MEMORANDUM

To: NCLM Members
From: Caitlin Saunders, Research Strategist
Date: May 2, 2018
Subject: Factors Affecting Electricity Sales Tax Revenue

What is behind the decline in electricity sales tax revenue during FY 16-17?

From FY15-16 to FY16-17 there was a 2.9% decline in electricity sales tax distributions to local governments in North Carolina (See *Figure 1*). This revenue decline matches the decline in the quantity of electricity sold in NC. During the 2016-2017 calendar year, Energy Information Administration (EIA) data shows the "all sector" average quantity of electricity sold in NC also declined by approximately 3% (See *Figure 2*). Each year, electric utilities report electricity sales to the Energy Information Administration (EIA) using Form EIA-861. See *Appendix A* for a list of the most recent (2016) NC data posted, including revenue, megawatts sold, and number of customers for each electric utility in NC.

The 2016-2017 decline in electricity sales was consistent for all utilities, including municipal-run utilities. The NC Treasurer's Annual Financial Information Report (AFIR) confirms that municipal-run utilities also experienced 3% decline in revenue from July 1, 2016 to June 30, 2017 (See *Table 1*).

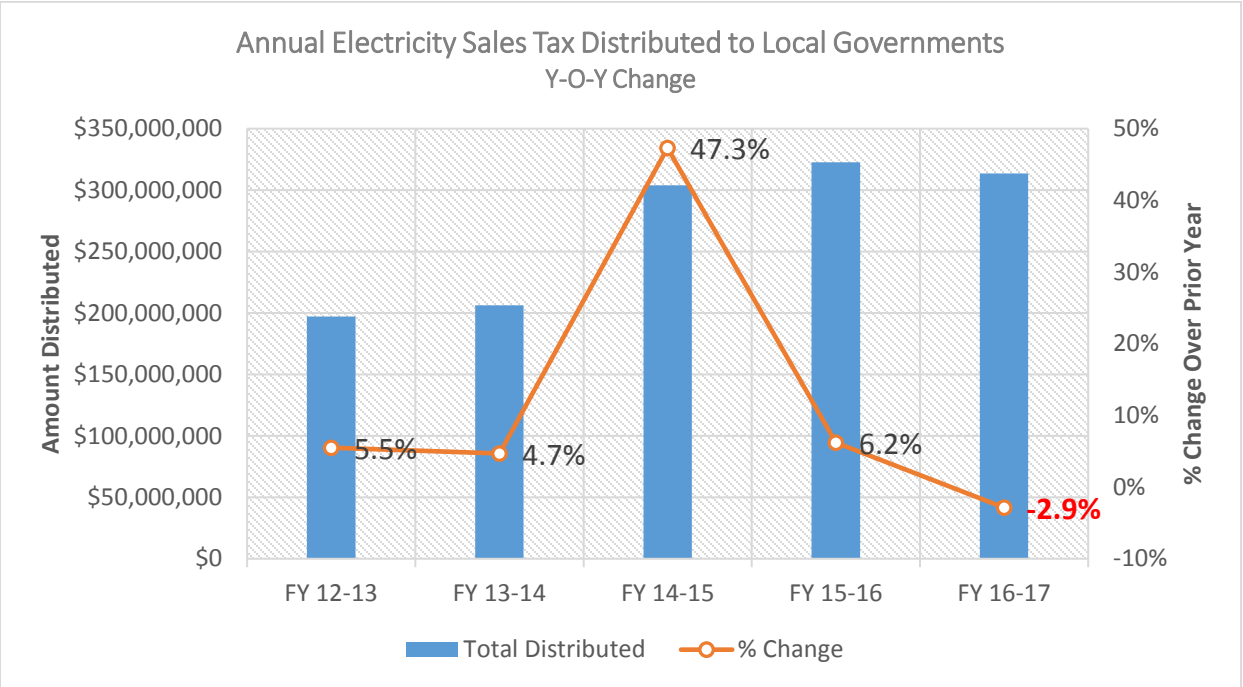

Figure 1: Local governments saw a 2.9% decline in electricity sales tax distributions during FY 16-17. The large increase observed in FY 14-15 was due to a legislative change in how local government electricity tax distributions are calculated.

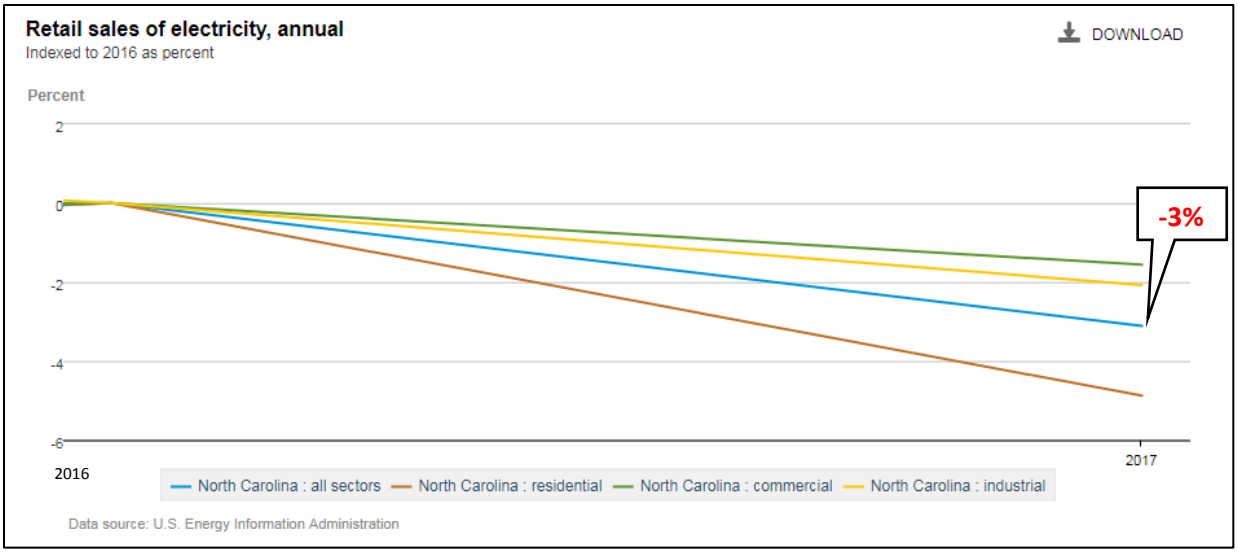

Figure 2: The quantity (in million kilwatthours) of retail electricity sales in all sectors declined by 3% from 2016 to 2017. Click HERE to explore EIA interactive electricity retail sales data for North Carolina.

NC Department of State Treasurer Financial Information
Population Group for Municipalities with Electric Systems: Statewide

Label	Description	2017	2016	2015	2014	2013
Utility Revenues	Water Supply System	204,801,267	204,822,279	269,524,213	265,428,868	238,930,767
Utility Revenues	Sewer Charges	178,148,792	187,645,062	249,119,048	241,111,579	216,774,615
Utility Revenues	Electric	1,237,627,166	1,282,321,589	1,770,772,774	1,759,780,673	1,553,146,105
Utility Revenues	Gas	110,300,080	105,211,252	136,161,075	135,872,225	116,200,957
Utility Revenues	Storm Water Fees	33,982,545	32,151,928	34,314,173	30,341,814	26,876,974

-3%

Table 1: Municipal-run electric utilities' revenue decline matches statewide decline in the quantity of retail electricity sales.

Why did electricity sales decline?

The EIA reports that the electricity sales decrease is largely attributable to milder weather in 2017. Nationally, cooling degree days (an indicator of cooling-related electricity demand) were 9% lower in 2017 compared to 2016. In North Carolina, cooling degree days were 13% lower in 2017 than in 2016. The number of cooling degree days in NC increased, on average, since 2008, though varies widely from year to year (See *Figure 3*). Temperature and cooling degree data, by state, can be obtained from the National Climatic Data Center.

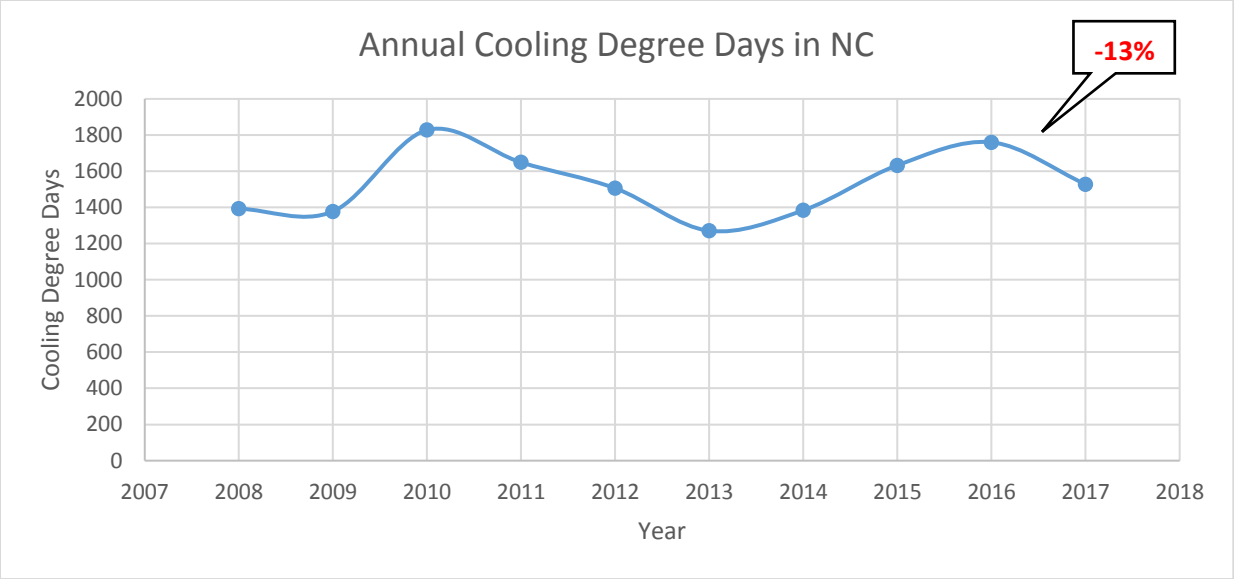

Figure 3 Cooling degree days have increased, on average, in NC since 2008. However, they also vary widely from year to year.

Will this trend continue in FY17-18 and FY18-19?

EIA's Short Term Energy Outlook actually forecasts a 3% national increase in residential electricity spending for summer 2018, compared to summer 2017. This forecast is based in part on predictions for a slight increase in consumption. NOAA predicts 2% more cooling degree days, nationally, from June through August 2018, compared to 2017. However, NOAA's prediction of cooling degree days still remains 1% lower than the average of the previous 10 summers.

EIA's 3% residential electricity spending forecast for 2018 is also based on a prediction for higher average electricity prices. In North Carolina, electricity prices vary based on the customer sector and geographic area, the utility providing the electricity, the services provided, and other factors. Utilities request approval for a rate increase from the NC Utilities Commission (NCUC). Following a rate case, NCUC sets the minimum amount of time that must pass, with the exception of extraordinary circumstances, until the utility may again request a rate increase. The statewide average electricity price has increased for all sectors from February 2017 to February 2018 (See *Table 2*). Residential consumers provide the largest amount of electricity sales in NC, while commercial customers provide slightly over one third, and industrial customers represent one fifth (See *Figure 4*).

Because the number of cooling degree days last year was unusually low, and electricity prices have increased, North Carolina is likely to see a slight increase in electricity tax revenue this year. However, the Y-O-Y change in retail electricity sales quantity has varied widely since 2003, with an overall average change of only 0.6% (See *Figure 5*).

Table 5.6.A. Average Price of Electricity to Ultimate Customers by End-Use Sector,

by State, February 2018 and 2017 (Cents per Kilowatthour)

	Residential		Commercial		Industrial		Transportation		All Sectors	
Census Division and State	February 2018	February 2017	February 2018	February 2017	February 2018	February 2017	February 2018	February 2017	February 2018	February 2017
South Atlantic	**11.73**	**11.88**	**9.58**	**9.51**	**6.11**	**6.32**	**7.38**	**7.73**	**9.96**	**9.93**
Delaware	12.60	13.37	10.09	10.55	8.36	7.66	--	--	10.98	11.28
District of Columbia	13.38	12.83	12.35	11.73	8.39	8.24	8.13	9.36	12.39	11.85
Florida	12.14	11.81	10.05	9.76	7.95	7.99	8.40	8.56	10.98	10.62
Georgia	10.83	11.54	9.38	9.99	5.09	5.54	5.10	4.48	8.96	9.49
Maryland	13.43	14.36	11.08	11.45	8.88	8.48	7.19	7.76	12.06	12.57
North Carolina	11.44	11.14	9.14	8.65	6.45	5.84	8.86	8.62	9.68	9.11
South Carolina	11.04	12.86	8.22	10.70	4.55	5.86	--	--	8.04	9.64
Virginia	11.47	11.07	8.48	7.40	6.89	6.55	8.44	7.57	9.56	8.75
West Virginia	11.38	11.58	9.96	9.87	6.74	6.86	--	--	9.20	9.23

Table 2: Average electricity prices for all sectors increased from February 2017 to February 2018.

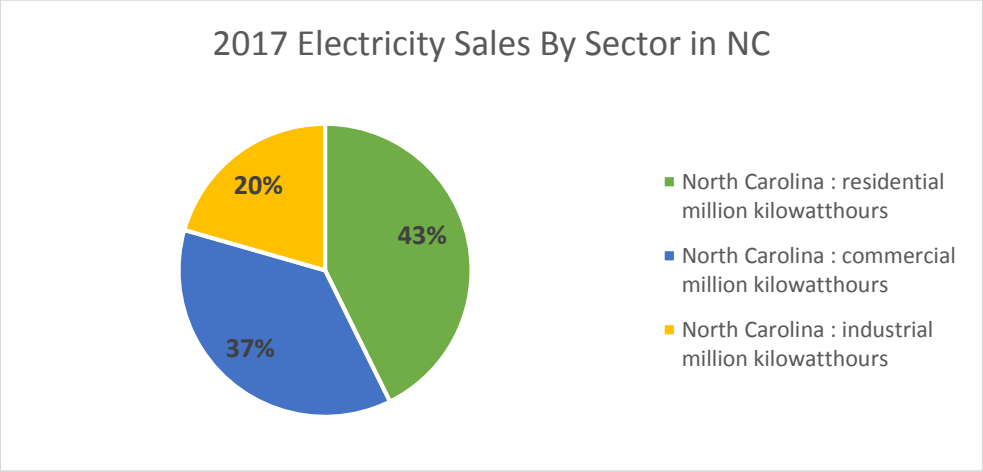

Figure 4: Residential customers purchase the largest percentage of electricity in NC.

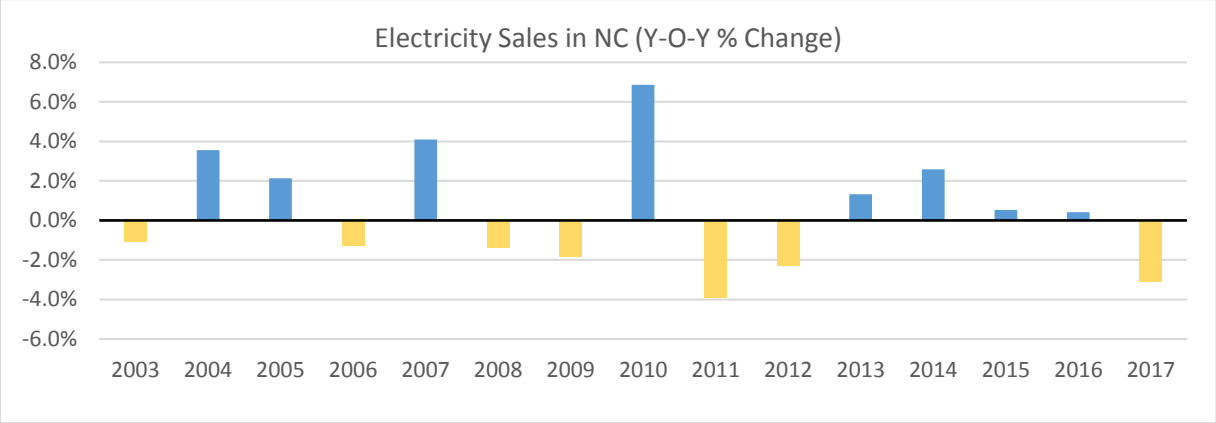

Figure 5: The % change in electricity sales quantity (in million kilowatt hours) from year to year has been both positive and negative since 2003. The average % change from year to year is only 0.6%.

What about the long term?

Despite price changes and the weather's volatile impact on electricity consumption from year to year, energy efficiency improvements are resulting in an underlying decrease in electricity consumption. A Senior Consultant specializing in energy demand forecasting for consulting firm Nexant, stated in an email to the League, "For planning and forecasting purposes we use…weather averages and often project a high, medium, or low scenario… All else equal…we should expect to see volumetric consumption of electricity decline. To the extent that utilities' revenues are heavily weighted towards volumetric rather than capacity-based pricing…we should expect continued declines in associated revenues."

EIA historical data on electricity sales in NC also shows that although electricity sales have continued to increase since 2001, the rate of increase appears to be slowing down (See *Figure 6*). Unless utility pricing models change, or new demands for electricity emerge, this will continue as energy efficiency continues to improve.

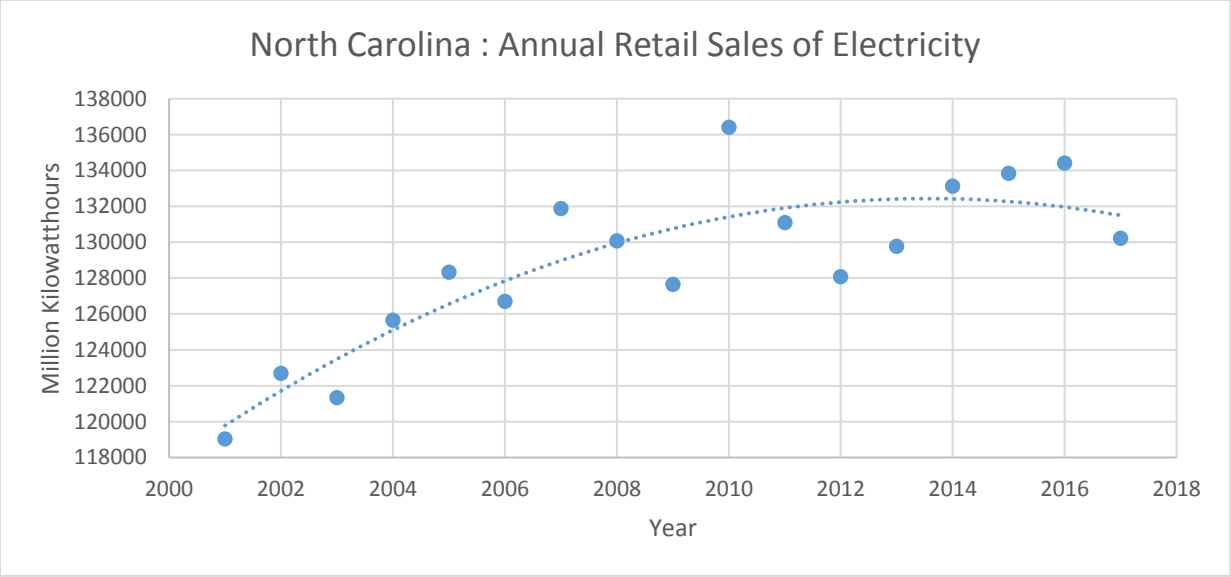

Figure 6: Retail sales of electricity fluctuate from year to year, but have increased overall since 2001. However, growth in electricity sales appears to be slowing due to improvements in energy efficiency.

Appendix A – 2016 Form EIA-861 Data for NC Electric Utilities

Utility Characteristics		TOTAL		
		Revenues	Sales	Customers
Utility Name	Ownership	Thousand Dollars	Megawatt hours	Count
City of Albemarle - (NC)	Municipal	33,904.0	291,506	12,073
Albemarle Electric Member Corp	Cooperative	26,690.0	214,204	12,681
Town of Apex- (NC)	Municipal	29,614.5	302,769	17,776
Town of Ayden - (NC)	Municipal	10,988.0	102,125	4,101
Blue Ridge Elec Member Corp - (NC)	Cooperative	109,758.0	1,069,201	75,463
Blue Ridge Mountain EMC - (GA)	Cooperative	26,216.0	198,537	17,552
Broad River Electric Coop, Inc	Cooperative	822.5	5,658	423
Cape Hatteras Elec Member Corp	Cooperative	17,430.0	135,500	7,720
Duke Energy Progress - (NC)	Investor Owned	3,394,094.3	37,500,389	1,365,800
Carteret-Craven El Member Corp	Cooperative	63,566.9	580,169	39,746
Central Electric Membership Corp. - (NC)	Cooperative	47,774.4	417,146	22,315
Town of Clayton	Municipal	13,006.0	102,182	6,205
City of Concord - (NC)	Municipal	82,699.6	911,763	29,620
Duke Energy Carolinas, LLC	Investor Owned	4,858,326.4	57,816,157	1,947,526
Edgecombe-Martin County E M C	Cooperative	25,418.0	220,618	11,481
City of Elizabeth City - (NC)	Municipal	30,562.0	305,419	12,045
Public Works Comm-City of Fayetteville	Municipal	204,511.0	2,054,941	82,021
Town of Forest City	Municipal	11,567.0	105,820	4,108
Four County Elec Member Corp	Cooperative	91,004.9	899,757	32,691
Town of Edenton - (NC)	Municipal	11,168.0	93,958	4,141
French Broad Elec Member Corp	Cooperative	57,071.9	493,556	36,698
City of Gastonia - (NC)	Municipal	76,693.0	675,378	27,453
Greenville Utilities Comm	Municipal	178,157.2	1,721,702	66,298
Halifax Electric Member Corp	Cooperative	21,998.6	154,186	11,723
Haywood Electric Member Corp	Cooperative	39,464.0	279,091	26,479
Town of High Point	Municipal	129,779.0	1,161,138	40,841
Town of Huntersville - (NC)	Municipal	17,278.4	231,302	5,292
Jones-Onslow Elec Member Corp	Cooperative	125,094.0	1,178,063	73,374
City of Kings Mountain - (NC)	Municipal	13,966.0	140,241	4,746
City of Kinston - (NC)	Municipal	46,421.0	448,366	11,634
City of Laurinburg - (NC)	Municipal	16,240.7	134,159	5,591
City of Lexington - (NC)	Municipal	51,051.4	391,732	18,560
Lumbee River Elec Member Corp	Cooperative	127,281.3	1,263,667	60,059
City of Lumberton - (NC)	Municipal	28,730.0	270,856	12,346
Mecklenburg Electric Cooperative	Cooperative	218.4	1,676	132

City of Monroe - (NC)	Municipal	61,858.8	717,263	10,809
City of Morganton - (NC)	Municipal	32,520.0	338,776	8,310
Mountain Electric Coop, Inc	Cooperative	28,194.0	260,821	18,643
City of New Bern - (NC)	Municipal	51,250.0	448,542	22,454
New River Light & Power Co	State	16,136.9	202,042	8,072
City of Newton - (NC)	Municipal	14,736.6	147,861	4,529
Pee Dee Electric Member Corp	Cooperative	41,485.7	376,498	20,960
Pitt & Greene Elec Member Corp	Cooperative	21,479.0	189,284	8,686
Piedmont Electric Member Corp	Cooperative	60,501.0	480,916	31,581
Town of Pineville - (NC)	Municipal	11,846.0	109,808	3,259
Randolph Electric Member Corp	Cooperative	60,485.5	512,940	31,631
Roanoke Electric Member Corp	Cooperative	35,794.0	279,954	14,359
City of Rocky Mount - (NC)	Municipal	79,229.0	707,390	27,533
Rutherford Elec Member Corp	Cooperative	132,858.1	1,251,793	68,842
City of Shelby - (NC)	Municipal	20,147.0	192,951	8,241
Town of Smithfield - (NC)	Municipal	17,803.0	172,874	4,511
South River Elec Member Corp	Cooperative	95,738.0	805,730	43,716
City of Statesville - (NC)	Municipal	46,612.6	452,830	13,329
Surry-Yadkin Elec Member Corp	Cooperative	49,237.2	366,770	26,885
Town of Tarboro - (NC)	Municipal	23,654.0	238,813	5,799
Tennessee Valley Authority	Federal	457.0	5,117	2
Tri-County Elec Member Corp	Cooperative	54,962.7	541,759	24,665
Tideland Electric Member Corp	Cooperative	42,303.0	348,354	21,096
Tri-State Electric Member Corp	Cooperative	1,724.0	13,321	1,456
Union Electric Membership Corp - (NC)	Cooperative	147,533.0	1,335,692	74,092
Virginia Electric & Power Co	Investor Owned	347,725.2	4,294,062	120,132
Town of Wake Forest - (NC)	Municipal	19,488.4	152,587	5,910
Wake Electric Membership Corp	Cooperative	85,444.0	732,471	41,013
City of Washington - (NC)	Municipal	34,368.6	276,527	13,628
City of Wilson	Municipal	124,288.2	1,282,627	34,115
Energy United Elec Member Corp	Cooperative	261,888.0	2,582,511	126,740
Brunswick Electric Member Corp	Cooperative	161,805.0	1,335,612	89,144
Town of Murphy - (NC)	Municipal	16,191.0	142,954	4,956