September 21, 2018

Kathleen H. Burgess, Secretary
New York Public Service Commission
3 Empire State Plaza
Albany, NY 12223-1350

RE: Post-Conference Comments of Greenlots in the “Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure”

Dear Ms. Burgess,

Greenlots submits these comments to the New York Public Service Commission (“the Commission”) in response to the Commission’s August 16, 2018 notice requesting post-conference comments following the technical conference held in New York City on July 18 and 19, 2018.

Greenlots is a leading provider of electric vehicle (EV) charging software and services committed to accelerating transportation electrification in New York. 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.

Transportation electrification stands to bring a host of benefits to New York and society at large. These include environmental, energy security, economic development and cost savings benefits. Additionally, transportation electrification represents likely the single greatest opportunity to increase the utilization of the electric grid to the benefit of all ratepayers. These benefits will not happen automatically however, and will require thoughtful and deliberate planning and programs to realize. Greenlots therefore applauds the Commission’s involvement and engagement in these critical issues and offers the following responses to the questions posed.

1. What role should the utility play in supporting Electric Vehicle Supply Equipment (EVSE) deployment? Please address this question from the perspective of utility ratepayers, Electric Vehicle (EV) suppliers, and providers of EVSE. How should utility investment costs, if any, be compensated or recovered? Should utilities have the opportunity for earnings adjustment mechanisms related to successful EVSE deployment?
One of the most significant and enduring barriers to increased EV adoption is the lack of charging infrastructure, particularly public charging.\(^1\) Unfortunately, a sustainable, competitive market in this space 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 business model for the ownership and operation of public charging stations based on sustainable revenues from charging activities, and this has thus far resulted in a fundamentally inadequate amount of private investment in such charging infrastructure.

At the same time, many consumers disqualify EVs from their purchasing 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 what drivers and studies consistently cite as being the primary barrier to EV adoption. While the market is now seeing more EVs with longer ranges, many currently deployed EVs have batteries that can only support local driving, further compounding this issue. Even when EVs with 200+ mile ranges become more prevalent, this will put more pressure on DC fast charging (DCFC) infrastructure along corridors and in metros, the former which has some of the highest costs to develop and one of the most challenging business models. The end result is the fundamental economics simply not supporting sufficient private investment to adequately grow the infrastructure market to support current and future drivers and their purchasing decisions.

Beyond the critical psychological benefit of reducing range anxiety, as battery sizes and electric ranges continue to increase and multi-unit dwelling (MUD) residents adopt electric vehicles, there will be an increased need for “gas station model” fueling activity not just along corridors but also in urban and strategic rural community environments, further putting pressure on this segment of the EVSE market where there currently is not a sustainable business model. This strain will further increase with the market moving to higher and higher power DCFC which comes with even higher costs and greater grid integration challenges (while also presenting opportunities as discussed later).

Specific market sectors also face significant barriers in deploying sufficient infrastructure. In MUDs, split incentives and the absence of cost sharing structures between tenants and property owners severely limits opportunities for EVSE deployment. Workplaces or workplace landowners are often averse to the installation of EVSE due to costs and liability concerns. In disadvantaged communities, these barriers are even more significant, with this critical segment being severely underserved by the private EV charging service market.

When looked at as a whole, this particular market state, which currently can only be described as a market failure, is a classic situation warranting public investment and the involvement of regulated monopolies. At such a stage in the market, utility investment in charging infrastructure — including ownership and operation of charging stations — is an appropriate and necessary role

for the utility to break the market through these barriers, and accelerating the market across most segments, supporting competition, and improving the environment for private investment.²

This should not be confused for anti-competitive behavior. Rather, utility investment in charging infrastructure, growing the installed infrastructure base, will help spark EV purchasing decisions and grow the total customer base, getting the market closer to an inflection point where asset utilization rates of charging infrastructure can attract greater private investment to sustain a healthy, competitive market. At the same time, it provides needed market opportunities for suppliers in the absence of motivated buyers across most market segments, incentivizing competition and product innovation through utility procurement programs.

A deep and flexible utility role is essential to leverage its full involvement, assets and capabilities to accelerate transportation electrification and best position ratepayers to realize the full array of benefits this technology transformation can bring.³ Whether this be the ownership of charging infrastructure or the development of rates that send better price signals to manage EV loads in ways that best support the needs of the grid, or minimizing or avoiding unnecessary grid investments by knowing where, when and how EV loads are interacting with distribution infrastructure; these and many other benefits will not be fully realized without deep and active participation by the utility. These realities are reflected in the 2018 Multi-State ZEV Action Plan developed by the ZEV Task Force, including representatives from New York DEC, NYSERDA and NYPA, recognizing the need for broad utility involvement.⁴

Moreover, the nature of EVSE assets, being a natural extension of existing utility infrastructure, with similar hardware, features and capabilities as for example smart meters, fit very well within the core competencies and capabilities of utilities. This is particularly true 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. Having existing qualified field personnel allows for this, while purchasing economics to lower costs and having relevant system, business process, software and customer service expertise and capabilities further aligns naturally with the demands of successful EVSE deployment. Utilities are also well positioned to support the hiring and training of field support personnel and other key roles necessary execute the electrification of transportation.

Utility programs also by and large can extend the same type of reliability to EV charging infrastructure that ratepayers expect for all other utility services. A badly undervalued aspect of the EV charging equipment and services market is the cost associated with keeping equipment up and running and repairing or replacing it quickly if and when it encounters an issue. While early adopters of EVs may tolerate the often-poor reliability associated with much of the

³ I.d. at p. 9.
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.

Without an integrated, holistic approach developed by the utility, the ability of the EV consumer to engage suffers, with the EV charging space fragmented by geography, market segment, business structure and sales priorities. The end consumer (the driver) can become frustrated as a result of this fragmented and disparate approach. However, the utility stands in a unique and powerful position to help resolve these issues with a more comprehensive, structured and rational approach that overcomes barriers to market growth and ensures and maximizes benefits to all ratepayers.5

Without prescribing a specific role for the utility within the context of market accelerator, Greenlots believes that providing flexibility and appropriate incentives for the utility, including earnings adjustment mechanisms (EAMs) and recovery in rates of prudently incurred costs, to self-select the role(s) that best fit(s) its distribution system, customers, and future planning is essential to helping motivate the utility to be excited about its involvement in accelerating the market.

In summary, however, it is clear that the deeper the utility role, the greater the benefit to ratepayers, EV drivers, auto manufacturers, and indeed EV charging companies. Ratepayers benefit in many ways, but the ability of the utility to minimize costs associated with unmanaged charging and maximize positive load shape is key to realize the greatest depth of benefits to ratepayers. This implicates active management and visibility, though utility management does not necessarily require asset ownership.

EV drivers benefit the most from the deployment of an adequate volume of charging infrastructure that is well maintained and reasonably priced. These are implicit characteristics of infrastructure owned and managed by utilities. Critically, this infrastructure deployment allows the barrier of range anxiety to be eliminated. Auto manufacturers are focused on selling vehicles and with a few exceptions have not made meaningful investments in charging infrastructure. The existing lack of infrastructure has been a primary barrier for auto manufacturers to assess demand for electric vehicles and has slowed down investment, planning, and development in electric models. An adequate volume of charging infrastructure means that auto manufacturers

can focus on non-infrastructure barriers such as model availability, dealership training, marketing, etc.

Charging software and hardware providers benefit directly from utility ownership by competing for the utility’s business in the procurement of charging products and services. Direct utility procurement results in a marketplace with decisions based upon features, functions, track record, and price, allowing big and small players to participate with a leveled playing field. As discussed later in greater detail, the adoption of open standards maximizes the initial and ongoing competition for both hardware and software products and services. 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. This results in increased opportunities for all market participants, importantly positioned utility investment—including utility ownership—as a market catalyst, rather than a market constraint.

2. What are the most significant changes the Commission can make in order enhance the utilities’ roles in supporting EVSE deployment? What are the benefits and problems with utility ownership of EVSE?

While some jurisdictions are examining a range of utility roles and program designs through pilots, others are considering a broader “portfolio” approach. Regardless of strategy, regulatory commissions must balance and sufficiently consider the requirements of a regulated service with the imperative to accelerate market transformation, which in doing so will help foster a more competitive market. This both breaks through the existing market stagnation to get to that point while also addressing underserved and disadvantaged communities which are unlikely to be sufficiently served by any private market.

Guiding principles and frameworks established in other states indeed can provide guidance for similar Commission action in New York. In California, utilities are afforded sufficient flexibility in exploring different avenues to support and accelerate the market, including utility ownership. The CPUC ensures appropriate utility involvement by imposing a “balancing test” through which perceived competitive limitations between utility and private market investments are weighed against ratepayer benefits of utility ownership of EVSE. In Oregon and Washington, utilities are similarly afforded this flexibility to propose direct investment in and ownership of EVSE. In all three states, utility proposed pilot programs that involve some form of direct investment in EVSE have been approved. Principles developed by the Midcontinent Transportation Electrification Collaborative offer a useful set of best practices for utility engagement in accelerating transportation electrification, emphasizing the importance of a strong utility role.⁶

In Greenlots’ view, the Washington Utilities and Transportation Commission’s (UTC) “Policy and Interpretive Statement Concerning Commission Regulation of Electric Vehicle Charging Services”

released in June 2017\(^7\) likely represents the best representative approach and set of guiding principles issued by a state regulator with respect to utility involvement in transportation electrification. The document laid out a broad framework under which utilities may propose programs:

“...it is appropriate to allow utilities to offer a range of EV charging services on a regulated basis, eligible for a standard authorized rate of return, provided that the infrastructure investments meet our traditional rate-making requirements ...we adopt a policy supporting a “portfolio approach” to electric vehicle charging services, similar to the approach used in utility conservation programs. Rather than a single “measure” or program offering, utilities should provide customers with multiple options for EV charging services, designed to serve a range of customer types, target multiple market segments, and evolve as technology changes. A program portfolio of EV charging service offerings will promote customer choice by allowing customers to choose among a portfolio of services meeting the criteria as outlined in this policy statement.”\(^8\)

The UTC Policy Statement prioritized a focus on market transformation, positing the premise that the utility role in the market may be able to diminish over time once a critical volume of vehicles are on the road. Greenlots believes market transformation to be at the heart of decision-making for encouraging utility investment and flexibility of role, including ownership. Put simply, market transformation is highly unlikely to occur without a significant role for the utility. Therefore, limiting utilities’ ability to participate in the market translates directly to limiting the growth of the market and opportunities for all market participants.

Accordingly, what is most important in any such set of guiding principles is ensuring adequate utility choice, flexibility and optionality. When afforded this, utilities become empowered to pilot and refine new ideas and offer a suite of options to customers, tailored to different situations and demands. This helps support utility development of an interoperable, integrated suite of smart-grid technologies, not only on its own system, but also utilizing behind the meter assets. This customer-centric approach also is essential in securing customer buy-in and participation. When this occurs, customers are then empowered to utilize grid resources in a way that best support dynamic grid demands and constraints while accounting for their own – providing benefits that flow to all ratepayers.

Broader approaches exploring an array of different program designs and affording utilities sufficient flexibility will be key in realizing these significant benefits. This regulatory strategy mirrors those used successfully with utility conservation programs in many parts of this country. Amid changing technology, such flexibility affords utilities the ability to offer different options for EV charging services, tailored for different customer types and market segments, ensuring and promoting customer choice. Indeed, utility choice and optionality leads to the same for

\(^7\) Washington State Utilities and Transportation Commission Policy and Interpretive Statement Concerning Commission Regulation of Electric Vehicle Charging Services (June 14, 2017).

\(^8\) I.d. at 33-34.
customers, which in turn provides both with the necessary tools to best support rapidly evolving grid needs and the integration of new technologies.

In the near term, in our view, there is no downside of utility ownership, indeed, as described earlier, utility ownership leads to benefits for all stakeholders and increased opportunities for all market participants. Importantly, utility ownership creates the strongest pathway to maximize ratepayer benefit.

3. What role should the utility play in encouraging EV adoption? Should the role of the utility extend beyond customer education and awareness? Please address this question from the perspective of utility ratepayers, EV suppliers, and providers of EVSE. How should utility costs, if any, be compensated or recovered?

As described in our answer to the previous questions, Greenlots believes that a deep and flexible utility role is essential to leverage its full involvement, assets and capabilities to accelerate transportation electrification and best position ratepayers to realize the full array of benefits this technology transformation can bring.

At this early point in the market, rigid adherence to any single program design or ownership structure prevents a holistic assessment of the virtues of different models and their associated costs and benefits. Exploration of multiple models must also be weighed against the immediate need to deploy infrastructure to accelerate the market for electric vehicles and charging products and services.

Greenlots anticipates that New York utilities will appreciate clarification of the Commission’s implementation strategy such that they can actively plan within a more certain framework. We therefore encourage the Commission to consider providing a modest structure to guide utility filings while providing for the type of flexibility that will ensure the utilities are best able to serve their ratepayers. As discussed, this should include the option of utility cost recovery through rate base of EV charging infrastructure, including chargers themselves, when they meet appropriate – but possibly new – regulatory standards.

States and Commissions that have taken narrower approaches or that have been prescriptive in the programs utilities can employ can also limit the impact, cost effectiveness, and net benefits of utility EVSE programs. For example, under a rebate-only program, the responsibility of researching, purchasing and acquiring the EVSE, hiring and managing installation contractors, maintaining the equipment and coordinating administrative and rebate logistics, in addition to handling potential warranty issues, could fall entirely or in various significant parts upon the customer. Together, and even in subset these represent a significant barrier to adoption, especially in disadvantaged communities and MUDs, but also in other contexts such as workplaces.

Similarly, there is good reason to believe that the make-ready model may impose barriers that adversely affect a variety of market segments. For example, in the context of MUDs, landlords
and building managers often simply do not have the incentive, ability, or capacity to finance, procure, own, maintain and otherwise handle the installation of EVSE, even if the make-ready aspects are taken care of by the utility.

At this point, there is little consensus on the silver bullet to accelerate and transform the market beyond the need to significantly leverage utility investment and capacity to educate their customers. Additionally, it is unlikely that as structures and programs are evaluated that any single design is determined to be most effective or appropriate in all situations or geographies. While Washington pursued a portfolio approach, alternate frameworks affording utilities further flexibility to self-select the programs most appropriate to accelerate the market within their geographies and specific realities rather than mandating evaluation of a complete “portfolio” of approaches may be more effective and appropriate. With respect to creating market competition, it also must be recognized that simply creating or mandating different ownership structures does not mean that there will actually be competition within any given structure. As other state regulatory commissions have recognized, flexibility is what is most essential to evaluate the virtues of different program designs, maximize consumer choice and ensure ratepayers and the grid receive maximum benefits from EVSE investments.

4. What is the best way for utilities, charging station providers, and site hosts to work together to locate charging stations where they best meet electric system, customer, and community needs? What data is needed to further this collaboration?

Quite frankly, we feel that station location has played a role of something like a shiny object. Location is certainly important, but so many factors go into where stations can ultimately be installed, that modeling and needs assessments can be useful guides, but not dispositive tools.

However, the distribution of charging deployment does implicate Distributed System Implementation Plans. Emerging tools such as NREL’s EVI-Pro are proving useful, but the ultimate challenge of breaking down barriers to installation (including site host agreements, liability, etc.) are likely more important than a granular siting exercise. This said, Greenlots is happy to be a resource to the Commission and utilities on the correct balance of deployment in different market segments.

5. Are there any communities or customer groups that require special consideration in the placement of EVSE facilities? What role should the utility play in encouraging or facilitating increased EV usage by low- to moderate-income households?

As the Commission considers the particular needs of and challenges presented by different market sectors, it must strongly consider how best to support EV equity. While there are many ways to approach this, utility investment in electric bus (especially transit) infrastructure is one of the clearest. Others might include utility support for disadvantaged community electric car sharing or even providing incentives to low income ratepayers for leasing or buying a new or used electric vehicle. Other jurisdictions have approached this space in a basic but meaningful way by requiring or encouraging a percentage of overall EVSE deployments be in disadvantaged
communities. Marketing, education and outreach (ME&O) efforts that specifically target disadvantaged communities can also be valuable.

6. What rules, requirements, and standards are needed to enable EVs and EVSE to operate as a source of grid services and system value, including possible data and instrumentation needs?

Many of the chargers deployed today operate on proprietary networks and software, the implications of which become increasingly dire to ratepayers and the public as more and more infrastructure is deployed. Proprietary networks unjustifiably risk that infrastructure investments become stranded assets that don’t meet evolving needs, and that vendor lock-in results in higher operating costs, all while stifling innovation and competition across charging hardware, software, and services.

The Commission can take action to help avoid these undesirable outcomes by encouraging or even requiring utilities and developers as part of any ratepayer-funded program to fully utilize open standards such as Open Charge Point Protocol (“OCP”) and Open ADR in order to best serve EV drivers, ratepayers and the evolving market.

Utilities can implement such a program by running a competitive RFP process for a vendor to manage the charging station network in its territory using OCPP. Such a network in place would then support a truly competitive charging station hardware market, where companies compete to sell hardware to customers, with the charging network manager having access to their stations via OCPP. This is analogous to approaches to selecting platforms for managing and integrating DR programs and DER optimization into distribution system operations, though sometimes those platforms are not based upon open communications.

This approach has a number of advantages. First, the utility will have the data and communications ability it needs to manage the charging stations for the ratepayer’s benefit—and it won’t have to try to access proprietary networks on potentially difficult commercial terms or through less than direct communications. Second, the approach promotes competition across the spectrum. Hardware companies can compete at the point of initial decision-making, but also at any point forward. To the extent that a utility wants to switch out its network vendor, it can because the stations in the network will be accessible via an open protocol, therefore there is both initial and ongoing competition for a software platform or software services. Third, it reduces the risk of utility programs having funded stranded assets in the field. This is not just about if or when a company operating a proprietary charging station ceases operations—or fails to maintain its stations—it is also about the pace of innovation and whether a network is providing the features and services desired. If the station is compatible with OCPP, it is easy to continue to access that station and operate it in the former scenario, and easy to switch network providers if the incumbent is not delivering what the utility desires or what utility customers require.

With such a network in place, significant complexity and risk is eliminated for the utility and ratepayers while still allowing maximum programmatic, vendor, site host and consumer choice.
Additionally, vehicle-grid integration ("VGI"), such as smart/managed charging, will play a critical role in achieving these goals. It is widely recognized that managed charging can increase operational cost savings relative to fossil-fueled vehicles and offer a range of grid services, in addition to promoting overall electric system efficiency.

A key barrier for leveraging VGI in publicly accessible charging locations can be interoperability for EV drivers to multiple smart charging networks. In the nearest term, driver roaming or network interoperability across different EVSE providers can help enable smart charging technologies, and facilitate open payment and driver access to charging infrastructure. Efforts to support driver roaming are currently progressing in California and Maryland (pending PSC approval).

ISO/IEC 15118 supports “plug and charge” capabilities and a relatively seamless EV driver charging experience. Moreover, the standard is being deployed and supported internationally, with a set of automakers committed to equipping millions of EVs with 15118 capabilities over the next several years. Greenlots supports efforts to coalesce around this standard for EV-EVSE communication to help unlock VGI functionality, which will both accelerate EV adoption and help future-proof an element of EVSE deployment.

In addition to credit card-based payment systems that have traditionally been the backbone used to support payment interoperability and driver roaming in the U.S. across publicly-accessible EVSE, there can be benefit in utilizing communication methodologies such as Open Charge Point Interface ("OCPI") to provide additional mechanisms to ensure payment interoperability and ease of driver experience across different networks. As long as OCPI remains open source, IP neutral and royalty-free, Greenlots sees this standard as a positive option for future EVSE deployments.

The adoption of open protocols and standards is essential to support transportation electrification, grow the market for EVs and EV charging products and services, enhance the driver/customer experience, integrate with the electricity system, and lower the cost of ownership of both EVs and EV charging infrastructure. The proliferation of open standards and communication methodologies provides a platform and ecosystem for innovation and customer choice that is critical to guarding against stranded assets and protecting the prudence of taxpayer investments.

As addressed in earlier answers, while open standards and communication methodologies are key elements of facilitating grid services and integration, infrastructure ownership and/or management structures are also critical contingencies for maximizing grid integration and beneficial load shape.

7. What are the barriers to treating EVs and EVSE as Distributed Energy Resources (DERs)? How does rate design affect the ability of EVs and EVSE to provide this value? How does rate design
affect the extent to which the value provided by EVs and EVSE (including environmental and economic benefits) is compensated?

Transportation electrification represents an unprecedented opportunity to increase the utilization of the electric grid to the benefit of all utility customers. It should therefore be looked upon as a significant opportunity for all ratepayers by increasing system efficiency and reducing costs. However, while transportation electrification load is unique in its potential to reduce system-wide energy costs due to its magnitude and significant flexibility, these benefits will not happen automatically. If managed poorly or not at all, EV loads could create or compound existing grid constraints and exacerbate system peaks.

This is why the development of rates and programs that send accurate price signals to EV loads reflecting grid constraints and realities is essential to align the increased electrification of the transportation system with the interests of the utility system and the broader public. Time-of-use (TOU) rates represent a somewhat blunt but in some cases appropriate beginning instrument to deliver these price signals, especially at low levels of EV market penetration. Other tools, including managed charging and real-time or dynamic pricing represent more precise instruments that can better utilize and dispatch flexible EV 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.

Technology is key to unlocking the capabilities of advanced rates and programs, and baseline power levels and corresponding charging speeds are helpful for resource sizing to shift or manage EV loads, and to do so with meaningful impact. Additionally, especially in the residential market, smart networked chargers are necessary to help enable consumers to be able to easily respond to advanced rates and charging programs utilizing pre-defined, but potentially evolving and reconfigurable hands-off “set it and forget it” preferences.

Smart rate design that sends accurate price signals to consumers and reflects systems demands and realities is the foundation of mitigating potential grid impacts of increased EV loads and ensuring that their integration creates net benefits to all ratepayers, not just those with EVs. The promise of EVs to the grid is not only in increasing utilization and thereby putting downward pressure on rates but also in using grid assets more efficiently and in a more flexible manner. Managed charging programs further help to ensure this in the same way that demand response programs do, but can be more impactful as they can not only curtail load, but also increase load. This capability is extremely powerful in helping to manage and maximize the utilization of grid assets.

Grid impact mitigation and benefit creation to the grid can be further achieved by pairing EVSE with complimentary DERs. For example, pairing charging stations with storage technologies can be used to shift load from charging activities to times that are best for the grid. On the other hand, pairing charging stations with distributed solar can reduce total demand and avoid or minimize distribution system upgrades, for example. Both of these distributed technologies can
allow charging stations to not only shift load and increase utilization but also provide ancillary services back to the grid. All of these use cases would be especially appropriate for evaluation in the context of pilot programs, and therefore deserve appropriate consideration by utilities and the Commission.

Regardless of the rate design tools and programs utilized, for them to be most effective in creating benefits, spurring EVSE development and ensuring a seamless customer experience, utility involvement is key, both with the EVSE hardware utilizing such rates and programs and in the rate and program development itself. And it should be firmly understood that managed charging programs are not limited to complementing rate design, but can go further and therefore be seen as more effective strategic options than a blunt, less effective TOU rate.

8. Should EVs and EVSE be treated as DERs? If so, what factors need to be addressed to include EVs and EVSE within the DER market and compensation structure for DERs?

First and foremost, and as illustrated in our answers to the previous questions, EV charging fundamentally is a DER. Even with one-way power flows ("V1G" VGI functionality) there is tremendous value when this grid resource is harnessed intelligently. This value will only increase as bidirectional VGI functionality ("V2G") develops in the marketplace. Many of the key standards and technological considerations and factors that the Commission should be cognizant of to allow EVs and EVSE to increase and maximize their value as DERs are discussed above.

However, what we’ve seen—particularly in California—are wholesale market rules and products that have been designed to better allow EV charging-based DER participation by reducing minimum resource size requirements and providing more flexibility to the geographic aggregation of resources. One element of consideration for EV charging DER market participation is how storage-integrated EV charging can participate in the market, either in separate or combined form.

9. What considerations should be taken into account in designing rates for charging stations? For example, should a typical three-part tariff (customer, demand and energy charge) be applied? Should the rate design be different for residential versus commercial use? Should the rate design be expected to change over time as EV penetration increases? Should time-of-use rates be required for EV charging? Should utility residential EV charging tariffs (filed in Case 180206) be modified? Please address these questions from the perspective of utility ratepayers, EV owners, and EVSE suppliers.

Please refer to our answer to question 6 above. As discussed in more detail there, Greenlots believes that in the context of rates specific to EV loads, rate structure should be designed to provide as accurate of a price signal as feasible, and that technological solutions can and should be used to allow customers to respond to these signals easily and automatically.

Additionally, as a policy matter, we should encourage efficient pricing to ensure fuel cost savings to drivers interested in transitioning from fossil-fueled vehicles. As it regards demand charges
and traditional rate structures, Greenlots strongly encourages the utilization of technology solutions, starting with managed charging.

10. How should the cost of recovering distribution network upgrades for EVSE be recovered if not through the demand charges?

As many stakeholders and utility regulatory bodies across the country are recognizing, at low utilization, demand charges can represent an often unintended but impactful barrier to deploying charging infrastructure and by consequence, achieving transportation electrification goals. In particular, this is due to their negative financial impact on the economics of third parties investing in, owning, and operating DCFC infrastructure. Accordingly, further investigation of existing rate structures with an eye on DCFC deployment goals is an appropriate component of supporting EV adoption and the state’s ambitious goals for greenhouse gas reduction and zero emission vehicle deployment.

This being said, Greenlots recognizes that demand charges send an important price signal, and we generally do not support their blanket removal or retiring for DCFC applications. Integrating storage with charging to provide more flexibility, in addition to smart charging technology alone—without integrated storage—can significantly reduce costs associated with demand charges. Additionally, demand rates are also more attractive to DCFC infrastructure owners than volumetric rates at generally higher than current levels of utilization.

Considering these factors, an example of a compromise alternative that may be appropriate could be to offer time-limited temporary demand charge relief to public sector (state, county, or city government) entities owning charging infrastructure. Such relief should be made contingent upon such entities and their respective utilities agreeing upon appropriate and potentially evolving technology-facilitated smart/managed charging plans that could then mitigate the system costs seen by all ratepayers.

This would be consistent with NYSERDA’s “Electric Rate Tariff Options for Minimizing DCFC Demand Charges” report⁹, which took a hard look at this issue, examining alternative rate structures used for DCFC in other states including HI, CA, OR, WA, and CT, concluding that DCFCs may be sufficiently unique to justify different rate treatment in New York. Similarly, a recent Rocky Mountain Institute report¹⁰ found that “DCFC chargers should be on tariffs with reduced, delayed, or no demand charges until the market matures and utilization rates are high enough that demand charges constitute a normal portion of monthly bills (e.g., 30%, not 90%)”¹¹ and that “our analysis shows that while utilization rates are low, reducing or eliminating demand

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⁹ Available at: https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Transportation/Electricity-Rate-Tariff-Options.pdf
¹⁰ “From Gas to Grid: Building Charging Infrastructure to Power Electric Vehicle Demand” 2017. Available at: https://www.rmi.org/insights/reports/from_gas_to_grid
¹¹ I.d. P. 42.
charges for the commercial public DCFC market is consistent with good rate-design principles and helps to achieve the societal objective of widespread vehicle electrification.”

While we have seen a number of rate options intended to mitigate demand charges, Greenlots does not currently offer a recommendation for how to cover distribution system upgrade costs via other mechanisms.

11. In designing EV and EVSE programs, how can the Commission ensure compatibility with ongoing regional initiatives, programs offered in other states, and potential private investment?

The Commission’s awareness of compatibility considerations is important. Continued coordination with the New York State Energy Research and Development Authority (NYSERDA), the Department of Environmental Conservation (DEC), the New York Power Authority (NYPa), the Volkswagen (VW) Settlement and DEC Beneficiary Mitigation Plan, and other agencies that are supporting existing EV and EV charging station programs such as the Drive Clean Rebate Program and EVolve NY, is appropriate to ensure continued compatibility. At the same time, forced cobbling together of multiple initiatives could be counterproductive.

However, while coordination and collaboration may at times be aspirational, it is important to seriously consider a more holistic approach. We have seen this in other jurisdictions with orders directing utilities to develop infrastructure applications that are coordinated, for example, to create a backbone charging infrastructure for public DCFC or medium and heavy-duty fleet charging.

Please also see our answer to question 6 with respect to interoperability standards, which hold an important role in compatibility considerations and supporting competition and private investment.

12. Should the Commission address electrifying light-duty passenger vehicles, and medium and heavy-duty vehicles within this Case?

Yes, the Commission should also consider non-light duty market segments and the market barriers that exist there. Fleet and transit operators, for example, may be experienced at running and maintaining their fleets but may be deterred from their electrification even if cost-competitive due to the charging infrastructure that is needed and their lack of experience in this area. Heavy duty trucking, in particular shorter-range activities that are common around ports and industrial areas will have viable electric alternatives in the near term and represent an additional area that the Commission should consider with significant emissions reductions opportunity and corresponding human health benefits. Additionally, the extent to which disadvantaged and lower-income communities are disproportionately affected by heavier-duty emissions, this is a critical market sector to address from an equity standpoint.

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12 I.d. P. 45.
Great strides are also being made towards a transportation future that is autonomous, electrified, connected, and shared. As these advanced transportation technologies increasingly intersect, they will also increasingly rely on electricity as the fuel. Car sharing and ride sharing programs will likely shift to electrification faster than the vehicle market as a whole due to operational efficiencies and cost savings. For states that intend to attract these technologies, the development of necessary EVSE infrastructure is even more critical in achieving broader transportation goals. While collectively this may seem a big bite, there are many approaches to facilitating a broader segment approach to encouraging utility investment in charging infrastructure.

13. How should Staff structure future stakeholder engagement in this proceeding? Should additional issue-specific working groups be held prior to Staff issuing recommendations?

Greenlots understands that it is Staff’s intent to issue a whitepaper this Fall drawing from stakeholder comments and the technical conference held in July. We support this timeline and wish to emphasize the need to move quickly in order to address barriers to transportation electrification. That said, we do support additional input or discussion on topics that implicate such a need, following initial Commission decision-making. While a potentially slippery slope, framing this as a phased approach to different levels of depth, may be appropriate.

14. Any other issues that stakeholders wish to raise.

The Commission faces critical decisions regarding how utilities can best utilize their resources, expertise and abilities to help overcome market barriers. A deeper role for a utility in growing EV adoption and the deployment of infrastructure is a strong positive for the market. Drivers benefit from more charging options, OEMs and retailers experience fewer barriers to sell EVs, EV charging software and hardware sellers benefit from competition provided by utility procurement or procurement facilitation, and everyone benefits from a more robust and cohesive market over time that maximizes benefits to the grid and ratepayers. An emphasis on avoiding stranded assets through hardware/software interoperability is also a key component of a utility’s ability to facilitate competition and future-proof investments.

Beyond the very clear opportunity to sell products and services through a competitive process to the utility, utility/ratepayer investment enables the market further by growing electric vehicle adoption and thereby scaling the market. It is only at a certain market scale where profitability for charging services outside of a utility program is more likely to be realized. Utility investment in EV charging infrastructure fundamentally enables electric vehicle service providers and grows the market – which will hopefully result in a virtuous cycle for drivers and electric vehicle charging equipment and service providers, where more drivers improve the business case for charging such that more charging is deployed, which draws more drivers to adopt electric vehicles.

Greenlots encourages the Commission to consider the virtues of deeper, flexible utility involvement in its analysis of the utility’s relationship to other market participants and the
market as a whole. Adopting a modest policy or framework that affords utilities sufficient flexibility from which they can develop EV charging infrastructure plans would serve as a practical and useful first step that need not delay concurrent consideration of potential upcoming program filings. Going forward, the Commission could encourage or require utilities to make annual filings to support transportation electrification to a greater granularity of depth than may exist in planned DSIP filings. These could be components of, or separate from general rate proceedings.

The Commission has a critical role to play in supporting and ensuring the growth of the market for transportation electrification in a manner that maximizes benefits for all ratepayers. It will require a collective effort, and we stand at the ready to support the Commission’s inquiry and ongoing information gathering, analysis and planning efforts.

Respectfully submitted,

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