



# Santee Cooper Resource Planning

Stakeholder Working Group Meeting #6  
May 6, 2025



# Welcome and Agenda

Stewart Ramsay, Facilitator, VANRY Associates

# Meeting Agenda



10:00 – 10:15	<b>Welcome and Agenda</b>	<b>Stewart Ramsay, VANRY</b>
10:15 – 10:55	<b>Working Group Business</b>	<b>Clay Settle</b>
10:55 – 11:00	<b>BREAK</b>	
11:00 – 12:00	<b>2024 IRP Update 2025 IRP Update</b>	<b>Clay Settle</b>
12:00 – 12:35	<b>BREAK FOR LUNCH</b>	
12:35 – 1:25	<b>Quantitative Reliability Metric Integration Cost Methodology and Modeling Operating Reserves</b>	<b>Clay Settle Bob Davis, nFront Joel Dison, PowerGEM</b>
1:25 – 1:30	<b>BREAK</b>	
1:30 – 2:15	<b>Nuclear Technologies</b>	<b>Craig Stover, Electric Power Research Institute (EPRI)</b>
2:15 – 2:45	<b>Presentation from Google</b>	<b>Katie Ottenweller, Google</b>
2:45 – 3:00	<b>Meeting Closeout</b>	<b>Stewart Ramsay, VANRY</b>

# Guest Speakers

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**Joel Dison**

Technical Manager, PowerGEM



**Craig Stover**

Sr. Program Manager Advanced  
Nuclear Technology, EPRI

# Working Group Member(s)



Category	Organization or Individual
Regulatory & Government	Office of Regulatory Staff South Carolina Department of Consumer Affairs South Carolina Department of Natural Resource South Carolina Dept. of Environmental Services
Central	Central Electric
Industrial Customers	Industrial Customer Association Century Aluminum Nucor Messer Google
Municipal Customer	South Carolina Association of Municipal Power Systems
Residential & Commercial	4 Individual Representatives
Non-Governmental Organizations (NGOs)	Carolina Clean Energy Business Association Conservation Voters of South Carolina Coastal Conservation League South Carolina Energy Justice Coalition South Carolina Appleseed Legal Justice Center South Carolina Research Authority Southern Alliance for Clean Energy Southern Environmental Law Center Sierra Club Vote Solar



# Working Group Business

Clay Settle, Senior Manager Resource Planning

# Review of Action Items

Meeting Identified	Action Item (as recorded in meeting summaries)	Progress
Meeting 5	Follow up with Anna Sommer offline regarding Mtg4 Action Item 3 – Data Center Costs (given she missed some of the discussion due to connection issues)	Done
Meeting 5	Resource Planning is open to following up offline regarding action items with members who were unable to make the meeting upon their request	Done: No requests received.
Meeting 5	Provide members with a summary of changes made in the portfolio analysis methodology in a timely manner to allow for meaningful participation at upcoming sessions	Done: See 2025 IRP Update section with discussion during the meeting today.
Meeting 5	Develop a plan to host potential technical meetings as follows: <ul style="list-style-type: none"> <li>• Market potential study session in late April</li> <li>• Coal retirement meeting in the spring, related to transmission study scenarios</li> <li>• Coal retirement meeting in the summer related to methodology and technologies to consider</li> </ul>	Done: Meeting invites were sent mid-March.
Meeting 5	Resource Planning will consider a low load forecast without a probable load for the 2026 IRP	Recommend discussing during the 2026 IRP development.
Technical Meeting	Working Group members refrain from using AI for transcription of the meetings during SWG and technical meetings.	Done: Periodic reminders, if needed.
Technical Meeting	Resource Planning requested feedback from members on the information presented at Coal Retirement Technical Meeting #1.	Done: No feedback received.



# RFP for Battery Storage

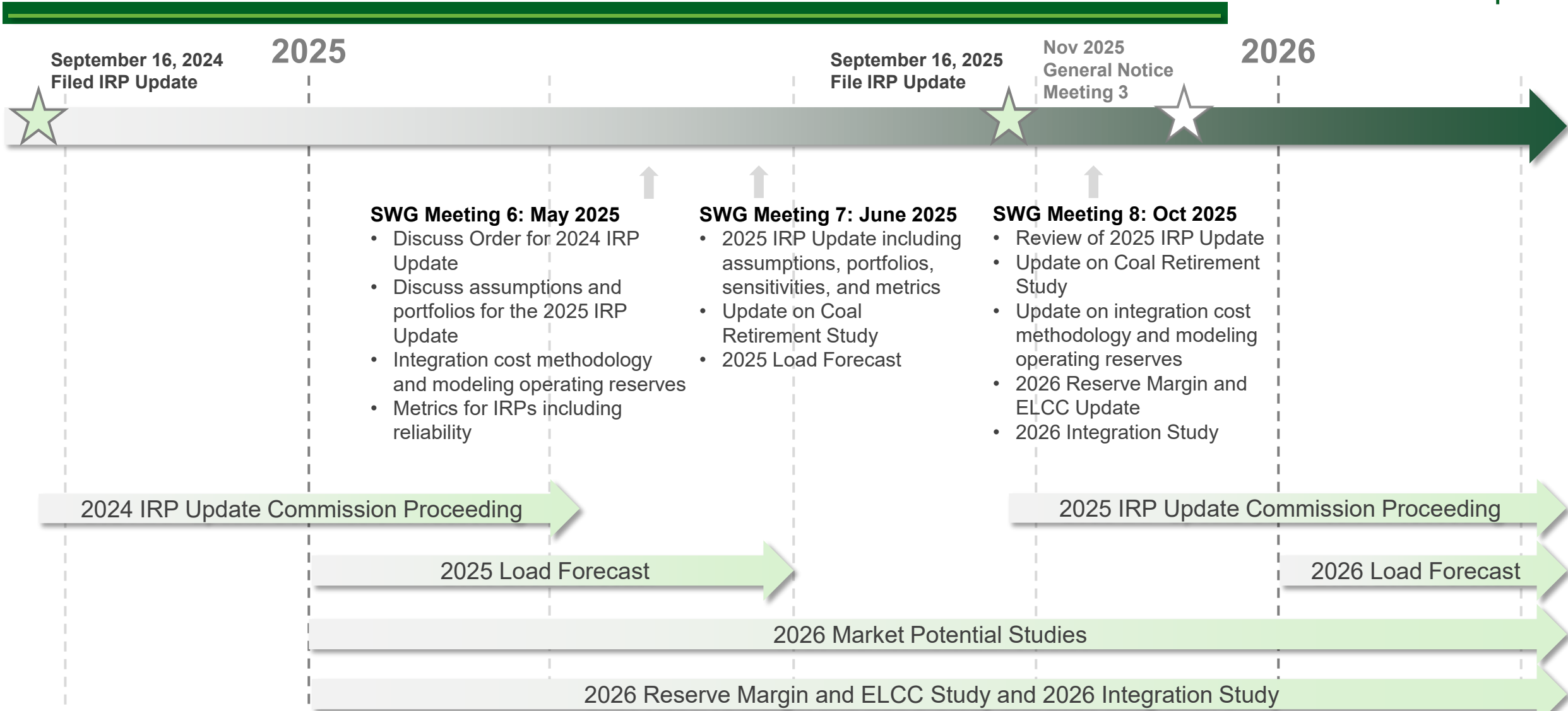
- On March 10<sup>th</sup>, Santee Cooper released a Request for Proposals (RFP) for a Battery Electric Storage System (BESS) to be installed at the Jefferies Generating Station.
- Pricing requested for 100, 200, and 300 MW of 4-hour duration BESS.
- Bidders can take advantage of the Energy Communities adder to the Investment Tax Credit, for a total of 40% off.
- Proposals are due on May 13. Evaluation process to be completed in July.
- The winning developer will own and operate the project. Santee Cooper will dispatch the facility through a “tolling” agreement.



BESS will provide Santee Cooper’s system operators with a highly flexible asset that can charge when the load is low, discharge when the load peaks, as well as provide system balancing services.

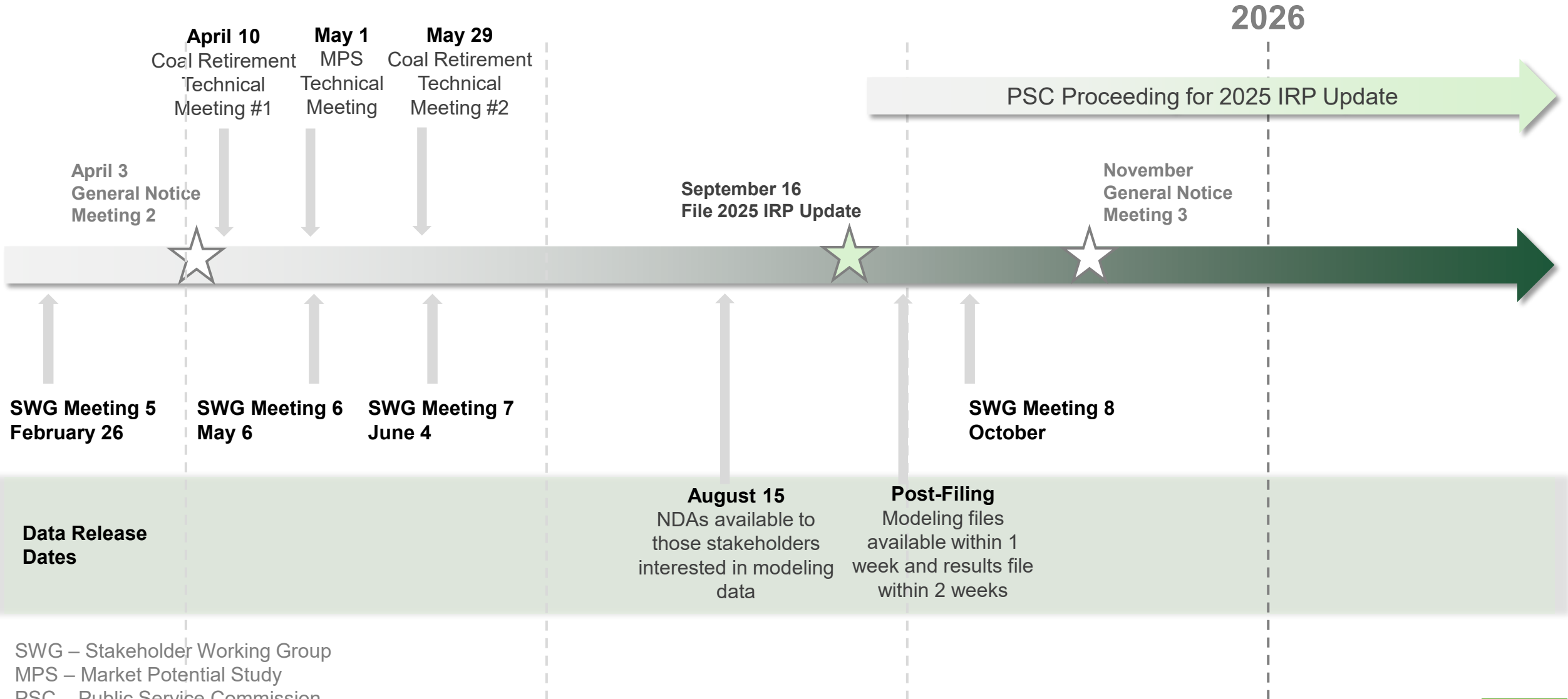


# SWG Schedule



SWG – Stakeholder Working Group  
 ELCC – Effective Load Carrying Capability

# 2025 Schedule





Break

Returning at 11:00 AM





# 2024 IRP Update and 2025 IRP Update

Clay Settle, Senior Manager Resource Planning

# 2024 IRP Update



The Public Service Commission issued a Directive Order on April 3<sup>rd</sup>, 2025 approving Santee Cooper's 2024 IRP Update and included the following:

- Santee Cooper shall continue to provide updates regarding its plans for the Cross Generating Station retirement evaluation and associated transmission evaluations, as well as the results of the study in support of the 2026 Triennial IRP in the Stakeholder Working Group.
- Santee Cooper shall continue to monitor hydrogen availability and discuss price forecast assumptions with IRP stakeholders in the Stakeholder Working Group prior to the 2026 Triennial IRP.
- Santee Cooper shall continue to discuss updates related to the Inflation Reduction Act and Infrastructure Investment and Jobs Act incentives in the Stakeholder Working Group.
- Santee Cooper shall perform production cost model benchmarking studies of its Encompass model in conjunction with its comprehensive IRPs and discuss the results in the Stakeholder Working Group.
- For future IRPs and IRP Updates, Santee Cooper shall monitor, track, and report annually the forecasted versus actual load consumption for Economic Development Load.

# 2024 IRP Update



- Santee Cooper shall update its GHG Rule Portfolio modeling assumptions in the 2025 IRP Update to reflect the latest EPA guidance available at the time the modeling is performed. Santee Cooper shall discuss changes to its assumptions based on changes to the GHG Rule in the Stakeholder Working Group prior to the 2025 IRP Update.
- Santee Cooper shall provide updates in future IRPs and IRP Updates regarding the planned solicitation for a battery energy storage system of up to 300 megawatts of four-hour duration which, according to Santee Cooper's Reply Comments, would be sited at the Jefferies Generating Station, to leverage existing interconnection capacity and the Energy Communities tax credit bonus per the Inflation Reduction Act.
- In advance of future IRPs and IRP Updates and as required by S.C. Code Ann. Section 58-27-40(A) (3), Santee Cooper shall continue to host the Stakeholder Working Group. Further, Santee Cooper shall provide updates to the Commission about the activities of the group and Santee Cooper's plans to incorporate lessons learned into future IRP filings.
- Santee Cooper shall discuss its plans to prepare the next Market Potential Study in the Stakeholder Working Group ahead of the Market Potential Study update in 2025.



# 2025 IRP Update



- Considering portfolio modeling strategy similar to 2024 IRP Update
- Assumptions methodology changes:

IRP Thermal Capital and O&M Costs Methodology			
	2023 IRP	2024 IRP Update	2025 IRP Update
Operating Characteristics and O&M Costs	<ul style="list-style-type: none"> <li>• EPRI TAGWeb, Black and Veatch Front End Engineering and Design (FEED) Study, Santee Cooper engineering estimates</li> </ul>		<ul style="list-style-type: none"> <li>• Sargent and Lundy (S&amp;L) cost estimates and engineering recommendations</li> </ul>
Capital Costs	<ul style="list-style-type: none"> <li>• EPRI TAGWeb, Black and Veatch Front End Engineering and Design (FEED) Study, Santee Cooper engineering estimates</li> </ul>	<ul style="list-style-type: none"> <li>• Adjusted to be generally consistent with per-unit costs used for the DESC 2024 IRP Annual Update</li> </ul>	<ul style="list-style-type: none"> <li>• Sargent and Lundy (S&amp;L) cost estimates and engineering recommendations</li> </ul>

- Considering adjustments to Onshore Wind and Solar first year available dates



Break

Returning at 12:35 PM





# Quantitative Reliability Metric

Clay Settle, Senior Manager Resource Planning

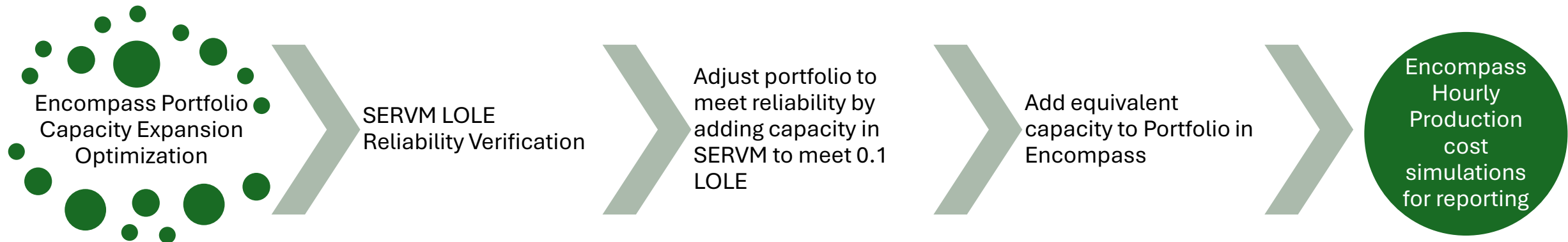
Bob Davis, Executive Consultant, nFront

# Portfolio Evaluation Metrics

- For the 2025 IRP Update, Santee Cooper plans to report the same reliability and other metrics as utilized in the 2023 IRP and 2024 IRP Update
- Metrics reported for the 2023 IRP and 2024 IRP Update include:
  - 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

# Future Reliability Assessment

- For the 2026 IRP, Santee Cooper plans to run a range of portfolios through a reliability verification process utilizing SERVM
- Santee Cooper is considering more detailed reliability metric reporting such as Loss of Load Hours (LOLH), Loss of Load Probability (LOLP), and Expected Unserved Energy (EUE)
- This proposed assessment could replace the need for an explicit quantitative reliability metric in the 2026 IRP and future IRPs





# Integration Cost Methodology and Modeling Operating Reserves

Clay Settle, Senior Manager Resource Planning

Bob Davis, Executive Consultant, nFront

Joel Dison, Technical Manager, PowerGEM



## Study Objective

- Determine the operational impacts associated with the moment-to-moment fluctuations in renewable resource output caused by variations in weather conditions (wind, cloud cover, etc.)
  - Establishes a level of 10-minute operating reserves to be maintained for a given penetration of renewable resources

## Study Methodology

- Perform 5-minute production cost simulations of the system with and without the renewable resource tranche
  - Without the tranche: establishes a baseline level of 5-minute “flexibility violations” incurred on the system
  - With the tranche: establishes the number of incremental flexibility violations incurred on the system due to the renewable resource tranche
- Increase operating reserves until flexibility violations return to the baseline
  - Establishes the total operating reserves necessary to integrate the renewable tranche
  - Incremental operating reserves are directly attributable to the renewable tranche

# Integration Cost Methodology and Modeling Operating Reserves



## 2023 IRP and Updates

- Santee Cooper utilized integration cost established for solar and wind when performing capacity expansion portfolio optimization modeling
  - Integration cost was established through the Integration Study performed by Astrape as well as utilizing publicly available information from Duke Energy's integration cost assumptions also developed through Duke's Integration Study performed by Astrape
- For hourly production cost simulations Santee Cooper does include integration cost and did not change the operating reserve requirements for different cumulative levels of solar and wind

## 2026 IRP

- Santee Cooper is evaluating the improved operating reserve functionality of Encompass. In the recent software updates Encompass added the ability to dynamically increase operating reserves with respect to the cumulative amount of solar and wind
- Santee Cooper has contracted Astrape Consulting to perform an updated solar and wind integration study in support of the 2026 IRP
- Santee Cooper plans to utilize the improved capabilities of Encompass as well as the results for the updated integration study to improve renewable integration and operating reserve analysis in the 2026 IRP



Break

Returning at 1:30 PM





# Nuclear Technologies

Craig Stover, Sr. Program Manager Advanced Nuclear  
Technology, EPRI



# Presentation from Google

Katie Ottenweller, Energy Market Development Lead for Southeast US, Google





# Meeting Closeout

Stewart Ramsay, Facilitator, VANRY Associates

# Meeting Closeout

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- Review and agreement for meeting action items
- Vanry will send the meeting summary to members for review
- Next working group meeting
  - Scheduled for June 4, 2025
  - Please let us know if a member would like to present on a topic
- Next general notice meeting targeted for November 2025

## Thank you!

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

# Connect With Us

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