

May 6, 2019

Ms. Martha Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
Raleigh, North Carolina 27699-4300

Reference: Application of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC for Approval of Proposed Electric Transportation Pilot Docket Nos: E2, Sub 1197 and E-7, Sub 1195

Dear Ms. Jarvis:

ABB is pleased to support Duke Energy Carolinas' and Duke Energy Progress' (collectively "Duke Energy") Proposed Electric Transportation Pilot (EV Pilot). In the near term, the EV Pilot lays the foundation for the deployment of reliable and accessible EV charging infrastructure that will serve all North Carolinians. In the longer term, ABB thinks the Commission should expand the EV Pilot to include funding, in addition to the proposed \$76,018,500, for non-utility owned and operated EV charging infrastructure.

ABB has nearly 3,500 employees in North Carolina, including our North American Headquarters in Cary, our Power Grids Division and Corporate Research Center in Raleigh, and major manufacturing or assembly facilities in Asheville, Hickory, Kings Mountain, Marion, Mebane, Pinetops, and Shelby. ABB is a global electrification and automation leader and has been developing and deploying high power electric vehicle charging technology for nearly a decade. With more than 10,500 chargers deployed worldwide, ABB has the largest installed base of high power EV chargers in the world. ABB is also the leading provider of power grid equipment worldwide.

The electric vehicle market is growing rapidly, with more models rolling off the line with increasing ranges, a variety of trim and price levels, and better driving experience than conventional cars. While EVs currently account for just under 2% of new vehicle sales, experts like Bloomberg New Energy Finance estimate that EVs will account for about 30% of new sales by 2030. To accommodate the growing number of EVs and North Carolina's own goal of 80,000 EVs by 2025, North Carolina will need a robust, diverse, and innovative EV charging ecosystem.

ABB believes that Duke Energy's proposal will provide a foundational and needed investment in that charging infrastructure. Additionally, ABB's experience teaches that the growing and longer term needs of EV owners and operators are most-effectively met by a diverse EV charging ecosystem. As such, ABB suggests that the proposal be expanded to include funding, in addition to the proposed \$76,018,500, for rebates to non-utility owner and operators in the following programs: EV School, EV Transit Bus, Multi-family L2, Public L2, and Public Fast Charging Network.

The EV Pilot's focus on a broad set of EV use-cases, including residential, public, fleet, and transit charging, will likely accelerate adoption and produce learnings that will make future deployments more successful. Benefits of the EV Pilot include:

- **Utility leadership.** Utilities provide the foundation for EV infrastructure. Therefore they should be allowed to recover investments that enable EV charging deployment, and also be permitted to invest in charging systems themselves. Importantly, utilities are well-equipped to manage large infrastructure projects that incorporate high operational excellence, reliability and ubiquitous quality of service over the long life-cycle of charging stations.

- **Intelligent charging and grid integration.** EVs create opportunities for enhanced grid reliability for all electricity customers, through advanced load management, demand-response, ancillary services, and distributed storage. Intelligent charging systems that collect and analyze data and allow for “managed charging” are key enablers of these opportunities. Data collected and analysis created should be shared with stakeholders in a transparent way so that the learnings from the EV Pilot can positively impact future deployments of EV charging infrastructure.
- **Diverse charging technologies.** While a majority of charging currently happens at home and at work, the general public will not feel comfortable investing in an EV until they feel there are adequate fast charging options available in convenient locations. This becomes a concern when residents have a long day of errands or an intercity commute exceeds the 'single charge' range of their EV. This is why public fast charging is an important component of any EV infrastructure plan. Medium and heavy duty vehicles, including buses, present a unique opportunity for electrification. With lower total costs of ownership, electrifying medium and heavy duty fleets, like school and transit buses, can provide the communities that rely on them significant cost savings and local emissions reductions.

As the Commission and Duke Energy move forward with a transportation electrification program, we strongly suggest they both consider the following:

- **Maintenance and operations metrics.** Successful EV roll-outs are almost universally defined by proactive maintenance and operational models for long term charger health; rather than solely upfront cost. This is particularly important for public chargers which tend to see more use, and thus more wear, than residential chargers. Remote monitoring of public chargers, preventative and corrective service plans, and post-warranty part and labor costs should be taken into account when evaluating public charging installations. Accordingly, ABB recommends that EV initiatives incorporate metrics and standards for operational health and uptime of charging infrastructure, as system health is the foundation for the user experience.
- **Interoperability.** Interoperability promotes innovation and diversity of offerings, leading to better user experience and higher charger utilization rates. Some interoperability choices are harmonizing networks with varied payment systems, allowing for roaming, open communications standards, and interoperable hardware and back-end architectures. Interoperability supports: (a) innovation by allowing multiple technologies and providers to compete; and (b) protection of infrastructure investment by enabling upgrades and expansion through competitive bidding, not technology lock-in with vendor specific solutions.

As stated above, ABB believes that the investment proposed by Duke Energy is reasonable and an integral first step in building North Carolina's needed EV charging infrastructure. ABB also believes that in the longer term there are benefits to providing rebates to non-utility owner and operators, including the following:

- **Reduce costs and time associated with future EV deployment.** Over the next decade, North Carolina will need non-utility owners and operators to meet growing customer and market needs. By beginning to work together to deploy EV charging infrastructure, non-utility owner operators and utilities can gain a common understanding and develop best practices for deployment challenges, like permitting and interconnection. For example, initial joint experience in this area will allow non-utilities to understand Duke Energy's system constraints and engineering requirements before interconnecting new infrastructure. Similarly, it will allow utilities to understand non-utility market, operational, and user needs, as well as various charging station designs and power requirements.

- **Cultivate future owners and operators.** The EV charging infrastructure industry is still in its early stages, with a limited number of established and experienced participants. As noted above, responsible charging infrastructure operations and maintenance are integral to ensuring a reliable and high-quality charging experience. Utilities have valuable experience responsibly operating complex electrical equipment. Including funding for non-utility owner and operators can allow these industry entrants to learn operational excellence from Duke Energy.
- **Enable diverse, innovative, and entrepreneurial business models.** The types of vehicles that are electrifying are growing and the applications for those vehicles are changing rapidly. The list of use-cases for EVs includes personal ownership, ride-sharing, transportation networks, light-duty fleets, regional delivery fleets, long-distance trucking, transit buses, airport and university shuttles, motor-coaches, non-road vehicles, and more. ABB's experience is that there is no single business model for addressing these varied applications. Non-utilities have the greater ability to innovate and develop new technologies and business models to meet the needs of the evolving and growing EV market.
- **Reduce costs and increase effectiveness of managed charging.** Part of the promise of EVs is their ability to provide additional grid benefits. As EV charging infrastructure expands beyond the EV Pilot, close coordination with non-utility owner and operators to manage new EV loads to provide such grid benefits will be essential. For example, utilities, who understand the grid best, can share their knowledge about how EVs can provide the most benefit to the grid; while non-utilities, who understand EV drivers best, can share driver preferences and likelihoods of participating in such programs. Further, joint experience sharing data, understanding how price signals will be sent to chargers and vehicles, and sorting out how compensation will work are important learnings for a well-functioning managed charging program.

Respectfully,



Asaf Nagler
Senior Director, Government Relations