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GEORGE CAVROS
ATTORNEY AT LAW

November 20, 2008

Ms. Renee Vance
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4925

FILED
NOV 21 2008

Clerk's Office
N.C. Utilities Commission

Re: DOCKET NUMBER E-7, SUB 856: In the Matter of Application of Duke Energy Carolinas, L.L.C. for Approval of a Solar Photovoltaic Distributed Generation Program and for Approval of Proposed Method of Recovery of Associated Costs

Dear Ms. Vance:

Please find enclosed the original and thirty one (30) copies of the Post Hearing Brief of Southern Alliance for Clean Energy in the above referenced docket. A diskette has also been enclosed. All parties of record have been served via US Mail.

Thank you for your assistance.

Sincerely,


George Cavros

(25)
Full name.

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In the Matter of)

Clerk's Office
N.C. Utilities Commission

Application of Duke Energy Carolinas,
L.L.C. for Approval of a Solar
Photovoltaic Distributed Generation
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Proposed Method of Recovery of
Associated Costs)

**Brief of Southern Alliance
for Clean Energy**

PURSUANT to NCUC Rule R1-24, now comes intervenor Southern Alliance for Clean Energy ("SACE"), by and through the undersigned counsel, before the North Carolina Utilities Commission ("the Commission") in this docket.

Introduction

The proposed program in the above docket responds to the North Carolina General Assembly's mandate to promote the development of renewable energy, through a Renewable Energy and Energy Efficiency Portfolio Standard ("REPS"), and is intended to contribute to the "solar carve-out" requirement of N.C. Gen. Stat. Section 62-133.8(d). The North Carolina General Assembly has declared that it intends to accomplish the following from a Renewable and Energy Efficiency Portfolio Standard (REPS):

- a. Diversify the resources used to reliably meet the energy needs of consumers in the State.
- b. Provide greater energy security through the use of indigenous energy resources available within the State.
- c. Encourage private investment in renewable energy and energy efficiency.
- d. Provide improved air quality and other benefits to energy consumers and citizens of the State.

N.C. Gen. Stat. § 62-2(a)(10).

Accordingly, the legislature has vested this Commission with the authority "to regulate public utilities generally, their rates, services and operations, and their expansion

in relation to long-term energy conservation and management policies and statewide development requirements, and in the manner and in accordance with the policies set forth in this Chapter.” N.C. Gen. Stat. § 62-2(b).

On June 6, 2008, Duke Energy Carolinas (“Duke” or “Company”) submitted an application for the approval of a 20 MW, 100 million dollar investment in a distributed solar energy program to meet the solar carve-out obligation of the REPS statute. On July 25, 2008, Duke Witnesses Ruff, Smith, MacManeus, and Hager provided direct testimony on the benefits of the 20 MW distributed solar program. On October 20, 2008 Duke filed rebuttal testimony in which it reduced the size of its original proposal to a 10 MW program and a 50 million dollar investment. The latter proposal was a direct reaction to Public Staff concerns about REPS cost cap impacts of the proposed 20 MW program pursuant to N.C. Gen. Stat. Section 62-133.8(h)(4).

The issues raised in this docket, in which Duke seeks approval of its proposed Photovoltaic Distributed Generation Program, are significant for electricity consumers in the State of North Carolina. First, the utilization of solar energy resources is an important strategy to reduce the risk of an increasing cost of fuel to generate electricity from *conventional energy sources*. Secondly, the commission will not only decide the size of the program and associated customer rates, but also has a unique opportunity to expand the diversification of ownership of state solar resources through the proposed program by ordering that Duke include a 10 -15 year Renewable Energy Credit (“REC”) standard offer contract to customer-owned solar energy solar providers as part of meeting its REPS targets in 2014 and beyond. Lastly, given the distributed nature of the solar program and the benefits that can accrue to the utility and the solar market in North

Carolina from a distributed solar program in North Carolina, Duke should be permitted to recover the full estimated program costs of the program through the REPS rider, provided that avoided energy and capacity costs are not allocated to the REPS rider.

SACE fundamentally supports the proposed Duke program, but asks the Commission to approve a program that offers the state the opportunity to add as much as 20 MW of distributed solar energy resources as indicated in Duke's original proposal. The North Carolina General Assembly provided clear direction to aggressively increase the state's use of solar energy, and its intent is best reflected by Duke's initial proposal. Testimony from several witnesses indicates that the Duke-owned distributed solar energy resources may be complemented by third-party supplied resources. We ask the Commission to order certain modifications to the proposed program to achieve this greater diversification of ownership of solar assets through increased private investment.

Slashing the Scale of the Proposed Program Defies Legislative Intent

A. Importance of solar resources

The cost of electricity from traditional generation sources in North Carolina has been escalating rapidly while the economics of solar powered electricity continue to drop. Tr. Vol. 1, p.169 -170; Tr. Vol. 2, p. 22. SACE agrees with Duke's assertion that distributed solar energy also promotes energy security because it addresses the nation's pressing energy and electric power problems, including power quality issues, tighter emission standards and transmission bottlenecks. Direct Testimony of Owen Smith, p. 17 and Duke Application, p. 3. Solar energy development, coupled with meaningful energy efficiency implementation, can play a critical in insulating electricity customers from the rapid increases in prices from conventional energy. Solar energy development will

deliver cleaner, emission-free, energy while driving renewable energy technology investment in North Carolina. Direct Testimony of Owen Smith, p. 17. The General Assembly has recognized economic development as an important benefit of solar development in North Carolina as has Duke in advocating for the proposed distributed solar program. Direct Testimony of Ellen Ruff, pp. 7-8.

On June 6, 2008 Duke filed an Application for Approval of Solar Photovoltaic ("PV") Distributed Generation Program and Approval of Proposed Method of Recovery of Associated Costs. The program involves the installation of multiple solar PV units, totaling 20 MW, in the Company's North Carolina service territory. The program offers benefits that include: facilitating the Company's evaluation of the impact of significant distributed generation on the Company's electrical system; promoting the commercialization of the solar markets in North Carolina; and serving more of the Company's load through renewable resources that helps offset the use of other generation resources. Direct Testimony of Owen Smith, pp. 4-5.

One of the important benefits of the program is that Duke will seek to standardize, to the extent possible, the building code requirements for installing PV systems. Tr. Vol. 1, p 165. The Company, by its sheer size, has the leverage to educate building code authorities to simplify and standardize the rules for installing a PV system. The scale and size of the program sets out to aggressively meet the legislative intent to diversify resources that include: providing greater energy security through utilization of indigenous resources within the state; encouraging private in renewable energy; and providing air quality and other benefits to energy consumers and citizens of the state. N.C. Gen. Stat. § 62-2(a)(10).

B. Questionable foundation for reducing the scale of the program

Public Staff asserted in its testimony that the scale of the program was likely to cause Duke to reach prematurely the utility wide ceiling established by N.C. Gen. Stat. Section 62-133.8(h)(4). Joint Testimony of Elise Cox and James McLawhorn, p 8.

Duke responded by cutting its initial proposal from 20 MW and a 100 million dollar investment to a 10 MW and a 50 million dollar investment. Rebuttal Testimony of Jane McManeus, p. 4. There was no substantive testimony by the Company that it agreed with the conclusions reached by Public Staff.

1. Proposals not considered under identical assumptions.

While the original proposal was reduced by 50%, the rate impact of the new proposed program is reduced by at disproportionate amount of at least 75%. The original program of 20 MW was anticipated to have a rate impact of 34 cents per month and an would represent 40% of the REPS cost cap in 2010 and 2011, declining to approximately 25% in 2012 and 10% in 2015. Direct Testimony of Jane McManeus, p. 5. The scale of the new program will represent only 10% of the cost cap in 2010 and 2011, declining to approximately 6% in 2012 and 3% in 2015. Rebuttal Testimony of Jane McManeus, p.6. The rate impact of the new program is expected to be 8 cents per month. *Id* at p4.

The size of the rate impact drop is out of proportion with the 50% decrease in the program because the new rate impact is based on two revised assumptions: 1) the recognition of the tax benefits of the North Carolina property tax exclusion for solar investment and the extension of the federal income tax credit to utilities; and 2) the exclusion of avoided capacity and avoided energy costs in the definition of incremental costs. Rebuttal Testimony of Jane McManeus, p. 5.

The Company had not yet calculated the significant benefits from state and federal tax benefits when it filed its original application. Duke witness Owen Smith testified that he expected the original program *to be eligible* for state and federal tax benefits that would collectively reduce the program's overall cost substantially. Direct Testimony of Owen Smith, p. 15. The tax benefits include the North Carolina renewable energy investment tax credit of 35% on the amount of the investment. A second tax benefit comes from the federal five-year accelerated tax depreciation benefit and the third from a federal investment tax credit of 30%. *Id.*

Furthermore, in its original application, Duke inappropriately proposed to recover avoided capacity costs and energy cost through the REPS rider. However, the REPS statute limits the rider to recovery of "incremental" costs, which are in "excess" of the providers avoided costs. N.C. Gen. Stat. Section 62-133.8(h)(1). Duke has since revised its testimony to conform to the statute by providing for recovery of avoided energy and capacity costs from the rate base and for recovery of the remaining incremental costs from the REPS rider as required by statute. Rebuttal Testimony of Jane McManaeus, pp. 3-4.

Therefore, the Company's proposal to fund 20 MW of distributed solar PV resources was never analyzed by the Public Staff or the Company with the benefit of the revised assumptions for the new accounting of avoided energy and capacity costs and the recognition of state and federal tax incentives. Neither party introduced exhibits that contrast the rate impacts of the original 20 MW program with the revised 10 MW program under the same basic financial conditions. However, if one simply doubles the

rate impacts of the 10 MW program, the rate impact of a similar 20 MW program would be only 20% in 2010-2011 and 6% in 2015.

2. Solar cost cap is underutilized

The proposed smaller program leaves significant room in the solar cost cap. Public Staff described solar energy as the most expensive of the renewable resources that qualify for REPS compliance. Tr. Vol. 2, p. 237. While SACE doesn't necessarily subscribe to Staff's characterization of solar energy, it begs a fundamental question. If the most "expensive" of the resources is occupying 10% of the cap in 2010-2011 and only 3% in 2015, is it not intuitive that the cap could absorb much more solar investment by Duke? The original proposal was not considered within the context of how investments in additional solar or other renewable resource mixes over time might impact the REPS cost cap. Based on testimony, there was no modeling conducted to show how various amounts of investments in renewable resources made at various times might impact the REPS cost cap. Vol. 2, pp. 234-236. Therefore, beyond reducing this program to a bare minimum rate impact, it is not clear at all that Duke was likely to reach the utility-wide ceiling prematurely.

3. Commission policy allows banking

Staff also raised concerns that the banking of RECS by Duke is excessive and that that Duke should delay procurement of solar resources because the cost of solar will be lower in future years. The original program contemplated the Company meeting the solar portion of its REPS obligation through 2018 by banking RECs from 2014 forward. Direct Testimony of Elise Cox and James McLawhorn, p. 9. Staff also raised issues of "intergenerational equity," meaning that customers in one period will be paying for RECs

from which they may not benefit, while customers in another period will receive benefits for which they may not have to pay.

While we agree with Staff's position that the cost of solar energy will continue to drop in price, the Staff's position on the banking of RECs is inconsistent with Commission rulemaking and historical precedent. The banking of RECs was contemplated and permitted by the General Assembly in N.C., Gen. Stat. Section 62-133.8 (c)(2)(f). The Commission also contemplated REC banking in its rulemaking under the REPS statute and recognized that REC banking indefinitely could create an intergenerational mismatch between the customers that paid for the REC and the customers who benefit; therefore, the Commission concluded that the seven-year banking period was an appropriate balance between banking and intergenerational inequities. Tr. Vol. 2, pp. 242-243. In fact, it is routine for the Commission to approve the deferral and amortization of various different costs to ratepayers of three to five years. *Id.* at p 242. Staff's argument would hold renewable energy sources to a higher "intergenerational" standard and would not be consistent with prior Commission rulemaking and past actions.

4. Smaller program doesn't address concern of parties

Duke alleges that the smaller program will address concerns raised by solar intervenors that the program as originally proposed, when compared to the Company's solar REPS requirement, could limit the viability of other solar business models. Yet the solar intervenors never had discussions with Duke about reducing the scale of the original proposed program. Tr. Vol. 1, pp. 111-112. Solar intervenors' gravest concerns focused on

improvements in the REC market structure to provide increased financial certainty to private investors discussed more fully below.

**The Program Fails to Encourage Diversified Ownership of
Distributed Solar Generation Assets.**

The proposed Duke program does not incent diversified ownership of distributed solar generation projects. The utility program would dwarf current customer-owned units in size and scale. The slow pace of development of customer-owned solar units has led the Company to characterize customer-owned units as unreliable and uncertain. Tr. Vol. 1, p. 98. Several witnesses testified that the proposed Company REC offer and the N.C. Green Power REC offer programs and net metering programs don't provide the level of incentive and certainty necessary to drive customer-owned generation; contributing to slow pace customer-owned solar development. The program as currently proposed offers no incentive for customer-owned solar investment. Moreover, customer-owned solar investments do not enjoy the financial certainty afforded utility-owned solar investment.

A. Huge Disparity in MWs and Financial Incentive

Duke describes its program as part of a portfolio approach to solar energy including purchase power agreements, utility owned-investment and the purchase of RECs from customer-owned generation. Tr. Vol. 1, p. 91. In its revised proposal, Duke proposes to install 10 MW of utility-owned distributed solar generation. The proposed utility solar program will dwarf existing customer-owned solar assets if there are no provisions in the program to incent customer-owned generation.

There are currently approximately 60 customer-installed solar generation facilities in the company's territory with an installed capacity of approximately 0.3 MW. Direct Testimony of Ellen Ruff, p. 8. Therefore, the Company's strategy to invest directly in 10

MW of solar generation resources would create a ratio of utility-owned or contracted generation to customer-owned generation of 30:1. Tr. Vol. 1, pp. 95-96. This ratio highlights the imbalance between projected utility ownership of solar generation and current customer-owned generation.

By excluding incentives for customer-owned solar generation facilities, the proposed program fails to fulfill, to the maximum extent, the intent of the General Assembly to encourage “private investment.” N.C. Gen. Stat. § 62-2(a)(10). Duke correctly points out that its utility-owned program will create a market for solar equipment, solar installers and laborers, but its program is not designed to create investment opportunities for customer-owned, customer-sited solar facilities. Tr. Vol. 1, p. 120. Duke cites other net metering and REC programs that are available to customer-owned solar generators, but those programs are inadequate to incentivize customer-owned generation.

B. Customer-owned Systems Placed at Relative Disadvantage

Duke is entitled to recover the prudent costs of its distributed solar program, above avoided costs, through the REPS rider as specified in N.C. Gen. Stat. Section 62-133.8(h) and Commission R8-67(e). Tr. Vol. 1, p. 102. No such recovery mechanism is available for customer-owned, private solar generation assets. Tr. Vol. 1, p. 102. The company is also entitled to recover its avoided capacity and energy costs through the rate base or a fuel-related costs rider. Tr. Vol. 2, pp. 57-58. The company is entitled to earn a rate of return on its investment and a levelized fixed rate charge is applied to the investment to determine the amount that can be recovered. The incremental amount that

exceeds the Company's avoided cost, set by the Commission, is recovered through the REPS rider. *Id.* No such recovery mechanism is available to non-utility generators.

Witness Starr lays out the parameters of a reasonable rate of return for non-utility, customer-owned solar projects. He conducted an analysis of a REC price that would drive investment in customer-owned solar and utilized an internal rate of return of 9% to 12%. Direct Testimony of Thomas Starr, pp. 7-8. He modeled under both a 3% and 6% background electricity escalation scenario and for both 10 and 15 year contract lengths. Using the target internal rate of return, the model concluded that a REC value of \$0.17/kWh or higher would drive customer-owned investment in PV systems. *Id.*

The lack of a mechanism that provides recovery and an adequate rate of return is the missing utility regulation feature that ensures financial certainty – a prerequisite to private customer-owned investment in solar energy development. Through a standard REC offer, ratepayer funds are used to buy RECs from a customer generator over a specified contract period. The price is paid to the customer-generator only after the PV electricity is generated. Direct Testimony of Thomas Starr, p. 6. A standard REC offer ensures that the customer receives two revenue streams, the proceeds related to the electricity produced and proceeds from the sale of the REC to the company.

Under [a REC standard offer] approach, a utility customer would put up its own capital to install a solar system and use the electricity generated by the system to meet its own facility need, thereby offsetting part of the electricity that it would purchase from Duke. The primary value of the system would come from these avoided utility purchases. In addition, the utility would purchase the associated RECs from the customer and use the RECs for REPS compliance purposes. The combination of the cost savings and the revenue stream are likely to make the solar system attractive enough to stimulate direct customer investment in solar power projects.

Id. at p 4

As mentioned above, to the extent that the Company acquires RECs equal to or in excess of its obligations, the revenue stream would be limited to proceeds from sale of the electricity. However, neither NC Green Power, Duke's proposed REC standard offer, nor net metering sufficiently encourages private investment in solar energy.

1. NC Green Power doesn't provide certainty

Duke suggests that NC Green Power, whereby customers can sell their solar RECs for \$0.15/kwh, is a sign of its commitment to providing options for greater financial certainty that can be pursued by customer-owned solar generators. Rebuttal Testimony of Owen Smith, p. 6. Yet the program does not provide long term contracts essential for providing a long term rate of return that ultimately drives investment in customer-owned solar power projects.

NC Green Power program doesn't provide a long-term contract price. It provides a price for RECs in any given year, and that there's no long-term commitment to purchase the RECs at a particular price. And that's particularly relevant, because people are unlikely to make a substantial investment in a solar power project without a long-term commitment to recover those costs through a REC purchase.

Testimony of Thomas Starr, Tr. Vol. 2, p. 118

The Company pointed out that N.C. Green Power may offer a five year standard REC offer contract. Tr. Vol. 2, p. 131. Yet, Vote Solar witness, Thomas Starr, stated that a contract at 5 years would not be long enough to stimulate significant investment in customer owned generation. *Id.*

An additional problem with relying on NC Green Power is that its funding source is voluntary contributions. This also provides a lack of certainty because the administrator cannot rely on the funding being available from year to year and therefore can't commit to long-term payment of RECs under that program. Tr. Vol. 2, p. 122. N.C.

Green Power may offer up to five year contracts, but even that length of time is not sufficient to incent investment in customer owned solar development. *Id.* at 131.

2. Duke proposed REC standard offer inadequate

In testimony, Duke indicated its intent to apply for permission to publish a REC standard offer. Even if the REC standard offer being developed by Duke is approved by the Commission, it appears that Duke would offer it on a discretionary, “as-needed” basis. Rebuttal Testimony of Owen Smith, p. 8. The company suggests that the offer would be extended on a case-by-case basis after an evaluation of the Company’s requirements in relation to resources under contract and will “reserve the right” not to enter into an agreement with a seller of RECs if the RECs are deemed to be “unneeded.” *Id.* Such offers will not meaningfully incent customer-owned projects because it completely lacks the element of certainty. The definition of “as needed” means that even if approved, the REC “offer” may never exist.

I believe Mr. Smith testified that it would be really essentially at Duke's discretion whether to commit to purchasing the RECs under that standard offer really on a project-by-project basis. ... [T]hat ... would have a chilling effect on the market. Because if you think about the progression involved in someone deciding to make an investment ... there's a lot of work associated just with putting together essentially a proposal to Duke. And if that potential solar power investor--non-utility, private solar power investor doesn't have a firm offer essentially on the table to purchase those RECs at a fixed price for a certain term of years, and instead is relying on Duke's discretion down the road as to whether or not Duke will ultimately choose to buy those RECs, then that will discourage investors from pursuing those opportunities and I think limit the level of participation in such a standard offer.

Testimony of Thomas Starrs, Tr. Vol. 2, pp. 124-125.

3. Net-Metering Programs Inadequate

To its credit, Duke offers certain net-metering programs that allow customers to offset their own electricity usage and sell excess power to the grid at the Company’s

avoided cost. The Company offers several options whereby the customers who choose to sell some or all of their generation can be compensated at the Company's avoided cost or retail rates or both. Rebuttal Testimony of Jane McManeus, p. 9. For instance, the Company offers a Small Customer Generator Rider ("SCG") and is offered to residential generators not larger than 20 kw and non-residential generators not larger than 100 kw. The SCG rider allows customers to offset their electricity usage using their own generation, thereby receiving the full retail rate when the customer is offsetting the customer's load. When the output of the generator exceeds the customer's load, the excess generation is delivered to the grid and the Company pays the generator the Company's avoided cost. *Id.* Another option is open to for customer-generators who wish to sell all their output. Under this option, the customer is compensated for capacity and energy costs at the Company's avoided generation costs. *Id.*

It is important to note that the net-metering programs do not address the fundamental lack of a mechanism, such as a long term REC standard offer, that incents customer-owned generation projects. Net metering offers of compensation for excess generation at the Company's avoided cost. The Company's avoided cost rate is less than the retail rate and substantially less than REC standard offer amount of \$0.18 kWh advocated by Vote Solar, and such, will not incent customer ownership of solar generation. The slow pace of customer-owned generation development is testament to the lack of a mechanism to incent meaningful customer investment in solar generation assets. Therefore, Duke's characterization that customer-owned solar power can not be relied upon to meet its REPS requirement will be generally accurate until such time that an

adequate REC market is created by the Company to incent the development of customer-owned solar generation.

C. Customer-Owned Solar Providers Caught in Classic “Catch-22”

Several witnesses persuasively argued that the relative small number of customer-owned systems is related to the lack of financial certainty for customer-owned investors and that Duke has failed to address that issue in program proposed in this docket. The program is strictly a utility-owned solar program intended to meet the utility-owned portion of a portfolio that also includes purchase power agreements and purchasing RECs from customers. Tr. Vol. 1, p. 91. The projected program, coupled with a purchase power agreement with Sun Edison will allow the Company to meet its REPS obligation through 2014. *Id.* at p. 114. Duke states that it will continue to “do business with standard offers” with customer owned systems to continue to get additional RECs for compliance in subsequent years. Tr. Vol., p. 114. Yet the interest in “doing business,” is minimal as Duke does not explicitly consider the purchase of in-state RECs as part of its Integrated Resource Plan. Tr. Vol. 2, p. 24.

Duke offers a circular argument that it is averse to encouraging customer-owned generation because such generation has not been built during an era when utilities did not offer certainty or substantial financial encouragement. A recurring theme in Duke’s testimony is that the utility bears the obligation of meeting the requirements of the REPS statute and therefore it feels it “cannot rely” on customer-owned solar generation to meet its REPS obligation. Tr. Vol. I, pp. 98-99. Duke’s aversion on reliance on customer-generated solar RECs is based on the historically low adoption rate of customer-owned solar energy projects. *Id.* Such adoption has led to a current total of approximately 0.3

MW of installed customer-owned capacity. In fact, the over 400 inquires into the Duke distributed program exceeds the number of current 60 customer-owned generation systems and the disparity in interest in the two programs highlights the lack of financial certainty for customer-owned generation.

Duke is rightly concerned about meeting its obligation under the REPS statute. The statute calls for Duke to meet 0.02% of its generated power from solar resources in 2010; 0.07% in 2012; 0.14% in 2015; and .20% in 2018. N.C. Gen. Stat. 62-133.8(d). The Company is not subject to an pre-specified statutorily defined penalty. Rather, the Commission decided during the REPS rule-making docket that it had existing general authority to impose a penalty for REPS noncompliance should it be necessary to enforce the REPS provisions. Order Adopting Final Rules, Docket No. E-100, SUB 113. The Order suggests some Commission discretion in imposing penalties for enforcement.

Program Presents Opportunity for Framework to Encourage and Analyze Diversified Ownership of Distributed Solar Generation Assets.

The consideration of the program by the Commission affords it an opportunity to establish conditions that will provide a stable rate of return to customer-owned solar generators that will allow Duke to rely on them to satisfy future REC requirements under the REPS statute. Vote Solar offered concrete features of a REC program that would drive customer-owned investment.

Vote Solar analyzed the price level of a REC that would drive customer-owned solar investment in North Carolina and determined that customer owned generation requires approximately an \$0.18/kWh REC standard offer over a 15 year contract term to incent solar development. Direct Testimony of Thomas Starrs, p. 8. Customers are

unlikely to make a substantial investment in a solar power project without a long-term commitment to recover the capital costs through a REC purchase. Tr. Vol. 2, p. 118. In fact, other states are using similar REC standard offer contracts. For instance, Arizona Public Service offers 10 and 15 year contracts with REC prices at \$0.202/kWh and \$0.187/kWh respectively and Public Service Company of New Mexico offers a 20-year contract for RECs at \$0.13/kWh for systems under 10 kW. *Id.* at p. 9. The REC standard offer would place a mandatory REC purchase obligation on the Company to purchase the RECs at a set price. Tr. Vol. 2, p. 128.

Duke argued that modifying the assumptions used by Dr. Starr would deliver different results from Dr. Starrs' formula. For instance assuming a lower price escalation and the highest internal rate of return, the REC price would have to be higher to incent investment for customer generators. Tr. Vol. 2, pp. 130-31. While the REC price at which customer's might be incented to participate was challenged, the fundamental need to ensure certainty to individual customer generators was not challenged.

The company is also undertaking the distributed program beyond the purpose of simply meeting its REPS obligation. Another goal of the program is to better understand the impact of distributed generation on its system and to generally develop competencies as an owner and operators of renewable generation systems. Rebuttal Testimony of Owen Smith, p. 7. There is also much the Company can learn from customer-owned generation. Encouraging customer-owned generation through the proposed program should further enhance the Company's understanding of the impacts of distributed generation.

The solar PV market and industry is ...broader than utility-owned systems.... [C]ustomer-owned and third party owned systems are also viable models. Encouragement of alternative ownership models will result in a more diverse experience in terms of types of technologies deployed, location of facilities,

number and types of market participants/ providers. Duke will learn more if deployment of other models is also encouraged.

Testimony of Carrie Hitt, Tr. Vol 2, p. 137.

Cost-effectiveness of utility-owned generation v. customer-owned generation not settled

The commission has been charged by the General Assembly to “promote adequate, reliable and economical utility service to all of the citizens and residents of the State.” N.C. Gen. Stat. § 62-2(a)(3). Indeed, there was considerable evidence submitted by both Duke and solar intervenors on the relative cost-effectiveness of both utility-owned solar projects and customer-owned solar projects. Solar intervenor, Vote Solar and NCSEA, argue that customer-owned generation is more cost-effective at reaching Duke’s obligation under the REPS statute than the proposed utility-owned generation under certain situations. Vote Solar offered testimony that a REC standard offer of \$0.18/ kWh targeted to customer-owned generation could leverage more total MWs of distributed solar energy than the Company is anticipating producing through its program. Direct Testimony of Thomas Starrs, p. 8. NCSEA suggests that it may be more cost effective from a “per installed capacity” metric to have customer-owned investment fund smaller PV projects. Direct Testimony of Rosalie Day, p. 7. This is most evident for installations less than 10 kW in size. *Id.* at p. 3

Duke also offered a levelized cost estimate for its distributed program. The levelized cost of the program presented by the Company is greater than the projection of customer-owned generation offered above. One of the primary drivers in the higher cost estimate is the tax normalization rules for treatment of the federal tax credit that apply to the Company. Rebuttal Testimony of Jane McManeus, p. 6. If the tax normalization impacts are deducted from the Duke levelized cost, the Duke estimate of the MWh cost

of the projects is comparable to the rate impacts of offered by Vote Solar. *Id.* at p. 6.

Tax normalization generally provides that the tax benefits of accelerated depreciation and the federal investment tax credit must be shared with customers over the regulatory lives of the assets, and not simply passed to customers in the year the public utility receives the benefits. In this way, the tax benefits are shared by the public utility with its customers as the customers pay for the assets. Thus, the tax benefits are linked directly to the continued use and depreciation of the assets from which the benefits derive. The competing levelized cost estimates of the utility-owned program and the customer-owned programs highlights the lack of procedure in place by which to measure both programs side by side from a cost-effectiveness perspective. The conjecture and tax complications leave resolution of this dispute ambiguous. This docket presents an opportunity to the Commission to consider an order that would incent more customer owned generation and a framework for judging the cost-effectiveness of the competing but complementary ownership structure.

Duke Cost-Recovery Should Not Be Artificially Capped

Lastly, regardless of the provisions or conditions that Commission may order in approving the program, Duke's recovery of the program costs should not be capped to benchmarks in its 2007 RFP for centralized solar power generation. The program that Duke proposes is distributed in nature and provides benefits that a centralized generation project cannot provide. The distributed nature of the program recognizes that solar PV generation will become more prevalent in the future. Distributed solar generation will increase energy security over traditional centralized power generation systems and the utility-owned program will allow the company to develop competencies in the operation of distributed generation.

The cost of the program relative to 2007 RFP submissions drove the discussion by Public Staff to suggest that the program be capped to a metric from the 2007 RFP submissions. Staff's cost analysis apparently did not consider the impact to the Company of tax normalization. The handling of tax normalization provisions has a significant impact on the Company's ability to drive down its levelized cost. But, when the normalization impact is deducted from the proposed MWh rate impact for the program, the program is actually comparable to the rate impact that Public Staff suggested might be appropriate and comparable to the REC standard offer contract advocated for by several solar intervenors. Through that prism, Public Staff's concern that the proposal is excessive is not warranted. Moreover, the proposed program will be limited by this Commission to reasonable and prudent cost incurred. Tr. Vol. 2, p. 61.

Alternatively, if the Commission sees fit to impose an artificial cost cap on the program, the cost cap should be at a level that recognizes the unique impact that tax normalization has on the Company's proposed levelized cost and the previously mentioned benefits that accrue from distributed solar generation.

RELIEF REQUESTED

SACE respectfully request that the Commission grant the following relief:

- A. Approve a Certificate of Public Necessity and Convenience (CPCN) for Duke's proposed program with the following conditions.
 - 1. Approve a 10 MW authorization for the proposed program.
 - 2. Avoided energy and capacity costs shall not be deemed incremental costs, nor recovered through the REPS rider.
- B. Require Duke to establish a Solar PV Standard Offer Contract for REC purchases for PV systems up to 10 kw.
 - 1. The term of the Solar PV Standard Offer Contract shall be at 10 and 15 years, at the customers' option.
 - 2. The initial fixed price offer shall be 18 cents per kWh, and Duke may apply for an annual adjustment to reflect market conditions.
 - 3. Duke shall offer the Solar PV Standard Offer Contract up to a total of 10 MWs.

4. Require Duke to establish a schedule for execution of Solar PV Standard Offer Contract consistent with its REPS solar obligation.
5. Provide Duke with authorization to increase the size of its utility owned program up to an additional 10 MW to prevent non compliance with its REPS obligation caused by slow participation in the Solar PV Standard Offer Contract limited to reasonable and prudent incurred costs.
6. Provide a period of one year beyond the date of compliance for Duke to comply with its REPS requirement for any specific deficiency that Duke demonstrates is caused by slow participation in the Solar PV Standard Offer Contract.

C. Grant such other relief as the Commission deems just and proper.

Respectfully submitted, this 20th day of November, 2008



George Cavros, Esq.
On behalf of Southern Alliance for Clean Energy
120 E. Oakland Park Boulevard, suite 105
Fort Lauderdale, FL 33334
954-563.0074
954-565-8052 (fax)
george@cavros-law.com