

**BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA
UTILITIES COMMISSION**

DOCKET NO. 2015-55-E

**IN RE: Application of Duke Energy
Carolinas, LLC to Establish a
Distributed Energy Resource
Program**)
) **DIRECT TESTIMONY OF**
) **JUSTIN R. BARNES ON BEHALF**
) **OF THE ALLIANCE FOR**
) **SOLAR CHOICE**
)

APRIL 28, 2015

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Exhibit JRB-1

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND CURRENT**
3 **POSITION.**

4 **A.** Justin R. Barnes, 401 Harrison Oaks Blvd, Suite 100, Cary, North Carolina,
5 27513. My current position is Policy Research Manager with EQ Research
6 LLC.

7 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

8 **A.** I am testifying on behalf of The Alliance for Solar Choice (“TASC”).

9 **Q. HAVE YOU EVER TESTIFIED BEFORE THE SOUTH CAROLINA**
10 **PUBLIC SERVICE COMMISSION?**

11 **A.** Yes. I submitted pre-filed direct testimony and appeared to testify on behalf of
12 TASC in Docket Number 2014-246-E (“DER/NEM Docket”). In that case, I
13 addressed South Carolina’s net metering policy within a national context.

14 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND OCCUPATIONAL**
15 **BACKGROUND.**

16 **A.** I obtained a Bachelor of Science in Geography from the University of
17 Oklahoma in 2003 and a Master of Science in Environmental Policy from
18 Michigan Technological University in 2006. I was employed at the North
19 Carolina Solar Center at N.C. State University for more than five years, where
20 I worked on the *Database of State Incentives for Renewables and Efficiency*
21 *(DSIRE)* project, and several other projects related to state renewable energy
22 and efficiency policy. In my current position at EQ Research, I manage and

1 perform research for a solar regulatory policy tracking service, contribute as a
2 researcher to standard policy service offerings, and perform customized
3 research. My *curriculum vitae* is attached as **Exhibit JRB-1**.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 A. The purpose of my testimony is to discuss several components of Duke Energy
6 Carolinas LLC's ("DEC" or the "Company") Distributed Energy Resource
7 ("DER") program application and to suggest how those components could be
8 improved to better accomplish the objective of supporting investment in
9 customer-scale DER in South Carolina. For example, I discuss how the Solar
10 Rebate program, as proposed, lacks transparency in how the Company will
11 determine when to seek modifications to incentive levels. An alternate program
12 design—one that TASC supports and proposes—is one based on
13 predetermined rebate level steps that decline when capacity benchmarks are
14 met by incentive reservations. This gives the utility the ability to plan around a
15 pre-determined budget, links higher uptake of solar to a reduced need for
16 incentives to encourage additional growth, and provides developers and
17 installers greater certainty in making long-term business plans that account for
18 transparent incentives.

19
20 Additionally, I address how the proposal to meet the 25% Requirement for
21 small-scale solar—by allowing subscriptions to the Shared Solar program of
22 under 20 kW to count toward that goal—does not appear to be consistent with

1 the purpose of the statute and the Settlement Agreement to specifically support
2 development of the market for solar facilities of less than 20 kW.

3 **II. ACT 236 DER PROGRAM REQUIREMENTS**

4 **Q. PLEASE DESCRIBE THE RENEWABLE ENERGY CAPACITY**
5 **TARGETS IN ACT 236.**

6 **A.** Act 236 requires that the Company’s DER application should lead to the
7 development of renewable generation capacity equivalent to “at least two
8 percent of the previous five-year average of the electrical utility’s South
9 Carolina retail peak demand.”

10

11 The two percent requirement is broken into two capacity Tiers. For systems
12 greater than 1 megawatt (“MW”) but no greater than 10 MW, the Company’s
13 application is supposed to include “a plan to invest in or procure” renewable
14 generation facilities located in the state equal to at least one percent of the
15 previous five-year average of the Company’s retail peak demand (“Tier 1
16 Requirement”). The Company’s application is required to provide renewable
17 generation capacity equal to at least another one percent of retail peak demand
18 by establishing “a program... to encourage customers... to purchase or lease
19 renewable energy facilities” with a nameplate capacity of no greater than 1
20 MW (“Tier 2 Requirement”). Within the Tier 2 Requirement, the Company
21 must assure that it will encourage customers to purchase or lease renewable
22 generation facilities, “**each** no greater than twenty kilowatts” in an amount

1 equal to at least twenty-five percent of the Tier 2 Requirement (“25%
2 Requirement”).

3

4 The statute provides that the Tier 2 Requirement may be satisfied using either
5 of two approaches, including a combination of both. First, the requirement
6 could be met by providing “an incentive to encourage residential customers of
7 the electrical utility to purchase or lease renewable energy facilities in order to
8 become an eligible customer-generator, as defined in Section 58-40-10.” In
9 other words, this suggests that DEC could offer an incentive to encourage
10 customers to participate in net metering. Second, the Company could provide
11 an incentive to customers to purchase or lease facilities no greater than 1 MW
12 that are “intended primarily to offset part or all of an electrical customer’s own
13 electrical energy requirements.”

14 **Q. WHAT IS THE AMOUNT OF RENEWABLE ENERGY CAPACITY**
15 **THAT DEC HAS PROPOSED TO MEET THE TARGETS SPECIFIED**
16 **IN STATUTE?**

17 A. DEC projects that 1% its five-year average retail peak demand from 2012 -
18 2016 is 40,000 kW-AC, the stated target for Tier 1 resources. DEC also
19 projects that 1% of its expected five-year average retail peak demand from
20 2016 – 2020 is approximately 44,000 kW-AC, the stated target for Tier 2
21 resources. Together, these estimates lead to a target DER program total of
22 84,000 kW-AC.

1 **Q. HOW MUCH OF THE 2 PERCENT CAPACITY TARGET IS**
2 **REQUIRED TO BE MET BY SYSTEMS OF 20 KW OR LESS?**

3 **A.** Assuming that the 44,000 kW-AC figure reported by DEC is 1% of its average
4 five-year retail peak demand from 2016 - 2020, the target for systems of 20
5 kW or less would be 11,000 kW-AC.

6 **Q. DOES THE SETTLEMENT AGREEMENT REQUIRE UTILITY DER**
7 **PROGRAMS TO INCLUDE SPECIFIC ELEMENTS ADDRESSING**
8 **THE LESS THAN 20 KW SEGMENT?**

9 **A.** Yes. The first subsection of Section III of the Settlement Agreement spells out
10 a number of commitments to provide incentives to residential and small
11 commercial customer-generators with systems sized 20 kW or less. To respect
12 these commitments, the DER programs must include, among others, the
13 following elements:

- 14 • (1.a) “an investment incentive (i.e., an up-front incentive or rebate) and/or
15 a fixed, production-based incentive payment.” (“Residential/Small
16 Commercial DER Incentives”).
- 17 • (1.b) sufficient “Residential/Small Commercial DER Incentives” to meet
18 the “customer-generator adoption targets enumerated in S.C. Code § 58-39-
19 130(C)(2).” And,
- 20 • (1.c) availability of “Residential/Small Commercial DER Incentives...to
21 all qualifying customer-generators on a nondiscriminatory basis... up to a
22 cumulative capacity no less than 25% of the Utility’s previous five-year
23 average South Carolina retail peak demand, as defined by the Act.”¹

24 **Q. WHAT ELEMENTS OF DEC’S PROPOSED DER PROGRAM**
25 **ADDRESS THE 20 KW OR LESS SEGMENT?**

¹ Order No. 2015-194, Docket No. 2014-246-E, *Exhibit 1* (filed March 20, 2015).
Subsections 1.g and 1.h are not repeated here as those do not present specific elements
that must be included within the DER application.

1 A. As discussed by DEC Witness Emily F. Felt, the Company proposes that it be
2 allowed to count the renewable capacity associated with both its Solar Rebate
3 and Shared Solar programs towards the 25% Requirement.

4 **Q. DOES DEC'S PROPOSAL TO MEET THE 25% REQUIREMENT**
5 **APPEAR CONSISTENT WITH THE INTENT OF THE SETTLEMENT**
6 **AGREEMENT?**

7 A. No, not entirely. The Settlement Agreement's provisions on the utility's DER
8 applications focus on "customer-generators." That term is defined by Act 236
9 to refer to a customer that has an onsite renewable generation facility that is
10 configured to engage in net metering. Indeed, the Settlement Agreement
11 primarily concerns the adoption of net metering rules and a valuation
12 methodology to be used to assess the net metering program, so it is logical that
13 any DER application filing requirements in the Settlement Agreement would
14 address net metering customer-generators. Accordingly, DEC's Solar Rebate
15 program appears to support the intent of the settlement to meet the 25%
16 Requirement by encouraging customers to install onsite renewable energy
17 systems and engage in net metering. However, as I discuss later in my
18 testimony, DEC's proposal to count participation in its Shared Solar program
19 towards the 25% Requirement is not consistent with the Settlement Agreement.

20

21 **III. DEC'S SHARED SOLAR PROPOSAL**

22 **Q. PLEASE DESCRIBE DEC'S SHARED SOLAR PROPOSAL.**

1 **A.** Participants in the Shared Solar program would pay an up front subscription
2 fee of \$100/kW and a monthly subscription fee of \$6/kW in exchange for a
3 monthly bill credit of 6.04 cents/kWh based on the customer’s pro rata share of
4 energy production from a Shared Solar facility. Subscriptions may last until the
5 earlier of 10 years, or the expiration of the Shared Solar Rider (Rider SS) on
6 December 31, 2028. A customer may terminate service under the program with
7 30 days notice after the first year of their enrollment. As stated in the testimony
8 of DEC Witness Jose I. Merino, the amount of the bill credit is designed to
9 yield energy cost savings to customers sufficient to result in a four-year
10 payback period for the initial subscription fee. According to Witness Merino,
11 the bill credit contains an embedded subsidy sufficient to increase the bill
12 credit to an amount necessary to meet this payback period benchmark.

13
14 The Company’s verified application proposed that the facilities serving the
15 Shared Solar program be ground-mounted systems developed in increments of
16 1,000 kW, timed at 1,000 kW in 2016, and 2,000 kW each year in 2017, 2018
17 and 2019. Under this development plan, the total size of the Shared Solar
18 program would be 7,000 kW by 2020. In Witness Felt’s testimony, however,
19 she indicated that the first tranche of Shared Solar capacity would consist of
20 4,000 kW and would expect to be in operation by December 31, 2016. This
21 adjustment appears to recognize the benefit of frontloading the majority of the
22 Shared Solar capacity to take advantage of the current 30% federal investment

1 tax credit (“ITC”), which is set to decline to a 10% credit after December 31,
2 2016.

3 **Q. DOES TASC SUPPORT DEC’S SHARED SOLAR PROPOSAL?**

4 A. TASC does not oppose the Shared Solar program, but has serious concerns
5 about the extension of the Shared Solar offerings to segments of the
6 competitive market where onsite, rooftop solar might be an option. TASC
7 proposes that the Shared Solar program should only be considered as part of
8 the 25% Requirement at the end of 2020, in the event that the Solar Rebate
9 program has not produced enough customer-generators with systems of 20 kW
10 or less to satisfy the requirement.

11

12 One of TASC’s concerns with using the Shared Solar program to count toward
13 the 25% Requirement is that it allows large-scale solar projects to be
14 artificially partitioned to represent small-scale projects. The intent of the 25%
15 Requirement would appear to be to ensure that small-scale solar development,
16 which has its own distinct market characteristics and distinct market
17 participants, is included within the spectrum of economic activity spurred by
18 Act 236. TASC is also concerned that it could create unnecessary
19 complications in determining whether DEC has met, or is on track to meet the
20 25% Requirement because Shared Solar enrollment may fluctuate over time.
21 This could create a “moving target” for determining outstanding resource

1 needs, which in turn could also complicate the administration and operation of
2 the Solar Rebate program. I elaborate on these concerns later in my testimony.

3 **Q. WHAT TYPES OF RESIDENTIAL CUSTOMERS CAN PARTICIPATE**
4 **IN THE SHARED SOLAR PROGRAM, AS PROPOSED BY DEC?**

5 A. Any residential customer with a satisfactory payment record that is not served
6 under the net metering rider or a purchased power agreement may enroll in the
7 program.

8 **Q. DOES TASC OPPOSE ALLOWING RESIDENTIAL CUSTOMERS TO**
9 **SUBSCRIBE TO A SHARED SOLAR FACILITY?**

10 A. No. TASC agrees with the Company that there can be situations where
11 installing an onsite solar facility is not an option for a particular residential
12 customer. However, DEC's proposal lacks any meaningful boundaries on
13 participation and could lead to the Shared Solar proposal cannibalizing demand
14 from the combination of the Company's net metering and Solar Rebate
15 programs.

16 **Q. WILL DEC DIFFERENTIATE BETWEEN RESIDENTIAL**
17 **CUSTOMERS THAT COULD OTHERWISE PARTICIPATE IN THE**
18 **SOLAR REBATE PROGRAM TO INSTALL ONSITE SOLAR?**

19 A. No, it does not appear that they have ready access to the information needed to
20 make that differentiation. The Company is effectively opening the Shared
21 Solar program to all residential customers.

1 **Q. WHAT ARE SOME OF THE DIFFERENCES FROM A CUSTOMER'S**
2 **PERSPECTIVE BETWEEN PARTICIPATING IN A SHARED SOLAR**
3 **PROGRAM AND UTILIZING THE SOLAR REBATE PROGRAM?**

4 A. There are several key differences. First, a customer participating in the Shared
5 Solar program may only do so for a maximum of 10 years, meaning that the
6 participant may only benefit from any energy cost savings provided under the
7 program for 10 years. In contrast, a participant in the Solar Rebate program
8 will have purchased or leased a solar facility and may continue to benefit from
9 the energy produced by a solar system for the life of the system or for the
10 entire term of the lease. Though there are many iterations of lease offerings, a
11 20-year term is standard.

12
13 Second, and relatedly, the Shared Solar program requires a lesser commitment
14 on the part of the participant because the participant may terminate enrollment
15 at any time after one year of service, and may expect to be able to recoup the
16 initial subscription fee within four years. In contrast, a customer receiving the
17 Solar Rebate is expected to be operational for at least five years, and may have
18 to pay an early termination fee if the system becomes inoperable or is
19 removed. In addition, participants in the Solar Rebate program make a much
20 longer-term and more significant financial commitment, in the form of a
21 longer-term lease or the purchase of a long-lived system that may continue to
22 operate for more than 20 years.

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Third, the Shared Solar program is designed with an embedded subsidy to yield a relatively short payback period of 4 years. As described by DEC Witness Merino, the Solar Rebate program does not contain any equivalent assurance or design consideration. Instead, the initial amount of the rebate has been established to approximate a pre-defined percentage of the projected total up front investment associated with the installation of a small solar facility.

Collectively, these differences result in a meaningfully different risk-reward calculation for a customer. Under the Shared Solar program, the participant experiences very little risk, insofar as the initial investment is small and energy cost savings are effectively guaranteed to yield a short payback and some modest amount of bill savings thereafter. A Solar Rebate program participant must make a much larger investment or commitment in the form of a long-term lease. In return, the Solar Rebate customer receives an energy cost savings benefit that is *potentially* larger and of a longer duration, but is not guaranteed in any form and is subject to risks that are beyond the participant’s control.

**Q. PLEASE ELABORATE ON THE SIGNIFICANCE OF THE
MAXIMUM 10-YEAR TERM OF A SHARED SOLAR PROGRAM
ENROLLMENT FOR PARTICIPANTS.**

A. The maximum enrollment term effectively limits the benefits to participants. While it is not entirely clear from DEC witnesses’ testimonies what will take

1 place at the end of the enrollment term for the Shared Solar program, it appears
2 that the customer may be ineligible for further participation in the program and
3 will forfeit his or her subscribed capacity to the Company or other participants.
4 There is no apparent option for the participant to retain any rights to the
5 subscribed capacity, forcing them to return to the status quo of standard utility
6 service without any monetary bill credit to offset the overall bill. Depending on
7 the time frame of the term expiration or a customer's election to terminate of
8 Shared Solar service, a Shared Solar customer might miss out on the
9 opportunity to participate in the Solar Rebate program or retail net metering, as
10 provided under the Settlement Agreement.

11 **Q. IS THE SUBSIDY EMBEDDED IN THE SHARED SOLAR CREDIT**
12 **EQUIVALENT TO THE INCENTIVES THAT MAY BE RECEIVED BY**
13 **SOLAR REBATE PROGRAM PARTICIPANTS?**

14 A. It is not possible to answer this question with the information currently
15 available in the Company's DER Application or witnesses' testimonies.
16 However, it is clear that the embedded subsidy in the Shared Solar program
17 was calculated in an entirely different manner than the Solar Rebate amount. In
18 light of this fact, it would be purely coincidental if they were equivalent to one
19 another.

20 **Q. IS THERE A SOUND BASIS FOR PROVIDING DIFFERENTIAL**
21 **INCENTIVES IN THE TWO PROGRAMS?**

1 A. Yes, to some degree. As I've previously noted, the programs have a profoundly
2 different risk-reward profile for participants, so the minimum incentive
3 necessary to encourage participation in one will almost certainly be different
4 than the other. Further, the programs are subject to different requirements
5 under the terms of Act 236 and the Settlement Agreement, specifically the 25%
6 Requirement for customer-generator facilities of 20 kW or less. In my view,
7 the different risk-reward profiles of the two programs makes the carve out in
8 Act 236 for small-scale solar facilities (i.e., 25% Requirement) even more
9 meaningful. It is intuitive that there is a difference between what it takes to
10 encourage temporary customer participation in a large-scale solar project and
11 what it takes to encourage a customer to make a more long-term and
12 consequential decision purchase or lease a small-scale solar facility; a facility
13 that will be physically located on their premises and their responsibility to
14 properly operate and maintain.

15
16 **IV. DEC'S SOLAR REBATE PROPOSAL**

17 **Q. PLEASE DESCRIBE DEC'S SOLAR REBATE PROPOSAL.**

18 A. The Company proposes to offer up front incentives to residential and non-
19 residential customers that install onsite solar facilities on or after January 1,
20 2015. The incentives are limited to residential systems of 20 kW or less and
21 non-residential systems of 1,000 kW or less. The initial incentive levels are
22 proposed at \$1.00/W for residential systems and \$0.75/W for non-residential

1 systems, but are subject to periodic adjustments at the discretion of DEC and
2 the Commission. The Company also proposes to limit the aggregate amount of
3 enrollment in the program during any given year to 8,000 kW.

4 **Q. DOES TASC SUPPORT DEC'S SOLAR REBATE PROPOSAL?**

5 A. Generally, TASC does support DEC's approach to its Solar Rebate program.
6 However, TASC has several concerns regarding program design and suggests
7 several specific modifications to make DEC's proposal more transparent and
8 more effective in serving customer demand for onsite solar power.

9 **Q. WHAT MODIFICATIONS TO DEC'S SOLAR REBATE PROPOSAL**
10 **DOES TASC PROPOSE?**

11 A. TASC has three primary modifications that are necessary to support and
12 sustain market growth. First, TASC proposes that the incentive levels for the
13 entire program be set at the outset, to provide transparency to the market and to
14 consumers. TASC proposes that these set incentive levels be phased to decline
15 as participation increases. Second, TASC proposes that the Solar Rebate
16 Program be made available on a first-come, first-served basis without any
17 annual capacity limits. Third, TASC proposes that the rebate payment be
18 explicitly assignable by the customer to the installer or system owner (e.g.,
19 lessor) to make participation for customers as simple as possible.

20 **Q. WHY IS IT IMPORTANT THAT INCENTIVE LEVELS FOR THE**
21 **LIFE OF THE PROGRAM BE TRANSPARENT NOW?**

1 A. Transparent incentive designs promote market certainty, allowing companies
2 to intelligently make long-term planning decisions such as hiring and
3 infrastructure investments necessary to provide reliable, high-quality service to
4 customers. Utility discretion regarding the timing and amount of incentive
5 changes—subject to PSC approval—undermines this certainty and the ability
6 of solar providers to make long-term plans. If economic development is one
7 aim of the DER program, it is reasonable to utilize a declining rebate structure
8 that is known to all parties now. This would be similar to what has worked in
9 other successful solar markets.

10

11 Moreover, lack of a clear roadmap for the incentive structure could create
12 unnecessary customer confusion and involve inefficient administrative expense
13 for DEC, intervenors, and the Commission. Customers need to have some
14 comfort level that they can trust the availability of incentives that are
15 informing a decision to purchase or lease an onsite solar facility. The prospect
16 that DEC might file to reduce or increase incentives can create hesitancy and
17 insert another variable into the timing of the customer's decision. For
18 interested parties that will participate in a Commission proceeding considering
19 modifications to rebate levels, the prospect of expending resources for further
20 regulatory participation seems unnecessary where the rebate structure and rules
21 of the road could be established by the Commission at the outset. For those

1 reasons, TASC supports establishing an incentive structure that provides
2 upfront certainty and transparency in the “rules of the road” going forward.

3 **Q. WHAT IS THE ADVANTAGE TO SETTING CAPACITY TRIGGERS**
4 **TO REDUCE INCENTIVES BY A PREDETERMINED AMOUNT?**

5 A. A capacity trigger approach provides an automatic, transparent adjustment to
6 incentives that is directly responsive to prevailing market conditions and apart
7 from the initial setting of the incentive level. Moreover, adjustments to
8 incentives based on capacity triggers are not reliant on subjective judgments of
9 market behavior under different incentive scenarios. In this manner, the
10 capacity triggers avoid administrative costs associated with devising and
11 receiving approval of subsequent modifications, as well as the potential market
12 upset caused by sudden, unpredictable changes. Finally, the capacity triggers
13 also make program budgets and incentive expenditures entirely predictable,
14 allowing administrators, regulators and ratepayers to know future costs with a
15 high degree of precision.

16 **Q. WHY DOES TASC PROPOSE THAT DEC’S ANNUAL CAPACITY**
17 **LIMITS FOR THE SOLAR REBATE PROGRAM BE REMOVED?**

18 A. DEC recognizes the importance of the federal ITC when it comes to its Shared
19 Solar proposals and to the RFP for larger systems. By forcing the capacity to
20 be staggered over the five-year life of the DER program period, DEC would
21 effectively be giving preferential treatment to programs that are designed to
22 encourage larger systems that do not provide electricity for onsite

1 consumption. This will deter the full potential of the market for small, onsite
2 solar facilities that would likely be used to serve some part of customers'
3 onsite load. By structuring the program to limit the total capacity installed in a
4 single year, DEC is determining that potentially up to 60% of the customer-
5 scale solar projects will have to be developed without the advantage of federal
6 tax benefits to the detriment to potential participants. This will hinder DEC's
7 ability to meet the 25% Requirement for systems of 20 kW or less.

8
9 If the purpose of capacity limits is to prevent oversubscription due to rebates
10 being higher than necessary to spur investment, TASC's proposal to set
11 capacity triggers and predetermined incentive reductions should alleviate those
12 concerns and allow the entirety of the addressable market take advantage of the
13 full 30% ITC and the Company's rebates. Further, the elimination of annual
14 enrollment limits will support the Company's ability to meet the 25%
15 Requirement in a timely manner without resorting to including Shared Solar
16 participants towards the target.

17 **Q. WHY IS IT IMPORTANT TO THIRD-PARTY OWNERS OR**
18 **INSTALLERS OF A CUSTOMER'S SOLAR FACILITIES TO BE**
19 **ABLE TO DIRECTLY RECEIVE THE SOLAR REBATE?**

20 A. Allowing a third-party developer to directly receive the incentive makes the
21 program process simpler for both customers and program administrators. From
22 a customer's perspective, it is preferable to have the incentive amount reflected

1 in the purchase or lease price, because it means that they will not have to make
2 a larger initial expenditure and then have to wait for reimbursement, or have to
3 undertake an added step of signing over the incentive to a provider once they
4 receive it.

5
6 From a program administrator's standpoint, direct assignment reduces the
7 number of incentive "counter-parties", such that where questions or disputes
8 arise, the administrator will be communicating with an entity that is already
9 intimately familiar with program processes, and is well-equipped to answer
10 questions or provide additional information as necessary. One element of a
11 solar provider's service to customers is its ability to guide them through the
12 various items of paperwork and processes associated with the installation. It is
13 unnecessary and inadvisable to remove the solar provider from the process at
14 one of the critical points, the issuance of a rebate, and force the customer to
15 fend for himself or herself.

16
17 An incentive assignment option is a feature of many prominent solar energy
18 and energy efficiency incentive programs throughout the country. In fact,
19 perhaps recognizing the advantages, DEC's Smart Saver commercial energy
20 efficiency program already allows a customer to assign payment of a rebate

1 directly to a vendor.² TASC understands that DEC intends for rebates to be
2 claimed by the lessor or owner of a customer's onsite solar facility and
3 supports further clarification from DEC to make this feature an explicit part of
4 their Solar Rebate program forms and agreements.

5
6 **V. DEC PROPOSAL TO MEET THE "25% REQUIREMENT"**

7 **Q. DOES DEC BELIEVE THAT THE DER NEM INCENTIVE, ALONE, IS**
8 **SUFFICIENT TO INCENTIVIZE ENOUGH CUSTOMERS TO**
9 **INSTALL DER CAPACITY TO MEET THE "25% REQUIREMENT?"**

10 A. No. While not specific to the 25% Requirement, the Company's analysis and
11 associated testimony from DEC Witness Merino indicates a belief that net
12 metering alone will not be sufficient to achieve the level of growth necessary
13 to meet the 2020 Tier 2 requirement of 1% of five-year average peak load from
14 systems of 1 MW or less.

15 **Q. DO YOU AGREE WITH DEC'S ASSESSMENT THAT NET**
16 **METERING, ALONE, IS INSUFFICIENT TO MEET THE "25%**
17 **REQUIREMENT?"**

18 A. Yes. Based on the historical growth in installations under full retail net
19 metering, it is evident that additional incentives are necessary to achieve the
20 growth needed to meet the 25% Requirement. While TASC does not have
21 access to complete data on net metering growth in DEC's South Carolina

² Duke Energy Carolinas. 2014. *DEC Smart Saver South Carolina Heating and Cooling Equipment Incentive Application*. Available at: http://www.duke-energy.com/pdfs/SC_HVAC.pdf

1 territory, DEC’s annual net metering reports in Commission Docket No. 2005-
2 385-E do not suggest net metering enrollment is growing rapidly enough to
3 meet the 25% Requirement without the provision of additional incentives.

4 **Q. HAS DEC DEMONSTRATED THAT NET METERING PLUS THE**
5 **SOLAR REBATE WILL BE INSUFFICIENT TO MEET THE “25%**
6 **REQUIREMENT?”**

7 A. No. While DEC Witness Felt testifies that “a very small fraction of the
8 Company’s South Carolina retail customers have the income, wealth, credit
9 score, home, and roof to support a solar investment on-site”, the basis for this
10 assertion is entirely unclear, making it impossible to independently evaluate
11 the assumptions.

12 **Q. WHY DOES DEC SUGGEST THAT IT NEEDS CAPACITY**
13 **INSTALLED UNDER THE SHARED SOLAR PROGRAM TO COUNT**
14 **TOWARD THE “25% REQUIREMENT?”**

15 A. DEC Witness Felt testifies that the 25% Requirement for systems of 20 kW or
16 less is “the most difficult to achieve” and uses this perceived difficulty as the
17 rationale for using Shared Solar facilities to meet the 25% Requirement. As
18 previously noted, the analytical basis for this assertion is not laid out in the
19 Company’s testimony, thus is it not clear precisely why DEC believes this to
20 be the case.

21 **Q. DO YOU THINK ALLOWING SHARED SOLAR SUBSCRIPTIONS TO**
22 **MEET THE “25% REQUIREMENT” IS CONSISTENT WITH THE**

1 **SETTLEMENT AGREEMENT?**

2 A. No. As previously I've previously noted, Section 1.c of the Settlement
3 Agreement requires DEC to provide DER incentives to *customer-generators*
4 with production of 20 kW or less until the cumulative capacity reaches the
5 25% benchmark. Shared Solar participants are by definition *not* customer-
6 generators, as Act 236 requires that a customer-generator generation unit must
7 among other things be “located on a single premises owned, operated, leased,
8 or otherwise controlled by the customer.”³ In effect, a customer-generator is a
9 net metering customer and, in fact, DEC’s proposed Shared Solar tariff (Rider
10 SS) contained as an Exhibit to its DER Application, expressly states that the
11 program “is not available for customers served under a net metering rider”.
12 Under the terms of the Settlement Agreement DEC is not permitted to count
13 Shared Solar participation towards the 25% Requirement because doing so
14 could cause it to stop offering DER incentives to residential and small
15 commercial customer-generators prior to meeting the 25% Requirement.

16 **Q. ARE THERE ANY OTHER REASONS WHY ALLOWING SHARED**
17 **SOLAR PARTICIPATION TO COUNT TOWARDS THE 25%**
18 **REQUIREMENT IS INADVISABLE?**

19 A. Yes. Provisions of this type recognize that small onsite systems have unique
20 benefits to customers and are subject to obstacles and barriers different from
21 those associated with larger systems. Allowing portions of a much larger
22 system to qualify as “small” for the purposes of the target makes the 20 kW

³ S.C. Code §58-40-10(C)(3)

1 limitation meaningless. It also creates a continually moving target in the
2 context of determining whether the Company has met the requirement, as
3 participants move into and out of the program or change their subscription
4 levels. Whereas a system that in itself is sized at 20 kW or less is in most cases
5 a permanent addition to the tally of progress towards the requirement, a similar
6 level of certainty is not possible for Shared Solar contributions.

7
8 Lastly, it is unclear whether meeting the 25% Requirement with the Shared
9 Solar program will cause the Company to modify its Residential Solar Rebate
10 level to reflect the fact that it does not need additional capacity from systems
11 less than 20 kW to meet that target. If the Company does eliminate the need for
12 a higher residential rebate (based on the logic that the 25% Requirement is
13 driving a higher rebate level for residential systems), the inherent ability of
14 subscribed Shared Solar capacity amounts to fluctuate could complicate the
15 administration of the Solar Rebate program by presenting ever-changing goal
16 posts for the 25% Requirement.

17 **Q. PLEASE SUMMARIZE YOUR CONCERNS ABOUT HOW DEC'S**
18 **OVERALL SHARED SOLAR AND SOLAR REBATE PROGRAM**
19 **PROPOSALS MAY IMPEDE ITS ABILITY TO MEET THE "25%**
20 **REQUIREMENT".**

21 A. As I have previously noted, the Company proposes to limit annual enrollment
22 in the Solar Rebate program, and in doing so effectively proposes to slow solar

1 installation growth, including the growth in the installation of small systems.
2 At the same time, it raises concerns that this same growth may be insufficient
3 to meet the 25% Requirement for small customer generator systems, so as to
4 justify counting Shared Solar participants towards that requirement. This
5 somewhat circular logic could create a self-fulfilling prophecy.

6
7 The Solar Rebate is clearly an appropriate and straightforward means of
8 satisfying the 25% Requirement in a manner consistent with statute. The
9 proposal to allow qualifying Shared Solar capacity to meet this requirement
10 rests on the Commission's discretion and willingness to interpret the statute
11 and intent of the Legislature in this manner. By seeking to pursue all
12 residential customers through the Shared Solar program at the outset—
13 including those that own their residence and otherwise have the ability to
14 install onsite solar—DEC is prejudging (and could actually be undermining)
15 the ability of the market to translate customer demand for solar into the type of
16 DER facilities the Legislature intended.

17
18 DEC has a natural advantage as the incumbent provider to reach its customers
19 first to market the Shared Solar program. A customer that is interested in solar
20 and decides to enroll in the Shared Solar program DEC markets, may not be
21 aware of or fully understand the offerings available in the competitive market
22 at the time they enroll. In this way, it is foreseeable that customers with an

1 interest in “going solar” could enroll before they understand their complete
2 options and miss their window of opportunity to purchase or lease an onsite
3 facility of less than 20 kW.

4 **Q. DOES TASC HAVE A PROPOSAL IN REGARDS TO THE SHARED**
5 **SOLAR PROPOSAL?**

6 A. Yes. TASC would propose that capacity subscriptions of less than 20 kW
7 should only count toward meeting the “25% Requirement” if the net metering
8 program and the Solar Rebate program have been given a chance to work and
9 have failed to produce sufficient customer-generator capacity by the end of
10 2020. Along these lines, TASC suggests that the Company should first attempt
11 to work collaboratively with developers and marketers to find ways to fulfill
12 this goal. Such efforts should be exhausted before resorting to a stopgap
13 measure to count small subscriptions to large-scale solar facilities. That result
14 is not aligned with either the letter or the spirit of Act 236.

15 **VI. CONCLUSION**

16 **Q. PLEASE SUMMARIZE TASC’S PROPOSED MODIFICATIONS TO**
17 **DEC’S SHARED SOLAR AND SOLAR REBATE PROGRAMS.**

18 A. TASC proposes that DEC’s Shared Solar and Solar Rebate programs be
19 modified as follows:

20 1) Shared Solar participation should only be permitted to count towards
21 the 25% Requirement if the net metering and Solar Rebate programs
22 fail to produce sufficient customer-generator capacity of 20 kW or less

- 1 by the end of 2020;
- 2 2) The Solar Rebate program should use a pre-defined declining block
- 3 incentive schedule without annual enrollment limits; and
- 4 3) To the extent that the Company does not already plan to do so, the
- 5 Solar Rebate program should allow incentives to be assigned directly to
- 6 solar facility owners, including the lessors of such systems.

7 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

8 A. Yes.

Direct Testimony of Justin R. Barnes
The Alliance for Solar Choice
DOCKET NO. 2015-55-E

EXHIBIT JRB-1

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EDUCATION

Michigan Technological University

Houghton, Michigan

Master of Science, Environmental Policy August 2006

Graduate-level work in Energy Policy.

University of Oklahoma

Norman, Oklahoma

Bachelor of Science, Geography, December 2003

Area of concentration in Physical Geography.

EXPERIENCE

EQ Research, LLC and Keyes, Fox & Wiedman, LLP

Cary, North Carolina

Senior Analyst, March 2013 – present

Develop and manage solar and wind energy state regulatory policy tracking service that covers policies such as net metering, interconnection standards, rate design, renewables portfolio standards, state energy planning, state and utility incentives, tax incentives, and permitting. Responsible for service design, formulating improvements based on client needs, and ultimate delivery of bi-weekly reports to clients. Research pending renewable energy legislative policies for state policy tracking service. Research and summarize utility rate case filings for clients. Perform policy research and analysis to fulfill client requests, and for internal and published reports, focused primarily on state solar market drivers such as net metering, incentives, and renewable portfolio standards. Manage the development of a solar power purchase agreement (PPA) toolkit for local governments and the planning and delivery of associated outreach efforts.

North Carolina Solar Center, N.C. State University

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Senior Policy Analyst, January 2012-May 2013; *Policy Analyst*, September 2007-December 2011

Responsible for researching and maintaining information for the Database of State Incentives for Renewables and Efficiency (DSIRE), the most comprehensive public source of renewables and energy efficiency incentives and policy data in the United States. Managed state-level regulatory tracking for private wind and solar companies. Coordinated the organization's participation in the SunShot Solar Outreach Partnership, a U.S. Department of Energy project to provide outreach and technical assistance for local governments to develop and transform local solar markets. Developed and presented educational workshops, reports, administered grant contracts and associated deliverables, provided support for the SunShot Initiative, and worked with diverse group of project partners on this effort. Responsible for maintaining the renewable portfolio standard dataset for the National Renewable Energy Laboratory for use in its electricity modeling and forecasting analysis. Authored the *DSIRE RPS Data Updates*, a monthly newsletter providing up-to-date data and historic compliance information on state RPS policies. Responded to information requests and provided technical assistance to the general public, government officials, media, and the energy industry on a wide range of subjects, including federal tax incentives, state property taxes, net metering, state renewable portfolios standard policies, and renewable energy credits. Extensive experience researching, understanding, and disseminating information on complex issues associated with utility regulation, policy best practices, and emerging issues.

SELECTED ARTICLES and PUBLICATIONS

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Barnes, J. *SREC Markets: The Murky Side of Solar*. 2011. Article in State and Local Energy Report.

Barnes, J., L. Varnado. *The Intersection of Net Metering and Retail Choice: an overview of policy, practice, and issues*. 2010. For the Interstate Renewable Energy Council, Inc.

AWARDS, HONORS & AFFILIATIONS

- Solar Power World Magazine, Editorial Advisory Board Member (October 2011 – March 2013)
- Michigan Tech Finalist for the Midwest Association of Graduate Schools Distinguished Master's Thesis Awards (2007)
- Sustainable Futures Institute Graduate Scholar Michigan Tech University (2005-2006)