

Santee Cooper IRP Stakeholder Process 2024-2026

Stakeholder Working Group Meeting #3 – Meeting Summary

Date: September 4, 2024

Time: 1:30 – 3:00 pm EDT

Location: Virtual Meeting via Zoom, Vanry Associates facilitating

Meeting: Santee Cooper Stakeholder Working Group Session #3

The meeting's business focus was for Working Group Members to understand the resource recommendations in the Integrated Resource Plan (IRP) 2024 Update (“2024 IRP Update”) and the next steps Santee Cooper plans to take.

This summary includes meeting logistics, presentations, and discussions. It is organized into the following sections:

- Meeting Information & Materials
- Session Participation
- Topics, Presenters, and Discussion
- Meeting Feedback
- Commitments and Next Steps
- Appendix - List of External Stakeholder Working Group Members & September Meeting Attendees

Meeting Information & Materials

The Santee Cooper Resource Planning team held its third IRP Stakeholder Working Group meeting on Wednesday, September 4, 2024. The IRP Stakeholder Working Group (or working group) is integral to Santee Cooper’s commitment to engage stakeholders in its ongoing integrated resource planning process. A shorter meeting, this session was held ahead of the October commitment and allowed working group members to discuss the upcoming 2024 IRP Update filing. Resource Planning walked members through the same material presented to the Santee Cooper Board of Directors at a public meeting on August 27, 2024. The presentation deck is posted to the Stakeholder Working Group section of the Santee Cooper IRP webpage. Meeting summaries from the first two working group meetings are also posted there.

Session Participation

The Stakeholder Working Group includes a set membership of organizations representing diverse interests and perspectives, including government, regulatory agencies, environmental, social, and customer groups. Each organization was invited to join the working group by the Santee Cooper Resource Planning team and asked to assign a primary and secondary member.

As discussed in the previous meeting, the South Carolina Energy Justice Coalition, a key organization representing the interests of low-income clients, has been invited to join the working group. This organization was represented by Shayne Kinloch and Zakiya Esper.

See Appendix A for a list of working group member organizations and September meeting attendees.

Topics, Presenters, and Discussion

The agenda and associated times were included in the presentation posted to the [2024-2026 IRP Stakeholder Process](#) webpage ahead of the meeting and emailed to members on August 30, 2024.

Welcome and Agenda

– *Stewart Ramsay, Meeting Facilitator, Vanry Associates*

Stewart Ramsay opened the meeting by providing an overview of the meeting's purpose, which was to enable working group members to understand the resource recommendations in the 2024 IRP Update in the commitment to transparency.

Stewart welcomed the South Carolina Energy Justice Coalition as the newest organization to join the working group and asked members Shayne Kinloch and Zakiya Esper to introduce themselves.

Resource Planning Update Prior to Filing the 2024 IRP Update

– *Clay Settle, Manager Resource Planning, Santee Cooper*

Clay led the meeting discussion to review the slides presented to the Santee Cooper Board of Directors (BOD) on August 27th regarding the planned filing of its 2024 IRP Update and an application for a Certificate of Environmental Compatibility and Public Convenience and Necessity (CECPCN) for the conversion of two combustion turbines (CTs) to a combined cycle with the Public Service Commission of South Carolina (PSC) in mid-September.

Resource Planning assembled the working group as they felt it important to share the BOD presentation so members could ask questions and understand the resource recommendations ahead of Santee Cooper's planned PSC filing in mid-September.

Clay opened the discussion by summarizing two parallel and related initiatives to the IRP underway. These were that on

- May 30th – the Santee Cooper and Central Joint Planning Committee of the Coordination Agreement (JPC) unanimously adopted a system load forecast which shows a significant increase in load projections and on
- August 2nd – the Central and Santee Cooper JPC unanimously approved the Generation Expansion Plan (GEP) to identify resources to meet the growing load needs

Clay also reminded members of Santee Cooper's planning obligations and outlined the key conclusions that the GEP and 2024 IRP Update are consistent with the Preferred Portfolio from the 2023 IRP. He also reminded members that the plans are still in draft form, and the numbers are preliminary.

Overview

As part of the summary, Clay provided an overview and fielded questions regarding Santee Cooper's resource portfolio, including solar additions, coal retirement, natural gas combined cycle (NGCC), combustion turbines (CTs), battery energy storage system (BESS), Rainey plant conversion and upgrades, and power purchase agreements (PPAs). This review prompted the following questions:

- Eddy Moore (Southern Alliance for Clean Energy) inquired whether the 1,020 MW mentioned for the joint resource for Rainey was the full or half of the plant. Clay responded that there is a team evaluating what that resource looks like and their work ongoing. We input shared resource increments into the model and let it select the ones it finds to be economic. I think it's two shared increments, 50% and 25%, to get to the 1,020 MW.
- Eddy followed up, inquiring whether the 1,020 MW is optimal. Clay believed that is fair to say, and that technology selection and Front-End Engineering Design (FEED) studies for the project need to be considered. Battery storage is expected to come online earlier, starting with 240 MW in 2027 and growing to 500 MW by 2040. At Rainey, there is potential to convert two CTs to a combined cycle. Santee Cooper already has a unit there, Power Block One, which includes two F-class CTs on a steam turbine. The plan is to add another unit at Rainey.
- Taylor Allred (Coastal Conservation League) inquired whether the Rainey upgrades will result in additional fuel burned and will a duct burner be included in the conversion. Clay confirmed there will not be a duct burner. While the upgrades will increase the overall volume of the fuel burned annually, there will not be an increase in the rate of fuel consumption. The upgrades aim to improve efficiency by utilizing waste heat for power generation. However, the existing CTs would be required to run more regardless to meet the load growth, so a larger volume of fuel would be needed regardless.
- Taylor also inquired whether the 240 MW BESS figure would include the Plantersville project. Clay was not aware of the Plantersville project, nor whether it was included, and confirmed that projects would be identified and evaluated through an RFP process.
- Robert Brown (South Carolina Department of Environment) queried whether the retiring of the Winyah coal plant might be pushed out past 2031 if replacement generation had not been secured prior. Clay responded yes that the decision to retire Winyah depends on having a replacement capacity that can meet the load. Rahul Dembla (Chief Planning Officer, Santee Cooper) emphasized that supply chain and project risks require flexibility, and Santee Cooper would not retire Winyah until sufficient resources were available to serve the required load.

Clay continued by summarizing Santee Cooper's generation sources and carbon dioxide (CO₂) reduction, both align closely with the Preferred Portfolio from the 2023 IRP. He was asked about the following:

- Shayne Kinloch (South Carolina Energy Justice Coalition) asked what specific elements were included in the category of "sustainable resources." Clay clarified that the main components were solar and hydro generation, with battery storage allocated separately. Bob Davis (nFront Consulting) added that biomass, landfill gas and wind were also components of the sustainable resources category.
- Taylor inquired whether changes were made to the modeling assumptions based on the BESS technical discussion held on July 17. Clay responded that no changes were made for the 2024 IRP Update; however, Resource Planning would continue to evaluate what has been learned about battery storage and how to improve modeling for future IRPs.

Evaluation Approach

The conversation next turned to Resource Planning's evaluation approach, beginning with the need to address substantial load growth in the energy sector, particularly in South Carolina and the Southeast, where the 2024 system load forecast shows an increase of 1,000 MW by 2030 from the load forecast utilized in the 2023 IRP. This growth is impacting utilities, including supply chain challenges for transformers and infrastructure, which are further being stretched by rapid data center expansion. Efforts are underway to anticipate and manage these challenges.

Clay also covered planning and modeling capacity needs in the energy system. He spoke to the load forecast, including an 18% winter reserve margin compared to Santee Cooper's existing generation capacity. By 2027, it identifies a 200 MW capacity need, which the model addresses with battery additions. This need will grow to over 2,000 MW by 2031 with the retirement of Winyah.

Three different portfolios were modeled to project energy demand and supply: the Preferred Portfolio with locked-in resources to allow newer resource optimization, an Optimized Portfolio with no locked-in resources, allowing for optimization flexibility, and a Greenhouse Gas (GHG) Portfolio assuming retirements and capacity factor limits to meet EPA rules so that the model can choose the best economic generation options.

- Eddy asked whether the GHG portfolio considered current laws to develop the best portfolio. Clay confirmed that the model factored in retiring certain plants and applying capacity limits, allowing the model to pick the optimal economic portfolio.

Clay and Bob covered the preliminary portfolio results, making the point that they did not make final assumptions based on the results as they were still being finalized. The 2024 IRP Update and GEP are consistent with both the Preferred Portfolio and Optimized Portfolio modeling, which are nearly identical in structure and impact. There are differences in how the portfolios address capacity needs with significant amounts of solar in all cases, with the GHG Portfolio requiring more. There is also continued reliance on NGCC, and again, the GHG Portfolio requires two additional cycles. There are also variations in battery capacity and wind energy, with the GHG Portfolio requiring more wind and slightly less battery storage.

- Eddy asked whether the wind energy discussed was from onshore or offshore sources. Clay confirmed it was all onshore.
- Jake Duncan (Vote Solar) inquired about how much the PPAs account for in the model as related to CTs and when they would be used. Clay explained that PPAs are being considered to manage implementation risks and supply chain challenges into 2031. The model uses PPAs to provide flexibility and manage load growth, given the risks involved in concurrently implementing projects.
- Jake followed up asking whether Clay might share specific parameters, cost assumptions or other details about the PPAs in the model. Clay responded that because predicting future PPA prices is difficult, they used CT costs as a proxy to estimate what PPA prices might be in 2030, as a best guess of future PPA costs based on current CT costs and operational profiles.
- Jake rephrased Clay's response to be clear that the model wants something that looks like a CT. Clay confirmed that the model assumes future PPA costs around CT costs for its purposes, as no definitive future PPA data is available. Bob added that the proxy is used to test the model's flexibility and value for managing future capacity needs. It is not definitive, but it aims to balance capital risk while maintaining flexibility for future growth.

Clay continued the discussion by reviewing slides that provided more detail on some of the preliminary portfolio resource results. The Rainey 2 Combined Cycle Conversion was deemed a sound economic solution even when evaluated against the GEP, and if excluded, would increase costs.

- Eddy raised concerns about the economic assumptions used to model the Rainey 2 combined cycle conversion. He referenced the cost estimate of \$470 million for the conversion, questioning whether it was based on a specific capital cost per kilowatt (kW) or if other economic considerations were factored in. Clay clarified that the \$470 million cost was derived from a detailed FEED study by Sargent & Lundy, which included contingencies, escalation, and owner's costs. The model evaluated whether to keep existing CTs or upgrade to a combined cycle, considering these costs. Rahul added that the model does not look at a simple \$/kW value; it also considers energy efficiency

improvements and the broader energy strategy, highlighting the need for an integrated view when assessing such projects.

- Eddy followed up to ask when the FEED study was started and done. Clay was able to confirm it was finished this summer, however he wasn't certain as to when it was launched.
- Taylor asked about the cooling plan and whether it would draw additional water from the Savannah River. Clay apologized for not knowing the details of the project down to that level.

Specific to the NGCC evaluation, Clay noted that the optimized portfolio model still favored a 1,020-megawatt combined cycle. A side case was evaluated where a shared resource was removed, leading to the model selecting a larger two-on-one combined cycle for economic reasons.

- Taylor inquired if this two-on-one combined cycle would be the same capacity and could be accommodated at the recently approved Branch site and would any pipeline or transmission upgrades be needed. Clay confirmed that the two-on-one would have a larger capacity, and that Branch could be a potential option, contingent on FEED studies and on-site evaluation. Rahul added that the model's assumptions are not site-specific but region-specific, and the site remains a good backup if joint development does not proceed.

Next, Clay summarized other resources, including the continued operation of the Cherokee NGCC, adding BESS in 2027, implementing solar consistent with the 2023 IRP, and analysis that identifies large frame CT capacity beginning in 2031 that also incorporates PPAs.

- Taylor inquired whether, given the recent unexpected outage at the Cross facility, additional incremental costs for keeping it running beyond 2032 had been identified that could feed into the model. Clay did not know of any. He added that usual maintenance costs are covered within existing O&M budgets, and any significant unexpected costs would be addressed as part of ongoing budget updates and resource planning.
- Taylor asked whether there are any circumstances under which large, unexpected repair costs might be considered generation capital expenditures (CAPEX) rather than operation and maintenance (O&M) costs. Rahul, qualifying that this is not his area of expertise, offered that typically, costs are allocated based on budgets developed by Santee Cooper's Generation team. Large repair costs might be a mix of both CAPEX and O&M. The costs allocated are based on their nature and impact and inform future budget development for Resource Planning.

Clay closed this portion of the conversation by revisiting capacity needs, which led to a series of comments and questions from Eddy.

- Eddy inquired whether the hydro-renewable category included the 500-1,000 MW of wind mentioned earlier. Clay responded that the footnote included wind and solar capacity modeled through PPAs. Wind and solar have limited winter capacity, so the capacity bars in the graph do not increase substantially due to their lower effective load-carrying capability (ELCC).
- He further inquired about whether the onshore ELCC for the wind was low, as he thought offshore was pretty good. Bob noted it's about 30% for the wind, while solar is in the low single digits. Rahul reflected on Eddy's earlier question, noting that onshore wind is planned for 2032, but there is no utility-scale wind in South Carolina yet. He called for more diligence to verify the potential for wind energy.
- Eddy raised concerns about whether the plan to issue RFPs for 300 megawatts of solar energy annually is feasible, given that previous RFPs did not deliver the full amount. He also expressed

concern about the effectiveness of the plan considering the Definitive Interconnection System Impact Studies (DISIS) results on solar energy, which might negatively impact the plan's success. Rahul acknowledged the urgency of both the Rainey conversion project and solar efforts. He emphasized that work on these projects is progressing as quickly as possible, with the Rainey conversion needing to be operational by the winter of 2028. He also noted that while interconnection challenges exist, the team is committed to moving forward with solar and other resources depending on market conditions, pricing, and regulatory restrictions.

- Eddy also reminded the members that there was a recommendation early in the 2023 IRP to include battery storage in the solar RFP to begin lining up capacity. He queried whether battery storage was included. Rahul commented that the RFP was undertaken under Competitive Procurement for Renewable Energy (CPRE), which didn't initially show a need for battery storage. He also touched on various parallel efforts both by Central and Santee Cooper to demonstrate the commitment to pursue battery projects as the forecast shows a growing need.

Next Steps

Closing out his presentation, Clay outlined the upcoming steps for filing two key documents with the Commission in mid-September: an annual update and an application for a CECPCN. He mentioned continued efforts on solar implementation and natural gas combined cycle resources. The board has approved filing the Certificate of Need application, which will be filed concurrently with the annual update. Clay emphasized the need for a holistic approach to meet growing energy demands and mentioned future due diligence on the evaluation of various resources, including battery projects and emissions regulations.

This opened the floor for more questions.

- Eddie expressed frustration about the limited access to the detailed Transmission Impact Analysis (TIA) data reports. He argued that understanding specific line overloads and related details was crucial for stakeholders to provide meaningful input and develop alternative solutions. Clay explained that the publicly available redacted TIA should provide sufficient information for independent evaluations. Stewart and Rahul committed to reviewing the situation to either resolve it or provide a definitive reason for any restrictions.
- Steven Thomas (Century Aluminum) inquired whether the model shows the fuel mix of energy being stored in the battery storage system. Bob responded that the model does not display the specific types of resources used to store energy. Instead, it focuses on the system's dispatch process and determines the marginal unit that would have operated if the battery hadn't been there, which is a complex analysis. Such evaluations, which may require comparing scenarios with and without the battery, are beyond the scope of what's reported in the model.
- Denny Boyd (Nucor) commented that there was a healthy response to the latest request for quote (RFQ) for solar. Clay acknowledged the same and that the team is currently evaluating the proposals.
- Taylor inquired whether notifications would be sent to those who signed NDA agreements regarding the availability of data. Will Brown (Resource Planning, Santee Cooper) committed to sending a notification to all members. Data inputs would be shared a week later, and the results file would be shared two weeks later. Any member still wishing to sign an NDA could do so even after the data was posted.
- Denny also noted that "it seems to me that for the heat recovery steam generator (HRSG) added to Rainey 2A and 2B, the latest EPA rules that extra kWh (and natural gas) shall supplant coal. If the EPA rule stands, limiting capacity factor to under 40%, then there would be the same or less gas used

as Rainey 1, which is about 80% capacity factor now”. Rahul noted that a more efficient natural gas system would be prioritized over coal because of its lower cost and higher efficiency. Bob pointed out that the EPA’s current GHG rules do not limit the capacity factor of existing natural gas turbines or combined cycles, hence, the IRP model hasn’t been restricted to these resources.

- Denny tested whether the new Rainey upgrade would replace coal. Both Bob and Clay saw that as a fair statement and likely. Clay added that in a scenario where the EPA rule stands, adding more NGCC capacity would help Santee Cooper comply with future regulations. Rahul reminded members that Santee Cooper is somewhat unique compared to other utilities as it lacks sufficient combined cycle capacity. He points out that the 5,000+ MW system is still under-resourced in natural gas-based energy, even after acquiring the Cherokee plant (100 MW) and with the existing Rainey PB1. Rahul noted that the model consistently picks natural gas combined cycles and other resources (like CTs and batteries) to meet energy needs, reflecting a trend over the past few years. He concludes that this is why the model continues to favor natural gas over other energy sources.

Meeting Closeout

– Stewart Ramsay, Meeting Facilitator, Vanry Associates

Stewart Ramsay thanked everyone for their participation and encouraged them to complete the survey for feedback. The meeting concluded with a reminder to sign the NDA for access to confidential information. The Santee Cooper team expressed their appreciation for the stakeholders' time and contributions.

Commitments and Next Steps

The following is a summary of commitments made and the next steps agreed upon at the close of the meeting.

ACTION ITEMS – noted during the meeting discussion	By WHOM	By WHEN
1. Santee Cooper will email working group members when the 2024 IRP Update has been filed with the PSC and when the data room is populated.	Will Brown	Members emailed September 17, 2024
2. Santee Cooper committed to considering Eddy Moore’s request related to TIAs.	Clay Settle	

Next Steps:

- The next working group meeting is tentatively scheduled for November 2024
- Members wishing to present a topic at a future meeting may contact Will Brown or Clay Settle

APPENDIX A

List of Stakeholder Working Group Members and Attendees

ORGANIZATION	MEMBER / ALTERNATE	SEPTEMBER 4 TH ATTENDEE
Office of Regulatory Staff	Findlay Salter Shane Hyatt	Shane Hyatt
SC Dept of Consumer Affairs	Jake Edwards Roger Hall	Roger Hall
SC Dept of Natural Resources	Elizabeth Miller Lorianne Riggin	
SC Dept of Environmental Services	Rhonda Thompson Robbie Brown	Rhonda Thompson Robbie Brown
Central	Caleb Bryant Marcus Harris	Caleb Bryant
J. Pollock	Jeffrey C. Pollock Jonathan Ly	Jonathan Ly
Century Aluminum	Michael Early Stephen Thomas	Stephen Thomas
Nucor	Bradley Powell Denny Boyd Karl Winkler	Denny Boyd
Messer	Steven Castracane	
Google	Katie Ottenweller Will Cleveland	Will Cleveland
SC Association of Municipal Power Systems	Eric Budds	
Individual	Charles Hucks	
Individual	Richard Berry	
Individual	Diane Bell	Diane Bell
Carolinas Clean Energy Business Association	Hamilton Davis John Burns	Hamilton Davis
Conservation Voters of South Carolina	Erin Siebert Jalen Brooks-Knepfle John Brooker	Jalen Brooks-Knepfle
Coastal Conservation League	Emily Cedzo Taylor Allred	Taylor Allred
Energy Justice Coalition	Shayne Kinloch Zakiya Esper	Shayne Kinloch Zakiya Esper
Southern Alliance for Clean Energy	Eddy Moore Maggie Shober	Eddy Moore
Southern Environmental Law Center	Anna Sommer Chelsea Hotaling Kate Mixson	Chelsea Hotaling Kate Mixson Thomas Gooding
Sierra Club	David Rogers Dori Jaffe	Dori Jaffe
Vote Solar	Jake Duncan	Jake Duncan
Santee Cooper Resource Planning	Clay Settle Rahul Dembla Will Brown	Clay Settle Rahul Dembla Will Brown
nFront Consulting	Bob Davis Jonathan Nunes	Bob Davis
Vanry Associates	Peter Claghorn Stewart Ramsay Yvette Smith	Peter Claghorn Stewart Ramsay Yvette Smith

**Members listed in alpha order by first name*