

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-7, SUB 1131**

**In the Matter of: )  
Application of Duke Energy Carolinas, )  
LLC for Approval of Renewable Energy )  
and Energy Efficiency Portfolio Standard )  
(REPS) Compliance Report and Cost )  
Recovery Rider Pursuant to N.C. Gen. Stat. )  
62-133.8 and Commission Rule R8-67 )**

**NCSEA’S POST-HEARING  
BRIEF AND PARTIAL  
PROPOSED ORDER**

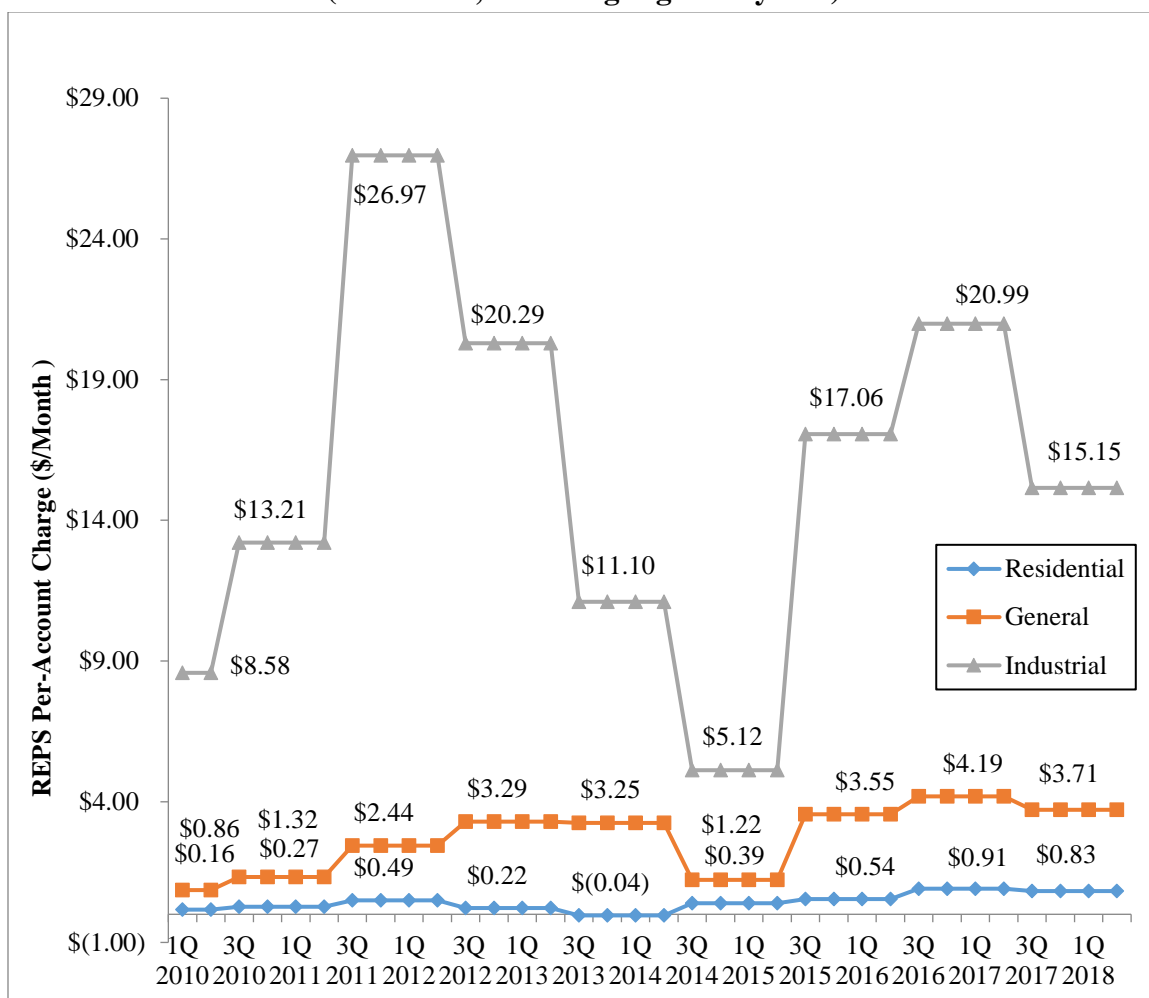
**NCSEA’S POST-HEARING BRIEF AND  
PARTIAL PROPOSED ORDER**

The North Carolina Sustainable Energy Association (“NCSEA”) submits this post-hearing brief and partial proposed order in accordance with the July 7, 2017 *Order Granting Motion for Extension of Time* issued by the North Carolina Utilities Commission (“Commission”) in this docket. NCSEA seeks to (1) provide a temporal context for the Renewable Energy and Energy Efficiency Portfolio Standard (“REPS”) charges proposed by Duke Energy Carolinas, LLC (“DEC”) in this docket and (2) show the Commission that certain expenses for which DEC seeks recovery as research costs do not meet the statutory requirements to be recovered as such.

**DEC’S PROPOSED RIDER CHARGES IN CONTEXT**

In this proceeding, DEC requests approval of a per-account REPS charge of \$0.83 per month for the residential class, a \$0.08 decrement from the current rider; a \$3.71 per month charge for the general class, a \$0.48 decrement from the current rider; and a \$15.15 per month charge for the industrial class, a \$5.84 decrement from the current rider. The graph below depicts the per-account monthly charges that have been approved in recent years and the per-account monthly charges being proposed in this proceeding.

**Figure 1<sup>1</sup>**  
**Duke Energy Carolinas' Monthly REPS Charge**  
**(2010-2018, including regulatory fees)**



When these per-account *monthly* charges are multiplied by twelve, they yield the following per-account *annual* charges: \$9.96 for residential customers, \$44.52 for general customers and \$181.80 for industrial customers. These proposed per-account annual

<sup>1</sup> Order Approving REPS Riders, p. 2, Docket No. E-7, Sub 872 (December 15, 2009); Order Approving REPS and REPS EMF Riders, p. 14, Docket No. E-7, Sub 936 (August 13, 2010); Duke Energy's Renewable Energy Portfolio Rider REPS NC, p. 1, Docket No. E-7, Sub 984 (August 26, 2011); Duke's Renewable Energy Portfolio Standard Rider (NC), p. 1, Docket No. E-7, Sub 1008 (August 24, 2012); Duke's Revised REPS Cost Recovery Riders, p. 1, Docket No. E-7, Sub 1034 (August 29, 2013); DEC's REPS Compliance Tariff, p.1, Docket E-7 Sub 1052 (August 29, 2014); DEC's REPS Compliance Tariff, p.1, Docket E-7 Sub 1074 (August 6, 2015); DEC's REPS Compliance Tariff, p.1, Docket E-7 Sub 1106 (August 26, 2016); 2nd Revised Williams Exhibit No. 5, p.1, Docket E-7 Sub 1131 (May 19, 2017).

charges are all below the annual per-account statutory caps of \$34.00 for residential customers, \$150.00 for commercial customers, and \$1,000.00 for industrial customers that are set out in N.C. Gen. Stat. § 62-133.8(h)(4).

**RESEARCH COSTS RECOVERABLE PURSUANT TO G.S. 62-133.8(H)(1)B.**

North Carolina Gen. Stat. 62-133.8(h)(1)b. allows DEC to recover in its REPS rider “reasonable and prudent costs incurred by an electric power supplier to: . . . b. Fund research that encourages the development of renewable energy, energy efficiency, or improved air quality, provided those costs do not exceed one million dollars (\$1,000,000) per year.” However, DEC has proposed to recover two categories of costs pursuant to G.S. 62-133.8(h)(1)b. that do not meet the requirements of the statute.

**I. SOLAR INTEGRATION STUDIES**

Over the past several years, DEC has funded several studies that investigate how increasing penetration of solar generation impacts system operations. DEC has asserted that the costs for these studies are recoverable pursuant to G.S. 62-133.8(h)(1)b. Facially, such studies that investigate how DEC should operate its system as the penetration of solar generation increases should encourage the development of renewable energy. However, such studies only encourage the development of renewable energy if they actually inform how DEC operates its system.

**A. 2014 SOLAR INTEGRATION STUDY**

In 2014, DEC sought recovery of a study “to research and understand the operational impacts of solar at various penetration levels.” *Direct Testimony of Gary Freeman*, p. 16 Docket E-7, Sub 1074 (March 4, 2015). The Commission allowed cost recovery for the study in DEC’s REPS rider pursuant to G.S. 62-133.8(h)(1)b. See, *Order*

*Approving REPS and REPS EMF Riders and 2014 REPS Compliance*, Docket No. E-7, Sub 1074 (July 30, 2015). DEC sought recovery of further work related to the study the following year, and the Commission allowed cost recovery in DEC's REPS rider. See, *Order Approving REPS and REPS EMF Riders and 2015 REPS Compliance*, Docket No. E-7, Sub 1106 (August 16, 2016).

In order to encourage the development of renewable energy, a study of how solar penetration impacts system operations must actually inform system operations. However, in the recent biennial determination of avoided costs, DEC's system operator testified that he was not familiar with either the 2014 study or the studies for which DEC is currently seeking cost recovery.

- [Q] Mr. Holeman, are you familiar with the studies that Duke Energy has commissioned that analyze the operational impacts of solar at various penetration levels in the Companies' service territories?
- A No, ma'am.
- Q So you're not familiar with any of the studies that Duke Energy has commissioned that look at how to deal with or the implications of integrating solar PV into the Companies' systems?
- A If you're talking about studies in general, yes, I've been involved in some of the study work in looking at how we need to respond to the growing intermittency and growing uncertainty that we're experiencing through operationally excess energy and operationally deficient energy.
- Q So are you familiar with the study that's titled "Duke Energy Photovoltaic Integration Study Carolina Service Areas" published by the Pacific Northwest National laboratory in March of 2014?
- A I am aware that that study had taken place but I'm not aware of any of the details.
- Q And are you familiar with the study entitled "Duke Energy Photovoltaic Integration Study: Regulated 2020 Case for Carolina Service Area" prepared in August 2016 by the Pacific Northwest National Laboratory?
- A Not in any deep degree of detail.

- Q And are you familiar with the study titled “System-Wide Impact Study for Interconnection: A Photovoltaic Distributed Generation PV-DG” prepared in December of 2016 by Quanta Technology?
- A I’m aware of it. I do not have any detailed understanding of it.
- Q And one last study to ask you about, the study that’s entitled “Generation and Transmission Impact Study of High PV Penetration and Emerging Technologies in the Duke Energy Systems”, the latest draft is dated November of 2016, also published by the Pacific Northwest National Laboratory.
- A I know we have done studies with the Pacific National Lab. As a system operator, as I stated earlier, we operate the system. We are dealing with the here and the now in the operational planning horizon. We’re dealing with the intermittency, the variability that we’re seeing that are shown in Graphics 7 and 8 and then in the Figures 2 and 3 in the direct and rebuttal testimony. If you’re asking me if I’ve been intimately involved in those studies, working with the laboratory subject matter experts, the answer is no.

*Transcript of Testimony Heard April 18, 2017 at the Dobbs Building, Raleigh, Volume 2, pp. 145-148, Docket No. E-100, Sub 148 (May 2, 2017).* After testifying about alleged difficulties DEC faces in integrating renewable energy into its system operations, DEC’s system operator conceded that, apparently, DEC had already studied the issue, even though the studies clearly did not inform DEC’s system operations.

- Q. Has Duke commissioned PNNL or any other group such as Quanta Technology to analyze the issues that you describe in your testimony, Mr. Holeman?
- A. It’s my understanding, based on your questioning, that we have. I mean, I think we have --

*Id.* at 150-151.

B. 2016-2017 SOLAR INTEGRATION STUDY

In the current proceeding, Witness Payne testified that DEC “performed research studies, both directly and through strategic partnerships, to enhance the Company’s ability to comply with its future REPS requirements.” *Direct Testimony of Travis E. Payne*, p. 10,

Docket No. E-7, Sub 1131 (March 8, 2017) (“*Payne Direct*”). Witness Payne goes on to testify:

In 2015 and continuing into 2016, DEC commissioned Pacific Northwest National Laboratory, Power Costs Inc., EnerMod LLC, and Quanta Technology to perform a comprehensive and detailed generation, transmission, and distribution impact/integration study. In this work, the intent was to perform an integrated study of the generation and transmission system, modeling the generating fleet and its connections to the transmission system directly, along with a partially decoupled modeling of the distribution system and the associated impacts of solar. In the generation and transmission study, the modeling of PV resource data attempted to account for geographical patterns of actual PV installations that were in-service and those in the interconnection queue. The distribution study used a sampled modeling approach in order to estimate the impacts to the thousands of Duke Energy’s distribution circuits.

*Payne Direct* at 20-21. Returning to the statutory authority of G.S. 62-133.8(h)(1)b., in addition to being reasonable and prudent and not exceeding \$1 million, the costs must either (i) encourage the development of energy efficiency, (ii) encourage the development of renewable energy, or (iii) encourage improved air quality. Witness Payne testifies that the studies “enhance the Company’s ability to comply with its future REPS requirements.” *Id.* at 10. As they do not investigate energy efficiency, presumably DEC believes they encourage the development of renewable energy. However, DEC’s track record shows that the studies will not be used to encourage the development of renewable energy, as is required by G.S. 62-133.8(h)(1)b.

C. SOLAR STUDIES AND G.S. 62-133.8(H)(1)B.

It is clear that the 2014 study is not encouraging the development of renewable energy. Witness Payne testified that, understandably, it takes some period of time for the

results of a study to become integrated into DEC's system operations. In Witness Payne's estimation, three years was more than sufficient time.

Q And how much time do you believe is ample time?

A I do not know the answer to that.

Q Would three years be ample time?

A Yes.

Q Okay. Would it be fair to say that the study that Duke commissioned in 2014 or that was completed in 2014 by Pacific Northwest National Laboratories would have had ample time to be integrated into Duke's operations, DEC's operations?

A Yes.

*Transcript of Testimony (Heard in Raleigh 6-6-2017)*, p. 99, Docket No. E-7, Sub 1131 (June 29, 2017). However, as was made clear in the avoided cost proceeding, Sub 148, DEC has not integrated the 2014 study into its operations.

In sum, DEC's track record shows that the studies that they claim will encourage the development of renewable energy have not been used to do so, as is required for them to be considered incremental costs under G.S. 62-133.8(h)(1)b. Furthermore, DEC has not shown the Commission that the studies for which it seeks cost recovery in this proceeding will be used any differently. While it may be too late for the Commission to refund the costs for the 2014 study to the ratepayers, NCSEA respectfully requests that the Commission deny cost recovery for the 2017 studies in DEC's REPS rider.

## **II. SOLAR INSPECTION SAFETY EQUIPMENT**

Witness Payne testifies that DEC seeks recovery pursuant to G.S. 62-133.8(h)(1)b. for "safety equipment (fire retardant clothing) for the employees who occasionally need to visit solar farms." *Payne Direct* at 26. The justification offered by Witness Payne is that "The Company sees increasing need for sending engineering professionals to the field to support customers." *Id.*

NCSEA does not challenge that DEC's purchase of safety equipment may be reasonable and prudent, however, NCSEA does challenge DEC's assertion that such equipment "fund[s] research that encourages the development of renewable energy," as required by G.S. 62-133.9(h)(1)b. According to Witness Payne, DEC currently owns and operates the 15 MW Mocksville Solar Facility and the 60 MW Monroe Solar Facility was expected to be in service in the first quarter of 2017. *Payne Direct* at pp. 9-11. As such, these expenses are more appropriately recovered in base rates.

**III. NCSEA'S PROPOSED FINDING OF FACT AND EVIDENCE AND CONCLUSION**

NCSEA requests that the Commission direct DEC to adjust its REPS rider to remove costs associated with the 2017 studies and with site visit safety equipment. Accordingly, NCSEA proposes that the Commission include in its order the following Finding of Fact:

The costs incurred by DEC in retaining Pacific Northwest National Laboratory, Power Costs Inc., EnerMod LLC, and Quanta Technology to perform a study of the impacts of renewable energy generation have not been shown by DEC to be recoverable under G.S. 62-133.8(h)(1)b. Additionally, the costs incurred by DEC in purchasing fire retardant clothing for employees who occasionally visit solar farms have not been shown by DEC to be recoverable under G.S. 62-133.8(h)(1)b. The costs incurred by DEC for all other research activities during the test period are "incremental costs" recoverable under G.S. 62-133.8(h)(1)b., and are within the \$1,000,000 annual limit. It is appropriate for DEC to continue to provide, in its 2017 REPS rider application, the results of its REPS-related



research when these results are publicly available, and the procedures for third parties to access the results when they are proprietary.

In support of this Finding of Fact, NCSEA proposes that the Commission include in its order the following evidence and conclusion:

The evidence for this finding of fact can be found in the testimony of DEC witness Payne.

Witness Payne identified in his direct testimony and in Confidential Payne Exhibit No. 3 the “Research” and “Other Incremental Costs” that the Company has incurred or projects to incur in association with REPS compliance. Costs that are recoverable pursuant to G.S. 62-133.8(h)(1)b. must “Fund research that encourages the development of renewable energy, energy efficiency, or improved air quality, provided those costs do not exceed one million dollars (\$1,000,000) per year. Payne Exhibit No. 3 shows that the research costs, as proposed by DEC for recovery in its REPS rider, are under the \$1-million per year cap established in G.S. 62-133.8(h)(1)b.

Witness Payne identified in his direct testimony and in Confidential Payne Exhibit No. 3 costs associated with studies of the operational impacts of solar at various penetration levels as research costs for which DEC seeks recovery pursuant to G.S. 62-133.8(h)(1)b. DEC has previously sought recovery of costs incurred for a similar study in Docket Nos. E-7, Sub 1174 and E-7, Sub 1106. However, based on the testimony of Witness Payne in this docket and the testimony of Company Witness Holeman in Docket No.

E-100, Sub 148, the Commission finds that the previous study has not been used by DEC to “encourage[] the development of renewable energy,” as required by G.S 62-133.8(h)(1)b. Based on this history, and the fact that DEC has not provided evidence as to how the studies for which it seeks recovery in this docket will encourage the development of renewable energy, the Commission finds that the costs associated with the studies of operational impacts of solar at various penetration levels are not recoverable pursuant to G.S. 62-133.8(h)(1)b.

Witness Payne identified in his direct testimony and in Confidential Payne Exhibit No. 3 costs associated with the purchase of solar farm site visit safety equipment. However, DEC has not provided evidence as to how the purchase of such safety equipment will encourage the development of renewable energy. As such, the Commission finds that the costs associated with the purchase of such safety equipment are not recoverable pursuant to G.S. 62-133.8(h)(1)b.

In prior Commission Orders, the Commission directed DEC to file in REPS rider applications the results of studies the costs of which were recovered via its REPS EMF and REPS riders, including information (e.g., an internet or mailing address) regarding how parties can access the results of those studies. In compliance with the Commission’s *Order Approving REPS and REPS EMF Riders and 2012 REPS Compliance*, Docket No. E-7, Sub 1034, witness Payne supplied testimony and exhibits in the current

docket on the results and status of various studies, the cost of which DEC included for recovery in its incremental REPS costs in the 2016 test period.

Based on the evidence presented, the Commission concludes that the costs associated with studies of the operational impacts of solar at various penetration levels and the costs associated with the purchase of solar farm site visit safety equipment are not recoverable under G.S. 62-133.8(h)(1)b. The Commission concludes that all other research activities funded by DEC during the test period are recoverable under G.S. 62-133.8(h)(1)b., and that they are within the \$1 million annual limit provided in the statute. In addition, the Commission finds that the research information DEC provided is helpful. Therefore, the Commission finds that DEC should continue to file this information with future REPS compliance reports and to provide procedures for third parties to access the results of studies that are subject to confidentiality agreements. For research projects sponsored by Electric Power Research Institute, DEC should provide the overall program number and specific project number for each project, as well as an internet address or mailing address that will enable third parties to inquire about the terms and conditions for access to any portions of the study results that are proprietary.

#### **CONCLUSION**

As explained in detail above, NCSEA believes that DEC's costs associated with solar integration studies and solar inspection safety equipment do not meet the statutory requirements of G.S. 62-133.8(h)(1)b., and DEC has not provided evidence as to how these

costs encourage the development of renewable energy. Thus, it is NCSEA's belief that these costs are not recoverable in the REPS rider as incremental costs associated with REPS compliance. NCSEA respectfully requests that the Commission deny DEC's request to recover these costs in their REPS rider.

Respectfully submitted, this the 26th day of July, 2017.

/s/ Peter H. Ledford  
Peter H. Ledford  
N.C. State Bar No. 42999  
General Counsel  
NCSEA  
4800 Six Forks Road, Suite 300  
Raleigh, NC 27609  
919-832-7601 Ext. 107  
peter@energync.org

#### **CERTIFICATE OF SERVICE**

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing Comments by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 26th day of July, 2017.

/s/ Peter H. Ledford  
Peter H. Ledford  
N.C. State Bar No. 42999  
General Counsel  
NCSEA  
4800 Six Forks Road, Suite 300  
Raleigh, NC 27609  
919-832-7601 Ext. 107  
peter@energync.org