

South Carolina Public Service Authority

Presentation to:

Public Service Authority Evaluation
and Recommendation Committee

September 5, 2018



Agenda

- **Cost and Rate Development**
- **Santee Cooper Hydroelectric Project**
- **Parks, Conference Centers & Economic Development**
- **Water Systems**
- **Nuclear**
- **Other**

Cost and Rate Development

What do we mean when we say “Cost of Service Rates”?



***Cost-of-service* may be defined as the amount of revenue a company must collect from *rates* charged consumers to recover the *cost* of doing business.**

Uniform System of Accounts



Santee Cooper uses the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts to maintain the books and records for the Electric System

- **This is the system of accounts used by most electric utilities**
- **Allows utilities to report consistently (FERC and Energy Information Administration reports)**
- **Provides detailed descriptions of what assets, liabilities, expenses and income should be charged to each account**
- **Utilities frequently use this system of accounts to categorize costs when developing rates**

There is a similar uniform system of accounts typically used by water utilities prescribed by the National Association of Regulatory Commissioners (NARUC). Santee Cooper uses NARUC for the two Water Systems.

Santee Cooper Electric System: Overview of Cost Components



COST OF SERVICE REVENUE REQUIREMENTS

- Fuel & Purchased Power
- + Non-Fuel O&M
- + Debt Service
- + Payment to State & Sums in Lieu (PTS, SIL)
- + Working Capital (WC)

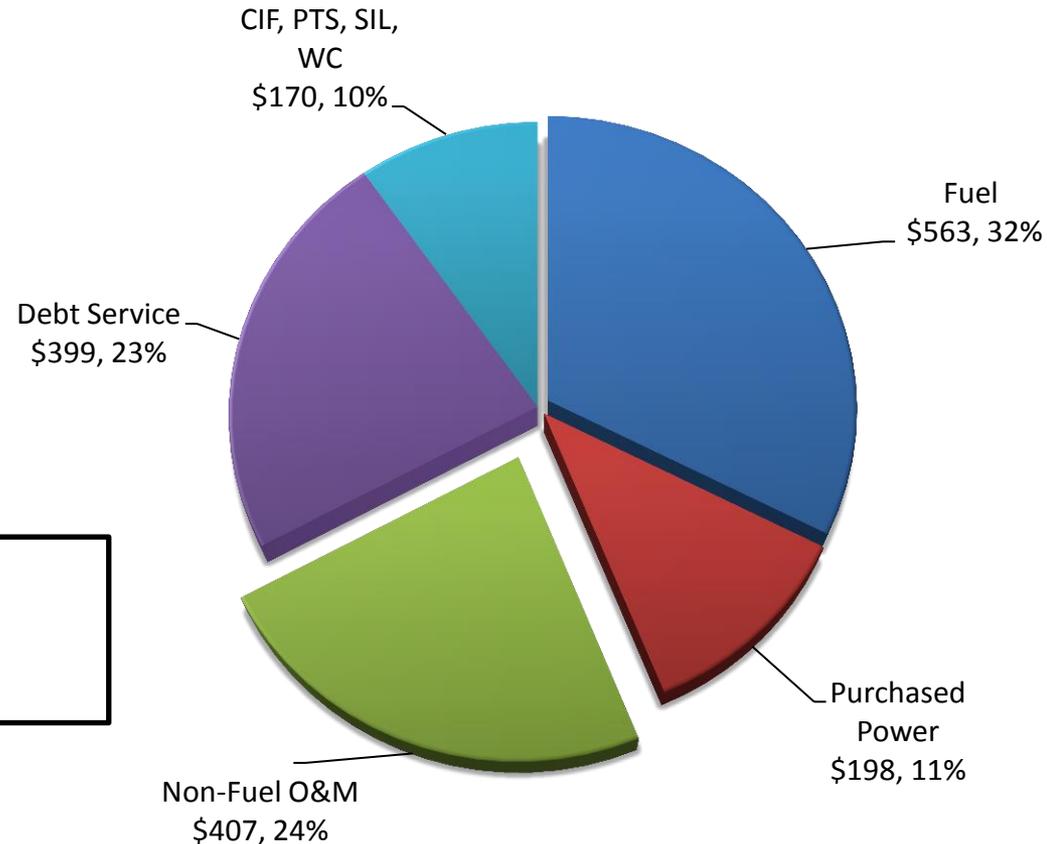
- Subtotal
- + Capital Improvement Fund (CIF)

- Total Revenue Requirement ("Cost")

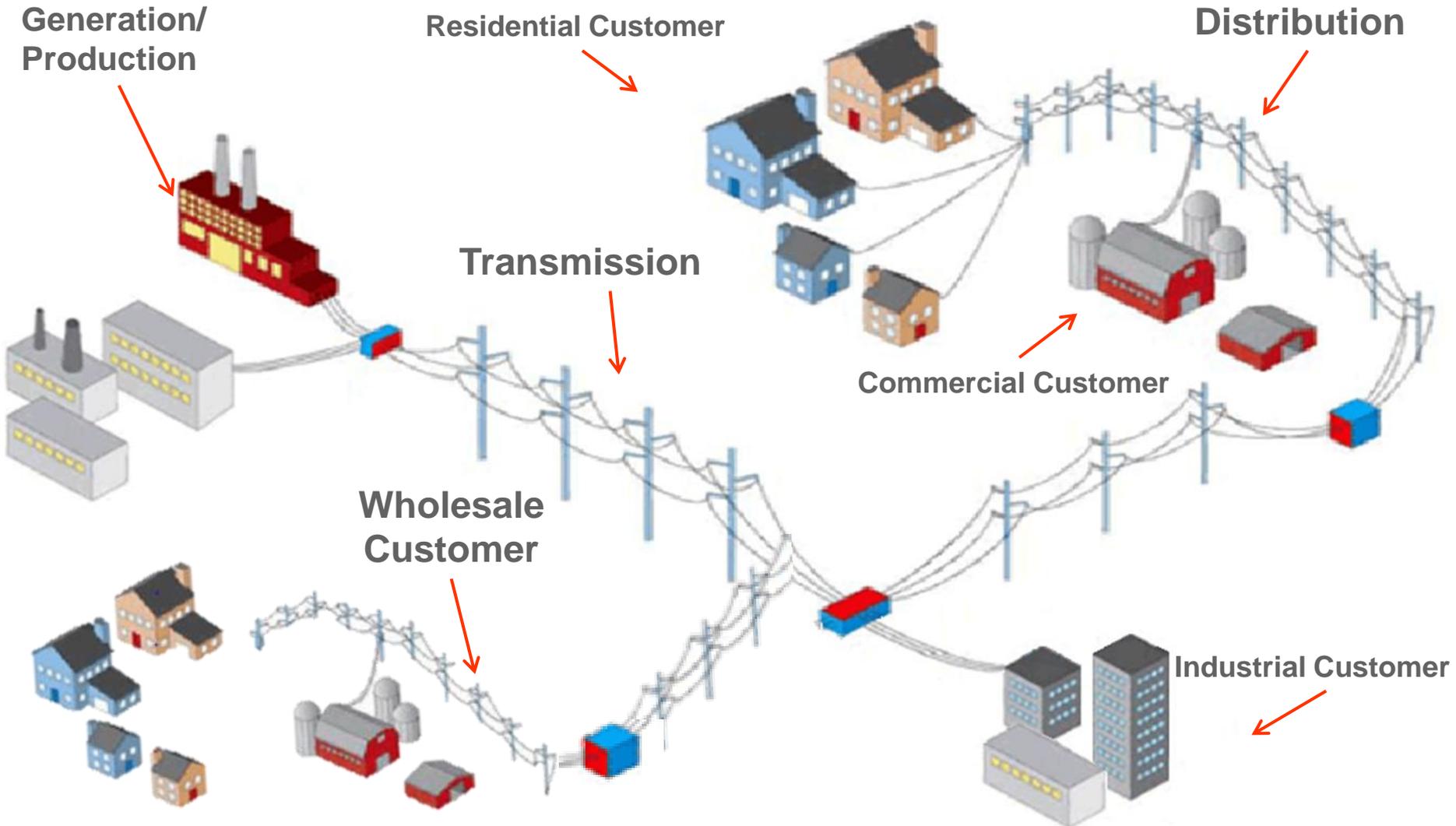
<u>2017 Total Revenue Requirement</u> (millions) \$1,737
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2017 Cost Components

(millions)



What does it mean to functionalize costs?



Breakdown of Expenses based on FERC Accounts



FERC accounts break expenses into major utility functions

- **Power Production**
 - Further broken down to Steam Power, Nuclear Power, Hydro Power and Other
 - Includes Fuel and Purchased Power
- **Transmission**
- **Distribution**
- **Customer Accounts**
- **Customer Service and Informational Expenses**
- **Sales Expense**
- **Administrative and General**

Historical Fuel, Purchased Power & Non-Fuel O&M



	2017	2016	2015
FUEL & PURCHASED POWER	\$ 760,696,099	\$ 775,737,065	\$ 906,954,226
NON-FUEL O&M			
Production O&M - Non-Fuel			
GENERATORS			
Cross Generation	\$ 79,499,096	\$ 86,806,966	\$ 84,468,730
Winyah Generation	52,979,034	57,079,750	55,523,664
Jefferies Generation	794,183	877,352	947,778
Grainger Generation	220,995	70,777	280,435
Rainey	12,752,193	13,106,402	19,055,486
Nuclear Power Generation	62,048,103	65,778,445	62,032,758
Myrtle Beach Generation	487,885	244,495	299,575
Hilton Head Generation	296,866	255,184	184,485
Hydro - Jefferies & Spillway	10,934,829	10,568,938	9,973,961
Other Common	874,100	625,687	565,714
Renewable Landfills ¹	3,860,256	3,498,076	4,347,533
TOTAL Production O&M - Non-Fuel	\$ 224,747,539	\$ 238,912,074	\$ 237,680,120
Transmission	\$ 32,761,572	\$ 33,766,521	\$ 35,424,483
Distribution	\$ 15,378,609	\$ 15,865,142	\$ 15,339,958
Customer Service & Accounts and Sales	\$ 28,111,578	\$ 26,636,048	\$ 28,792,355
Administrative & General	\$ 105,647,661	\$ 98,005,867	\$ 93,170,631
TOTAL NON-FUEL O&M	\$ 406,646,959	\$ 413,185,652	\$ 410,407,547
TOTAL OPER & MAINTENANCE	\$ 1,167,343,057	\$ 1,188,922,717	\$ 1,317,361,773

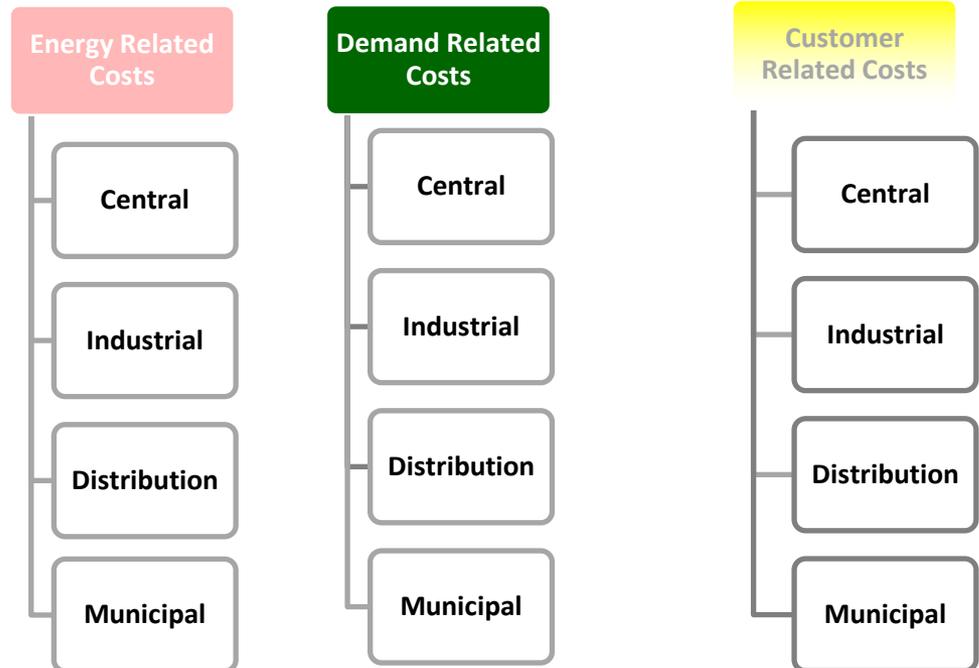
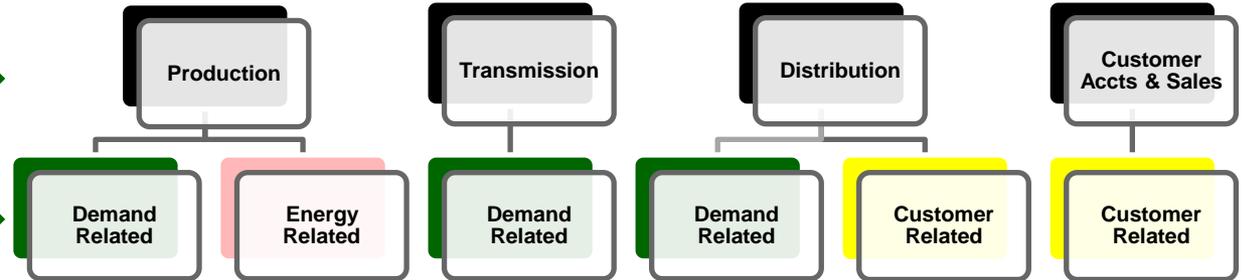
¹ Includes Georgetown County, Richland County, Lee County, Anderson County, Horry County, and Berkeley County landfills.

Three Basic Steps to Ratemaking

STEP 1: FUNCTIONALIZATION

STEP 2: CLASSIFICATION

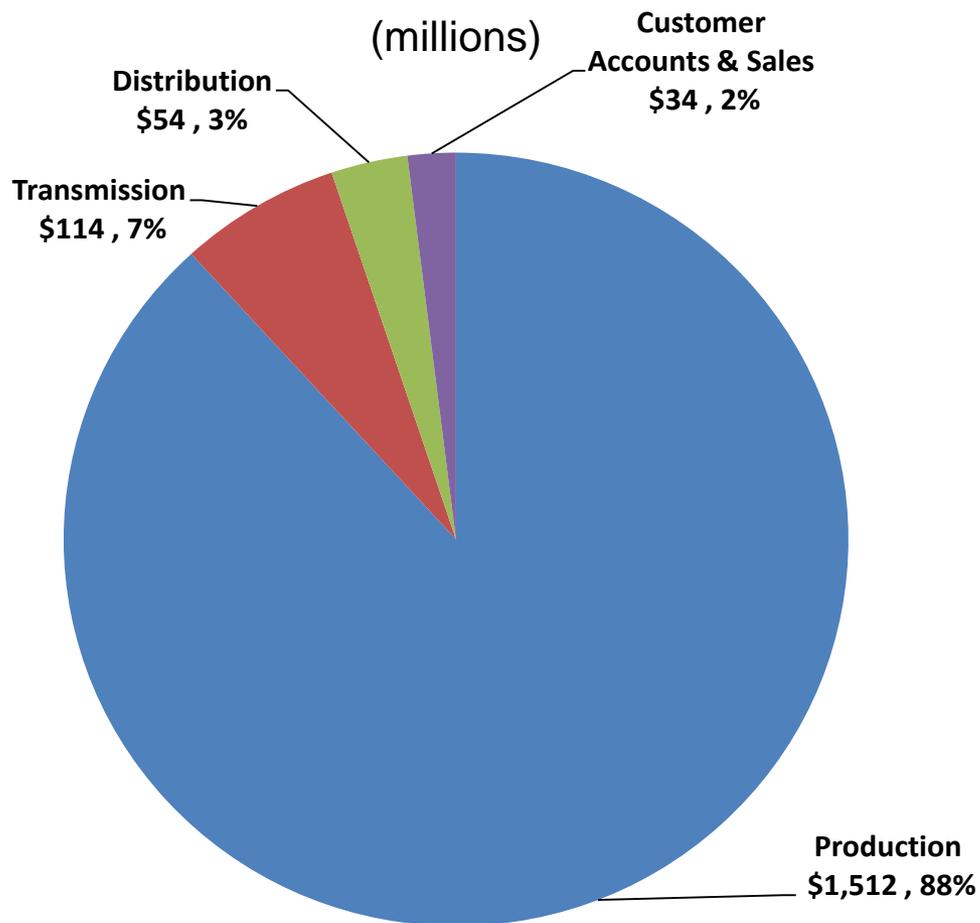
STEP 3: ALLOCATION



2017 Net Electric System Revenue Requirement by Function¹



\$1,714 million

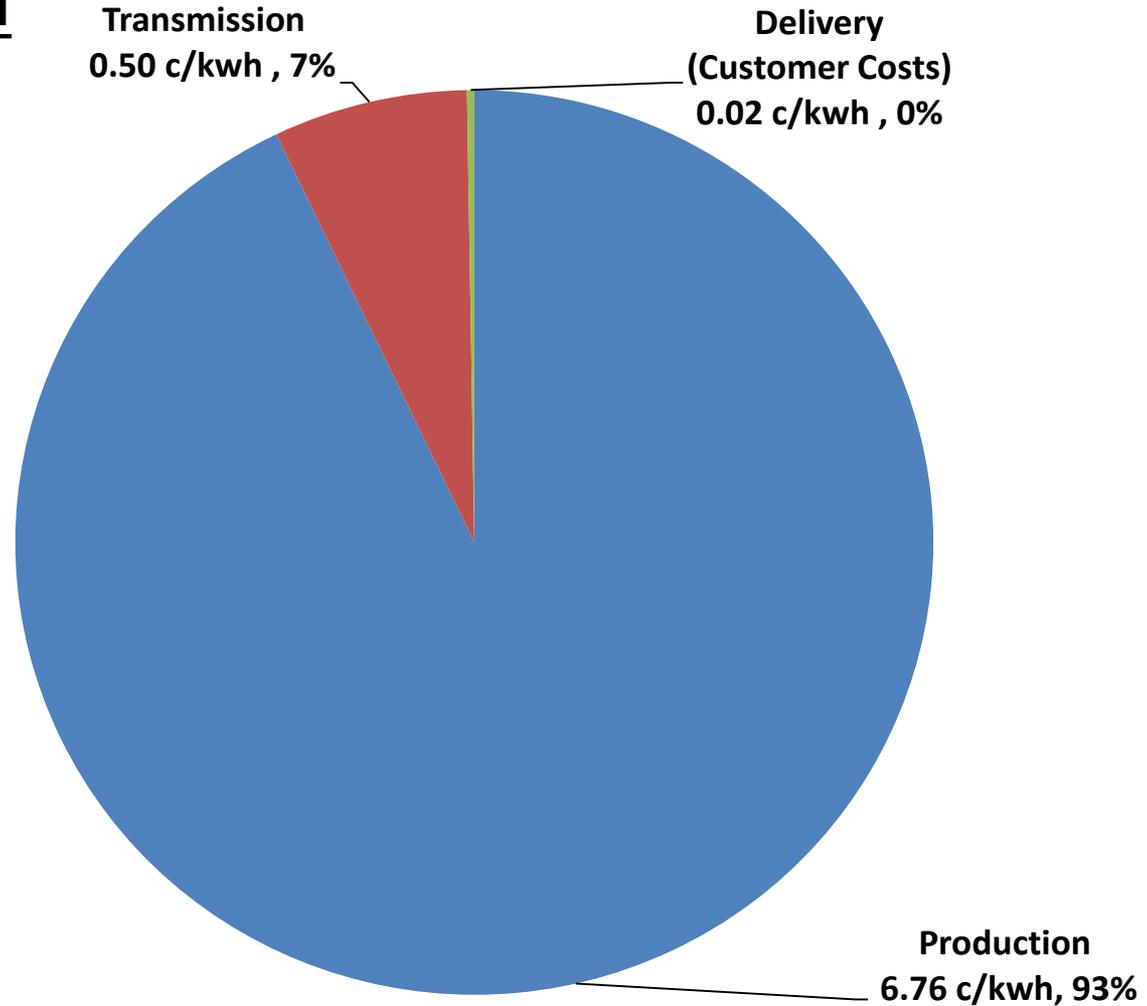


¹ Net of other income and revenues of \$22.6 million, which includes \$11.4 million of interest income.

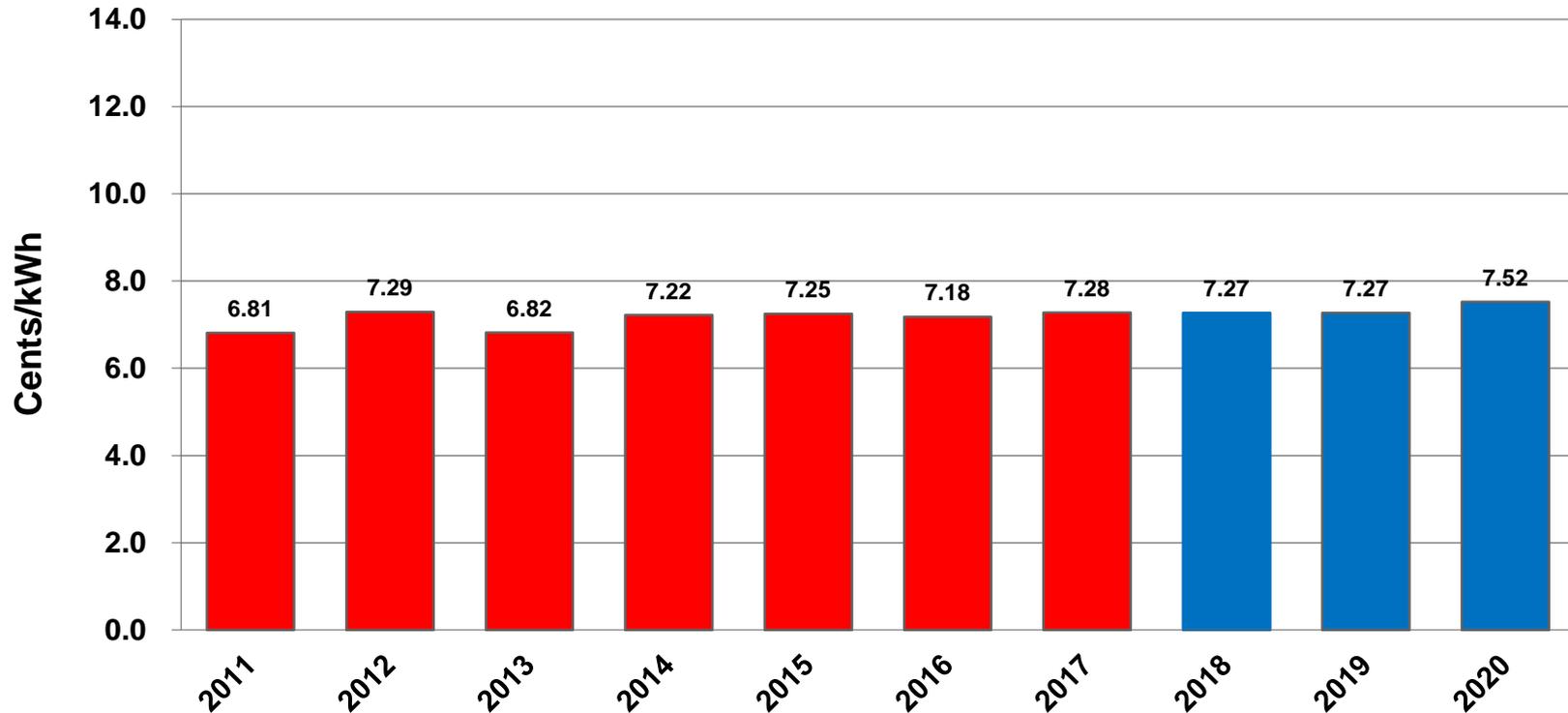
Central 2017 Cost of Power



7.28 c/kwh



Central Cost of Power ^{(1) (2) (3) (4)}



(1) Rates include line losses and DSM credits

(2) 2018 projected includes 6 months of actuals

(3) 2019-2020 projections based on Central 2018 Cost of Service.

(4) The average annual inflation rate for the period shown was 1.7%.



Hydro FERC Accounts



FERC Accounts 535-545 are for recording the operating & maintenance cost of hydraulic power generation. By definition these accounts include:

- Costs incurred in operating hydraulic works including reservoirs, dams, and waterways, and in activities directly relating to the hydroelectric development outside the generating station. It shall also include the cost of labor, materials used and other expenses incurred in connection with the operation of (a) fish and wildlife, and (b) recreation facilities.

Hydroelectric Project Non-Fuel O&M & Revenues



	2017	2016	2015
Expenses			
Hydro -Production	\$ 10,934,829	\$ 10,568,938	\$ 9,973,961
Hydro -A&G	812,086	986,567	858,417
Total Hydro Non-Fuel O&M	\$ 11,746,914	\$ 11,555,506	\$ 10,832,378
Revenues			
Leased Lots	\$ 1,111,703	\$ 1,033,002	\$ 960,849
Timber Sales	238,985	573,914	84,575
Total Revenue	\$ 1,350,688	\$ 1,606,916	\$ 1,045,425

SC Hydroelectric Project

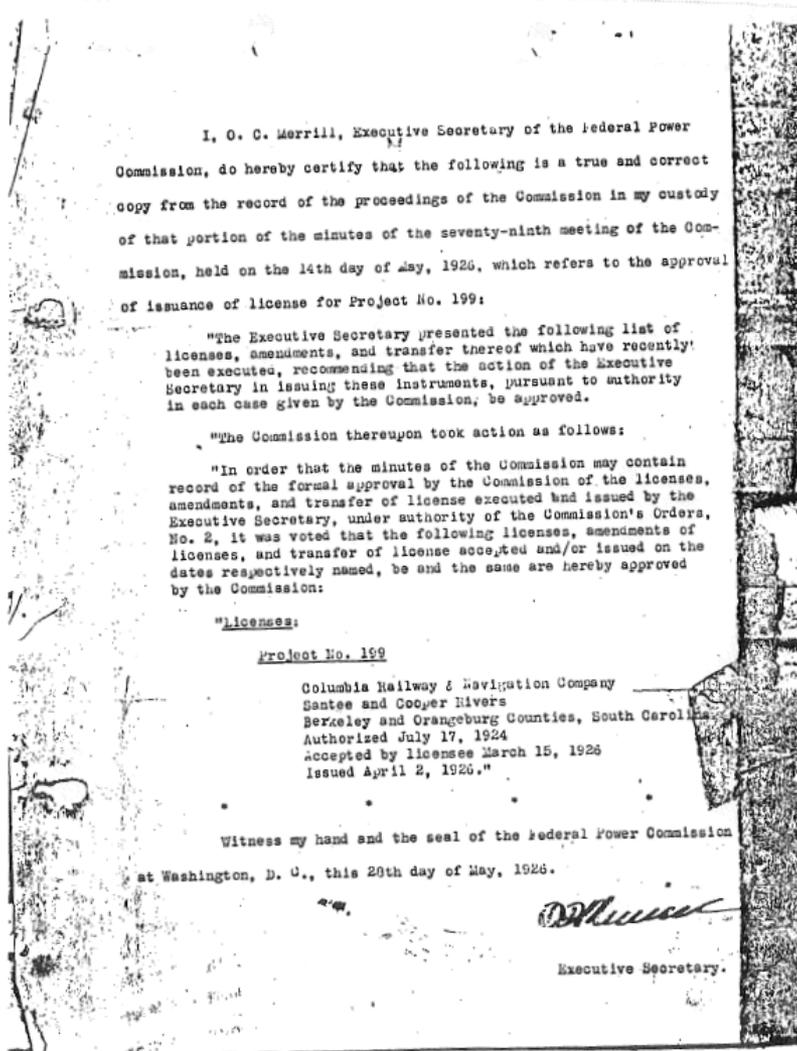
- Federal Energy Regulatory Commission
- Santee Cooper Project
- FERC License Requirements
- Relicensing

The Federal Energy Regulatory Commission (FERC) licenses and inspects private, municipal, and state hydroelectric projects. (18 CFR Part 4)

Under the Federal Power Act, hydropower projects must be licensed, or granted an exemption from licensing if the project:

- Is located on a navigable waterway of the United States;
- Occupies lands of the United States;
- Uses surplus water or waterpower from a government dam; or
- Is located on a stream over which Congress has Commerce Clause jurisdiction, is constructed or modified on or after August 26, 1935, and affects the interests of interstate or foreign commerce.

FERC License



- The FPC was established by Congress in 1920 to coordinate hydroelectric projects under federal control.
- On April 2, 1926 the Federal Power Commission (FPC) issued a license for Project No. 199 to the Columbia Railway & Navigation Company. The license was subsequently transferred it to the South Carolina Public Service Authority.
- In 1977, Congress reorganized the FPC as the Federal Energy Regulatory Commission (FERC).

FERC License



- Original 50 year license issued April 2, 1926.
- Current 30 year license issued May 9, 1979 until March 31, 2006.
- License renewal application submitted January 5, 2004.
- Operating under annual license renewals since 2006
- The terms and conditions of the License Order are outlined in 61 Articles and a 1986 Order approving a Comprehensive Emergency Action Plan.

FERC License Options



- Renew the License
- Surrender the License
- Transfer the License

Santee Cooper Project



The Hydropower Project affects navigable waters of the United States and United States lands in the Francis Marion National Forest

It is located on the Santee and Cooper Rivers in Berkeley, Calhoun, Clarendon, Orangeburg, and Sumter Counties.

The Project includes the 110,000 Acre Lake Marion impounded by the Santee Dams on the Santee River; the adjacent 56,500 Acre Lake Moultrie impounded by the Pinopolis Dam and several dikes; and, a 7.5 mile-long diversion canal connecting the two reservoirs.

Project Works



License Requirements



- 1) Hydroelectric Generation
- 2) Navigation
- 3) Aquatic Weed Control
- 4) Vector Control
- 5) Water Quality Monitoring
- 6) Land Management & Use Classifications
- 7) Forest Management
- 8) Wildlife Habitat
- 9) Recreation
- 10) Public Access & Boat Landings
- 11) Public Safety and Security
- 12) Lake Management
- 13) Dam Safety

Hydroelectric Generation

“Hydropower, generated mainly from hydroelectric dams, is a clean, renewable, non-emitting source of energy that provides low-cost electricity and helps reduce carbon emission. It is more efficient than any other form of electricity generation and offsets more carbon emissions than all other renewable energy sources combined.”

~House Committee on Natural Resources

Key Project Purpose:

- Jefferies Generating Station 140 Mw
- Santee Spillway Generating Station 2 Mw
- *St. Stephen, Corps of Engineers 84 Mw

*Owned and operated by COE, outside FERC jurisdiction.

License Requirements

Navigation – Article 12, 23 & 25

The project made navigation possible from Charleston to Fort Motte.

- Pinopolis Lock



- Navigation Channel



License Requirements

Aquatic Weed Control – Article 51

In 1974 the SC General Assembly passed a joint resolution calling for Santee Cooper to do everything in its power to “remove noxious weeds and grasses from the Santee Cooper Lakes.”



1940s targeting Alligatorweed



1970s targeting Brazilian Elodea

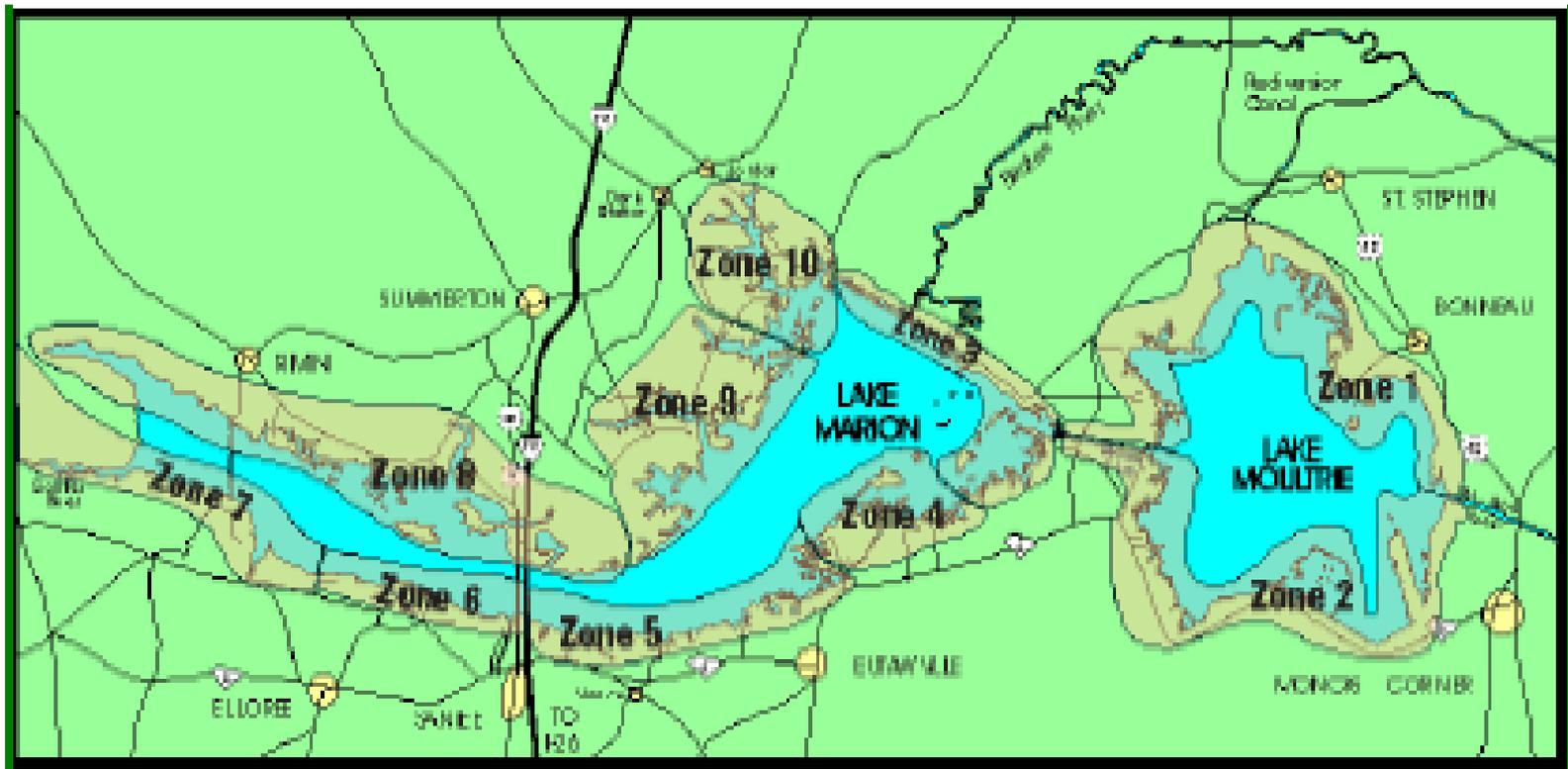
License Requirements

Vector Control – Article 44

By 1948 there was not a single reported case of malaria in any of the counties around the Santee Cooper Lakes.



Vector Control Zones



License Requirements

Water Quality Monitoring – Article 47

- Depth
- pH
- DO
- Temperature
- Specific Cond.
- Secchi Disc
- Turbidity
- TSS
- E.coli
- Ammonia
- Nitrate
- Nitrite
- Total Phosphorus
- Chloride
- Sulfate
- Phytoplankton
- Chlorophyll
- Stream Flow



- TKN
- Mercury
- Bromide
- Fluoride
- Arsenic
- Cadmium
- Calcium
- Chromium
- Copper
- Iron
- Lead
- Zinc
- Sodium
- Potassium
- Manganese
- Magnesium
- Hardness
- Selenium

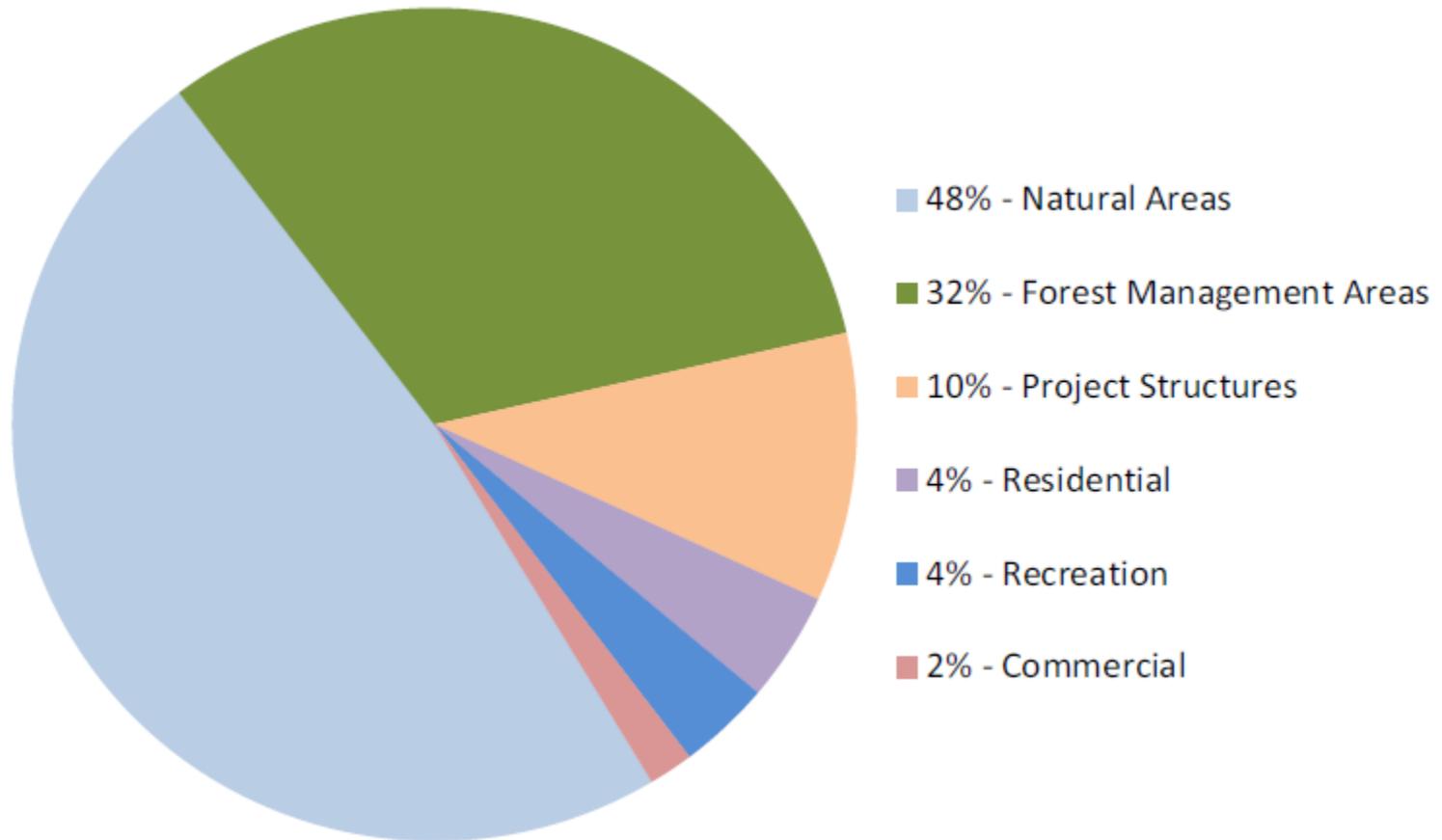
License Requirements

Land Management - Article 41, 45, 49 & 61

- Requires review and management of Project lands for authorized and unauthorized use within the Project boundary or affecting Project lands and water
- Inspect for compliance with rules, regulations, lease provisions, setbacks and covenants



Land Use Classifications – Article 13, 48 & 50



License Requirements

Forest Management – Article 20, 27 & 34

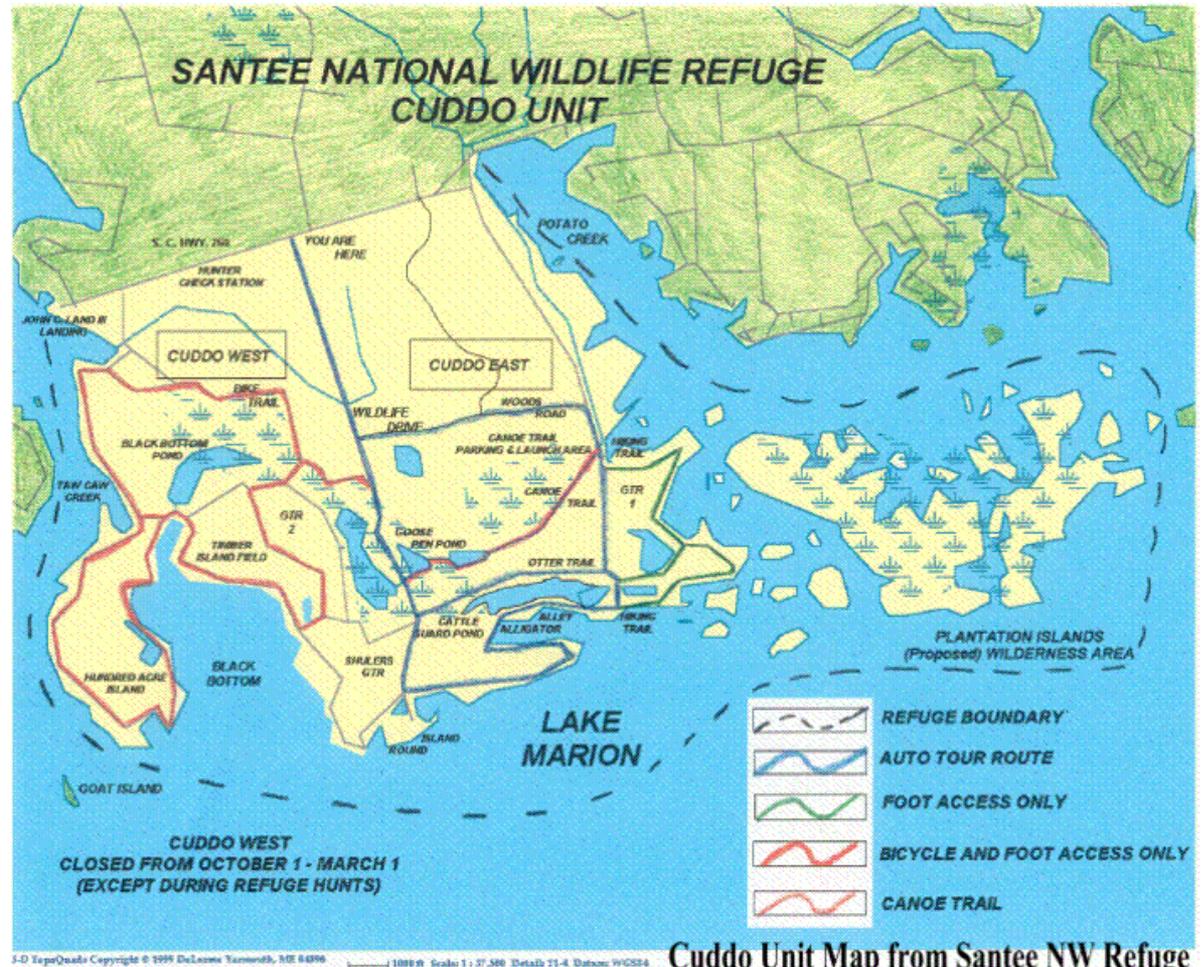
- Approximately 25,500 acres of forest land are associated with lakes.
- An additional 18,000 acres +/- of undeveloped land are in the Upper Santee Swamp which is outside of the Project Boundary



License Requirements

Wildlife Habitat Article 15, 16, 59 & 60

Over 11,700 acres (10% of project lands) are dedicated to Natural Areas and are non-developable.



Cuddo Unit Map from Santee NW Refuge

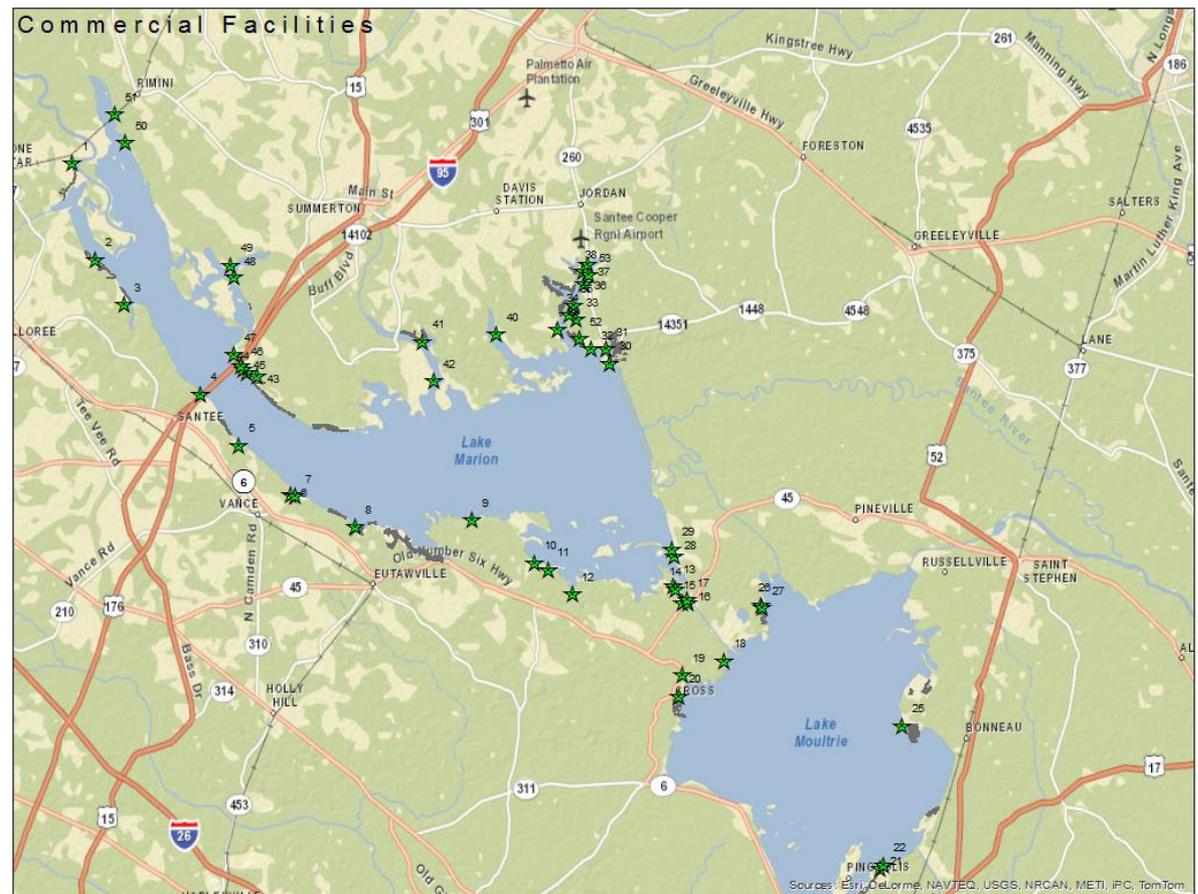
License Requirements

Recreation - Article 17, 18, 43, & 57

53 Commercial Facilities with campgrounds, marinas, and boat landings

38 Fish attraction sites within the lake to improve fishing opportunities

34 Public recreation sites with access for fishing, hunting & boating.



License Requirements

Recreation & Tourism

The five counties around the lakes realized **\$415 million** in tourism revenues in **2016**, tourism-related employment numbered **3,750 jobs** and the annual payroll totaled **\$69.6 million**.



License Requirements



Public Access and Boat Landings



Santee Cooper Subdivisions	County
1. Low Falls	Calhoun
2. High Hill	Calhoun
3. Calhoun	Calhoun
4. Bluff	Orangeburg
5. Bluff View	Orangeburg
6. Mill Creek	Orangeburg
7. Red Bank II	Orangeburg
8. Red Bank I	Orangeburg
9. St. Julien Extension, Section I	Orangeburg
10. St. Julien Extension	Orangeburg
11. St. Julien	Orangeburg
12. Fountains	Orangeburg
13. Fountains Lake	Orangeburg
14. Belvedere II	Orangeburg
15. Belvedere III	Orangeburg

Santee Cooper Subdivisions	County
16. Belvedere	Orangeburg
17. Sinkler	Orangeburg
18. Eustaw Springs	Orangeburg
19. Division Canal	Berkeley
20. Cross	Berkeley
21. Thornley Forest Section II	Berkeley
22. Thornley Forest	Berkeley
23. Thornley Extension	Berkeley
24. Thornley	Berkeley
25. Overton	Berkeley
26. DuBois	Berkeley
27. DuBois Extension	Berkeley
28. Live Oak	Berkeley
29. Black Oak	Berkeley
30. Boneau Park	Berkeley

Santee Cooper Subdivisions	County
31. General Moultrie I	Berkeley
32. General Moultrie II	Berkeley
33. Halls	Clarendon
34. Davis	Clarendon
35. Clark	Clarendon
36. Church Branch	Clarendon
37. Wyboo	Clarendon
38. Frierson	Clarendon
39. White Oak III	Clarendon
40. White Oak II	Clarendon
41. White Oak I	Clarendon
42. Rowland	Clarendon
43. West Wyboo	Clarendon
44. Gin Pond	Clarendon
45. W.B. Davis Jr.	Clarendon

Santee Cooper Subdivisions	County
46. Taw Can	Clarendon
47. Francis Marion	Clarendon
48. Prince, Extension III	Clarendon
49. Prince	Clarendon
50. Prince, Extension II	Clarendon
51. Canley Bay	Clarendon



Public Safety and Security – Article 40

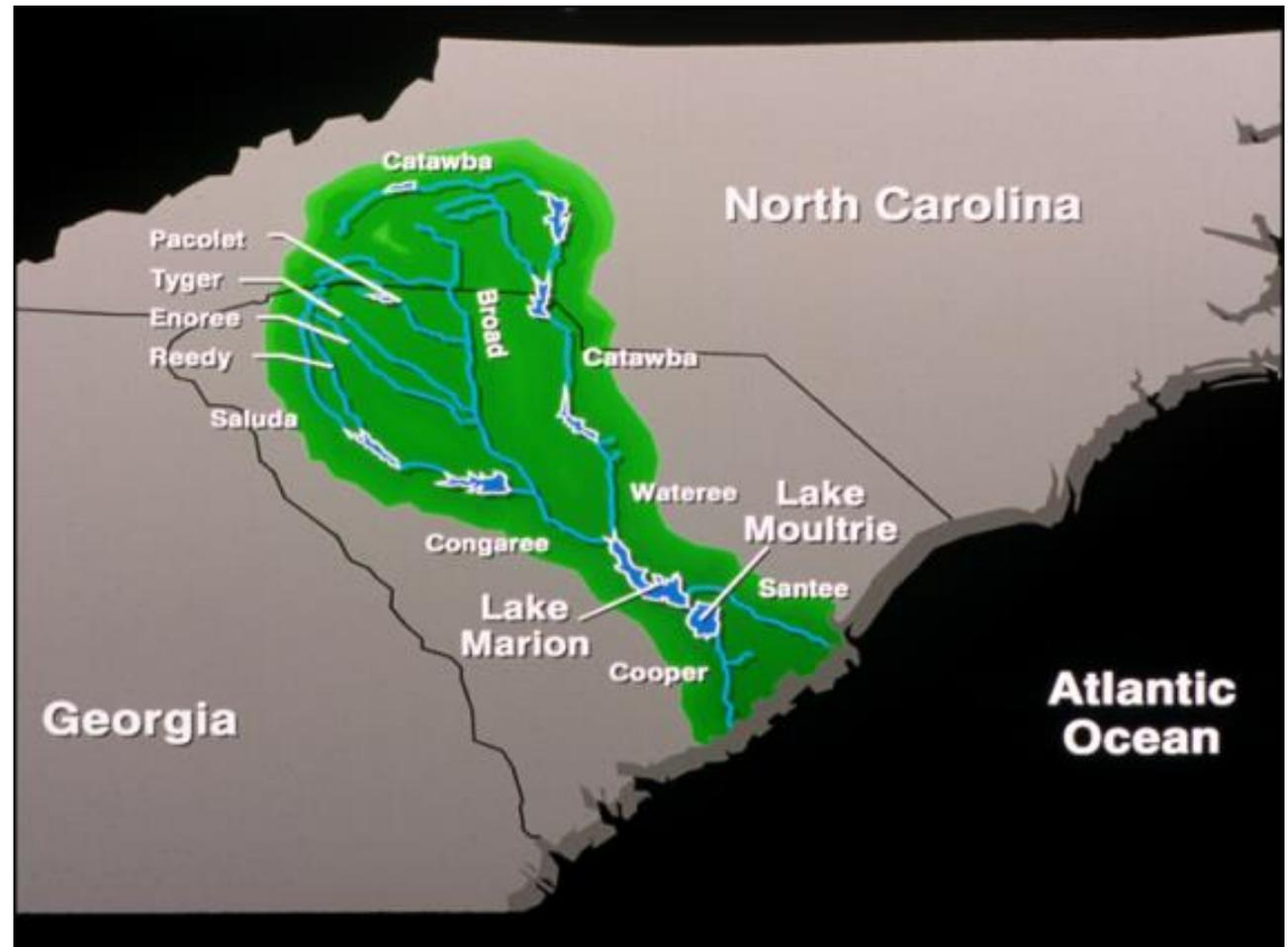
Maintain a Public Safety Plan and report a project safety condition or public safety event when it is discovered.

Licensees must file an annual security certification letter with FERC.



License Requirements

Lake Management – Article 8, 10, 19, 20, 21, 42, 46



License Requirements

Spillway Operation to Manage Levels & Flows



Minimum Flow = 650 cfs

Flood Flow = 35,500 cfs



License Requirements

Dam Safety – Article 29, 38 & 54

FERC regulates both the construction and operation of hydropower projects.

Dam Safety is a critical part of FERC review.

Hydroelectric Facilities are classified as Critical Energy Infrastructure and information is protected.

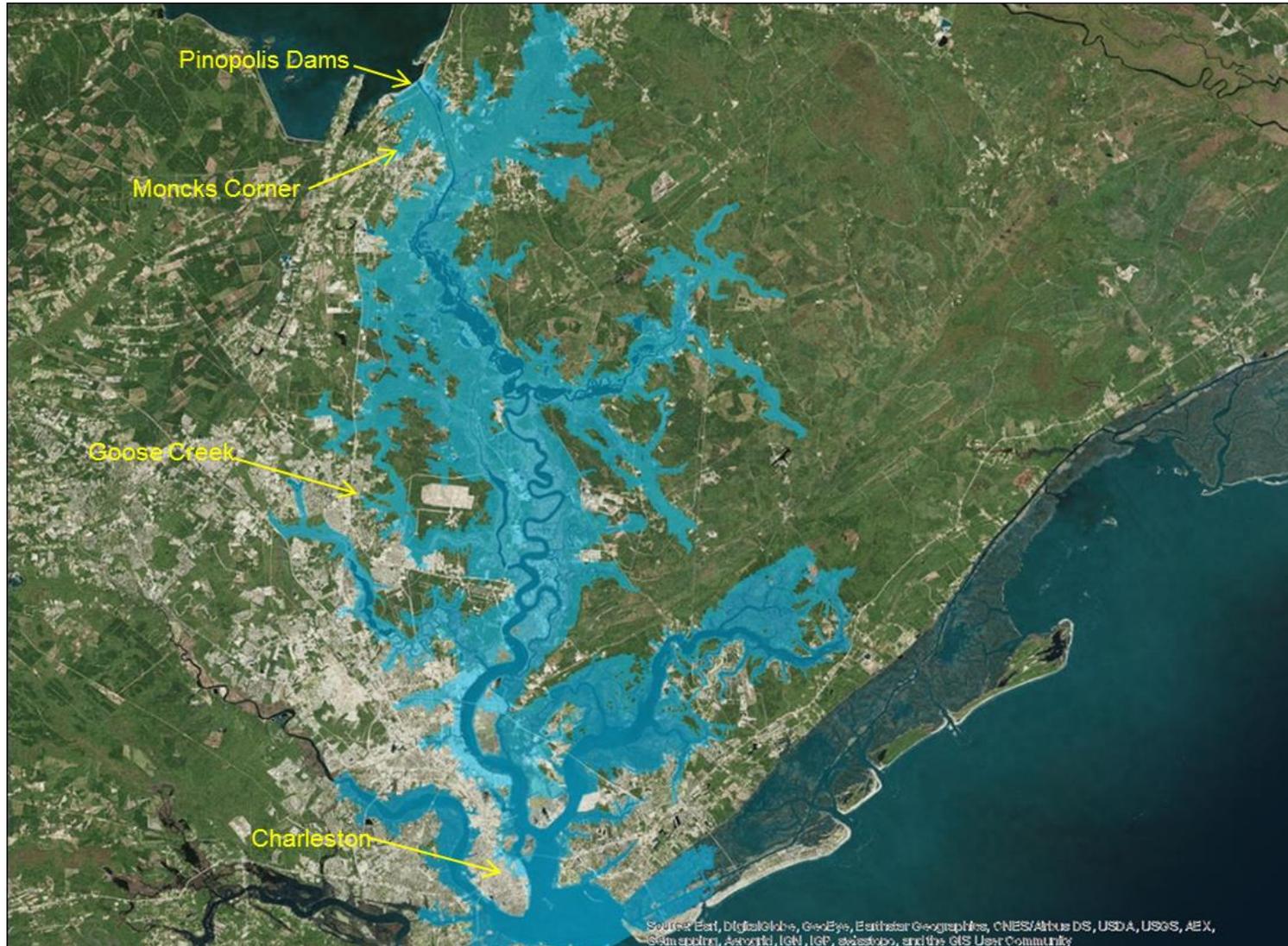


Upstream Slope Protection Improvement

Emergency Action Plan for Dam Safety



Emergency Action Plan for Dam Safety santee cooper®



Major Potential Capital Costs:

- Fish, Eel & Sturgeon studies at Pinopolis and Santee
- Fish passage at Pinopolis
- Eel passage at Pinopolis and Santee
- Sturgeon passage at Pinopolis and Santee
- Implement Turbine Protection Plans
- Implement Pinopolis Lock Protection Plan
- Granby Dam removal
- Increased minimum flows at Santee Dam

→ *Estimated Costs: \$179M*

FERC License Compliance



Santee Cooper Staff supporting FERC License Compliance Full Time

Equivalents:

• Generation	25
• Environmental Resources	10.5
• Property	12
• Dam, Spillways, & Navigation Maintenance	12
• Security	10
• Lake Management for flows and levels	1
Total	<hr/> 70.5

Estimated payroll: \$ 7 million

Parks, Conference Centers & Economic Development

Wampee & Somerset



Wampee

- Conference and Training Center
- Utilized for internal meetings & training
- Utilized by customers, governmental groups and non-profit groups for meetings
- Board of Director meetings
- Used by SCDNR for watercraft storage & lake access
- Used by Berkeley County Sheriff's Office for lake access
- 9 FTE's

6,000 visitors

258 events

(2017)

Somerset Point

- Recreational area for employees, retirees, their families and guests
- Provided as a recruitment and retention benefit to employees
- Available for rent to outside groups on weekdays
- Meeting space for employees, retirees, community and company events
- 2 FTE's

81,000 visitors

(2017)

- Recreational area for employees, retirees, their families and guests
- Provided as a recruitment and retention benefit to employees
- .5 FTE's

Old Santee Canal Park



Mission: To protect and promote the historical & natural significance of the area through education, recreation and services

- At request of state, it was converted from a state park in 1999
- Facilities includes Stony Landing House, Interpretive Center, Learning Center, picnic shelters & Berkeley County Museum
- Public park, public fishing area, canoeing & nature trail
- Provided to non-profit organizations & civic groups for community meetings/events
- Rented to external groups for meetings/events
- Utilized for internal meetings & training
- 9.5 FTE's

43,000 visitors

21 Days of Community Events

1600 Volunteer Hours

(2017)

Parks and Conference Centers



(\$ in Dollars)

PARKS & FACILITIES	2017	2016	2015
Wampee 1			
Cost	\$ 1,148,815	\$ 1,116,910	\$ 1,213,331
Revenue	(86,056)	(102,142)	(117,887)
Net Expense	1,062,760	1,014,768	1,095,444
Somerset 1, 3			
Cost	236,041	259,431	303,878
Revenue	(24,385)	(22,656)	(26,601)
Net Expense	211,656	236,775	277,277
Santee Canal & Overton 2			
Cost	836,834	1,058,475	953,537
Revenue	(175,997)	(153,582)	(143,384)
Net Expense	660,836	904,893	810,153
Stilley			
Cost	28,967	55,501	31,452
Revenue	-	-	-
Net Expense	28,967	55,501	31,452
TOTAL	\$ 1,964,219	\$ 2,211,937	\$ 2,214,326

1 Wampee & Somerset Common cost allocated 65% Wampee/35% Somerset

2 Overton is part of hydro unit but cost are not segregated because they are managed by the same work unit.

3 Somerset cost per employee in 2017 was \$121.

Economic Development

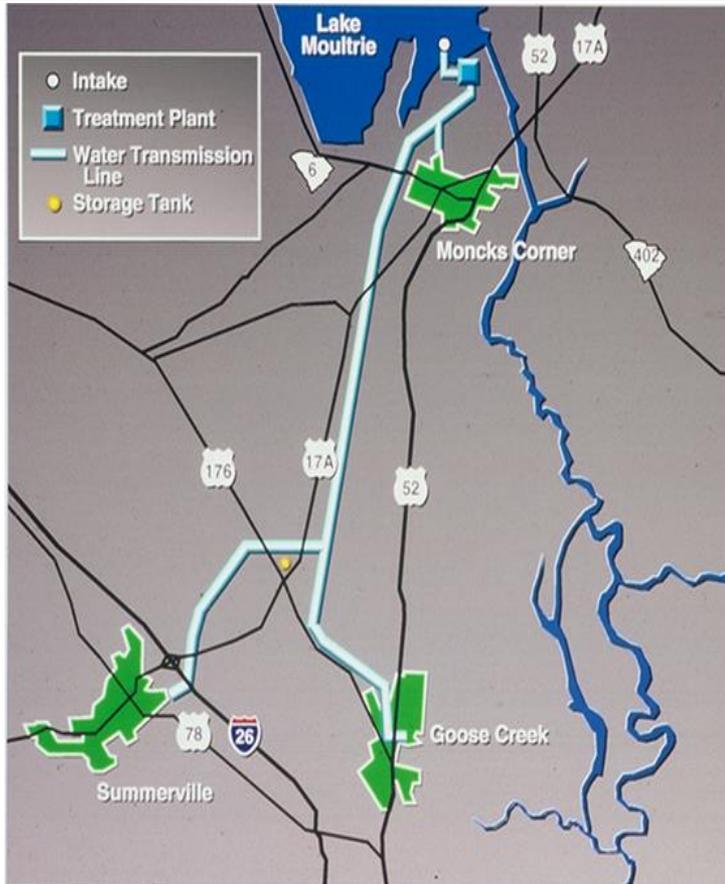
Impact to State Since 2012



- Economic Development Grants - \$40 million
- Economic Development Loans - \$93 million
- Jobs Created – 30,457
- Capital Investment attracted to State - \$7 billion
- Approximately \$1 million per year operating costs

Water Systems

Lake Moultrie Water System



Serves: Over 182,000 people

- Summerville CPW
- City of Goose Creek
- Moncks Corner Public Works
- Berkeley County Water & Sanitation Authority

Net Book Value: \$46,143,584

Capacity:

- 40 Million Gallons per Day

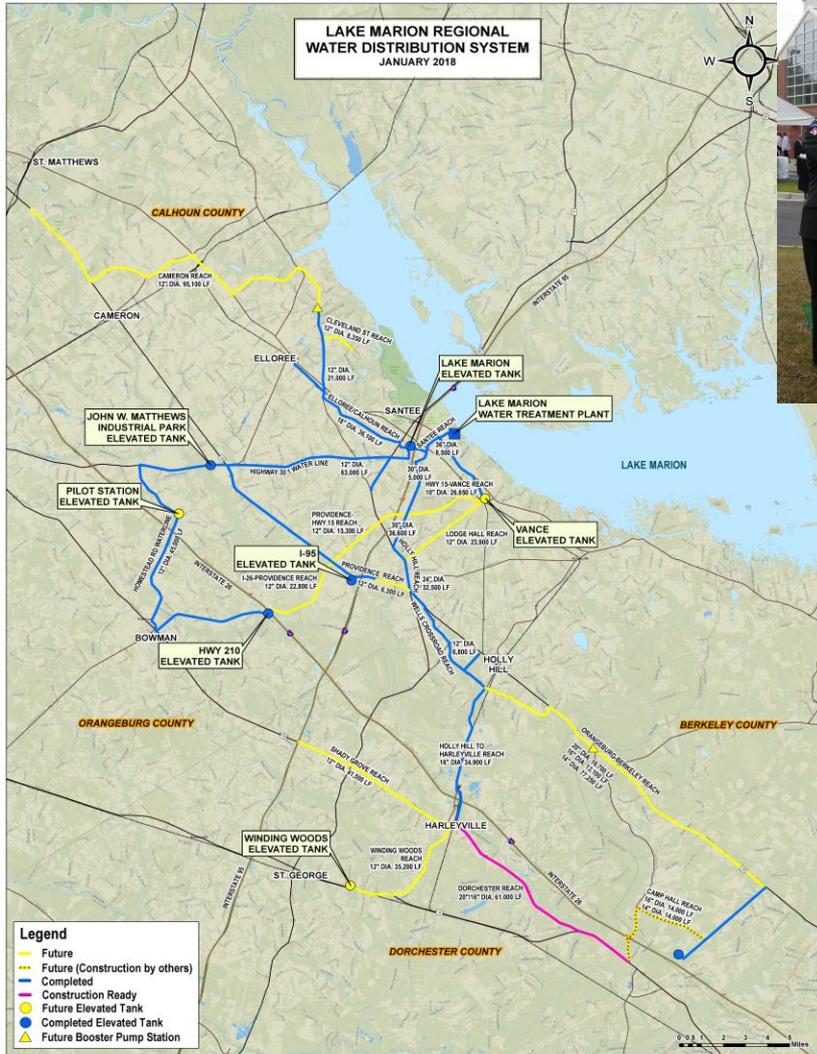
Operational Rates: \$0.63/1000 Gallons

Lake Moultrie Water System



Lake Moultrie Water Agency Revenue Requirements *	2018	2019	2020
Debt Service	\$ 3,262,170	\$ 2,940,972	\$ 2,965,046
Operation and Maintenance	\$ 4,556,120	\$ 4,711,504	\$ 4,864,376
Sums in lieu, Pmt to State, Working capital, & other income/credits	\$ 96,757	\$ 12,951	\$ (2,432)
Capital Improvement Allowance	\$ 742,559	\$ 722,643	\$ 739,257
Total Revenue Requirements	\$ 8,657,606	\$ 8,388,070	\$ 8,566,247
Annual Volumetric Flow (million gallons)	7,294.8	7,627.5	7,975.2
* 2018 Projected Cost of Service Study			

Lake Marion Water System



Serves: Over 2,900 people

Capacity:

- 8 Million Gallons per Day

Operational Rate:

\$2.70/1000 Gallons

Planned:

An additional 75 mile of Transmission

- Town of Santee
- Orangeburg County
- Dorchester County
- Calhoun County
- Berkeley County

Net Book Value:

\$0 – Grant Funded

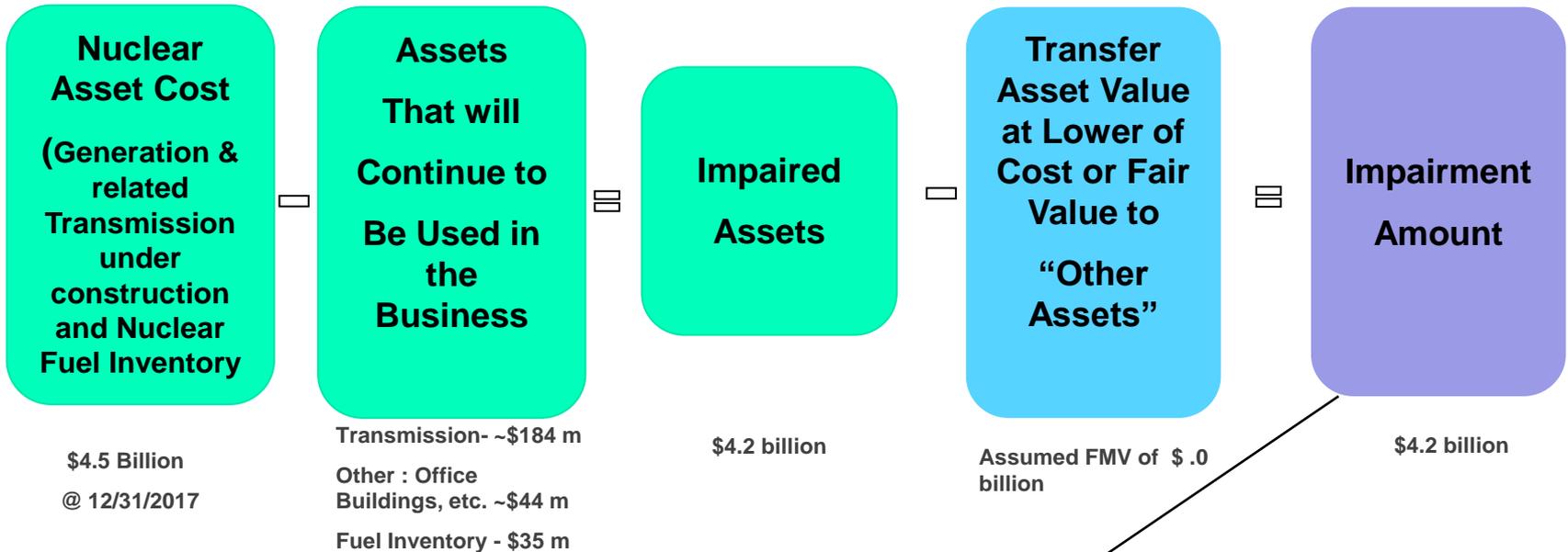
Nuclear

Accounting Standards allow utilities to defer specific expenses or revenues from the income statement to the balance sheet to align with rate recovery.

Allows matching of revenues and expenses over a specified time period (matching principle) and enables stable rate recovery

- 3 requirements for the use of Regulatory Accounting
 - Governing Board approval of rates
 - Rates are designed to recover the costs (or give benefit of income)
 - Reasonable to assume that rates are set at levels that will recover the costs and can be charged to and collected from customers.

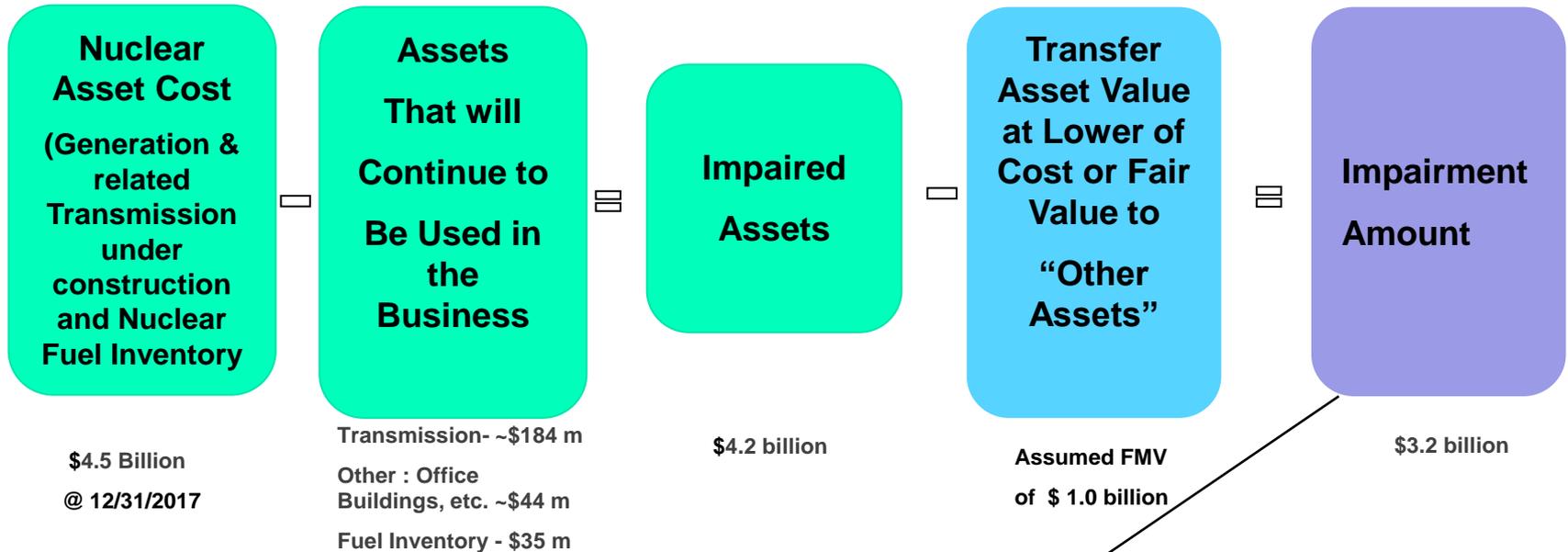
Accounting for Nuclear Impairment



Options for Recording & Writing off the Impairment Amount:

- Expense Immediately (Reduces R/E)
- Record Regulatory Asset (Expense over time; align with rate recovery)

Impairment Example Assuming FMV of \$1 Billion



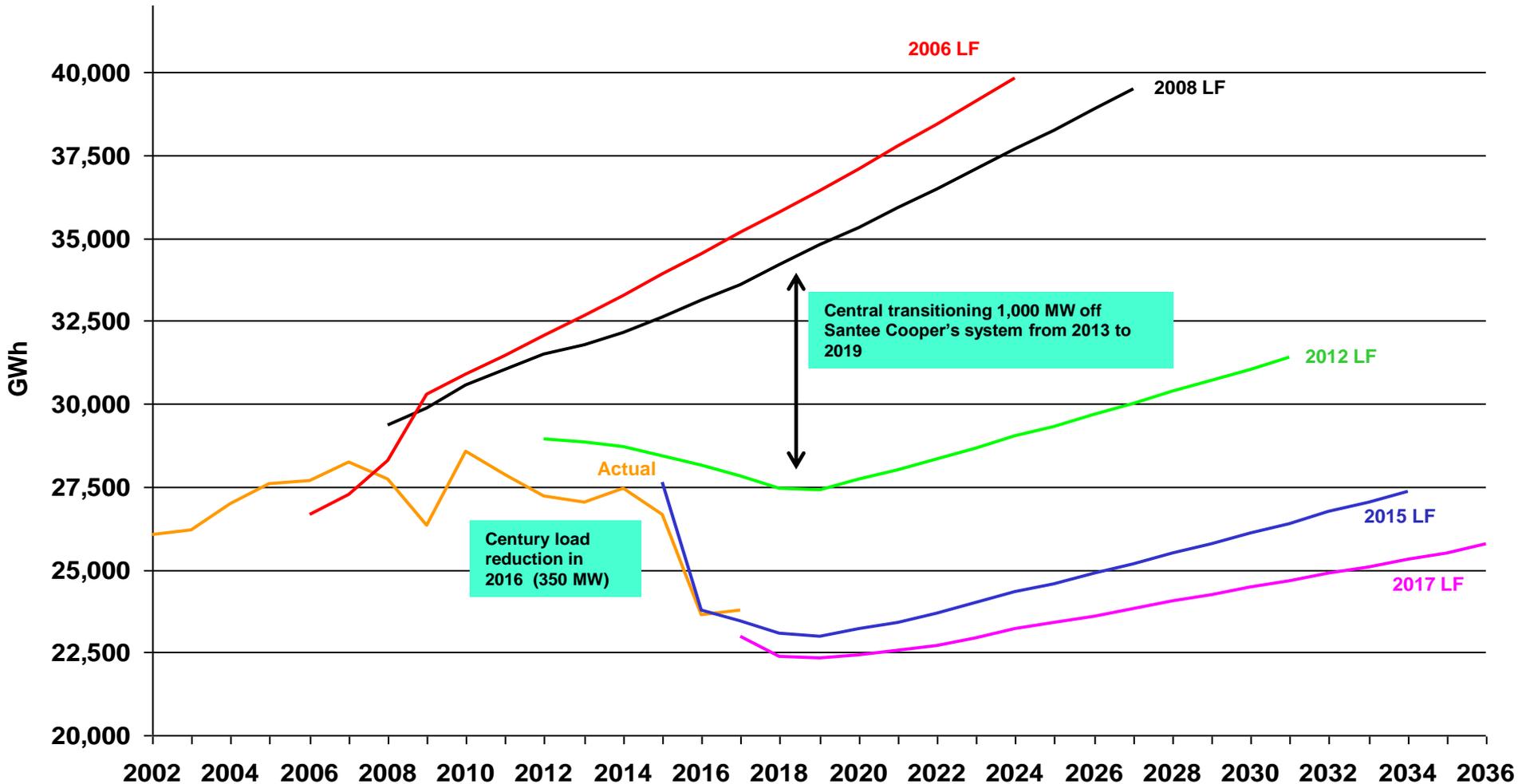
Options for Recording & Writing off the Impairment Amount:

- Expense Immediately (Reduces R/E)
- Record Regulatory Asset (Expense over time; align with rate recovery)

Other

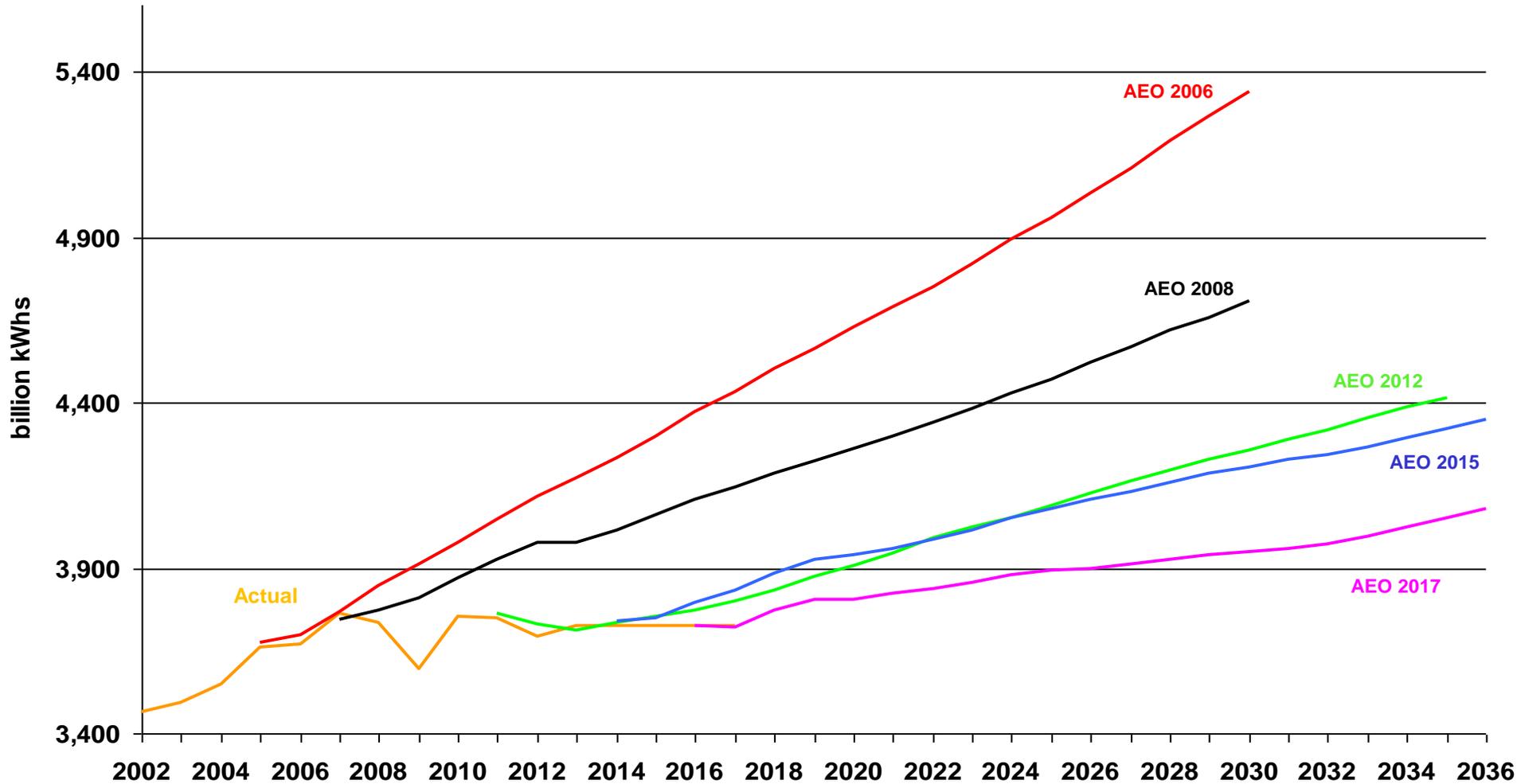
Santee Cooper – Load Forecast History ⁽¹⁾

Generation Level



(1) Generation level excluding off-system sales. Central's portion of the System's load forecast is provided by Central.

U.S. Energy Forecast (EIA)



- **Santee Cooper issues a combination of tax-exempt and taxable Revenue Bonds under its Revenue Obligation Bond Resolution**
 - Tax-Exempt Bonds - Bonds issued by a governmental entity for a “governmental purpose” such that bondholders are not subject to federal income tax on bond interest. Most public power utilities are allowed to tax exempt bonds.
 - Taxable Bonds – Bonds issued by non-governmental entities or issued by a governmental entity for a “private business use” or “private use” as defined by Internal Revenue Code Section 141. Roughly 20% of the bonds issued by Santee Cooper are taxable.
- **Call Options and Refinancing**
 - Tax-Exempt – Following municipal market conventions, in most cases tax exempt bonds are callable at par 10 years after the issue date
 - Taxable – Following taxable bond market conventions, taxable bonds are callable anytime with a make whole call provision. Make whole call provisions typically require call prices that are much higher than par value.

- The Internal Revenue Code generally exempts from federal taxation income on bonds issued by state and local governmental entities
 - Giving the entity the ability to issue “tax-exempt” bonds
- In certain instances when a governmental entity issues bonds the proceeds of which will be spent on a “private business use” or “private use” the bonds issued will be taxable
 - In general “private business use” means direct or indirect use in a trade or business carried on other than by a governmental unit
- Santee Cooper, with its external advisors, calculates the private use in each new bond issue that is not for the purpose of refunding existing debt
- Typically wholesale sales are considered private use unless made to a governmental wholesaler (e.g., a municipality)
 - Although wholesale, sales to Central are not considered private use based on a ruling from the IRS that the contract has been “grandfathered in” under regulations in place prior to 2002
- Industrial sales are also considered private use
- Retail and residential sales are not considered private use

Questions?