

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. E-2, SUB 1197  
DOCKET NO. E-7, SUB 1195

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of  
Application by Duke Energy Progress, LLC, and ) PUBLIC STAFF'S  
Duke Energy Carolinas, LLC, for Approval of ) COMMENTS  
Proposed Electric Transportation Pilot )

NOW COMES THE PUBLIC STAFF - North Carolina Utilities Commission (Public Staff), by and through its Executive Director, Christopher J. Ayers, pursuant to N.C. Gen. Stat. § 62-140 and other applicable rules of the Commission, and provides the following comments on the unverified application (Application) filed March 29, 2019, by Duke Energy Progress, LLC (DEP) and Duke Energy Carolinas, LLC (DEC) (collectively "Companies"), for approval of their respective Electric Transportation Pilots (ET Pilots).

**INTRODUCTION**

The Public Staff engaged in a robust investigation of the Companies' application and exhibits. The Public Staff's investigation included reviewing the Companies' responses to numerous data requests and researching electric vehicle (EV) and EV infrastructure activities being undertaken in other states, including pilot programs by DEC and DEP affiliates. The research also included a

review of pilot programs of other electric utilities and available grant programs.<sup>1</sup> Members of the Public Staff conducted conference calls with employees of the Department of Public Instruction regarding school bus purchasing and the North Carolina Department of Environmental Quality (DEQ) regarding the status of the Volkswagen Settlement Environmental Mitigation Trust Funds (VW Trust).<sup>2</sup> The Public Staff also met with employees of the South Carolina Office of Regulatory Staff to learn more about the Companies' pending ET pilot program in South Carolina. Finally, the Public Staff engaged in discussions with the Companies regarding our findings.

As a result of this investigation, the Public Staff concludes that the Companies' overall proposal does not meet the parameters of a pilot in which the Companies would undertake a proof-of-concept through a scalable project. The Companies have failed to demonstrate that spending \$76 million over a three-year period is necessary to learn more about serving current and future EV load. The Companies and their affiliates have conducted similar programs both in North Carolina and in other jurisdictions. The Companies have provided no evidence demonstrating that North Carolina customers are sufficiently unique to justify another pilot program or that the results of previous or ongoing pilot projects are insufficient to meet the Companies' needs. There is also a significant amount of

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<sup>1</sup> See, e.g., the U.S. Department of Transportation's grant program for transit bus technology at <https://www.transit.dot.gov/about/news/FY18-Low-No-Project-Selections>.

<sup>2</sup> The Public Staff understands that the DEQ released its VW Trust request for proposals (RFP) in June 2019 from parties seeking funds to mitigate nitrous-oxide emissions from mobile sources (diesel-fueled vehicles). <https://deq.nc.gov/news/press-releases/2019/06/17/state-releases-requests-proposals-phase-1-volkswagen-settlement-funds>. This would provide funding for purchasing electric school buses and transit buses. A second RFP will provide funding for the installation of fast charging infrastructure.

industry-level data available to help inform the Companies' evaluation and design of EV programs. Finally, the proposal contains no metrics or other standards for evaluating whether the programs are successful and appropriate to expand and implement in the future.

To be clear, the Public Staff is not opposed to transportation electrification. However, though the Companies frame their request as a "pilot" with associated "pilot" tariffs, the Companies are essentially requesting pre-approval of EV infrastructure investments that would be funded by customers. Absent a certification requirement, the Commission generally does not preapprove utility capital investments. Instead, utilities make capital investments in the normal course of business and seek cost recovery in a general rate case. Thus, the Companies' application for preapproval of these programs is misplaced. For this and all of the reasons enumerated above, the Public Staff recommends that the Commission deny the Companies' application.

### **DESCRIPTION OF THE PROGRAMS**

According to the application, the proposed ET Pilots consist of seven individual programs. The programs are as follows:

#### **Residential EV Charging Program**

Under the proposed Residential Charging Program, the Companies would provide a rebate of \$1,000 per installation for up to 500 DEC and 300 DEP residential customers to install qualifying, level 2, electric vehicle

supply equipment (EVSE). In exchange, the customers would allow the Companies to gather data and have onboard load control capability.<sup>3</sup> The estimated cost of this program is \$1.175 million for DEC, and \$705,000 for DEP, for a total of \$1.88 million.

#### Fleet EV Charging Program

Under the proposed Fleet EV Charging Program, the Companies would offer a rebate of \$2,500<sup>4,5</sup> per installation to install EVSE for commercial and industrial customers that operate fleet vehicles. In this program, up to 500 rebates would be made available to DEC customers and 400 rebates to DEP customers. Customers would be required to be served under a commercial time of use rate, with all EVSE equipment behind a separate meter. The estimated cost of this program is \$1.925 million for DEC, and \$1.54 million for DEP, for a total of \$3.465 million.

#### EV School Bus Charging Station Program

For the EV School Bus Charging Station Program, the Companies would offer a rebate of \$215,000 per bus for school systems to purchase electric school buses and the required EVSE<sup>6</sup> to charge the buses. DEC

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<sup>3</sup> The Companies would not begin to utilize load control until the second year of the program.

<sup>4</sup> Customers may qualify for one charging station per electric vehicles, so theoretically one company could apply for, and obtain, all of the rebates.

<sup>5</sup> According to the Companies, commercial EVSE installations are estimated to cost between \$2,550 and \$6,500 per port.

<sup>6</sup> The Companies have assumed that the cost of each EVSE (including installation) will be \$20,000 of the \$215,000 per bus total.

would offer rebates to approximately 55 customers, and DEP would offer rebates to approximately 30 customers.<sup>7</sup> The customers would be required to permit access to all vehicle charging data and allow the Companies to perform testing of charging load management and bi-directional charging capabilities. The Companies would own the EVSE as well as the EV bus battery. The Companies contend that they could repurpose the batteries as grid assets at the end of the useful life of the buses.<sup>8</sup> The estimated cost of this program is \$11,981,750 for DEC, and \$6,535,500 for DEP, for a total cost of \$18,517,250.

#### EV Transit Bus Charging Station Program

Under the EV Transit Bus Charging Station Program, the Companies would install and own 60 EVSE stations in DEC's service territory and 45 EVSE stations in DEP's territory.<sup>9</sup> According to the tariffs attached to the application, the Companies would provide funding of \$75,000 per EV transit bus procured within the preceding 24 months.<sup>10</sup> The associated EVSE would be owned by the Companies. To participate, a customer would be required to be on a time-of-use (TOU) rate schedule. The estimated cost

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<sup>7</sup> When asked how the Companies arrived at the proposed number of school bus rebates, the Companies indicated that they determined the number based on customer school district interest.

<sup>8</sup> The Companies estimated the useful life of the buses to be at least 12 years. The purchase and maintenance of school buses is governed by State law, including when buses are eligible for replacement. See N.C. Gen. Stat. § 115C-249.

<sup>9</sup>When asked how the Companies arrived at the number of charging stations, the Company indicated that they determined the program size based on discussions with transit agencies regarding current and future interest in EV transit buses.

<sup>10</sup> According to the Companies, the estimated cost for one EVSE station is \$75,000, including power upgrades.

of this program is \$4,671,000 for DEC and \$3,503,250 for DEP, for a total cost of \$8,174,250.

#### Multi-Family Dwelling Charging Station Program

Under the Multi-Family Dwelling Charging Station Program, the Companies would install, own, and operate, level 2 (L2) EVSE at multi-family dwellings. The Companies would charge a fee based on the marginal energy component of the applicable Company's currently approved Small General Service schedule, plus a \$0.02/kWh charge to cover network platform and transaction fees. The Companies propose to deploy 100 stations in DEC's service territory, and 60 stations in DEP's service territory. The estimated cost of this program is \$1,285,000 for DEC and \$771,000 for DEP, for a total cost of \$2,056,000.

#### Public L2 Charging Station Program

The Companies' proposed Public L2 Charging Program would allow them to install L2 EVSE at eligible key public destination locations. Similar to the Multi-Family Dwelling Charging Station Program, the Companies would charge a fee based on the marginal energy component of the Small General Service schedule, plus \$0.02/kWh to cover network, platform, and transaction fees. The Companies are proposing to install 100 stations in DEC's service territory, and 60 stations in DEP's service territory.<sup>11</sup> The

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<sup>11</sup> When asked how the Companies arrived at these numbers, they indicated that they were based on the number of charging stations already installed in a three-year time period using grants

estimated cost of this program is \$1,285,000 for DEC and \$771,000 for DEP, for a total cost of \$2,056,000.

#### Fast Charging Program

Under the proposed Fast Charging Program, the Companies would install direct current fast chargers (DCFC) along highway corridors through the Companies' service territories. The Companies would own and operate 70 chargers at approximately 35 locations in DEC's service territory and 50 chargers at approximately 25 locations in DEP's service territory. The estimated cost of this program is \$20,107,500 for DEC and \$14,362,500 for DEP, for a total cost of \$34,470,000, and is by far the most expensive program proposed.

In addition to the seven programs described above, the Companies propose to spend \$3,375,000 for education and outreach, and another \$2,025,000 for ongoing operations and maintenance.

Notably, according to the Companies in a response to a data request, the estimated costs for all seven programs exceed the estimated total three-year net revenue that would be generated by the charging equipment by approximately \$65 million.

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provided by the Companies pursuant to their settlement with the U.S. Environmental Protection Agency and others. See <https://news.duke-energy.com/releases/duke-energy-project-to-increase-public-ev-charging-stations-in-n-c-by-30-percent> (with links); <https://www.epa.gov/enforcement/duke-energy-corporation-clean-air-act-caa-settlement>.

## INFRASTRUCTURE PROGRAMS v. PILOT PROJECTS

### Scope of Proposals

As well-intentioned as the Companies' proposals may be, it is inaccurate to call the proposed programs "pilots". The Public Staff conducted a review of EV-related, utility-conducted activities occurring in other states. Our review focused on those activities as of December 31, 2018. Exhibit 1 contains a list of the studies, pilots, and EV programs that were reviewed. While not intended to be an exhaustive or comprehensive list of activities occurring in other jurisdictions, the list is intended to demonstrate that the proposed programs are not new, and, in many cases, mirror activities already underway or that have concluded.

For example, Duke Energy Florida (Item 9 in Exhibit 1) is conducting programs similar to the proposed EVSE programs for multi-unit dwellings, workplaces, public L2, and DCFC installations. In addition, the Companies have pending before the Public Service Commission of South Carolina EV-related programs totaling \$14.5 million that are virtually identical to programs proposed in North Carolina (Item 23 in Exhibit 1). The Public Staff also notes that DEC conducted a residential EV-related pilot between 2011 and 2014 in North<sup>12</sup> and South Carolina.<sup>13</sup> The objectives of that pilot were intended to gain a better understanding of customer charging behavior, the impact on demand and

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<sup>12</sup> See Docket No. E-7, Sub 969. DEC filed its final report on this pilot on August 19, 2016, identifying the learnings and conclusions the Company drew from the pilot. <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=425ec0c9-01e7-4aad-8b1b-4a6b47c94007>.

<sup>13</sup> See Public Service Commission of South Carolina, Docket No. 2011-114-E. <https://dms.psc.sc.gov/Web/Dockets/Detail/112410>

infrastructure, and the capabilities of the EVSE. DEC provided the EVSE to participants and paid up to \$1,000 for the costs of installing the EVSE. While the Public Staff recognizes that EV and EVSE technology is changing, that does not mean that the lessons learned from this pilot are irrelevant or bear repeating in another, much more expensive pilot. Outside of the Companies, Delmarva Power & Light (see item 2 in Exhibit 1), and PEPCO (Item 8 in Exhibit 1) have pilots that are very similar to the ET Pilots.

The Companies' proposed programs in the ET Pilots are designed to obtain infrastructure-related data that is likely already publically available, or will be available within the next 12 to 18 months, from other utilities and jurisdictions. That data includes load patterns related to EV charging, the impact of managed charging, and how managed charging can shape load patterns and customer charging behavior. Additionally, because EV-related loads are not weather-sensitive, load shapes of other utilities (residential and non-residential) should be indicative of the load shapes of North Carolina consumers. For example, it is well known that approximately 80% of residential charging occurs at home in the late afternoon and evening.<sup>14</sup> There is no reason to believe that results of a North Carolina pilot would find otherwise. The Public Staff also believes that any EV-related tariffs developed by other utilities would likely be adaptable in North Carolina. The Companies made it clear in the application and in data responses

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<sup>14</sup> Multiple sources reference the same information for residential charging patterns. For example, see page 5-2, "Electric Vehicle Driving, Charging, and Load Shape Analysis," EPRI, 2018 Technical Report (EPRI Study). Furthermore, this analysis provides much more information on the charging behaviors of residential customers and the drivers that could influence that behavior. <http://mydocs.epri.com/docs/PublicMeetingMaterials/ee/000000003002013754.pdf>.

that they are aware of and are monitoring efforts in other states. There is no reason to duplicate those efforts here by approving the expensive programs proposed by the Companies.

At best, only the Residential EV Charging and Fleet EV Charging programs arguably qualify as pilots, but there are critical omissions from those programs that would support a finding that they are pilots. As a pilot project, the Public Staff would expect to see the Companies piloting various rate designs to evaluate the extent to which various rate designs impact customer usage and promote, or inhibit, managed charging. While the Residential EV Charging program would evaluate active managed charging via onboard load control capabilities in the second year, a robust pilot project should evaluate passive managed charging through experimental rate designs and other mechanisms. As 80% of residential EV owners charge at night, any pilot project should explore the vast array of mechanisms to determine what drives, and does not drive, customer behavior.<sup>15</sup> This information is critical to integrating EV charging customers in an efficient manner. The Fleet EV Charging program is similarly lacking in experimental rate designs. Inclusion of various experimental rate designs and other mechanisms would render these programs more characteristic of a pilot.

The remainder of the proposed programs cannot be characterized as pilot programs for a variety of reasons. The EV School Bus and EV Transit Bus programs are not reflective of programs that would be offered by the Companies

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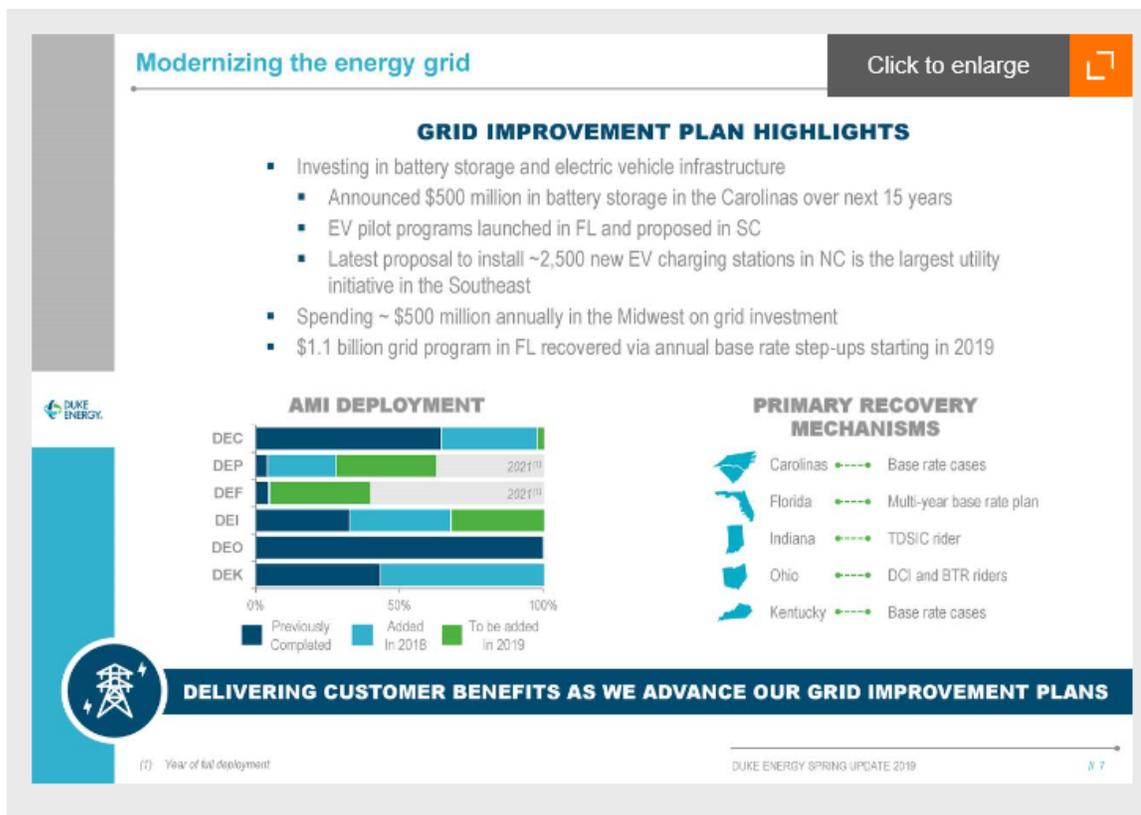
<sup>15</sup> For example, as North Carolina experiences increased “duck curve” load patterns, a pilot tariff could evaluate customer willingness to charge during times of peak solar production.

in the ordinary course of business, i.e., providing electric service. The Department of Public Instruction, school systems, and municipalities are responsible for purchasing buses for their respective systems; there is no justifiable reason why the Companies would insert themselves into the process. Bus systems have predictable routes and schedules; thus, determining the charging characteristics of buses is easily modeled, if not already available. To the extent the Companies are interested in exploring the use of small scale batteries to provide support to the grid during summers (school buses) or overnight (transit buses), that data can be easily obtained by directly deploying small scale batteries within the Companies' systems.

The various public charging station programs are merely capital projects. The Public Staff is unable to identify any unique learning opportunities arising out of the construction of over 400 public charging stations across the State, especially given the cost. The Companies' proposal is essentially a request to pre-approve infrastructure buildout. A slide presented by the Companies to investors on May 22, 2019 best demonstrates this point:<sup>16</sup>

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<sup>16</sup> <https://seekingalpha.com/article/4265902-duke-energy-duk-investor-presentation-slideshow>



As shown in the slide, the Companies have represented the expenditures to install the charging stations in the proposed ET Pilots to be part of the Companies' Grid Improvement Plan.<sup>17</sup> The Companies' news release on its web site touts the proposal as "the largest investment in electric vehicle (EV) infrastructure ever in the Southeast – a \$76 million initiative to spur EV adoption across the state."<sup>18</sup> There was no mention of any "pilot" aspect or lessons hoped to be gained from the proposal. Additionally, on pages 5-6 of the application in this docket, the Companies discussed the increasing deployment of EV charging infrastructure and stated that their proposal would add North Carolina to the growing number of

<sup>17</sup> Grid Improvement Plan is the Companies' current iteration of the original Power/Forward Carolinas initiative.

<sup>18</sup><https://news.duke-energy.com/releases/duke-energy-proposes-76m-electric-transportation-program-in-north-carolina-southeast-largest-utility-ev-initiative-yet>.

states deploying EV infrastructure. The tariffs attached to the application reflect that the proposals are primarily intended to deploy and support EVs and EV infrastructure.<sup>19</sup> In response to a data request, the Companies admitted that the public charging portion of the programs (Multi-Family, Public L2, and DCFC) is intended to provide a foundational level of infrastructure for EV adoption. As shown by the Companies' own admissions and representations, these programs are clearly not "pilots" as that term is generally understood.<sup>20</sup>

### Evaluation and Metrics

The value of a pilot project is to allow a utility to test a concept at a smaller scale without incurring significant costs that ultimately would be borne by customers. If a pilot is successful, the program can be deployed system-wide without the risk of program non-viability. If a pilot is unsuccessful, customers would be responsible for a fraction of the costs compared to a system-wide deployment. However, a pilot must have clearly defined objectives and goals that would define success and justify a broader, permanent program.

The Companies' proposal contains no objectives, metrics, goals, or other means of evaluating whether the program is a success or failure. There is no forecasting of how the Companies will determine whether any of the program

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<sup>19</sup> See the "Purpose" sections of the Companies' Exhibits C through I.

<sup>20</sup> Webster's online dictionary defines "pilot program" as an "activity planned as a test or trial." <https://www.webster-dictionary.org/definition/pilot%20program>  
See also <https://searchcio.techtarget.com/definition/pilot-program-pilot-study> "A pilot program, also called a feasibility study or experimental trial, is a small-scale, short-term experiment that helps an organization learn how a large-scale project might work in practice."

components should be expanded beyond the scope of the proposal. In addition, as stated earlier, much of the data likely to be collected by these pilots already exist; and the lack of objectives, metrics, goals, or other means of evaluating successful data collection further muddles what might be learned versus what is already known.

### **OTHER COMMENTS AND CONCERNS**

#### **EV Load Forecasts**

Many of the resources reviewed by the Public Staff regarding the trends in EV sales, and the impact that load will have on the bulk power system, look at perspectives that extend through 2030 to 2040. Those forecasts suggest a very small increase in EV adoption until 2025, after which EV adoption is expected to increase at a greater pace.<sup>21</sup> In fact, the U.S. Energy Information Administration does not project a significant change in the fuel-of-choice for transportation through 2050.<sup>22</sup>

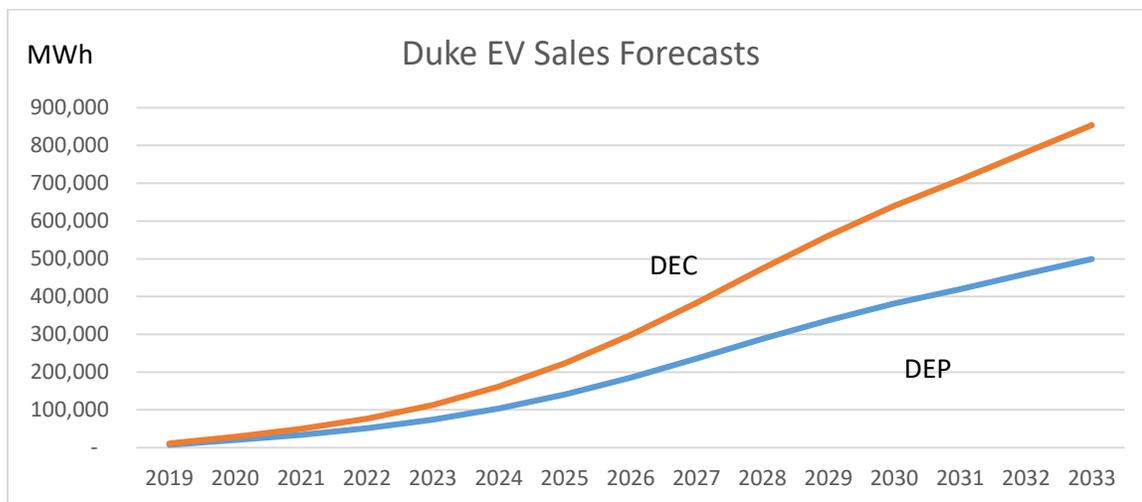
In their integrated resource plans (IRP) filed in 2018 in Docket No. E-100, Sub 157, the Companies included a forecast of EV-related energy sales in their respective Tables C-7. Workpapers associated with Tables C-7 were used to

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<sup>21</sup> "Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030," November 2018, EEI Report by Adam Cooper and Kellen Scheffer. [https://www.edisonfoundation.net/iei/publications/Documents/IEI\\_EEI%20EV%20Forecast%20Report\\_Nov2018.pdf](https://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20EV%20Forecast%20Report_Nov2018.pdf).

<sup>22</sup> "Annual Energy Outlook 2019 with Projections to 2050," US EIA Document AE02019, January 24, 2019, [www.eia.gov/aeo](http://www.eia.gov/aeo), <https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf>.

develop the chart below, which further identifies a slight increase in EV-related sales, but not until 2024 to 2025.



The Public Staff acknowledges that the EPRI Study suggests two key findings: (1) the EV world is dynamic and (2) charging infrastructure is being deployed and charging speeds are improving. Both of these findings suggest that the rate of EV adoption is likely to increase. However, nothing presented in the EPRI Study, nor any of the forecasts reviewed by the Public Staff, suggests an emergent situation that would warrant additional expenditures to repeat the same type of pilots being conducted across the country, particularly in the next three years. This is particularly true since, as the Public Staff believes, key findings and data from similar pilots around the country will be available for the Companies to use.

## The Companies' Cost-Benefit Analysis

The Companies filed, as Exhibit B, a cost-benefit analysis for the ET Pilots (NC Study). The NC Study was similar to other cost-benefit studies conducted by the same author for other utilities in other jurisdictions, including Duke Energy Florida, LLC,<sup>23</sup> and was based on methodology and assumptions used by MJ Bradley & Associates (MJB&A) in another study on the roles of utilities in the EV market.<sup>24</sup> Overall, the Public Staff believes these studies to be reasonable attempts at quantifying the benefits and costs of electric vehicle adoption at various levels in a general sense. However, based upon additional discovery from the Companies, the Public Staff has identified some concerns with how the study estimates the number of EVs in each penetration scenario, and believes that the Commission should give limited weight to the study.

The NC Study developed costs and benefits under two distinct levels of EV adoption: a business-as-usual (BAU) scenario, and a more aggressive scenario (80x50) that is intended to reduce light-duty vehicles' (LDV) greenhouse gas (GHG) emissions by 70%-80% by 2050. The NC Study also acknowledged the more aggressive 80x50 scenario is not likely to occur without much more aggressive policy support by the State.

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<sup>23</sup> "Electric Vehicle Cost-Benefit Analysis – Plug-in Electric Vehicle Cost-Benefit Analysis: Florida," MJ Bradley & Associates, January 2019. <https://www.mjbradley.com/reports/plug-electric-vehicle-cost-benefit-analysis-florida>.

<sup>24</sup> "Mid-Atlantic and Northeast Plug-in Electric Vehicle Cost-Benefit Analysis – Methodology and Assumptions," MJB&A, December 2016. [https://mjbradley.com/sites/default/files/NE\\_PEV\\_CB\\_Analysis\\_Methodology.pdf](https://mjbradley.com/sites/default/files/NE_PEV_CB_Analysis_Methodology.pdf).

In the 80x50 scenario, the NC Study first sets a GHG reduction goal for LDVs of 80% in 2050. Once this emission reduction is quantified, the NC Study then estimates the number of EVs required to meet this emission reduction goal. This calculation requires an estimate of emission reductions for each EV, which compares typical gasoline LDV emissions per mile to typical EV emissions per mile. While the former is a simple calculation based on typical emissions per gallon of gas and typical miles per gallon, the latter requires an assumption of the typical emissions per kWh of electricity.

This estimate of typical emissions per kWh of electricity requires assumptions to be made about the future makeup of power generation sources. The NC Study uses estimates for the SERC Reliability Corporation/Virginia-Carolinas (VACAR) sub-region from the U.S. Energy Information Administration's (EIA) Annual Energy Outlook 2017. Roughly, these estimates equate to 44% carbon-free electricity in 2015, 49% carbon free electricity in 2030, and 45% carbon-free electricity in 2050.<sup>25</sup> In contrast, the combined 2018 IRPs of DEC and DEP project 60% carbon-free electricity by 2030.<sup>26</sup> Thus, it appears as if the NC Study may be modeling a more carbon-intensive generation portfolio than the Companies anticipate in their combined IRPs. Based upon the Public Staff's understanding of the 80x50 scenario in the NC Study, this could have the result of overestimating the number of EVs that are required to meet the 80x50 emission

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<sup>25</sup> See Annual Energy Outlook 2017, "Electricity Generation by Electricity Market Module Region and Source" from the Energy Information Administration. <https://www.eia.gov/outlooks/archive/aeo17/>, Reference case table "A9", "Electric Power Sector" table, "Electric Generation by Electricity Market Module Region and Source".

<sup>26</sup> See Docket No. E-100, Sub 157: DEC IRP at 8, DEP IRP at 8.

targets. Overestimating the number of EVs would have the effect of overestimating the number of charging stations required and overestimating the amount of revenue from each charging station.<sup>27</sup> The Public Staff is concerned that this "mismatch" between EIA projections and the Companies' IRPs could result in higher costs and lower revenues for the ET Pilots than anticipated.

The NC Study suggests \$6.9 billion in benefits by 2050 at a moderate adoption trend that is supported by EIA.<sup>28</sup> Figure 3 of the NC Study provides a graphical illustration of the estimated EV penetration scenarios, suggesting significant differences between the more aggressive GHG scenario and the more moderate EIA scenario by 2050. The Public Staff believes this illustrates a high degree of uncertainty in the projections beyond 2025.

The Public Staff also is concerned that the cost-benefit analysis does not appropriately evaluate the potential impact of EV adoption and the Companies' role in meeting the load obligations associated with that adoption. The Companies indicate that the NC Study was not intended to provide a template for a cost-benefit analysis for each of the individual programs in the ET Pilots, and the Companies have not conducted cost-benefit analyses for the individual programs.<sup>29</sup> The Public

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<sup>27</sup> More EVs would require more charging stations. However, if the number of EVs fell short of estimates, the total revenue collected from these charging stations would be lower than anticipated.

<sup>28</sup> Page ii, NC Study.

<sup>29</sup> The Public Staff notes that the charging infrastructure program in Georgia's ET Pilot failed the Rate Impact Measure (RIM) test. See Georgia Power Company's Electric Transportation Pilot and Market Dynamics Driving Electric Vehicles Adoption Evaluation Report, filed August 4, 2017 in Georgia Public Service Commission Docket No. 41373.

Staff believes individual program cost-benefit analyses should be performed to ensure that spending on individual programs is cost beneficial.

Finally, the NC Study suggests that additional revenues realized from EV-related energy sales will exceed the costs of new infrastructure needed to meet the additional loads. According to the study, under current rate structures this could create downward pressure on future rates under all scenarios.<sup>30</sup> The NC Study included the benefits EV owners may realize, such as operational and fuel cost savings. Both groups of benefits are appropriate for purposes of the NC Study. However, additional benefits such as energy security and emission reductions are more related to the use of energy for transportation. These additional benefits are more societal and associated with the removal of fossil-fueled vehicles and may not be appropriate for a cost-benefit study focused on specific programs and aimed at determining whether ratepayers should pay for benefits that would be realized by society as a whole.

### **CONCLUSIONS AND RECOMMENDATIONS**

The Companies' application for approval of the ET Pilots is a request for preapproval of infrastructure spending and not a proof-of-concept pilot program. There are no metrics or standards for determining whether the programs would be successful and should be replicated on a larger scale. Additionally, the ET Pilots are very similar to other pilots currently underway across the country, and are

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<sup>30</sup> NC Study at p.9.

virtually identical to the much less costly pilots proposed by the Companies in South Carolina.

The Companies admit the proposals are based on estimated data and are designed to promote EV adoption and install a foundational level of EV infrastructure. Nevertheless, even in the Residential and Fleet EV Charging programs, the Companies proposed no experimental rate designs to evaluate the extent to which various rate designs impact customer charging behavior or facilitate managed charging in a manner to promote EV adoption. Rate designs to manage charging can significantly impact EV adoption, improve service to EVs, mitigate grid impacts, and better enable assignment of full cost of service to those using EV infrastructure.

Based on the foregoing, the Companies have failed to demonstrate that spending \$76 million over a three-year period is necessary to learn more about serving current and future EV load in North Carolina. The Public Staff recommends that the Commission deny the Companies' requests for approval of their respective EV pilots.

Respectfully submitted this the 5<sup>th</sup> day of July, 2019.

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Electronically submitted  
/s/ Dianna Downey  
Staff Attorney

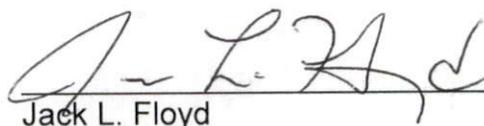
VERIFICATION

STATE OF NORTH CAROLINA )  
 )  
COUNTY OF WAKE )

I, JACK L. FLOYD, being duly sworn, depose and say:

I am a Utilities Engineer of the Electric Division of the Public Staff of the North Carolina Utilities Commission (Public Staff); I have read the foregoing Public Staff's Comments on the application filed March 29, 2019, by Duke Energy Progress, LLC and Duke Energy Carolinas, LLC, for approval of their respective Electric Transportation Pilots, filed on July 5, 2019, in Docket Nos. E-2, Sub 1197, and E-7, Sub 1195, and know the contents of these Comments.

I believe the information contained in these Comments to be true and correct to the best of my knowledge, information, and belief.

  
\_\_\_\_\_  
Jack L. Floyd

Sworn to and subscribed before me

This 5<sup>th</sup> day of July, 2019.

Cleo L Ackerman  
NOTARY PUBLIC  
WAKE COUNTY, N.C.  
My Commission Expires 01-08-2023

  
\_\_\_\_\_  
Notary Public

My Commission Expires: 1-08-2023

CERTIFICATE OF SERVICE

I certify that a copy of the Public Staff Comments has been served on all parties of record or their attorneys, or both, in accordance with Commission Rule R1-39, by United States Mail, first class or better; by hand delivery; or by means of facsimile or electronic delivery upon agreement of the receiving party.

This the 5<sup>th</sup> day July, 2019.

Electronically submitted  
/s/ Dianna Downey