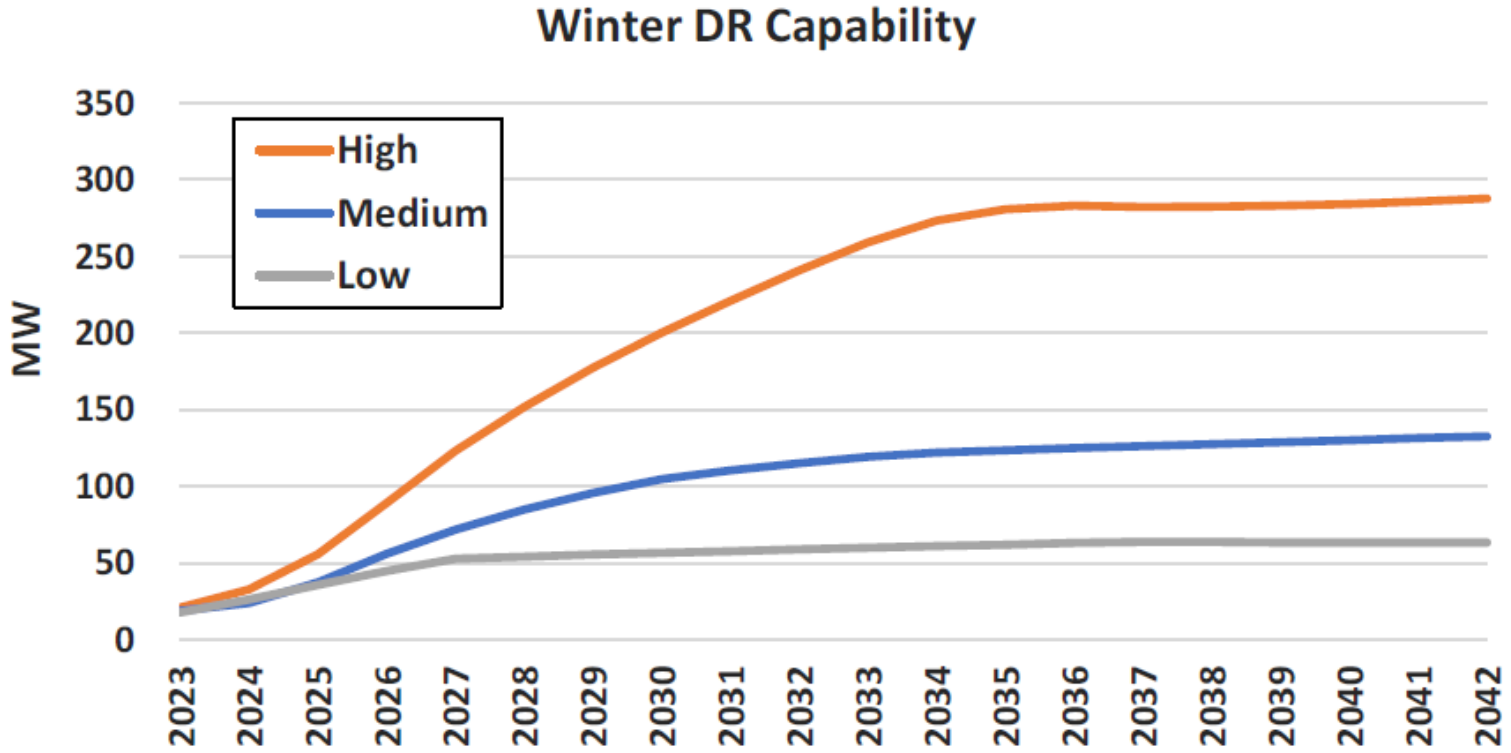
Bob Davis, Executive Consultant
nFront Consulting

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	5.00%	Santee Cooper's financial advisor
Santee Cooper Discount Rate	5.00%	Same as weighted cost of debt
General Inflation Rate	2.30%	Philly Fed survey

Demand Side Management

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



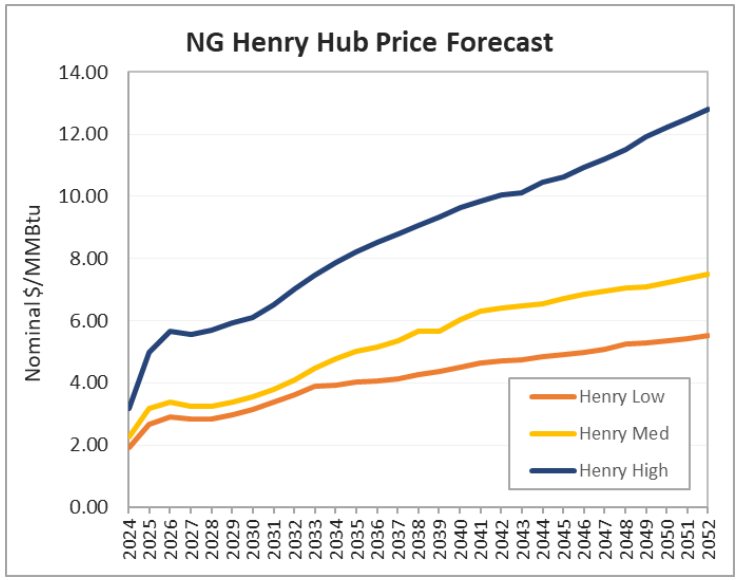
Planning and Operating Reserves

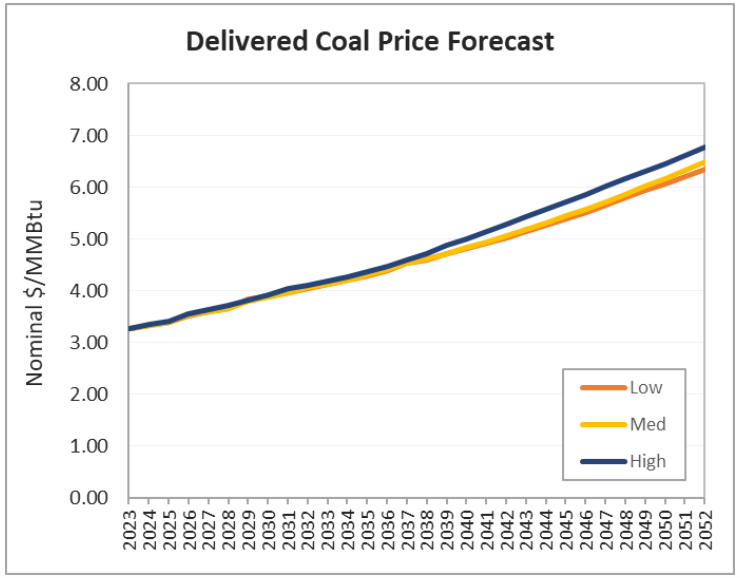
- Utilizing the Planning Reserve margins from the 2023 IRP of 18% Winter and 15% Summer
- Santee Cooper is part of the Carolinas Reserve Sharing Group (“CRSG”) along with Duke Energy Carolina, Duke Energy Progress, and Dominion Energy South Carolina
  - Contingency reserves are recalculated annually 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
  - Currently, Santee Cooper is required to carry 235 MW of contingency reserves as part of the CRSG agreement

Operating Reserves	MW
CRSG Requirement	235
Spin Reserves	117.5
Non-Spin Reserves	117.5

Fuel Price Forecasts

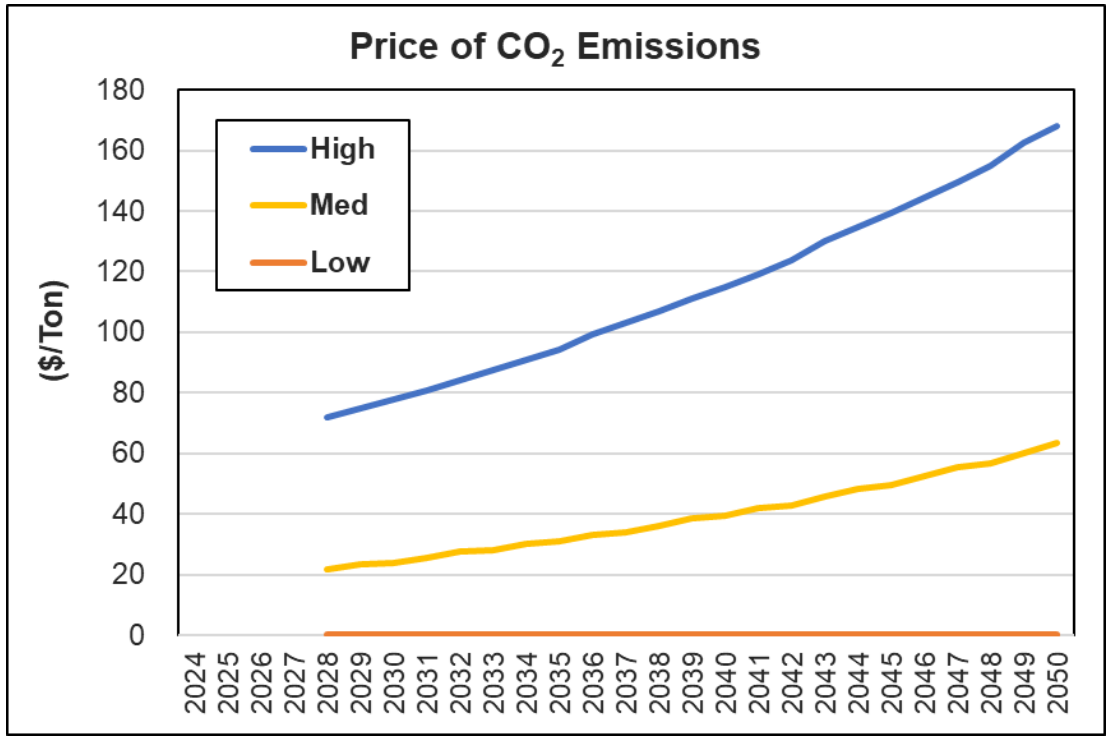
- Fuel Price Forecast for 2024 IRP Update
  - Similar process as used for 2023 IRP
  - Fundamental long-term price forecasts for Natural Gas (NG) and coal derived from Energy Information Administration (EIA) Annual Energy Outlook
  - NG prices for 2024-2026 based on CME/NYMEX forward prices
  - NG hub basis from S&P Platts forecast
  - VC Summer nuclear price based on official DESC forecast
- Updated Fuel Prices Compared to 2023 IRP
  - NG medium price forecast
    - Initially lower through 2034
    - Similar 2035 - 2039
    - Slightly higher for 2035-2052 (avg. $0.27 higher)
  - Coal prices are lower over the study period (avg. $0.92) lower





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 established by Executive Order of the President



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 (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 2031
	2	1977	Coal	ST	290	
	3	1980	Coal	ST	290	
	4	1981	Coal	ST	290	
 **Cherokee** Gaffney, SC	1	1998	NG	CC	98	By 2029 (Extension under evaluation)
 **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 [1]	2028	38	38	Biomass
EDF Renewables	2043	36	36	Biomass
Southeastern Power Administration (SEPA)	Indefinite	305	305	Hydro
St. Stephen Hydro [2]	2035	84	84	Hydro
Total Long-term NG Contracts		**463**	**463**	
Solar Power Purchase Agreements [3]	2025-2033	**287**	**12**	Solar
Capacity Purchase Contracts				
Capacity Purchase 1	2024-2028	200	200	Off-System
Capacity Purchase 2	2024-2028	50	50	Off-System
Capacity Purchase 3	2025-2028	150	150	Off-System
Capacity Purchase 4	2024 -2052	47	47	Off-System
Total Capacity Purchases		**447**	**447**	
Total PPAs [4]		**1197**	**922**	

(1) Domtar PPA extended through 2028.
(2) Santee Cooper anticipates taking ownership of St. Stephens by 2035.
(3) Winter firm capacity based on the effective load carrying capability study discussed herein.
(4) Totals may not add due to rounding.

Resource Options Near-Term

- Rainey Generating Station Power Block 1, 3/4/5 Combustion Turbine Upgrades and 2A/2B Heat Recovery Steam Generator (HRSG)
- Power Purchase Agreements (PPA) Extensions
  - Offered as resource options for 2029-2030
- No Cherokee Retirement
  - Incremental capital expenditure (CapEx) and fixed Operation & Maintenance (O&M) assumed
- Additional Near-term Capacity Options
  - Additional capacity could be met with battery energy storage systems (BESS), LM6000, or PPAs

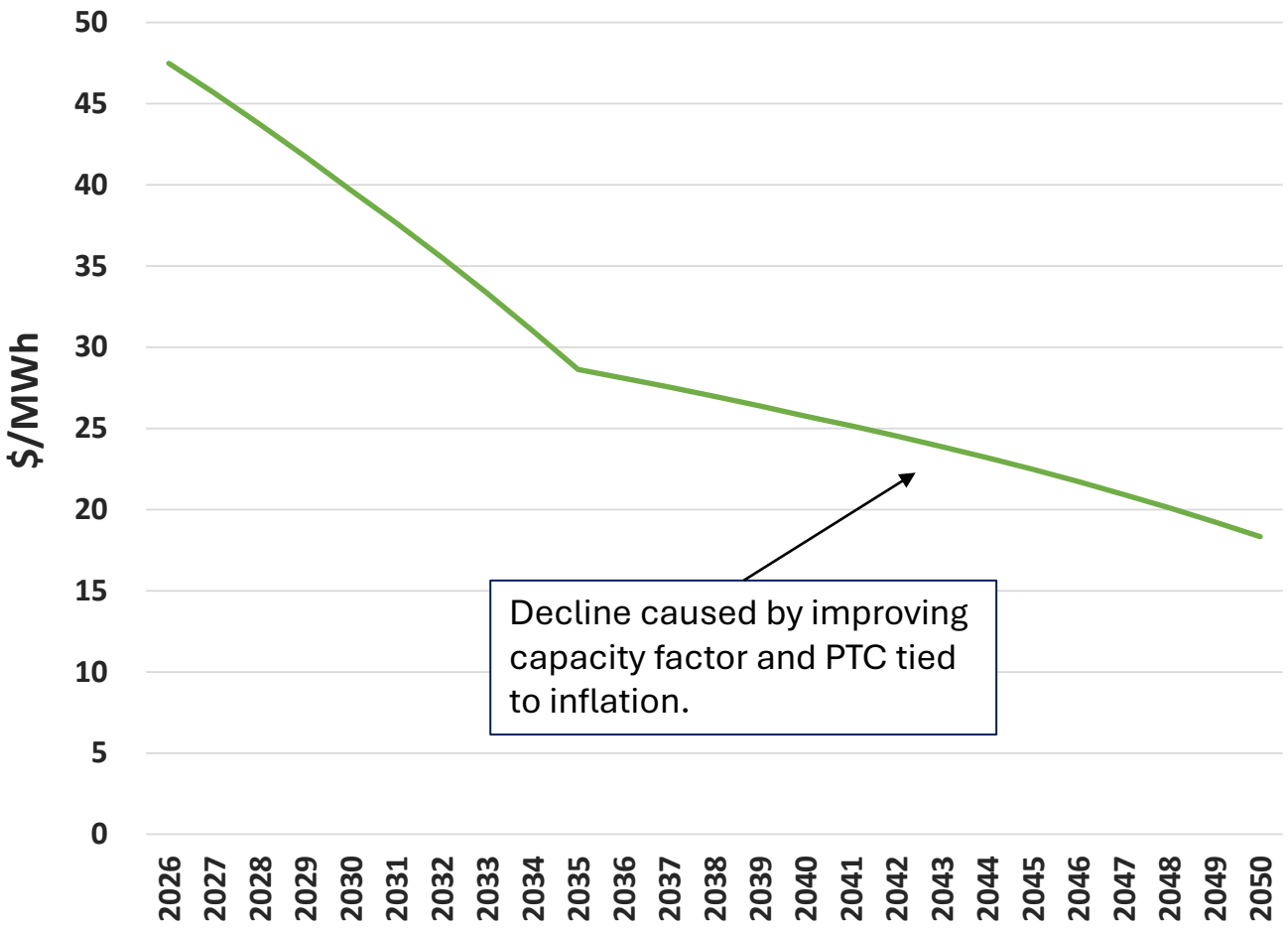
Resource Options Conventional & Nuclear

- Operating characteristics and O&M costs are consistent with 2023 IRP
  - Sources: EPRI TAGWeb, Black and Veatch Front End Engineering and Design (FEED) Study, Santee Cooper engineering estimates
- Capital Cost
  - Per-unit capital cost originally developed for use in the 2023 IRP have been adjusted to be generally consistent with per-unit costs used for the DESC 2024 IRP Annual Update
- Cost of Transmission Upgrades
  - Costs for transmission upgrades are estimated to range from approximately $280 million to $1.9 billion (2024$s).

Technology	Net Capacity (MW; Avg. Ambient)	Capital Costs ($/kW)	Fixed O&M Cost ($/kW-yr)	Variable O&M Cost ($/MWh)	Full Load Heat Rate (Btu/kWh)	Year First Available
Combined Cycle (2x1; H-class)	1,264	1,278	5.16	2.85	6,116	2031
Combined Cycle (2x1; H-class) Shared Resource	632	1,278	5.16	2.85	6,116	2031
Combined Cycle (1x1; H-class)	630	1,627	7.77	2.85	6,136	2031
Combined Cycle (1x1; F-class)	357	2,512	11.75	3.30	6,668	2031
Combustion Turbine (H-class)	402	1,569	5.10	9.80	9,386	2031
Combustion Turbine (F-class)	230	1,732	8.18	8.97	10,188	2031
Aeroderivative Turbine (LM6000)	40	2,484	46.55	11.30	9,346	2028
Small Modular Nuclear Reactors	683	6,681	101.51	12.38	10,900	2040

* Capital and O&M costs in 2024 $s.
** Capital costs include costs for land; interconnections for transmission, natural gas, and water; and financing issuance costs and interest during construction.

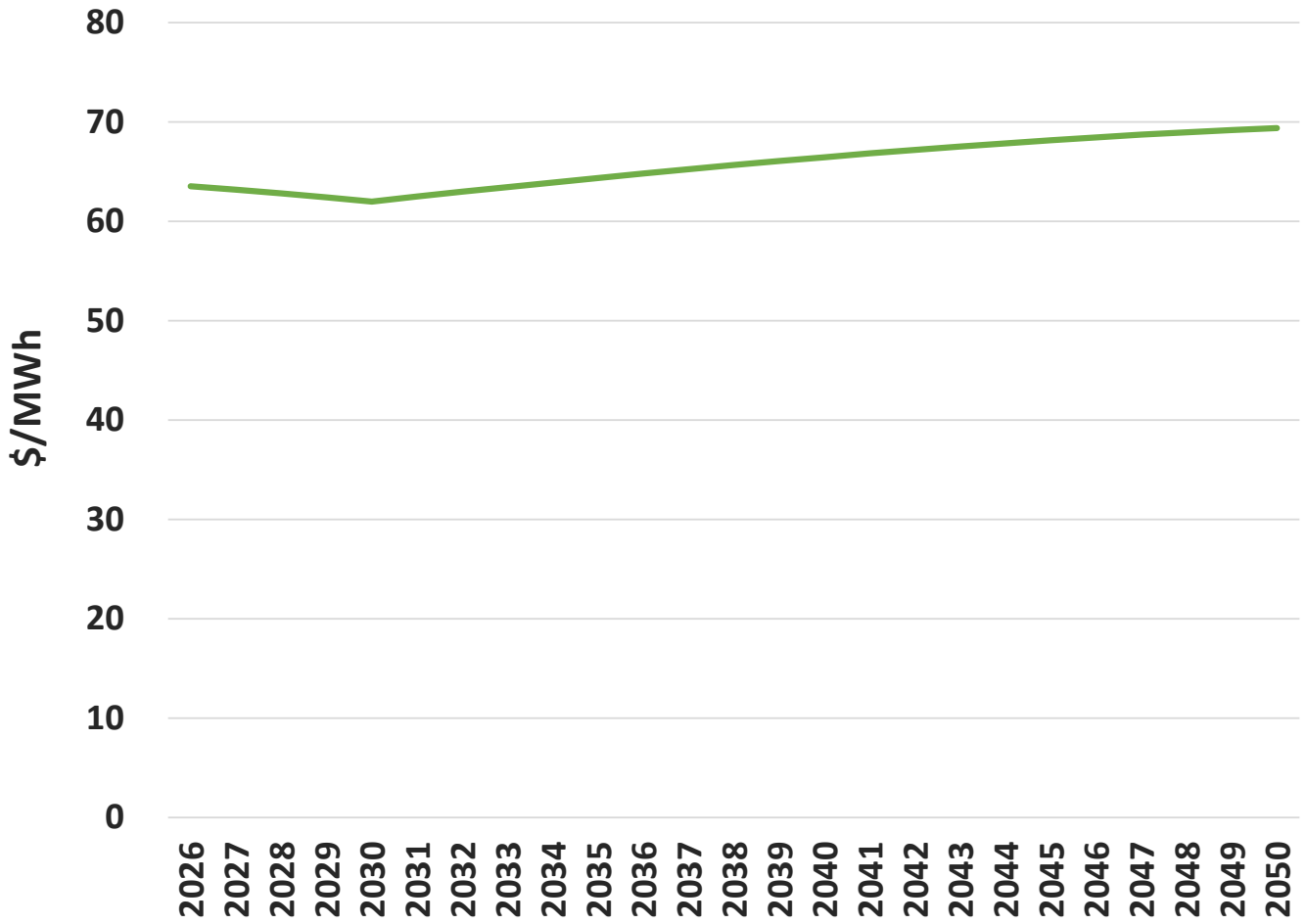
Utility-Scale Solar PV (Class 5)



- Updated for National Renewable Energy Lab (NREL) 2023 Annual Technology Baseline (ATB), reflecting:
  - More gradual cost decline through 2035
  - Higher capacity factor
- Levelized Cost of Energy (LCOE) assumes Inflation Reduction Act (IRA) will continue through end of IRP study period
  - 2023 ATB reflects IRA phase out in early 2040s
  - Latest indications from NREL is that 2024 ATB will reflect a phase-out no earlier than late 2040s
- Capital costs reflect 10% cost adder based on NREL 2023Q1 Benchmark
- Production tax credits (PTC) assumed for all years
- LCOE reflects tax credit sale at 90% of tax credit value

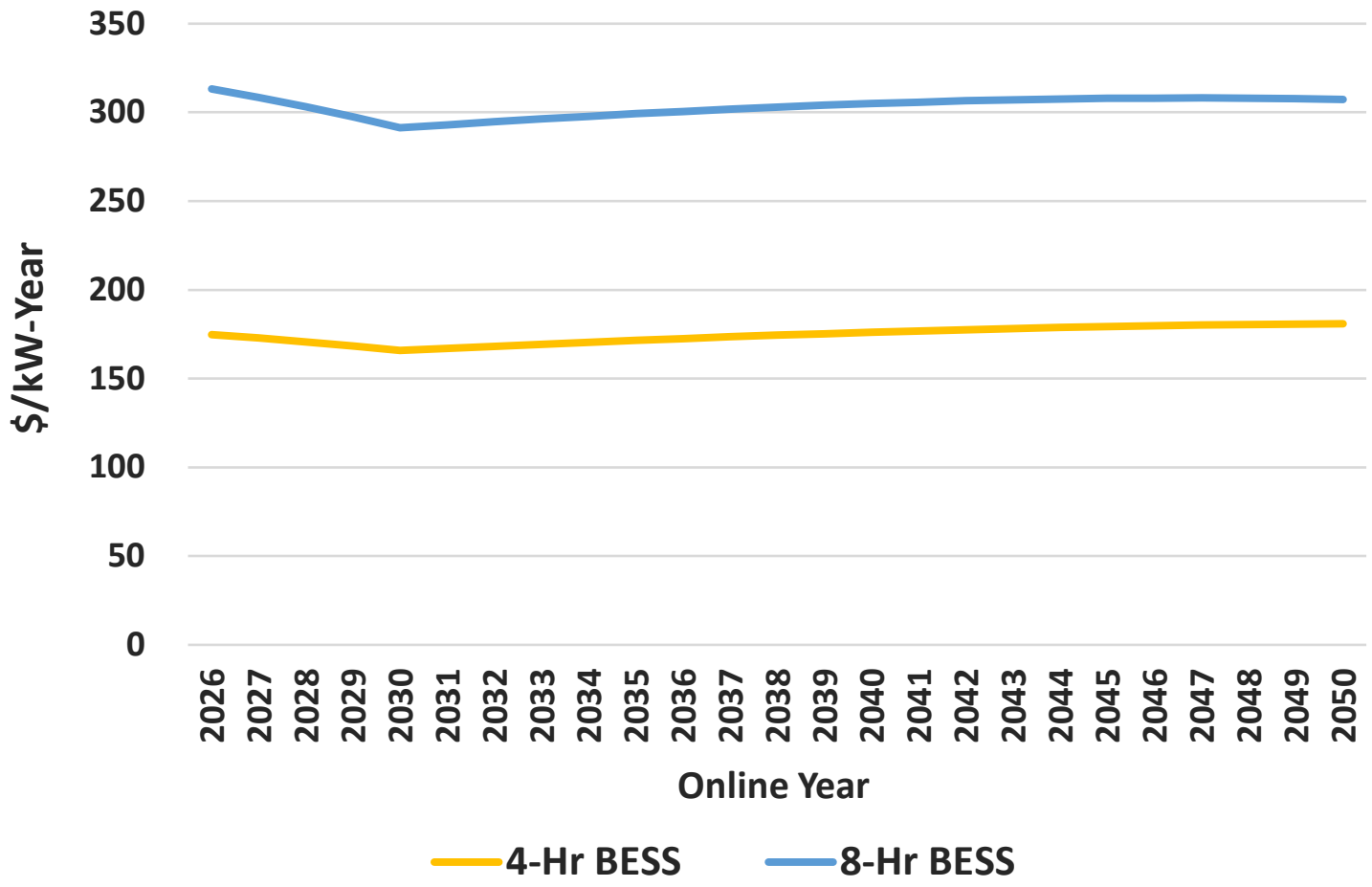
PV – Photovoltaic

Onshore Wind (Class 9)



- Updated for 2023 ATB, reflecting:
  - Capacity factor increase for wind resource classes 8-10
  - Cost decline in 2024 with shallower cost decline curve through 2030
- Capital and O&M costs adjusted upward by 34% and 14%, respectively, based on EPRI TAGWeb estimates for wind installations in the Southeast U.S. and uncertainty allowance for facilities in S.C. (consistent with assumptions used for 2023 IRP)
- Production tax credit is assumed for all years (PTC yields lower LCOE than ITC)
- LCOE reflects tax credit sale at 90% of tax credit value

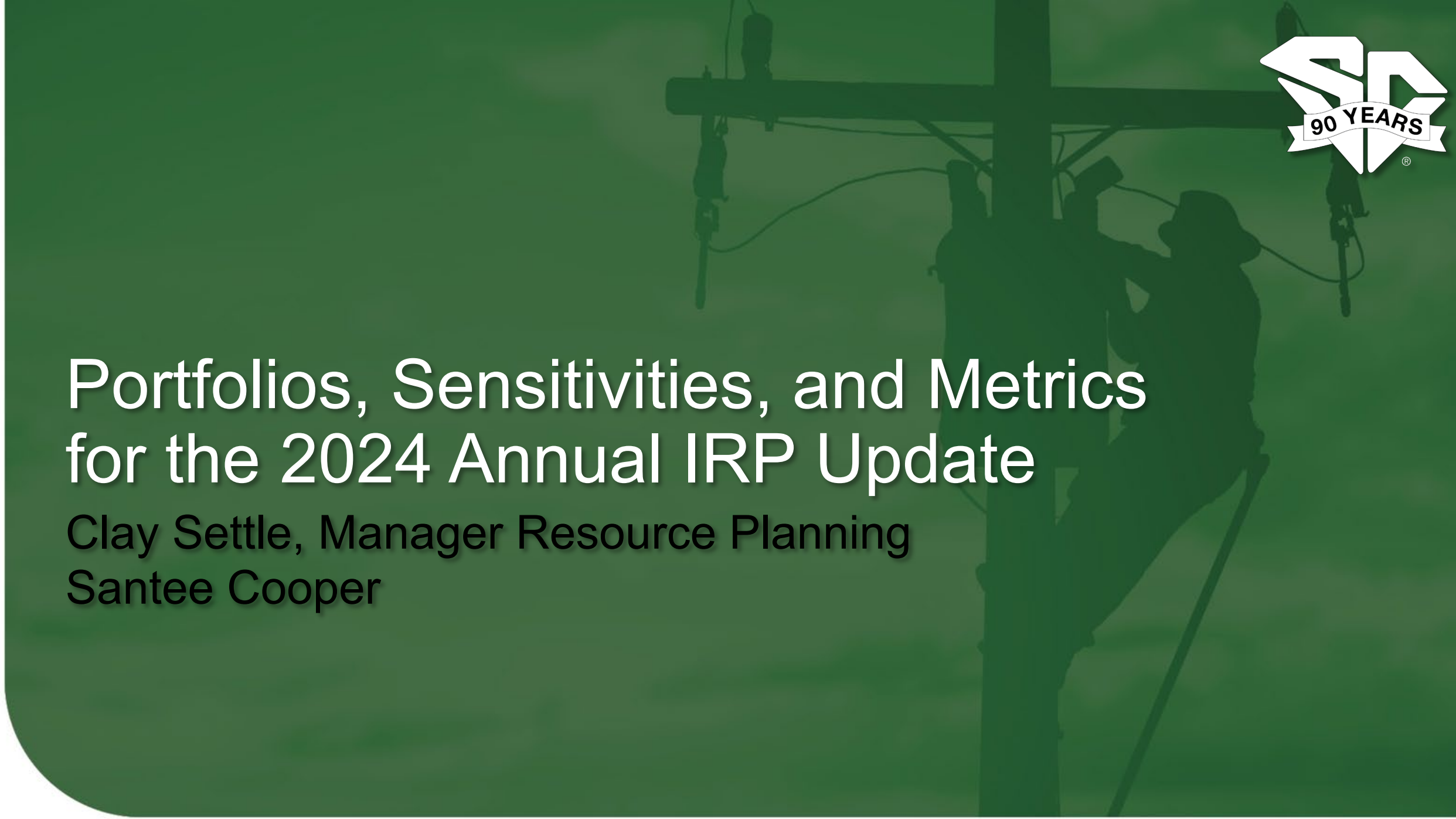
Battery Energy Storage Systems



- Updated for 2023 ATB, reflecting 10%+ higher cost than used for 2023 IRP
- Battery Energy Storage Systems (BESS) facilities assumed to have 20-year life
- 90% of facility cost is assumed to be eligible for investment tax credit
- Levelized Cost of Capacity (LCOC) reflects tax credit sale at 90% of tax credit value

BREAK

Returning at 4:10 pm



Portfolios, Sensitivities, and Metrics for the 2024 Annual IRP Update

Clay Settle, Manager Resource Planning
Santee Cooper

Modeling Strategy Summary

2024 IRP Update

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

Evaluated Resource Portfolios

- 2023 IRP Preferred Portfolio (updated for new market conditions and assumptions)
- Newly Optimized Portfolio (derived under new market conditions and assumptions)
- GHG Portfolio (meeting requirements of the recently filed EPA GHG Rule)

Reference Case

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

- Retire Winyah as planned by 2031
- Retire MB and HH CTs by 2034

EPA GHG Case

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

- Retire Winyah and MB/HH consistent with Reference Case
- Retire Cross by 2032
- Limit new CCs and H-class CTs to 40% CF
- Limit other new CTs to 20% CF

Sensitivity Analyses

- Load Forecast
- Fuel Prices

Portfolio Evaluation Metrics

- Metrics evaluated for the 2023 IRP
  - Net Present Value (NPV) Power Costs
  - Mini-max Regret
  - Reliability Uncertainty
  - Fixed Cost Obligations
  - Fuel Cost Resiliency
  - CO2 Emissions
  - Generation Diversity
  - Clean Energy
  - Load Uncertainty
  - Average Cost / Rate Impact
- For the 2024 IRP Update, Santee Cooper will continue to evaluate and report on these metrics when possible

Modeling the Greenhouse Gas Rule

- Final version will be effective on July 8,2024 for the greenhouse gas rule (GHG) under Section 111(b) of the Clean Air Act to regulate CO_2 emissions from new and reconstructed combustion turbines
- Existing coal combustion units
  - Retire by end of year 2031 to be exempt
  - Operation beyond 2032 through end of year 2038
    - Requires a 40% co-fire with natural gas
    - New NG pipeline construction and reservation for approximately 560 kDT to serve the Cross plant is not currently viewed as practical
  - Operation beyond 2039 requires carbon capture and sequestration (CCS) technology
    - Currently unavailable in South Carolina
- New or reconstructed combustion turbine units (simple and combined cycle)
  - Base Load (CF >40%) - CCS by 2032 (currently unavailable in South Carolina)
  - Intermediate Load (CF 20% to 40%) - Highly efficient CC/CT (< 1,170 lb CO_2/MWh)
  - Low Load (CF less than 20%) - Use of low-emitting fuel (< 160 lb CO_2/MMBtu)
- Existing combustion turbines (simple and combined cycle) are not addressed in the final rule

Meeting Closeout

Stewart Ramsay, Meeting Facilitator
VANRY Associates

Closing

- Review and agreement around action items
- Next steps
  - Vanry will send the meeting summary to members on July 10 and members will have until July 16 to provide comments
- Next working group meeting
  - Targeting next meeting in October or November of this year
  - If a member would like to present on a topic, let us know

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- 1st General Notice Meeting – July 18, 2024, 1-5 pm EDT

Meeting Outcomes Achieved?

Take care of working group matters

- Members understand the progress made on action items and feedback received from the first meeting
- We have gathered feedback regarding the working group meeting schedule and priority topics proposed by Santee Cooper

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Take care of IRP business matters

- Members understand and provide feedback to support Santee Cooper's 2024 Annual IRP Update
  - Major assumptions, portfolios, sensitivities and metrics

Thank you!

We would like to hear from you about your experience at this session.

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

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