BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 927 **In the Matter of:** Application by Duke Energy Progress, LLC, for Modification of Residential Service Load Control Program DOCKET NO. E-2, SUB 1287 **In the Matter of:** Application by Duke Energy Progress, LLC, for Approval of PowerPair℠ Solar and Battery Installation Pilot Program Pursuant to Order of the North Carolina Utilities Commission DOCKET NO. E-7, SUB 1032 **In the Matter of:** Application by Duke Energy Carolinas, LLC, for Modification of Residential Service Power Manager Load Control Program DOCKET NO. E-7, SUB 1261 **In the Matter of:** Application by Duke Energy Carolinas, LLC, for Approval of PowerPair℠ Solar and Battery Installation Pilot Program Pursuant to Order of the North Carolina Utilities Commission	JOINT INITIAL COMMENTS ON BEHALF OF SOUTHERN ALLIANCE FOR CLEAN ENERGY AND VOTE SOLAR

I. Introduction

As parties to a memorandum of understanding (MOU) with Duke Energy Carolinas, LLC (DEC) and Duke Energy Progress, LLC (DEP) (collectively, Duke) for revised Net Metering Tariffs and a new Smart $aver Solar Incentive for residential rooftop solar, the Southern Alliance for Clean Energy (SACE) and Vote Solar were disappointed that the Commission rejected the originally proposed incentive for rooftop solar that paired solar with participation in Duke's smart thermostat program (in Docket Nos. E-2, Sub 1287 and E-7, Sub 1261). That incentive would have been available to a much broader cross section of customers who are interested in installing rooftop solar but who lack the means for a home battery system. Given the centrality of the previously proposed incentive to our support of Duke's otherwise contentious revised net energy metering (NEM) tariffs in Docket E-100, Sub 180, we will continue to seek Commission approval of a stand-alone rooftop solar incentive that does not require the installation of a home battery energy storage device.

However, SACE and Vote Solar commend the Commission for their vision to explore the value that distributed solar and storage can contribute to ratepayers and the entire utility system through the ordered Pilot. SACE and Vote Solar support approval of Duke's PowerPair program and revisions to the Energy Wise program because they comply with the terms of the Commission's Order in Docket Nos. E-2, Sub 1287 and E-7, Sub 1261 and should provide valuable information to Duke and the Commission on the value of customer-sited distributed energy resources.

II. Duke Listened to Stakeholders

Following the Commission's order in Docket Nos. E-2, Sub 1287 and E-7, Sub 1261, Duke worked cooperatively with SACE and Vote Solar along with other stakeholders as it prepared a program that would comply with the Commission's Order. SACE and Vote Solar appreciate Duke's good faith collaboration on program design, which is reflected at multiple points in the program application.

We particularly appreciate Duke's willingness to not limit enrollment to an annual cap in each year of the three-year pilot. This will increase the chances of getting robust early participation and providing more years of robust data by year three. We also agree with Duke's request to remove the electric heating requirement given that the rationale for that limitation is no longer present (it was tied directly to the Smart $aver Solar proposal related to adoption of smart thermostats for the control of electric-sourced heating as a strategy for reducing winter peak demands). Duke should also be commended for incorporating stakeholder input and increasing the battery system size to match observed market realities. Finally, we appreciate Duke's commitment to consider additional cohorts in years two and three of the pilot, particularly those focused on low-income customers and customers with home medical devices that may see added value from battery storage.

III. SACE and Vote Solar Appreciate Commission's Leadership

Though disappointed that there is not yet an approved stand-alone solar incentive to complement the revised NEM tariffs, SACE and Vote Solar

appreciate the Commission's initiative in ordering Duke to develop an alternative incentive for solar plus storage. Investments at the distribution level will be key to meeting HB 951 carbon emissions reduction requirements given the expense, constraints, and longer lead time of transmission-level clean energy resources.

We also anticipate that solar plus storage will have a huge resilience benefit, especially in the face of a growing intensity of natural disasters hurricanes, heat waves, and cold snaps. Winter Storm Elliot clearly showed how incentivizing distributed solar plus storage could improve outcomes for ratepayers. Duke's proposed Power Manager revisions show extremely positive UCT, TRC, and RIM results, indicating that this program will be cost-effective. It includes a high level of avoided transmission and distribution costs. While we support the proposed incentives levels in the pilot, the impressive cost-effectiveness scores indicate that there is room for even greater incentives for battery demand-response while still maintaining cost effectiveness.

As noted above, we are pleased that Duke is willing to explore a future solar plus storage cohort focused on customers who are dependent on home medical devices. According to Department of Health and Human Services, there are nearly 100,000 Medicare beneficiary residents in North Carolina who are dependent on medical devices.[1] Developing a targeted solar plus storage incentive for these customers could not only result in grid benefits, but reduced

[1] HHS empower Map (https://empowerprogram.hhs.gov/empowermap).

fatalities during power outages, reduced healthcare costs, and reduced strain on emergency response teams.[2]

Stakeholders also proposed a Congested Node solar plus storage pilot that we would like to continue to investigate with Duke, the Public Staff, and other stakeholders. At a conceptual level, such a pilot would incentivize installing solar plus storage on congested distribution nodes. Those solar plus storage systems could be sized and programmed to provide services geared towards the needs of that specific node, and the customer compensation could be tied to avoided investment in that node. Such a pilot would go a long way to developing a useful locational value metric for customer-sited distribution system services. In the future, a program could even be further refined to fund solar plus storage and other customer-sited investments (like energy efficiency and demand flexibility) in low-income customers on specific nodes. Multiple DERs can potentially provide non-wires alternatives to otherwise capital intensive grid upgrades at a significant savings to customers. We would appreciate Commission direction to Duke on this idea.

The learnings from PowerPair and future pilots can help move North Carolina towards a future where DERs can be used as Virtual Power Plants (VPP) to reduce costs for all. A recent Brattle analysis shows that, if done

[2] Marriele Mango & Annie Shapiro, “Home Health Care in the Dark: Why Climate, Wildfires and Other Risks Call for New Resilient Energy Storage Solutions to Protect Medically Vulnerable Households from Power Outages,” Clean Energy Group (June 3, 2019) (https://www.cleanegroup.org/publication/battery-storage-home-healthcare/).

correctly, a VPP can deliver capacity and resource adequacy needs at lower costs than fossil gas plants, or even battery storage alone.[3]

IV. Data Reporting

In the Order, the Commission required Research Objectives that "should include a study of the accessibility of solar plus storage to different residential customer demographics. During the three-year open enrollment Duke should gather information such as participant income, family size, home ownership, urban/rural location, and pre-pilot/post-pilot electricity usage" and Reporting that "includes robust discussion and analysis of the data and information gathered through the pilot." (pages 7-8)

Duke proposes to gather fairly limited data for Cohort B that only relates to home ownership, urban/rural, and pre- to post-pilot electricity use. Duke's proposal does not propose tracking participant income or family size, as suggested by the Commission. Given the limited data points proposed to be tracked by the Company, we are concerned that there will be insufficient data to have a "robust discussion and analysis" of the "accessibility of solar plus storage to different residential customer demographics." Understanding access to solar plus storage and the distribution of benefits of utility incentives to low to moderate income households is of the utmost importance in North Carolina.

There is ample national evidence that access to solar is inequitably distributed according to socioeconomic factors like income, race, education,

[3] Ryan Hledik & Kate Peters, "Real Reliability: the Value of Virtual Power," Brattle (May 2023) (https://www.brattle.com/wp-content/uploads/2023/04/Real-Reliability-The-Value-of-Virtual-Power_5.3.2023.pdf).

homeownership status, and related factors[4]. We commend the Commission for prioritizing the investigation of this issue. The solar rebate program currently does not track any of the data points we are requesting in this docket, and therefore stakeholders do not have the ability to determine to what extent the solar rebate program has benefited higher income customers vs low and moderate income (LMI) customers, and what program modifications could increase LMI participation. Yet, the findings from Duke's LMI Penetration Study[5], which focused on energy efficiency (EE), shows that:

- Participation in EE programs is lower in neighborhoods with higher percentages of LMI households
- Duke programs struggle to benefit historically hard to reach and frequently disadvantaged populations
- Solar and Storage program was listed as a top request for LMI additional program offerings

We request that Duke track the following data points at the pilot level, which, given the expected participation level of about 6,000 participants, would protect individual customer data from improper disclosure. Duke should clarify to participating customers that their data will not be shared or used in any manner than to report on the entire program performance and will help Duke better

[4] Naïm R Darghouth *et al*, "Characterizing local rooftop solar adoption inequity in the US," 2022 Environ. Res. Lett. 17 (Feb. 25, 2022) (https://iopscience.iop.org/article/10.1088/1748-9326/ac4fdc).
[5] DEC and DEP Low and Moderate Income Penetration Study, Opinion Dynamics (Dec. 9, 2022) (https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=81ff0cff-7d4d-4b51-bdc1-50bd2eefdda5).

deliver benefits to underserved communities in the future. The data points we list are common data points for socioeconomic analysis.

- Income level – customer reported in ranges
- Age
- Gender
- Race/ethnicity
- Housing type (single-family, multi-family, etc.)
- Housing age
- Zip code
- Primary and secondary language spoken at home
- Education level
- Employment status
- Disability status
- Estimated energy burden at the start of the pilot and at the end of the pilot - customer reported by percentage range (i.e., 0%-2%, 2-4%, etc).
- Participation in LIHEAP, CIP, Duke EE programs, other relevant LMI programs

We also request that Duke includes a narrative on the interactions with ISOP in its annual report. This narrative should explain how the battery control element of PowerPair pilot is affecting Duke's visibility into and control over the grid edge. This should also include clear reporting on the frequency of timing of

storage dispatch, including a break out by TOU periods used in the Solar Choice Tariffs.

V. Conclusion

Thank you for considering these comments. We look forward to continuing to work with Duke and interested stakeholders to develop a successful pilot consistent with the Commission's vision and future pilots exploring the potential of solar-plus-storage and the various values it can add to the grid in North Carolina.

Respectfully submitted this the 21st day of August, 2023.

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CERTIFICATE OF SERVICE

I certify that a copy of the foregoing Joint Initial Comments on behalf of Southern Alliance for Clean Energy and Vote Solar as filed today in Docket Nos. E-2, Sub 927, E-2, Sub 1287, E-7, Sub 1032, and E-7, Sub 1261 has been served on all parties of record by electronic mail or by deposit in the U.S. Mail, first-class, postage prepaid.

This 21st day of August, 2023.

/s/ David L. Neal