SPECIAL REPORT

ENERGY

SANTEE COOPER RATE INCREASE PROJECTIONS: 2018 UPDATE

A companion publication to Santee Cooper's Uncertain Future

Originally published March 20, 2018

BY KATIE PLAYER, PHD & M.T. MALONEY, PHD

MAY 10, 2018

PALMETTO PROMISE INSTITUTE

Additional resources: palmettopromise.org
P.O. Box 12676 Columbia, SC 29211 | 803-708-0673

EXECUTIVE SUMMARY

Eight months ago, on July 31, 2017, Santee Cooper and SCE&G announced they would abandon work on the V.C. Summer nuclear project. Since then, South Carolina leadership has been grappling with the best path forward to reduce the burden of the nuclear fallout on the residents of South Carolina.

The Palmetto Policy Institute is releasing revised rate increase projections as the South Carolina General Assembly wraps up its regular legislative session for the year. In our March 20 report, we called on our legislators to create a Commission on the Sale of the South Carolina Public Service Authority, to seek valuation of Santee Cooper assets and vet potential offers for the purchase of Santee Cooper by an entity which could assume the agency's billions of dollars in V.C. Summer debt, rather than passing that debt along to Santee Cooper and rural electric co-op electricity customers.

As our initial rate increase projections revealed-and our new estimates which anticipate even higher rate increases being needed to service Santee Cooper's V.C. Summer debt confirm- inaction is not an answer. Delaying action on of Santee Cooper leaves ratepayers paying down the debt, and delaying rate increases to service the debt only ensures that the rate increases must be even higher than if they were instituted immediately.

However, in the opinion of the authors of this paper, having customers pay the debt would be nearly criminal. The customers of Santee Cooper, many of them already challenged economically, do not deserve to be saddled with additional costs due to the failure of Santee Cooper. We urge the General Assembly to empanel the fact-finding committee as soon as possible and get that body moving forward on its critical work.

MAGNITUDE OF THE PROBLEM

As the sheer magnitude of the V.C. Summer Units 2 and 3 nuclear abandonment, the largest financial disaster in South Carolina history, comes more into focus, we know Santee Cooper has borrowed $4.5 billion to date, its customers have already seen five rate increases and paid hundreds of millions of dollars for the two defunct reactors, and the interest owed grows daily. Additionally, Santee Cooper has another $4 Billion in non-nuclear debt that has to be addressed. In total, Santee Cooper's debt is more than the State of South Carolina's total yearly general funds budget.

In private business terms, the average profit margin is 6.6%, which means Santee Cooper has only 6.6 cents on the dollar to put towards its debt. This is not sustainable.

Santee Cooper expenses related to the VC Summer project total $8.7 billion. The utility is facing long-term principal and interest on all current projects and operations of $15,943,523,000.

Action must be taken now on Santee Cooper.

SANTEE COOPER REQUIRED RATE INCREASE SCENARIOS

Given new information from recently released 2017 Santee Cooper financial statements, rates will need to increase even more than our March 20, 2018 analysis projected.

Our revised estimate is that rates will need to increase between 13.7 percent and 45.41 percent for all customer classes in 2018. This equates to an increase in average annual residential bills of between

$195 to $647 per year or more, depending on demand elasticity for Santee Cooper electricity, the total debt and interest associated with the abandoned project, and Santee Cooper's relationship with its largest customer, Central Electric Cooperative. This increase would be in place year for the next 38 years, until the debt is paid in 2056.

OVERVIEW OF FINDINGS:

Our previous analysis of the effects of the VC Summer expansion project on the South Carolina Public Service Authority (Santee Cooper) indicated that rates would need to increase between 11.7 percent and 40.7 percent for all customer classes. This equates to an increase in average annual residential electric bills of $167-580. However, given the new information from recently released 2017 financial statements, our estimate is now that rates would need to increase between 13.7 percent and 45.41 percent for all customer classes in 2018 (which equates to an increase in average annual residential bills of between $195-$647 per year).

The differences in these new rate estimates from our analysis released March 20, 2018 are due to four main factors: (1) Electrical sales in 2017 were not as high as anticipated which reduces the overall future sales forecasts for the entire model, (2) Average electrical rates across all customers were higher in 2017 than our 2016 model accounted for, (3) It is unlikely that funds from the Toshiba note will be used to pay down principal on debt, and (4) The total cost of the project reduced slightly due to Santee Cooper re-purposing (or salvaging) some of the assets and fuel associated with V.C. Summer 2 & 3 which reduced the total cost of the defunct project by a several hundred million dollars.

UPDATES TO RATE CALCULATIONS DUE TO 2017 FINANCIAL STATEMENTS:

IMPAIRMENTS:

The *Santee Cooper 2017 Annual Report* states that the entity has impaired **$4.211 billion** regarding the failed V.C. Summer 2 & 3 plant. This was listed on the balance sheet as "Construction Work in Progress" in 2016 and after the impairment, is listed as a regulatory asset. The amount is net of any foreseen salvageable value. Also listed as a regulatory asset regarding the impaired project, was **$37.1 million** of interest.

GROWTH AND RATES:

The average base rate across all customers paid in 2017 was **4.65%** higher than in 2016, **$76.05** vs. **$72.76** per MWh, respectively. Part of this was attributable to higher electrical rates and part was due to slightly reduced wholesale sales as a portion of total electrical sales. Total electrical sales for Santee Cooper grew less than the 30-year national average which was used in the model to project rates from 2017-2056. We continue to use the 30-year national average growth rate in all projections; however, the base number was lower than expected in the initial model using 2016 data.

TOSHIBA NOTE FUNDS:

Regarding the use of the almost **$900 million** Toshiba note, Santee Cooper states it will be used to service debt (instead of paying down principal), and the South Carolina General Assembly has introduced bills to restrict for what the entity can use the funds. Furthermore, the Central Electric Power Cooperative has a lawsuit pending against Santee Cooper, in part claiming that **60%** of that almost **$900 million** note belongs to Central customers. Considering these updates, it seems highly unlikely that Santee Cooper can or will use the Toshiba funds to pay down principal on long-term debt. Hence, the scenarios with the **$898 million** going towards principal, are excluded in this updated report, and make the rate hikes needed to fund the defunct project higher than most scenarios in the initial report.

DEMAND ELASTICITY:

Our best estimate for demand elasticity remains at **0.40** and, given Central's current lawsuit against Santee Cooper, it is unlikely that Central is willing to pay its share of the impaired project without a court appearance.

WHAT WILL IT TAKE IN RATE HIKES TO PAY OFF V.C. SUMMER?

In the following scenarios, we examine the rate increases needed for various responses in consumer behavior when faced with higher electricity rates. All rate increase estimates are for *all* customers across the board: wholesale, retail, industrial and can be thought of as the average increase needed to fund the debt. These rate increases estimates are *in addition* to the rate increases of **15.2%** that Santee Cooper customers have already shouldered regarding the defunct project.

SCENARIO 1: NO DEMAND RESPONSE

If consumers do not change their behavior when faced with higher prices, it is relatively easy to calculate the rates needed to pay off V.C. Summer 2 & 3. There is no change in the quantity of electricity sold and so any additional revenues would be extra profits to Santee Cooper and could be used to pay down principal and interest. When consumers do not respond to changes in price, demand elasticity is said to be "zero". Demand elasticity of zero is not a realistic estimate because consumers *do* change their consumption when faced with higher prices, but it does allow us to provide a **lower-bound** for our estimate because it shows how much rates must increase even if consumers will buy the same amount of electricity at higher prices.

SUMMARY OF ELASTICITIES AND SENSITIVITY ANALYSIS

The chart below summarizes the above findings. The average annual residential electricity bill was $1423 in 2016. Our best estimate for demand elasticity is 0.40 for residential customers.

	Sensitivity Analysis				
	Demand Elasticity:				
	0	.20	.40	.60	.80
Original Base Rate (2016 per cents/KWh)	0.1162	0.1162	0.1162	0.1162	0.1162
Rate Increase Needed	12.03%	13.69%	16.09%	20.15%	34.88%
New Rate (cents/KWh)	0.1302	0.1321	0.1349	0.1396	0.1567
Extra Dollars spent per month (retail):	**$14.32**	**$16.29**	**$19.14**	**$23.95**	**$41.43**
Avg. Monthly Retail Bill without Demand adjustment	**$132.92**	**$134.89**	**$137.74**	**$142.55**	**$160.03**
Increase in average annual electricity bill:	**$171.82**	**$195.48**	**$229.65**	**$287.41**	**$497.12**

*The average annual residential electricity bill was $1423 in 2016. And average rates increased 4.65% year-over-year from 2016 to 2017.

Note: All estimates assume the funds from the Toshiba note sale are not used towards debt principal in 2018. Given Central's pending lawsuit and SC State pending legislature there is too much uncertainty around the legal use of the funds to assume it will be free to pay down principal.

SCENARIO 2: CENTRAL WITHDRAWS 50% OF PURCHASES

In February 2018, Central Electric Power Cooperative brought a lawsuit against Santee Cooper for breach of contract in response to the failed nuclear project and petitioning for Central's **60%** share of the Toshiba note. The following chart summarizes the amount that rates will need to increase if Central withdraws **50%** of its purchases from Santee Cooper. We assume this happens gradually over 15 years. We account for cost-savings in Santee Cooper's production as it will no longer be producing at the levels it was in 2016 and before (i.e. Santee Cooper will not need to buy coal or wholesale power to serve GWh that are no longer being purchased).

	Central withdraws 50% of purchases over 15 years*			
	Demand Elasticity:			
	0	.20	.40	.50
Original Base Rate (2016 per cents/ KWh)	0.1162	0.1162	0.1162	0.1162
Rate Increase Needed	28.63%	34.17%	45.41%	65.22%
New Rate (cents/KWh)	0.1495	0.1559	0.1689	0.1919
Extra Dollars spent per month (retail):	**$34.00**	**$40.59**	**$53.92**	**$77.43**
Avg. Monthly Retail Bill without Demand adjustment	**$152.61**	**$159.19**	**$172.52**	**$196.03**
Increase in average annual electricity bill:	**$408.06**	**$487.05**	**$647.05**	**$929.11**

*Cost-savings from reduced sales is assumed in the model. This is done by finding the original revenues on the reduction in GWh and multiplying that by the cost-saving ratio of 0.53. The ratio 0.53 is the amount of total electric sales revenue in 2016 that went to the following variable costs: production, fuel and purchased and interchanged power.

WHAT IF NOTHING IS DONE AND RATE INCREASES ARE POST-PONED?

CASE 1: POSTPONED UNTIL 2020

As shown below, if rate increases are postponed until 2020, rates will have to be even higher than if increased immediately—this is because there would be fewer fiscal periods to pay off the V.C. Summer 2 & 3 debt (36 years instead of 38). We are not accounting for any refinancing activities which would increase the total cost of the failed project even more and could lead to higher costs of capital for Santee Cooper as an entity.

In both postponement scenarios, we are assuming that Santee Cooper has the cash and funds to float at least the interest on all debt obligations during postponed years. This is not unreasonable but it would leave the entity cash-stripped and depleted of liquidity. Given that Santee Cooper needs cash and restricted investments to fund, maintain and improve existing operations, any postponement in decision-making could erode Santee Cooper's ability to remain a going-concern.

2 YEAR DELAY, 50% REDUCTION IN CENTRAL PURCHASES

	Central withdraws 50% of purchases over 15 years*			
	Demand Elasticity:			
	0	.20	.40	.50
Original Base Rate (2016 per cents/KWh)	0.1162	0.1162	0.1162	0.1162
Rate Increase Needed	29.16%	34.87%	46.62%	72.05%
New Rate (cents/KWh)	.1501	.1567	.1704	.1999
Extra Dollars spent per month (retail):	**$34.64**	**$41.42**	**$55.36**	**$85.53**
Avg. Monthly Retail Bill without Demand adjustment	**$153.25**	**$160.02**	**$173.96**	**$204.13**
Increase in average annual electricity bill:	**$415.71**	**$497.01**	**$664.28**	**$1026.38**

*The average annual residential electricity bill was $1423 in 2016. And average rates increased 4.65% year-over-year from 2016 to 2017.

Note: All estimates assume the funds from the Toshiba note sale are not used towards debt principal. Given Central's pending lawsuit and SC State pending legislature there is too much uncertainty around the legal use of the funds to assume it will be free to pay down principal. If demand elasticity is 0.80, rate increases would not be enough to pay off all of the project debt: rates would need to increase 38% but $330 million would still need to be paid off.

CASE 2: RATE INCREASES POSTPONED UNTIL 2022

As shown below, if rate increases are postponed until 2022, rates will have to be even higher than if increased at an earlier date. This is because there would be fewer fiscal periods to pay off the V.C. Summer 2 & 3 debt (34 years instead of 38). We are not accounting for any refinancing activities which would increase the total cost of the failed project even more and could lead to higher costs of capital for Santee Cooper as an entity.

4 YEAR DELAY, NO CHANGE TO CENTRAL PURCHASES

	Sensitivity Analysis (Rate increases delayed until 2022)				
	Demand Elasticity:				
	0	.20	.40	.60	.80
Original Base Rate (2016 per cents/KWh)	0.1162	0.1162	0.1162	0.1162	0.1162
Rate Increase Needed	13.31%	15.20%	17.98%	22.94%	39%
New Rate (cents/KWh)	.1317	.1339	.1371	.1429	.1615
Extra Dollars spent per month (retail):	**$15.84**	**$18.08**	**$21.38**	**$27.25**	**$46.31**
Avg. Monthly Retail Bill without Demand adjustment	**$134.44**	**$136.68**	**$139.99**	**$145.86**	**$164.92**
Increase in average annual electricity bill:	**$190.03**	**$216.96**	**$256.60**	**$327.05**	**$555.77**

*The average annual residential electricity bill was $1423 in 2016. And average rates increased 4.65% year-over-year from 2016 to 2017.

Note: All estimates assume the funds from the Toshiba note sale are not used towards debt principal. Given Central's pending lawsuit and SC State pending legislature there is too much uncertainty around the legal use of the funds to assume it will be free to pay down principal. If demand elasticity is 0.80, rate increases would not be enough to pay off all of the project debt: rates would need to increase 39% but $752 million would still need to be paid off.

For demand elasticities between 0.40-0.60 (which is where our analysis expects consumers to be), each year that passes in which rates are not increased, shifts the burden to the future and to fewer fiscal periods. For the rate postponement scenarios of 2020 and 2022, this equates to a roughly **0.50%** additional increase needed *per year* of postponement until action is taken. For example, if a rate increase of roughly **16%** is needed immediately in 2018, an increase of **16.5%** would be needed in 2019, and an increase of **17%** would be needed in 2020.

4 YEAR DELAY, CENTRAL WITHDRAWS 50% OF PURCHASES

	Central withdraws 50% of purchases over 15 years*			
	Demand Elasticity:			
	0	.20	.40	.50
Original Base Rate (2016 per cents/KWh)	0.1162	0.1162	0.1162	0.1162
Rate Increase Needed	29.76%	35.65%	47.99%	76%
New Rate (cents/KWh)	0.1508	0.1576	0.1720	0.2045
Extra Dollars spent per month (retail):	**$35.35**	**$42.34**	**$56.98**	**$90.21**
Avg. Monthly Retail Bill without Demand adjustment	**$153.95**	**$160.94**	**$175.59**	**$208.82**
Increase in average annual electricity bill:	**$424.17**	**$508.07**	**$683.81**	**$1082.55**

*The average annual residential electricity bill was $1423 in 2016. And average rates increased 4.65% year-over-year from 2016

Note: All estimates assume the funds from the Toshiba note sale are not used towards debt principal. Given Central's pending lawsuit and SC State pending legislature there is too much uncertainty around the legal use of the funds to assume it will be free to pay down principal. If demand elasticity is 0.80, rate increases would not be enough to pay off all of the project debt: rates would need to increase 39% but $752 million would still need to be paid off.

USE OF TOSHIBA NOTE FUNDS

In our initial analysis, we reported calculations for rate increases needed in two scenarios: 1. The funds from the Toshiba note being applied immediately towards principal on long-term debt in 2018; and, 2. Without the funds being applied towards principal (and being used for debt service or other capital projects).

With access to the Santee Cooper 2017 Annual Report, the updated situation makes the scenario of Santee Cooper using the funds to immediately pay down principal highly unlikely. Santee Cooper states that the funds will be used to service debt and align obligation inflows and outflows (Annual Report 2017, pg. 21 and 38). Furthermore, legislation has been introduced in the South Carolina General Assembly to limit Santee's use of the funds, and Central's pending lawsuit petitions that Central, and its customers, should receive its prorated share of the $898 million. Considering this new information, we have omitted the scenario of Santee Cooper using the Toshiba note funds to immediately pay down debt principal.

UPDATED FINANCIALS IN METHODOLOGY

The same methodology and model were used to compute rate increases needed to fund the impaired project. The debt schedule and total cost of the project have been updated as shown in the following charts.

LONG-TERM PRINCIPAL AND INTEREST

Maturities and projected interest payments of long-term debt are as follows:

Year Ending December 31	Revenue Obligations	Total Interest	Total Principle + Interest	Long-term Revolving Credit Agreement*
2018	$31,566	$362,493	$394,059	0
2019	$133,090	$359,257	$492,347	80,234
2020	$181,805	$351,183	$532,988	12,266
2021	$228,954	$342,676	$571,630	$0
2022	$132,619	$332,183	$464,802	1,335
2023-2027	$1,004,176	$1,545,488	$2,549,664	6,675
2028-2032	$769,503	$1,377,024	$2,146,527	990
2033-2037	$1,008,244	$1,174,824	$2,183,068	0
2038-2042	$872,544	$944,838	$1,817,382	0
2043-2047	$1,241,648	$677,645	$1,919,293	0
2048-2052	$1,215,715	$339,926	$1,555,641	0
2053-2056	$593,150	$59,011	$652,161	0
Total	$7,695,552	$8,247,971	$15,943,523	0

*Revolving credit agreement is most likely to service working capital needs and so is not included in the total debt number for our analysis.

Source: Santee Cooper Annual Report 2017, page 52.

TOTAL EXPENSES RELATED TO THE PROJECT:

The financial data reported in the 2017 annual report is used below to update the total project cost.

TOTAL EXPENSES RELATED TO VC SUMMER 2 & 3 (IN THOUSANDS)

Construction, contracting, etc.[1]	$4,211,000
Capitalized Interest as of 2017[2]	$37,100
Amount already paid from rate increases (2013-2017)	$0
Interest associated with pro-rated debt[3]	$4,508,002
Cost of Summer Unit 2 & 3 OUTSTANDING:	$8,756,102

(1) (2) Santee Cooper reports impairing $4.211 billion associated with VC Summer 2 & 3 after salvaging fuel and parts for VC Summer 1. Additionally, $37.1 million in interest will be amortized through 2056. Source: 2017 Annual Report, pg 21.

(3) Assuming Santee Cooper uses the proceeds of the Toshiba Note to service debt instead of paying down principal immediately, which is what is implied in the 2017 Annual Report, pg. 21 & 38. The project accounts for 57.31% of all long-term debt.

SUMMARY AND CONCLUSIONS

Given Santee Cooper's current balance sheet and operations, to pay off the debt and interest charges associated with the failed V.C. Summer 2 & 3 project, in the most likely scenarios, electricity rates would need to increase between **13.7-45.41%.**

The major factors determining where in that range rate increases will fall include: customer demand elasticity, Santee Cooper cost-savings, and the actions of Central Electric Cooperative. Our best econometric estimate for demand elasticity is **0.40**, our best estimate for cost-savings due to less electricity sold is **0.53** on revenues from unsold units due to higher prices, and given Central's current litigation against Santee Cooper, we do not expect Central to eagerly pay any rate increases needed to cover the debts associated with the failed nuclear project. If Central were to remain with Santee Cooper and pay its share of rate increases, we estimate rates will need to increase **16.09%** on all customers across the board, to pay off the costs of V.C. Summer 2 & 3. This is in addition to the rate increases already undertaken between 2012-2016 which amounted to rates being **15.2%** higher in 2016 than in 2012[1]. The previous rate increases combined with our calculations estimate that Santee Cooper customers will face total rate increases of a minimum of **31.29%** due to the failed project.

If Central were to withdraw even **50%** of its purchases over the next 15 years, rates would need to increase a minimum of **45%** on top of the **15.2%** that has already gone into effect. Finally, if rate increases are delayed until 2020, 2022, or longer, consumers end up paying more and more because the impairments are amortized only through 2056, and if any steps are taken to refinance some, or a portion of the outstanding debt, consumers could face even higher rates due to additional accumulated interest that would occur when extending the repayment period past 2056.

1 Rates increased 3.5% in 2013 and 3.5% in 2014, and 3.7% in 2015 and 3.7% in 2016. Because these are compound rates, the total difference in rates at the end of 2016 compared to 2012 was 15.2%. Source: Santee Cooper Press Releases on September 12, 2012 and December 7, 2015. Based on the 2016 average annual residential electricity bill, the average annual electricity bill before these rate increases would have been $1235, instead of the $1423 that it was in 2016.