

SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 205-745-3060

2829 2ND AVENUE SOUTH, SUITE 282
BIRMINGHAM, AL 35233-2838

Facsimile 205-745-3064

July 3, 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 *Initial 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 3rd day of July, 2019.

s/Christina Andreen
Christina Andreen
Admitted *pro hac vice*
Southern Environmental Law Center
2829 2nd Avenue S, Suite 282
Birmingham, AL 35233
Telephone: (205) 745-3060
Fax: (205) 745-3064
candreen@selcal.org

CMA/kr
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:)	INITIAL COMMENTS OF
Application of Duke Energy Carolinas,)	NORTH CAROLINA
LLC and Duke Energy Progress, LLC)	JUSTICE CENTER AND
for Approval of Proposed Electric)	SOUTHERN ALLIANCE
Transportation Pilot)	FOR CLEAN ENERGY

The North Carolina Justice Center (NCJC) and the Southern Alliance for Clean Energy (SACE) appreciate the opportunity to submit the following comments on 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 ("Application" or "ET Pilot"). NCJC and SACE generally support the ET Pilot as proposed, and therefore ask the Commission to approve it subject to the modifications discussed throughout these comments.

I. INTRODUCTION

Electric vehicle (EV) ownership is rapidly growing, with over one million battery EVs (BEVs) and plug-in EVs (PHEVs) sold in the United States to date.¹ From 2017 to 2018, sales of EVs (both BEVs and PHEVs) increased 75%, from 187,985 sold in 2017 to 328,118 sold in 2018.² Predictions about the long-term sales of EVs show that they could make up 35-65% of sales by 2050, with higher percentages if oil prices increase or

¹ Alliance of Automobile Manufacturers, U.S. Light-Duty Advanced Technology Vehicle (ATV) Sales (2011-2018), <https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/> (last visited July 3, 2019) (updated through the end of 2018).

² *Id.*

technology costs decrease.³ In North Carolina, EV adoption is also growing. Sales doubled between 2017 (2,055 sold) and 2018 (4,712 sold).⁴ As of the end of 2018, there were 13,054 EVs sold within the state, with 7,309 being BEVs.⁵ With state and local policies and goals supporting the expansion of electric vehicles, as well as technological advances that are decreasing prices while increasing range, sales will likely continue to increase in the coming years.⁶

Electrifying our transportation sector comes with significant benefits for EV drivers, utility customers, and North Carolina's public health and environment. First, while the up-front costs of electric vehicles typically are higher than their fossil-fueled counterparts, EVs are cheaper to own and operate because they have lower fuel costs and have fewer moving parts to operate and maintain.

Second, as Duke Energy notes in its Application, increased adoption of EVs in North Carolina may put downward pressure on rates.⁷ M.J. Bradley and Associates has estimated "cumulative net benefits from greater PEV use in the state will exceed \$6.9 billion state-wide by 2050" if adoption follows a "moderate trajectory currently assumed by the Energy Information Administration."⁸ If sales fall in line with the high trajectory, "the net present value of cumulative net benefits from greater PEV use in North Carolina

³ Citizens Utility Board, The ABC's of EVs, https://citizensutilityboard.org/wp-content/uploads/2017/04/2017_The-ABCs-of-EVs-Report.pdf; *see also* Jeffrey Rissman, The Future of Electric Vehicles in the U.S., Energy Innovation, https://energyinnovation.org/wp-content/uploads/2017/10/2017-09-13-Future-of-EVs-Research-Note_FINAL.pdf, at 3 (Sept. 2017).

⁴ Alliance of Automobile Manufacturers, U.S. Light-Duty Advanced Technology Vehicle (ATV) Sales (2011-2018), <https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/> (last visited July 3, 2019) (updated through the end of 2018).

⁵ *Id.*

⁶ *See* Application by Duke Energy Carolinas, LLC and Duke Energy Progress, LLC for Approval of Proposed Electric Transportation Pilot, at 3–4, Docket Nos. E-2, Sub 1197 and E-7, Sub 1195 (N.C.U.C. Mar. 29, 2019) [hereinafter Application].

⁷ *Id.* at 5.

⁸ *Id.*, Ex. B at ii. (M.J. Bradley & Associates' (MJB&A) Electric Vehicles Cost-Benefit Analysis for North Carolina).

could exceed \$66.1 billion state-wide by 2050.”⁹ EVs can also benefit utility customers by providing opportunities to increase the electric grid’s stability and efficiency, and by making it easier to integrate renewable energy into the electric grid. For example, EV charging can be encouraged during off-peak times, thereby shifting load away from peak demand times, and EV batteries can also potentially serve as energy storage.

Third, all citizens will reap the public health benefits of less vehicle emissions and improved air quality. EVs produce far fewer greenhouse gas (GHG) emissions than their gasoline and diesel counterparts on a mile-by-mile basis, thereby reducing greenhouse gas emissions.¹⁰ When considering the life-cycle emissions of a vehicle—meaning the emissions associated with producing and manufacturing the vehicle parts, like batteries, in addition to the emissions it produces while driving—electric vehicles far outpace their traditional counterparts, resulting in as much as *50 percent fewer* GHG emissions.¹¹ M.J. Bradley also looked at the environmental benefits of EVs in North Carolina, finding that GHG emissions in the state would be reduced by 30% (17.4 million tons) by 2050 under the moderate penetration scenario and by 73% (42 million tons) by 2050 under the high penetration scenario.¹² EVs also produce no localized air pollution such as particulate matter, nitrogen oxide (NOx) and ozone. As such, EVs can help to significantly improve air quality in urban areas and around sensitive populations where vehicular emissions would otherwise be high and concentrated. In addition, EVs will get cleaner over time as

⁹ *Id.* at iii.

¹⁰ See *Emissions from Hybrid and Plug-In Electric Vehicles*, U.S. Dep’t of Energy Alternative Fuels Data Center, https://afdc.energy.gov/vehicles/electric_emissions.html (last visited July 3, 2019).

¹¹ Rachael Nealer, David Reichmuth and Don Anair, *Cleaner Cars from Cradle to Grave: How Electric Cars Beat Gasoline Cars on Lifetime Global Warming Emissions*, Union of Concerned Scientists, at 1 (Nov. 2015), <https://www.ucsusa.org/clean-vehicles/electric-vehicles/life-cycle-ev-emissions#.WkPKh1WnGM8>.

¹² Application, Ex. B at 13.

the generation of electricity gets cleaner, while gas or diesel engines deteriorate over time and will have higher emissions levels.¹³

Unfortunately, there are some major barriers to increased EV adoption. For low and moderate income communities, the cost of EVs remains a barrier and must be addressed to make the benefits of EVs directly available to all residential ratepayers. Lower fuel and repair costs are especially beneficial to low and moderate income communities. A lack of knowledge and awareness is another major barrier. One study found that less than half of American consumers could name a specific EV make and model.¹⁴ In addition, American consumers have several broad misconceptions about electric vehicles. For instance, they do not know about the low maintenance and operation costs, they have range anxiety, they are unaware of the available incentives to purchase EVs, and they see EVs as “risky technology.”¹⁵

For the reasons outlined above, NCJC and SACE strongly support the transition to an electrified transportation sector, and encourage the Commission and Duke Energy to further reduce barriers to EV adoption and ownership in the state. Data gathered during the ET Pilot and the overall success of the ET Pilot is important both for future Duke Energy EV programs and the future of transportation electrification in the state. NCJC and SACE therefore ask the Commission to approve the ET Pilot subject to the following modifications:

¹³ Jeremy Hodges, *Electric Cars are Cleaner Even When Powered by Coal*, Bloomberg (Jan. 14, 2019) <https://www.bloomberg.com/news/articles/2019-01-15/electric-cars-seen-getting-cleaner-even-where-grids-rely-on-coal>.

¹⁴ See *Online Interactive Toolkit: Policy Explorer, EV Education and Outreach*, M.J. Bradley & Associates, <https://www.mjbradley.com/toolkit-policy-ev-education> (last visited July 3, 2019).

¹⁵ *Id.*

- Strengthen the reporting and oversight provisions of the ET Pilot to require quarterly reporting, require measurable metrics in report, and establish a stakeholder advisory council to help oversee all aspects of the ET Pilot on an ongoing basis (*see* Part IV.A);
- Duke Energy should not be allowed to distribute incentives on a first-come, first-served basis (*see* Part IV.B.1);
- Equity and environmental justice considerations should be incorporated into the ET Pilot components to make electric transportation more accessible to low and moderate income customers (*see* Part IV.B.2 through IV.B.5);
- Duke Energy should incorporate smart rate design, including: developing and implementing new residential rate options for EV customers; studying options for managed charging at multi-family dwellings (MFDs); and requiring Duke Energy to study the effects of demand charges on commercial and industrial customers (*see* Part IV.C.);
- Beyond the ET Pilot, NCJC and SACE request that the Commission develop guidelines for utility ownership of charging infrastructure (*see* Part IV.D.3).

II. ET PILOT BACKGROUND

A. ET Pilot Goals

In its Application, Duke Energy sets forth a number of important goals for the ET Pilot, including ensuring that “electrification projects benefit all customers”; supporting “the development of a competitive market for EV charging services and ensur[ing] customer choice in EV charging technology”; and determining how to “cost-effectively

integrate vehicle charging by actively managing charging loads.”¹⁶ NCJC and SACE submit that the ET Pilot should have the additional goals of: investigating the use of managed EV charging to reduce GHG emissions and other air emissions and to help integrate renewable energy; researching and evaluating ways to make EVs directly accessible to low and moderate income communities; and reducing disproportionate pollution burdens borne by affected communities. The recommendations in this comment letter will help the program to achieve all of these goals, which should be a guide for evaluating the success of the program.

B. ET Pilot Program Components

To accomplish the ET Pilot’s goals and objectives, Duke Energy requests approximately \$76 million to implement seven programs: (1) residential EV charging program; (2) fleet EV charging program; (3) EV school bus charging station program; (4) EV transit bus charging station program; (5) MFD charging station program; (6) public level 2 (L2) charging station program; and (7) DC Fast Charging (DCFC) program.

Of these, the residential EV charging program and the fleet EV charging program offer rebates to customers who purchase EV charging infrastructure, also known as charging stations or electric vehicle supply equipment (EVSE). For the residential program, up to 800 residential customers will receive \$1,000 in exchange for participating in the ET Pilot.¹⁷ For the fleet EV program, commercial and industrial customers will receive \$2,500 per EVSE for up to 900 charging stations.¹⁸

Duke Energy proposes to own the charging stations for the other ET Pilot components. For the transit bus program, Duke Energy will own up to 105 EVSEs,

¹⁶ Application at 8.

¹⁷ *Id.* at 9-10.

¹⁸ *Id.* at 10.

although the transit agency will be responsible for operating and maintaining the EVSE.¹⁹ Similarly, Duke Energy will install and own 160 multi-family dwelling EVSEs.²⁰ For the public L2 charging station program, Duke Energy proposes to install, own and operate 160 EVSEs “at eligible key public destination locations.”²¹ For the DCFC program, Duke Energy proposes to install, own and operate 120 fast chargers across 60 locations.²²

Finally, Duke Energy proposes a somewhat hybrid program that includes both elements—an incentive coupled with EVSE ownership by Duke Energy—for the EV school bus charging program.²³ Duke Energy will offer funding of up to \$215,000 per bus for up to 85 buses for school districts that purchase a bus with bi-directional power flow capabilities.²⁴ However, Duke Energy proposes to own the EVSE, while the school system will operate and maintain the EVSE.²⁵

It is important to note that DEC undertook a previous EV pilot program, beginning in 2011 and running through 2014.²⁶ In that program, DEC provided charging stations to 150 customers “to determine, among other things, customers’ behavior and impacts on demand and the grid, as well as ways to mitigate those impacts.”²⁷ DEC found that unmanaged charging could require an addition 89 MW for every 10,000 EVs in the DEC territory, while managed charging could require only 0.7 MW in additional

¹⁹ *Id.* at Ex. F.

²⁰ *Id.* at Ex. G.

²¹ *Id.* at 14, Ex. H.

²² *Id.* at 15.

²³ *Id.* at 11-12, Ex. E.

²⁴ *Id.*

²⁵ *Id.* at Ex. E.

²⁶ See Order, *In the Matter of Application by Duke Energy Carolinas, LLC, for Approval of Proposed Study on the Impact of Charging Plug-in Electric Vehicles on the Grid*, Docket E-7, Sub 969 (N.C.U.C. Mar. 22, 2011).

²⁷ Proposed Study on the Impact of Charging Plug-in Electric Vehicles on the Grid at 1, Docket E-7, Sub 969 (N.C.U.C. Jan. 24, 2011).

capacity.²⁸ In its final report on the study, DEC stated that “[t]his study was instrumental in helping the Company understand the baseline charging patterns in which there were no external influencing factors (e.g. a required TOU rate). At this time, the Company believes that electric vehicle charging may be integrated into the system with minimal impact.”²⁹

III. REQUESTS FOR CLARIFICATION

Upon review of Duke Energy’s proposal, NCJC and SACE have questions about the ET Pilot. It would be helpful for Duke Energy to explain its reasoning for proposing the specific rebates amounts, as well as to provide further information about its plans for educating customers about these programs.

A. Explain the basis for the proposed rebate amounts.

One of the main goals of the ET Pilot is to “ensure that electrification projects benefit all customers, including those who do not own EVs and low/moderate income customers.”³⁰ To ensure it benefits all customers, the rebates need to balance the benefit to the customer with the cost to ratepayers. Therefore, the rebates should be priced at a point where they encourage participation, but do not overly compensate those receiving the rebate.

First, the residential EV component proposes to give a \$1,000 rebate to customers for up to 800 residential customers “in exchange for participation in the program, which will include the transmission of charging load data as well as utility management of home

²⁸ *Id.* at 2.

²⁹ Duke Energy Carolinas, Charge Carolinas Program, Final Update, Docket No. E-7, Sub 969 (N.C.U.C. Aug. 19, 2016).

³⁰ Application at 8.

charging during defined hours.”³¹ The ET Pilot also provides a rebate for an EV owner who installs a level 2 residential charging station and also for an EV owner who uses the “telematics capability” of his or her vehicle rather than a charging station.³² This proposal raises a number of questions: Is this rebate based on the cost to purchase and install the level 2 charging station? If the cost to purchase and install is less than \$1,000, will the Companies still provide the customer with the full \$1,000 rebate? Does the EV owner using the “telematics capability” of his or her vehicle receive the \$1,000 rebate regardless of the cost of the telematics capability?

Other utilities around the country have designed and implemented rebate programs with lower rebate amounts.³³ If Duke Energy could lower the rebate amount and customers would still enroll in the program, Duke Energy could reach many more customers and receive more data about EV charging behavior. For instance, if a \$500 rebate is a sufficient incentive for customers to participate in the ET Pilot, then Duke Energy could enroll 1600 customers in the program instead of 800.

Second, the Fleet EV component provides a \$2,500 rebate to commercial and industrial customers for each EVSE purchased and installed for up to 900 charging stations.³⁴ This rebate brings up similar questions. Is this \$2,500 rebate based on the cost to purchase and install a commercial charging station? If the cost is less than \$2,500, will the customer still receive the full amount of the rebate?

³¹ *Id.* at 9-10.

³² *Id.*

³³ See, e.g., Order No. 88997 at 45–48, *Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio*, Case No. 9478 (Md. P.S.C. Jan. 14, 2019) (adopting the Staff’s recommendation to cap residential rebates at \$300 for residential customers after the utilities proposed rebates that were “generally capped” at \$500);

³⁴ Application at 10, Ex. D.

If the Companies have conducted research or have information that helped inform the proposed rebate and incentive amounts, NCJC and SACE request that the Companies share this information with their reply. This information will help the Commission and the public to determine whether these rebates are structured to be as effective as possible.

B. Clarify the education and outreach programs for the ET Pilot.

One of the main barriers to increased EV adoption is a lack of knowledge and awareness. Because of utilities' unique role as electricity provider, utilities have an important role to play in educating consumers about the benefits of driving electric vehicles. To ensure that the program is fully subscribed, particularly the low-income portion, NCJC and SACE support Duke Energy's proposal to engage in substantial consumer education.³⁵

Research has shown that consumers generally are unaware of transportation policies and incentives to participate in them.³⁶ Consumers also lack information about EVs, such as how to properly account for lower fuel and maintenance costs, the adequacy of current EV ranges for the vast majority of daily use, the various purchase incentives, and the reliability of the technology.³⁷ This challenge may be greater in low-income communities.³⁸ Early adopters tend to be educated, middle-aged, married, male, have

³⁵ *Id.* at 17.

³⁶ M.J. Bradley & Associates, Toolkit for Advanced Transportation Policies 64 (2018), http://www.mjbradley.com/sites/default/files/mjba_transportation_toolkit.pdf; *see also* Ken Kurani and Scott Hardman, *Automakers and Policymakers May Be on a Path to Electric Vehicles; Consumers Aren't*, U.C. Davis Inst. of Transp. Studies, <https://its.ucdavis.edu/blog-post/automakers-policymakers-on-path-to-electric-vehicles-consumers-are-not/> (last visited July 3, 2019).

³⁷ M.J. Bradley & Associates, Toolkit for Advanced Transportation Policies 64-65 (2018), http://www.mjbradley.com/sites/default/files/mjba_transportation_toolkit.pdf.

³⁸ *See* Peter Slowik & Michael Nicholas, The Int'l Council on Clean Transp., Expanding access to electric mobility in the United States 5-6 (2017), <http://www.theicct.org/publications/expanding-access-to-US-electric-mobility>.

relatively high incomes, and live in detached homes.³⁹ Consumer education should provide basic information about EVs, in addition to information about the ET Pilot itself.

NCJC and SACE support Duke Energy's plan to "conduct market education and outreach for each program that is like the outreach efforts for existing energy efficiency and demand response programs, including electronic communications, direct mail, social media, public event, and mass market advertising."⁴⁰ The groups also support Duke Energy using its relationships with agencies and organizations to conduct education and outreach.⁴¹ However, NCJC and SACE request information on the purpose, plan and audience for the education and outreach funding. Furthermore, NCJC and SACE urge Duke Energy to educate customers beyond the traditional ways in which it conducts education and outreach, such as through partnerships with automobile manufacturers and car dealerships "to provide current information to consumers about vehicle purchase incentives and charging options."⁴² Additionally, to be sure that disadvantaged communities take full advantage of the ET Pilot, Duke Energy should focus some of its efforts specifically on reaching disadvantaged communities, for example, by partnering with neighborhood associations to hold demonstration events.⁴³ This likely will require finding and partnering with new organizations with which Duke Energy has not yet worked.

³⁹ Peter Slowik & Nic Lutsey, The Int'l Council on Clean Transp., Expanding the Electric Vehicle Market in U.S. Cities 14 (2017), <http://www.theicct.org/publications/expanding-electric-vehicle-market-us-cities>.

⁴⁰ Application at 17.

⁴¹ *Id.* at 17.

⁴² MJ Bradley & Associates, Accelerating the Electric Vehicle Market (Mar. 2017), https://www.mjbradley.com/sites/default/files/MJBA_Accelerating_the_Electric_Vehicle_Market_FINAL.pdf.

⁴³ See Slowik & Nicholas, *supra* note 38, at 4-5; Slowik & Lutsey, *supra* note 39, at 10-11.

IV. ET PILOT RECOMMENDATIONS

To promote further EV adoption in North Carolina while also ensuring that ratepayer funds are used in a cost-effective and beneficial manner, NCJC and SACE request that the Commission modify the ET Pilot to include the following recommendations.

A. Strengthen the reporting and oversight provisions of the ET Pilot.

The Commission should strengthen the reporting and oversight provisions of the program. In its Application, Duke Energy proposes to recover the approximately \$76 million cost of the ET Pilot through base rates.⁴⁴ Such a large expenditure of ratepayer money requires transparency and ongoing public involvement. To this end, we recommend that the Commission make the following changes to the proposed ET Pilot.

1. Require quarterly reporting.

The Commission should require Duke Energy to submit ET Pilot reports on a quarterly basis rather than annually and make these reports available to the general public.⁴⁵ Given the short three-year timeframe of the ET Pilot, annual reporting would leave the Commission and the public (if the public has access to the annual reports, which is unclear from the Application) very little time to review the initial results and help Duke Energy to correct any problems before the Pilot ends. Under annual reporting, Duke Energy's report will presumably be filed twelve months after the program begins. If there are any issues that need to be addressed, it could take several months to make modifications or corrections to the program. Accordingly, the program easily could be eighteen months into operation before any issues are corrected, effectively allowing the

⁴⁴ Application at 17.

⁴⁵ See *id.* at 8.

Commission and the public only one chance at mid-course correction before it ends. Instead, to ensure transparency and access to the data being gathered, the Commission should require quarterly reporting.

2. Reports should include sufficient concrete detail to enable analysis.

The Commission should require that Duke Energy's reports on the program include sufficient detail, including measurable metrics, so that the Commission and the public may meaningfully assess the program's progress towards its goals and identify any issues that need resolution.⁴⁶ As currently proposed, Duke Energy will report only "operational data and results" annually and "a final report with final findings and conclusions."⁴⁷ This leaves the content of the reports too vague and discretionary. Because it is ratepayer-funded, the ratepayers should have access to the information that it generates. Furthermore, this transparency is essential to ensuring that the program succeeds.

Important components of the quarterly reports include:

- the status and locations of charging stations deployed for each ET Pilot component;
- a list of anticipated charger installations, including type of charger, location, and expected installation date;
- any charger replacements and the reasons for replacement;
- accuracy of measurement of electricity used by a customer's EV;
- accuracy of EV portion of a customer's bill;
- program expenses by time period and market segment;

⁴⁶ See *id.*

⁴⁷ *Id.*

- participation in the residential program by income bracket and other demographics;
- managed charging data, including Duke Energy's ability to control charging stations remotely, the aggregate effect of managed charging of EVs on peak load, and its effect on local grid constraints;
- usage rate by charger type;
- charging load profiles of residential, fleet, and school and transit bus participants;
- charging rates;
- proportion of EV charging taking place under different rates;
- data on the load control events for the residential EV component;
- estimates of avoided emissions;
- customer satisfaction;
- Duke Energy's perception of the program's successes and challenges to date; and
- any changes to the program that Duke Energy has made or plans to make.⁴⁸

The final report should also include additional more holistic information to help the Commission evaluate the success of the ET Pilot and decide on what changes to make for future EV programs. Additional components might include: 1) comparison of energy use at homes with EVs not participating in the program and participants; 2) comprehensive report of the cost, emissions, and other impacts of demand management; and 3) a report on the program's impact on air quality in previously identified disproportionately burdened areas.

⁴⁸ For reporting metrics that are required in Maryland's EV program, see Order No. 88997 at Attach. A, *Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio*, Case No. 9478 (Md. P.S.C. Jan. 14, 2019).

3. Establish a stakeholder advisory council.

Duke Energy has proposed to “conduct a stakeholder working group to share results and solicit input for future program design” only “[c]oncurrent with the *final* report.”⁴⁹ (Although the wording is unclear, Duke Energy appears to anticipate convening this group only *after* the ET Pilot is complete.) In light of the size, complexity, and importance of this program, greater and earlier stakeholder involvement is needed.

The Commission should establish a stakeholder advisory council to help it to oversee all aspects of the ET Pilot on an ongoing basis, meeting at regular and frequent intervals from the start of the program. By helping the Commission and Duke Energy to identify potential problems and correct them more quickly, the stakeholder advisory council’s oversight also would help to ensure a successful program. The council should include a broad range of stakeholders, including representatives from local and state government, industry, ratepayer advocacy groups, environmental advocacy groups, disadvantaged communities, and rural communities. The council would review each quarterly report and provide its input while the next report is being prepared, on a rolling basis, and would have the authority to obtain additional information from Duke Energy as necessary. After its review and analysis, the council would recommend to the Commission appropriate changes to the ET Pilot, to be carried out promptly rather than at the end of the program’s term.

Other utility EV pilot programs have included ongoing stakeholder involvement. For example, in South Carolina, Duke Energy proposed “to conduct an ongoing stakeholder engagement process with interested parties in an effort to understand these

⁴⁹ See Application at 8-9 (emphasis added).

parties' experience with the ET Pilot and the effectiveness of the Pilot's programs."⁵⁰ It proposed to hold annual meetings with stakeholders and report the results to the South Carolina commission in its annual report.⁵¹ Other jurisdictions have also involved stakeholders in developing EV-related pilots as well.⁵² As outlined above, given the cost and importance of this docket, NCJC and SACE urge the Commission to require reports and meetings more frequently than annually, and establish a stakeholder advisory council to review and advise the Commission and Duke Energy during this ET Pilot.

B. Incorporate environmental justice and equity into the ET Pilot.

At its most basic level, environmental justice is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."⁵³ Since the First National People of Color Environmental Leadership Summit held in Washington, D.C. in 1991, the touchstone for the definition of environmental justice has been the Principles of Environmental Justice adopted by its delegates.⁵⁴ Environmental justice took hold as a movement with the 1982

⁵⁰ Amended Application for Approval of Proposed Electric Transportation Pilot and an Accounting Order to Defer Capital and Operating Expenses 17, *Application of Duke Energy Carolinas, LLC for Approval of Proposed Electric Transportation Pilot and An Accounting Order to Defer Capital and Operating Expenses*, Docket No. 2018-321-E (S.C. P.S.C. Apr. 1, 2019). As of July 2, 2019, the South Carolina Commission has yet to rule on Duke Energy's amended application.

⁵¹ *Id.*

⁵² See Nexant, California Statewide PEV Submetering Pilot—Phase 2 Report 2 (2019), <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442461657> (explaining that two commission decisions directed California's three large investor-owned utilities to work with EV stakeholders to assess challenges and opportunities related to charging EVs, particularly the potential to use sub-metering, and reviewing work with stakeholders).

⁵³ *Environmental Justice: Learn About Environmental Justice*, U.S. Env'tl. Prot. Agency, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> (last visited July 3, 2019).

⁵⁴ See *Principles of Environmental Justice*, N.C. Env'tl. Justice Network, <https://ncejn.wordpress.com/ej-toolbox/principles-of-environmental-justice/> (last visited July 3, 2019).

protest of a polychlorinated biphenyl (PCB) landfill in Warren County, North Carolina.⁵⁵

The state has made a commitment to environmental justice.⁵⁶

One of the many manifestations of environmental injustice is in the proximity impacts of transportation, which are disproportionately borne by people of color and, to a lesser extent, people with low incomes.⁵⁷ Proximity impacts include a wide variety of health hazards, but the primary problem is impaired air quality, which increases the risk for asthma and impaired lung function in children, for cardiac and pulmonary mortality, and likely for lung cancer.⁵⁸ Electrifying transportation can help to reduce the proximity impacts from transportation, particularly air pollution. The Commission should take this into account in its review of the ET Pilot and should attempt to distribute the benefits of the ET Pilot equitably, in part to help alleviate inequitable proximity impacts.

The converse is also a feature of environmental justice: environmental amenities, access to clean technologies, and other benefits are often distributed unequally. Duke Energy has set the goal of “[e]nsur[ing] that electrification projects benefit all customers, including those who do not own EVs and low/moderate income customers.”⁵⁹ To

⁵⁵ See *Environmental Justice: Environmental Justice Timeline*, U.S. Env’tl. Prot. Agency, <https://www.epa.gov/environmentaljustice/environmental-justice-timeline> (last visited July 3, 2019).

⁵⁶ See N.C. Dep’t of Env’tl. Quality, Policy: Environmental Equity Initiative (Oct. 19, 2000), available at <https://ncejn.files.wordpress.com/2018/06/10-19-2000-ncdenr-environmental-equity-policy.pdf>; *Secretary’s Environmental Justice and Equity Board*, N.C. Dep’t of Env’tl. Quality, <https://deq.nc.gov/outreach-education/environmental-justice/secretarys-environmental-justice-and-equity-board> (last visited July 3, 2019).

⁵⁷ See Union of Concerned Scientists., *Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic 2* (2019), <https://www.ucsusa.org/clean-vehicles/electric-vehicles/northeast-air-quality-equity>.

⁵⁸ *Id.*; see also Doug Brugge et al., *Near-highway pollutants in motor vehicle exhaust: A review of epidemiologic evidence of cardiac and pulmonary health risks*, PubMed Central (2007), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1971259/>; Juliana Maantay et al., U.S. Env’tl. Prot. Agency, *Proximity To Environmental Hazards: Environmental Justice And Adverse Health Outcomes* 62 (2010), <https://archive.epa.gov/ncer/ej/web/pdf/maantay.pdf>.

⁵⁹ Application at 8.

accomplish this goal, programs should be developed to make electric transportation available to ratepayers with incomes of 200% of the Federal Poverty Level and below.

1. Distributing the ET Pilot incentives on a first-come, first-served basis is not appropriate.

As currently proposed, the ET Pilot will distribute rebates and charging stations on a first-come, first-served basis for the residential EV charging program, the fleet EV charging program, the school bus charging station program, and the transit bus charging station program.⁶⁰ Because all ratepayers will be paying for the ET Pilot, all ratepayers should receive benefits of the programs. Accordingly, the principle of first-come, first-served is not appropriate for the allocation of ratepayers' money because it inherently advantages those potential recipients who are able to apply first, and those who can move first typically are those with the most resources, who can afford the time, attention, and expertise required to monitor for these opportunities and react to them quickly.

Furthermore, the inequitable impact is compounded in this context. Because electric vehicles cost much less to own and operate, those who do not apply in time will miss out not just on the assistance with any up-front purchase costs but on extended savings. At the same time, because all ratepayers will fund the program, to the extent that its benefits are disproportionately distributed to wealthier ratepayers it will functionally transfer wealth to them from less well-resourced ratepayers. Instead of offering rebates on this first-come, first-served basis, the Commission should put the burden on Duke Energy to show that it has attempted to allocate the benefits of the ET Pilot equitably.

⁶⁰ *Id.* at Exs. C-F.

2. Make the residential EV program available to low and moderate income customers.

Duke Energy proposes to provide a \$1,000 rebate on a first-come, first-served basis to customers who show proof that they have purchased and installed an EVSE for their home in exchange for participating in the ET Pilot program.⁶¹ Low and moderate income customers likely do not have the resources to purchase an electric vehicle and an EVSE to charge that electric vehicle. Thus, they likely cannot participate in the residential ET Pilot. Unfortunately, this means that Duke Energy's study of EV charging load data and utility management of charging will fail to assess the charging behaviors of Duke Energy's low and moderate-income customers. It also means that the ET Pilot is only providing a direct, immediate benefit to one segment of Duke Energy's residential customers.

Duke Energy's ET Pilot should encourage EV adoption among all its customers. This is particularly true when one considers the substantial cost savings that can result from driving an EV. One simple option is for Duke Energy to gather more data about the participants in the residential EV component by requiring that the participants provide information about their household size, income and socioeconomic status. This would give Duke Energy and the Commission important information on who is taking part in the rebate program, where the gaps are, and how EV programs should be structured after the end of the ET Pilot.

A more valuable option is to make electric vehicles and EVSE available to low and moderate-income customers at no or de-minimis cost. To address the up-front cost issue and improve access to electrified mobility, Duke Energy could partner with

⁶¹ *Id.* at Ex. C.

municipalities to provide car-sharing services in low and moderate income communities. Cities around the country have adopted electric car-share programs.⁶² For example, Los Angeles leveraged a California Climate Investments grant—funded by the state’s economy-wide cap-and-trade program—to establish BlueLA, to deliver a system of 100 electric vehicles and 200 chargers to central Los Angeles.⁶³ Members pay \$5 per month and \$0.20 per minute, with the second and third hours free; or for income-qualified residents, \$1 per month and \$0.15 per minute.⁶⁴ Sacramento’s Our Community CarShare provides residents of designated neighborhoods entirely free access to EVs for up to three hours per day or a total of nine hours per week.⁶⁵ Although these programs and their infrastructure are owned and operated by municipalities, if Duke Energy identified a municipality prepared to purchase a small EV fleet for a pilot EV car-share program, as part of the ET Pilot or in the near future, NCJC and SACE would likely support a request by Duke Energy to install and own the necessary EVSE infrastructure.

Another potential option is for Duke Energy to partner with automobile manufacturers to make electric vehicles more available to families with incomes of 200% of the Federal Poverty Level and below. This could be accomplished through a variety of potential program designs, including, for example, a no or de-minimis cost lease program, a lease with option to purchase program, or carefully designed tariffed on-bill financing. Then, Duke Energy would be able study charging patterns and the overall benefits of driving electric vehicles for a broader range of consumers. If Duke Energy chooses to implement a program like this, there are many details to be ironed out. For

⁶² Slowik & Nicholas, *supra* note 38, at 3-5.

⁶³ *About BlueLA*, BlueLA, <https://www.bluela.com/about-bluela> (last visited July 3, 2019).

⁶⁴ BlueLA, <https://www.bluela.com/#offers> (last visited July 3, 2019).

⁶⁵ *About Our Community CarShare Sacramento*, Our Community CarShare Sacramento, <http://www.airquality.org/Our-Community-CarShare> (last visited July 3, 2019).

instance, Duke Energy would need to design the program to avoid any negative tax consequences for the low-income customers and also determine what happens to the EV and EVSE after the end of the ET Pilot.

3. Allocate a percentage of the charging stations to disadvantaged communities.

NCJC and SACE support Duke Energy's proposal to install 160 MFD charging stations, 160 public L2 charging stations, and 60 public DC fast charging locations. However, Duke Energy has not proposed to ensure that any proportion of the charging stations deployed under this portion of the program at low and moderate income MFD units, nor has it proposed to place any proportion of the public charging stations in disadvantaged communities. To ensure that the ET Pilot remains reasonably equitable, NCJC and SACE recommend that the Commission simply require that at least ten percent of these chargers be installed in low and moderate income communities. This resolution would place the ET Pilot squarely in line with other similar pilot programs around the country.⁶⁶

It is particularly important to install EVSE at multifamily dwellings because installation typically involves additional considerations compared to installation at

⁶⁶ See *Park & Plug: Providing FREE EV Charging Stations in Florida*, Duke Energy, <https://www.duke-energy.com/our-company/florida-future/park-and-plug> (last visited July 3, 2019) (explaining that "10% of charging stations [in Duke Energy Florida's 2018 "Park and Plug" pilot program] will be installed in income-qualified communities, as defined by Florida statute."); *CPUC Approves New PG&E Projects to Help Accelerate Elec. Vehicle Adoption in California*, Pacific Gas & Elec. (June 5, 2018), https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20180605_cpuc_approves_new_pg_e_projects_to_help_accelerate_electric_vehicle_adoption_in_california_ ("PG&E will dedicate 25 percent of the program budget to investments in disadvantaged communities and offer additional incentives for those sites, and for school and transit bus fleets that serve the general public."); *EV Charging: Equipment Charging Incentives*, AEP Ohio, <https://www.aepohio.com/save/business/ElectricVehicles/default.aspx> (last visited July 3, 2019) ("AEP Ohio is dedicated to installing 10% of the EV Charging Stations in areas of limited income.").

detached homes.⁶⁷ The program Duke Energy has proposed will avoid many of these complications by providing the charging equipment, presumably evaluating any electrical infrastructure needs prior to installing it, and by making the charging stations publicly available. Installing publicly available EV chargers at multifamily units is a particularly effective way of supporting EV uptake by people with lower incomes because the same charger could potentially serve a larger number of people. As stated above, the Commission should require Duke Energy to install at least ten percent of the chargers at multifamily units that house people with low and moderate incomes; for example, the North Carolina Housing Finance Agency maintains a list of Low Income Housing Tax Credit (LIHTC) properties where charging stations could be located.

4. Increase electric school bus funding for lower-income school districts.

NCJC and SACE strongly support the school bus electrification program in the ET Pilot, including the proposal to use the school bus program to explore vehicle-to-grid power flow.⁶⁸ School buses are excellent candidates for early electrification. As large fleet vehicles with very predictable routes, drivers can be sure to stay within the battery's range. In addition, the vehicles' highly predictable off-duty times—including midday, roughly coincident with peak solar production—and large fleet battery capacities make them well suited to experimenting with managed charging and vehicle-to-grid capabilities.⁶⁹ Most importantly, decreasing exposure to transportation pollutants such as

⁶⁷ See *Electric Vehicle Charging for Multi-Unit Dwellings*, U.S. Dep't of Energy, Alternative Fuels Data Ctr., https://afdc.energy.gov/fuels/electricity_charging_multi.html (last visited July 3, 2019); NC PEV Task Force, *Electric Vehicle Charging Options for Multifamily Housing: Quick Guide for Charging Installation*, www.pluginnc.com/resource/multifamily-charging-quick-guide/; NC PEV Task Force, *Multifamily Electric Vehicle Charging Station Operation Scenarios*, www.pluginnc.com/resource/multifamily-operation-scenarios/.

⁶⁸ Application, Ex. E at 1.

⁶⁹ See Tolga Ercan, et al., *On the Front Lines of a Sustainable Transportation Fleet: Applications of Vehicle-to-Grid Technology for Transit and School Buses*, MDPI AG (2016), <http://www.mdpi.com/1996->

those produced by diesel exhaust improves children's lung function and respiratory systems.⁷⁰

Duke Energy has proposed to provide up to \$215,000 per electric school bus for a total of 85 buses, in addition to installing and owning the EVSE for those buses.⁷¹ Since a new diesel school bus costs roughly \$82,000⁷² and a new electric school bus costs roughly \$350,000,⁷³ Duke Energy's proposal would make the up-front cost of a new electric school bus comparable to that of a new diesel school bus, although an electric school bus will still be more expensive.⁷⁴ In order to make the up-front cost of participation more manageable for lower-income school districts, and thereby make the program more equitable, Duke Energy should increase the amount of the rebate for lower-income school districts, until the cost to purchase an electric bus under the program is the same or less than a new diesel bus.

These expenditures should not be allocated on a first-come, first-served basis. Instead, in order best to mitigate the disproportionate impacts of transportation pollution, Duke Energy should prioritize applicants in school districts in which pupils are most

1073/9/4/230/htm; *Electric School Bus Evaluation*, Nat'l Renewable Energy Labs., <https://www.nrel.gov/transportation/fleetttest-electric-school-bus.html> (last visited July 3, 2019).

⁷⁰ See Health Effects Institute, *The Effects of Policy-Driven Air Quality Improvements on Children's Respiratory Health 4* (2017), <https://www.healtheffects.org/system/files/GillilandRR190Statement.pdf>.

⁷¹ Duke Energy does not explicitly state that the EVSE to be provided under the school-bus program will necessarily be used with the electric school buses that it funds, Application at 11; however, NCJC and SACE understand that to be the intent.

⁷² Application at 12.

⁷³ See Vermont Energy Investment Corp., *Electric School Buses: Feasibility in Vermont 12* (2016), <https://www.veic.org/docs/resourcelibrary/veic-electric-school-bus-feasibility-study.pdf>.

⁷⁴ In its Application, Duke Energy states that the proposed funding amount of \$215,000 is sufficient to make an electric school bus cost the applicant no more than a new diesel bus that costs \$81,569. Application at 12. If this is so under current electric school bus prices, then the \$215,000 figure is sufficient. However, in the State of North Carolina Volkswagen Mitigation Plan, DEQ estimates the price of a new electric school bus to be \$360,000. N.C. Dep't of Env'tl. Quality, *State of North Carolina Volkswagen Mitigation Plan 13* (2018), https://files.nc.gov/ncdeq/Air+Quality/motor/grants/files/VW/NC_Final_VW_Mitigation_Plan_082018.pdf. Furthermore, prices are bound to vary between suppliers and it is important to verify and maintain cost-parity between electric under the program and new diesel.

likely to be disproportionately exposed to transportation pollution and also affirmatively contact the appropriate local board of education to verify the need for additional school buses.

Finally, NCJC and SACE suggest the Commission request clarification on DEQ's participation in the program. Duke Energy states that it designed the school-bus program "to complement the anticipated funding available for replacement of legacy diesel school buses per the Volkswagen Settlement Trust" and that the proposed funding should make electric buses cost the same to DEQ as new diesel buses would have at a price of \$81,569.⁷⁵ NCJC and SACE understand local boards of education to be responsible for purchasing additional school buses as necessary, whereas the state purchases replacement buses, giving highest priority to safety concerns.⁷⁶ It is not clear how DEQ would use funding from the ET Pilot to help substitute electric buses for new diesel buses. If this is possible, NCJC and SACE would support doing so, because the old diesel school buses that will be replaced by DEQ are bound to be dirtier than the new diesel buses that a school district would likely otherwise buy when adding to its fleet, and because growing school districts that need to add to their fleets are not necessarily those that need electric school buses most.

5. For the transit bus program, focus on communities disproportionately affected by transportation pollution.

NCJC and SACE also strongly support Duke Energy's proposal to provide up to \$75,000 per electric transit bus for charging equipment.⁷⁷ Electric buses present multiple

⁷⁵ Application at 12.

⁷⁶ N.C. Gen. Stat. § 115C-249; *see* North Carolina Department of Public Instruction, NC Bus Fleet: North Carolina School Transportation Fleet Manual 5 (2015), www.ncbussafety.org/Manuals/NCBusFleetManualExcerptVehicles04June2015.pdf.

⁷⁷ Application at 11-13, Ex. F.

benefits to municipalities and their residents. In a dense city, each electric bus can save approximately \$150,000 per year in avoided health costs compared to diesel.⁷⁸ Each bus also saves approximately 500,000 metric tons of CO₂-equivalent per year.⁷⁹ Of course, even a *diesel* transit bus produces far fewer greenhouse gas emissions per passenger-mile than private cars.⁸⁰ And each electric bus saves approximately \$39,000 per year in reduced fuel and maintenance costs, which alone is more than enough to offset the additional up-front cost.⁸¹ At the same time, public transit is critical to providing access to jobs, especially for people with low incomes and people of color.⁸²

Despite these benefits, electric bus deployment has been slow.⁸³ The primary barriers municipalities face include higher up-front costs of electric buses, lack of financing options, necessary electrical infrastructure upgrades, and lack of information.⁸⁴ Two important steps in the process of overcoming these barriers and reaching large-scale electric bus deployment are conducting a thoughtful pilot project and exploring financing options.⁸⁵ The electric-bus program within the ET Pilot should help to enable

⁷⁸ Judah Aber, Columbia University, *Electric Bus Analysis for New York City Transit* 5 (2016), <http://www.columbia.edu/~ja3041/Electric%20Bus%20Analysis%20for%20NYC%20Transit%20by%20J%20Aber%20Columbia%20University%20-%20May%202016.pdf>.

⁷⁹ *Id.*

⁸⁰ U.S. Dep't of Transp., *Public Transportation's Role in Responding to Climate Change* 2 (2010), <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf>.

⁸¹ Aber, *supra* note 78, at 5.

⁸² See Yeganeh, et al., *A social equity analysis of the U.S. public transportation system based on job accessibility*, 11 *The J. of Transp. & Land Use* 1039 (2018), <https://www.jtlu.org/index.php/jtlu/article/view/1370>.

⁸³ Press Release, World Res. Inst., *Electric Bus Adoption Is Critical for Sustainable Cities – Here's How to Get There*, May 21, 2019, <https://www.wri.org/news/2019/05/release-electric-bus-adoption-critical-sustainable-cities-here-s-how-get-there>.

⁸⁴ Ryan Sclar, et al., World Re. Inst., *Barriers to Adopting Electric Buses* 23 (2019), <https://www.wri.org/publication/barriers-adopting-electric-buses>.

⁸⁵ Xiangyi Li, et al., World Re. Inst., *How to Enable Electric Bus Adoption in Cities Worldwide* 6 (2019), <https://www.wri.org/publication/how-enable-electric-bus-adoption-cities-worldwide>.

municipalities to conduct pilots, a critical step in moving forward with electric transit buses.

As with the school bus program, the electric transit bus program should attempt to alleviate the disproportionate impacts of transportation pollution. Because Duke Energy proposes to distribute the transit bus incentives on a first-come, first-served basis, and does not propose to provide a rebate to municipalities or transit agencies to purchase transit buses under the program, the program likely will attract applicants that are willing and able to purchase electric buses on their own, effectively limiting participation to larger and wealthier municipalities.

Integrating electric transit buses and electric school buses into existing fleets will require the bus service providers to address a number of unique and challenging issues. These issues can include installing and maintaining the charging infrastructure, designing routes to accommodate the charging requirements and range limitations of electric vehicles, and training their staff to maintenance a different type of vehicle. Unfamiliarity with these issues or the lack of resources to address them may deter transit agencies and school districts from participating in the pilot program. In order to address these concerns and ensure greater participation in the program, Duke Energy should make a technical liaison available to bus service providers to ensure that these implementation issues are not an impediment to participation. Doing so will not only allow smaller and less-resourced bus service providers to take advantage of the program, but will also allow the pilot program to identify obstacles to greater transit electrification going forward.

To further assist transit agencies obtain electric buses, the Commission should request that Duke Energy investigate a program of tariffed on-bill financing (sometimes

referred to as pay-as-you-save, or PAYS®⁸⁶) that transit bus service providers could use to purchase electric transit buses. PAYS® is an established financing mechanism for capital improvements that require up-front investment and generate savings over time. Under PAYS®, a financing entity covers the up-front cost for a capital investment that will save energy, and the utility customer then pays this investment back over time, in installments calculated to be the same or less than the amount of money that the improvement saves, resulting in immediate capital improvement and savings at no up-front cost. Traditionally, the entity that installs the capital improvement guarantees the expected savings, as, for example, under guaranteed energy savings contracts.⁸⁷

PAYS® works similarly for electric transit buses. Because electric buses cost more to purchase than new diesel buses, but save money over the lifetime of the bus in avoided fuel and maintenance costs, they create the conditions for PAYS® financing to succeed.⁸⁸ Under the standard model of PAYS® for electric transit buses, the utility obtains financing and purchases the battery and charging infrastructure for an electric bus, which the transit provider pays back through on-bill financing, but the transit provider purchases the bus itself.⁸⁹ This allows the transit provider to purchase new electric buses at roughly the same up-front cost as new diesel buses with no additional

⁸⁶ Pay As You Save® and PAYS® are registered trademarks and the intellectual property of the Energy Efficiency Institute, <http://www.eeivt.com/>.

⁸⁷ See *Guaranteed Energy Savings Contract*, N.C. Dep't of Env'tl. Quality, <https://deq.nc.gov/conservation/energy-efficiency-resources/utility-savings-initiative/performance-contracting> (last visited July 3, 2019).

⁸⁸ See Global Innovation Lab for Climate Finance, *Pay as You Save for Clean Transport 4* (2018), https://www.climatefinancelab.org/wp-content/uploads/2018/02/PAYS-for-Clean-Transport_Instrument-Analysis.pdf; M.J. Bradley & Associates, *Toolkit for Advanced Transportation Policies 47* (2018), http://www.mjbradley.com/sites/default/files/mjba_transportation_toolkit.pdf; Union of Concerned Scientists, *Electric Utility Investment in Truck and Bus Charging 4-5* (2019), <https://www.ucsusa.org/sites/default/files/attach/2019/04/Electric-Utility-Investment-Truck-Bus-Charging.pdf>.

⁸⁹ Global Innovation Lab for Climate Finance, *supra* note 88, at 4.

financial liability.⁹⁰ Duke Energy should investigate this model and, if the results are good, propose a program. Transit providers should examine any such program and compare it to other ways of taking advantage of the long-term savings generated by electric transit buses, such as by self-financing their purchase with low-cost municipal bonds, or through zero-down lease programs.⁹¹

C. The ET Pilot should incorporate smart rate design to ensure proper load management.

To both encourage adoption of electric vehicles and ensure that the additional load from EVs does not exacerbate peak demand, Duke Energy should send clear price signals to encourage charging takes place during less expensive, off-peak times of the day. First, reducing electricity rates during off-peak periods when electricity is less expensive to produce can support EV adoption: “[l]ower-priced charging will be a key way to attract greater investment in EVs and help states meet other goals, such as for clean energy.”⁹² Second, if Duke Energy pushes charging to off-peak times of the day, it can shift that the additional EV load away from system peaks, and therefore can reduce the need for new load.⁹³

⁹⁰ *Id.* at 5.

⁹¹ See Dexter Liu, The U.S. Electric Bus Transition: An Analysis of Funding and Financing Mechanisms 29-30 (April 26, 2019) (Masters project submitted in partial fulfillment of the requirements for the Master of Environmental Management degree in the Nicholas School of the Environment of Duke University), <https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/18464/The%20U.S.%20Electric%20Bus%20Transition%20-%20An%20Analysis%20of%20Funding%20and%20Financing%20Mechanisms.pdf?sequence=1&isAllowed=y>; Julia Pyper, BYD and Generate Capital Take the ‘Messiness’ Out of Deploying Electric Buses, GreenTechMedia (July 12, 2018), <https://www.greentechmedia.com/articles/read/byd-and-generate-capital-launch-a-200m-electric-bus-leasing-program#gs.m8j3cf> (discussing Generate Capital and BYD no-money-down electric transit bus leasing program).

⁹² David Farnsworth, et al., Regulatory Assistance Project, Beneficial Electrification of Transportation 60 (Jan. 2019), <https://www.raponline.org/wp-content/uploads/2019/01/rap-farnsworth-shipleysliger-lazar-beneficial-electrification-transportation-2019-january-final.pdf>.

⁹³ For instance, in DEC’s 2011 EV pilot program application, it stated that “by 2020, unmanaged PEV charging could result in the need for an additional 89 MW of capacity in the Carolinas. If charging is managed, however, the Company believes 10,000 PEVs will require only 0.7 MW of additional peak

As noted by the Washington Commission, management of EV load is “essential to ensure that electric vehicle charging services provide benefits to non-participating customers, and do not undermine utility conservation efforts.”⁹⁴ This is so important that the Commission went on to surmise that “[i]t would therefore be difficult for a program without demand response or direct load management capabilities to meet the fair, just, and reasonable standard . . . utilities must be able to manage EV charging load in a way that increases system utilization, avoids peak capacity costs, and ultimately results in savings to non-participating customers.”⁹⁵ As EV adoption increases in the state, Duke Energy should focus on implementing smart rate design for residential customers as well as commercial and industrial customers, so long as rate protections are in place for low and moderate income customers that do not have the ability to pay higher rates and those customers who may not be able to shift their load.

1. Duke Energy should build on existing load profiles and affirmatively seek to shape load profiles to cause less expense and pollution.

Throughout the Application, Duke Energy states that one of the key objectives is to assess different charging load profiles from various forms of electrified transportation.⁹⁶ However, the Application does not make clear that Duke Energy will build on existing load profiles, which are already in its possession. Furthermore, rather than simply passively examining the differences between charging load profiles, Duke Energy should proactively develop desirable load profiles based on least-cost least-polluting generation, and then seek to design a rate structure and/or managed charging

capacity.” Proposed Study on the Impact of Charging Plug-in Electric Vehicles on the Grid at 2, Docket E-7, Sub 969 (N.C.U.C. Jan. 24, 2011).

⁹⁴ See Policy and Interpretive Statement Concerning Commission Regulation of Electric Vehicle Charging Services at 35-36, *Amending and Adopting Rules in Docket UE-160799* (Wash. U.T.C. June 14, 2017).

⁹⁵ See *id.*

⁹⁶ See Application at 7.

program that best achieves those goals. The effect of EV ownership on load is not an unknown; unmanaged, EVs draw power and increase the customer's load at predictable times.⁹⁷ In addition, DEC has already collected information about residential EV customers' charging behaviors and their impact on the grid in a previous pilot⁹⁸; therefore, even though there have been technological advances in the EV industry since the end of that pilot in 2014, DEC should still build on that data in the currently proposed ET Pilot. The true benefit of the ET Pilot in terms of information about load profiles will be for the Commission and Duke Energy to explore the ways in which Duke Energy can manage EV load most effectively from a cost and pollution perspective; this will be the most useful information to carry forward into future proceedings as EV adoption grows.

Along these same lines, NCJC and SACE recommend that the Commission require Duke Energy to examine additional ways in which managed charging and bi-directional flow can reduce the carbon intensity of the electric grid. As technology advances the opportunities for carbon reduction are increasing. One option now available is real-time measurement of the carbon intensity of the electric grid in a given region.⁹⁹ The technology already exists for Duke Energy to monitor the carbon intensity of generation on its grid and manage EV charging accordingly, in real time. However,

⁹⁷ See Application, Ex. B at 5-7 (MJB&A's report includes information about the EV managed charging load versus the EV unmanaged charging load).

⁹⁸ See Proposed Study on the Impact of Charging Plug-in Electric Vehicles on the Grid, Docket E-7, Sub 969 (N.C.U.C. Jan. 24, 2011).

⁹⁹ See Christopher P. Skroupa, *Automated Emissions Reduction Technology Shapes The Future Of Electricity Consumption*, Forbes (Aug 28, 2018, 03:27pm), <https://www.forbes.com/sites/christopherskroupa/2018/08/28/automated-emissions-reduction-technology-shapes-the-future-of-electricity-consumption/#7e142c4212cb>; *How AER Works*, WattTime, <https://www.watttime.org/aer/how-aer-works/> (last visited July 3, 2019); *Climate Impact by Area*, ElectricityMap.org, <https://www.electricitymap.org/?page=map&solar=false&remote=true&wind=false> (last visited July 3, 2019).

EVSE must be capable of supporting these real-time carbon calculators.¹⁰⁰ The Commission should require Duke Energy to ensure that EVSE it installs or provides rebates for has this capacity, to ensure that the capital that ratepayers invest in now will be capable of the full measure of carbon reduction possible.

2. Duke Energy should develop and implement EV-specific residential rates.

Typical residential rates, like DEC's residential service schedule and DEP's residential service/RES schedule, are based on a flat energy charge that is either not time-variant, or varies very little over the course of the day or year. For instance, under DEC's residential service rate, there is a flat facilities charge and a flat kilowatt-hour charge of 8.7179 cents per kWh.¹⁰¹ Under DEP's residential service/RES schedule, there is a basic customer charge and a flat kilowatt-hour charge of 10.868 cents per kWh from July and October, and 10.395 cents per kWh from November to June.¹⁰² This type of pricing "does not give EV drivers a clear signal to charge in a way that reflects grid conditions. Rather, customers will likely charge whenever it is easiest for them because the cost is the same during all hours."¹⁰³ In addition, these rates do not encourage EV adoption because they do not give EV drivers an opportunity to "fuel" their vehicles in a very cost-effective manner.¹⁰⁴

¹⁰⁰ See Mark Dyson, et al., *Catalyzing the Market for Automated Emissions Reduction*, Rocky Mtn. Inst., May 15, 2017, <https://rmi.org/catalyzing-market-automated-emissions-reduction/>.

¹⁰¹ Duke Energy Carolinas, Schedule RS (NC) Residential Service, https://www.duke-energy.com/_media/pdfs/for-your-home/rates/electric-nc/ncschedulers.pdf?la=en (last visited July 3, 2019).

¹⁰² Duke Energy Progress, Residential Service Schedule RES-53, https://www.duke-energy.com/_media/pdfs/for-your-home/rates/electric-nc/r1ncschedulersesdep.pdf?la=en (last visited July 3, 2019).

¹⁰³ Farnsworth, et al., *supra* note 92, at 65.

¹⁰⁴ *Id.* at 66.

Multiple types of time-varying rates—including time-of-use rates, critical peak pricing and dynamic hourly pricing—can send price signals to indicate the most optimal time for EV drivers to charge their vehicles. There are multiple time-varying rate options that can be used to send these price signals. One option is TOU rates, which are simple and understandable. These rates “typically consist of two or more pricing levels based on predetermined time periods TOU rates also have the advantage of being relatively simple for customers to respond to because they know the time periods in advance and can use smart chargers and other ‘set it and forget it’ technology to easily respond.”¹⁰⁵ TOU rates, including TOU rates that are only for EV charging, have been shown to be effective at shifting EV charging to off-peak times. In California, Pacific Gas and Electric’s EV-only TOU rate shifted 93% of EV charging to off-peak hours.¹⁰⁶

As noted in Duke Energy’s Application, the Maryland Public Service Commission recently approved the implementation of the Maryland EV Portfolio, which includes programs for four public electric utilities in Maryland. In the Order, the Maryland PSC found that because of potential increased stress on the distribution grid as a result of charging station deployment, “EV load must be managed effectively, otherwise all ratepayers will share in the expensive costs of upgrading and maintaining the distribution system to accommodate increased load on the system.”¹⁰⁷ To shift EV charging to off-peak periods, the Maryland PSC directed the utilities to “develop and file tariffs on residential EV-only TOU rates to encourage off-peak EV charging.” The PSC

¹⁰⁵ *Id.*

¹⁰⁶ Melissa Whited, et al., Synapse Energy Economics, Driving Transportation Electrification Forward in New York, at 2 (June 25, 2018), <https://www.synapse-energy.com/sites/default/files/NY-EV-Rate-%20Report-18-021.pdf>.

¹⁰⁷ *Id.* at 55.

also noted that developing EV-only TOU rates would create consistency among the utilities and help ensure that benefits of the programs extended to all ratepayers.¹⁰⁸

NCJC and SACE urge the Commission to require Duke Energy to develop and implement a time-varying rate for EVs, such as an EV-specific TOU rate, to effectively manage residential charging of electric vehicles. Both DEC and DEP already offer whole-home TOU rates and therefore are in a position to be able to implement a similar rate that is EV-specific. An EV-only TOU rate will enable EV drivers to receive benefits of cheaper electricity by charging during off-peak times, and will also benefit all ratepayers by reducing potential stress on the grid from new EV load.

While EV-only TOU rates are effective at shifting EV load and NCJC and SACE urge Duke Energy to develop and implement a rate to do just that, Duke Energy must also ensure that any new TOU rates do not harm low and moderate income rate payers. In general, TOU rates with long on-peak windows can burden some consumers, such as those who do not work 9-to-5 jobs and low and moderate income rate payers that do not have “smart” appliances and HVAC systems that can operate to avoid peak charges. EV-only TOU rates that are specific only to EV charging can decrease this burden. Still, the EV-only TOU rate’s on-peak window should align with peak demand, and last less than five hours to ensure that consumers have some flexibility to charge when necessary. Duke Energy should consider options for protecting low-income customers, including potentially holding harmless low-income customers in order to ensure they are not overly burdened by the TOU rate.

¹⁰⁸ *Id.* at 53.

3. Charging at multi-family dwellings should be managed.

NCJC and SACE support Duke Energy's proposal to install charging infrastructure at MFDs.¹⁰⁹ Customers using the MFD charging stations will be billed according to the Small General Service schedule, with an additional \$0.02/kWh to cover other fees.¹¹⁰ However, this is a flat rate that does not encourage customers to shift charging to off-peak times. Multi-family residents are similar to single-family residents in that, without a clear price signal, they are likely to charge as soon as they get home from work which can increase the evening peak demand needs. At the least, the Commission should require Duke Energy to study the charging behaviors of MFD customers and their grid impacts. After this study, the Commission should require the development and implementation of a time-varying rate.

4. Duke Energy should consider the effects of demand charges on the ET Pilot's fleet EV component, school bus component and transit bus component.

Large customer rates typically include a demand charge, which is based on the customer's maximum peak demand during a month. Often, this demand charge is measured based on the customer's peak demand regardless of when that demand occurs. Therefore, often it is not based on the customer's coincident peak demand. All demand charges, but particularly the non-coincident peak demand charges "pose a significant challenge to the economics of EV charging, particularly at commercial and public charging locations."¹¹¹ Charging electric vehicles can result in high demand charges,

¹⁰⁹ See Application at 13-14.

¹¹⁰ Duke Energy Carolinas, Schedule SGS (NC) Small General Service, https://www.duke-energy.com/_/media/pdfs/for-your-home/rates/electric-nc/ncschedulesgs.pdf?la=en (last visited July 3, 2019); Duke Energy Progress, Small General Service Schedule SGS-53, https://www.duke-energy.com/_/media/pdfs/for-your-home/rates/electric-nc/g1ncschedulesgsdep.pdf?la=en (last visited July 3, 2019).

¹¹¹ Farnsworth, et al., *supra* note 92, at 67.

because the charging stations tend to use a high amount of capacity at one time, when vehicles are charging.

Around the country, public utility commissions and utilities are taking steps to decrease the demand charges that may result from installing charging infrastructure. Some utility commissions are granting a temporary reprieve from demand charges. In California, the Public Utilities Commission approved Southern California Edison's (SCE) proposed commercial EV rates that provide a 5-year demand charge holiday for new and existing EV customers. Customers with lower demand (less than 20 kW monthly demand) can choose between two rate options. One option is a volumetric TOU rate with no demand charge, and the second option phases in a demand charge beginning in year 6 and annually increasing until year 11. Larger demand customers (over 21 kW) can take service under the second, phased-in option.¹¹² In Maryland, the Public Service Commission approved a temporary demand charge credit for BGE, Delmarva and Pepco for the length of the pilot program. The credit will "offset a portion of the demand charge that could be incurred as a result of installing fast chargers or large quantities of charging stations at non-residential locations."¹¹³

Pacific Gas and Electric (PG&E) in California recently proposed a "subscription charge" option for dealing with demand charges. In November 2018, PG&E applied for approval of commercial EV rates that are based on two components: a "subscription

¹¹² Decision of the Transportation Electrification Standard Review Projects at 110–17, *Application of San Diego Gas & Electric Company for Approval of SB 350 Transportation Electrification Proposals and Related Matters*, Decision 18-05-040 (Cal. P.U.C. May 31, 2018).

¹¹³ Order No. 88997 at 56, *Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio*, Case No. 9478 (Md. P.S.C. Jan. 14, 2019).

charge” based on the maximum charging capacity and a TOU volumetric rate.¹¹⁴

PG&E’s proposals “aim to improve the fuel costs of commercial EV charging, simplify rate structures and price signals for customers, and align with utility costs.”¹¹⁵ The California Commission will likely issue a decision on this proposal later this year.¹¹⁶

In Duke Energy’s ET Pilot, demand charges may add significant cost to participants. For businesses that are subject to rates with demand charges, such as those that enroll in the fleet EV program, installing an EV charging station can increase monthly bills and deter the business from installing and providing a charger. A typical level 2 charger can use up to 10 kW to charge an EV, which can result in an additional 10 kW to the demand charge.¹¹⁷ To receive the \$2,500 incentive in the fleet EV program, the customer must take service under either Schedule OPT-V in DEC territory and Schedule SGS-TOU in DEP territory.¹¹⁸ While both rate schedules are time-of-use rates, and thus good for shifting EV load to off-peak hours, both rates also contain demand charges, which could result in high bills that don’t necessarily correspond with coincident peak demand.

For the bus components, demand charges may have even greater implications. Bus charging stations have high electrical demand requirements. For example, Proterra’s

¹¹⁴ Application of Pacific Gas & Electric Company (U 39 E) for Approval of its Commercial Electric Vehicle Rates at 1, *Application for Approval of Pacific Gas & Electric Company’s Commercial Electric Vehicle Rate (U 39 E)*, Application No. 18-11-003 (Cal. P.U.C. Nov. 5, 2018).

¹¹⁵ *Id.*

¹¹⁶ Assigned Commissioner’s Scoping Memo and Ruling at 4, *Application for Approval of Pacific Gas and Electric Company’s Commercial Electric Vehicle Rate (U 39 E)*, Application No. 18-11-003 (Cal. P.U.C. Feb. 14, 2019).

¹¹⁷ See Application at Exs. G-H (requiring L2 stations to “include charging equipment with electrical demand requirements of up to 10 kW”).

¹¹⁸ Duke Energy Carolinas, Schedule OPT-V (NC) Optional Power Service, Time of Use with Voltage Differential, https://www.duke-energy.com/_/media/pdfs/for-your-home/rates/electric-nc/ncscheduleoptv.pdf?la=en (last visited July 3, 2019); Duke Energy Progress, Small General Service (Time-of-Use) Schedule SGS-TOU-53, https://www.duke-energy.com/_/media/pdfs/for-your-home/rates/electric-nc/g5ncschedulesgstoudep.pdf?la=en (last visited July 3, 2019).

charging station depots for buses begin at 60 kW, and go up to as high as 500 kW.¹¹⁹

The demand charge grows even higher when one considers the number of chargers that may be needed to charge an entire fleet of buses. While it is unclear what specific rate schedules will apply to the bus EVSEs, it is likely that large electricity users like these will be subject to some type of demand charge of some type.

The potential effects from demand charges on the Fleet EV component, EV school bus component and transit bus component could deter customers from participating in the programs. For this reason, NCJC and SACE request that Duke Energy study the implications of current demand charges and rate structures on these ET Pilot components, and make the study available to the Commission and the public. Similar to what utilities are proposing around the country, Duke Energy should consider developing and implementing tariffs that will encourage EV adoption while reducing costly demand charges.

D. The Commission should ensure a competitive EVSE market.

Duke proposes to install, own and operate the majority of the charging infrastructure in the ET Pilot, including charging infrastructure for the school bus component, the transit bus component, the multi-family dwelling component, the public L2 charging component and the DC fast charging component. For purposes of a limited pilot program, NCJC and SACE do not oppose Duke owning and maintaining the charging infrastructure as long as it is in the public interest; however, NCJC and SACE support a competitive market for charging infrastructure and may not support future utility programs in which the utility proposes to install, own and operate the majority of the charging stations.

¹¹⁹ *Proterra Charging*, Proterra, <https://www.proterra.com/technology/chargers/> (last visited July 3, 2019).

Utilities have an important role to play in supporting emerging EV markets through their investments, and are singularly positioned to lead early investments in charging infrastructure due to their access to capital, knowledge of the grid and customers, and incentives for significant increases in revenues. Because of utilities' role in supporting EVs, NCJC and SACE encourage the Commission to adopt clear guidelines for regulated utilities that may be interested in doing so. Through its current regulatory authority, the Commission can ensure that any investments made provide benefits to all ratepayers, thus warranting treatment as rate-based assets. We also encourage the Commission's consideration of how these investments can best preserve the competitive nature of the EV charging market and leverage the free market to bring down costs for consumers.

1. Standards for Utility Investments

It is the policy of the state “[t]o promote adequate, reliable and economical utility service to all of the citizens and residents of the State.”¹²⁰ The Legislature granted the Commission the ability to prescribe the “adequate, reliable and economical utility service” to be rendered by a utility.¹²¹ It is also the policy of the state to promote demand-side management¹²² and “to conserve energy through efficient utilization of all resources.”¹²³

A central inquiry in determining whether investments are appropriate for utilities to include in rates is whether those investments are “used and useful... in providing the

¹²⁰ N.C. Gen. Stat. § 62-2.

¹²¹ *See id.* § 62-2(b) (giving the Commission the authority to “regulate public utilities generally, their rates, services and operations...”).

¹²² *See id.* § 62-2(3a).

¹²³ *Id.* § 62-155(a).

service rendered to the public within the State.”¹²⁴ The Commission can do this by ensuring that utility investments in EV infrastructure provide net benefits to customers, including benefits from deploying EVSE that integrate demand response and allow for more economic and efficient use of energy, and promote EV adoption while still allowing a competitive market to develop.

Currently, utilities around the country handle ownership of EVSE in couple different ways. Some utility programs “focus on installing EVSE from the distribution transformer up to the charging station but do not own or operate the charging station itself.”¹²⁵ This approach is known as make-ready. The other main approach is through “end to end” ownership, which is what Duke proposes. End to end ownership includes capital investments with a rate of return for a utility’s distribution grid investments, panels, conductors, all the way down to chargers.

In California, the Public Utilities Commission approved, with modifications, a proposal by San Diego Gas & Electric to own thousands of public level 2 charging stations:

We recognize the need for utility investment in spurring the development of an EV charging infrastructure, but at the same time we must be cognizant of the competitive impacts that SDG&E’s concentrated ownership could have on third parties, especially during the early years of deploying EV charging infrastructure. If the EV market does not develop as projected after four to five years, SDG&E will be one of the leading providers of EV charging in the San Diego region at the end of that period.¹²⁶

¹²⁴ N.C. Gen. Stat. § 62-133(b); *see State ex rel. Utils. Comm’n v. Cooper*, 767 S.E.2d 305, 311 (N.C. 2015) (“The Commission must fix rates that will allow the utility to recover its reasonable operating expenses and receive a fair rate of return on the cost of the property used and useful in providing the service rendered to the public.”); *State ex rel. Utils. Comm’n v. Carolina Water Serv.*, 439 S.E.2d 127, 135 (N.C. 1994) (“To be included in rate base, the cost must be both reasonable *and* incurred for property that is used and useful in providing service to customers.”) (internal citations omitted).

¹²⁵ Farnsworth, et al., *supra* note 92, at 26.

¹²⁶ Decision Regarding Underlying Vehicle Grid Integration Application and Motion to Adopt Settlement Agreement at 107, Decision 16-01-045, *Application of San Diego Gas & Electric Company (U902E)* for

The California commission approved a scaled down version of SDG&E's proposal, finding that "the advantages of allowing SDG&E to own the EV site installations and the EV charging stations would be in the ratepayers' interests and outweigh the disadvantages that could result from a lack of competition."¹²⁷ To guarantee some competition, the program allowed site hosts to choose the pricing option for charging customers, allowed site hosts to select the EVSE and charging services from pre-approved vendors (thereby allowing third party providers to offer competing EVSE), and required site hosts to pay a participation fee.¹²⁸

2. For the ET Pilot, NCJC and SACE do not oppose Duke Energy's proposal to own and operate EVSE.

NCJC and SACE do not oppose Duke Energy's proposal to install, own and operate EVSE, so long as the charging stations provide benefits to ratepayers and allow a competitive EVSE market to develop. The largest ET Pilot component proposed from a cost perspective is the DCFC component. Because of the size of this component, Duke Energy should provide additional information on the cost of the EVSE and the location selection criteria it will use to place EVSE.

Duke Energy's Application states that "support[ing] the development of a competitive market for EV charging services" is one of the main goals of the ET Pilot.¹²⁹ Under the current proposal, while Duke Energy will own and operate the majority of the DC fast charging stations in North Carolina over the next year or two, as the market expands, Duke Energy's share will decrease. Based on projections of EV growth by

Approval of its Electric Vehicle-Grid Integration Pilot Program and Related Matter, Application 14-04-014 and Rulemaking 13-11-007 (Cal. P.U.C. Jan. 28, 2016).

¹²⁷ *Id.* at 109.

¹²⁸ *Id.*

¹²⁹ Application at 8.

Bloomberg New Energy Finance,¹³⁰ by 2025, North Carolina likely will need over 700 DCFC plugs to accommodate electric vehicles.¹³¹ By 2030, it likely will need over 3,000. Assuming that Duke Energy only owns and operates the DCFCs that it proposes in the ET Pilot, by 2025, Duke Energy will have less than 20% of the DCFCs in the state, and its share will continue to decrease in the following years, to less than 4% in 2030.¹³² Using the Energy Information Administration's more conservative EV growth projections,¹³³ North Carolina will still need over by 1,000 DCFC plugs to accommodate electric vehicles by 2030; therefore, by 2030, Duke would own and operate less than 15% of the DCFCs in the state.¹³⁴

To ensure the cost-effectiveness of the program and the ratepayer benefits, Duke Energy should elaborate on the DCFC component of its "end to end" ownership proposal. First, Duke Energy should elaborate on its funding request for the DCFCs. NCJC and SACE understand that Duke Energy intends to deploy DCFCs with 100 kW capacity, and will be installing, owning and operating the stations. Duke Energy proposes to spend over \$280,000 on each DCFC plug in the ET Pilot. This is substantially higher than Duke Energy proposed in South Carolina, where the cost of each plug was \$130,000 per station.¹³⁵ While NCJC and SACE are not necessarily opposed to this expenditure, additional information on the increased cost is needed.

¹³⁰ See Bloomberg New Energy Finance, Electric Vehicle Outlook 2017 (July 2017), https://data.bloomberglp.com/bnef/sites/14/2017/07/BNEF_EVO_2017_ExecutiveSummary.pdf.

¹³¹ The charging station figures were calculated using the Department of Energy's EVI-Pro Lite tool, with the default vehicle mix and full support for PHEVs selected, and assuming 100% of drivers had access to home charging. See Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite, Alternative Fuels Data Ctr., U.S. Dep't of Energy, <https://afdc.energy.gov/evi-pro-lite> (last visited July 3, 2019).

¹³² *Id.*

¹³³ Application, Ex. B at 2.

¹³⁴ See EVI-Pro Lite, *supra* note 131, and accompanying explanation.

¹³⁵ See Amended Application for Approval of Proposed Electric Transportation Pilot and an Accounting Order to Defer Capital and Operating Expenses at 4, 13-15, *Application of Duke Energy Carolinas, LLC for*

Second, NCJC and SACE also request elaboration of Duke Energy's site selection criteria and how its deployment will benefit all customers. We do not oppose Duke Energy's proposal to install DCFCs "such that they are available to all customers rather than only to those of demographic or locations that are early adopters of new technology" as well as Duke Energy's proposal to install them along highway corridors.¹³⁶ Similarly, it is important that public level 2 charging stations are "publicly available to a broad cross-section of customers."¹³⁷

To not duplicate efforts, the utility should also consider federal, state, local and private EVSE deployments in siting its charging stations. For instance, Duke Energy should consider the deployments by Electrify America as well as DEQ's deployments using VW settlement funds when locating charging stations. In addition to installing DCFCs along key corridors, Duke Energy should also consider deploying DCFCs in urban areas for ride-hailing and car-sharing programs. Clarifying its location selection criteria will provide additional assurance that ratepayer funds are being used cost-effectively and providing benefits to all.

3. The Commission should issue clear guidelines for utility charging infrastructure investments.

The emerging nature of the EV marketplace makes it important for the Commission to give utilities clear guideposts for these investments, such as through the adoption of a standard of review for weighing proposed utility investments in EV charging services. Going forward, the Commission should consider whether or in what instances it is necessary for Duke Energy to own charging infrastructure. There are

Approval of Proposed Electric Transportation Pilot and An Accounting Order to Defer Capital and Operating Expenses, Docket No. 2018-321-E (S.C. P.S.C. Apr. 1, 2019).

¹³⁶ Application at 15-16.

¹³⁷ *Id.* at 14.

multiple options for deploying charging infrastructure, and Commissions around the country are using a variety of approaches to evaluate utility proposals to deploy infrastructure. Here are some examples of balancing tests adopted by other jurisdictions:

- The state of Massachusetts requires that utility proposals meet a need regarding the advancement of EVs in the state that is not likely to be met by the competitive EV charging market; and must not hinder the development of the competitive EV charging market.¹³⁸
- The California Commission also evaluates utility filings on a case-specific basis, using a balancing test to weigh the benefits of utility ownership against competitive harm. This involves an inquiry into whether there are regulatory protections that could mitigate any unfair advantages to the utility.¹³⁹ The Commission requires that proposals for utility ownership of EV charging infrastructure include an analysis of the impact of such ownership on competition.¹⁴⁰
- The Washington Commission allows utilities to receive an incentive rate of return on investments in electric vehicle charging infrastructure that are reasonably expected, at the time they placed in the rate base, to result in “real and tangible benefits for ratepayers.”¹⁴¹
- Oregon has adopted a statutory test for the Commission’s review of utility proposals for programs and investments in EV charging infrastructure: the

¹³⁸ Order on Department Jurisdiction over Electric Vehicles, the Role of Distribution Companies in Electric Vehicle Charging and other Matters at 13, D.P.U. 13-182-A (Mass. D.P.U. Aug. 4, 2014).

¹³⁹ Phase 1 Decision Establishing Policy to Expand the Utilities’ Role in Development of Electric Vehicle Infrastructure, D. 14-12-079 (Cal. P.U.C. July 29, 2010).

¹⁴⁰ *Id.*, Conclusion of Law at 3.

¹⁴¹ See Policy and Interpretive Statement Concerning Commission Regulation of Electric Vehicle Charging Services at 9, *Amending and Adopting Rules in Docket UE-160799* (Wash. U.T.C. June 14, 2017).

Commission must consider whether a given investment will be prudent; used and useful; reasonably expected to support the electric company's electrical system; reasonably expected to improve the electric company's system efficiency and operational flexibility, including integration of variable generating resources; and reasonably expected to stimulate innovation, competition and choice in the vehicle charging and services market.¹⁴²

Even as it encourages smart investments, the Commission should be vigilant to ensure that a regulated utility's entry into this competitive market does not adversely impact competitive providers of EV charging services. After all, this would defeat the purpose of utility investments, which is to help jumpstart a vibrant EV market that will spur additional customer adoption of EVs through the proliferation of a network of charging locations. There is a real risk that utilities could intentionally or unintentionally abuse their competitive advantage due to their name recognition, better understanding of systems, prior relationship with customers, ability to set rates and ability to rate-base investments to decrease costs for charging, thus undercutting competitors.

While NCJC and SACE do not oppose Duke Energy's current proposal to install, own and operate EVSE, we also support a competitive market for EVSE. NCJC and SACE ask the Commission to consider the potential competitive impacts that concentrated ownership may have on private charging station companies, and urge the Commission to develop guidance on these investments.

V. CONCLUSION

NCJC and SACE appreciate the opportunity to submit comments on Duke Energy's ET pilot application, and support the proposed ET Pilot because of the many

¹⁴² S.B. 1547, 2016 Leg. Assemb., 78th Sess. (Or. 2016).

benefits associated with increased investment in transportation electrification. For all the reasons discussed above, NCJC and SACE respectfully request that the Commission approve the ET Pilot subject to the recommendations and modifications provided throughout this letter.

Respectfully submitted this the 3rd day of July, 2019.

s/Christina Andreen
Christina Andreen
Admitted *pro hac vice*
Southern Environmental Law Center
2829 2nd Avenue S, Suite 282
Birmingham, AL 35233
Telephone: (205) 745-3060
Fax: (205) 745-3064
candreen@selcal.org

*Attorney for North Carolina Justice Center
and Southern Alliance for Clean Energy*

VERIFICATION

I, Christina Andreen, verify that the contents of the foregoing *Initial 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: 07-03-2019

Jefferson County, Alabama

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

This the 3rd day of July, 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 *Initial 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 3rd day of July, 2019.

s/ Christina Andreen
Christina Andreen