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August 9, 2019

***Via Electronic Filing***

Ms. Martha Lynn Jarvis  
Chief Clerk  
North Carolina Utilities Commission  
430 North Salisbury Street  
Dobbs Building  
Raleigh, NC 27603-5918

**RE:** In the Matter of: Application for Approval of Proposed Electric  
Transportation Pilot  
***Docket Nos. E-2, Sub 1197 and E-7, Sub 1195***

Dear Ms. Jarvis:

Enclosed for filing in the referenced docket are the *Reply Comments of North Carolina Justice Center and Southern Alliance for Clean Energy*.

By copy of this letter, I am serving all parties of record on the service list. Please let me know if you have any questions about this filing.

This the 9<sup>th</sup> day of August, 2019.

s/Christina Andreen  
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cc: Parties of Record

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1197

DOCKET NO. E-7, SUB 1195

In the Matter of:	)	<b>REPLY COMMENTS OF</b>
Application of Duke Energy	)	<b>NORTH CAROLINA JUSTICE</b>
Carolinas, LLC and Duke Energy	)	<b>CENTER AND SOUTHERN</b>
Progress, LLC for Approval of	)	<b>ALLIANCE FOR CLEAN ENERGY</b>
Proposed Electric Transportation	)	
Pilot	)	

The North Carolina Justice Center (NCJC) and the Southern Alliance for Clean Energy (SACE) appreciate the opportunity to respond to Duke Energy Carolinas, LLC (DEC) and Duke Energy Progress, LLC’s (DEP) (together, “Duke Energy”) Application for Approval of the Proposed Electric Transportation Pilot, docket numbers E-2, Sub 1197 and E-7, Sub 1195 (“Proposal” or “ET Pilot”). NCJC and SACE continue to support approval of the ET Pilot, and submit these reply comments to discuss the importance of conducting the Proposal as a pilot program, emphasize recommendations made by multiple commenters, and suggest additional modifications that may help remedy some commenters’ concerns.

As discussed in the initial comments, NCJC and SACE strongly support the transition to an electrified transportation sector, and encourage the Commission and Duke Energy to reduce barriers to electric vehicle (EV) adoption and deployment in the state. While Public Staff in particular has raised a number of concerns about the ET Pilot, NCJC and SACE believe that these issues can and should be addressed by revising the ET Pilot, rather than by rejecting it in its entirety.

I. **The ET Pilot is designed to address uncertainties and information gaps.**

The ET Pilot is a valuable opportunity for Duke Energy to gather a variety of otherwise unavailable data, including customer reaction and response to various rate designs, as well as charging patterns and EV load issues for multiple types of vehicles (light, medium, and heavy duty), customers (residential, fleet, and commercial), and charging stations (level 2, DC fast charging, and bus charging). While Duke's ET Pilot investments will result in installing charging infrastructure and providing additional electric service to Duke Energy's retail customers (notably including leveraging the VW settlement funds), the ET Pilot is also designed to address uncertainties and information gaps.

According to Duke Energy's Proposal, there are several uncertainties that will influence future adoption of EVs, including (1) vehicle availability; (2) infrastructure availability; and (3) state and local EV policies. Application for Approval of Proposed Electric Transportation Pilot at 2-5 [hereinafter Application]. In addition, EV adoption forecasts, ranging from 3-8% by 2025 according to Duke Energy's application, suggest that the potential for these factors to influence adoption rates is not yet well defined. *Id.* at 2.

While vehicle availability is largely out of Duke Energy's control, infrastructure availability can be potentially addressed by the ET Pilot. For example, Duke Energy's Proposal will address infrastructure availability by providing rebates to incentivize purchase and installation of charging infrastructure, and by directly installing EV charging infrastructure.

Additionally, the Proposal will also address or inform state and local policies affecting EV infrastructure. For example, the ET Pilot will help support the goals set forth in Executive Order 80. The Pilot may also inform whether improvements to state or local policies are needed or recommended, such as a need to streamline permitting of EV charging infrastructure, revise any policies that prohibit the installation of EV charging infrastructure in common parking areas, or revise local policies like codes and right-of-way requirements.

Duke Energy's ET pilot is also designed to address several information gaps. For instance, the objectives include "assess[ing] different charging load profiles from residential EV, fleet EV, school bus EV, transit bus EV, and DC Fast Charging ('DCFC') in North Carolina"; "seek[ing] to establish the extent to which utility-managed charging can shape charging behavior and the value of doing so for these EV segments"; and "investigat[ing] the capabilities of electric school buses to provide bi-directional power and resilience benefits as potential mobile backup power sources." Application at 7.

Public Staff comments that some of the information Duke Energy seeks to obtain from the ET Pilot is likely already publicly available, or will soon be available, and are applicable to Duke Energy's service territory. *See* Public Staff's Comments at 9–10. However, the publicly-available information from other jurisdictions does not contain information specific to Duke Energy's customers and service territory. Therefore, information collected as a result of the ET Pilot will help account for any utility-specific differences in, among other things, EV adoption rates, rate structures, customer behavior, load profiles and grid impacts, and therefore will be valuable in the development of future permanent programs proposed by Duke Energy.

**II. The Commission should modify and enhance the ET Pilot based on suggestions recommended by various intervenors.**

The Commission received numerous initial comments from intervenors, including Public Staff, non-profits, trade associations, and charging station companies, that discussed a multitude of both recommendations and concerns regarding Duke's proposal. To remedy some concerns of Public Staff and other intervenors, the Commission should implement the following modifications when approving the ET Pilot.

**A. The ET Pilot should incorporate additional managed charging strategies.**

As the number of electric vehicles increases in North Carolina, it is critically important that Duke Energy manage EV charging load, and multiple commenters focused on the importance of EV-specific rate design and load management techniques in their initial comments.<sup>1</sup> There are a numerous rate design options that Duke could implement, including passive managed charging like time-varying volumetric rates or behavioral demand response, and active managed charging like direct load control.<sup>2</sup> To ensure that Duke Energy's rates send accurate price signals that encourage off-peak charging, and to increase the amount of data collected during the ET Pilot, these load management tools can and should be implemented across every component of the ET Pilot, from the residential component to the bus components and to the public charging components.

Duke Energy has already proposed both active and passive managed charging in the ET Pilot. In Duke Energy's proposed residential EV component, the utility will test

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<sup>1</sup> See Initial Comments of NCJC and SACE at 5, 28–37; NCSEA's Initial Comments at 14; Initial Comments of Sierra Club at 2; Initial Comments of Env'tl. Defense Fund at 9–15; Public Staff's Comments at 10.

<sup>2</sup> See Smart Electric Power Alliance, A Comprehensive Guide to Electric Vehicle Managed Charging 11 (May 2019), <https://sepapower.org/resource/a-comprehensive-guide-to-electric-vehicle-managed-charging/thank-you/>.

utility management of charging through load control events. Application at Ex. C. In the EV school bus component, Duke Energy has proposed to test “load management capabilities to reduce charging speeds, up to and including full curtailment and Vehicle-to-Grid (V2G) bi-directional power flow.” *Id.* at Ex. E. Additionally, customers partaking in the Fleet EV and Transit Bus components must receive service on an applicable time-of-use rate. *Id.* at Exs. D, F.

While Duke Energy’s Proposal does include managed charging in several of the Pilot’s components, there are opportunities for incorporating additional load management techniques, such as EV-specific time of use rates. Public Staff specifically states concerns about the lack of passive managed charging in the ET Pilot. Public Staff’s Comments at 10. For instance, when discussing the residential and fleet EV components, Public Staff states that additional rate designs should be tested “to evaluate the extent to which various rate designs impact customer usage and promote, or inhibit, managed charging.” *Id.* Public Staff also argues that a “robust pilot project should evaluate passive managed charging through experimental rate designs and other mechanisms.” *Id.* at 10.

In light of these concerns, and to enhance the ET Pilot, the Commission should require Duke Energy to develop and implement additional EV-specific tariffs.<sup>3</sup> By implementing these additional rate designs across the ET Pilot components, Duke Energy will be able to test and determine how various active and passive managed charging techniques impact the grid and affect customers, including both the residential and fleet EV customers, as discussed by Public Staff, but also other customers, including the

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<sup>3</sup> As an alternative to EV-specific tariffs, Duke Energy could also test mandating existing time-varying volumetric rates for charging infrastructure incentivized in the pilot, possibly retaining a control group on standard rates.

customers participating in the bus programs and the customers using Duke Energy's EV charging stations.

**B. Multiple commenters recognize the need to incorporate equity and environmental justice in the ET Pilot.**

Multiple commenters recognize the importance of making electrified transportation options available for low and moderate-income communities.<sup>4</sup> To address these comments, and as discussed at length in NCJC and SACE's initial comment letter, the ET Pilot as proposed should be improved to ensure that the benefits of electrified transportation are shared by all.

First, there is a concern that the first-come, first-served component of several proposed rebate programs will leave behind customers in disadvantaged communities. The North Carolina Sustainable Energy Association (NCSEA) recognizes this issue with the bus and transit components, stating that the first-come, first-served application process may result in wealthier communities taking advantage of the rebates. NCSEA's Initial Comments at 14. NCJC and SACE also argue that distributing the ET pilot incentives on a first-come, first-served basis is not appropriate for any of the components, including the residential EV charging, the fleet EV charging, and the bus programs. Initial Comments of NCJC and SACE at 18. Instead, the Commission should require Duke Energy to show that it has attempted to equitably allocate the benefits of the ET Pilot. One potential option is for the Commission to require Duke Energy to allocate a percentage of the rebates for low and moderate income customers and communities. Another option is for the Commission to require Duke Energy to proactively reach out to

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<sup>4</sup> See Electrify America Comments at 3; Initial Comments of NCJC and SACE at 16–28; NCSEA's Comments at 10, 14–15; Initial Comments of Sierra Club at 17.

disadvantaged communities and offer technical assistance to develop applications for the rebate programs.

Second, NCJC and SACE strongly support the proposed school bus and transit bus EV programs and, if implemented in the right way, these programs can help deploy clean, zero-emission buses in communities that have been disproportionately impacted by air pollution. Public Staff argues that “[b]us systems have predictable routes and schedules; thus, determining the charging characteristics of buses is easily modeled, if not already available.” Public Staff’s Comments 11. However, the availability of charging infrastructure options may result in changes to bus systems’ management of vehicles and routes. Therefore, one major benefit of the bus components is that they will help school districts and transit agencies better understand how deploying electric buses will change their operations. Partnering with a diverse sample of school and transit bus systems will enable Duke Energy to develop case studies to answer questions that other bus systems may have, and thus encourage more rapid expansion of such systems by fiscally constrained bus system operators. Gathering this information will help identify issues that may occur during future deployments of EV buses, and NCJC and SACE recommend that in addition to modifying the program to ensure access and participation, that the Commission also require Duke Energy to include case studies and other appropriate analysis in its ET Pilot.

Finally, utility EV programs, like the ET Pilot, have a role to play in improving access to electrified transportation in underserved areas. For instance, Electrify America states that “[u]tility DCFC programs can play an important role in accelerating the deployment of DCFC, especially in underserved areas where expected usage may not



justify private market investment in the short to medium term.” Electrify America Comments at 3. NCJC and SACE recognize that there are many challenges to making EVs readily available to low and moderate-income communities; however, this ET Pilot is an opportunity for the Commission to help ensure that EV benefits are equitably distributed, including through installation of EV infrastructure in areas where the private market may not invest.

**C. Duke Energy should include a full, independent evaluation, measurement and verification (EM&V) process in its ET Pilot reporting process.**

In a pilot program, regular reporting and metrics are important to determining both the successes of the program as well as areas for improvement. Multiple commenters emphasize the importance of metrics and the need for means of evaluation in their initial comments.<sup>5</sup> Accordingly, the Commission should require Duke Energy to frequently submit publicly-available reports and require measurable metrics to be included in the report, such as those listed in NCJC and SACE’s initial comments. *See* Initial Comments of NCJC and SACE at 13–14.

Public Staff, in particular, took issue with the ET Pilot’s lack of means for evaluating the program, stating that the Proposal “contains no objectives, metrics, goals or other means of evaluating whether the program is a success or a failure.” Public Staff’s Comments at 13. In light of these concerns and the substantial areas of needed data and technology evaluation, NCJC and SACE recommend that Duke Energy enhance its reporting commitments—beyond those discussed in our initial comments—to include

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<sup>5</sup> *See* Public Staff’s Comments at 13; Initial Comments of NCJC/SACE at 12–14; NCSEA at 16; Sierra Club at 5.

a full, independent, evaluation, measurement and verification (EM&V) process.<sup>6</sup> Duke Energy should also include a budget for conducting such evaluations in its Proposal.

The stakeholder working group (discussed in more detail below in Section II.D) should participate in developing metrics for the EM&V contractor. Some previously recommended metrics included, among others: participation information; managed charging data; usage rates by charger type; charging load profiles for each component; charging rates; and estimates of avoided emissions. Initial Comments of NCJC and SACE at 13–14. In addition, the EM&V contractor should collect qualitative information from user and other program participant and stakeholder interviews, including evaluation of the impact of Duke’s outreach efforts.

As recommended in our initial comments, Duke should provide quarterly reports during the course of the three-year pilot, and final reports at its conclusion. These reports should analyze the results of its EM&V studies and provide all findings that would drive the design and implementation of any future programs.<sup>7</sup> In completing its reports on the ET Pilot, Duke Energy should provide utility-specific inputs for data such as: (1) rate

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<sup>6</sup> In contrast to the number of national and international protocols related to EM&V for energy efficiency programs, it appears that EM&V protocols for utility EV infrastructure programs are still being developed. For example, a recent EM&V report for a Pepco Maryland pilot program relied upon surveys of participating customers and meter data. Electric Power Research Institute, *Pepco Demand Management Pilot for Plug-In Vehicle Charging in Maryland: Final Report – Results, Insights and Customer Metrics*, May 2016.

<sup>7</sup> While participation-related information is generally available and can be verified as the program is rolling out, information related to the load impacts of the EV charging infrastructure will be more time consuming. See, e.g., Direct Testimony of Richard G. Stevie, Ph.D., *Application of Duke Energy Carolinas, LLC for Approval of Save-a-Watt Approach, Energy Efficiency Rider and Portfolio of Energy Efficiency Programs*, Docket No. E-7 Sub 831, at 29 (N.C.U.C. Apr. 04, 2009) (noting that for EM&V protocols for energy efficiency programs, “information on load impacts is more complex and tends to require rigorous impact evaluation studies, statistical billing analysis of pre and post usages, participant and non-participant surveys, and related activities that take time and care to complete to produce unbiased estimates of the load impacts”). Dr. Stevie’s testimony also discusses the importance of EM&V being used to verify the impacts of energy efficiency programs on the “nature of the energy efficiency market such that customer behavior, vendor behavior, and even manufacturer behavior is altered.” *Id.* at 29. Given that the objectives of the ET Pilot are similar – Duke Energy aspires to impact customer and manufacturer behaviors in terms of ET adoption and practices for installing ET charging infrastructure – the longstanding support of the Commission for robust EM&V should be adopted in the ET Pilot as well.

structure for each charging type; (2) for public charging stations, a comparison between utility-owned and competing private station rate structures; and (3) greenhouse gas emissions rate for the Duke Energy system applicable to the EV charging load shapes. Providing these inputs will result in valuable, utility-specific data that is more informative than general assumptions and should assist in assessing the successes and failures of the ET Pilot and the development of any future EV programs.

**D. The Commission should establish a stakeholder advisory group to oversee the ET Pilot.**

As recommended by several commenters, the Commission should establish a stakeholder advisory group to study and oversee the ET Pilot.<sup>8</sup> NCJC and SACE reiterate the importance of stakeholder involvement *during* the term of the three-year Pilot, not merely at the end of the Pilot program as the proposed ET Pilot contemplates. This is of particular importance as Duke Energy begins testing the various ET Pilot features, such as active managed charging.

NCJC and SACE further recommend that the stakeholder advisory group be engaged throughout the process and have direct communication with the EM&V contractor to receive information about the efficacy of each program and collaborate on mid-ET Pilot modifications to respond to any recommendations to improve or adjust program plans. And further, the stakeholder advisory group should be engaged in reviewing Duke's overall findings and commenting on them in draft and final form.

**III. Conclusion**

NCJC and SACE thank the Commission for the opportunity to submit these reply comments. By approving the ET Pilot with the additional suggested modifications

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<sup>8</sup> See Initial Comments of NCJC and SACE at 15–16; Initial Comments of Env'tl. Defense Fund at 17–18; Sierra Club at 5.

addressed herein, the Commission will ensure that the ET Pilot studies and tests a variety of components and mechanisms to gather informative data for future pilot and/or permanent programs.

Respectfully submitted this the 9th day of August, 2019.

s/Christina Andreen  
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*Attorneys for North Carolina Justice Center  
and Southern Alliance for Clean Energy*

**VERIFICATION**

I, Christina Andreen, verify that the contents of the foregoing *Reply Comments of North Carolina Justice Center and Southern Alliance for Clean Energy* are true to the best of my knowledge, except as to those matters stated on information and belief, and as to those matters, I believe them to be true. I am authorized to sign this verification on behalf of North Carolina Justice Center and Southern Alliance for Clean Energy.

Christina Andreen

Date: 8-9-2019

Jefferson County, Alabama

Sworn to and subscribed before me this day by Christina Andreen.

This the 9<sup>th</sup> day of August, 2019

  
Signature

Katherine E. Ronan, Notary Public  
MY COMMISSION EXPIRES AUGUST 17, 2021

My commission expires: \_\_\_\_\_



**CERTIFICATE OF SERVICE**

I certify that all parties of record have been served with the foregoing *Reply Comments of North Carolina Justice Center and Southern Alliance for Clean Energy*, either by electronic mail or by deposit in the U.S. Mail, postage prepaid.

This the 9<sup>th</sup> day of August, 2019.

s/ Christina Andreen  
Christina Andreen