BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NOS. 2021-143-E AND 2021-144-E - ORDER NO. 2022-239(A)

APRIL 15, 2022

IN RE: Application of Duke Energy Progress, LLC, for Approval of Smart Saver Solar as Energy Efficiency Program and Application of Duke Energy Carolinas, LLC, for Approval of Smart Saver Solar as Energy Efficiency Program	)	AMENDED ORDER DENYING THE REQUEST OF DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC TO APPROVE THE SMART $AVER SOLAR PROGRAM AS AN ENERGY EFFICIENCY PROGRAM

This is an amended order reissuing Order No. 2022-239. The original order was inadvertently issued with a scrivener's error in the title of the order. In this amended order the scrivener's error has been corrected; in all other regards this amended order is identical to the original order.

I. INTRODUCTION

Duke Energy Progress, LLC, (DEP), and Duke Energy Carolinas, LLC, (DEC), (collectively, Duke), each filed an Application with the Public Service Commission (Commission) asking for approval of the Smart $aver Solar program as an energy efficiency program pursuant to section 58-37-40 of the South Carolina Code of Laws (2015). The proposed Smart $aver Solar program would provide incentives to all-electric

residential customers who install solar panels and participate in a smart thermostat program for twenty-five years. Duke also seeks recovery of its costs to invest in the program pursuant to 58-37-20. Intervening parties supported Duke's applications. The Office of Regulatory Staff (ORS), however, opposed the applications, asserting the Smart $aver Solar program is not an energy efficiency program under 58-37-20, but rather a customer-generator program for which Duke is prohibited from recovering lost revenues pursuant to section 58-40-20(I) of the Code (Supp. 2021). We disapprove and deny the applications of the Duke companies.

II. FACTS AND PROCEDURAL HISTORY

On April 23, 2021, DEC and DEP filed applications asking for the Commission's approval of the Smart $aver Solar program as an energy efficiency program pursuant to section 58-37-20 of the South Carolina Code of Laws (2015). The applications assert the purpose of the Smart $aver Solar (SSS) program is to "encourage reductions in energy consumption by incentivizing the installation of solar photovoltaic (PV) facilities at residential premises," or, residential roof top solar panels. (Application, p. 3). Duke asserts the SSS program is "akin to programs for other home equipment like high efficiency heat pumps and water heaters." (*Id.*) To incentivize the program, Duke proposes to pay participating customers an initial incentive amount totaling $0.36/Watt-DC, while requiring customers to also participate in the Bring Your Own Thermostat (BYOT) demand-side management program, previously approved, for twenty-five years.

On May 6, 2021, the Office of Regulatory Staff filed a notice of appearance asserting its party status in the dockets pursuant to section 58-4-10 of the South Carolina Code of Laws (Supp. 2021).

The Clerk's Office of the Commission prepared a Notice of Filing on May 7, 2021, allowing interested persons to intervene by July 15, 2021. The Clerk's Office required Duke to publish the notice, provide proof of publication, and provide the notice to customers by bill insert or electronically. Duke complied with the Clerk's instructions.

The following entities petitioned to intervene: the South Carolina Coastal Conservation League (SCCCL), the Southern Alliance for Clean Energy, (SACE), the North Carolina Sustainable Energy Association (NCSEA), Upstate Forever, the Solar Energy Industries Association (SEIA), and Vote Solar. The Chief Hearing Officer of the Commission granted the petitions to intervene. On September 1, 2021, the two dockets were consolidated by directive order, Order No. 2021-611, and the Commission established deadlines for filing testimony and a hearing date.

Thereafter, the parties filed preliminary motions and responses to the motions. The Commission addressed the motions at the start of the hearing on October 28, 2021, pursuant to regulation 103-829 of the South Carolina Code of State Regulations (2012). ORS moved for partial summary judgment based the prohibition of lost revenue recovery set forth in section 58-40-20(I). ORS also filed a motion to strike portions of the rebuttal testimony of two Duke witnesses, Leigh Ford and Lon Huber, and strike portions of the surrebuttal testimony of Eddy Moore, witness for the Clean Energy Intervenors, asserting the witnesses gave unqualified legal opinions. Duke filed a motion asking the Commission

to affirm certain legal standards, such as agreeing it will evaluate the program only under section 58-37-20 of the Code. The Chairman denied ORS's motion for partial summary judgment and denied Duke's motion to affirm legal standards, and noted the Commission would rule on whether to strike testimony at the time a party offered the testimony into evidence.

The Commission heard the consolidated docket over six (6) days of hearing between October 28, 2021, and November 9, 2021. All parties and intervenors participated in the hearing and had an opportunity "to respond and present evidence and argument on all issues involved." § 1-23-320 (E) (Supp. 2021).

Six Commissioners participated in the hearing to the conclusion of the hearing. On November 3, 2021, one Commissioner chose to recuse himself on his own motion. The recused Commissioner did not participate in the docket after recusal. The hearing adjourned on November 9, 2021.

On January 13, 2022, at its regularly scheduled business meeting, the Commission considered a motion to approve the program as an acceptable energy efficiency/demand-side management [EE/DSM] program under section 58-37-20. The Commissioner making the motion to approve the Smart $aver Solar program stated the Smart $aver Solar program is an acceptable EE/DSM measure under section 58-37-20; section 58-40-20 did not prohibit approval of the Smart $aver Solar program; under the revised EE/DSM Mechanism approved by the Commission in Order Nos. 2021-32 and 2021-33, the UCT is the primary cost-effectiveness test to evaluate an EE/DSM program; and, the inputs Duke

used in performing the UCT, and the result of the UCT, are supported by the evidence in the record.

After the Commissioner made the motion to approve the program, the Commissioners engaged in discussion regarding the motion.

After discussion, the six participating Commissioners voted on the motion to approve the program. The motion failed to pass. Two Commissioners voted in favor of the motion to approve the application, and four Commissioners voted against the motion.

Later in the January 13, 2022 business meeting, a Commissioner made a motion to disapprove the application of DEC and DEP proposing a Smart $aver Solar program as an energy efficiency program. Without additional discussion, the Commissioners proceeded to a vote. The motion to disapprove the application carried a majority of the votes of the Commission. Four (4) Commissioners voted in favor of the motion to disapprove the application, and two (2) Commissioners voted against the motion to disapprove the application. Accordingly, the Commission denied the application from DEC and DEP for its Smart $aver Solar program to be an energy efficiency program.

III. EVIDENCE OF RECORD

Duke presented the direct and rebuttal testimony of expert witness Timothy J. Duff, the direct testimony of Lynda S. Powers, and the rebuttal testimony of expert witnesses Leigh C. Ford and Lon Huber. ORS presented the direct and surrebuttal testimony of expert witness O'Neil O. Morgan, the direct and surrebuttal testimony of expert witness Brian Horii, and the surrebuttal testimony of expert witness Robert A. Lawyer.

Intervenors, SCCCL, SACE, NCSEA, Upstate Forever, and Vote Solar, presented the direct and surrebuttal testimony of expert witness Eddy Moore, J.D.

A. Duke's Application Proposing the Smart $aver Solar Program[1]

Duke seeks approval of the Smart $aver Solar (SSS) program as an energy efficiency program, noting the program is proposed "as part of its suite of [EE and DSM] programs effective beginning January 1, 2022." (See DEP application, p. 1, filed on April 23, 2021). Duke's stated purpose "is to encourage reductions in energy consumption by incentivizing the installation of solar photovoltaic ('PV') facilities at residential premises." (*Id.*, p. 3). Duke witness Timothy Duff testified the program "is designed to help customers become more energy efficient by reducing participating customers' energy consumption from the electric grid." (Transcript, p. 57.5, lines 8-9). Duke seeks to encourage customers to install solar PV by providing a financial incentive for customers installing new rooftop solar panels. (Application, p. 3.) Duff stated the average incentive Duke expects to pay participating customers is between $3,500 and $3,600. (Transcript, p. 68, lines 13-16). Duff also testified the average rooftop solar installation costs around $18,000: "I think it's in the $18,000 range, somewhere in there. Again, it depends on leasing so it's kind of tough, but I think – I believe the price tag is around in that $15,000-$18,000 range, depending on the array and the features of the arrays." (Transcript, p. 69, lines 10-14).

Duke witness Lon Huber explained:

> . . . the solar-as-EE program's up-front incentive is expected to be a major driver of adoption for rooftop solar customers that have electric heat, an up-front incentive generally more

[1] DEC and DEP each filed an application for approval of their respective programs. We will refer to the program, singularly, for ease herein when appropriate.

> valuable than potential future bill savings because it's provided up-front; and, therefore, there's a psychological value there. . . . It reduces the amount of capital that would be needed to be financed for those households that have trouble accessing the capital market there and debt market.

(Transcript, p. 707, line 18-p. 708, line 2). Huber also states the proposed program is "trying to reduce use of the grid and peak demand of the grid to avoid future investments that all customers have to pay." (Transcript, p. 738, lines 7-9). Huber indicates the program is:

> "apple pie type of stuff:" "there's technology that the utility offers to help [customers] manage their costs, manage their, you know, consumption. And, you know, it is in line with where Duke Energy wants to go, which is decarbonized future. . . . it's a win-win-win, right? . . . this is apple-pie type of stuff where you have such a great outcome for all parties."

(Transcript, p. 743, line 17-p. 744, line 8).

Only customers who have all-electric service, as opposed to those who use gas service, even partially, may participate in the program. (Application, p. 4). Duke witness Powers explained offering eligibility to all-electric customers "ensure[d] the greatest energy savings." (Transcript, p. 49.4, line 12). Powers also stated "[e]ligible customers must become a new Solar Choice Metering customer on or after January 1, 2022, and must comply with all installation and interconnection requirements of the Residential Solar Choice Rider." (Transcript, p. 49.4, lines 19-21). She stated customers are required to participate in the SSS program for twenty-five years and to also participate in the Bring Your Own Thermostat (BYOT) program, a previously approved DSM program, for the same amount of time, or face financial consequences. (Application, p. 4.) If the customer unenrolls from BYOT after accepting the incentive for installation of solar PV, while

continuing to live in the residence on which the panels were installed, the customer must pay the incentive back to Duke, prorated for each year the customer did not participate for the full term of twenty-five years. (*Id.*)

Duke witness Duff explained the SSS program was designed as a package program incorporating the currently approved BYOT demand-side management program: "So, one, we looked at the total amount of consumption that could be potentially reduced and, obviously, all-electric customers were going to have . . . more consumption that could be reduced. But then again, the all-electric customers have that winter heating which is then able to be controlled with BYOT. Again, it's really important to think of this . . . as a total package because it was designed in that manner . . . . to be kind of synergistic between the different elements." (Transcript, p. 633, lines 7-21). Huber testified the program "is specifically tailored to a customer segment that can provide a substantial amount of benefit if we can get them. Solar energy can, you know, be consumed behind the meter, along with that smart thermostat dispatch." (Transcript, p. 765, lines 9-13). He also explained the program in broad terms: "In order to help balance the system and to decarbonize, the customer has to be more involved. . . . Say there's growth on a circuit, instead of a traditional upgrade to that line, you could engage customers and potentially decrease the need for that upgrade. So, generally, there's this trend to putting more resources, you know, with the customer to address localized system need and bulk system need." (Transcript, p. 822, lines 9-24). But he admits, "it's still the early stages – absolute early stages of solar as part of a typical standard energy-efficiency program." (Transcript, p. 825, lines 18-20). Huber noted: "it's all about the impact to the grid. It's about consumption from the grid;

it's about demand from the grid. That's why we have all these programs." (Transcript, p. 861, line 24-p. 862, line 1).

Duke asserts in the applications the SSS program is an energy efficiency program and is in compliance with section 58-37-20 of the South Carolina Code of Laws. Duke further contends the SSS program incentivizing solar PV is an EE measure and is "cost-effective, environmentally acceptable, and [will] reduce energy consumption or demand." (Application, p. 5, quoting section 58-27-20). The companies argue the program "exceeds the required 1.0 UCT [Utility Cost Test] score necessary, indicating that the benefits to the utility system exceed the costs." (*Id.*, p. 6). Duke reports it can true up any difference in its expected cost effectiveness by engaging in a program of evaluation, measurement, and verification (EM&V) of the data and savings regarding the program after the SSS program is approved and implemented. (*Id.*, pp. 6-7).

In addition to seeking approval to begin the SSS program, Duke seeks permission to "recover all reasonable and prudent costs incurred [that are] associated with the [p]rogram pursuant to the EE/DSM Mechanism through the annual EE/DSM rider proceedings." (*Id.*, p. 8). Duke witness Powers testified Duke needs the approval not only of this Commission, but also of the North Carolina Utilities Commission, noting both states' approval "is necessary prior to the Companies offering the Program to their customers." (Transcript, p. 49.7, lines 10-15).

As for other jurisdictions, Duke expert witness Lon Huber states no other state has approved such a program: "To my knowledge, there isn't a state where this has been approved yet." (Transcript, p. 780, lines 12-13). Huber also opines "my feeling is that

[North Carolina] would have an issue, as well, with the EE designation, perhaps. . . . the statute in North Carolina . . . it's certainly not as broad as South Carolina." (Transcript, p. 842, lines 20-24).

B. Solar Photovoltaic Panels as Energy Efficiency Under Section 58-37-20

The seminal question in these dockets is whether the Smart $aver Solar program qualifies as a cost-effective energy efficiency measure pursuant to section 58-37-20. Duke witnesses Duff and Powers assert the solar PV component of SSS is an EE measure. (Transcript, p. 121, line 24-p. 122, line 5). Disagreeing with ORS witness Horii, Duff reads section 58-37-20 as an umbrella over 'non traditional EE programs:'

> The statute specifically includes under its umbrella of authorized measure 'energy supply' technologies, even if those technologies are not traditional EE programs.

(Transcript, p. 576.3, lines 8-10). Duff contends EE and DSM are not defined in the statute, and that 58-37-20 "casts a very wide net for cost-effective EE/DSM programs." (Transcript, p. 576.5, lines 8-10). Duff admits, however, the SSS program is not a traditional EE program:

> If the basis for Witness Horii's view that the proposed Program is 'not a traditional' energy efficiency program [] because an incentive for residential solar has not been offered in South Carolina as an EE program in the past, then, yes, I would agree. . . . the Companies have not previously filed an application proposing to include an incentive for residential solar as part of an EE/DSM program.

(Transcript, p. 576.6, lines 5-9). He goes on to state,

> [w]hatever you label the Program—EE, DSM, or something else contemplated in S.C. Code Ann. § 58-37-20—the fact of the matter is that the Program will reduce customers' grid energy usage more cost-effectively than the Companies

> building new supply side resources, which is a win for all customers.

(Transcript, p. 576.6, lines 18-21). Duff testified the program falls under the statute, but he references a broader view of how the program does so:

> So I think there's a number of protections that – around the EM&V, how the rider works, the true-up of costs, all that really say this is a[n] appropriate new program for the Commission to approve, because it will deliver cost-effective reduction in consumption and demand on the utility system from a program that is clearly consistent with the South Carolina statute for demand-response and energy-efficiency programs. It clearly meets the definition of "demand-side management activity."

Transcript, p. 612, lines 15-23). Duff also relies on the fact that the program requires the customer to engage in the BYOT program to reduce demand: "The programs consist of a package of requirements and features that will work together to cost-effectively reduce demand." (Transcript, p. 575, lines 16-18).

Duke witness Ford states the Smart $aver Solar program is "consistent with" the energy efficiency statute:

> the Program is consistent with the EE statute and the Commission-approved Mechanisms, and the projected savings from the Program mean that all of the Companies' customers would save money through the Program's implementation.

(Transcript, p. 687.8, lines 11-14). She explains her belief the SSS program falls within 58-37-20, and is not a solar choice program:

> when you hear everybody talking about this as a reduction in consumption – this is not looking at exports like the prior net-metering program did – it's because this is a reduction in consumption along with 58-37-20.

(Transcript, p. 808, lines 15-19). Of the distinction between energy efficiency and demand-side management, Ford opines: "I would say that the language in the stature does not differentiate. It actually limps it all together as demand-side activity." (Transcript, p. 855, lines 17-19).

Duke expert witness Lon Huber asserts "solar can serve as an EE measure." (Transcript, p. 705, lines 16-17). Huber contends, in the generic NEM docket, the Commission ordered "when evaluating consumption of behind-the-meter solar energy, that consumption shall be treated as energy-efficiency or demand-side management resources." (Transcript, p. 705, line 22-p. 706, line 1). Although he admits "I don't think the Commission really redefined anything in the order," he believes "the State has a broad statute of what is under this broad umbrella of energy efficiency." (Transcript, p. 804, lines 17-18, p. 805, lines 22-23). He also clarified:

> So I certainly didn't mean to . . . imply that, you know, 'Hey, this – you know, these few sentences give us the complete green light, you know, from the Commission, and, you know, that's all you need to look at.'

(Transcript, p. 828, lines 20-24).

The Clean Energy Intervenors'[2] witness Moore gave his opinion regarding the definitions of energy efficiency and demand-side management: "I would say, generally, the broader term from, you know, decades ago would be 'conservation' and then 'energy efficiency' is a subset of 'conservation.'" (Transcript, p. 201, lines, 15-17). He continued:

> [i]t could also—roughly equivalent to 'conservation' would be 'demand-side management or demand-side activities,'

[2] Counsel for the Clean Energy Intervenors stated her clients included SACE, SCCCL, Upstate Forever, the North Carolina Sustainable Energy Association, and Vote Solar. (See Transcript, p. 243, lines 15-23). Intervenor Solar Energy Industries Association (SEIS) was represented by other counsel.

> which is what South Carolina's statute says. . . . [Moore concludes:] to me, demand-side management includes energy efficiency and it includes demand response. Like, the purpose of it is to be an umbrella term for those two things. But I know the practice in this State is to see DSM as distinct and, really, in my mind, equivalent to demand response.

(Transcript, p. 201, lines 17-25).

Moore also testified he did not think Duke witness Duff implied solar PV would always qualify as a cost-effective energy efficiency measure:

> But if you select the all-electric customers and you look at the portion of solar that's self-consumed and you tie it to a thermostat – a smart thermostat – under all those conditions, then it does meet that definition.

(Transcript, p. 954, lines 1-4).

Opposing Duke's applications and assertions, the Office of Regulatory Staff contends residential roof-top solar panels are not an energy efficiency measure. ORS expert witness Brian Horii testified: "solar PV is a generation resource, not an EE or DSM resource. No other jurisdictions provide EE incentives for solar PV, and no amount of out-of-context wordsmithing by the company will change the fact that solar PV does not match how the industry has defined EE or DSM." (Transcript, p. 457, line 21-p. 458, p. 1). Horii offers the federal definition of energy efficiency in his testimony:

> The United States Energy Information Administration ("EIA") defines EE as follows:
>
> **Energy efficiency** is using technology that requires less energy to perform the same function. Using a light-emitting diode (LED) light bulb or a compact fluorescent light (CFL) bulb that requires less energy than an incandescent light bulb to produce the same amount of light is an example of energy efficiency.

(Transcript, p. 459.5, lines 4-10, emphasis in original, footnote omitted.) Horii states, "once you say all we need to do is see the utility has to provide less power to call something 'energy efficiency,' then I think that totally blows away what the industry has always thought of for energy efficiency." (Transcript, p. 537, lines 8-12).

Furthermore, Horii testified EE and DSM are distinct terms for distinct programs. Of demand-side management, the term "EE/DSM," and the difference between DSM and EE, Horii states:

> I recall the term DSM coming into widespread use in the 1990s as a broad term to encompass both EE and demand response. Demand response activities include load management activities whether customers reduce load for a few hours in response to high system costs or grid operating emergencies. The key difference between demand response and EE is that EE activities are always available to provide efficiency improvement, while demand response only operates for a relatively few hours when called upon or when triggered by external events or price signals. For the purpose of this docket, the terms EE/DSM, while technically applicable, [are] redundant. It is like using the term City/County when one is just focused on the City.

(Transcript, p. 459.5, lines 12-20).

Horii states EE

> is kind of like mom and apple pie. Everybody tends to love energy efficiency,. . . [but that this] is a very unique case filing. . . [and] the Commission shouldn't take lightly the issue of where solar PV should be considered as EE, because through that classification there are all these other conditions, there's all this baggage that's going to come along with that classification, and so I think we need to be aware of that when we consider whether solar PV should – you know, should be classified as EE and, therefore, be eligible for all of those incentives and net lost revenue recovery.

(Transcript, p. 484, lines 5-6, 11, p. 484, lines 9-17).

In keeping with Horii's opinion, Duke witness Lon Huber admits "batteries will be next. I think that it's a natural evolution, again, to try to take advantage of customers that are pursuing batteries for their own, say, backup needs, but then also taking advantage of that while, you know – you know, when they're no using that battery." (Transcript, p. 835, lines 13-17).

Horii states classification of solar PV is EE is a "guise:" "The Commission can certainly approve incentives for Solar PV, but is should not be done under the guise of solar PV being classified as an EE device." (Transcript, p. 459.6, lines 4-5). He continues: "Solar PV is a generation resource, not EE. A solar PV outputs electricity just like a combustion turbine, wind turbine, hydroelectric plant, diesel engine, etc." (*Id.*, lines 5-7). Furthermore, he notes "the industry has always recognized that solar PV is not EE, so new terms like Distributed Energy Resources (DER) were coined in the industry to encompass locally sited generators like PV along with EE, demand management, and storage." (*Id.*, lines 8-11).

ORS witness Horii and Duke witness Duff also disagree regarding how the SSS program reduces energy consumption. Duff asserts the purpose of the SSS program is to reduce the electricity a customer needs from the grid: "And so, that's why we incentivize customers to take action that will reduce consumption from the grid." (Transcript, p. 147, lines 18-19). Horii counters:

> Witness Duff erroneously tries to draw parallels between Solar PV and actual EE programs by discussing reductions in energy consumption from the Companies['] grid. However, the actual EE programs result in actual reductions

> in energy **usage** at the device level – not mere reductions in purchases by customers due to self-generation from the Companies. Higher grade insulation reduces the amount of energy that a customer's heating or cooling system must consume in order to keep the house comfortable. A more efficient heart pump similarly requires less energy to keep the house comfortable. Witness Duff is correct that real EE programs reduce **grid** energy usage – but that is because they reduce **actual** energy usage. A reduction in customer's usage of the Companies['] grid does not inherently make a program EE, even if the program is a renewable energy technology.

(Testimony, p. 459.8, lines 1-10, emphases in original.)

In comparing solar panels with a solar water heater, Horii testified:

> What you look at is: Are devices actually more efficient within the household? With the solar hot water heater, it certainly is; and with the solar PV generator, it certainly isn't. There is no improvement in efficiency, no improvement in the way that electricity is used within that household just by installing a generator on a customer's rooftop.

(Transcript, p. 474, line 23-p. 475, line 5). While he asserts that there is not improvement in efficiency or the way electricity is used, Horri, however, agrees with Duke there would be an improvement at the utility's grid level. (Transcript, p. 475, line 7).

ORS witness O'Neil Morgan asserted: "energy-efficiency programs are a part of demand-side activity. So is DER programs [sic], and solar PV is a source, a DER measure, not an energy-efficiency measure." (Transcript. P. 249, lines 12-15). Morgan also testified: "Customer-sited solar PV systems are not EE measures." (Transcript, p. 230, line 4). He opines Duke's witnesses are asserting solar PV is an energy efficiency measure based on one line in Commission Order No. 2021-569.

> To support the company's assertion that [a] solar PV system is an EE measure, Witness[] Ford and Witness Duff refer to a single sentence in Commission Order No. 2021-56[9], which states, 'All self-consumed generation is equivalent to energy-efficiency or demand-side management measures as a decrement to system load.'

(Transcript, p. 230, lines 5-10). Morgan, however, notes: "this statement does not claim that solar PV customer-generators are EE/DSM measures, as the Duke witnesses suggest. Rather, the plain language of the order directs that the methodology used to evaluate the benefits and costs of customer generation will be similar to how the companies evaluate EE/DSM measures." (*Id.*, lines 10-16).

ORS expert witness Lawyer testified solar PV is not an energy efficiency measure, but is "an actual generator." (Transcript, p. 329, lines 8-9, 15). Lawyer notes: "you're not making anything more efficient; you're just getting your electricity from somewhere else." (Transcript, p. 329, lines 21-23). Morgan agrees rooftop solar panels are not energy efficiency devices: "they are energy generators. It's an energy-generator device, not an energy-efficiency device. They do not reduce any consumption of any end-use equipment within a residential home." (Transcript, p. 354, lines 6-9). Lawyer believes the thermostat used in the BYOT program is a demand-side management device. "You could hook up to the thermostat and control the HVAC unit. You're managing it. You're curbing load if you need to. Whenever there's stress on the system or you need to free up some for a reliability purpose, whatever the case may be, you can come in and control it." (Transcript, p. 358, lines 13-18). "But as far as an efficiency device, it does not function as an efficiency device." (Transcript, p. 358, lines 24-25).

Lawyer also testified rooftop solar does "not necessarily" reduce a customer's consumption of electricity: "It can; it has that potential. It depends on the individual consumer and their behaviors." (Transcript, p. 360, lines 4-6). Lawyer believes Duke's program is an "end-around" to make solar choice an energy efficiency program to get lost revenues no longer available from Act 236:

> This program as an EE program, the way I see it, it's kind of an end-around from Act 236 to then going through solar choice and now making it an EE program, trying to claim benefits that are already accounted for in solar choice, and it's a way to now capture those lost revenues that are going to be lost when somebody puts a generator on their house. The companies are in business to make money by selling energy. They're going to sell much less when somebody puts solar on their home. So if, now, we want to call it an EE program, just to get those – or possibly double-counting those benefits; I'm not even sure – number two, collecting those lost revenues that are now lost, from Act 236 getting shut down; and then on top of that, getting an incentive for the benefits that have already inherently been there, because the customer participation's already there. Duke has not needed to entice folks to get solar at this point. It's a way to get those lost revues in the incentive now, that you could not get from Act 236 anymore because solar choice was implemented.

(Transcript, p. 362, lines 5-24).

C. Act 62 and Section 58-40-20(I)

Duke contends the SSS program is an energy efficiency measure pursuant to section 58-37-20, and section 58-40-20(I), does not prohibit recovery of lost revenues. ORS asserts the program is not energy efficiency under 58-37-20, and thus recovery by Duke of lost revenues for the program violates section 58-40-20(I).

Duke witness Ford contends ORS's position is inaccurate:

> ORS Witness Morgan takes the position that cost recovery of EE – excuse me – EE/DESM net lost revenues is not in compliance with S.C. Code Section 58-40-20(I) of Act 62. He neglects to acknowledge that this section exclusively addresses DER program costs related to the program's design to jumpstart the installation of DER under Act 236. His testimony ignores the fact that the companies are not proposing to recover lost revenues associated with Solar Choice metering customers, as was done with the DER programs. Instead, the companies are requesting approval of an energy-efficiency program that provides for the recovery of net income, or net lost revenue, as defined in S.C Code Section 58-37-20 and in the approved DSM mechanisms.

(Transcript, p. 683, lines 10-23).

Clean Energy Intervenor witness Moore also disagrees with ORS: "ORS has argued in testimony that the proposed program would unlawfully recover lost revenue through the DSM rider in violation of the solar choice statute. However, lost revenues prohibited under solar choice are completely distinct from the net lost revenues recovered through the EE/DSM rider." (Transcript, p. 928, lines 19-25). He further states: "the program will not cause lost revenue recovery for solar choice as it existed before this program and as it continues outside the program. Rather, it will appropriately, and by statutory requirement, allow short-term recovery of net lost revenues associated only with the increment of expansion in the solar market that is proven to be specific to [the SSS program.]" (Transcript, p. 929, lines 6-13).

ORS witness Morgan disagrees with Duke's reading of section 58-40-20. Witness Morgan asserts he is "familiar with the difference between lost revenue with EE and [DSM programs,] and notes Duke intends "to include in the calculation of net lost revenues the reduction in the Companies' net income attributed to Solar PV customer-generator

consumption of self-generated energy. When a Solar PV customer-generator uses customer generated energy (behind the meter), the customer-generator buys less energy form the Companies . . . . Lost revenue is lost revenue no matter if the calculation is derived from 'NEM total generator output' or 'reduced grid energy usage due to self-consumption.'" (Transcript, p. 235.2, lines 14-21). Morgan continued: "The Companies claim that S.C. Code Ann. § 58-40-20(I) only applies to NEM DER costs, which include lost revenues. What Duke conveniently overlooks, however, is the fact that Act 62 also encompasses future lost revenues associated with customer-generators that apply on or after the date of June 1, 2021. The date is significant because the only program available to new customer-generators starting on June 1, 2021 is the Solar Choice Metering programs. Therefore, in order to participate in the [SSS] a customer generator must participate in the Solar Choice Metering program." (Transcript, p. 235.3, lines 3-9). When questioned whether a utility's recovery of net income under section 58-37-20 is the same as recovering lost revenues under section 58-40-20, ORS witness Morgan responded:

> I can admit that the – how the mechanism that exists works is somewhat different than how these lost revenues are calculated, but lost revenues are lost revenues. If the compan[ies], as a result of these programs, are selling less energy, less electricity, they are able- they are now trying to claim those savings and bundle under the portfolio of the energy-efficiency program to determine that net income. So those numbers are coming from the same customers. So, I mean, we're plain on the wording, but it's still lost revenue used to calculate on either side.

(Transcript p. 422, lines 11-21).

Duke witness Ford disagrees: "I read it that this section is talking about the existing net-metering program, and it is not then saying forevermore – in my opinion – it's not

saying forevermore anybody who's a customer-generator cannot do any type of energy-efficiency program, because that's really what that position would take." (Transcript, p. 876, lines 13-18). She also states net energy metering "deals with exports," but energy efficiency "has nothing to do with exports." (Transcript, p. 877, lines 19-24). Duke witness Duff contends "[t]he ultimate purpose of the EE and DSM programs is to cost-effectively reduce demand, and the statute casts a wide net for cost-effective EE/DSM programs." (Transcript, p. 571, lines 22-25).

D. Cost-Effectiveness of the Proposed Program

1. The Tests

Duke witness Powers asserted, according to the EE/DSM mechanisms approved by the Commission, "EE/DSM programs must be evaluated under the utility cost test, or UCT, and receive a score of at least 1.0." (Testimony, p. 55, lines 3-5). Powers testified the program scored "2.52 for DEC and 1.95 for DEP" using the UCT. (Transcript, p. 55, lines 5-6). Duke witness Duff contends the UCT test is the determinative test for use in this docket because Commission Order Nos. 2021-32 and 2021-33 approved a settlement agreement which Duff asserts determined the use of the UCT was approved over the TRC. (Transcript, p. 576.3, lines 14-20). Duff also stated: "In addition to the UCT now being the determinative cost-effective test for EE/DSM programs, the UCT is the most useful test to be used in these proceedings because it considers the program form the perspective of a utility investment on behalf of customers in a demand-side resource compared to the costs of a supply-side investment made by a utility on behalf of customers." (Transcript, p. 576.3, line 20-p. 576.4, line 4). Duff asserts the UCT has the "fundamental benefit of

evaluating the program costs that would be passed on to ratepayers and compares them to the benefits of avoided costs of implementing the program." (Transcript, p. 576.12, lines 7-9). Duff denied Duke asserts the Commission should only use the UCT test, just that it is the "primary test:" "we always perform the analysis under four tests. However, when you look at all four tests, what has been agreed upon and approved by the Commission is that when making the decision, the UCT test is the primary test. I actually really struggled with Witness Horii's testimony, saying that we were saying it was the only test, because we're not." (Transcript, p. 592, lines 16-23). Duff expressed confidence the program will be cost effective but asserted annual true up after evaluation will be available: "The company actually believes that the energy benefits will be greater to the utility system and so we're confident that it will deliver the benefits; but if it didn't, there is a reconciliation approach." (Transcript, p. 612, lines 5-8).

Duff disagrees with Horii's opinion the TRC is a better test to determine the cost-effectiveness of the program. (Transcript, p. 638, lines 23-24). Duff states: "And if you look at the participant test results . . . the participant test for DEC is a 0.99, which means the benefits are . . . almost identical to the cost that the customer receives. And on DEP, it's a 1.11. So the point of the matter is the TRC does not necessarily give you this holistic view." (*Id.*, lines 3-9). He continued: "Again, the Commission should consider and look at all those tests. My only point is the TRC masks where there are potential excess benefits and excess costs." (Transcript, p. 639, lines 8-10).

ORS witness Horii stated: "the Commission has explicitly recognized the value of multiple cost-effectiveness test perspectives. Moreover, the Commission in Order Nos.

2021-32 and 2021-33 did not foreclose the review of other cost-effectiveness tests for EE/DSM. Therefore ORS's review of the Program is not, and should not, be restricted to only focus on the UCT." (Transcript p. 463.9, lines 8-12).

Intervenor witness Moore also stated the Commission has the right to look at all the cost-effectiveness tests: "you should look at all the tests, and the Commission should not feel like it's put in a box in a number of ways in this proceeding. I think the Commission should consider all the tests, all the statutes, and all the evidence." (Transcript, p. 182, lines 19-23).

Duke witness Duff states in a previous docket the settling parties agreed "the UCT would serve as the determinative screen in assessing cost-effectiveness for program approval." (Transcript, p. 572, lines 18-20). He further opines that even if it were not the approved test, the "UCT would still be the most useful test in these proceedings." (Transcript, p. 573, lines 8-9). He reasons the UCT "evaluates the program costs that could be passed to ratepayers and compares them to the benefits of the avoided costs of implementing the program, which directly benefits all customers." (*Id.*, lines 10-13).

Duke expert witness Huber contends "the TRC provides a limited lens and treats private investment from customers as a cost, which skews the result in such a dynamic market like rooftop solar whether there's a lot of loans and different lease combinations." (Transcript, p. 707, lines 1-5).

ORS disagrees with Duke's assertions regarding the program's cost effectiveness. Horii testified: "Solar PV does not pass the Companies' cost-effectiveness tests and the additional EE incentive paid to Solar PV customer-generators under the proposed program

would further increase costs borne by the Companies customers as a whole." (Testimony, p. 459.12, lines 9-12). He assets "the Programs are not a 'win for all customers' because they are not cost effective from the TRC perspective, even under the Companies' own analyses. The TRC test looks at the total costs of installing the Solar PV versus the avoided cost benefits that Solar PV provides. The Programs fail[] the TRC test, which indicates Solar PV costs more to install than the avoided cost benefits that it provides." (Transcript, p. 463.4, lines 14-18). Horii further states: "[s]ince someone has to pay for the Solar PV (be it participants or non-participants via the cost shift imposed on them), at the end of the day, some group of customers will be paying more for electricity than they would have without the Programs." (Id., lines 18-21). Witness Horii also stated: "the Companies have neither quantified how much those increased benefits might be, nor demonstrated that the proposed Programs are a cost-effective way to obtain any increased benefits." (Transcript, p. 463.25, lines 2-4).

Of the test results, Horii notes "Duke attempts to justify its Solar PV EE program based on UCT results. However, the UCT test alone is inadequate to evaluate whether the Solar PV EE program is in the best interests of the Companies['] customers. A decision to provide additional incentives to solar customer-generators should be carefully weighed against the cost to the Companies['] customers. Therefore, it is my opinion that, the cost-effectiveness should be evaluated under multiple perspective – UCT as proposed by the Companies and the Total Resource Cost [] test." (Testimony, p. 459.13, lines 12-18). He goes on to explain the difference between the two tests: "The TRC test is critical for the Commission to determine the impact of a program on the entirety of the using and

consuming public. Although the UCT is a valid cost test, it evaluates cost-effectiveness narrowly from the perspective of the utility, and ignore the costs incurred by the participants and the non-participants." (Testimony, p. 459.14, lines 15-18). Horii also states: "And since this program fails the TRC test, using Duke's own numbers, we know that it's not going to reduce total energy spending in South Carolina; it's only going to increase it, if you adopt the program." (Transcript, p.. 545, lines 15-17).

ORS witness Morgan asserts: "The UCT is the primary test, but other tests remain relevant." (Testimony, p. 235.5, lines 13-14). ORS Robert A. Lawyer asks, "Why wouldn't you look at the TRC? Why was it included in the company's Application if it wasn't important for people to have the information? I think you need to look at them all holistically, in totality, to get a more full picture of what this program is actually going to – or actually has the potential to do." (Transcript, p. 264, lines 1-7).

Eddy Moore, witness for the Clean Energy intervenors, explained the UCT as follows: "the utility cost test means that you take the costs that the utility is spending, which means the incentives, the rebates that it's giving to customers, plus the administration of the program. And usually the incentives are the vast majority of that money and the administrative cost is not much. You take that on the cost side and you compare it to the reduction in utility fuel consumption and avoided capacity-related costs, and you see which one is bigger. That's the utility cost test." (Transcript, p. 183, lines 14-23). testified the Commission "should look at all the tests, and the Commission should not feel like it's put in a box in a number of ways in this proceeding. I think the Commission should consider all the tests, all the statutes, all the evidence." (Transcript, p. 182, lines 19-23).

2. Free Riders

As part of its assertion the program is cost effective, Duke contends ten percent free-ridership is an appropriate figure to indicate the percentage of customers for whom the incentive did not drive that customer to sign up for the program. (Transcript, p. 141, lines 21-23). In testimony regarding Duke's use of a ten-percent free-rider input, witness Duff stated: "While solar PV has, quote, 'been around for decades,' end quote . . . it is not being considered for adoption by most South Carolina customers, and . . . its adoption rate in this state is incredibly low, making a 10 percent appropriate figure for free-ridership correct." (Transcript, p. 574, lines 18-22).

Duff testified Duke's decision to state the program has a free-ridership of ten percent as follows: "we didn't try to put any non-energy benefits in with the program, despite the fact the mechanism said that we could . . . [s]o we didn't even try and go down that controversial route, . . . We included no spillover in the net-to-gross ratio . . . spillover, market effects, and free-ridership are in that net-to-gross ratio. We applied a 10 percent free-ridership but didn't put any spillover in. . . . And then we actually had an internal debate. Our initial program modelers felt that there should be zero free-ridership because, again, there's such low penetration of solar, it takes such a high investment from the customer, and the fact that it was – it was bundled together with a 25-year commitment for BYOT . . . And DR programs have zero free-ridership because, obviously, you can't get the incentive without the program. So, again, 10 percent was an internal push to make sure we put in some factor for free-riders, but it was felt to be very conservative." (Transcript, p. 651, line 13-p. 652, line 18).

Duff contends Horii "completely misrepresents the anticipated free-ridership of the Companies' proposed Smart [S]aver Solar as EE Programs . . . and bases his free-ridership figures on a totally inapplicable baseline, rendering his apples-and-oranges free-ridership calculation incorrect and uninformative." (Transcript, p. 576.4, lines 11-15). Duff criticizes Horii's analysis arguing: "Witness Horii puts forth an analysis of free-ridership based on forecasted solar installations for DEC customers on a rate RS before and after the change to the NEM tariffs. He contends that all of the forecasted 497 customers under the new Solar Choice Metering tariffs are free-riders when compared to the forecast of 633 customers under the old NEM tariffs. This analysis is fundamentally flawed as the Program proposed for DEC would not be available to customers on rate RS, but will instead only be available to customers with electric heating served under rate RE." (Transcripts, p. 576.17, lines 17-23).

Duff testified the average free-ridership percentage of all DEC and DEP programs is eighteen percent and the highest of any program is sixty-two percent:

> I can tell you – I looked at every single measure that's offered by Duke Energy Carolinas and Duke Energy Progress – the average, across every single measure, is18 percent free-ridership. Now, the measures that – and just even more importantly, there was one measure that had high free-ridership, and it was – the highest free-ridership was 62 percent, I believe. Sixty-two percent, not 79 percent as Witness Horii would – would have – would put forward as a recommendation based off of flawed analysis.

(Transcript. p. 596, lines 2-12).

Horii contends Duke's assumption of ten percent free riders "is unsupported and unreasonable." (Transcript, p. 459.23, lines 3-4). Horii asserts a seventy-nine percent free

rider input is appropriate and he uses Duke's own calculations gained from discovery requests in his analysis. (Transcript, p. 459.24, lines 5-6, 9-19). Horii explained he "focused on customers on residential rate schedule RS since they would not be eligible for any solar PV as EE incentive." He also explained because "Duke was not able to provide comparable forecast information for DEP" he used the DEC information for both companies. (Transcript, p. 459.24, lines 14-16). Using Duke's own calculations in the Solar Choice Metering docket,[3] Horii explained: "I use the 633 solar adoptions as a proxy for adoptions under the current tariffs plus the Solar PV as EE incentive." (Transcript, p. 459.25, lines 3-4). "Since there are 497 adoptions without an incentive (current tariffs), and 633 adoptions with the proposed additional Solar PV as EE incentive (the Full Retail NEM tariff proxy), 79% of the solar adoptions (497/633) would have occurred without any Solar PV as EE incentive. In other words, DEC's solar adoption forecasts indicate that the free[-]riders percentage should be far higher than the 10% assumed by both DEC and DEP." (Transcript, p. 459.25, line 12-p. 459.26, line 2). He notes this input into the UCT "dramatically reduces the UCT benefit cost results. The Solar PV as EE Incentive program UCT benefit cost ratio drops to far below 1.0 for the Companies, indicating that the program would be far from cost effective." (Transcript, p. 459.26, lines 6-8). Table 3 of Horii's prefiled testimony indicates the UCT cost benefit for DEC customers is 0.59, and 0.45 for DEP customers. (See Table 3, Transcript, p. 459.26, lines 17-20).

Horii also explained the free-rider input to the UCT calculations impact the test results.

[3] Docket No. 2020-265-E. (See Transcript, p. 459.25).

> The Companies' free rider assumptions have a dramatic impact on UCT results. Free riders, in the context of EE, is an estimate of the percentage of participants who would have installed an EE device or undertaken an EE activity even if there were no utility incentive. The concept is that if the incentive program did not exist, the utility would have still received benefits from some customers installing the EE device or undertaking the EE activity on their own. . . . The higher the free[-]riders percentage, the less benefits attributable to the incentive program.

(Transcript, p. 459.22, lines 1-9).

Duff finds error in Horii's calculations arguing it is based on "a totally inapplicable baseline." (Transcript, p. 574, lines 1-4). Duff states Horii "baes his free-ridership calculation on forecasted solar installations for DEC customers on Rate RS. This is fundamentally flawed because the program for DEC will not even be available to customers on witness – Rate RS. Witness Horii's free-ridership estimate is significantly overstated." (Id. lines 4-10).

When challenged about his use of the RS customer data, Horii responded: "the reason I did that is I wanted to avoid the risk of any solar incentive charge that may've been sort of on Duke's mind, sort of affecting the forecast that I used, so I wanted to make sure that I had data that didn't include any solar PV incentive." (Transcript. P. 522, lines 7-11).

Duff testified Duke does not believe there will be a cost-shift to non-participating customers. (Transcript, p. 93, lines 16-17). He stated: "The system benefits the – that are being driven by the reduction in consumption from the participating customers, as well as that shift of demand associated with the thermostat that you pointed out, those benefits will lead to a long-term reduction in rates." (Transcript, p. 93, lines 17-22).

ORS expert witness Morgan agreed "forecasting is a science," but asserted Duke did not provide ORS with the data to prove the incentives are needed to make customers choose solar: "But with the data that was presented to us, it shows that customers are willing to make that decision to go to solar PV systems without additional incentives. With the limited data that we received, of course. But the company did not provide any additional data to support their position that these incentives are necessary to continue the adoption rate."

IV. ANALYSIS

We begin with the statute upon which Duke relies in its application. First enacted in 1992, section 58-37-20 of the South Carolina Code addresses the Commission's discretionary authority to adopt procedures that encourage electric utilities to invest in energy efficient technology and energy conservation programs that are cost effective:

> The South Carolina Public Service Commission may adopt procedures that encourage electrical utilities and public utilities providing gas services subject to the jurisdiction of the commission to invest in cost-effective energy efficient technologies and energy conservation programs. If adopted, these procedures must: provide incentives and cost recovery for energy suppliers and distributors who invest in energy supply and end-use technologies that are cost-effective, environmentally acceptable, and reduce energy consumption or demand; allow energy suppliers and distributors to recover costs and obtain a reasonable rate of return on their investment in qualified demand-side management programs sufficient to make these programs at least as financially attractive as construction of new generating facilities; require the Public Service Commission to establish rates and charges that ensure that the net income of an electrical or gas utility regulated by the commission after implementation of specific cost-effective energy conservation measures is at least as high as the net income would have been if the energy conservation measures had not been implemented. For

> purposes of this section only, the term "demand-side activity" means a program conducted by an electrical utility or public utility providing gas services for the reduction or more efficient use of energy requirements of the utility or its customers including, but not limited to, utility transmission and distribution system efficiency, customer conservation and efficiency, load management, cogeneration, and renewable energy technologies.

S.C. Code Ann. § 58-10-20 (2015).

We further consider the solar choice legislation. In 2014 the General Assembly first enacted a Net Energy Metering chapter of the Code, later revised in 2019 by Act 62. Section 58-40-20 requires the Commission to establish solar choice metering requirements which eliminate the subsidization of solar customers by non-solar customers, as much as practicable:

> (A) It is the intent of the General Assembly to:
>
> (1) build upon the successful deployment of solar generating capacity through Act 236 of 2014 to continue enabling market-driven, private investment in distributed energy resources across the State by reducing regulatory and administrative burdens to customer installation and utilization of onsite distributed energy resources;
>
> (2) avoid disruption to the growing market for customer-scale distributed energy resources; and
>
> (3) require the commission to establish solar choice metering requirements that fairly allocate costs and benefits to eliminate any cost shift or subsidization associated with net metering to the greatest extent practicable.

S.C. Code Ann. § 58-40-20(A) (Supp. 2021).

The statute continues:

> (G) In establishing a successor solar choice metering tariff, the commission is directed to:
>
> > (1) eliminate any cost shift to the greatest extent practicable on customers who do not have customer-sited generation while also ensuring access to customer-generator options for customers who choose to enroll in customer-generator programs; and
> >
> > (2) permit solar choice customer-generators to use customer-generated energy behind the meter without penalty.

S.C. Code Ann. § 58-40-20(G) (Supp. 2021).

Furthermore, paragraph (I) of the net energy metering statute prohibits an electrical utility from recovering lost revenues associated with customer-generators of solar energy who apply for customer-generator programs on or after June 1, 2021:

> Nothing in this section, however, prohibits an electrical utility from continuing to recover distributed energy resource program costs in the manner and amount approved by Commission Order No. 2015-194 for customer-generators applying before June 1, 2021. Such recovery shall remain in place until full cost recovery is realized. Electrical utilities are prohibited from recovering lost revenues associated with customer-generators who apply for customer-generator programs on or after June 1, 2021.

S.C. Code Ann. § 58-40-20 (I) (Supp. 2021).

In addition to the statutory law, we note several decisions the Commission made in other dockets are referenced by the parties. On January 15, 2021, in Order Nos. 2021-32 and 2021-33, the Commission approved the revised cost recovery mechanism for Duke's demand-side management and energy efficiency programs, which was presented to the Commission as part of a settlement agreement among Duke, ORS, SCCCL, SACE, the

Natural Resources Defense Council, the Sierra Club, and Walmart. The settlement agreement noted "any new EE and DSM programs. . . filed on or after January I, 2021[,] will comport with the updated Mechanism such that any cost effectiveness screening or cost recovery in 2022 will reflect the updated Mechanism." (Order 2021-32, Order Exhibit No. 1, p. 2).

The settlement agreement defined TRC and UCT tests as follows:

> Total Resource Cost ("TRC") means a cost-effectiveness test that measures the net costs of a DSM or EE Program or portfolio as a resource option based on the incremental costs of the Program or portfolio, **including both the participant's and the utility's costs** (excluding incentives paid by the utility to or on behalf of participants). The benefits for the TRC test are the avoided supply costs (i.e., the reduction in generation capacity costs, transmission and distribution capacity costs, and energy costs caused by a load reduction), valued at marginal cost for the periods when there is a load reduction. The avoided supply costs will be calculated using net Program or portfolio savings (i.e., savings net of reductions in energy use (NTG impacts) that would have happened even in the absence of the Program). Non-energy benefits as approved for use by the Commission may be considered in the determination of TRC results. The costs for the TRC test are the incremental net Program or portfolio costs **incurred by the utility and the participants**, plus the increased supply costs for any periods in which load is increased. All costs of equipment, installation, operation and maintenance (O&M), removal (less salvage value), and administration, no matter who pays for them, are included in this test. . . .
>
> Utility Cost Test ("UCT") means a cost-effectiveness test that measures the net costs of a DSM or EE Program or portfolio as a resource option **based on the incremental costs incurred by the utility** (including incentive costs paid by the utility to or on behalf of participants) **and excluding any net costs incurred by the participants**. The benefits for the UCT are the avoided supply costs (i.e., the reduction in generation capacity costs, transmission and distribution

> capacity costs, and energy costs caused by a load reduction), valued at marginal cost for the periods when there is a load reduction. The avoided supply costs will be calculated using net Program or portfolio savings (i.e., savings net of reductions in energy use (NTG impacts) that would have happened even in the absence of the Program or portfolio). The costs for the UCT are the net Program or portfolio Costs incurred by the utility and the increased supply costs for any period in which load is increased. Utility costs include initial and annual costs, such as the cost of utility equipment, O&M, installation, Program or portfolio administration, incentives paid to or on behalf of participants, and participant dropout and removal of equipment (less salvage value). . . .

Order No. 2021-32, Settlement Agreement attached as Exhibit 1, pages 28-30 (emphases added). The Settlement Agreement approved in Orders 2021-32 and 2021-33 also included a provision any new programs must receive a score of at least 1.0, using the Utility Cost Test:

> In evaluating potential DSM/EE Measures and Programs for selection and implementation, DEC will first perform a qualitative measure screening to ensure Measures are (a) commercially available and sufficiently mature, (b) applicable to the DEC service area demographics and climate, and (c) feasible for a utility DSM/EE Program. DEC will then further screen EE and DSM Measures for cost-effectiveness. For purposes of this screening, estimated incremental EM&V costs attributable to the Measures will be included in the Measures' costs. With the exception of Measures included in a Low-Income Program, or other Program in which PPI incentives are not requested that may potentially be filed with the Commission for approval, **an EE or DSM Measure with a Utility Cost Test (UCT) result less than 1.0 will not be considered further, unless the Measure can be bundled into an EE or DSM Program to enhance the overall cost-effectiveness of that Program.** Measures under consideration for bundling, whether as part of a new Program or into an existing Program, should, unless otherwise approved by the Commission, be consistent with and related to the measure technologies, and/or delivery

> channels currently offered in the existing Program or to be otherwise offered in the new Program. With the exception of Low-Income Programs or other programs explicitly identified at the time of the application for their approval, **all Programs submitted for approval will have a Program level UCT result greater than 1.00.** For purposes of determining these test results, estimated incremental EM&V costs attributable to each Program will be included in the Program costs.

Order No. 2021-32, Settlement Agreement attached as Exhibit 1, page 32 (emphases added). However, the parties to the Settlement Agreement expressly agreed: "this Agreement will not constrain, inhibit or impair their arguments or positions held in future proceedings, **nor will this Agreement or any of the matters agreed to in it be used as evidence or precedent in any future proceeding**." Order No. 2021-32, Settlement Agreement attached as Exhibit 1, p. 4 (emphasis added).

Turning to the facts and the evidence of record in this matter, and applying South Carolina statutory law, we disapprove the SSS program as a cost-effective energy efficiency program pursuant to 58-37-20. Duke did not provide the Commission with sufficient evidence to support its assertions the Smart $aver Solar program will be cost-effective. We do not find the evidence supports Duke's assertion the proposed program has a UCT result of 1%. Furthermore, we do not find the evidence supports Duke's assertion the program is cost-effective using the TRC test.

The evidence offered by Duke is lacking. We agree with witness Horii's statement: "the Companies have neither quantified how much those increased benefits might be, nor demonstrated that the proposed Programs are a cost-effective way to obtain any increased benefits." (Transcript, p. 463.25, lines 2-4). Instead, Duke witness Duff testified: "Based

on the actual customer adoption of solar in 2020, a total of 1,559 residential customers across both utilities installed solar, which represents an adoption rate of 0.23% . . . . An adoption rate of 0.23% is incredibly low and is consistent with Mr. Horii's view of " almost no market uptake, " making 10% an appropriate figure for free-ridership." (Transcript, p. 576.18, lines 19-23). Duff also testified the ten percent free rider estimate was chosen after the companies "did not want to be in a position of overstating benefits through a free-ridership assumption of zero, even if supportable." (Transcript, p. 576.19, lines 12-19).

No specific evidence supported the ten percent calculation. Duke instead proposed that any inaccuracy with the free-rider percentage input could be addressed after the program is implemented. Duff testified the companies can "determine a different free-ridership rate than the Companies have assumed, after it evaluates the program, with the true-up process in the annual rider. (Transcript, p. 576.20, lines 2-6). "Even if the measured free-ridership turns out to be different than the assumed 10%, the application of EM&V results in the annual rider true-up process will ensure that customers only pay for the measured net impacts confirmed through the EM&V study." (Transcript, p. 576.22, lines 17-19).

The evidence presented by ORS witness Horii, using information provided by Duke, reasonably supports a finding Duke's proposed program passes neither the UCT nor the TRC tests. Horii testified he analyzed the program using the UCT as follows: "I use the 633 solar adoptions as a proxy for adoptions under the current tariffs plus the Solar PV as EE incentive." (Transcript, p. 459.25, lines 3-4). "Since there are 497 adoptions without an incentive (current tariffs), and 633 adoptions with the proposed additional Solar PV as

EE incentive (the Full Retail NEM tariff proxy), 79% of the solar adoptions (497/633) would have occurred without any Solar PV as EE incentive. In other words, DEC's solar adoption forecasts indicate that the free[-]riders percentage should be far higher than the 10% assumed by both DEC and DEP." (Transcript, p. 459.25, line 12-p. 459.26, line 2). He notes this input into the UCT "dramatically reduces the UCT benefit cost results. The Solar PV as EE Incentive program UCT benefit cost ratio drops to far below 1.0 for the Companies, indicating that the program would be far from cost effective." (Transcript, p. 459.26, lines 6-8). Horii's calculations indicate the UCT cost benefit for DEC customers is 0.59, and 0.45 for DEP customers.

We find and conclude the Commission has the discretion to consider all relevant cost-effective tests in evaluating EE/DSM programs. In Order No. 2021-569, issued in Docket No. 2019-182-E, a generic docket regarding Act 62 addressing the costs and benefits of net energy metering programs and the value of customer generation pursuant to section 58-40-20, the Commission made a conclusion regarding the tests normally used to make a cost-benefit analysis:

> The Commission concludes that the disagreement as to which cost-benefit tests or methods should be used in this proceeding illustrates the importance of receiving all relevant information into [the] evidence of record, then using the Commission's judgment and discretion to properly assign weight to the evidence presented. Consistent with the desire to fully receive relevant information, the Commission finds that all the cost-benefit tests presented in this case illustrate different, relevant perspectives and information. Therefore[,] in this and future proceedings, the use of a variety of relevant cost-benefit tests may be considered and appropriately weighed by the Commission in its discretion.

We further find and conclude section 58-37-20, the statute pursuant to which Duke

asks this Commission to approve the proposed program, expressly states the Commission has discretionary authority to approve programs encouraging energy efficiency. See *State v. Wilson*, 274 S.C. 352, 356, 264 S.E.2d 414, 416 (1980) ("The use of the word 'may' signifies permission and generally means that the action spoken of is optional or discretionary. This is the ordinary significance of the use of the word 'may[,]'[] and nothing appears to require that it be given any other meaning in the present statute.").

We note ORS asserted Duke is prohibited from recovering its lost revenues for the program pursuant to section 58-40-20 (I): "Electrical utilities are prohibited from recovering lost revenues associated with customer-generators who apply for customer-generator programs on or after June 1, 2021." As we disapprove the program as a cost-effective energy efficiency program pursuant to 58-37-20, we need not address any recovery by Duke for its lost revenues from implementing the program.

In conclusion, while the Commission respects the passionate and well-reasoned arguments of all parties and appreciates the determination of Duke to develop conservation programs to ensure a healthy and reliable grid, we disapprove the proposed Smart $aver Solar program as a cost-effective energy efficiency program under section 58-37-20. A majority of the Commissioners voted against approval of the program and voted to disapprove the program pursuant to section 58-37-20. See S.C. Code Ann. § 58-3-90 ("A majority of the commissioners constitutes a quorum for the transaction of all business pertaining to their office.").

V. FINDINGS OF FACT

After review of all of the evidence in the record, including the testimony of the witnesses, the Commission makes the following findings of fact:

1. Section 58-37-20 gives discretionary authority to the Commission to promote cost-effective energy efficiency programs.

2. Duke did not provide the Commission with sufficient evidence the proposed program will be cost effective pursuant to section 58-37-20.

3. We find the Commission may use and consider a variety of relevant cost-benefit tests to examine evidence.

4. The motion to approve the program, before a quorum of Commissioners, failed.

5. The motion to disapprove the program, before a quorum of Commissioners, carried.

VI. CONCLUSIONS OF LAW

1. The Commission's authority to adopt procedures under section 58-37-20 of the South Carolina Code of Laws is discretionary.

2. Duke did not prove, by the greater weight of the evidence, the program would qualify as a cost-effective energy efficiency measure under section 58-37-20.

VII. ORDERING PROVISIONS

IT IS THEREFORE ORDERED:

1. The Commission denies the requests by Duke Energy Progress, LLC, (DEP) and Duke Energy Carolinas, LLC, (DEC) to approve the Smart $aver Solar program as an energy efficiency program pursuant to section 58-37-20.

2. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:

Justin T. Williams, Chairman
Public Service Commission of
South Carolina