

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-2, SUB 1287
DOCKET NO. E-7, SUB 1261

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1287)	
)	
In the Matter of)	
Application by Duke Energy Progress, LLC,)	ORDER DECLINING TO
for Approval of Smart \$aver Solar Energy)	APPROVE PROPOSED
Efficiency Program)	SMART \$AVER SOLAR
)	PROGRAM AND REQUIRING
DOCKET NO. E-7, SUB 1261)	DEVELOPMENT OF PILOT
)	PROGRAM
In the Matter of)	
Application by Duke Energy Carolinas, LLC,)	
for Approval of Smart \$aver Solar Energy)	
Efficiency Program)	

BY THE COMMISSION: On December 16, 2021, Duke Energy Progress, LLC (DEP), in Docket No. E-2, Sub 1287, and Duke Energy Carolinas, LLC (DEC, collectively Duke or Companies), in Docket No. E-7, Sub 1261, filed applications for approval of new energy efficiency (EE) programs, both of which are called the Smart \$aver Solar Energy Efficiency Program (Solar Program).

In summary, Duke stated that the Solar Program's purpose is to encourage reductions in residential customer demand and energy consumption from the grid through several program features, including: (1) a monetary incentive of \$0.36 per watt paid to residential customers toward the customer's cost of installing rooftop solar photovoltaic (PV) facilities, with the average incentive expected to be approximately \$3,002 for DEC and \$2,822 for DEP;¹ (2) a commitment by participating customers to participate for 25 years in Duke's winter-focused Power Manager Load Control Service Rider (Power Manager), also known as Bring Your Own Thermostat; (3) eligibility limited to all-electric residential customers, but also including customers who use natural gas for cooking; and (4) customer participation in the evaluation, measurement, and verification (EM&V) process to be conducted by an independent third party.

Duke stated that the conceptual framework for the Solar Program resulted from extensive collaboration with North Carolina Sustainable Energy Association (NCSEA),

¹ Response to Public Staff Data Request 1-36(d), Public Staff Exhibit 1.

Sunrun Inc., Solar Energy Industries Association (SEIA), and Southern Environmental Law Center on behalf of Southern Alliance for Clean Energy (SACE), and Vote Solar.

According to Duke, the link between a customer's receipt of the monetary incentive and continued participation in Power Manager would be enforced by requiring the customer to repay a prorated share of the monetary incentive for every year that the customer opts out of more demand response events than permitted under Power Manager, or every year short of the required 25 years of participation in Power Manager. However, there is no penalty if a customer moves out of the residence prior to the expiration of the 25-year required enrollment period.

Moreover, Duke stated that approval of the Solar Program would be consistent with the policies underlying Senate Bill 3 and House Bill 951, and that under the Utility Cost Test the Solar Program will reduce customers' grid energy usage more cost-effectively than if the Companies built new supply-side resources. Further, Duke stated that both DEC and DEP previously offered a solar water heating pilot program under their portfolio of DSM/EE programs, and that the proposed Solar Program is similar to the water heating program because they both reduce a customer's energy usage from the grid by using energy from the sun.

Duke requested approval of the Solar Program in sufficient time for it to be offered to customers beginning on January 1, 2023. Duke proposed to recover all program costs through the annual DSM/EE rider in accordance with the Companies' respective DSM/EE cost recovery mechanisms. In addition, Duke stated that cost recovery would include utility incentives and net lost revenues (NLR).

COMMENTS OF THE PARTIES

On March 15, 2022, comments on the Solar Program were filed jointly by NCSEA, SACE, and Vote Solar (Joint Intervenors), SEIA, Public Staff, and North Carolina Attorney General's Office (AGO). Reply comments were filed by Joint Intervenors on March 31, 2022, and by Duke on April 4, 2022. The following is a summary of the parties' comments.

Initial Comments

Joint Intervenors

NCSEA, SACE, and Vote Solar stated that the Solar Program is an innovative, cost-effective approach for recognizing the value of behind-the-meter distributed solar energy and for reducing system peak demand. They further stated that the Solar Program is an integral component of an overall Memorandum of Understanding (MOU) for revised net energy metering (NEM) rates among Duke, Joint Intervenors, and several other organizations that advocate for climate action, solar energy, and energy efficiency. See *Joint Application for Approval of Net Energy Metering Tariffs*, Docket No. E-100, Sub 180 (Nov. 29, 2021). They stated that the incentive in the Solar Program works with the proposed NEM rates and Power Manager in support of state policies that assure that

utilities use “the entire spectrum of demand-side options,” and that promote renewable energy and energy efficiency. In addition, Joint Intervenor opined that the Solar Program comports with North Carolina law. Finally, Joint Intervenor stated that they support approval of the Solar Program because it is expected to reduce on-peak and off-peak electricity demand on Duke without a material impact on the function of customers’ households.

SEIA

SEIA stated that it supports approval of the Solar Program because the program would result in a reduction in electric demand on the grid. In addition, SEIA opined that the Solar Program would improve system efficiencies by leveraging solar and demand response to make customer load more flexible, reduce carbon emissions, and provide consumers a meaningful opportunity to achieve bill savings in a manner that aligns with reductions in system costs.

Public Staff

The Public Staff recommended that the Commission deny Duke’s Application on the basis that the Solar Program is inconsistent with the statutory definition of energy efficiency. The Public Staff quoted the definition of energy efficiency measure in N.C. Gen. Stat. § 62-133.8(a)(4):

“Energy efficiency measure” means an equipment, physical, or program change implemented after January 1, 2007, that results in less energy used to perform the same function. “Energy efficiency measure” includes, but is not limited to, energy produced from a combined heat and power system that uses nonrenewable energy resources.

The Public Staff contended that solar PV, although it is a renewable generation resource, is not EE because it does not reduce the amount of energy consumed by any end-use of electricity. The Public Staff discussed several EE programs that it has supported, such as incentives to customers to install higher Seasonal Energy Efficiency Ratio (SEER) rated HVAC equipment or to purchase specialty LED lighting, because the result of these programs is to maintain the same functionality while consuming less energy.

The Public Staff concluded that because the Solar Program is essentially a solar rebate program the Commission should deny Duke’s Application and require DEC and DEP to evaluate whether a traditional solar rebate program could assist Duke in achieving its Carbon Plan requirements in a least-cost manner. Nonetheless, the Public Staff stated that if the Commission decides to approve the Solar Program it should be approved as a three-year pilot program subject to the following conditions: (1) that DEC and DEP show it is cost-effective net of free riders; (2) that DEC and DEP are not allowed to recover NLR or a Portfolio Performance Incentive (PPI); (3) that DEC and DEP modify the commitment length to ten years to be consistent with the commitment length of the solar rebate

programs; (4) that within 90 days of approval DEC and DEP file the name of the third-party EM&V consultant, an evaluation plan, and the costs of and what would constitute “energy savings” eligible for REPS compliance; and (5) that DEC and DEP modify the eligibility requirements to allow the Solar Program to be offered to all residential customers regardless of fuel source.

AGO

The AGO contended that the Commission should delay issuing an order in this docket until the proposed NEM tariffs have been fully investigated, but also should act in sufficient time to ensure a replacement solar rebate program is implemented before the expiration of the current program on December 31, 2022. The AGO further opined that a final decision may not be possible until the Carbon Plan process provides more clarity on what role residential rooftop solar will play in meeting the state’s carbon reduction goals. The AGO stated that it discussed its approach with the Public Staff, and although the Public Staff has additional views expressed in its comments, the Public Staff has indicated that it does not oppose the AGO’s request that the Commission postpone issuing an order in this docket until related issues are decided.

Reply Comments

Duke

Duke contended that the legislature enacted, and the Commission adopted, a broad definition of EE that allows for approval of cost-effective programs that result in less energy used to perform the same function and that this Program meets that definition. It maintained that DEC and DEP are entitled to recover NLR and a PPI for the Solar Program, and that Public Staff’s suggestion otherwise is punitive and inconsistent with DEP’s and DEC’s DSM/EE cost recovery mechanisms, as well as the policy that utilities should be compensated for pursuing cost-effective EE. They stated that they provided their best estimates of the Program’s cost-effectiveness and customer savings and, moreover, the estimates are validated and verified by an independent third party, and that the DSM/EE rider is adjusted to reflect the results of EM&V and return overcollections to customers with interest.

Duke asserted that the Solar Program is not a repackaging of existing solar rebate programs as EE but is intended to fill the gap when the Solar Rebate Program expires on December 31, 2022. Duke stated that the number of customers who would install rooftop solar PV without a financial incentive is exceedingly low, and that the ultimate goal of the Solar Program is to make solar PV widely available to all eligible customers. In addition, Duke stated that DEC and DEP have agreed to explore a potential solar DSM/EE program tailored to low income customers.

In addition, Duke stated that the Solar Program would not promote fuel switching or unreasonably discriminate against certain classes of customers. It contended that the Public Staff’s recommendation that eligibility be open to all residential customers

regardless of fuel source would dilute the potential for kWh savings and reduce the cost-effectiveness of the Program. Duke further asserted that the 25-year commitment period for the Program is reasonable because all customers would not derive the same benefits to the utility system and their rates if Solar Program participants were allowed to remove their PV system or end their participation in Power Manager after 10 years.

Finally, Duke stated that it is not convinced that the Public Staff's concerns regarding EM&V are well founded but, nonetheless, it would agree to file within 90 days of program approval the name of the third-party EM&V consultant, an evaluation plan, the costs of EM&V, and a description of what would constitute EE savings eligible for REPS compliance.

Joint Intervenors

Joint Intervenors stated that they have no objection to the Commission considering the Solar Program, NEM, and/or the Carbon Plan holistically, and would not object to consolidating the dockets with the NEM docket, Docket No. E-100, Sub 180. However, Joint Intervenors stated that if the Commission decides to proceed with addressing the Solar Program separately, they request that the Commission proceed expeditiously so that its decision herein can inform the NEM analysis and the modeling of the Carbon Plan.

Further, Joint Intervenors contended that the Public Staff is taking an unjustifiably limited view of "energy efficiency." Finally, they reiterated the points made in favor of the Program in their initial comments.

DISCUSSION AND CONCLUSION

The Commission has read and carefully considered Duke's application for approval of its Smart \$aver proposal, and the parties' comments and reply comments. The Commission notes the consensus achieved by the parties on the Smart \$aver approval and the time, effort and give and take necessary to achieve such consensus. However, the Commission declines to approve the Smart \$aver program as proposed by Duke. Instead, the Commission directs Duke to develop a pilot program, as more specifically set forth in this Order, to evaluate operational impacts to the electric system, if any, of behind the meter residential solar plus energy storage. Such a pilot should be instructive as to the potential role of residential solar plus storage in meeting the carbon reduction requirements established by N.C. Gen. Stat. § 62-110.9 as well as the evolving and complex needs of the electric system.

In addition, subsequent to the parties' comments on Duke's proposed Solar Program Congress passed the Inflation Reduction Act (IRA). Inflation Reduction Act of 2022, H.R. 5376, 117th Congress (August 16, 2022). Among other things, the IRA authorizes \$369.75 billion for clean energy spending. The IRA is predicted to increase solar capacity to 49 GW, almost fivefold, by 2030. The residential clean energy investment tax credit (ITC) was scheduled to step down from 26% in 2022 to 22% in 2023 before being completely phased out in 2024. The IRA brings the ITC back up to 30% for

clean energy projects installed from 2022 to the end of 2032. The credit then falls to 26% for 2033 and 22% for 2034. In addition, before the IRA was passed the ITC was 26% for battery storage coupled with onsite solar. Under the IRA, battery storage follows the same timeline as solar, starting at the 30% tax credit in 2022. Another major change is that the ITC will now be available from 2023 for storage batteries with a capacity of at least three kW, regardless of the energy source. Thus, the Commission determines that a pilot program should elucidate not only the potential operational costs and benefits afforded to the electric system by residential solar plus storage but also the cost-effectiveness of achieving any such operational benefits in light of the various provisions of the IRA.

The pilot is to include the following elements:

1) Storage Requirement

Participants in the pilot would be required to install solar PV arrays paired with energy storage. At this time, the pilot would be available only to those residential customers who are installing solar PV for the first time.

2) Participation in Net Metering

Participants would not be required to participate in Power Manager. Participants would be required to participate in net energy metering (NEM). However, to maximize the information obtained from the pilot, the Commission concludes that there should be two groups of participants (cohorts):

- a. One group of participants would be served under the time-of-use (TOU) rates approved by the Commission today in its Order Approving Revised Net Metering Tariffs, *Investigation of Proposed Net Metering Policy Changes*, Docket No. E-100, Sub 180 (NEM Order). The participants in this cohort would have complete control of the use of the energy storage device.
- b. One group of participants would be served under the Bridge Rate approved by the Commission in the NEM Order. Participants in this cohort must give the utility complete control over the energy storage device.

3) Participant Incentives

Participants will receive an incentive of \$0.36 per watt toward the customer's cost of installing the solar PV array. Similarly, the Commission determines that there should also be a monetary incentive for pairing with energy storage likewise based on the watt capacity of the battery. The Commission directs Duke to establish the per watt amount of the incentives for the energy storage component.

In addition, Duke should consider the impact of the IRA tax credits on the amounts of the participant incentives to be offered by Duke and include in its recommendation its conclusions as to that impact.

Each participant's incentives for the solar generation component would be limited to a maximum installed capacity of ten kilowatts (kW) alternating current. The parties should discuss and recommend a similar maximum on the participant incentive for the battery component.

4) Utility Cost Recovery

DEC and DEP are authorized to recover all reasonable and prudent costs of the Solar+ participant incentives and program administrative costs by amortizing the total program incentives during a calendar year and administrative costs over a 20-year period, including a return component adjusted for income taxes at the utility's overall weighted average cost of capital established in its most recent general rate case, to be included in the costs recoverable by DEC and DEP through G.S. 62-133.8(h).

5) Eligibility

The pilot Solar+ Program would be offered only to all-electric residential customers and to customers who use electricity for all purposes other than cooking.

6) Enrollment

The pilot program would be open to enrollment of participants for three years, and subject to a maximum annual limit of 10,000 kW of solar generation each year for DEC's participants and 10,000 kW each year for DEP's participants. The parties should discuss and make a recommendation as to whether a similar annual maximum should be set for battery capacity.

Participants would be required to participate in the program for at least ten years. The parties should recommend a mechanism for the recovery of some portion of the participant incentives in situations where a participant does not participate in the program for at least ten years.

7) Research Objectives

In addition to studying the operational impacts of residential solar paired with energy storage and the cost-effectiveness of achieving such impacts, Duke's research objectives should include a study of the accessibility of solar plus storage to different residential customer demographics. During the three-year open enrollment Duke should gather information such as participant income, family size, home ownership, urban/rural location, and pre-pilot/post-pilot electricity usage.

8) Reporting

The Commission directs Duke to file annual status reports on the pilot program in addition to a final report that includes robust discussion and analysis of the data and information gathered through the pilot.

The Commission again recognizes the consensus achieved by the parties in developing the Smart Saver proposal and encourages the parties to use the same problem-solving approach to the development of the pilot directed by this Order.

IT IS, THEREFORE, ORDERED as follows:

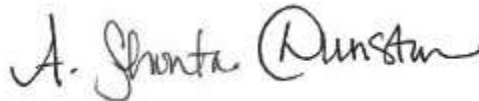
1. That Duke's Application for approval of the Smart \$aver Solar Energy Efficiency Program shall be, and is hereby, denied; and

2. That Duke, the Public Staff, and other interested parties shall develop a pilot program in accordance with the requirements of this order and file such program for Commission approval within 90 days of this order.

ISSUED BY ORDER OF THE COMMISSION.

This the 23rd day of March, 2023.

NORTH CAROLINA UTILITIES COMMISSION

A handwritten signature in dark ink, appearing to read "A. Shonta Dunston". The signature is fluid and cursive, with the first name "A." and last name "Dunston" clearly distinguishable.

A. Shonta Dunston, Chief Clerk

Commissioner Floyd B. McKissick, Jr. concurs in the result.

Commissioner Daniel G. Clodfelter joins Commissioner McKissick's concurring opinion.

DOCKET NO. E-2, SUB 1287
DOCKET NO. E-7, SUB 1261

Commissioner Floyd B. McKissick, Jr. concurring in the result:

I concur in the Commission's conclusion that the Smart \$aver program as proposed by Duke should not be approved as an energy efficiency program. I write separately to explain my reasoning as to why the Commission's decision is correct.

As the Public Staff correctly pointed out, the essence of an EE measure is “that [it] results in less energy used to perform the same function.” N.C. Gen. Stat. § 62-133.8(a)(4). To this definition Duke would add the words “from the grid,” so that a non-utility owned generation resource, such as rooftop solar, would also qualify as an EE measure because it “results in less energy *from the grid* used to perform the same function.”² However, the plain wording of the statute simply does not support Duke’s interpretation, and the Commission cannot add the words “from the grid” to the statute. *Midrex Technologies, Inc. v. North Carolina Department of Revenue*, 369 N.C. 250, 258; 794 S.E.2d 785, 792 (2016)(courts should interpret statutes based on the language actually used, neither deleting words used nor inserting words not used).

Solar PV is additional generation, a supply side resource, not EE or DSM. The DSM/EE provisions of Senate Bill 3 were intended to incent utilities and ratepayers to save energy and, thereby, avoid building generating capacity. Further, the EE provisions of SB 3 are agnostic as to the type of capacity – the avoidance of building any type of generation by instead saving electricity, or shifting usage to off-peak, is the goal. Building solar generation to be paid for by ratepayers, whether it is utility built or customer built with utility (ratepayer paid) incentives, is a supply side resource, not EE.

The legislature did carve out one specific generation resource, combined heat and power (CHP), that was defined as EE. It is instructive that CHP is the sole generation resource afforded EE treatment by the legislature. Had the legislature intended for rooftop solar to be included as EE, it similarly could have included it in the EE definition.

Duke implies that installing rooftop solar is comparable to installing a more efficient HVAC system, water heater, or pool pump.³ These are not comparable. All other factors remaining the same, replacing a SEER 13 HVAC system with a SEER 14 system will result in the same level of heating and cooling with the use of less electricity. The same result is achieved with a more efficient water heater or pool pump. Not so with a solar PV

² According to Duke: “The Company’s EE measures come in all different shapes and sizes — the key shared attribute is that they all reduce energy usage *from the utility system* without impacting the function of the household or its level of service.” Application at 5 (emphasis added).

³ “If approved, the Program would be a part of the Company’s Smart \$aver suite of home improvement rebate programs, which offer incentives for customers to install energy efficient equipment, such as HVAC, water heaters, and pool pumps, all of which qualify as equipment changes that result in less energy used to perform the same function.” *Id.*

addition. There will be no reduction in the amount of energy used. The only change will be that the energy is produced by a different generation resource.

Duke proposed to couple a requirement for participating in its Power Manager program with monetary incentives for the installation of rooftop solar. The Power Manager program is a cost-effective DSM/EE measure on its own. Engrafting Power Manager onto the Solar Program does not make the Solar Program an EE measure.

Finally, I have given the Memorandum of Understanding (MOU) negotiated by Duke and Joint Intervenors in support of Smart \$aver due consideration as significant evidence in support of a Solar Program, in accordance with the guidelines for nonunanimous settlement agreements. *State ex rel. Utilities Commission v. Carolina Utility Customers Ass'n, Inc.*, 348 N.C. 452, 466, 500 S.E.2d 693, 703 (1998); *State ex rel. Utilities Commission v. Carolina Utility Customers Ass'n, Inc.*, 351 N.C. 223, 524 S.E.2d 10 (2000) (a nonunanimous settlement is evidence that the Commission can consider in reaching its own independent conclusion based on substantial evidence). However, the MOU does not and cannot change the statutory definition of EE or the fact that Smart \$aver does not comply with that definition.

For the foregoing reasons I concur with the Commission's decision not to approve Smart \$aver as an energy efficiency program.

/s/ Floyd B. McKissick, Jr.
Commissioner Floyd B. McKissick, Jr.

Commissioner Daniel G. Clodfelter, concurring in the result:

I join in the Commission's Order directing the establishment of a pilot Solar+ program. I also join in Commissioner McKissick's separate concurrence stating his reasons why the original program proposed by Duke does not qualify for treatment as an energy efficiency program.

/s/ Daniel G. Clodfelter
Commissioner Daniel G. Clodfelter