STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 148

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of: Biennial Determination of Avoided Cost Rates for Electric Utility Purchases from Qualifying Facilities – 2016

DIRECT TESTIMONY

OF

CARSON HARKRADER

ON BEHALF OF

NORTH CAROLINA SUSTAINABLE ENERGY ASSOCIATION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Carson Harkrader. My business address is 400 West Main Street Suite 503, Durham, North Carolina, 27701.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am the Director of Project Development for Carolina Solar Energy II, LLC (which I will refer to as "CSE"). CSE was founded by my father, Richard Harkrader, to develop utility scale photovoltaic solar energy projects in North Carolina. From 2004 until the end of 2012, CSE provided design, financing, construction and operation management to a diverse customer base of commercial, nonprofit, utility, and government clients. Beginning in 2012, CSE modified our business model to provide project development services to local, national, and international solar companies. CSE is a business member of the North Carolina Sustainable Energy Association, on behalf of which I am providing this testimony.

CSE has successfully developed approximately 200 megawatts ("MW") alternating current ("ac") of solar generating facilities, made up of 39 projects that are currently under construction or already operating in North Carolina. The first project our company built was at PNC Arena, on the North Carolina State University campus here in Raleigh. At 75 kilowatts, at the time it was turned on in January 2008, this was the largest privately owned grid-tied utility scale solar project in the Southeast. Other early CSE

projects include installations at the North Carolina Zoo, on the roof at the City of Raleigh's E.M. Johnson Water Treatment Plant, and at the entrance to the Person County Industrial Park located on US Highway 501, where we often have sheep that graze around the solar panels. In 2012, we started developing 5 MWac sized solar projects, and in 2014 we began developing larger 50 MWac sized transmission interconnected solar projects, the first of which is now under construction in Vance County. So, our company has grown along with the industry here in North Carolina.

Q. PLEASE DISCUSS YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I earned a Bachelor of Arts with Honors in Political Science from Brown University, and wrote my honors thesis in 1999 on the deregulation of the electric utilities in Rhode Island. I also earned a Master in Business Administration in Finance and Strategy from New York University. Prior to business school, I was employed for eight (8) years on the commercial sales team with GE Energy in Asia and New York. While at GE Energy, I led teams to sell wind and gas turbines in the United States, Canada, and Asia and was the lead negotiator on sales contracts for hundreds of megawatts of wind and gas turbine technology, managing the input of GE's engineering, sourcing, legal, and finance teams in the contract negotiation process. Prior to working for GE Energy, I spent two years at a renewable energy development company in Sydney, Australia, which developed biomass and

wind energy projects and completed an initial public offering and listed on the Australian Stock Exchange in 2002. After completing business school, I returned home to North Carolina in 2012 to work with my father at CSE. At this point in time, I have a total of fourteen years' experience in the energy industry and am familiar with solar, wind, conventional gas turbine and steam turbine technologies, and project development.

I have been the Director of Project Development at CSE for four and one half years. In this role, I oversee the company's solar QF development process. As Director of Project Development, I have been involved in the development of nineteen 5 MW ac qualifying facilities ("QFs") that are in operation or under construction in North Carolina. Additionally, I have been involved in the development of four large QFs that have secured power purchase agreements with Duke Energy Progress, one of which has started construction and the rest of which are preparing for construction later this year or early next year.

CSE is an early stage developer, meaning that we complete the land acquisition process, local permitting, and environmental permitting along with certification at the North Carolina Utilities Commission (the "Commission") and at the FERC. We also initiate the interconnection process with the relevant utility. In addition to managing this process, I am responsible for working with other companies who partner with us to

complete the financing and the construction of the solar farms. These relationships provide us with constant, ongoing feedback on the terms and conditions that are necessary for a project to secure financing and, ultimately, to be constructed.

In my years of working at CSE and developing solar facilities in North Carolina, I have had the opportunity to work closely with employees of Duke Energy Carolinas ("DEC"), Duke Energy Progress ("DEP") (collectively, "Duke") and Dominion North Carolina Power ("Dominion") (Duke and Dominion collectively, the "Utilities"). It is my experience that the utility employees with whom I have worked have been very dedicated to their work and, in my opinion, have played a significant role in the success of the solar industry in North Carolina. CSE and NCSEA, as well as myself personally, are very appreciative of these efforts and we look forward to continuing to work together.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH CAROLINA UTILITIES COMMISSION?

A. I have not previously provided expert testimony to the Commission.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to several of the proposals made by the Utilities related to the implementation of the Public Utility Regulatory

Policies Act ("PURPA"), to provide the Commission with my observations, based on my experience, as to how PURPA must be implemented if the Commission's objective is to encourage QF development while managing risk and value to ratepayers associated with QF development, and to discuss the implications of the changes proposed by the Utilities to the continued development of QFs in North Carolina.

Q. PLEASE IDENTIFY THE SPECIFIC PROPOSALS TO WHICH YOU ARE RESPONDING.

A. My testimony is offered in response to Duke's characterization of solar development in North Carolina as "uncoordinated and unconstrained" and "unmanageable,"[1] as well as several of Duke's concerns related to the output of solar generating facilities.[2] My testimony is also offered in response to: i) the Utilities' proposals to reduce eligibility for the Commission-approved standard rates and contract terms available to QFs (the "Standard Offer") to one (1) MW from five (5) MW;[3] ii) the Utilities' proposal to reduce the

[1] Direct Testimony of Lloyd M. Yates on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, N.C.U.C. Docket No. E-100, Sub 148, February 21, 2017 ("Yates Direct"), p. 4, l. 23; p. 10, l. 10.

[2] Direct Testimony of John Samuel Holeman III on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, N.C.U.C. Docket No. E-100, Sub 148, February 21, 2017 ("Holeman Direct"), pp 10, l. 18 – p. 11, l. 18.

[3] Yates Direct, p. 11, ll 1-2; Direct Testimony of J. Scott Gaskill on behalf of Dominion North Carolina Power, N.C.U.C. Docket No. E-100, Sub 148, February 21, 2017 ("Gaskill Direct"), p. 14, ll 9-10.

maximum duration of the standard contract from 15 years to 10 years;[4] iii) Duke's proposal to offer a variable energy rate and not a fixed energy rate;[5] iv) Duke's proposal to transition to a competitive procurement process to support continued solar development in North Carolina;[6] and v) Duke's proposal to modify the standard for establishing a "legally enforceable obligation" ("LEO") by requiring a QF to progress through the System Impact Study process and commit to proceed to a detailed Facilities Study in the context of the interconnection process.[7]

Q. WHAT IS YOUR RESPONSE TO DUKE'S CHARACTERIZATION OF SOLAR DEVELOPMENT IN NORTH CAROLINA AS "UNCOORDINATED AND UNCONSTRAINED" AND "UNMANAGEABLE"?

A. I do not believe that this characterization accurately reflects the reality of developing a solar QF in North Carolina.

Regarding the characterization of solar development as "unconstrained," notwithstanding industry's past success in North Carolina,

[4] Yates Direct, p. 11, ll 3-4; Gaskill Direct, p. 15, ll 4-5.

[5] Yates Direct, p. 11, ll 4-7.

[6] Direct Testimony of Kendal C. Bowman on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, N.C.U.C. Docket No. E-100, Sub 148, February 21, 2017 ("Bowman Direct"), p. 61, ll 5-19.

[7] Direct Testimony of Gary Freeman on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, N.C.U.C. Docket No. E-100, Sub 148, February 21, 2017 ("Freeman Direct"), p. 14, ll 19-22.

the development of solar facilities is constrained by a number of factors and is becoming more constrained over time. At a high level, early stage development work includes the following steps: 1) identifying the site – we identify sites primarily based on the suitability of land (i.e., lack of wetlands, outside of the 100-year floodplain, reasonably flat, reasonably large tracts of land), as well as proximity to utility infrastructure suitable for interconnection; 2) making regulatory filings; 3) undertaking the local land use approval process; 4) performing environmental due diligence; and 5) making an appropriate interconnection application to the applicable utility, paying the deposit and application fees and participating in the interconnection process.

An increasing amount of time is required to identify appropriate sites in North Carolina for solar development, as suitable land close to utility infrastructure has become scarce over time. Additionally, a significant amount of time and resources are required and must be committed to secure the necessary local land use approvals. We engage extensively with neighbors and community leadership prior to filing applications for land use approvals. Once we initiate the approvals process, we appear before Planning Boards and Boards of Commissioners (or the equivalent), often in a quasi-judicial proceeding. In counties or towns that do not have a solar ordinance in place, we work with the planning department on the development of an appropriate ordinance to regulate the construction of solar

farms in that community, using a best practice template ordinance that was developed through a state-wide stakeholder process. In my experience, the counties and communities that we work in have been interested in learning more about solar energy, particularly the economic development benefits and the local tax base that solar projects provide, as well as the solar generating technology. We enjoy being able to provide this information to those communities.

Regarding the characterization of solar development as "uncoordinated," both Duke and Dominion acknowledge that solar generating capacity can provide benefits when located at certain points on the grid;[8] however, this information is not shared with or made readily available to QF developers. Additionally, inverter technology, such as that used in the types of solar generating facilities being developed in North Carolina, is dispatchable to provide a variety of benefits to the grid, including: 1) enhancing the ability of the grid to ride through low voltage events to prevent a loss of power for other customers; 2) supplying reactive power, which could offset utility investments in their own supply of this power; and 3) other power quality services which can offset utility expenditures. However, the utilization of these capabilities in a manner that benefits the grid requires communication and integration, and, to date, we have not been provided the opportunity to work with the Utilities on this

[8] Yates Direct, p. 8, l. 15; Gaskill Direct, p. 17, l. 17 – p. 18, l. 15.

issue. Thus, to the extent that a QF can deliver greater value to the electric utility and its ratepayers by interconnecting at a specific location or by setting inverters to provide certain services to the grid, these opportunities are not encouraged or enabled by the Utilities, and are therefore lost.

Duke witness Holeman expresses concern regarding paying for "operationally excess" energy produced by solar QFs and the operational challenges of managing "unscheduled" and "unconstrained" solar QF energy injections onto the grid. However, other jurisdictions experiencing higher penetration of solar generating capacity than North Carolina are addressing these types of issues through various means, including thoughtful rate design and pricing approaches that involve, for example, time-of-day pricing. My understanding is that Option B offered to QFs under the Utilities' respective rate schedules was a step in the direction of better aligning the output of a solar QF with the peak needs of the Utilities, and I am aware that many solar QFs in North Carolina have been installed using a design that increases energy production during the peak rate times identified in the Option B rates and decreases energy production during non-peak rate times. A further refinement to this approach to address some of the Utilities' concerns should be evaluated and implemented, in the interest of maximizing the value that solar generation can provide to the utility and its ratepayers. NCSEA expert witness Ben Johnson discusses this concept in greater detail in his testimony.

Finally, the interconnection process continues to evolve, and in effect, limit the numbers of QFs that have been and will be developed in North Carolina. I was involved in the stakeholder discussions that took place in 2014 regarding the North Carolina Interconnection Procedures, Forms and Agreements for State Jurisdictional Interconnection Agreements (the "Interconnection Standard").[9] For almost a full year, I participated in the discussions, which related to improving the interconnection process in light of the increasing number of interconnection requests, the interactions and interdependencies among the increasing number of interconnection requests, the administrative burden to the Utilities, and the delays in processing and completing interconnection requests caused by "speculative" QF developers. The work of this stakeholder process resulted in significant revisions to the Interconnection Standard. However, in spite of the effort put into the stakeholder process, in my experience, the process of interconnecting a QF takes much longer now than prior to the revisions to the Interconnection Standard.

For example, in May 2012, an interconnection request was submitted for a 5 MWac solar QF that CSE developed in Wilson County. The interconnection request progressed through the study process over that summer, and the project received a fully executed an Interconnection

[9] See Order Approving Revised Interconnection Standard, N.C.U.C. Docket No. E-100, Sub 101, May 15, 2015.

Agreement from the utility by mid-November 2012. The QF was constructed and interconnected in July 2013. For this QF, the interconnection process took a total of 14 months from initial submittal of request, to interconnection to the grid. In contrast, for a similar 5 MWac solar QF located in Richmond County, CSE submitted the interconnection request in July 2015 (twenty months ago) and still has not received results from the System Impact Study process.[10] The Richmond County project has received local land use approvals and environmental permits, and is otherwise ready to move forward with financing and construction, but without the study results from the utility, cannot move forward. These two examples are typical of the change in interconnection timelines that industry has experienced.

It is my experience that the interconnection process for distribution connected QF projects is effectively on hold at this point in time, except for those interconnection requests that had already received their System Impact Study reports and Interconnection Agreements in early- to mid-2016. To provide more information on this, in 2016, CSE was involved in the interconnection of twelve (12) 5 MW ac solar QFs to the grid. CSE projects that in 2017, only four (4) 5 MW ac solar QFs will be interconnected. One interconnection request made by CSE in the summer of 2014 has still not

[10] The System Impact Study is one of the study processes set forth in the Interconnection Standard. The System Impact Study results identify and detail the electric system impacts that would result if the proposed generating facility were interconnected. Additionally, the System Impact Study results provide preliminary estimated charges for interconnection facilities and for upgrades to the utility's system. See Interconnection Standard, Section 4.3.

received results from the study process, and we have only received only one (1) new System Impact Study back from the utility for a distribution level QF in North Carolina in the past twelve (12) months.

Q. WHAT IS YOUR RESPONSE TO THE UTILITIES' PROPOSALS TO MODIFY THE WAYS IN WHICH PURPA IS IMPLEMENTED IN NORTH CAROLINA?

A. In general, I am very concerned that the Utilities' proposals to modify the ways in which PURPA has been implemented in North Carolina would have the effect of curtailing QF development in North Carolina.

As the Utilities have pointed out, over the past few years North Carolina has been an undisputed leader in terms of installed solar generating capacity. As Duke's witnesses have described in their testimony, approximately 1,600 MW of third-party solar was interconnected in the DEC and DEP service territories as of the end of last year, and as a Dominion witness describes in his testimony, approximately 350 MW of third-party solar is in commercial operation in its service territory. CSE has been one of the companies involved in this success, and we have worked hard to reduce costs and increase efficiencies with the objective of achieving cost-competitiveness with other generation technologies in North Carolina. We are also very proud to have played an important role in bringing over $3 billion in economic development to rural North Carolina.

I think all stakeholders agree that the Standard Offer has been a vital component of the success of solar development in North Carolina. Interpretations differ, however, about why the Standard Offer has led to this success in solar development. Duke characterizes the Standard Offer as "significantly more generous to solar developers than those offered by other utilities and states." However, in my experience, the biennial avoided cost rates in North Carolina have decreased over time since 2010. The "all in" 2014 avoided cost rates for the different Utilities range between five and a half (5.5) and seven and a half (7.5) cents per kilowatt hour, based on North Carolina solar generation profiles, and it has been industry's ability to drive down costs and create economies of scale that has allowed us to make the economics work to continue to develop QF projects in North Carolina even in spite of decreasing avoided costs and associated rates paid to QFs, expiring tax incentives, and very low to no value for renewable energy certificates.

Unique to North Carolina is that we are one of the few states that has ensured that certain critical policies, including long-term contracts and fixed pricing, are in place to encourage QF development. QF development has simply not occurred in those states that have not implemented these same critical policies. For example, CSE has explored development in states other than North Carolina and has found that in many states utilities do not offer

long-term contracts or fixed pricing to QFs. In those states in which contract duration is short and rates are variable, as opposed to fixed, material QF development has not occurred.

In my experience, the 15-year contract, coupled with the fixed rate over the entire contract term, are critical to enabling a QF to attract capital. Although NCSEA witness Kurt Strunk provides more detail on this issue, it is my understanding and experience that lenders typically require a fixed-rate power purchase agreement ("PPA"), in order to provide certainty with respect to revenue stream, and a long enough PPA term to allow for the debt to be repaid during the PPA term. Reducing the ability of a solar project to obtain debt financing has significant implications for the project's financial feasibility. The 15-year contract term has allowed small QFs to access affordable debt and equity capital. In other words, the 15-year contract term has enabled a capital structure that is affordable to the QF developer and, therefore, that has encouraged QF development.

My personal experience is that QFs with a shorter contract term than 15 years would have a much smaller pool of potential debt and equity investors. Further, I believe that adjusting the avoided energy rate every two years would have the same effect. These issues would be exacerbated in the context of small QFs that cannot achieve the economies of scale—and associated cost reductions—that large QFs can achieve.

In my experience, the Standard Offer, particularly the PPA term and fixed rate, has provided the certainty that has been necessary to encourage QF development in recent years, and this certainty has also played a critical role in driving down the cost of developing solar facilities. When CSE first started developing solar QFs in North Carolina, the market was relatively unsophisticated with respect to the development process, as well as the financing process. The gains that have been made by industry in recent years have helped drive down the cost of solar development in North Carolina. These include: understanding and taking advantage of economies of scale with equipment suppliers; the creation and development of local supply chains and associated service providers related to solar racking, fencing, and landscaping; and the creation of a large, skilled local labor pool trained in installation and construction of solar farms. Additionally, the development of the industry has attracted suppliers, such as Schletter Inc. – a manufacturer of solar mounting systems – to relocate in North Carolina, further driving down costs. The Utilities' proposed modifications to the implementation of PURPA would disrupt this success and would dramatically alter the landscape of companies that participate in QF development in North Carolina and beyond.

Therefore, while solar QF development has experienced success in North Carolina, my experience in the North Carolina market and in

investigating other states leads me to conclude that the modifications to the implementation of PURPA proposed by the Utilities—particularly: 1) reducing the term of the standard contract to a 10-year or shorter term; and 2) adjusting the energy rate every two years of the contract term or otherwise providing a rate that is not fixed over the term of the contract—would abruptly curtail the QF market that has been created here.

Q. IS IT APPROPPRIATE, AT THIS TIME, TO ADOPT ANY OF THE MODIFICATIONS PROPOSED BY THE UTILITIES TO THE WAYS IN WHICH PURPA IS IMPLEMENTED IN NORTH CAROLINA?

A. Negotiating a power purchase agreement with an electric utility in North Carolina, in my experience, has been straightforward because very few, if any, revisions to the electric utility's proposed PPA are accepted by the utility. CSE was involved in the development of four (4) large solar QFs that negotiated PPAs with Duke last year, and those projects are moving forward with financing and construction. It is my understanding that subsequent to the negotiation of the PPAs on our four (4) projects, Duke significantly reduced the PPA term it offers to QFs for negotiated PPAs. Because of this recent change, CSE has serious concerns regarding the Utilities' proposed modifications to the Standard Offer, as they would have the effect of requiring any QF greater than 1 MW to negotiate a contract with the electric utility, and I suspect that at the current time, a QF would not be able to negotiate a PPA with a term of sufficient length to allow a QF the

reasonable opportunity to attract capital. In light of concerns related to the reduction of the PPA term and the variable energy rate, as well as difficulties experienced in the context of negotiated PPAs, NCSEA cannot endorse any of the Utilities' proposed revisions to the Standard Offer, including the reduction in eligibility for the Standard Offer from 5 MW to 1 MW.

However, NCSEA and its business members agree with Duke's proposal, outlined by Witness Bowman, that a transition to a competitive procurement process for solar generation could be appropriate, as long as the process were subject to specific and well-defined parameters. Even as experienced developers, we are uncertain about whether, going forward, a contract that will allow solar developers to continue with QF development could be negotiated with the electric utilities outside of the Standard Offer. However, we feel that our experience in developing QFs and our ability to drive down costs and find efficiencies would allow us to compete within a well-prescribed competitive procurement process. It is NCSEA's position that a transition to a competitive procurement process could be a reasonable approach to continued solar development in North Carolina, as long as the competitive procurement process: i) obligates the Utilities to procure a specific amount of capacity on an annual basis for a minimum number of years; ii) is administered by an independent evaluator selected and monitored by the Commission; iii) limits participation in the development process by the Utilities and by unqualified developers; and iv) involves a

standard contract with general terms and conditions that are commercially reasonable and that afford reasonable opportunities to attract capital. NCSEA's support for a competitive procurement process is predicated on: i) the expectation that the process would be developed in a collaborative stakeholder proceeding; and ii) the existence of a continued opportunity to interconnect small QFs and sell to the Utilities outside of the RFP process.

Q. WHAT IS YOUR RESPONSE TO DUKE'S PROPOSAL FOR REVISING THE STANDARD FOR ESTABLISHING A LEGALLY ENFORCEABLE OBLIGATION IN NORTH CAROLINA?

A. Duke has proposed to modify the standard for establishing a LEO by requiring a QF to progress through the "System Impact Study" process and commit to proceed to a detailed "Facilities Study" in the context of the interconnection process.[11] In support of this proposal, Duke witness Freeman asserts that "[Duke's] experience does not support that it is even feasible for a QF to make a commitment to provide energy and capacity to the utility over a specified future term prior to completing the System Impact Study."[12]

NCSEA objects to this proposal because it would put the QF's ability to establish a LEO outside of the QF's control and would potentially result

[11] Freeman Direct, p. 14, ll 19-22.

[12] Freeman Direct, p. 18, ll 7-10.

in a QF being unable to receive a LEO. As I mentioned previously, over the past twelve (12) months CSE has received only one (1) System Impact Study agreement for our 5 MW ac QFs that are in the interconnection queue in North Carolina. I am not an attorney, but I also believe that this proposal is inconsistent with a recent decision of the FERC in which it ruled that a LEO standard that gave control over the timing of the establishment of the LEO to the utility was inconsistent with PURPA.

Furthermore, I respectfully disagree with Duke witness Freeman that a "QF cannot reasonably make a commitment to sell until completing the initial System Impact Study step of the North Carolina interconnection process."[13] As I previously testified, the QF development process involves many steps, only one of which is interconnection, that require the QF to make significant commitments. The early stages in the development process involve the identification of a suitable site for the facility, the negotiation for site control with the landowner, the completion of environmental surveying and permitting, the securing of land use approvals, and the securing of regulatory approvals. These early stages can take many months, or longer, to complete. Securing rights to the site and all necessary approvals involves significant cost, as well. The interconnection request is typically made very early in the process, after site control has been secured. Engineering and design work must be undertaken prior to submitting the interconnection

[13] Freeman Direct, p. 4, ll 2-4.

request, and a significant fee, in the case of a 5 MW QF, $25,000, must be paid at the time the interconnection request is submitted. Subsequent to the submittal of the interconnection request, a scoping meeting is held with the relevant personnel for the interconnecting utility, as well as the QF's team of engineers, to discuss the request. From the scoping meeting, the request proceeds to the study process. The process of preparing an interconnection request, submitting to the utility, and holding a scoping meeting with the utility can take several months and involve significant expense, depending on the complexity of the interconnection and the engineering and design resources required. Thus, significant commitments—in terms of expenditure of time and financial resources and the securing of necessary approvals—are made toward the development of the QF before the interconnection study process is completed.

However, NCSEA agrees, to a limited extent, with the concern expressed by Duke that information regarding the cost to interconnect is critical to the determination of whether a QF is financially feasible. Given the foregoing, NCSEA is open to a revision to the LEO standard that takes this into account but that does not allow the utility to control the timing of the LEO. Specifically, NCSEA proposes that the LEO standard be revised to allow the QF to provide a Notice of Commitment form to the purchasing utility only after 105 days have lapsed from the interconnecting utility's receipt of the QF's interconnection request, which is the time established

under the Interconnection Standard for the utility to complete the System Impact Study process. This would allow the utility the time to conduct the "System Impact Study" were the utility compliant with the timelines set forth in the Commission-approved Interconnection Standard and provide the results to the QF before the QF is eligible to provide its Notice of Commitment form to the utility. It is NCSEA's position that this proposed revision appropriately focuses on the QF's commitment and is not overly beholden to a specific action by the utility.

Q. HOW DO YOU RESPOND TO DUKE WITNESS FREEMAN'S CONCERNS REGARDING "STALE" RATES?

A. Duke witness Freeman gives grounds for Duke's proposals to revise the LEO standard on concern regarding "stale avoided cost rates,"[14] which I understand to mean rates that do not reflect the utility's avoided cost at the time that the QF begins to deliver electrical output to the utility. As I understand Duke's explanation, "staleness" would occur when there is a lag in time between the establishment of a LEO or right to certain biennial rates and actual delivery.

As I mentioned previously, I was part of the stakeholder discussions in 2014 that led to revisions to the Interconnection Standard. One of the key

[14] Freeman Direct, p. 19, ll 1-11.

compromises made by solar developers as part of those stakeholder discussions was to accept strict penalties if a solar developer does not meet the timelines required by the Interconnection Standard. For example, once a developer receives a System Impact Study or Interconnection Agreement from the utility, that developer has a proscribed number of days to respond and either move forward with the next step of the interconnection process, or drop out of the interconnection queue. If the developer fails to proceed with the next step of the process on time, the utility has the right to remove the project from the queue. Although there are no equivalent penalties for the utilities to meet their required timelines under the Interconnection Standard, solar developers agreed to these strict penalties in order to help with the process of clearing "speculative" projects from the queue and in order to help the overall interconnection process work more efficiently.

Because these penalties on solar developers are part of the current Interconnection Standard, I believe that in general, long delays between establishment of a LEO and interconnection to the grid are typically caused by long utility study process timelines, and are not caused by the QF. In my experience, the QF is typically not responsible for and typically seeks to avoid significant delays or lags between the establishment of the LEO and delivery of power. In fact, there is opportunity cost as well as incremental risk to the QF associated with any such delay. If given an opportunity to interconnect and commence delivery sooner rather than later, in most cases,

I suspect that the QF would elect sooner. Thus, while NCSEA is concerned about risk to ratepayers of overpayment and has proposed a revision to the LEO standard that reflects this concern, NCSEA submits that the delay or lag that creates staleness does not benefit the QF and, typically, is not created by the QF.

Q. HOW DO YOU RESPOND TO DUKE'S PROPOSAL FOR A STANDARDIZED CONTRACTING PROCESS?

A. NCSEA has reviewed Duke's proposal to standardize the contract negotiation process.[15] In theory and based on my experience with the Standard Offer, a standardized process is appealing, in that it entails certainty and has the potential to minimize transaction costs and time. However, without express limitations on the Utilities' discretion regarding the critical issues of term/duration and fixed rate, a standardized process affords no benefits beyond the process that exists today and has the potential to give rise to disputes and to litigation. Additionally, Duke's proposal appears to suggest that the rates and terms offered would be available for a 60-day period only and would be revised if not accepted in that period. While I am not an attorney, I am concerned that this proposal violates the right of a QF, under federal regulations, to a rate that reflects the electric utility's avoided cost as of the date of the LEO, given the current standard for establishing a LEO in North Carolina.

[15] Freeman Direct, p. 22, l. 6 – p. 23, l. 18.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

4819-2881-1589, v. 11