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October 1, 2019

**VIA ELECTRONIC FILING**

Kimberly A. Campbell, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4300

**RE: Duke Energy Progress, LLC's and Duke Energy Carolinas, LLC's  
Joint Interim Community Solar Program Report  
Docket Nos. E-2, Sub 1169 and E-7, Sub 1168**

Dear Ms. Campbell:

Pursuant to the Commission's April 4, 2019 *Order Approving Revised Community Solar Program Plan and Riders*, please find enclosed for filing Duke Energy Progress, LLC's and Duke Energy Carolinas, LLC's (collectively, the "Companies") Joint Interim Community Solar Program Report in the above-referenced dockets. Portions of the report contain confidential pricing information; pursuant to N.C. Gen. Stat. § 132-1.2, the Companies are filing this information under seal and respectfully request that it be protected from public disclosure. Public disclosure of such information could hinder the Companies from obtaining the most cost-effective energy and capacity necessary to meet the needs of its customers. The Companies will make this information available to other parties pursuant to an appropriate confidentiality agreement.

Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

Kendrick C. Fentress

Enclosure

cc: Parties of Record

OFFICIAL COPY

Oct 01 2019

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1169

DOCKET NO. E-7, SUB 1168

In the Matter of	)	<b>DUKE ENERGY CAROLINAS,</b>
	)	<b>LLC's AND DUKE ENERGY</b>
Petition for Approval of Community	)	<b>PROGRESS, LLC's JOINT</b>
Solar Program to Implement N.C. Gen.	)	<b>INTERIM COMMUNITY SOLAR</b>
Stat. § 62-126.8	)	<b>PROGRAM REPORT</b>
	)	

Duke Energy Carolinas, LLC (“DEC”) and Duke Energy Progress, LLC (“DEP”) (collectively “Duke” or the “Companies”) hereby make this interim report and first annual informational filing as required by the North Carolina Utilities Commission (“Commission”) in accordance with the April 4, 2019 *Order Approving Revised Community Solar Program Plan and Riders* in the above-captioned dockets (“Community Solar Order”). After approving the Companies’ revised Community Solar Program and Riders in the Community Solar Order, the Commission directed the Companies to file an interim report addressing the following:

- What avenues to accelerate the implementation of the Community Solar Program did Duke consider and what conclusions were reached as a result of this consideration;
- Provide an update on Customer Connect and the progress made to use the software to issue monthly on-credit bills and charges within the Community Solar Program;
- A summary of subscription thresholds reached in the South Carolina community solar program, the project sizes and [power purchase agreement] PPA prices, and whether the experience in implementing the Community Solar Program will be similar;

- What alternative methods of procurement, other than a community solar [request for proposals] RFP, is Duke considering and what is Duke's view on whether any of those alternative methods might result in lower costs of implementing the Community Solar Program;
- Whether Duke has considered alternative arrangements for the refunding of a pro rata portion of the upfront fee, or a discount on a replacement subscriber's fee, and what conclusions were reached as a result of this consideration;
- Whether Duke has changed its views on the size of the facilities or the allocation of fixed costs across the Program;
- Whether revisions to the estimated overhead costs of the Community Solar Program are available;
- Whether Duke considered [low- to moderate-income] LMI options and, if so, what conclusions were reached as a result of this consideration; and
- The results of the RFP, if available, and the result of the post-RFP discussions that Duke committed to undertake at an appropriate time.

The Companies' report on these items is as follows:

### **Program Summary**

Pursuant to N.C. Gen. Stat § 62-126.8(c), the Commission approved the Companies' proposal to offer a Community Solar program, which is designed to allow DEC and DEP customers the ability to participate in and receive the benefits from distributed solar photovoltaic ("PV") resources without having to install, own, or maintain a system of their own.

Under the approved program, the Companies will each offer up to 20 MW for subscription by residential and non-residential customers who will receive the 20-year avoided cost as a bill credit for their pro rata share of the generation in exchange for an upfront payment as well as a monthly subscription fee. Facilities must be under 5 MW, have at least 5 subscribers and cannot allow any one subscriber to have more than 40% of the capacity of a facility. RECs are retired on behalf of all customers unless the customer chooses to set up an NC RETS account in their name.

The program is expected to start generating bill credits for customers with the launch of the Companies' new billing system, Customer Connect, in Spring 2021 in DEC and Spring 2022 in DEP.

#### **Required Report Elements**

**a. What avenues to accelerate the implementation of the Community Solar Program did Duke consider, and what conclusions were reached as a result of this consideration?**

The two factors that determine the implementation timeframe of the program are: (i) the availability of a solar facility and (ii) the ability to charge and credit customers for their participation in the program.

(i) Availability of Solar Facility

The solar facility development is primarily dependent upon solar developer interest to build facilities and the timing for a project to progress through the interconnection queue. This program has specific challenges that may have hindered solar developer participation. For example, in their July 16, 2018 Additional Reply Comments, the Companies expressly stated in response to a request made by a stakeholder, the Sierra Club, that they would specify in the RFP that they would not accept projects for which the total costs are greater

than avoided cost. Notably, the Companies offered a 20-year term which provides more favorable avoided cost rates than most other opportunities available to developers.<sup>1</sup> The Companies were hopeful that projects with completed system impact studies, or even a signed Interconnection Agreement, would bid into the RFP to facilitate an earlier implementation, but they did not.

Developers have reported that it is very difficult to build a site less than 5 MW at or below avoided cost. No projects for either utility were bid into the RFP period that ran from July 1 to August 23. Without sites identified, the program cannot be accelerated ahead of the originally proposed timeline. If there had been projects proposed, the Companies had considered what avenues would be available to prioritize them in the interconnection queue. Because there were no projects, however, such an effort is not currently necessary. Nevertheless, the Companies' Community Solar program management team is monitoring the queue reform project efforts and will take advantage of any outcomes that will help the program implement sooner.

(ii) Ability to Charge and Credit Customers

The Companies' ability to charge and credit customers on their bill will only be feasible once Customer Connect is deployed because modifying existing billing systems would be too costly for subscribers given the requirement that the program not shift any costs to non-participants. Development of the Customer Connect systems continues, but Customer Connect will not be launching any of its components ahead of its scheduled deployment at this time.

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<sup>1</sup> Additional Reply Comments of Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC, filed July 16, 2018 at p. 26.

Stakeholders had also asked the Companies to consider using third-party billing. The Companies discussed that option with Clean Energy Collective, the largest non-utility community solar company in the country, and they discouraged it. Their experience has been that customers are less likely to pay if the charges are not on their utility bill. They endorsed waiting for Customer Connect over building out a payment and credit system that will be in service for just a year or two. Since subscribers must pay for all program administration, it would be an additional expense for them. The Companies remain acutely focused on keeping costs low to provide economic benefits for subscribers and don't believe this is a prudent use of their fees.

In its original program filing, the Companies had planned to charge and credit using credit cards and checking accounts, respectively, to implement the program before Customer Connect. However, N.C. Gen. Stat. § 62-126.3 included that the credit was a bill credit, and stakeholders strongly stated they believed the program would be more successful using the Companies' billing platform. Between the language of the statute and stakeholder desire for customers to see credits net against their usage, the Companies agreed to change the program and use the billing system, but Customer Connect must be deployed before the Companies can use the billing system accordingly.

Some intervenors have also suggested that a developer-led community solar program where developers sell capacity directly to customers would be implemented more quickly, but such a program would not be permissible under North Carolina law.

**b. Provide an update on Customer Connect and the progress made to use the software to issue monthly on-bill credits and charges within the Community Solar Program.**

The Customer Connect Program recently completed the Design phase and is more than 70% complete with the Build phase for the core meter-to-cash components to be deployed in 2021 (DEC) and 2022 (DEP). The capability to bill the Community Solar Program, including monthly on-bill credits and charges, has been included in the design, and testing of the complete solution will begin in 2020.

- c. **A summary of subscription thresholds reached in the South Carolina community solar program, the project sizes and PPA prices, and whether the experience in implementing the Community Solar Program will be similar.**

The South Carolina community solar program includes a 3 MW program in DEC and a 1 MW program in DEP. DEC entered into PPAs with two sites at a price of [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] for a 1 MW site and [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] for a 2 MW site. DEP entered into a PPA with a 5 MW facility [BEGIN CONFIDENTIAL] [REDACTED] [REDACTED] [END CONFIDENTIAL] to comply with the utility-scale solar portion of its Distributed Energy Resources Program, and subsequently dedicated 1 MW of that facility to the DEP Program.

The DEP Program began taking customer enrollments in July 2018, and the DEC Program began customer enrollments in January 2019 (the timing difference reflecting when the solar facilities were completed). Each program has 400 kW set aside for low- to moderate-income (“LMI”) customers. The Standard Offer (non-LMI) portions of the program were fully subscribed within two months for DEC and within eleven months for DEP. The LMI portions of the program are 4% subscribed in DEC and 15% subscribed in DEP, as of August 30, 2019. Standard Offer customers are billed an application fee and an initial subscription charge. These items are waived for LMI customers, who incur no up-

front costs to participate in the program. Once enrolled in the program, all customers are billed a monthly shared solar subscription fee and earn a monthly energy bill credit.

The experience in implementing the South Carolina Community Solar Program, including prices and interest in participation, will most likely be very different from the North Carolina program. The provisions of SC Act 236 that allowed some program costs to be borne by non-participants made the program very attractive to potential participants. Residential customers are seeing payback of their initial investment within two years; non-residential within three. This cost shift is the key difference from the North Carolina program; without the opportunity to achieve noticeable cost savings, many customers claimed they would not have been interested in the South Carolina Program.

In DEC South Carolina, customers are subscribed to the collective generation of both sites; therefore, all customers pay the same fees and receive the same credits per kW subscribed. The North Carolina program pricing is site-specific, and based on the site to which the customer subscribes. The Companies anticipate that sites could have different selling features (such as the project being in the same town or county as a customer) and may require different marketing messages, especially if some projects have economic benefits and others do not. And as there could be many more projects in North Carolina than South Carolina, there may be more program managers required to effectively run the program.

The program term in North Carolina is 20 years versus 10 years in South Carolina. With the expected decline of solar pricing in the coming decades, North Carolina may face under-subscription with a longer-term program as customers will be locked into both the costs and credits for longer or until they cancel. The Companies expect more program



management to keep the projects fully subscribed in the later years than in South Carolina where customers will continue to receive net bill credits for their subscription.

An important learning from South Carolina is how to market and manage a program for LMI customers. Even with a projected savings of approximately \$100/year, the inherent variability of solar production is particularly challenging for LMI customers. For example, due to the seasonality of solar production, the monthly fee in the winter months may exceed the monthly energy credit (or not be as financially advantageous for the customer). Because of this, some LMI customers may cancel their participation after a month of less-favorable energy credits. Although the North Carolina program does not have an LMI carve-out, the Companies have been working with stakeholders and developers on how to facilitate a program that will benefit them. Absent a guaranteed monthly cost savings, enrolling LMI customers in a shared solar program will have significant challenges. More details on efforts being made toward an LMI program are included later in this report.

Marketing of both states' programs is also similar; the Companies have worked with community-based organizations in South Carolina to promote the program and intend to do the same in North Carolina. Messages around environmental benefits of solar are likely to resonate with North Carolina customers as they did in South Carolina. Any economic benefits would also be highlighted. The Companies plan to use as many learnings from the South Carolina program as applicable to help run the North Carolina program.

**d. What alternative methods of procurement, other than a community solar RFP, is Duke considering and what is Duke's view on whether any of those alternative methods might result in lower costs of implementing the Community Solar Program?**

Duke has considered several other methods of procurement, but none were deemed plausible. The first option was to take advantage of the scale of projects in the Competitive Procurement of Renewable Energy (“CPRE”) program to deliver a lower cost program to customers. The idea was to carve out 5 MW of a very large project to use for the Community Solar facility or facilities. Those MW would be separate from the CPRE goal, but stakeholders did not seem to be in favor of the idea. The Companies also looked at facilities that were already operational for the program and considered extending their term 20 years, but did not pursue the option because stakeholders indicated they would not consider these projects “additional.” The Companies did not discuss this option with any solar developers so it is unclear if a lower price could have been achieved.

The Companies also considered contracting with an unselected CPRE bid, but none from Tranche 1 qualified because they were larger than 5 MW. Tranche 2 provides another opportunity for procurement, and unselected bids under 5 MW will be evaluated for feasibility. The Companies are still open to carving out a 5 MW contract for a Community Solar facility derived from a larger project that is chosen in CPRE if Community Solar stakeholders support Commission approval of it. Finally, and separate from CPRE, both the Companies and their unregulated affiliates each considered if either of them might propose a project for the program. Ultimately, it did not seem possible for the regulated utilities due to the uncertainty of the regulatory treatment of the asset after the program period; the Community Solar sites would be in service for just a subset of customers who are subscribers to its benefits, and it may not be appropriate or cost-effective to put such an asset in the rate base. From the unregulated business’s perspective, establishing FERC approval for such an affiliate transaction could be complex, given that, unlike CPRE, this

procurement does not have an independent administrator for the RFP. The Companies considered using an independent administrator for the Community Solar RFP, but decided that the cost was not warranted, and would potentially decrease participation because it would have to be passed to subscribers. Regulated and unregulated entities have projects in the interconnection queue under 5 MW, but they have not yet received the interconnection cost estimates to determine if they would be low-cost projects for subscribers, even if the barriers noted above did not exist.

**e. Whether Duke has considered alternative arrangements for the refunding of a pro rata portion of the upfront fee, or a discount on a replacement subscriber's fee, and what conclusions were reached as a result of this consideration.**

The Companies are still considering this question and will decide when there is a clearer line of sight to program implementation. The upfront fee is primarily marketing expense and, for the first projects, IT work. Marketing cost is often incurred with each customer unless a marketing campaign is so successful it generates a waitlist. It is difficult to know ahead of time if a marketing campaign will generate enough interest to sell a facility. And it could be impossible from an administrative perspective to refund fees based on what marketing campaign caused the customer to enroll and then match them with someone from the waitlist from the same marketing effort. The Companies will continue considering this topic as more is known about the projects and launch schedule. The IT expense is discussed more in the next section.

**f. Whether Duke has changed its views on the size of facilities or the allocation of fixed costs across the Program.**

The Companies opened the RFP to any project up to 5 MW which is the maximum allowed under the statute. When initial projects are chosen for the program, the Companies

will consider the viability of spreading fixed program costs such as IT across all of the capacity for the program.

**g. Whether revisions to the estimated overhead costs of the Community Solar Program are available.**

Revisions to the estimated overhead costs will not be available until projects are chosen for the program.

**h. Whether Duke considered LMI options and, if so, what conclusions were reached as a result of this consideration.**

The Companies continue to be interested in finding paths for LMI customers to participate. In the RFP, the Companies specifically stated that they were looking for projects that included those customers and were open to ideas of third parties. There is a request on the program website to contact the Companies directly with ideas for LMI participation. Some cities and counties have expressed interest in participating in a project so their low-income residents may subscribe. There have also been discussions with solar developers about how to implement projects on low-income housing to which residents could subscribe. Duke has discussed with the North Carolina Department of Environmental Quality (“DEQ”) the idea put forth in the North Carolina Clean Energy Plan to include Community Solar as a measure in the weatherization program.

After discussions with low-income project developers and stakeholders, the Companies believe that substantial changes would need to be made for a low-income program to be successful. The program currently requires upfront and monthly payments. The payment structure would need to change to better accommodate when charitable and grant dollars are donated for low-income customers, they are done so as one-time payments, not monthly. In addition, stakeholders interested in low-income participation

favor a model where the subscription stays with the occupant of a premises and does not transfer when the customer moves. The Companies are comfortable filing a tariff specific to a low-income program when it looks like such a project could come into existence.

The main obstacle to providing an LMI option is identifying funding sources. Research shows that 10-15% savings is a good target. This will be very difficult to achieve without a third party paying for the subscription or at least buying down the PPA to a point below avoided cost that gets the customer to that savings level. DEQ's idea to include community solar in weatherization is the closest to finding a funding source, but the maximum Department of Energy will spend does yet equate to their savings requirement. The Companies agreed with DEQ to continue to watch for the installed cost of solar to fall enough for this idea to be viable.

Notably, Sierra Club has offered to reach out to its membership base to help fund LMI participation. The Companies will follow up on that offer when projects are proposed for the program. The Companies appreciate the help of all stakeholders to implement a project with LMI participation.

**i. The results of the RFP, if available, and the result of the post-RFP discussions that Duke committed to undertake at an appropriate time.**

Despite two presentations at the North Carolina State Energy Conference, a webinar for developers about the RFP, engaging solar trade organizations in both North and South Carolina and many conversations with individual developers while the RFP was open, no projects were bid into the RFP in either utility. As stated above, feedback from developers was that they could not profitably build less than 5 MW of solar at or below avoided cost.

The Companies have considered requesting to raise the cap on the PPA expense, but have learned since filing the program through its South Carolina Shared Solar program that most customers' main reason for participating is economic: meaning the customers expect to save money. The environmental benefits are important, but secondary to receiving economic savings. Although offering a premium program may be of interest to a small number of customers today, it is less attractive to pay extra on the bill for 20 years, when the cost of solar is expected to continue to decline. The Companies do not believe a premium program would be viable for very long.

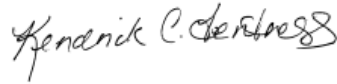
### **Conclusion**

The Companies will continue to discuss the program with potential subscribers, developers and other stakeholders and remain committed to implementing a Community Solar program. The Companies request approval to hold an open RFP for Community Solar, which will allow third-party developers to submit a project at any time for consideration. Other efforts the Companies plan to continue are partnerships with NCSEA to promote Community Solar participation, watching for projects that are not selected for CPRE, connecting likely subscribers with developers and monitoring both the installed cost of solar and 20-year avoided cost rates.

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Progress, LLC's and Duke Energy Carolinas, LLC's Joint Interim Community Solar Program Report, in Docket Nos. E-2, Sub 1169 and E-7, Sub 1168, has been served by electronic mail, hand delivery, or by depositing a copy in the United States Mail, 1<sup>st</sup> Class Postage Prepaid, properly addressed to parties of record.

This the 1<sup>st</sup> day of October, 2019.



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