

New Jersey Board of Public Utilities

Electric Vehicle Stakeholder Group

TASK 1 Follow-Up Questions

Comments of the New Jersey Division of Rate Counsel

February 2, 2018

1 USDOE – AFDC Findings

- 1.1 Are the analysis and findings of the USDOE AFDC and ANL accurate and supported by other independent analysis? Please cite why or why not.**

1.1 Response:

The Report found at the URL identified by the BPU (“ANL Report”)¹ appears to be a comprehensive and well-researched “cradle-to-grave” analysis of the environmental impacts and costs associated with light-duty vehicles using different energy sources. The conclusions are well-supported within the limitations and assumptions of the study. These assumptions include, for example, that “vehicles are assumed to be identical in size, shape, and weight (except for changes to the powertrain) with identical capability and performance” (p. 13) and the neglect of feasibility issues having to do with ramping up of production, as well as the Green House Gas (“GHG”) implications of building up infrastructure.

¹Energy Systems Division, Argonne national Laboratory, “Cradle-to-Grave Lifecycle Analysis of US. Light-Duty Vehicle-Fuel Pathways: A Greenhouse Gas Emissions and Economic Assessment of Current (2015) and Future (2025-2030) Technologies”. ANL/ESD-16/7, June 2016. Available at: <https://greet.es.anl.gov/publication-c2g-2016-report>.

However, Rate Counsel does not agree with the BPU Staff's characterization of the ANL Report conclusions put forth in the December 20, 2017 "Follow-up Task 1 Questions" document, and specifically the comment that "Because of the significant difference in the tank to wheels energy efficiency of PEV² over ICE³ vehicles, it is the USDOE AFDC conclusion that regardless of the fuel source for electric generation or the generation technology, EVs will be more energy efficient overall than ICE vehicles." Rate Counsel finds that the conclusions of this 210-page report are far more nuanced than this statement would suggest, and pertain more to the Cradle-To-Grave cost and emissions impacts of various vehicle types. Rate Counsel could provide a more specific answer to this question if the BPU could identify specifically which findings of the ANL Report are being investigated, including citations in the report.

1.2 Should the NJBPU run the ANL GREET model for several different types of EV, ICE vehicles and other alternate fuel vehicles under different New Jersey driving conditions for various New Jersey electric generation mixes? Or not?

1.2 Response:

No. The ANL's GREET model is a detailed model of the emissions impacts of energy use for transportation from "wells to wheels", including lifecycle analysis of the materials used to produce the vehicles.⁴ At this time, the BPU has not identified any analytical or policy need that would justify the considerable effort required to set up, calibrate, and run the GREET model for different vehicle

² Plug-in Electric Vehicles

³ Internal Combustion Engine – i.e., gasoline-powered vehicles.

⁴ GREET is an acronym for ANL's Greenhouse gases, Regulated Emissions, and Energy use in Transportation model

types under New Jersey driving conditions. The detailed findings in the ANL Report include assessments of the cradle-to-grave GHG emissions, levelized cost of driving, and cost of avoided GHGs associated with a wide range of vehicle/fuel pathways. These results appear to be sufficiently informative for the current, more exploratory requirements of the BPU's current stakeholder process.

1.3 If the Rutgers LESS energy efficiency evaluation shows favorable results for PEVs under NJ driving conditions and a NJ energy mix, how should that information be leveraged by the BPU to accelerate the pace of EV adoption in NJ? If not, what actions should be taken by BPU?

1.3 Response:

It is unclear what is meant by the term "favorable results" in this question. If the intention is that the New Jersey electricity mix is more fuel-efficient or less GHG-intensive than that assumed in the ANL Report, that information should be taken into account in interpreting the results of the ANL Report as it applies to New Jersey. See response to Question 2.1 for a more detailed discussion of this issue.

2 Energy Efficiency

2.1 **Would an EV fueled by electricity from the current New Jersey electric generation sources be more efficient, less efficient or the same level of energy efficiency than the EVs noted in the ANL analysis? If so, why? If not, why not?**

2.1 Response:

There are three ways to address this question that reflect different perspectives on the timescale and penetration level to be considered. In each case, the percentage of generation from coal to represent less-efficient generation is used, consistent with the efficiency data in Table 27 of the ANL report:⁵

1. **Average Fuel Mix for Electric Generation** (either in New Jersey or in PJM, as compared to the fuel mix assumed in the ANL Report).

The ANL Report results are based on the national 2014 generation fuel mix as reported in the US EIA's 2015 Annual Energy Outlook,⁶ showing that coal supplied approximately 42% of generation fuel in 2014. For comparison, PJM's 2015 State of the Market ("SOM") report states that coal provided 36% of generation in PJM in that year.⁷ New Jersey's generation mix is generally lower in coal, suggesting that it is overall more efficient and cleaner than that of PJM. Thus from an average fuel mix perspective, New Jersey sources

⁵ Table 27 of the ANL Report shows that in 2010 coal/steam efficiency was 34.7%, projected to rise to 38% by 2030. Gas combined cycle, which dominates the gas category with 82.1% of output on a MWh basis, had an efficiency of 50.6% in 2010, with an efficiency of 60% projected for 2030.

⁶ ANL Report Table 1. The 2015 AEO may be found at <https://www.eia.gov/outlooks/archive/aeo15/>. Sources of generation fuel are reported in Table 8.

⁷ http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2015.shtml, Section 3, page 76.

would be more efficient than electricity sources assumed in the ANL Report.

2. **Short-term Marginal Fuel Mix.** At lower penetration levels or shorter time frames, it is reasonable to consider the source of incremental generation that will be required to serve additional load, such as an electric vehicle. The PJM SOM report states that coal represented over 51% of marginal resources in PJM in 2016.⁸ Thus from this perspective, it appears that incremental generation serving New Jersey EVs may be less efficient than the average assumed by ANL.
3. **Long-term Marginal Fuel Mix.** At higher penetration levels and over longer time horizons, it may be reasonable to consider incremental generation sources that could be built to accommodate the additional load from EVs. Depending on policy, regulatory, and economic factors, this might be additional gas CCs, renewable resources, or some other source. It is likely that the overall efficiency of these additional resources would be greater than that assumed in the ANL Report.

2.2 Would an EV fueled by a New Jersey electric generation mix meet the definition of conserving energy in the definition for energy efficiency as set forth at N.J.S.A. 48:398.1? If so, why? If not, why not?

⁸ Id.

2.2 Response

The “energy efficiency and conservation program” contemplated by the RGGI Act “means any regulated program, including customer and community education and outreach, approved by the [B]oard pursuant to this section for the purpose of conserving energy or making the use of electricity or natural gas more efficient by New Jersey consumers....” N.J.S.A. 48:3-98.1(d).⁹ The RGGI Act clearly envisioned a reduction of electric load as a result of EE and conservation programs implemented pursuant to its provisions. The RGGI Act’s definition of “program costs” eligible for recovery includes “all reasonable and prudent costs incurred in developing and implementing energy efficiency [“EE”], conservation... programs approved by the board pursuant to this section...[and] includea full return on invested capital and foregone electric and gas distribution fixed cost contributions associated with the implementation of the energy efficiency, conservation,... programs.... N.J.S.A. 48:3-98.1(d).

The RGGI Act was directed towards reducing Green House Gas emissions associated with the provision of electric and natural gas utility service, in other words, the public utility sector. For example, other provisions of the RGGI Act addressed the creation of GHG allowances for electric power generating plants as a means to ameliorate the GHG emissions from electric power generating plants.¹⁰

In contrast, the promotion of EV use addresses GHG emissions associated with the transportation sector, with electric energy for propulsion as an alternative to energy for

⁹ L. 2007, c. 340. (January 13, 2008).

¹⁰ See N.J.S.A. 26:2C-47.

propulsion provided by fossil fuels. Moreover, while EVs might conserve energy in the broadest sense versus fossil fuels in terms of requiring fewer BTUs per mile driven than gasoline-powered vehicles, the provision of electricity for EV use, by definition, does not conserve electric energy but, rather, increases the load placed on the State's electric grid and generation resources. This increased load placed on the State's electric system does not fall within the utility sector EE and conservation activities contemplated by the RGGI Act. Furthermore, if rate recovery is permitted for such EV-related activity pursuant to N.J.S.A. 48:3-98.1, "captive" utility ratepayers would be burdened with the costs associated with ameliorating the GHG emissions attributable to the transportation sector.

2.3 Would an EV fueled by a New Jersey electric generation mix meet the definition of using less electricity or natural gas in the definition for energy efficiency as set forth at N.J.S.A. 48:3-98.1? If so, why? If not, why not?

2.3 Response

No. See response to 2.2.

3 Electric Systems Impacts

3.1 What could be the expected percentage increase in electric energy attributable to EVs result in by 2025, 2030 and 2050?

3.1 Response

The level of penetration of EVs in these future years will depend on a wide range of economic, technical, and policy factors. One recent goal set by the International Clean Energy Ministerial is to have 30% penetration of EVs by 2030.¹¹ The New Jersey Department of Environmental Protection reports that New Jerseyans travel approximately 72 billion vehicle miles per year,¹² so if 30% of these were traveled by EVs, that would be approximately 21.6 billion miles.

As an example, a Tesla Model S EV uses about 350 Wh per mile, so an incremental 21.6 billion miles would consume 7,560 GWh per year. New Jerseyans currently consume 75,500 GWh per year,¹³ so this 30% penetration rate for EVs would (very roughly) represent an increase in electricity use of ~10%.

3.2 What could be the expected impacts and costs (positive and negative) on generation, transmission and distribution systems by the years 2025, 2030 and 2050?

3.2 Response

A very high level of EV penetration, such as that postulated in response to Question 3.1, would necessitate increased generation or imported generation in

¹¹ See https://www.iea.org/media/topics/transport/CampaignDocumentFinal_rev_SENER.pdf.

¹² <https://www.fhwa.dot.gov/policyinformation/statistics/2016/mv1.cfm>.

¹³ <https://www.eia.gov/electricity/state/newjersey/>.

the state. Additional transmission may be needed to accommodate this increased generation. The impacts on the distribution system would depend on policy and technology factors, and quantifying these impacts, positive and negative, would require detailed modeling analysis.

Further, the impacts on the distribution system would be significantly affected by the details of rate design. For example, the adoption of EV charging tariffs with a TOU element could help mitigate such impacts. If users initiate charging during heavy-use periods, and especially so if they do so simultaneously with other EV users,¹⁴ this could significantly burden distribution circuits and perhaps necessitate costly upgrades.

On the other hand, it is possible that future vehicle-to-grid technology (discussed under Section 4 below) could provide distribution system benefits through tariff elements which reflect the battery storage capability of EVs as a distribution grid system resource.

¹⁴ The concern was raised at the January 22 meeting that many commuters would charge their vehicles starting shortly after 5 pm when they return from work, which is already a high-usage time, unless they are somehow incentivized to do otherwise.

4 Grid Integration, Demand Response and V2X (consisting of Vehicle to Grid (V2G), Vehicle to House (V2H), etc.

- 4.1 [a] What is the state of the technology that could allow the EV to be utilized as a demand response technology? [b] What is the availability of the technology now and how/when will that availability evolve? [c] What actions should NJBPU take to take advantage of the use of EVs as demand response technology? If not, why not?**

4.1 Response

(a), (b). This is an active topic of research, for example through the Electric Vehicle Grid Integration project at the National Renewable Energy Laboratories (“NREL”)¹⁵ and the University of Delaware’s V2G initiative.¹⁶ However, other than certain demonstration projects such as the INTEGRATE project at NREL,¹⁷ there do not appear to be any working models of V2G technology. A more near-term goal would be to have charging technology that can be curtailed under utility control or in response to price signals. For example, Pacific Gas and Electric and BMW initiated a pilot “ChargeForward” program to offer owners of electric BMWs up to \$900 to allow the utility some control over their charging infrastructure.¹⁸ However, this should still be considered to be in the research phase, and the appropriate level of incentives and the benefits from utility control are still largely unknown.

¹⁵ <https://www.nrel.gov/transportation/project-ev-grid-integration.html>.

¹⁶ <http://www1.udel.edu/V2G/>.

¹⁷ <https://www.nrel.gov/news/program/2017/connecting-electric-vehicles-to-the-grid-for-greater-infrastructure-resilience.html>.

¹⁸ <https://www.bmwchargeforward.com/>.

(c). The first critical step that the BPU should take to partake of any demand response (“DR”) attributes of EV use would be to establish a separate tariff for EV charging. This would enable PJM and the EDCs to measure and track EV load over time and, thereby, facilitate an assessment of EV load for any potential DR attributes. Furthermore, a separate EV charging tariff would facilitate TOU charging and other tariff measures necessary to capture any DR attributes of EV charging. Additionally, the BPU should also encourage NARUC, NRRI, EPRI, EDCs, PJM, the Society of Automotive Engineers (“SAE”), EV and EVSE manufactures, and other stakeholders to form a task force to develop standards for on-board EV and EVSE metering equipment and software. Standardization would foster the ability of EVs and EVSE to generate secure, usable utility-grade data for EV charging (metering) and usage which would facilitate the integration of EVs into electric grid operations.

4.2 V2X: [a] Is the two way communication of the EV to the grid a commercially available technology or not? If so, why? If not, why not? [b] What is the availability of the technology now and how/when will that availability evolve? [c] What actions should NJBPU take and when to take advantage of the use of EVs in V2X technology?

4.2 Response

(a), (b). As noted in response to 4.1, Vehicle-to-Grid communication and charging is an active subject of research and small-scale pilot programs, but does not appear to be commercially available at this time.

(c.) As stated in 4.1, the first critical step that the BPU should take to partake of any V2X (vehicle to grid) attributes of EV use would be to establish a separate

tariff for EV charging. This would enable PJM and the EDCs to measure and track EV load over time and, thereby, facilitate an assessment of EV load for any potential V2X attributes. Additionally, the BPU should also encourage NARUC, NRRI, EPRI, EDCs, PJM, the Society of Automotive Engineers (“SAE”), EV and EVSE manufactures, and other stakeholders to form a task force to develop standards for on-board EV and EVSE metering equipment and software.

Standardization would foster the ability of EVs and EVSE to generate secure, usable utility-grade data for EV charging (metering) and usage which would help facilitate the integration of EVs into electric grid operations.

4.3 Could the EV electric customer access the energy markets directly, through an aggregator or Network Operations Center (NOC), through the electric utility or blockchain?

4.3 Response

Absent the ability of the EVs and EVSE to generate secure, usable utility-grade data for EV charging (metering) and usage, and absent the capability of tracking EV load at the grid level, EV electric customers should not be able to access the energy markets directly. As a stepping stone to direct access, if separate EV charging tariffs are adopted EV customers may access energy markets indirectly through EDCs or aggregators. If EVs and EVSE are able to generate secure, usable utility-grade data for EV charging (metering) and usage, and once EV load is assessed and monitored at the grid level, then perhaps direct access might be considered.

4.4 If the EV could be utilized as a demand response technology in a two way communication with the grid, distribution and/or transmission, would the EV meet the definition of demand side management in N.J.S.A. 48:3-51? If so, why? If not, why not?

4.4 Response

With advances in technology, EVs might someday have the potential to inject stored power back onto the electric grid. Presently, EV charging may present some DR opportunities through the potential for load shifting, more specifically, by directing EV charging to off-peak periods. Thus, EVs may have some DR attributes depending on metering infrastructure, rate structure, and possible future technology. However, all else equal, EV load is new incremental load. While EV load might be able to use “spare” system capacity and increase system capacity factors in the near term under the right circumstances, adding EV load could accelerate the need for additional grid and generation capacity, all else equal. Worse, without any measures to control the timing of EV charging, it might exacerbate system peaks and impose further stress and costs on the distribution system.

In the near term, the DR and Demand Side Management (“DSM”) capabilities of EVs might simply entail shifting the incremental load of EVs to another time period, potentially serving only to mitigate the collective impact of EVs themselves on the grid and supply resources. In sum, “but for” the incremental load of EVs, such EV-based DR and DSM measures might not be necessary for the efficient operation of the grid and supply resources. Here, EV-based DR and DSM measures appear to be directed towards mitigating the impact of EV charging on electric grid and generation supply resources

and the associated incremental costs that would otherwise be attributable to - and collected from - EV users. As set forth in the response to 4.1(c), a first step towards assessing the ability of EVs to provide DR and DSM functions would be the adoption of EV charging tariffs. The data obtained from usage could be used to adopt tariff provisions which facilitate DR through measures such as time of use (“TOU”) pricing to incent off-peak charging.

While N.J.S.A. 48:3-51 defines DSM to include “load management,” the cost recovery mechanism for such measures implicitly assumes some general system benefit for all ratepayers. Hence, DSM measures implemented pursuant to EDECA are funded through a non-bypassable charge applicable to all ratepayers. N.J.S.A. 48:3-60. The EV-based DSM measures incorporating load-shifting appear to simply ameliorate the impact of EVs for the benefit of EV users who otherwise would absorb the prospect of additional system costs through EV-only rates, if implemented. Data gained through an EV charging tariff would support analyses of the impact of EV charging on the grid and the effects of EV charging on system peaks. If the data shows that EV charging load-shifting measures appear to primarily benefit EV users, then these measures do not appear to be of the type of measures which have more general system benefits for which cost recovery through a non-bypassable charge is appropriate.

4.5 What are the types and level of benefits to the grid of EVs in a demand response program and what would be the overall costs to develop and implement this program?

4.5 Response

To accommodate growth in the near term, it is imperative that EV charging should be directed to off-peak periods, and that EV owners have the technology and information necessary to manage their charging schedules. Rate design modifications (e.g., TOU pricing under an EV-only tariff, with a built-in “penalty” for on-peak charging) should be achievable at reasonable cost, and may be cost-effective based on the avoided need to upgrade distribution circuits to withstand peak-period, uncontrolled charging cycles. Further benefits could be derived from programs in which customers are compensated to allow the utility to delay or terminate charging when needed for grid reliability or economic reasons, similar to existing demand response programs. This approach would be more costly because it would require the utility to have direct control over the charging process, but it could also provide a mechanism for utilities to reduce stress on the distribution system under high-load conditions.

Both rate structures that support off-peak charging and DR under direct utility control would reduce the impact of additional EV load on the existing system, but would not otherwise provide “benefits to the grid” relative to the system without the additional EV load. These incremental benefits may be realized in the future through two-way vehicle-to-grid integration, allowing the utility to seamlessly purchase storage and grid services from vehicle owners; however, as

noted earlier, this technology does not appear to be commercially available in the near term.

4.6 If the EV could be utilized as a demand response technology, should the BPU consider changes to demand charges? If so, why? If not, why not?

4.6 Response

To the extent practicable, demand charges should reflect cost causation. This certainly applies in the case of EVs. EVs represent both a significant incremental burden on distribution systems specifically attributable to a subclass of customers, and an opportunity for load shaping that could mitigate that burden. Commercial charging facilities should be given a strong incentive to reduce their peak load impact through on-site storage, charge regulation, pricing schemes, or other measures that cause or encourage customers to spread out their utilization. To the extent that such facilities elect not to reduce their peak usage by such means, they should incur demand charges that mitigate the additional cost and hold other customers harmless. Given this imperative and the unique features of EV charging, the BPU should consider changes to demand charges that will insure adequate and appropriate incentives to maximize grid utilization for EV charging.

If EVs can be utilized as demand response technology, and thus to provide grid-level benefits, these benefits should be recognized through payments for providing DR service and not by changes in the assessment of demand charges. While it may be appropriate to credit customers who actually reduce net peak usage through injections from EV storage through their demand charge, EV

owners that provide demand response services will be compensated for providing this service, so additional “compensation” through a reduction in demand charges would not be necessary. A separate EV charging tariff with a TOU element would facilitate such DR mechanisms.

4.7 Should the BPU consider the use of telematics (such as Con Edison’s SmartCharge New York program) in any demand response program and to address changes to demand charges. If so, why? If not, why not?

4.7 Response

Yes, the BPU should consider telematics, as discussed elsewhere in Rate Counsel’s responses. However, the SmartCharge program is not a good example to emulate as a pilot. The SmartCharge is funded by other ratepayers, yet only EV users benefit from the program. Under the SmartCharge program, EV users receive incentives to charge off-peak with the intent of reducing the additional load attributable to EV charging. In contrast, an EV charging tariff with TOU rates would incent off-peak charging and provide the usage data to further refine tariff rates and ensure that costs to serve are assigned accordingly. As EV and EVSE telematics develop, such technology could be integrated into EV tariff design and tariff provisions.

4.8 If the EV is not using less electricity or natural gas per the definition for energy efficiency as set forth at N.J.S.A. 48:3-98.1 and the EV could be utilized as demand response for the EV to meet the definition of demand side management in N.J.S.A. 48:3-51, what could be the expected impacts on the grid for increased generation capacity by 2025, 2030 and 2050? What could be the level of costs and over what timeframe?

4.8 Response

As set forth elsewhere in Rate Counsel's responses, the ability of EVs to be fully utilized as DR resources is constrained by the absence of EV charging tariffs (with TOU elements) as well as the present state of EV data telemetry which precludes their seamless interoperability with grid resources. Undoubtedly, there will be progress in this area, but long-term projections should be viewed with caution as they are necessarily fraught with assumptions which, in the future, might prove to be unfounded..

4.9 If there is an increase in electric energy usage from the increase in EV but not a generation capacity increase because of demand response of EV what would the increase efficiency of the grid be in 2025, 2030 and 2050? If not, why not?

4.9 Response

As set forth elsewhere in Rate Counsel's responses, the ability of EVs to be fully utilized as DR resources is constrained by the absence of EV charging tariffs (with TOU elements) as well as the present state of EV data telemetry which precludes their seamless interoperability with grid resources. Undoubtedly, there will be progress in this area, but long-term projections should be viewed with caution as they are necessarily fraught with assumptions which, in the future, might prove to be unfounded.

5 Electric Vehicle Supply Equipment (EV Charging Station) State of the Competitive Market

- 5.1 [a] Is vehicle charging a fully competitive market across all market sectors (e.g. residential, public L2, public DCFC, low income communities and Multi Unit Dwellings)? If not, which market sectors are not competitive and why not? Which market sectors are competitive? [b] What is the business case for the EVSE industry and where does the business case fail?**

5.1 Response

(a). Whether a particular charging market segment is competitive, potentially competitive, or not should entail a study with supporting evidence and a finding on competition by the Board. Through this process, the Board can also identify underserved markets which are not even potentially competitive and develop programs and measures to serve these markets.

EVs present a new and unique use of electric resources because they involve service to a mobile (non-stationary) customer and are not tied in a monopolistic sense to a specific regulated public utility. A wide range of possible third party providers of charging service exist, including vehicle manufacturers, auto dealerships, gasoline retailers, convenience markets, food supermarkets, shopping malls, office building owners, parking lots, etc.

Because of this wide range of potential participants, the provision of charging services should be regarded as a competitive market independent of traditional utility market sectors, and the BPU should tread carefully to avoid impeding the development of that market. It may be that public policy imperatives ultimately support some form of subsidization of charging infrastructure in underserved

areas or to promote the development of an efficient EV charging network.

However, this should not be implemented as a regulated cost-of-service utility function but should be paid for by the maximum extent possible by those who use the services.

(b). The first part of this question is best left to EVSE industry members to present their individual business cases. Each participant in the EVSE industry undoubtedly has a unique business model as part of its business strategy. Likewise, individual participants undoubtedly do not share the same short-term and long-term business outlook. For example, one EVSE service business model might look at its network of charging stations as a whole for assessing profitability, rather than a series of individual charging stations. Another EVSE service business model might require each individual charging station to be a viable profit center. The holistic approach exhibited by the former might endeavor to serve more areas and tolerate a few unprofitable charging locations in the interest of expanding the market (and its overall profitability) for EV services. The atomized approach exhibited by the latter might avoid serving potentially unprofitable locations, leaving gaps in EV charging geographic coverage and underserved locations.

5.2 If the charging market sections are not competitive should the utilities be allowed to develop managed charging programs for the non-competitive charging market sections? If not, why not?

5.2 Response

Whether the charging market section is competitive or not would necessary entail a study with supporting evidence and a finding on competition by the Board. Furthermore, in consideration of the evolving nature of EVs and the EVSE market, the Board should periodically initiate proceedings to determine whether the market for EV charging services is competitive, with input from stakeholders and a comprehensive study.

EDC involvement should be limited. Before a role for EDCs is considered to develop “managed charging programs” in non-competitive markets, outside vendors should have the opportunity to fulfill this function through a competitive bidding process.

Unregulated affiliates of EDCs could also bid to provide this service. The EDCs should work with vendors to facilitate the interoperability of vendor systems with utility billing and information systems.

5.3 If the charging market sections are competitive should the utilities be allowed to develop managed charging programs for the competitive charging market sections? If not, why not?

5.3 Response.

Services found to be competitive should be provided by structurally separate unregulated affiliates and subject to the EDECA’s provisions governing the provision of a competitive service. Involvement in EV charging services by EDCs, if any, should be subject to the relevant laws and Board regulations governing competitive services. In any case, EDCs and their affiliates should be placed on an equal footing with potential

suppliers of managed charging programs and measures should be put in place to ensure that EDCs and affiliates cannot leverage their status as utility providers and affiliates to the detriment of potential competitors. The EDECA imposes certain conditions on regulated electric public utility involvement in competitive businesses, such as EV charging. See N.J.S.A. 48:3-55. These conditions include prior express Board approval, protection for current ratepayers (such as requirements to prevent the deterioration of service quality and cross-subsidies by current ratepayers), and sharing of revenues. Id.

5.4 If the utilities are allowed to develop managed charging programs is there a time limit or other criterion that should be imposed on this participation? If so, what timeframe? Should any utility managed charging program have a sunset date?

5.4 Response

See response to 5.3. EDC involvement should be limited and the market for managed charging programs should be viewed as, at least, potentially competitive. Further, the EDCs should not be permitted to seek recovery of the costs of developing and providing these programs from ratepayers.

5.5 If the utilities are allowed to develop managed charging programs what guidelines should be developed for this participation? If not, why not?

5.5 Response

See responses to 5.2, 5.3 and 5.4. The EDCs should be placed on an equal footing with potential suppliers of managed charging programs and measures should be put in place to ensure that EDCs cannot leverage their status as utility providers to the detriment of potential competitors.

6 Utility Role in “Charge Ready”

- 6.1 [a] Should electric utilities engage in rate-based “Charge Ready” programs?
[b] What additional measures beyond Charge Ready are appropriate in non-competitive markets? Should utilities offer rebates on EV chargers or own/operate EV chargers in non-competitive markets?

6.1 Response

- (a) To the extent the Board determines that EDCs should construct the necessary infrastructure at public charging stations beyond the meter to the chargers, *i.e.* “make ready infrastructure,” the Board would have to ensure that such work is consistent with existing law.¹⁹ For example, the utility would have to retain ownership of such infrastructure in order to include it in rate base as “used and useful utility property.” I/M/O Public Serv. Coordinated Transport, 5 N.J. 196, 217 (1950); In re New Jersey Power & Light Co., 9 N.J. 498, 509 (1952). See also, *N.J.A.C.* 14:3-8.5(b). The work would also have to be consistent with the Board’s Main Extension Rules, *N.J.A.C.* 14:3-8 *et seq.*, and would likely require an amendment of the definition of “Extension” in *N.J.A.C.* 14:3-8.2 to include, for EV charging stations only, plant beyond the meter to the charger. To the extent anticipated revenues from the sale of electricity by the EDC to the EVSE do not support the cost of the extension or a Contribution in Aid of Construction, the Board could consider addressing the costs of such uneconomic charging stations through the VW settlement funds or a USF-type mechanism collected through an EV tariff.
- (b) If the Board finds, after a proceeding open to stakeholders, that Charge Ready type initiatives are needed in, for example, markets determined to be underserved and non-

¹⁹ See Rate Counsel’s Task 1 Question Reply Comments (October 31, 2017), p. 6, and Task 2 Question Comments (November 30, 2017), p. 5.

competitive, third party vendors should be permitted to bid to provide these services. A competitive bidding process would likely lower the cost to ratepayers and foster the market for charging services and EVSE businesses. EDC involvement would be detrimental to the development of EV services. However, unregulated affiliates of EDCs could also bid to provide this service.²⁰ The costs of such programs to facilitate EV use should be assessed via tariff mechanisms on the beneficiaries of such measures, namely, EV users, rather than other ratepayer classes.

²⁰ See Rate Counsel's Task 1 Question Comments (October 16, 2017), p. 9, and Task 1 Question Reply Comments (October 31, 2017), p. 6.

7 Advanced Metering Infrastructure (AMI) - Smart Grid / Smart Meters

7.1 What policies should the Board establish to take advantage of AMI, Smart Grid / Smart Meters with respect to the EV market?

7.1 Response

At this early stage, the Board should ensure that metering and billing policies governing charging infrastructure be designed to best assess the impact of EV charging on the grid, to facilitate efficient planning and infrastructure development, and to ensure that the responsibility for incremental costs reflects cost causation to the extent possible. Rate Counsel recommends that a separate tariff and separate metering be implemented for EV charging to facilitate meeting these goals. It may also be that utility-grade metering at the vehicle level could be used for this purpose at lower cost.

7.2 Would a utility managed charging program support and supplement any smart grid (SG) or automatic meter initiatives (AMI)? If not, why not and what programs should be developed instead of AMI? If so, what would be the level and value of the benefit to and from the AMI programs? If not, describe why not and what would be the level of value in any other program?

7.2 Response

While there may be some synergies between AMI and mitigation of grid impacts (or, potentially, realization of grid benefits) from EV charging, Rate Counsel does not support ratepayer-supported utility investments in AMI infrastructure in pursuit of these benefits. Costs imposed by EV charging, including any required upgrades to metering infrastructure, should be borne by EV owners or owners of charging stations and not be socialized to non-EV users.