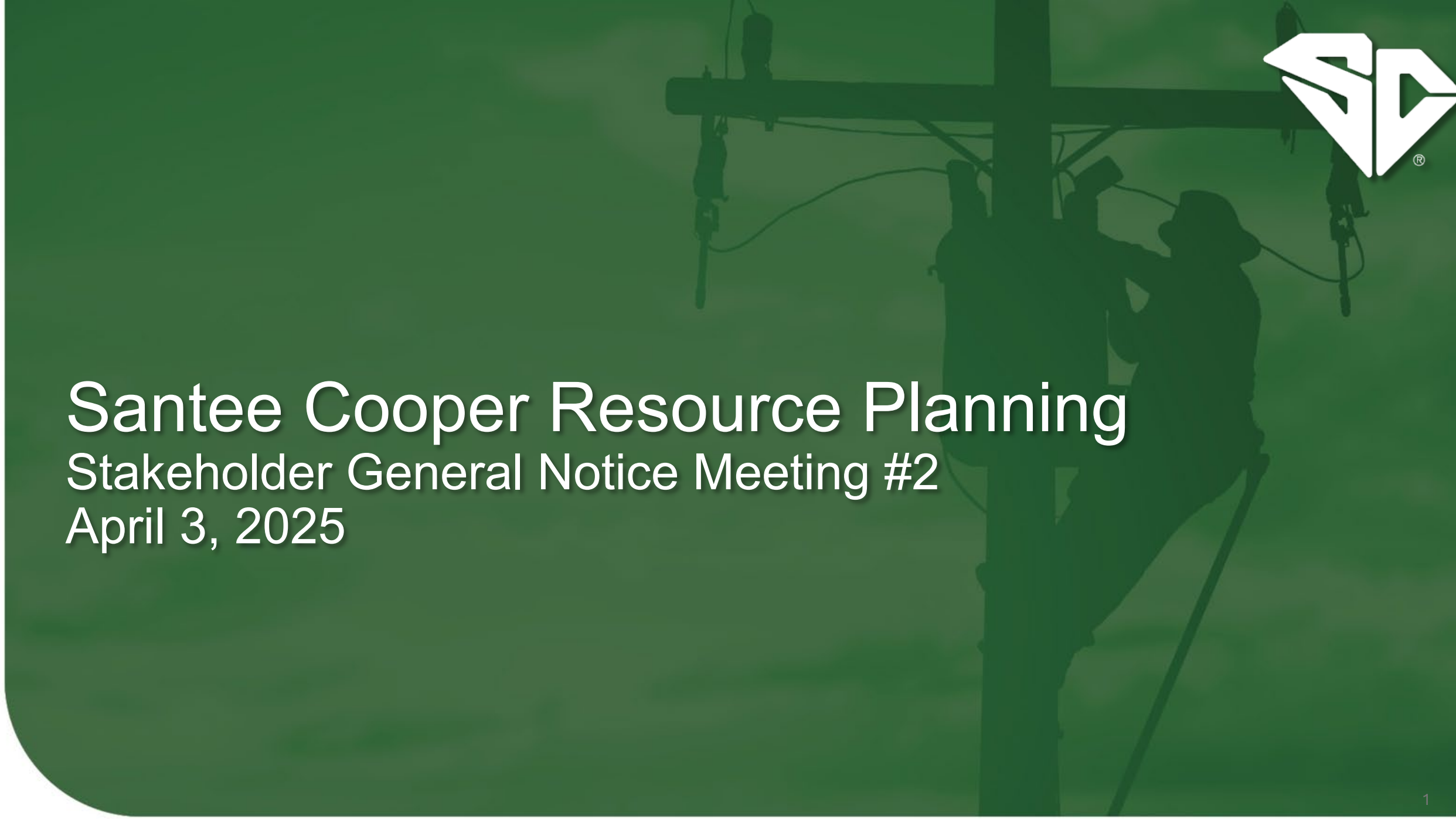


Santee Cooper Resource Planning

Stakeholder General Notice Meeting #2

April 3, 2025

Welcome and Agenda

Stewart Ramsay, Meeting Facilitator
VANRY Associates

Meeting Guidelines

Principles to guide today's session

- Participation welcome
- Respectful dialogue
- Transparency of all questions & answers
  - Questions and comments are public and will be shared via the IRP webpage
- Limited collection of personal information
  - Participant email address use is limited to IRP communications
  - Email list is not being shared or made public

Meeting Protocols

The value of this process is in your participation … please ask questions!

1. Why are we using this format?
2. Use the **Q&A** for comments or questions during the presentation – we have a team of people helping to answer your questions.
3. "**Raise Hand**" if you would like the chance to speak, we will call on people in the order that they raised their hands. We will wait to call on people until the presenter has concluded their presentation.

Note: We are not using the Chat function; it is disabled.

Meeting Agenda

2:30 pm Welcome and Agenda
Stewart Ramsay, Meeting Facilitator, VANRY Associates

2:40 pm Santee Cooper Resource Planning
David Millar, Director Resource Planning

3:05 pm 2025 Load Forecast
Greg McCormack, Director Financial Forecast

3:40 pm BREAK

3:45 pm Integrated Resource Plan (IRP) Update
Clay Settle, Senior Manager Resource Planning

4:15 pm Demand Side Management Programs
Steven Roys, Manager Program Development

4:45 pm Meeting Closeout

Presenters

Stewart Ramsay
Meeting Facilitator
VANRY Associates

David Millar
Director Resource Planning
Santee Cooper

Greg McCormack
Director Financial Forecast
Santee Cooper

Clay Settle
Senior Manager Resource Planning
Santee Cooper

Steven Roys
Manager Program Development
Santee Cooper

Other Topics of Interest to Stakeholders

- 2025 rate adjustment
  - https://www.santeecooper.com/rates/rate-study/
- Residential customer services and information
  - https://www.santeecooper.com/residential/
- Programs and incentives offered by Santee Cooper
  - https://www.santeecooper.com/programs-incentives/
- Santee Cooper community involvement and programs
  - https://www.santeecooper.com/community/

Santee Cooper Resource Planning

David Millar, Director Resource Planning
Santee Cooper

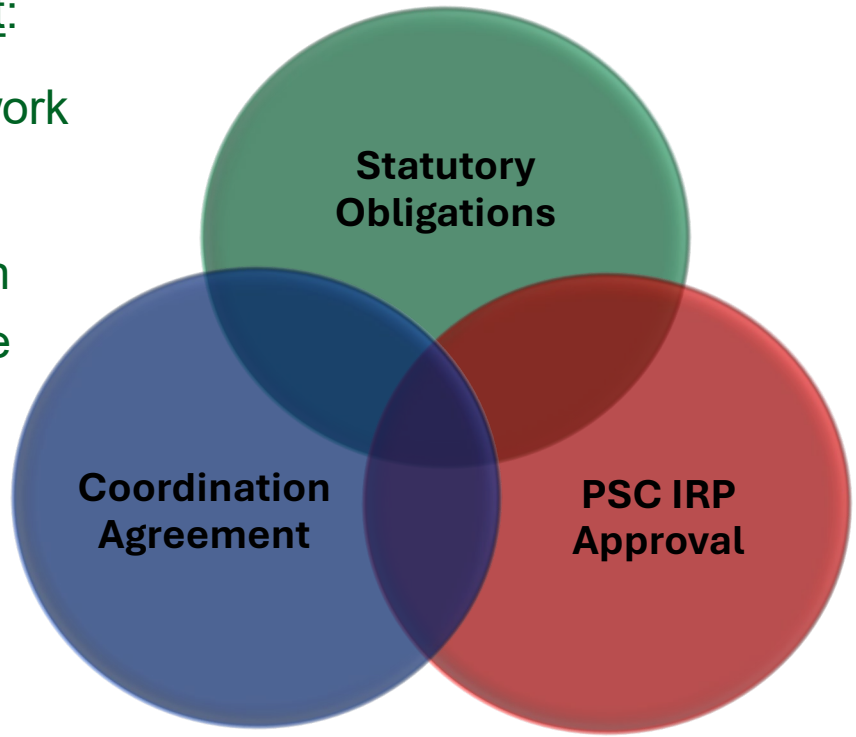
Desired Outcomes of this Meeting

- Stakeholders will know more about Santee Cooper's Integrated Resource Planning (IRP)
  - Factors driving load growth
  - Our plan to meet the growing electricity needs of our state
  - Resource development activities
  - Energy efficiency and demand response programs
- Stakeholders will have the chance to ask questions and provide feedback today and will learn how to submit feedback after the meeting

Santee Cooper Planning Obligations

Coordination Agreement:

- Joint planning framework
- Load Forecast, Generation Expansion Plan (GEP), Resource Commitment Process

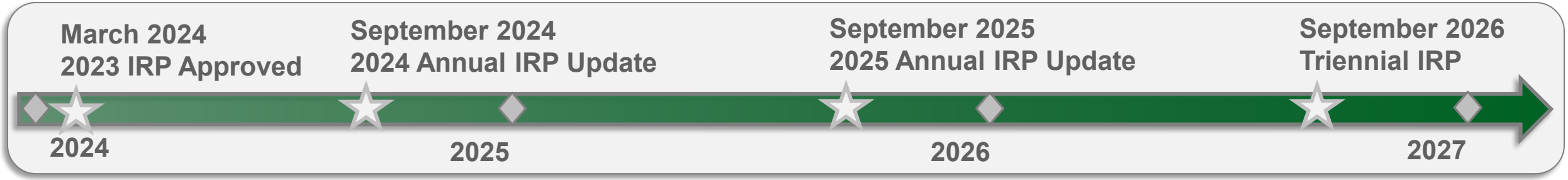


Statutory Requirements:

File IRP every three years with annual updates, to PSC for approval

IRP annual update requirements:

- Update base planning assumptions relative to its most recently accepted Integrated Resource Plan (2023 IRP)
- Describe the impact of the updated base planning assumptions on the selected resource plan



PSC – Public Service Commission of South Carolina

What is an IRP

"Integrated resource plans (IRPs) are electricity providers' plans for meeting projected customer demand for at least a 15-year period in an economical and reliable way, while maintaining flexibility and considering environmental consequences."

SC Energy Office

Develop Assumptions	Analytical Phase	Evaluate Portfolios	Preferred Portfolio
• Load Forecast • Demand Side & Supply Side Resources • Planning Reserve Margin • Commodity Forecasts • Many Others	• Develop Portfolios • Capacity Expansion Model Runs • Production Cost Model Runs • Scenario Analysis	• Most Reasonable and Prudent • Most Cost Effective and Least Rate Payer Risk • Portfolio Metrics	• Preferred Portfolio Identified • Short-Term Action Plan

Triennial IRPs with Annual Updates and Stakeholder Engagement

Who is involved?

- Public Service Commission
- Office of Regulatory Staff
- Customers
- All Interested Stakeholders

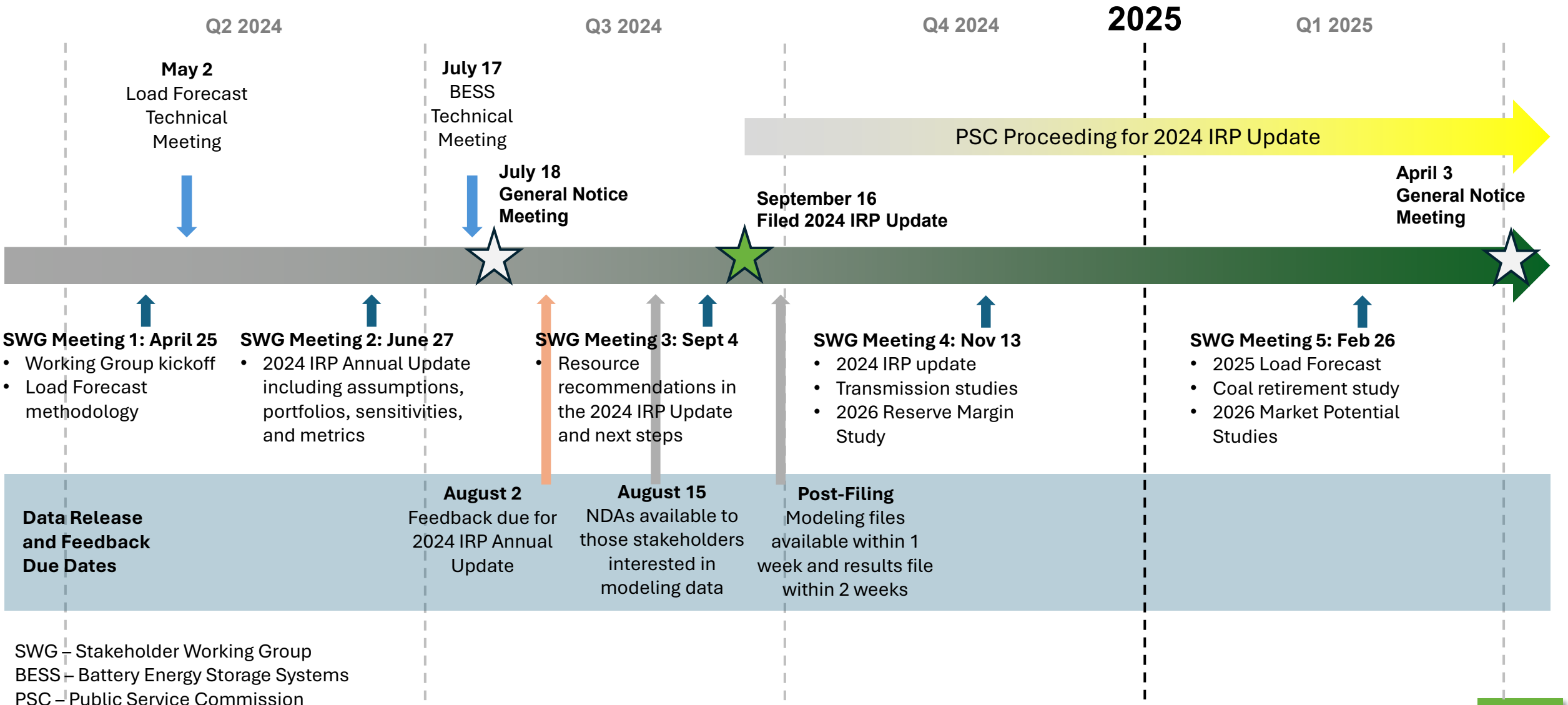
Planning through Risks and Uncertainties

- (Extreme) weather
  - Impacts on load
  - Power plant outages
  - Price spikes
- Fuel
  - Coal, gas, and power prices
  - Renewable intermittency
  - Delivery interruptions
- Policy/Regulatory
  - Tariffs
  - Change in law
- Technology options
  - Renewables, storage, nuclear, gas…

How do we make decisions under uncertainty?

1. **Follow a robust planning process**
2. **Explore potential futures through scenarios and sensitivities**
3. **Constantly test and validate our assumptions**
4. **Aim for portfolio diversity and a prudent balance between cost and risk**

Stakeholder Engagement | 2024 to Today



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

Stakeholder Working Group

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 Century Aluminum Nucor Messer Google
Municipal Customer	South Carolina Association of Municipal Power Systems
Residential/Commercial	3 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

Stay Informed

Santee Cooper IRP

www.santeecooper.com/about/integrated-resource-plan

Santee Cooper IRP Stakeholder Process

www.santeecooper.com/about/integrated-resource-plan/2026-irp-stakeholder-process

2025 Load Forecast

Greg McCormack, Director 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

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

2025 Load Forecast

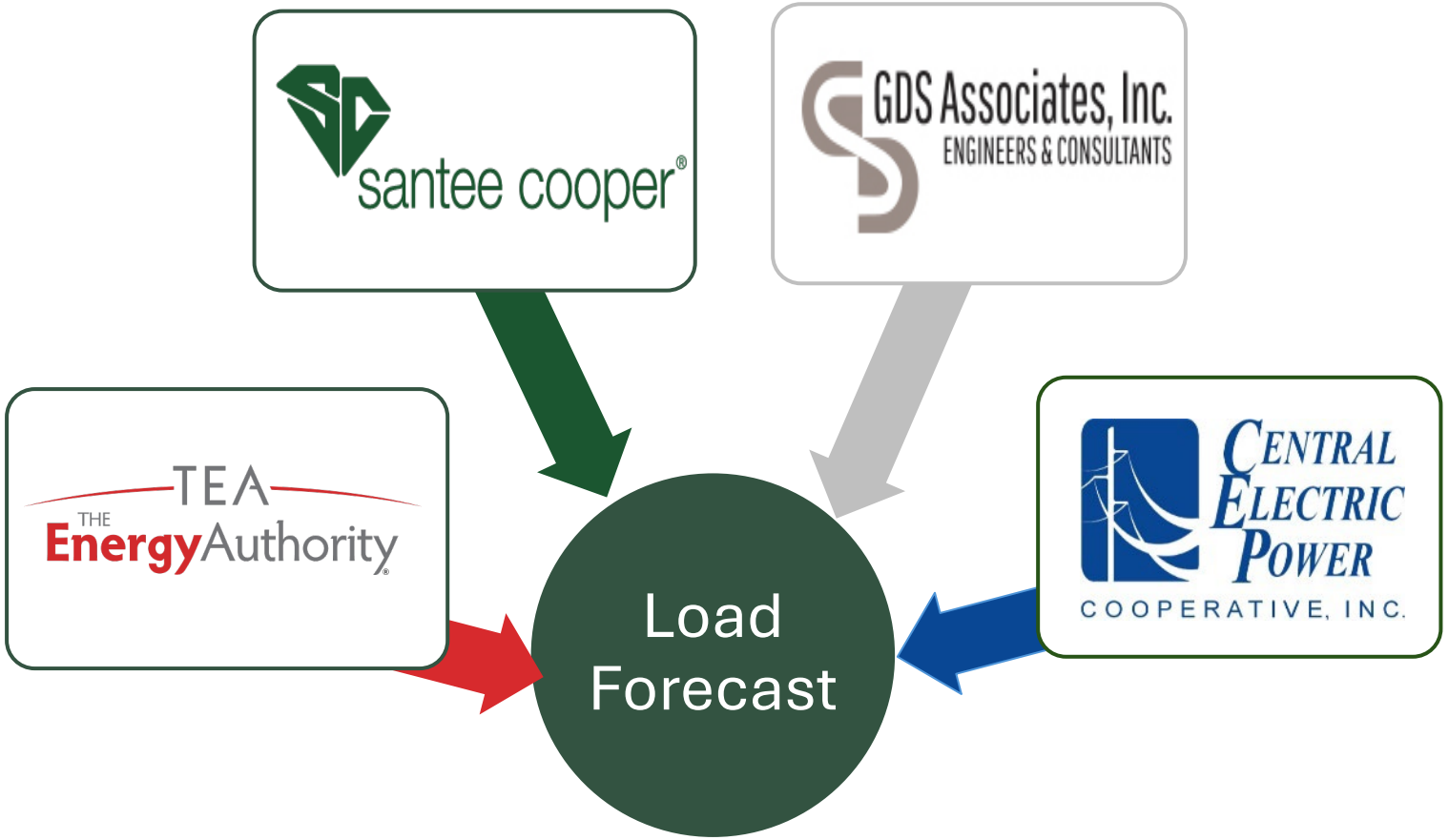
- Expected to be completed in May 2025
- Will continue to work with Central, stakeholders, and other experts to improve forecasting methods

- Load forecast is currently in development
  - Evaluating assumptions and methodologies
- 2025 Load Forecast will be basis for 2025 IRP Annual Update

PSC – Public Service Commission South Carolina

Load Forecast | Process

- The corporate load forecast projects the energy and peak demand needs of our customers
- Development is a collaborative effort with input from various experts and stakeholders



Load Forecast | Customer Groups

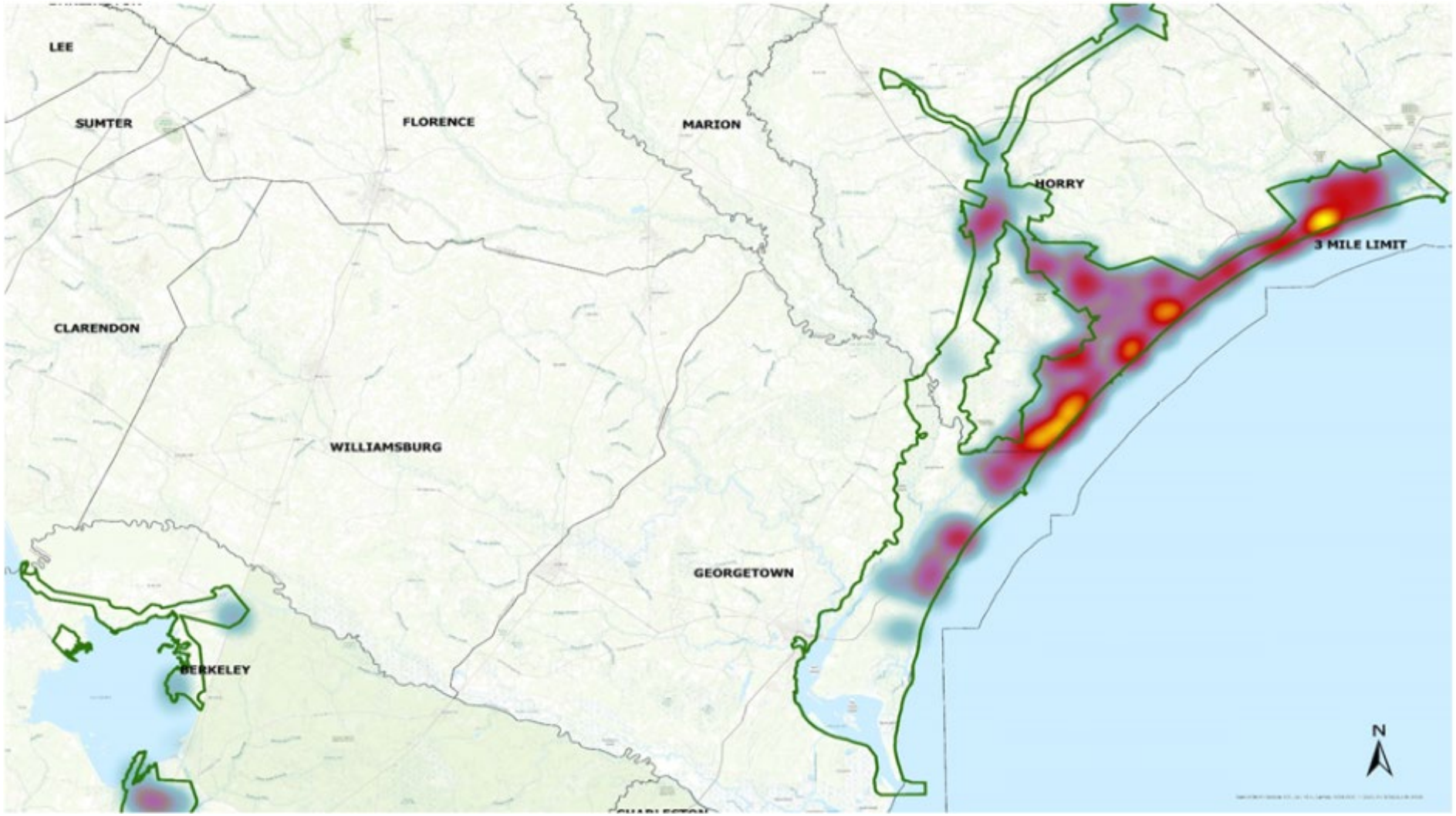
Class	Customer Segment Composition	Originator
Direct Serve Residential and Commercial	• Approximately 214,000 directly served accounts, comprising 15% of system energy	GDS
Direct Serve Industrial	• 29 large industrial customers currently served directly by Santee Cooper, comprising 23% of the system energy	Santee Cooper
Central Member Cooperative	• Wholesale customer serving 19 distribution cooperatives, comprising 60% of system energy	Central
Off-system and Municipal Sales	• Wholesale sales to Bamberg, Georgetown, PMPA, Seneca, and Waynesville (NC) • Sales to PMPA are on a partial requirements basis • Off-system sales comprise 2% of system energy	Santee Cooper, GDS, and Customer

Note: Percent based on 2024 IRP forecasted system energy.

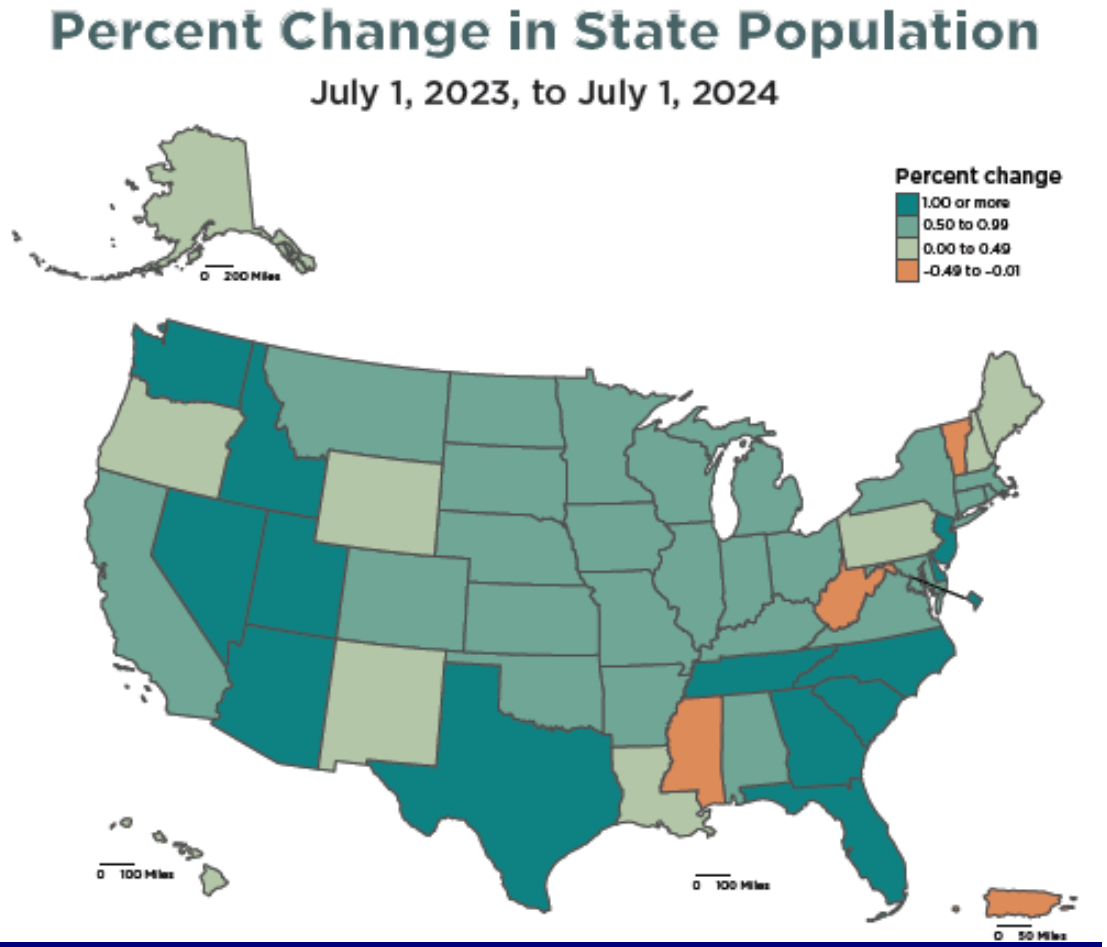
Load Forecast | Central Electric Service Territory

Note: Blue Ridge, Broad River, Laurens, Little River, and York are outside of Santee Cooper's Balancing Authority.

Load Forecast | Service Territory and Customer Density

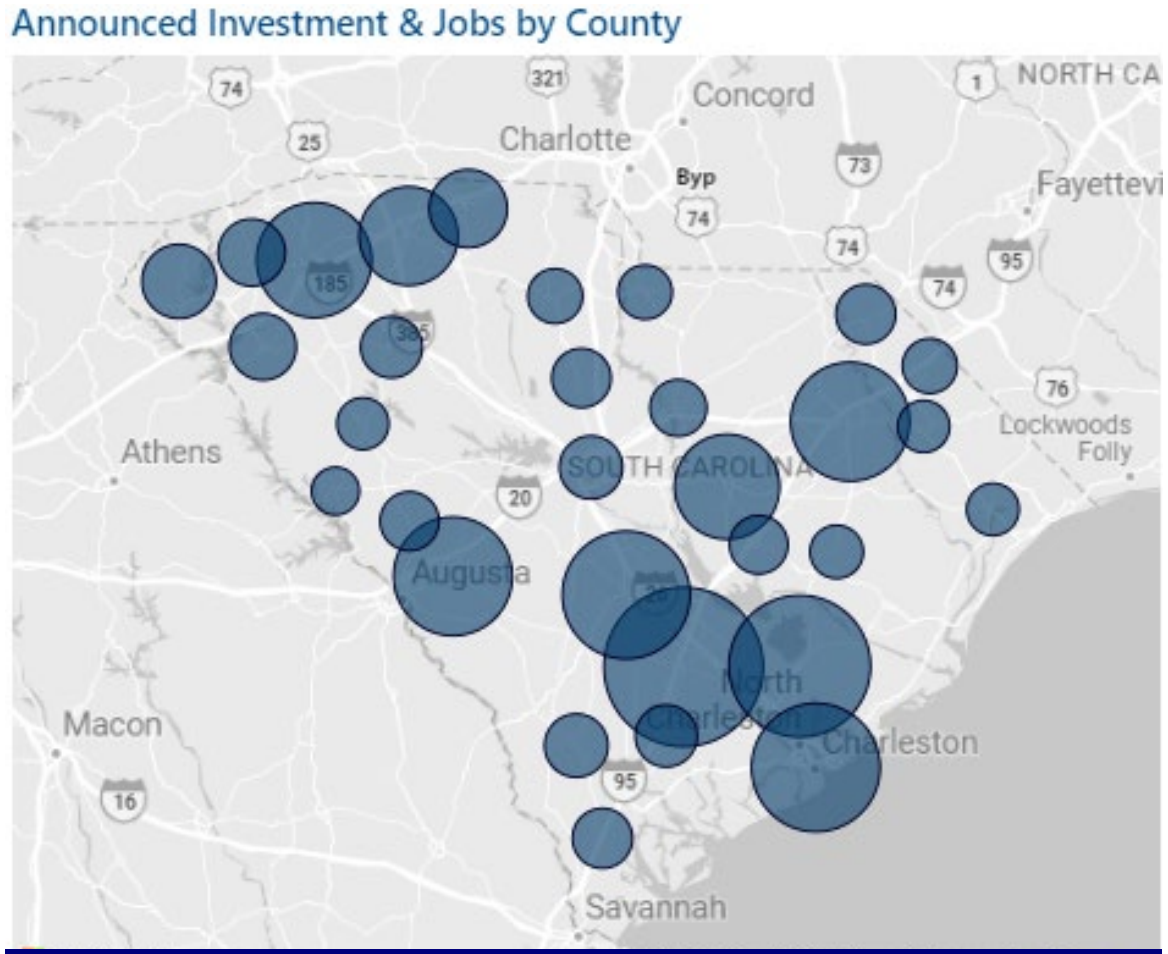


Load Forecast | Load Growth



South Carolina was the fastest growing state in 2024 at 1.3% and in 2023 at 1.71%

Source: www.census.gov



South Carolina continues to see significant economic development, with $8.2 Billion announced in 2024 and over 5,500 new jobs.

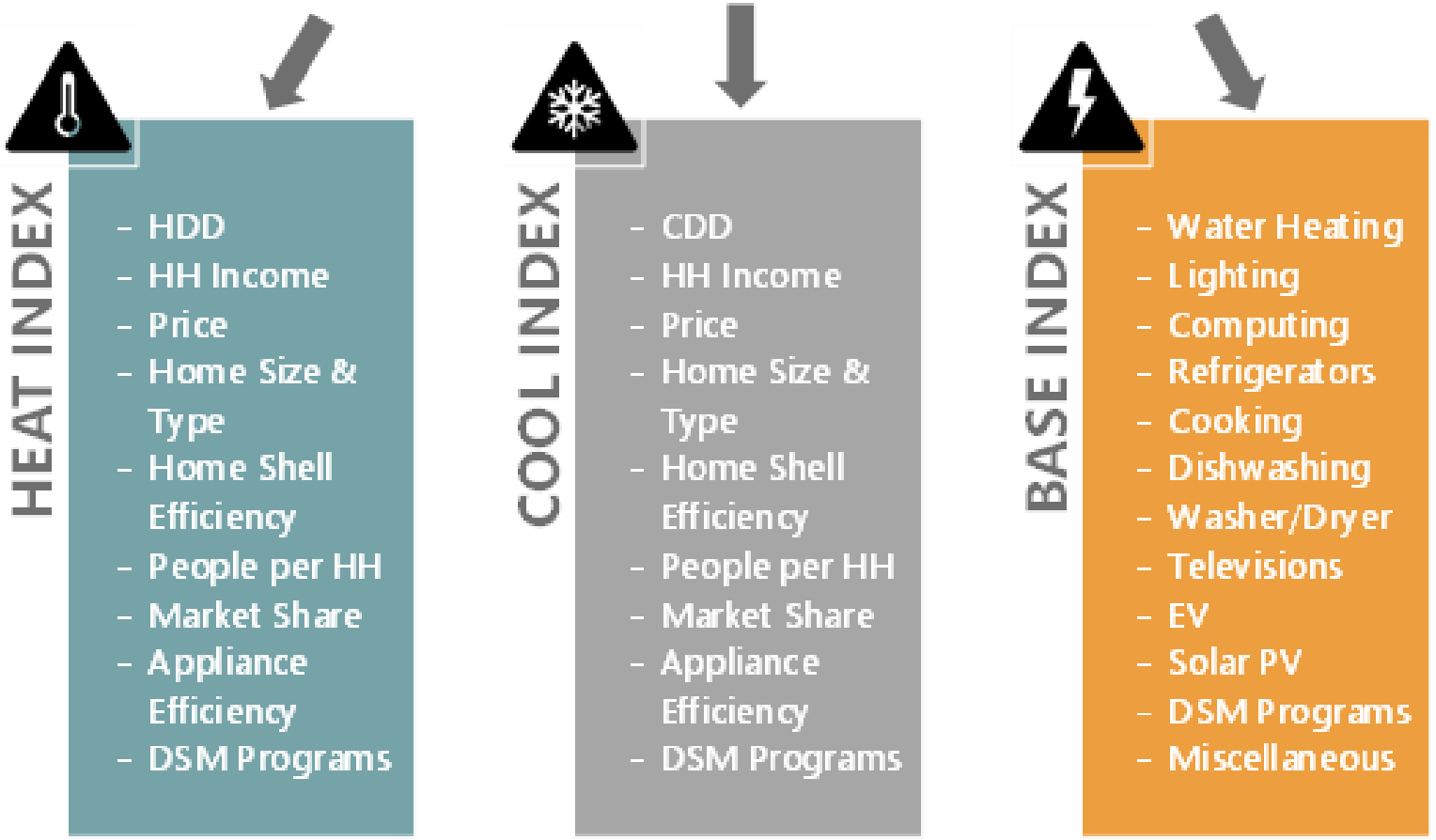
Source: SC Dept. of Commerce, chart shows projects announced 12-2023 through 12-2024

Load Forecast | Forecasting Methods

Class	
Direct Serve – Residential and Commercial	• Statistically adjusted end-use models • Refined through discussion with distribution system staff • Post-modeling adjustments for electric vehicle and rooftop solar impacts
Direct Serve – Industrial	• Basis is contractual agreement and historical consumption • Refined using input from customers regarding future operations
Central Member Cooperative	• Prepared by Central staff • Statistically adjusted end-use models • Refined through discussion with local Cooperatives
Off-system and Municipal Sales	• Various methods depending on customer • Based on contracts with each customer
Potential New Large Loads	• This captures economic development projects, new data centers, and other large, discrete load changes • Stochastic analysis performed to add a risk adjusted, probabilistic adjustment to the load forecast

Load Forecast | Residential & Commercial Forecasting Methods

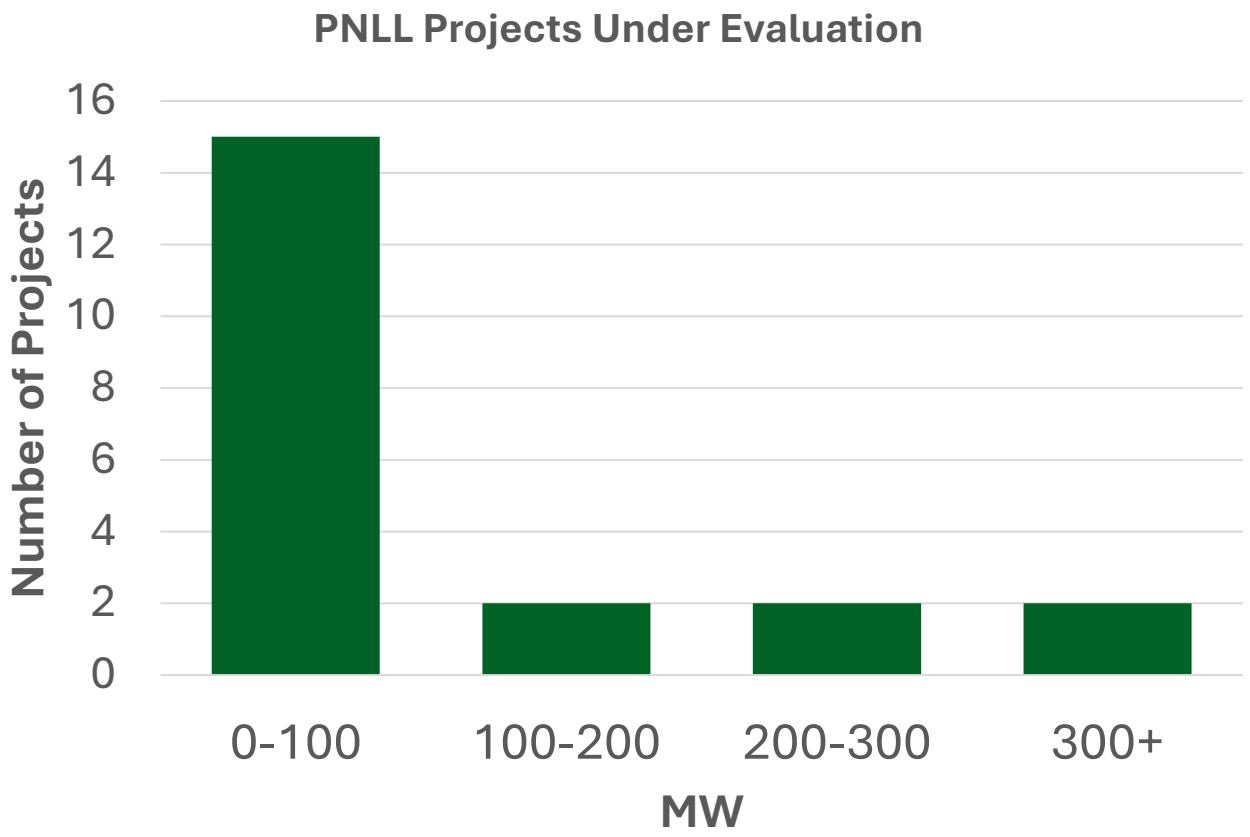
$$kWh = \beta_1 Heat_{Index} + \beta_2 Cool_{Index} + \beta_3 Base_{Index} + \varepsilon$$



Sources of data for each variable include:

- Moody's Analytics Economic Forecast
- Customer Surveys
- EIA's Annual Energy Outlook
- NWS Historical Weather data
- Forecasted electricity price
- Others

Load Forecast | Potential New Large Loads



Current PNLLs being evaluated

Preliminary assumptions for 2025 load forecast

Loads MW	Avg Connection Prob	Avg Magnitude Adj
0-100	54%	56%
100-200	30%	50%
200-300	78%	55%
300+	35%	65%

- Major changes since 2024 load forecast:
  - Two large loads signed
  - One very large load has dropped out
  - Several smaller loads have expressed interest

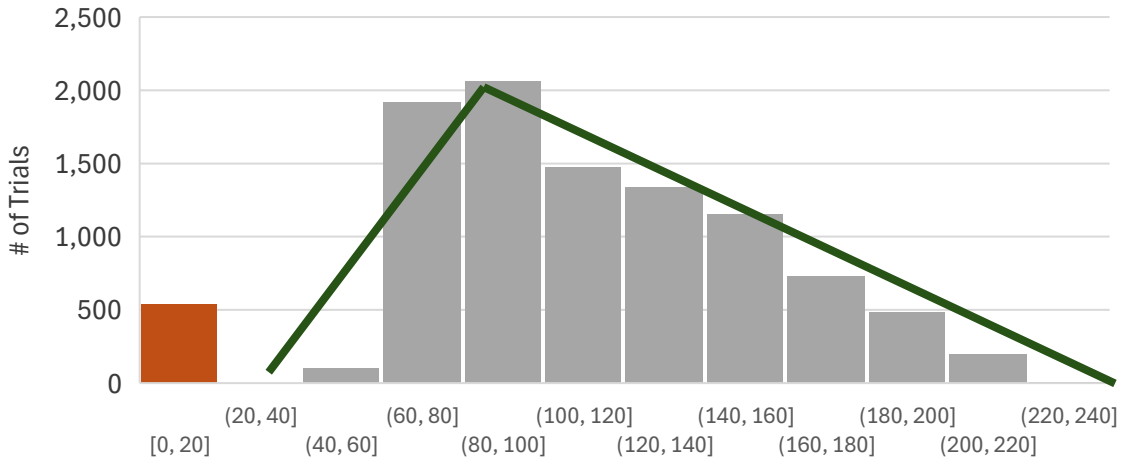
Load Forecast | Potential New Large Loads

Potential New Large Loads forecasted with a stochastic approach

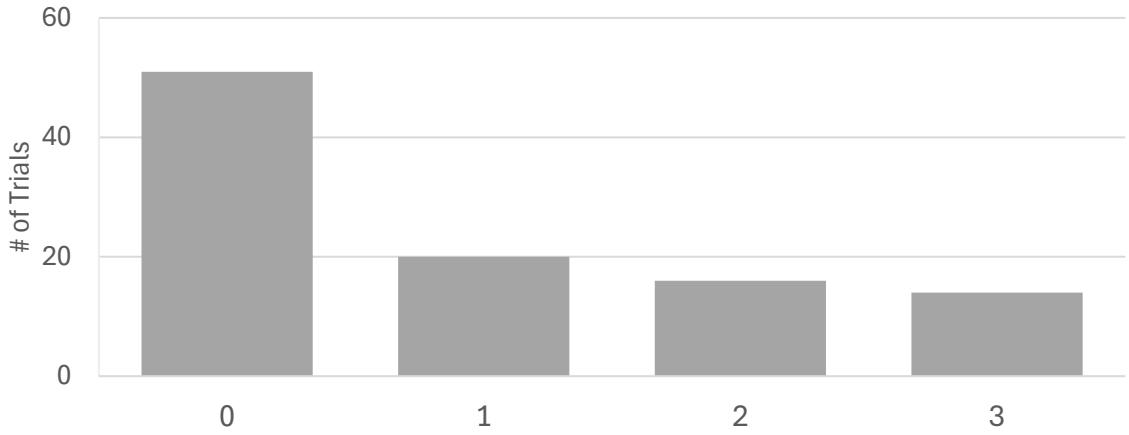
Stochastic Variables

- Likelihood of Connection
  - Binary variable to determine if customer locates on system
- Magnitude Adjustment
  - Triangular distribution trending towards internal projection
- Siting Delay
  - 0-3 years assigned at random according to exponential distribution

Example Distribution (C0001: 10,000 Trials)

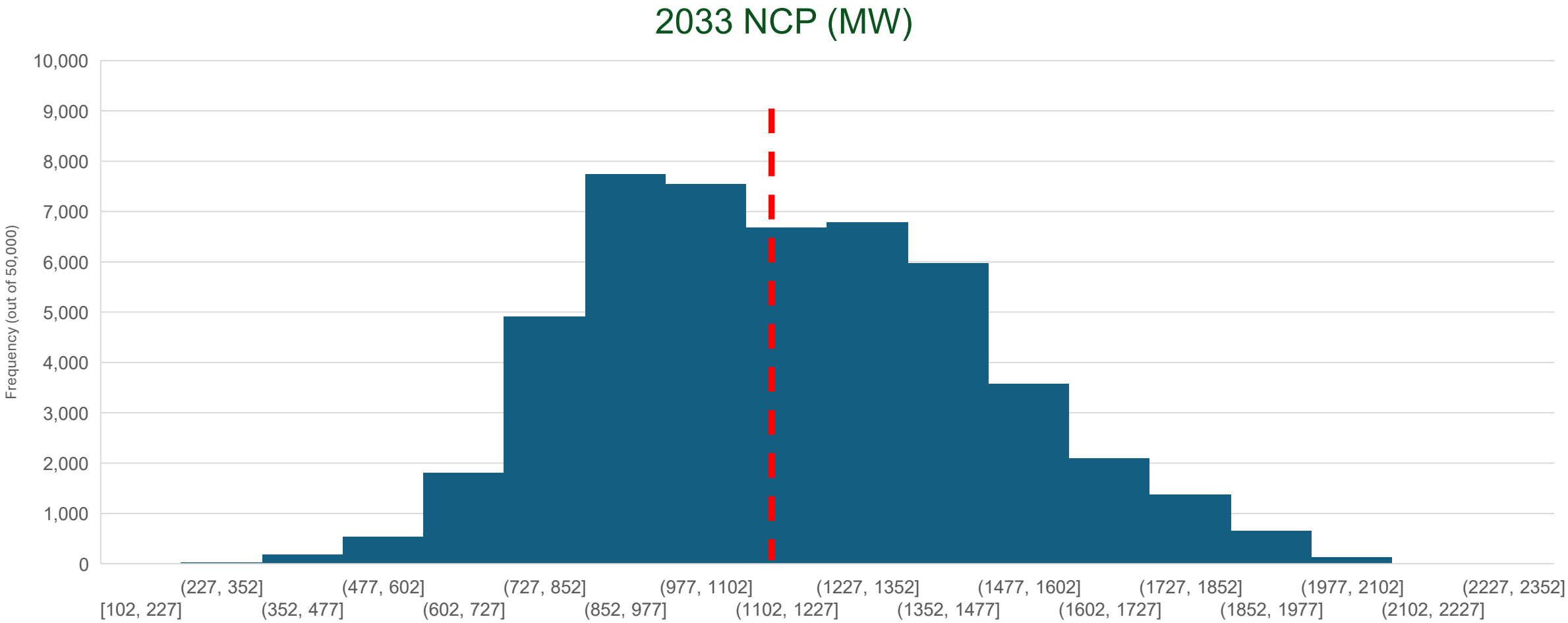


Example Siting Delay (Years, 100 Trials)

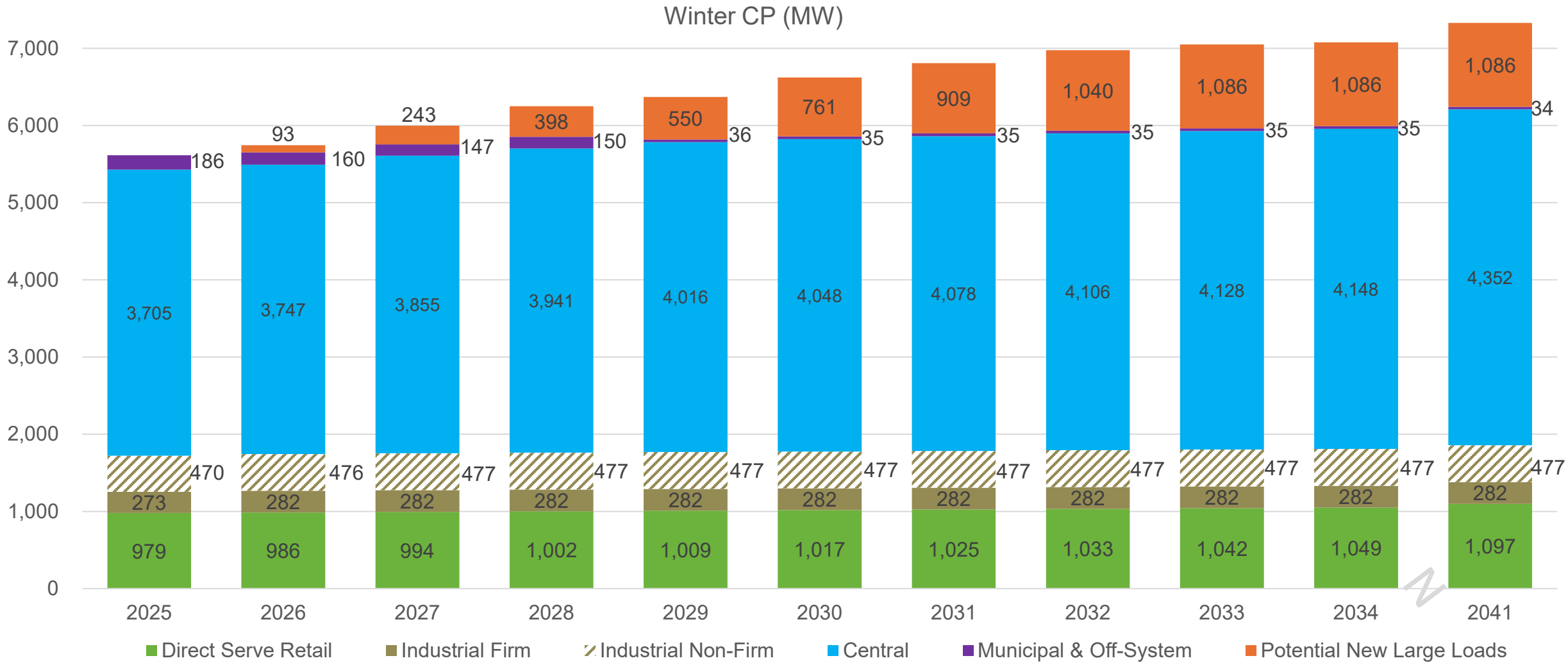


Load Forecast | Potential New Large Loads

Stochastic PNLL Results from 2024 Load Forecast



Load Forecast | 2024 IRP Update Load Forecast[1]



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

BREAK

Integrated Resource Plan (IRP) Update

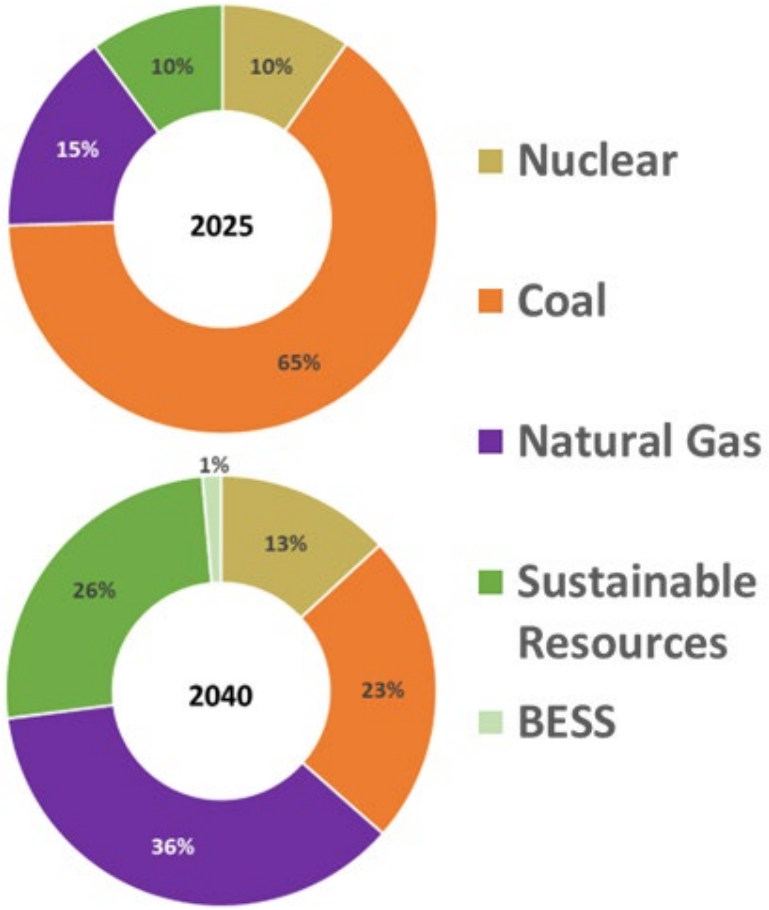
Clay Settle, Senior Manager Resource Planning
Santee Cooper

2023 Integrated Resource Plan

Preferred Portfolio Summary

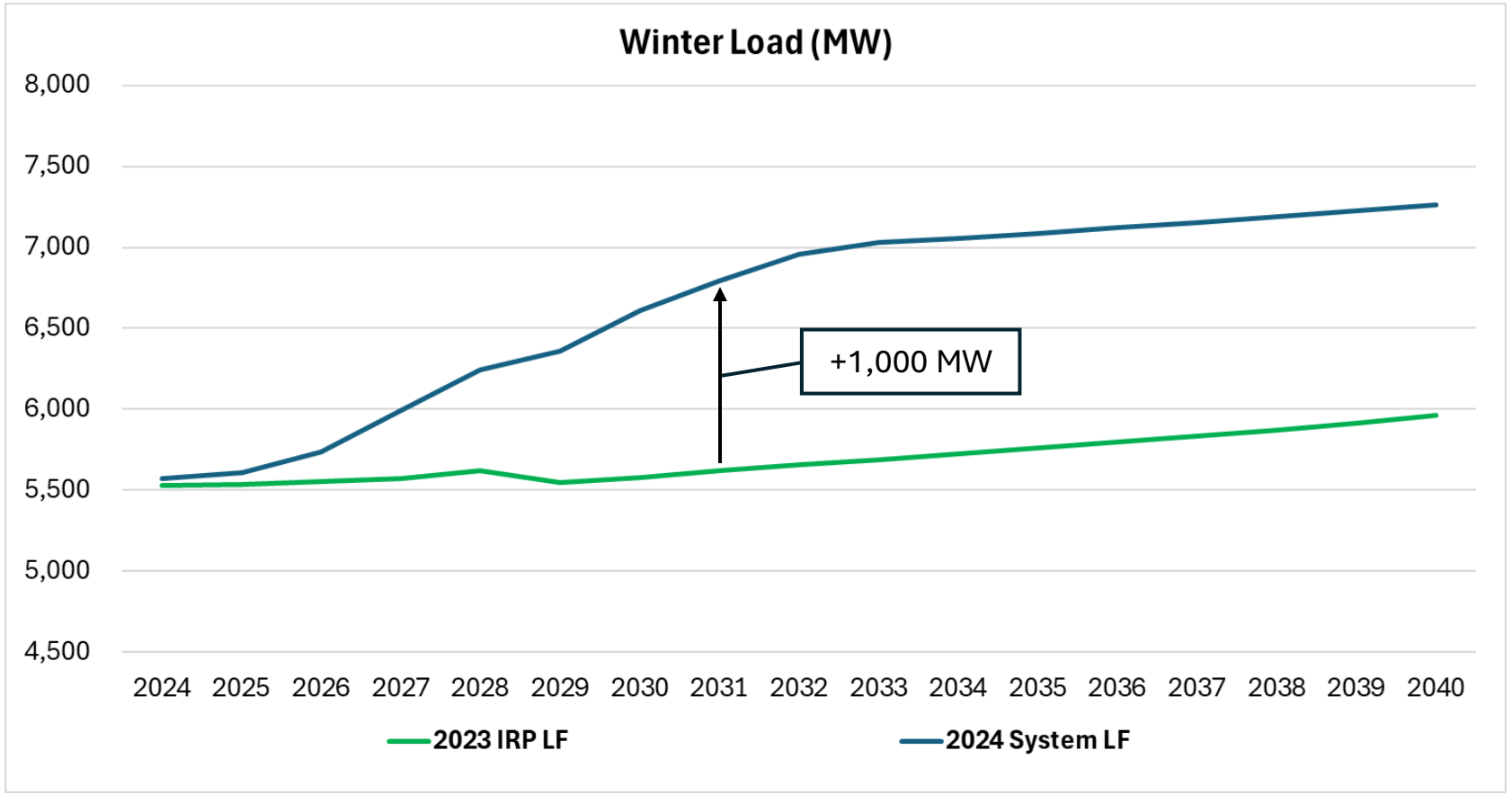
- Retire Winyah Generation Station year end 2030
- Includes Central's three Non-Shared Resources, Power Purchase Agreements
- Develop a large Natural Gas Combined Cycle (NGCC) resource in 2031 to coincide with the retirement of Winyah
- Adds substantial amount of solar: 1,800 MW by 2031 and 2,700 MW total by 2040
- Battery Energy Storage Systems (BESS) and peaking resources in the 2030s, as needed

Percentage of Total Generation (MWhs, Energy) by Resource Type

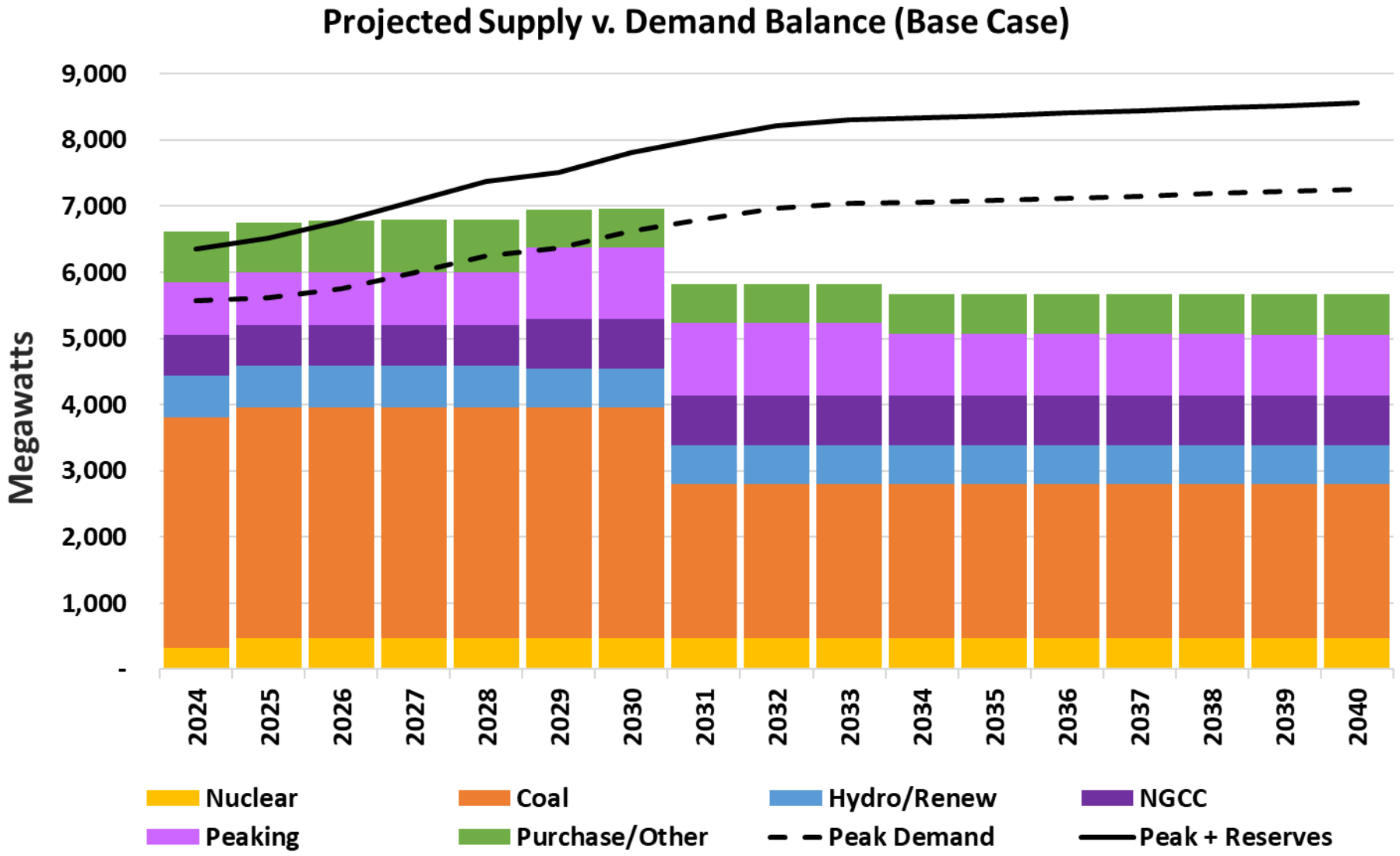


2024 System Load Forecast

Jointly developed with Central and unanimously approved by the Joint Planning Committee



Capacity Need 2024 IRP Update



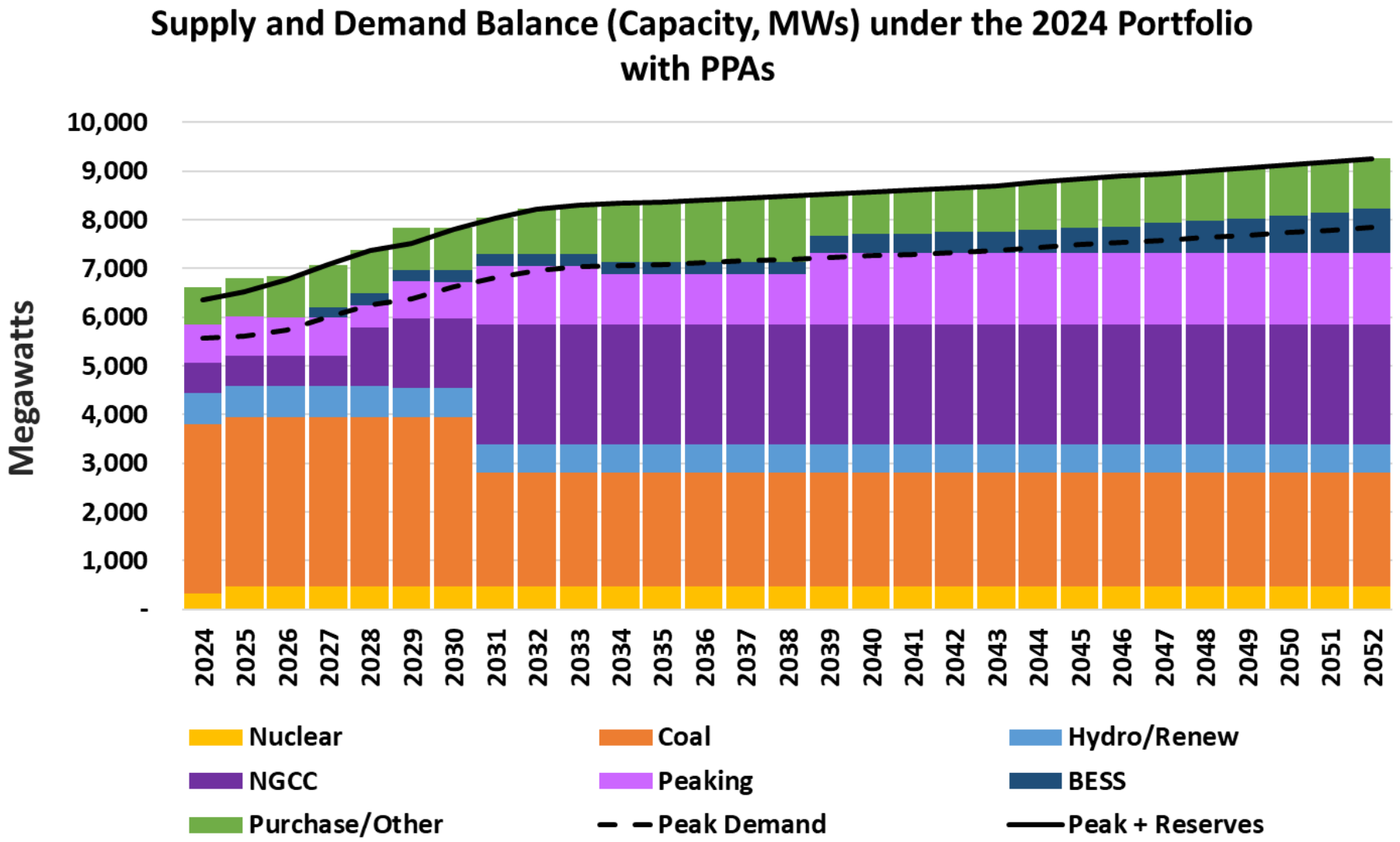
2024 IRP Update Key Conclusions

- 2024 IRP update key conclusions are consistent with the 2023 IRP Preferred Portfolio
  - Large Natural Gas Combined Cycle (NGCC) resource still an economic resource decision upon Winyah's retirement
  - Capacity from Combustion Turbines (CTs) and Battery Energy Storage Systems (BESS) to meet system peaking needs
  - Substantial amounts of solar resources
- The updated plan includes opportunities for additional capacity from existing resources at the Rainey Station and continued operation of the Cherokee NGCC
- The analysis considers the potential impact of the new EPA 111 Greenhouse Gas regulations

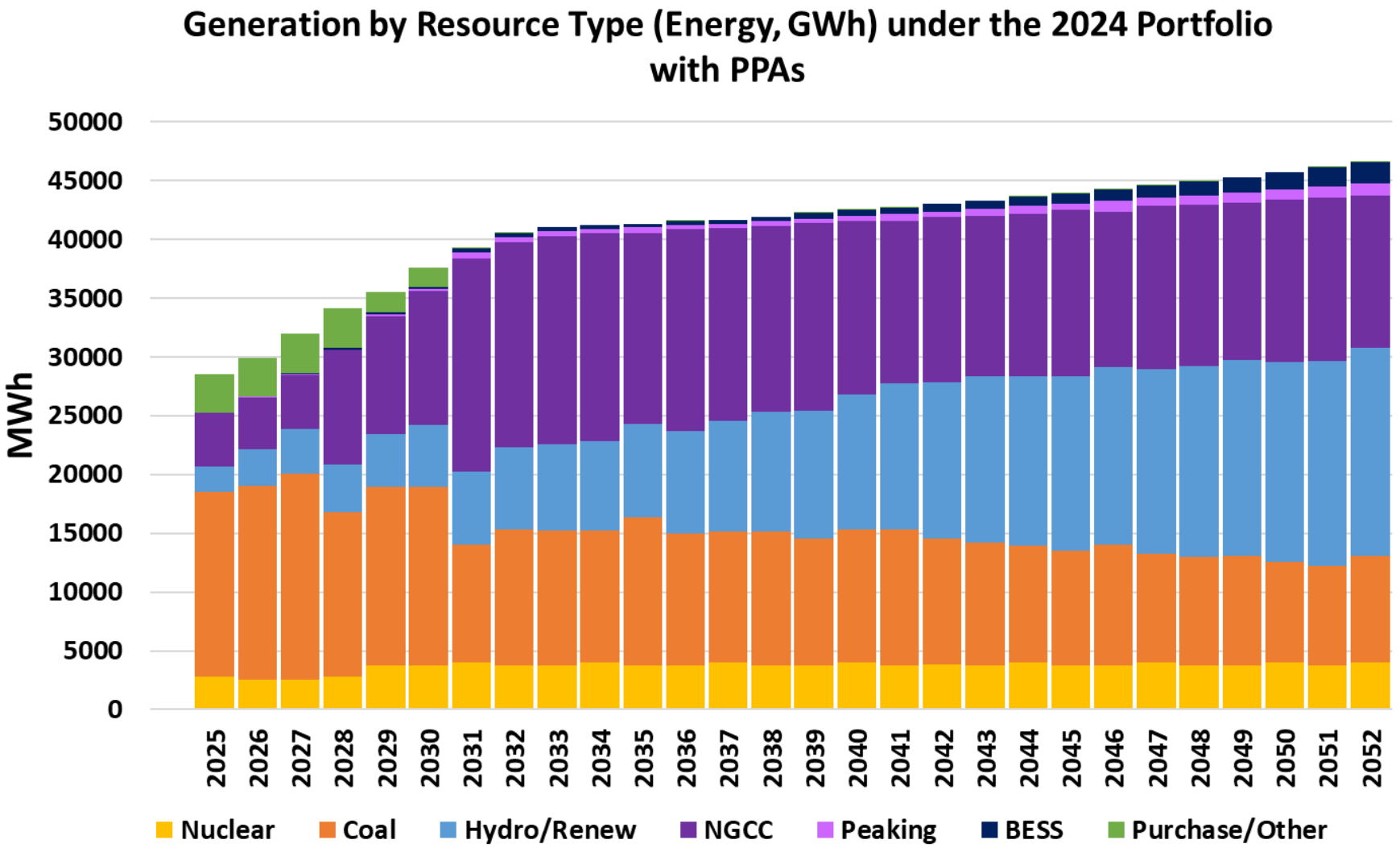
2024 IRP Update Resource Mix

Solar Additions	• 300 MW per year from 2026 through 2030 (1,500 MW) • Aggregate approximately 3,600 MW through 2040
Coal Retirement	• Retire Winyah by 2031 – Actual retirement depends on timely availability of replacement resources and sufficient resources to meet load and reserve margin
NGCC	• 1,020 MW operational by Winyah's retirement (potentially, jointly with DESC)
CTs	• 447 MW in 2031 to meet system peaking needs
Battery Storage	• 240 MW in 2027 increasing to 500 MW through 2040
Rainey 2 Conversion to NGCC	• Incremental 178 MW by 2028
Other Rainey Upgrades	• Approx. 50 MW incremental capacity from Rainey 1 existing NGCC • 21 MW incremental capacity from upgrading three existing Rainey CTs
Power Purchase Agreements (PPAs)	• Capacity alternatives to mitigate financial and/or implementation risk, bridge capacity need gap, and respond to load growth

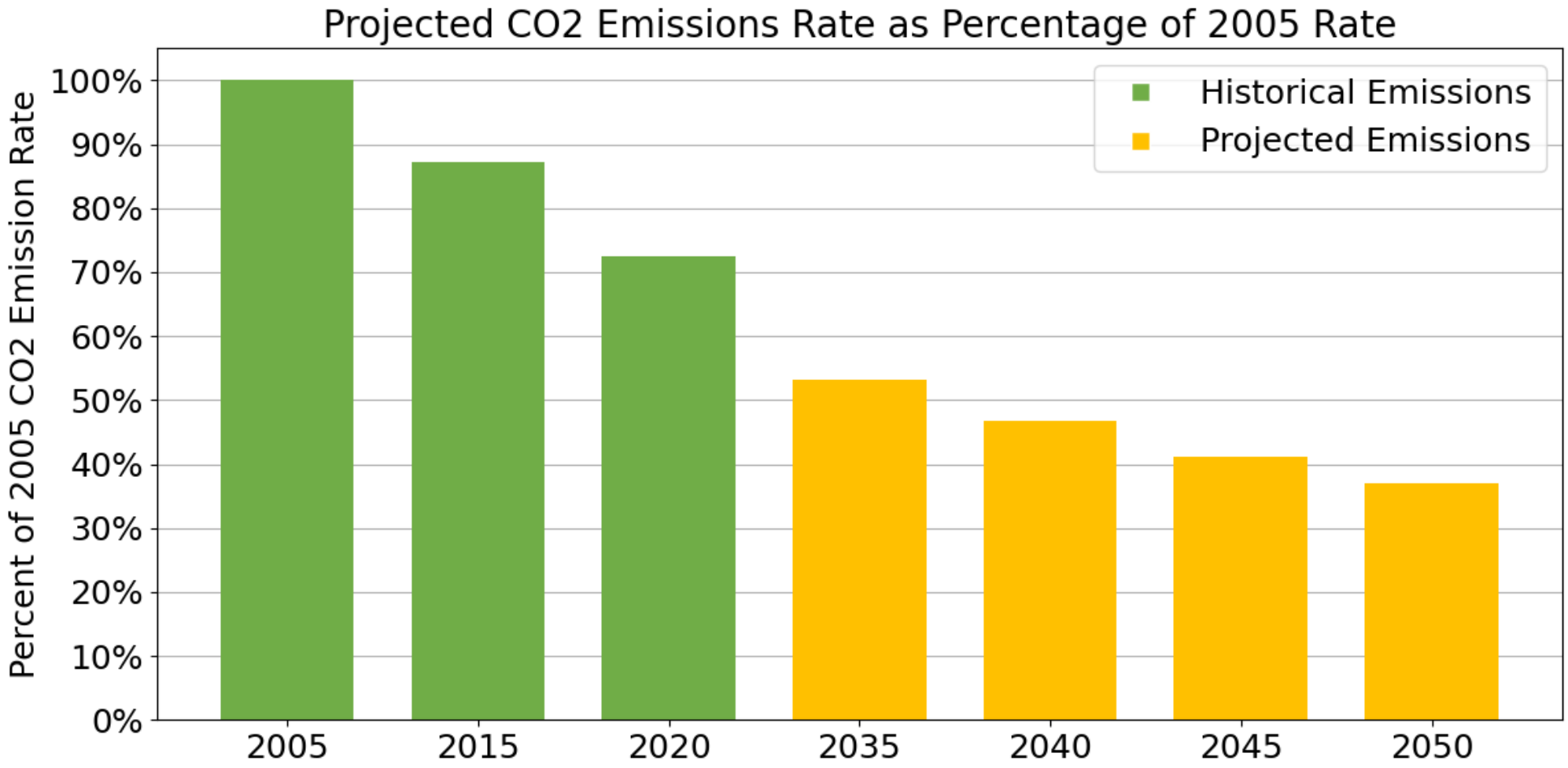
2024 IRP Update Resource Mix



2024 IRP Update Resource Mix



2024 IRP Update Resource Mix



Short-Term Action Plan

- Update the load forecast and monitor changes in potential new large customers
- Implement near-term resources, including Rainey upgrades, short-term purchases, and the addition of battery energy storage systems
- Continue towards executing the key resources in the 2023 Preferred Portfolio, including solar and the 2031 natural gas combined cycle
- Continue to refine options for large-frame combustion turbines to meet load growth
- Monitor regulatory developments
- Continue stakeholder engagement and studies to support future filings
- Investigate the feasibility of onshore wind for future IRPs

2024 IRP Update PSC Schedule

Schedule Item	Date	Days Between
Santee Cooper's IRP Update filed with the Commission	September 16, 2024	
ORS to File a Report regarding Santee Cooper's IRP Update	January 14, 2025	120
Intervenors/Other Parties of Record to File Comments Regarding Santee Cooper's IRP Update	February 14, 2025	31
Santee Cooper's Reply Comments in Response to ORS's Report and All Other Parties' Comments to ORS' Report	March 14, 2025	28
Proposed Order Due	March 24, 2025	10
Commission Issues Final Order	TBD	

Docket 2024-18-E for the 2024 IRP Update

- https://dms.psc.sc.gov/Web/Dockets/Detail/118785

PSC – Public Service Commission of South Carolina

Demand Side Management Programs

Steven Roys, Manager Program Development
Santee Cooper

DSM Terms

- Demand Side Management (DSM): Initiatives and programs designed to manage and reduce energy consumption on the customer side of the meter.
- Energy Efficiency (EE) Programs: Objective is to reduce overall energy usage by encouraging customers to upgrade to higher efficiency equipment and/or install other energy-saving measures.
- Demand Response (DR) Programs: Objective is to reduce participants' demand for electricity when Santee Cooper's system demand for electricity is at its highest.

DSM Programs Overview

EmpowerHome (Energy Efficiency - Residential)

- **Smart Energy New Homes**
- **Smart Energy Existing Homes**
- **Home Energy House Calls**
- **Marketplace** *(New!)*
- **Power Partners** *(Coming Soon!)*

EmpowerBusiness (Energy Efficiency - Commercial)

- **Commercial Prescriptive**
- **Small Business Energy Saver**

Empower SmartRewards (Demand Response)

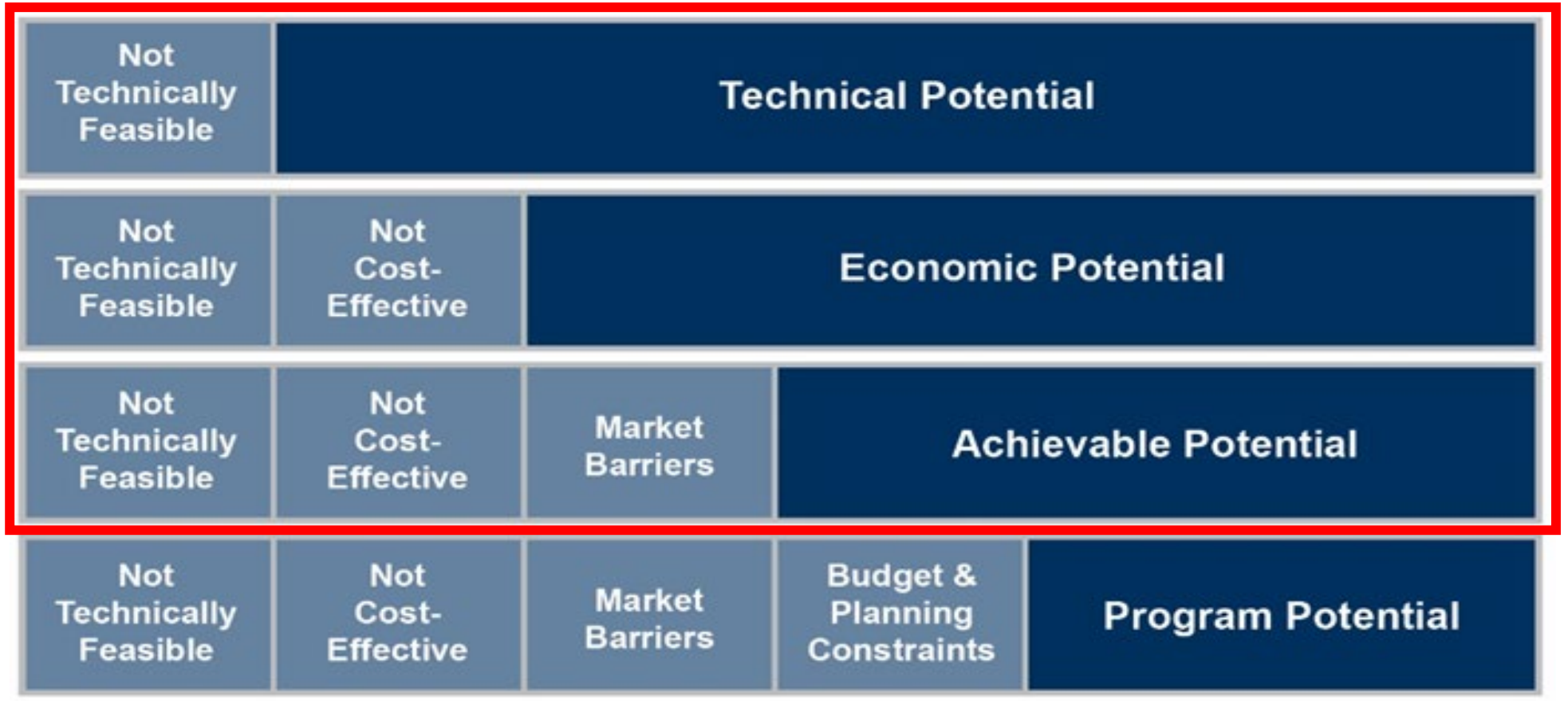
- **Residential Switch Program**

What is a Market Potential Study?

- Definition
  - A Market Potential Study (MPS) estimates the amount of energy efficiency and demand response that could be adopted over time, considering technical, economic, and market factors.

- Purpose
  - Supports resource planning by providing key inputs for evaluating demand-side resources in various IRP scenarios.
  - Helps Santee Cooper plan programs by identifying cost-effective opportunities to reduce energy use and peak demand.

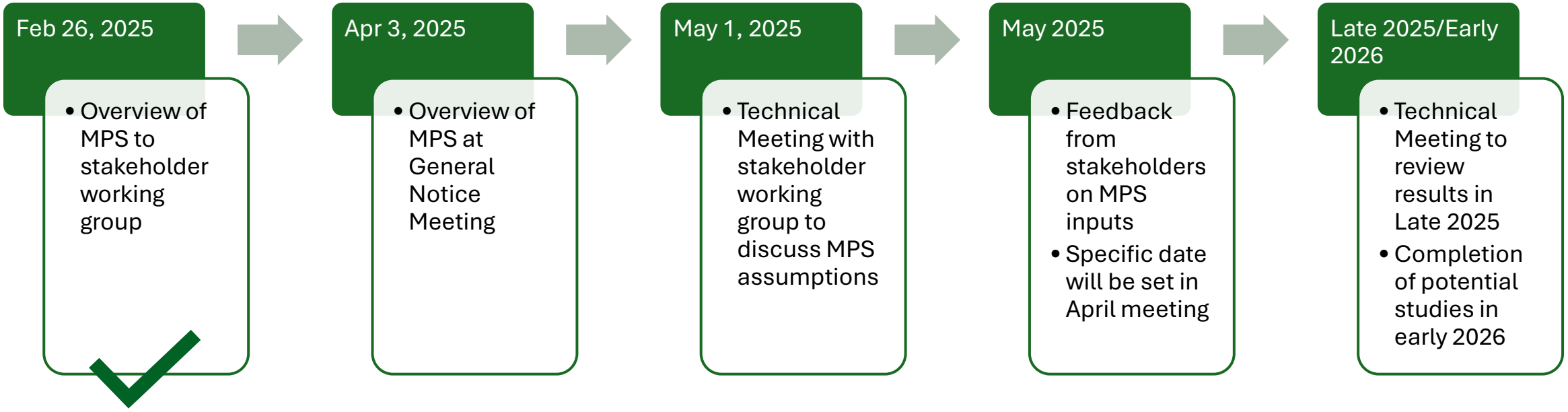
2026 DSM Market Potential Studies



EPA – National Guide for Resource Planning

2026 DSM Market Potential Studies

- We will be completing two separate studies
  - Energy Efficiency study
  - Demand Response study



MPS – Market Potential Study

Meeting Closeout

Stewart Ramsay, Meeting Facilitator
VANRY Associates

Any questions we haven't answered today?

- Comments can be provided:
  - IRP Stakeholder Forum - provide comments, feedback, and post documents at www.santeecooper.com/IRP
  - SanteeCooperIRP@vanry.com - for thoughts and input on meeting structure and engagement
- Meeting summaries and other materials will be posted and made available at www.santeecooper.com/IRP

Thank you!

Do you have more you'd like to share about the session?

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

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