Santee Cooper IRP Stakeholder Process 2024-2026

Coal Retirement Technical Meeting #1 – Meeting Summary

Date: 4/10/2025
Time: 10:30 AM – 12:00 AM EDT
Location: Virtual Meeting via Zoom, Vanry Associates hosting

Topics and Presenters

Technical Session – Coal Retirement Scenarios

Clay Settle, Manager Resource Planning, Santee Cooper

Bob Davis, Executive Consultant, nFront Consulting

Clay Settle opened the meeting by providing a high-level overview of the proposed methodology and schedule for studying retirement of Cross Generating Station. He then went through how the Resource Planning team at Santee Cooper developed potential retirement scenarios for the Transmission Planning team to study and develop cost assumptions. Next, Clay provided the initial builds for each scenario under a full Cross retirement and a partial Cross retirement. Throughout these sections of the presentation, the group had discussions on the retirement methodology, scenario development, and the initial builds. Finally, Clay closed the meeting with a slide providing the next steps for studying Cross retirement. The slide deck presented at the meeting is attached for reference

Meeting Action Items

The following is a summary of action items, with status updates if applicable, agreed to at the close of the meeting.

ACTION ITEMS	RESPONSIBLE PARTY
Santee Cooper requested feedback from stakeholders on the information presented and the proposed next steps prior to the scheduled Coal Retirement Technical Meeting #2 on 5/29/2025. Santee Cooper requested the feedback early enough so that the team could review the feedback and come prepared to discuss.	All Stakeholders

Santee Cooper Resource Planning

Technical Session – Coal Retirement Scenarios

April 10, 2025

Coal Retirement Methodology

Clay Settle, Manager Resource Planning, Santee Cooper
Bob Davis, Executive Consultant, nFront Consulting

Coal Retirement Methodology Discussion

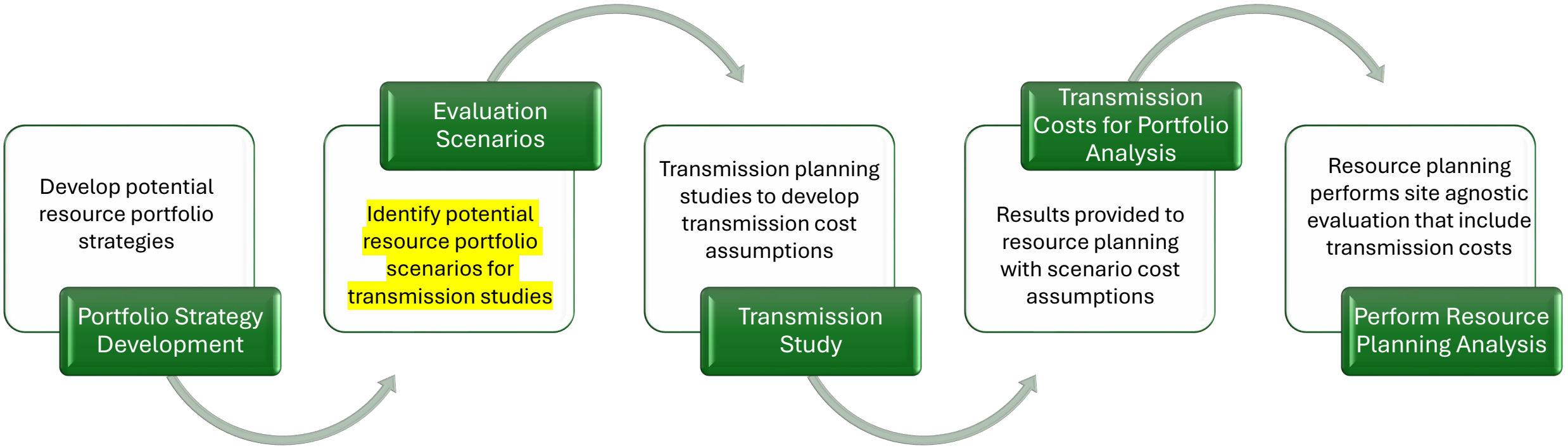
- Santee Cooper plans to retire Winyah Generation Station upon the availability of replacement capacity and the ability to reliably serve system load
- Santee Cooper proposes to evaluate Cross Generation Station Retirement through scenarios
- Santee Cooper proposes to evaluate select years over the study period resulting in a cost curve across the scenarios that will indicate the value of continuing to operate or retire the Cross Generation Station

Initial Study Design Concepts

- Analytics
  - Model chosen retirement date and/or optimized portfolios with date certain retirements (e.g., 2035, 2040, 2045)
  - Assess transmission investment cost impacts
  - Explore sensitivities as necessary to understand impacts of key uncertainties
- Initial scenario concepts
  - Baseline (no retirement during study period)
  - Cross Retirement (retire full plant, retire Cross Units 1&2)
    - Unconstrained capacity expansion
    - No gas generation after a specific data (e.g. 2035) vs. no gas generation but allow peaking combustion turbines after that date
    - Small Modular Reactor (SMR) replacement

Cross Retirement Methodology Discussion

The methodology will utilize the typical process for establishing portfolio scenarios, requesting transmission studies, and resource planning



Cross Retirement Methodology Discussion

- Cross Retirement Study Schedule
  - Transmission Study Scenario Development: January - March 2025
  - Transmission Studies: March - August 2025
  - Cross Retirement Evaluation: September 2025 - March 2026
- Potential areas for Stakeholder feedback
  - Scenario and sensitivity design
  - Technologies to consider
  - Others?

Scenario Development

Scenario Development

- Utilized Encompass 2024 IRP Update assumptions and Encompass database except for as noted
- Resource Decisions for Cross Retirement Scenarios
  - Retirements
    - Winyah assumed retired year end 2030
    - Myrtle Beach and Hilton head units assumed retired year end 2033
    - Cross assumed retired year end 2034 (Full and Partial Scenarios)
  - Resources assumed to meet capacity prior to Cross retirement
    - Resources in 2024 Portfolio Update between 2027-2031 from 2024 IRP Update assumed to meet load growth prior to Cross retirement
  - Renewable annual builds
    - Solar limited to 300 MW/yr target, also considered Relaxed Renewable case limiting solar to 600 MW/yr target
    - Onshore wind limited to 100 MW/yr target up to 500 MW total, also considered Relaxed Renewable case limiting onshore wind to 200 MW/yr target up to 1000 MW total

Scenarios Development

Resource	Capacity Additions (Retirements) (MW)						
	No Cross Retirement	Optimized	Renewables Only	Relaxed Renewables Only	Renewables, Allow Peaking	Relaxed Renewables, Allow Peaking	Nuclear
NGCC	Unconstrained	Unconstrained	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
CT	Unconstrained	Unconstrained	Unavailable	Unavailable	Unconstrained	Unconstrained	Unavailable
Aeroderivative	Unconstrained	Unconstrained	Unavailable	Unavailable	Unconstrained	Unconstrained	Unavailable
BESS	Unconstrained	Unconstrained	Unconstrained	Unconstrained	Unconstrained	Unconstrained	Unconstrained
Solar (MW/yr)	300	300	300	300 (‘26-’30) 600 (‘31 –’52)	300	300 (‘26-’30) 600 (‘31 –’52)	300
Onshore Wind (MW/yr)	100 Total 500 MW	100 Total 500 MW	100 Total 500 MW	200 Total 1000 MW	100 Total 500 MW	200 Total 1000 MW	100 Total 500 MW
Offshore Wind (MW/yr)	100	100	100	100	100	100	100
Nuclear	Unconstrained	Unconstrained	Unconstrained	Unconstrained	Unconstrained	Unconstrained	Forced Cross Replacement w/ Nuclear

Full Cross Retirement Scenarios

Resource	Capacity Additions (Retirements) (MW)						
	No Cross Retirement	Optimized	Renewables Only	Relaxed Renewables Only	Renewables, Allow Peaking	Relaxed Renewables, Allow Peaking	Nuclear
New NGCC							
• 2031-2034	1,020	1,020	1,020	1,020	1,020	1,020	1,020
• 2035	0	2,034	0	0	0	0	0
New Peaking							
• 2031-2034	1,150	894	894	894	1,385	804	1,284
• 2035	0	447	0	0	1,073	1,520	0
New SMR							
• 2031-2034	0	0	0	0	0	0	0
• 2035	0	0	0	0	0	0	2,050
New Solar							
• 2026-2034	2,200	1,900	2,700	3,600	2,700	2,350	1,500
• 2035	0	0	300	600	300	550	0
New BESS							
• 2026-2034	300	300	250	250	250	250	250
• 2035	0	0	3,700	3,500	1,050	1,100	50
New Wind							
• 2029-2034	0	150	400	800	400	800	0
• 2035	0	100	100	200	100	200	0

Full Cross Retirement Scenarios

	No Cross Retirement	Optimized	Renewables Only	Relaxed Renewables Only	Renewables, Allow Peaking	Relaxed Renewables, Allow Peaking	Nuclear
NPV Power Costs (2024 $B, 2024-2052)	**29.4**	**31.3**	36.5	34.4	33.8	**33.1**	**35.1**
Difference	**(1.84)**		5.25	3.12	2.54	**1.81**	**3.79**
CO2 Emissions (2050) Percent of 2005 Levels	**43%**	**23%**	16%	14%	22%	**21%**	**13%**
Difference	**20%**		(7%)	(9%)	(1%)	**(2%)**	**(10%)**

- Scenarios to be evaluated by transmission
  - No Cross Retirement
  - Optimized
  - Relaxed Renewables, Allow Peaking
  - Nuclear

Cross 1&2 Retirement Scenarios

Resource	Capacity Additions (Retirements) (MW)						
	No Cross Retirement	Optimized	Renewables Only	Relaxed Renewables Only	Renewables, Allow Peaking	Relaxed Renewables, Allow Peaking	Nuclear
New NGCC							
• 2031-2034	1,020	1,020	1,020	1,020	1,020	1,020	1,020
• 2035	0	1,360	0	0	0	0	0
New Peaking							
• 2031-2034	1,150	894	894	894	894	894	958
• 2035	0	0	0	0	894	939	0
New SMR							
• 2031-2034	0	0	0	0	0	0	0
• 2035	0	0	0	0	0	0	1,367
New Solar							
• 2026-2034	2,200	1,750	2,700	2,700	2,650	2,000	1,500
• 2035	0	0	0	0	0	0	0
New BESS							
• 2026-2034	300	250	250	250	250	250	250
• 2035	0	0	1,950	2,050	300	250	0
New Wind							
• 2029-2034	0	200	300	300	400	400	0
• 2035	0	0	100	100	100	100	0

Cross 1&2 Retirement Scenarios

	No Cross Retirement	Optimized	Renewables Only	Relaxed Renewables Only	Renewables, Allow Peaking	Relaxed Renewables, Allow Peaking	Nuclear
NPV Power Costs (2024 $B, 2024-2052)	**29.4**	**30.3**	31.5	31.4	30.5	**30.5**	**32.9**
Difference	**(0.90)**		1.20	1.05	0.22	**0.16**	**2.55**
CO2 Emissions (2050) Percent of 2005 Levels	**43%**	**30%**	28%	27%	34%	**34%**	**23%**
Difference	**13%**		(2%)	(3%)	4%	**4%**	**(7%)**

- Scenarios to be evaluated by transmission
  - No Cross Retirement
  - Optimized
  - Relaxed Renewables, Allow Peaking
  - Nuclear

Next Steps

Next Steps

- Cross Retirement Study Schedule
  - Transmission Study Scenario Development: January - March 2025
  - Transmission Studies: March - August 2025
  - Cross Retirement Evaluation: September 2025 - March 2026
- Potential areas for Stakeholder feedback
  - May 29 - Coal Retirement Technical Session
  - Email – please include specific request in email