October 12th 2018

BY ELECTRONIC FILING

To: State of New Jersey

Re: New Jersey 2019 Energy Master Plan

Tesla appreciates the opportunity to provide comments in the State of New Jersey's 2019 Energy Master Plan (EMP) stakeholder comment process. Tesla's mission is to accelerate the transition to sustainable energy. Tesla is a leader in clean transportation, energy storage, solar and advanced manufacturing. Electrifying New Jersey's transportation sector can provide significant benefits to the state including, reducing transportation fuel expenditures by drivers, and reducing harmful air emissions.

In this letter, Tesla offers comments and recommendations for the EMP's Clean and Reliable Transportation discussion points and several questions provided by the Board of Public Utilities (BPU) in its September 20, 2018 notice. Our comments focus on three primary areas: setting electric vehicle (EV) policy goals, the importance of EV charging infrastructure, and additional considerations for Clean and Reliable Transportation.

Setting Electric Vehicle Policy Goals

As a signatory to the Zero Emission Vehicle (ZEV) Memorandum of Understanding, New Jersey is at the forefront of advancing a clean and electric transportation system. With a goal of 330,000 ZEV by 2025, New Jersey has a good foundational goal to work towards. Focusing on near term transportation goals like 2025 and developing a 2030 goal will allow for reasonable targets to be set, and for action to be quickly taken to achieve these goals. Setting goals any longer than ten years, while aspirational, may result in complacency and lower prioritization of action plans. Setting 2025 and 2030 goals will give the state sufficient time to develop plans, budgets and allocate administrative and operational resources to execute on those plans.

In additional to the 330,000 ZEV goal, New Jersey should seek to develop EV goals beyond passenger vehicles by setting state registration targets for medium duty and heavy-duty vehicles. Given the importance of charging infrastructure in increasing EV adoption, goals should also include charging infrastructure deployment. These targets should focus on Level 2 and DC Fast Charging infrastructure for passenger vehicles, and chargers for medium and heavy duty vehicles. The state can use tools such as National Renewable Energy Laboratory's EVI-Pro tool to determine how many light-duty chargers of each type are needed within the state[1] to support passenger vehicle EV adoption, however New Jersey should also conduct its own localized analysis, especially of urban multi-unit dwellings, workplaces and downtown charging opportunities in order to get a truer understanding of the number of required chargers, and locations within towns and cities throughout the state where charging infrastructure is necessary. Periodic reviews of the state of electric transportation plan and progress towards its goals can ensure that EV charging is accessible, and will allow for plans to be modified and evolve as EV adoption grows.

Importance of EV Charging Infrastructure

Clean transport requires a robust supporting charging infrastructure in order to reduce range anxiety and promote widespread adoption of clean vehicles. In addition to setting goals, the state should consider developing incentive programs to bring down the cost of charging infrastructure and to increase

[1] https://www.afdc.energy.gov/evi-pro-lite

access to charging. Tesla believes in the concept of Charge Where You Park, whereby most of the charging occurs at locations cars are parked for long periods of time, including home or workplaces. The availability of an electrical outlet at homes and workplaces represents a unique opportunity to charge a vehicle much more conveniently than visiting a fuel station, and at a lower cost to the customer and electrical grid than direct current fast charging. Indeed, charging during off-peak hours, including overnight, can put downward pressure on utility rates for all ratepayers, since higher utility revenues can pay down fixed costs of the grid, thus obviating the need for rate increases. Convenient and seamless direct current fast charging stations are equally as important to provide supplemental charging along travel corridors and areas of interest around town, particularly for drivers that do not have access to home or workplace charging.

It is critical that the state prioritize the development of a robust public and private charging network (both Level-2 and Fast Charging) within New Jersey towns and cities. This can be in the form of direct investment by the state, rebate programs and other incentive types for private customers, landlords, building owners etc. The state should also focus on rate designs that improve the business case for fast charging and incentivize customer behavior to charge off-peak. Additional ideas include allocating land for fast charging hubs near major city centers to provide charging to drivers who cannot charge in their buildings or workplaces.

Customer incentives and Charging Business Models

Adoption of vehicles are inherently tied to the fueling infrastructure to support them. Investing and reducing the cost to deploy charging infrastructure is integral to supporting Electric Vehicles and providing comfort to drivers that there is sufficient public, workplace and fast charging to mitigate range concerns. Financial incentives for charging infrastructure are therefore recommend to be available to the general public in addition to allowing utilities to recover EV infrastructure program costs. The benefits of these programs have been proven to significantly reduce not only rate-payer costs, but provide over $50bn in societal benefits if EV adoption reaches 43% by 2035.[2]

Large scale, ubiquitous charging networks have yet to be fully developed. Tesla owns and operates an extensive charging network, but it is not intended to be a profit center for the company. There are currently multiple charging vendors and providers but there are challenges to make EV charging a viable business proposition for many companies due to the relatively low EV adoption, high fixed costs and high operating costs at this time. It is especially critical at this early stage of EV deployments that investment and operating costs be kept low, and that restrictions or mandates about charging interoperability and customer charging behavior be avoided at this time. Having prescriptive requirements can increase development costs, and impede investments and innovation.

It is important for states to consider the current penetration and projected sales of EVs and to match incentives appropriately to boost adoption aggressively at this critical early stage. This also means that the challenges of EV infrastructure business models need to be examined in parallel to make charging deployment appealing enough for vendors to accelerate the number of planned sites in the near term. Make-ready infrastructure incentive programs, rate design reforms including demand charge holidays, and streamlined permitting processes are examples of practices that New Jersey should consider.

Companies, investors or funders of infrastructure networks should be able to determine the type of technology to deploy that best fits their business model and customer's experience. Technology requirements through state mandates on items such as charging types, payment mechanisms and power levels should be avoided, as these technologies may become obsolete by the time requirements

[2] https://www.mjbradley.com/sites/default/files/Ceres_PEVinfraAnalysis_120617.pdf (Figure 1)

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are in place and funds are allocated and/or deployed. The state should rather focus on developing sufficient foundational electrical infrastructure and new electrical service for private drivers, businesses or employers who would like to offer EV charging, and allow them to determine which charging technologies and power levels work for a particular site configuration.

Utility Role in EV Infrastructure Deployment

Utilities play an important and natural role in supporting the adoption of clean transportation. They are trusted sources of information for many customers and can help educate residential and commercial customers about EVs, where to charge their vehicles, and beneficial charging behavior. There are several system benefits achievable if adequate rate incentives are provided, demand charges waived or other mechanisms are implemented. New Jersey utilities and agencies should be directed to develop programs where the competitive market is failing to provide EV charging services. Utilities can provide a significant boost to Level 2 charging deployments by developing make-ready infrastructure programs, primarily in multi-unit dwellings, that maximize the number of chargers deployed. Multi-unit dwelling charging deployments will allow for more night-time charging wherein all rate-payers will benefit from increased system utilization by putting downward pressure on rates, which is in the public interest.

Additional Considerations

Medium and Heavy-duty vehicles are some of the largest emitters of greenhouse gases and NOx of all vehicle classes, representing 5% of the vehicles on the road but accounting for more than 20% of transportation emissions[3] as these vehicles are generally driven more than light duty vehicles. Of these vehicles, Class 8 diesel vehicles are an ideal target for emission mitigation. Last year, Tesla unveiled its Semi Truck, an all-electric Class 8 vehicle that consumes less than two kilowatt-hours of energy per mile and is capable of 500 miles of range.[4] Beyond reducing NOx emissions, the Tesla Semi also includes enhanced safety features, low cost of ownership, no emissions during idling, which is especially relevant to port drayage applications, and superior performance relative to standard, Class 8 vehicles.[5]The state should look to target replacement of medium and heavy duty vehicles as a lever for rapid environmental benefits through development of incentive programs for heavy duty vehicle customers to transition to zero-emission EVs.

Clean vehicle rebates will bring down the cost for residents in disproportionately impacted communities and supporting charging infrastructure investment (public fast chargers or Level-2 chargers) in underserved communities will allow for greater accessibility for those unable to afford or have dedicated parking for this type of infrastructure. Additional benefits will come from replacing heavy duty vehicles that may accrue for a large amount of emissions near disproportionately impacted communities.

New Jersey can also lead by example and consider EVs for current and future state vehicle fleet purchases. Concurrently, the development of associated charging infrastructure at public office lots to support these fleets, and employees should be planned and budgeted for during the fleet purchase process.

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[3] https://www.eesi.org/papers/view/fact-sheet-vehicle-efficiency-and-emissions-standards
[4] Tesla. Available at: https://www.tesla.com/semi/.
[5] *Ibid*

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We appreciate the opportunity to provide comments and your consideration. We look forward to further engagement during EMP development process, and helping on the successful implementation of the states' EV goals and charging infrastructure targets.

Respectfully submitted,

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