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	**)**	**INITIAL COMMENTS OF**
ENERGY CAROLINAS, LLC AND	**)**	**GREENLOTS**
DUKE ENERGY PROGRESS, LLC	**)**	
FOR APPROVAL OF PROPOSED	**)**	
ELECTRIC TRANSPORTATION	**)**	
PILOT	**)**	

Pursuant to Rule R1-19 of the Rules and Regulations of the North Carolina Utilities Commission ("the Commission"), and the *Order Requesting Comments on Proposed Electric Transportation Pilot Program*, and the *Order Granting Extension of Time to File Comments and Reply Comments* filed in the above-captioned docket, Zeco Systems, Inc. d/b/a Greenlots ("Greenlots"), submits the following initial comments regarding the Proposed Electric Transportation Pilot Program ("the Pilot Program") filed by Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP"), (collectively, "the Companies" or "Duke") on March 29, 2019.

BACKGROUND

Headquartered in California, Greenlots is a leading provider of electric vehicle ("EV") charging software and services committed to accelerating transportation electrification in North Carolina and beyond. The Greenlots' network supports a significant percentage of the DC fast charging infrastructure in North America, and an increasing percentage of the Level 2 infrastructure. Greenlots' smart charging solutions are built around an open standards-based

focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic EV charging loads and respond to local and system conditions. Greenlots is helping accelerate the electric mobility future through the delivery of innovative software and services to empower utilities, cities, automakers, fleets, and many others to deploy EV charging infrastructure at scale. The Greenlots footprint spans 13 countries, and includes deployment in North Carolina.

On May 6, 2019, Greenlots filed a Petition to Intervene in these dockets, which was allowed by Commission Order issued May 17, 2019.

DUKE'S PROPOSED PILOT PROGRAMS

Duke's Proposed Electric Transportation Pilot Program targets three critical areas of transportation electrification: EV Charging Management, Transit Electrification, and Public Charging Expansion. The proposed pilots consist of the following:

I. EV Charging Management

A. A Residential EV Charging Program, providing a rebate of $1,000 for up to 500 DEC and 300 DEP residential customers, respectively, in exchange for participation in a managed charging program, which will include the transmission of charging load data as well as utility management of home charging during defined hours. The Companies will offer multiple options for eligible Electric Vehicle Supply Equipment ("EVSE"), along with an option to participate in the program with the telematics capability of selected vehicles rather than a charging station.

B. A Fleet EV Charging Program, providing a $2,500 incentive to commercial and industrial customers that operate fleet vehicles to install EVSE behind a separate meter taking service on an available commercial time-of-use ("TOU") rate. DEC will offer no more than 500 total EVSE rebates, and DEP will offer no more than 400 total EVSE rebates. This program will

allow the Companies to collect utilization characteristics of EV fleet charging-behavior for a variety of EV types and weight-classes to better understand potential grid and utility impacts of this EV market segment.

II. Transit Electrification

A. An EV School Bus Charging Station Program, where DEC will aid in the deployment of approximately 55 electric school buses, and DEP will aid in the deployment of approximately 30 electric school buses. The Companies will do that by funding up to $215,000 per bus, on a first-come, first-served basis, to school districts willing to purchase an electric school bus with bi-directional power flow capabilities. EVSE to support these buses will be installed, owned and operated by the Companies. In exchange for the funding, participating customers must allow access to all vehicle charging data, and perform testing of charging load management and bi-directional charging capabilities. The Companies intend for this program to complement the anticipated funding available for replacement of legacy diesel school buses per the Volkswagen Settlement Trust.

B. An EV Transit Bus Charging Station Program, where 60 stations will be deployed in DEC service territory and 45 in DEP's, that will collect utilization and other load characteristics to understand potential grid impacts. The Companies will install, own and maintain qualifying EVSE selected by the transit agency. The program is designed to complement the Federal Transit Administration funding available for replacement of legacy transit buses, and would be available on a first-come, first-served basis for customers that operate transit buses, including transit agencies, universities, airports, and other non-profit/municipal entities.

III. Public Charging Expansion

A. A Multi-Family Dwelling Charging Station Program, where the Companies will install, own, and operate L2 EVSE, and collect a charging fee based on the marginal energy component of the applicable Companies' currently approved Small General Service schedule, plus $0.02/kWh to cover network platform and transaction fees. The Companies propose to deploy 100 and 60 stations, respectively, in DEC's and DEP's territories, and multiple charging station options will be available from which the participating site host can select.

B. A Public L2 Charging Station Program, where the Companies will install, own, and operate L2 EVSE at eligible public destination locations, and collect a charging fee based on the marginal energy component of the applicable Companies' currently approved Small General Service schedule, plus $0.02/kWh to cover network platform and transaction fees. The Companies propose to deploy 100 stations and 60 stations, respectively, in DEC's and DEP's territories.

C. A Fast Charging Program, where DEC will install, own, and operate a network of up to 70 fast chargers across approximately 35 individual locations in its service territory, and DEP will install, own, and operate a network of up to 50 fast chargers across approximately 25 individual locations in its service territory. These fast chargers may be located on company-owned or third-party owned property, including, but not limited to, truck stops, gas stations, restaurants, and other retail establishments, and will be at a maximum of 100kW capacity. Stations will be installed along highway corridor locations throughout the Companies' service territories and made available to DEC and DEP customers and non-customers alike to enable intrastate and interstate EV travel and build driver confidence in EVs. The Companies will offer fast charging services in exchange for a Fast Charge Fee, consistent with the statewide average

for fast charging offered by those stations that charge a fee to the driver and are publicly accessible 24-hours per day.

These various pilot components will be complemented by a marketing, education and outreach program, leveraging existing relationship with agencies and organizations, and utilizing electronic communications, direct mail, social media, public event, and mass market advertising.

GREENLOTS' COMMENTS

Greenlots strongly supports the proposed Pilot Program. With extensive experience in EV regulatory and stakeholder processes and in the deployment of utility and non-utility EV charging infrastructure and programs across many jurisdictions in North America, Greenlots recommends approval of the Companies' Pilot Program as proposed. Greenlots considers the Companies' proposed Pilot Program components to be strong examples of needed, prudent, targeted utility investment that will have a significant beneficial impact in accelerating both the adoption of electric vehicles and the market for EV charging infrastructure, while supporting attainment of state greenhouse gas reduction goals.

The proposed pilots are effectively designed to support consumers in realizing the benefits of EVs, efficiently integrate EV load into the grid, and reduce persistent barriers to EV adoption. Additionally, the Commission should approve the EV Program as it is in the public interest, will meet a need regarding the advancement of EVs in North Carolina that is not being met by the private EV charging market, will support the development of the private EV charging market, will meaningfully increase charging options for EV drivers, and will pilot a diverse portfolio of load management strategies.

I. The Proposed Pilot Program is a Reasonable and Critically Needed Investment to Support Attainment of State Goals, Support Economic Development, and is in the Public Interest.

Transportation electrification stands to provide a host of benefits to North Carolina and society at large. These include economic development, cost savings, environmental, human health, energy security, and grid resiliency benefits. In fact, if one looks only at the cost savings benefits from reduced electric bills and reduced vehicle operating costs, by 2050 North Carolina will realize cumulative net benefits from transportation electrification that will exceed $6.9 billion statewide under a moderate EV adoption trajectory assumed by the U.S. Energy Information Administration.[1] This figure increases to $66.1 billion under an EV adoption trajectory that reduces light-duty greenhouse gas emissions by 70-80% from 2018 levels by 2050.[2]

These figures help illustrate that transportation electrification represents likely the single greatest opportunity to increase and optimize the utilization of the electric grid to the benefit of all ratepayers, while also delivering significant economic development and cost savings benefit to the state. This has the power to unlock opportunities for both individual North Carolinians and the broader state economy. These benefits will not happen automatically, however, and will require thoughtful and deliberate planning and programs to realize, especially if the state seeks to maximize the value presented by this opportunity. Duke's interest in addressing significant barriers to widespread transportation electrification in North Carolina, including a lack of accessible charging infrastructure, a lack of consumer awareness, and high upfront infrastructure costs, is therefore both appropriate and necessary.

Importantly, the Pilot Program aligns with and supports Executive Order 80, "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy

[1] MJB&A, "Plug-in Electric Vehicle Cost-Benefit Analysis: North Carolina", June 2018, p. ii-iii. Available at: https://mjbradley.com/sites/default/files/NC%20PEV%20CB%20Analysis%20FINAL.pdf
[2] *Id.*

Economy," signed by Governor Cooper on October 29, 2018, which sets the goal of at least 80,000 zero emission vehicle registrations by 2025. Additionally, the Pilot Program directly supports the Department of Environmental Quality's Energy Policy Council's recommendation that the state adopt, measure, and implement programs that promote EV adoption, urging regulatory agencies to consider measure that address barriers to transportation electrification.[3]

North Carolina's prominent role in the auto industry also necessitates demonstrating leadership and support for its evolution and growth. Indeed, the State is home to the operations of 33 of the top 100 global OEM auto parts suppliers in North America, and more than 290 automotive manufacturing establishments, an industry that has grown 25 percent over the past five years.[4] Undoubtedly, a driver of that growth is the diversification of the automotive supply chain to support electrified vehicles. At the same time, initiatives such as those at the Advanced Transportation Energy Center at North Carolina State University[5] will position the state to lead in this future of advanced, electrified mobility. Realizing and maximizing the benefits of this future will necessitate supporting the growth and evolution of the state's economy, and creating a supportive environment for an electrified transportation future. Duke's Pilot Program represents exactly the type of initiative and leadership that is needed to move towards this future and help position the state to seize significant economic development opportunities along the way.

Indeed, Duke's proposed pilots represent a well-designed portfolio of modest targeted offerings to gain insights that will help accelerate transportation electrification and leverage the Company's core competencies and ability to help support and accelerate the market to the benefit of all utility customers. In fact, Greenlots finds that the major shortcoming of the proposed Pilot

[3] As Duke describes in its Application at p. 4-5.
[4] https://edpnc.com/industries/automotive/
[5] https://www.atec.ncsu.edu/

Program is that it is too modest in scale in relation to the significant benefits that stand to be unlocked with utility investment, and the critical need for this investment given the factors limiting private market investment. Indeed, Greenlots is disappointed that Duke's proposed EV charging portfolio is at pilot scale, rather than the program scale that could truly transform – not just accelerate – the market.

II. Enduring Market Barriers to the Adoption of EVs and the Development of EV Charging Infrastructure Warrants and Implicates Utility Investment.

The relative lack of public charging infrastructure in North Carolina makes it quite clear that the private market has failed to adequately support the current EV market, let alone provide what will be needed in the future to support and maximize future growth and associated benefits. Greenlots agrees with Duke in this regard, and the existence of just 43 public fast charging stations in the state makes this abundantly evident.[6] Indeed, one of the most significant and challenging barriers to increased EV adoption is the lack of adequate charging infrastructure, particularly public charging opportunities.[7] It is critical to understand this fundamental link between charging infrastructure visibility, availability, and EV adoption, as it can both confine and slow EV adoption when scarce, or act as a market and EV adoption accelerator when prominent and adequately available.

Many consumers disqualify EVs from their purchasing/leasing considerations due to the lack of charging infrastructure and the resulting concern commonly referred to as "range anxiety." This specific concern and the lack of public charging infrastructure is consistently cited by drivers as a primary barrier to EV adoption. While the market is now seeing more EVs with

[6] Duke application at p. 3.
[7] International Council on Clean Transportation, "Emerging Best Practices for Electric Vehicle Infrastructure" p. iv. Available at: https://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf

longer ranges, many currently deployed EVs have batteries that can only support local driving, compounding this issue. Even when EVs with 200+ mile ranges become standard, this will put increased pressure on DCFC infrastructure along corridors and in urban areas, the former having particularly high costs to develop and one of the most challenging business models.

With the lens pulled out, this particular existing underserved market state and stage, which currently must be considered a market failure, is a classic situation warranting public investment and the involvement of regulated monopolies. Unfortunately, a sustainable, competitive market in the deployment of public charging infrastructure is aspirational, and is unlikely to arise prior to the adoption of a critical mass of electric vehicles. This is primarily due to a lack of a sustainable private market business model for the ownership and operation of public charging stations based on revenues from charging activities, and this has thus far resulted in a fundamentally inadequate amount of private investment in such charging infrastructure. The unfortunate result is that fundamental economics simply don't support sufficient private investment to adequately grow the infrastructure market to support current and future drivers and their adoption decisions.

While there is market competition between a relatively small field of sellers of EV charging products and services to motivated investors/site hosts in some market segments, such as residential and business Level 2 charging, those motivated buyers are relatively few and far between, and for public charging there is not a competitive market for offering these services directly to drivers. This is despite significant private investment in technology companies engaged in supporting transportation electrification. Per basic economic theory, no number of competitive suppliers/producers results in a competitive market in the absence of a sufficiently large number of consumers or motivated buyers. So, while there may not be a sufficient volume

of EV drivers on the road today to meet this condition, utility investment in charging infrastructure will directly help accelerate EV adoption and thereby also improve the health and growth of the market.

Specific market sectors also face significant, specific barriers in deploying sufficient infrastructure. In multi-unit dwellings, split incentives and the absence of cost sharing structures between tenants and property owners severely limit opportunities for EVSE deployment. Workplaces or workplace landowners are often averse to the installation of EVSE due to costs and liability concerns. These are all factors that Duke has appropriately recognized and accounted for in it its pilot design to address these specific market segments by offering a turnkey solution that addresses these concerns and complexities.

For this array of reasons, at this stage in the North Carolina market, utility investment in charging infrastructure – including ownership and operation of charging stations – is an appropriate and necessary role for the utility to help break the market through these barriers, and accelerate this market across a number of key market segments, supporting competition, market transformation, and improving the environment for private investment.[8]

III. The Proposed Utility Ownership Components of the Pilot Program Targets Market Segments Not Adequately Served by the Private Market, Will Not Hinder the Development of the Private Market, and Will in Fact Help to Support It.

Duke has designed its Public Charging Expansion portion of its Pilot Program to develop a modest, market-seeding, foundational network of public charging infrastructure that represents a very small percentage of what will be required in the coming years in market segments not

[8] See Natural Resources Defense Council, "Driving Out Pollution: How Utilities Can Accelerate the Market for Electric Vehicles", Section 2 "Utility Investment in Charging Infrastructure is Needed to Expand the Electric Vehicle Market". p. 7. Available at https://www.nrdc.org/sites/default/files/driving-out-pollution-report.pdf

adequately served by the private market. Importantly, for the Public Charging Expansion components of its proposed Pilot Program, Duke has designed this program to leverage some of the core competencies of the utility with respect to ownership and maintenance of widely-dispersed, long-lived electricity-dispensing and metering equipment, and ensuring the safety and reliability of those assets, providing a key value and market-supporting function that is otherwise in short supply.

Utility programs by and large can extend the same type of reliability to EV charging infrastructure that customers expect for all other utility services. The cost associated with keeping equipment up and running and repairing or replacing it quickly if and when it encounters an issue is a badly undervalued aspect of the EV charging equipment and services market. While early adopters of EVs may tolerate the often-poor reliability associated with much of the charging infrastructure that is deployed today, the broader market likely will not. Moreover, as the demands on EVSE deployments increase with more EV drivers on the road, many of the factors that lead to poor reliability may compound. This, therefore, represents a key barrier to widespread transportation electrification. To achieve the level of reliability drivers currently experience from traditional fueling stations, much more needs to be done. Utility program investment offers opportunity for electric vehicle service providers to benefit from a more accurately valued maintenance service that will not only improve reliability of EVSE within the utility program, but will likely extend beyond the bounds of the program to benefit EV charging equipment and service providers in the market as a whole.

On a broader level, utility ownership of charging infrastructure should also not be confused for anti-competitive behavior. Rather, utility investment in charging infrastructure, thereby growing the installed infrastructure base, will help spark EV purchasing decisions and

grow the total customer base, moving the market closer to an inflection point where asset utilization rates of charging infrastructure can attract greater private investment to sustain a healthy, competitive future market. At the same time, the Duke pilots will provide important opportunities for suppliers in the absence of a critical mass of other motivated buyers across these market segments, incentivizing competition and product innovation through utility procurement programs. Beyond direct utility procurement, other market participants benefit from improved economics associated with investing in charging infrastructure, as the utility investment accelerates EV adoption, thereby increasing utilization of non-utility infrastructure. Additionally, for the Fast Charging Program, the Companies have ensured that fees charged to drivers will be consistent with the statewide average for DCFC charging offered by those stations which charge a fee to the driver and are publicly accessible 24-hours per day.[9] This will ensure existing DCFC deployments are not at risk of being undercut by the pilot infrastructure. Greenlots notes, however, that Duke and the Commission should be cognizant of ensuring that rates charged to drivers across the state provide for an adequate level of fuel cost savings relative to gasoline, as this is a primary motivator for EV purchase decisions.

The value and market need for utility ownership are becoming increasingly understood by the stakeholder community and regulators. For example, in Maryland earlier this year, in the Public Service Commission's Order approving a statewide portfolio of utility ratepayer investment in EV charging infrastructure, including a sizeable public charging pilot for the utilities, that Commission found that:

> [W]here private companies have been unable or unwilling to make initial capital investments in difficult and underserved areas, utility ownership can help reach these market segments faster.

[9] Application at p. 16.

> The Commission finds that the Utilities have resources, electrical connectivity, and the technical bandwidth within their service territories to address emerging challenges impacting the grid as a result of EV charging on a mass scale. The Utilities can also leverage their customer relationships to educate and advertise EV ownership to potential buyers. Furthermore, the Utilities will also be responsible for ensuring that public charging stations are working and maintained in good working order.[10]

Indeed, utility investment results in increased opportunities for all market participants, importantly positioning utility investment – including utility ownership – as a market catalyst, rather than a market constraint.

We must also note that there is a prevalent and inaccurate view of the market, that competition can only take place at the retail level, where there are currently limited naturally-occurring market opportunities. In fact, the wholesale-level competition that results from utility procurement, which provides a significant motivated buyer to a market that generally otherwise lacks this, represents the purest form of competition in today's market, based on product features, price, service, etc., allowing different types of players, regardless of size or market position, to compete on a leveled playing field.

Additionally, wholesale-level competition that results from utility procurement is significantly more powerful in driving down program and charger costs, as equipment is being bought in bulk rather than via one-by-one individual retail transactions. While this is good in the near term, especially for ratepayers, it can also have unintended negative longer-term impacts in potentially limiting market value and sustainability. A focus only on the retail market historically has led to less sophisticated purchasing and planning decisions by customers with little technical knowledge or meaningful negotiating leverage. Greenlots encourages stakeholders to look beyond the ideology that there is only one form of market competition or place where it can develop. Duke has designed this specifically-tailored Pilot Program adapted for the needs of the

[10] Order No. 88997 issued in Case No. 9478 at p. 63.

different market segments targeted in its portfolio, which will provide a diverse set of opportunities for market participants, and more critically for growing the market, expanded charging options for EV drivers.

IV. Consumers Most Value Choices and Options Regarding Charging Availability, Rather than Choice in Who is Providing that Service or How it is Provided.

The fundamental and well documented lack of investment – both public and private – in EV charging infrastructure, which is the primary barrier to EV adoption by buyers familiar with EVs, has, in short, forced EV drivers to be takers of and captive to very limited charging options. At this stage of the market, captivity to limited optionality is most concerning from a geographic standpoint – there are simply too few places for drivers to go to charge their EV. Especially for public charging, the fundamental economics simply do not currently support sufficient private investment to get the market to where it needs to be to support current and future drivers and their purchasing decisions sufficiently, let alone providing meaningful choice.

The degree of captivity can vary somewhat depending on location and use case however. In metropolitan contexts, for example, there may be more options to choose from and a greater opportunity to exercise that choice. For higher powered charging along transportation corridors that facilitate regional and longer-range travel, however, it is common for there to be very limited or only a single charging option – if there is one at all – for a significant portion of that corridor. The increase in market availability of EVs with larger battery capacities that can facilitate longer range travel will increasingly put pressure on this segment of the market, which already suffers from limited investment and therefore limited choice.

For the most part, a driver makes charging decisions based on geographic and temporal logistics, not price or user experience. As long as there is adequate coverage, even with a limited number of providers, if they are offering good service at reasonable prices, drivers will largely be

satisfied. The eventual possibility to make decisions based on price, brand loyalty, etc. would indicate that the business model for private investment has improved, and indeed is a good yardstick by which to measure the competitiveness of a market, but this does not necessarily translate into to a better experience for drivers – just one with increased choices.

V. The Proposed Programs Appropriately Pilot a Diversity of Active and Passive Load Management Strategies to Enhance and Maximize Grid and Ratepayer Benefits, However There are Opportunities for Technology Enhancements.

The Companies have proposed a suite of load management strategies for the different segments of the proposed Pilot Program that will test and evaluate both active and passive approaches. While the Fleet EV Charging Program will utilize a commercial TOU rate to induce beneficial charging patterns, the Residential EV Charging Program will utilize utility-managed smart charging for load management, and the EV School Bus Charging Station Program will pilot bi-directional vehicle-to-grid ("V2G") functionality and benefits. By testing the implementation realities and benefits associated with these different approaches, Duke, stakeholders, and the Commission will gain valuable learnings to inform future load management strategies and programs.

This is essential, as the development of rates and programs that send accurate price signals to EV loads reflecting local or grid constraints and realities is essential to align the increased electrification of transportation with the interests of the grid and the broader public. Static TOU rates represent a rather blunt but in some cases appropriate beginning instrument to deliver these price signals, especially at low levels of EV market penetration. Other strategies, including managed or smart charging and real-time or dynamic pricing, represent more accurate instruments that can better shape, utilize, and dispatch flexible EV charging loads at charging stations with longer dwell times, such as residences and workplaces, to better maximize system-

wide benefits and cost reductions. Other dynamic pricing instruments can also be deployed in higher power charging and shorter dwell time contexts, including DC fast charging. For these reasons, we encourage the Commission and the Companies to also consider technology-facilitated smart/managed charging programs for the proposed Public Charging Expansion program in order to pilot and explore these benefits in other novel contexts.

In the context of DCFC, unfortunately there has been a trend towards unmanaged charging, premised on the notion that in this context, drivers always need full power immediately and must be as fully charged as desired as quickly as possible. In fact, there are often opportunities to reduce both site host and system cost through technology and dynamic rates or fee structures that could be a valuable subject for evaluation in the context of a pilot. For example, a driver could be given the option to save a few dollars on their charging session if they are able to wait a few minutes to begin charging. Or they could be offered a similar discount for a slightly longer session at a lower power level. While there are limitations in feasibility if other drivers are queued up, there are very workable solutions to reduce site and system costs associated with DC fast charging. This is likely to become more critical over time with a shift to higher and higher power charging. Greenlots therefore also encourages evaluation of such strategies in the context of the DCFC programs proposed in the Companies' filings.

Smart charger technology is also key to unlocking baseline power levels for chargers – and corresponding charging speeds – needed to maximize the impact of shifting or managing EV loads. Additionally, and especially in the residential market, smart networked chargers are critical to help enable consumers to be able to respond to advanced rates and charging programs utilizing pre-defined, but potentially evolving and reconfigurable hands-off "set it and forget it" preferences. The testing and evaluation of such technology and functionality appears to be what

Duke has planned for its Residential EV Charging Program, and Greenlots encourages and supports this approach. What is key to understand here is that EV-specific rates and programs governing a single load type managed with technology does not require active customer involvement to respond to price signals, as the technology embedded within the charger and network software handles this actively on behalf of the customer or site host. This capability not only makes traditional arguments against advanced rate structures inapplicable, but it also makes it practical and warranted to move to advanced rates and/or rate alternative technology-driven programs leveraging the capabilities of the underlying technology at the outset, and in an ongoing manner. Greenlots therefore also encourages the non-residential pilots to contemplate, evaluate, and potentially incorporate such capabilities and functionality.

Looking not too far down the road, and recognizing the value provided by technological solutions already being deployed in EV charging hardware and software today, it is relatively easy to envision a future where the needs addressed and values historically provided by rate design are instead provided by these software-facilitated technological solutions, but in a more predictable and effective manner. Indeed, to reiterate, managed charging programs are not limited to complementing rate design, but can instead go further and be a more effective alternative strategic solution for maximizing outcomes.

Effective management of EV load is critical to fulfil the promise of EVs to the grid, and as Greenlots has emphasized, leveraging technology is fundamental in realizing these benefits. While potential grid impacts today may be minimal, given the scale at which EV adoption and transportation electrification will grow, especially in jurisdictions such as North Carolina where supporting this growth is a matter of State policy, it is critical that planning occurs now and foundational regulation and programs are established. As Greenlots has described, technological

solutions provide the platform on which powerful, effective, and customer-friendly load management solutions will be built, and planning for regulators, utilities, and stakeholders to think through how to leverage this technology is important in the near term.

CONCLUSION

Greenlots is a strong supporter of scaling the market for electric vehicles and electric vehicle charging products and services as quickly as possible. Greenlots frequently comments in other forums that it's time to move beyond pilots to scaled programs. While we feel the same here, we recognize the value for foundational pilots in North Carolina to build a base of knowledge, data, and positive customer experience to allow decision-makers to make more informed decisions about how to support and scale these markets.

There are a growing number of pilots around the country that are producing helpful data and learnings. In part due to the support of market participants such as Greenlots, we are seeing growing impetus to ensure that pilot programs have mechanisms that will facilitate bridging to scaled programs. This is critical to avoid slowdowns or gaps in funding or programs. It is also critical to demonstrate support for the vehicle electrification efforts of North Carolina's significant role in the auto industry, and therefore also the state's economy as a whole. While supporting the instant pilots, we are hopeful that the Commission will encourage and support additional programs before the conclusion of the pilots. However, this should not be seen to confuse or complicate the decision-making process relating to the instant proposals.

A universal observation of pilots in other jurisdictions is that they have been critical to the stakeholder and decision-making process around a new technology space that is often subject to market misperceptions around both vehicles and infrastructure. Given the average lifespan of a new vehicle, which is over a decade, the costs and missed opportunities associated with waiting

on or delaying transportation electrification efforts compounds as time goes by, due to the significant technology lock-in period for each new vehicle. To realize and maximize the tremendous benefits presented by transportation electrification, and not fall behind neighboring jurisdictions in reaping these benefits, a sense of urgency is appropriate in considering North Carolina's path forward.

For these reasons and with its comments offered here, Greenlots supports and respectfully requests that the Commission approve Duke's proposed pilot programs. Greenlots looks forward to continued engagement in efforts supporting transportation electrification in North Carolina, and thanks the Commission for consideration of these comments.

Respectfully submitted, this the 5th day of July, 2019.

BURNS, DAY & PRESNELL, P.A.

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CERTIFICATE OF SERVICE

I hereby certify that a true and exact copy of the foregoing document was duly served upon counsel of record for the Public Staff and all parties to these dockets by either depositing same in a depository of the United States Postal Service, first-class postage prepaid, addressed as shown below, or by electronic delivery, this the 5th day of July, 2019.

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