

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-100, SUB 147

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of 2017 Biennial Integrated Resource Plan) Updates and Related 2017 REPS) Compliance Plans)	PUBLIC STAFF'S COMMENTS ON REPS COMPLIANCE PLANS
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NOW COMES THE PUBLIC STAFF – North Carolina Utilities Commission, by and through its Executive Director, Christopher J. Ayers, pursuant to the Commission's order of August 10, 2017, in this docket, and respectfully submits its comments on the 2017 Renewable Energy and Energy Efficiency Portfolio Standard (REPS) Compliance Plans filed by Duke Energy Progress, LLC (DEP), Duke Energy Carolinas, LLC (DEC), and Dominion Energy North Carolina (DENC) (collectively, the utilities) as part of their 2017 updates to their biennial Integrated Resource Plans (IRPs).

G.S. 62-133.8 requires all electric power suppliers in North Carolina to meet specified percentages of their retail sales using renewable energy and energy efficiency (EE). One megawatt-hour (MWh) of renewable energy, or its thermal equivalent, equates to one renewable energy certificate (REC), which is used to demonstrate compliance. An electric power supplier may comply with the REPS by generating renewable energy at its own facilities, by purchasing bundled renewable energy from a renewable energy facility, or by purchasing RECs.

Alternatively, a supplier may comply by reducing energy consumption through implementation of EE measures or electricity demand reduction¹ (or through demand-side management (DSM) measures, in the case of electric membership corporations (EMCs) and municipalities). The utilities may use EE measures to meet up to 25% of the overall requirements in G.S. 62-133.8(b). One MWh of savings from DSM, EE, or demand reduction is equivalent to one energy efficiency certificate (EEC), which is a type of REC. EMCs and municipalities may use DSM and EE to meet the requirements of 62-133.8(c) without any limitation. All electric power suppliers may obtain RECs from out-of-state sources to satisfy up to 25% of the requirements of G.S. 62-133.8(b) and (c), with the exception of DENC, which can use out-of-state RECs to meet its entire requirement. The total amount of renewable energy or EECs that must be provided by an electric power supplier for 2017 is equal to 6% of its North Carolina retail sales for the preceding year, and for 2018 and 2019, the requirement is increased to 10%.

Commission Rule R8-67(b) provides the requirements for REPS Compliance Plans (Plans). Electric public utilities must file their Plans on or before September 1 of each year, as part of their IRPs,² and explain how they will meet the requirements of G.S. 62-133.8(b), (c), (d), (e), and (f). The Plans must cover the current year and the next two calendar years, or in this case 2017, 2018, and 2019 (the planning period). An electric power supplier may have its REPS

¹ "Electricity demand reduction," as used herein, is defined in G.S. 62-133.8(a)(3a).

² Although municipalities and EMCs do not file IRPs, they are required to file REPS Compliance Plans on or before September 1 of each year.

requirements met by a utility compliance aggregator as defined in R8-67(a)(5).

Below are the Public Staff's individual comments on DEP, DEC, and DENC's plans to comply with G.S. 62-133.8(b), (c), and (d), the general³ and solar energy requirements, followed by consolidated comments on plans to comply with G.S. 62-133.8(e) and (f), the swine and poultry waste set-asides.

DEP

DEP has contracted for and banked sufficient resources to meet the REPS requirements of G.S. 62-133.8(b), (c), and (d) for itself and the electric power suppliers for which it is providing REPS compliance services, the Towns of Waynesville, Sharpsburg, Stantonsburg, Black Creek, Lucama, and Winterville (collectively, DEP's Wholesale Customers). DEP's contractual obligations to provide REPS compliance services for these towns ends effective December 31, 2017.

DEP intends to use EE programs to meet up to 25% of its REPS requirements. Hydroelectric facilities with a capacity of 10 megawatts (MW) or less and energy allocations from the Southeastern Power Administration (SEPA) will be used to meet up to 30% of the general requirement of the Town of Waynesville, the only DEP Wholesale Customer that receives energy from SEPA.⁴

³ The overall REPS requirement of G.S. 62-133.8(b), less the requirements of the three set-asides established by G.S. 62-133.8(d)-(f), is frequently referred to as the "general requirement."

⁴ A hydroelectric facility with a generation capacity in excess of 10 MW is not considered a renewable energy facility under G.S. 62-133.8(a)(7). Under G.S. 62-133.8(c)(2)c, electric membership corporations (EMCs) and municipalities may not meet more than 30% of their REPS requirements with hydroelectric power.

Hydroelectric facilities with a capacity of 10 MW or less will also provide RECs for DEP's retail customers. DEP may also use wind energy, either through REC-only purchases or through energy delivered to its customers in North Carolina, to meet the general requirement. A portion of the general requirement of DEP and its Wholesale Customers will be met by executed purchased power agreements and REC-only purchases from landfill gas and biomass power providers, some of which are combined heat and power (CHP) facilities. DEP also plans to continue using solar energy to help it meet the general requirement.

To meet the solar set-aside, DEP will obtain RECs from its own solar facilities, its residential solar photovoltaic (PV) program, and other solar PV and solar thermal facilities.⁵

DEP plans to evaluate additional projects through the competitive procurement process established in S.L. 2017-912 (HB 589). HB 589 allows for competitive procurement of 2,660 MW of additional solar in the Carolinas with proposals issued over a 45 month period. DEP may develop up to 30% of its required competitive procurement capacity using self-owned facilities.

DEP anticipates that its REPS compliance costs will be below the cost caps in G.S. 62-133.8(h)(3) and (4), as amended in HB 589, for the planning period. DEP, however, anticipates being close to the cost cap in 2019.

⁵ The Public Staff notes that 140.7 MW of DEP-owned solar facilities are now operational for use to meet a portion of its REPS compliance obligations. See *Order Transferring Certificate of Public Convenience and Necessity* issued December 16, 2014, Docket No. E-2, Subs 1054, 1055, and 1056, and *Order Issuing Certificate of Public Convenience and Necessity*, April 14, 2015, Docket No. E-2, Sub 1063.

DEP files evaluation, measurement, and verification (EM&V) plans for each EE program in the respective program approval docket.

DEC

DEC has contracted for or procured sufficient resources to meet the REPS requirements of G.S. 62-133.8(b), (c), and (d) for the planning period, both for itself and for the electric power suppliers for which it is providing REPS compliance services. These suppliers are Rutherford EMC, Blue Ridge EMC, the Town of Dallas, the Town of Forest City, the City of Concord, the Town of Highlands, and the City of Kings Mountain (collectively, DEC's Wholesale Customers). DEC's contractual obligation to provide REPS compliance for the City of Concord and the City of Kings Mountain ends effective December 31, 2018.

DEC intends to use EE programs to meet up to 25% of its REPS requirements. Hydroelectric facilities and energy allocations from SEPA will be used to meet up to 30% of the general requirement of DEC's Wholesale Customers. Hydroelectric facilities of 10 MW or less, together with DEC's Bridgewater hydroelectric facility, will provide RECs for DEC's retail customers. DEC will continue to use wind energy, either through REC-only purchases or energy delivered to its customers in North Carolina, to meet the general requirement. A portion of the general requirement for DEC and its Wholesale Customers will be met by executed purchased power agreements and REC-only purchases from landfill gas and biomass power providers, some of which are CHP facilities. DEC also expects to use solar resources to satisfy a portion of the

general requirement.

To meet the solar set-aside, DEC will obtain RECs from its self-owned distributed solar PV facilities and from other solar PV and solar thermal facilities.⁶ DEC plans to evaluate additional solar projects through the competitive procurement process established in HB 589.

DEC anticipates that its REPS compliance costs will be below the cost caps in G.S. 62-133.8(h)(3) and (4), as amended in HB 589, for the planning period.

DEC files EM&V plans for each EE program in the respective program approval docket.

DENC

DENC has contracted for and banked sufficient resources to meet the REPS requirements of G.S. 62-133.8(b), and (c), through 2019 for itself. For the Town of Windsor (Windsor), for which it is providing REPS compliance services DENC has contracted for and banked sufficient resources to meet the REPS requirement of G.S. 62-133.8(d) as well. DENC plans to use EE and purchased RECs to meet the general REPS requirements of G.S. 62-133.8(b) and (c) for itself and indicated that it may use Company generated RECs for compliance in the future. For Windsor's general REPS requirement, DENC will use out-of-state wind RECs, in-state biomass and solar RECs, and Windsor's SEPA allocation. For the

⁶ The Public Staff Notes that 75 MW of DEC-owned solar facilities are now operational for use to meet a portion of its REPS compliance obligations. See *Order Transferring Certificate of Public Convenience and Necessity* issued May 16, 2016, Docket No. E-7, Subs 1079 and 1098.

solar set-aside, DENC plans to purchase in-state and out-of-state solar RECs for itself and Windsor. DENC will rely on out-of-state RECs to meet its compliance requirements, as allowed by G.S. 62-133.8(b)(2)(e), but will obtain in-state RECs to meet Windsor's 75% in-state requirement. Its total costs are the same as its incremental costs because, unlike DEC and DEP, it currently plans to purchase only unbundled RECs to meet its REPS requirements and not RECs that are bundled with renewable electric energy.

DENC anticipates that it will incur research costs in 2017-19 for the continued development of its Microgrid Project. The Microgrid Project consists of wind, solar and fuel cell energy generation and battery storage at DENC's Kitty Hawk District Office.

DENC anticipates that the REPS compliance costs for itself and Windsor will be well below the cost caps in G.S. 62-133.8(h)(3) and (4) for the planning period.

DENC files EM&V plans for each EE program in the respective program approval docket.

REPS Compliance Summary Tables

The tables in this section are drawn from data submitted in the DEP, DEC, and DENC Plans. Table 1 shows the projected annual MWh sales on which the utilities' REPS obligations are based. It is important to note that the figures shown for each year are the utilities' MWh sales for the preceding year; for instance, the

sales in the 2019 column are MWh sales for calendar year 2018. The totals are presented in this manner because each utility's REPS obligation is determined as a percentage of its MWh sales for the preceding year. The sales amounts include retail sales of wholesale customers for which the utility is providing REPS compliance reporting and services. Table 2 presents a comparison of the projected annual incremental REPS compliance costs with the utilities' annual cost caps.⁷

TABLE 1: MWh Sales for preceding year

Electric Power Supplier	Compliance Year		
	2017	2018	2019
DEP	37,386,079	37,353,340	37,750,361
DEC	61,122,330	60,597,400	61,029,326
DENC	4,197,685	4,218,555	4,237,513
TOTAL	102,706,094	102,627,295	102,261,572

⁷ The cost cap figures for DENC in Table 2 are different from those shown on page 16 of DENC's compliance plan because DENC used \$34 as the annual per-customer cap for residential customers while the Public Staff used \$27. DENC filed their plan before HB 589 passed amending this cost cap.

TABLE 2: Comparison of Incremental Costs to the Cost Cap

		DEP	DEC	DENC
2017	Incremental Costs	\$41,919,480	\$24,240,319	\$1,145,328
	Cost Cap	\$62,873,121	\$93,681,291	\$5,555,111
	Percent of Cap	66.7%	25.9%	20.6%
2018	Incremental Costs	\$49,407,750	\$36,339,094	\$1,388,996
	Cost Cap	\$63,201,102	\$94,434,135	\$5,554,886
	Percent of Cap	78.2%	38.5%	25.0%
2019	Incremental Costs	\$62,542,829	\$43,103,479	\$1,658,364
	Cost Cap	\$63,815,984	\$93,349,347	\$5,570,645
	Percent of Cap	98%	43.2	29.8%

Swine Waste and Poultry Waste Set-Asides

Beginning in 2012, the electric power suppliers were required to meet 0.07% of their retail sales with energy derived from swine waste, pursuant to G.S. 62-133.8(e), and a combined total of 170,000 MWh or equivalent energy derived from poultry waste, pursuant to G.S. 62-133.8(f). These requirements, or set-asides, increase in later years. From 2012 through 2017, the electric power suppliers filed joint motions, pursuant to G.S. 62-133.8(i)(2), seeking to delay the

swine and poultry waste energy requirements. In its orders, the Commission has also required the electric power suppliers to file reports describing the state of their compliance with the set-asides and their negotiations with the developers of swine and poultry waste-to-energy projects, initially on a tri-annual basis and now semi-annually.⁸ The Commission further required them to provide internet-available information to assist the developers of swine and poultry waste-to-energy projects in getting contract approval and interconnecting facilities. Additionally, the Commission requested that the Public Staff hold periodic stakeholder meetings.

In their motions for relief under G.S. 62-133.8(i)(2) in 2012 and 2013, the electric power suppliers requested the Commission to delay the poultry waste energy requirements as well as the swine waste set-aside, and the Commission granted their requests. In 2014, the electric power suppliers were able to comply with the poultry waste set-aside as modified by the Commission. Among the reasons why the electric power suppliers did not request a delay in 2014 were the relatively low requirement of 170,000 MWh or equivalent energy in that year and the utilities' ability to bank RECs from earlier years. In addition, the availability of poultry waste RECs in the marketplace had been increased by 2014 due to advances in the technology of power generation from poultry waste, the use of thermal energy to meet the set-aside as authorized by S.L. 2011-309, and the availability of poultry waste RECs from "cleanfields renewable energy demonstration parks" as authorized by S.L. 2010-195.

⁸ The smallest electric suppliers were exempt from this requirement.

In 2015, the statutory poultry waste requirement rose from 170,000 to 700,000 MWh, and the electric power suppliers were unable to comply with this major increase. Consequently, they filed a joint motion seeking again to delay both the swine and poultry waste set-asides. Instead of granting their motion in full, however, the Commission reduced the 2015 statewide aggregate poultry waste requirement to 170,000 MWh and set the requirements for 2016 and 2017 at 700,000 MWh and 900,000 MWh, respectively. The electric suppliers successfully met the reduced 170,000-MWh requirement for 2015.

In their 2016 joint motion, the electric suppliers proposed that the 700,000-MWh poultry waste requirement for 2016 be reduced to 170,000 MWh, and that the 2017 requirement be reduced from 900,000 MWh to 700,000 MWh. In an order issued on October 17, 2016, in Docket No. E-100, Sub 113, the Commission granted their motion.

In 2017, a similar motion was filed asking for a reduction in the set aside requirements. In its October 16, 2017, Order Modifying the Swine and Poultry Waste Set-Aside Requirements and Providing Other Relief, (2017 Set-Aside Order) the modification Commission delayed implementation of the swine waste requirement by one additional year, and reduced the poultry waste requirement to 170,000 MWh for 2017, and from 900,000 to 700,000 in 2018.

To date, the State's electric power suppliers have been able to comply only to a very limited extent with the poultry waste set-aside requirement, and not at all with the swine waste requirement. Nevertheless, the REPS statute has served as

a stimulus for several important advances in waste-to-energy technology.

First, several hog farms have installed anaerobic digesters at their swine waste lagoons and produced biogas that has been used as fuel to operate small electric generators at these farms. Electric power suppliers have purchased the electricity produced by these generators – or, alternatively, have purchased the RECs when the electricity was used on the farm where it was generated – and this represented the initial step toward compliance with the swine waste set-aside.

Second, poultry waste has been transported by truck to existing and new generation facilities, where it has been co-fired with wood or other fuels.

Third, large centralized anaerobic digestion plants have been built in areas where numerous hog farms are located. These plants receive swine waste from numerous sources, produce biogas from the waste by the digestion process, and eliminate impurities so that it is eligible to be transported in the natural gas pipeline system. A specified amount of this biogas, which is referred to as “directed biogas” or “renewable natural gas,” is injected into a pipeline, and an equivalent amount of natural gas is delivered by the pipeline operator to a gas-fired utility generating plant. These directed biogas facilities were first built in Midwestern states with extensive hog farming activity, but on December 2, 2016, Carbon Cycle Energy, LLC, began construction of a directed biogas facility in Warsaw, North Carolina. Other directed biogas facilities are also under development in the State.

The Public Staff believes the electric power suppliers will likely continue to have difficulty meeting the swine and poultry waste set-asides. As advances in waste processing technology are made, the electric power suppliers may be able to achieve compliance with these requirements in the not too distant future. The supplier best positioned to reach full compliance is DENC since it can obtain all of its RECs from out-of-state. DENC has secured enough out-of-state poultry waste RECs for itself and for Windsor for the entire planning period, and in its Compliance Plan expresses confidence that it will also be able to comply with the in-State poultry waste requirement for Windsor. DENC has obtained sufficient in-state and out-of-state swine waste RECs to meet Windsor's requirements for the entire planning period; it has enough swine waste RECs under contract to meet its own requirements, as well, but it may be unable to comply if its suppliers fail to fulfill their contractual obligations.

As requested by the Commission, the Public Staff held stakeholder meetings on numerous occasions. The attendees have included farmers, the North Carolina Pork Council, the North Carolina Poultry Federation, waste-to-energy developers, bankers, state environmental regulators, and the electric power suppliers. The meetings allow the stakeholders to network and voice their concerns to the other parties. With the recent advancement, all parties agreed that semiannual meetings were no longer necessary and requested that they only be held yearly. The Commission granted this request in its 2017 Set-Aside Order.

Conclusions on REPS Compliance Plans

In summary, the Public Staff's conclusions regarding the REPS compliance plans of DEP, DEC, and DENC are as follows:

- DEP, DEC, and DENC should be able to meet their REPS obligations during the planning period, with the exception of the swine and poultry waste set-asides. In 2019, DEP projects to be at 98% of the cost cap.
- DEP and DEC would not have been able to meet the swine waste requirement in 2017 had it not been delayed by the Commission, and they met the poultry waste requirement only after the Commission reduced the aggregate statewide requirement to 170,000 MWh. They are uncertain about meeting the requirement in 2018 and 2019.
- For the planning period, DENC is confident that it will meet the swine waste requirement for itself although it is dependent on the performance of a single supplier. For Windsor, DENC is confident that it will meet the requirement for the full planning period.
- DEP, DEC, and DENC are actively seeking energy and RECs to meet the set-aside requirement for the years in which they expect to fall short of compliance. DEP is no longer purchasing solar and general RECs to meet its general obligation or solar set-aside obligation because it has sufficient solar RECs to comply with both obligations during the planning period.

- The Commission should approve the 2017 REPS Compliance Plans.

WHEREFORE, the Public Staff prays that the Commission take these comments and recommendations into consideration in reaching its decision in this proceeding.

Respectfully submitted this the 31st day of October, 2017.

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CERTIFICATE OF SERVICE

I certify that a copy of these Comments has been served on all parties of record or their attorneys, or both, by United States mail, first class or better; by hand delivery; or by means of facsimile or electronic delivery upon agreement of the receiving party.

This the 31 day of October, 2017.

Electronically submitted
s/ Robert B. Josey