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January 13, 2020

(Via Email to Secretary@dps.ny.gov)
Honorable Michelle L. Phillips
Secretary to the Commission
New York State Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

Re: 18-E-0138 – Proceeding on Motion of the Commission Regarding Electric Vehicle
Supply Equipment and Infrastructure.

Dear Secretary Phillips:

On April 24, 2018, the Public Service Commission (Commission) initiated an order instituting a Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure (EVSE&I) Order. The EVSE&I Order acknowledged that Commission attention was needed to remove “inappropriate obstacles to adoption and ensure critical EVSE&I is in place to support the state’s Zero Emissions Vehicle (ZEV) targets.”

The Commission directed Department of Public Service Staff to collaborate with stakeholders to identify and address immediate and long-term actions to best support ZEV market growth, convene a technical conference and issue a Whitepaper that considers topics ranging from the utility role in EVSE&I, the use of EVs and EVSE as grid resources, rate design and additional topics proposed by stakeholders.

The attached *Staff Whitepaper Regarding Electric Vehicle Supply Equipment and Infrastructure* details a proposed statewide “Make-Ready Program” that would

provide incentives to develop light duty electric vehicle EVSE&I for both Level 2 and Direct Current Fast Charger stations. This whitepaper will be subject to stakeholder comment, followed by Commission consideration.

Sincerely,



Zeryai Hagos

Deputy Director, Office of Markets
& Innovation



CASE 18-E-0138 - Proceeding on Motion of the Commission Regarding
Electric Vehicle Supply Equipment and Infrastructure.

DEPARTMENT OF PUBLIC SERVICE STAFF WHITEPAPER REGARDING ELECTRIC
VEHICLE SUPPLY EQUIPMENT AND INFRASTRUCTURE DEPLOYMENT

January 13, 2020

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EXECUTIVE SUMMARY

Department of Public Service Staff (DPS Staff) recommends that the Public Service Commission (Commission) establish a statewide “Make-Ready Program” that would provide incentives to light duty electric vehicle supply equipment and infrastructure (EVSE&I) for both Level 2 and Direct Current Fast Charger (DCFC) stations. The Make-Ready Program would improve electric vehicle (EV) charging station economics by covering up to 90 percent of the costs to “make-ready” a site for EV charging; these costs currently present an economic barrier to EV charging station developers. DPS Staff also proposes that the State’s investor-owned electric utilities (the Joint Utilities¹) be required to incorporate EV charging scenarios into their annual capital planning processes, referred to as the EV Charging Infrastructure Forecast, to encourage thoughtful siting of charging infrastructure. DPS Staff’s proposal would serve the State well by encouraging accelerated, forward-thinking development of charging infrastructure that is expected to provide New Yorkers with over \$2.6 billion in net benefits and provide support for the achievement of the State’s transportation electrification and clean energy goals.

A key goal of DPS Staff’s proposal is to accelerate the development of charging infrastructure needed to support the expected EV growth through 2025, to coincide with New York’s goal of deploying 850,000 zero emission vehicles (ZEVs) by that year. The infrastructure required to “make-ready” a site for EV charging is a significant upfront investment for developers. Given the low penetration of EVs on the road today, it is difficult to recoup installation costs from charging revenues due to low station utilization. A typical DCFC station in New York is not expected to be profitable over the initial ten-year period of operations, barring utility investment in make-ready or another incentive source, given current station economics. By stimulating station development now and assuaging range anxiety, drivers will be more likely to transition to EVs early, accelerating achievement of the State’s goals and realizing the benefits associated with EVs. DPS Staff expects that improved charging station economics driven by increased utilization would support stepping down the incentive levels

¹ The Joint Utilities are: Central Hudson Gas & Electric Corporation (Central Hudson), Consolidated Edison Company of New York, Inc. (Con Edison), New York State Electric & Gas Corporation (NYSEG), Niagara Mohawk Power Corporation d/b/a National Grid (National Grid), Orange and Rockland Utilities, Inc. (O&R), and Rochester Gas and Electric Corporation (RG&E).

periodically during the Make-Ready Program, and the program would serve as an effective bridge to a fully self-sustained EVSE&I market.

DPS Staff's proposed Make-Ready Program would offer an incentive payment to cover a percentage of the costs of make-ready infrastructure for new Level 2 and DCFC stations that are publicly accessible, meaning without access fees or restricted access. The Make-Ready Program would require the developer to oversize all components that may be future-proofed with minimal incremental cost to accommodate upgrades to the quantity or charging capacity of chargers at the station as EV standards and penetration levels change and increase over time. Level 2 stations utilizing the standard Society of Automotive Engineers (SAE) Electric Vehicle Conductive Charge Coupler J1772 (SAE J plug) would be eligible to receive 90 percent of the average utility service territory make-ready cost if all eligibility criteria are met, or 50 percent of the average utility service territory make-ready cost if the station does not meet the accessibility criteria. Standardized, non-proprietary DCFC plug types would be eligible for 90 percent of the average utility service territory make-ready cost if all eligibility criteria are met, while non-standard plug types would receive 50 percent of the average utility service territory make-ready cost.

As a result of the Make-Ready Program, stations developed in the first year are expected to have a positive 10-year Net Present Value (NPV) for all regions and DCFC site configurations, except for the larger 150 kilowatt (kW) DCFC stations located in Upstate New York. Given that highly visible and publicly accessible infrastructure plays a vital role in assuaging range anxiety, DPS Staff proposes that the seven Upstate Regional Economic Development Councils (REDCs) be designated as "strategic locations," eligible for limited additional incentives. DPS Staff recommends that at least four locations with four 150 kW DCFC plugs at each site should be developed in each Upstate REDC through a competitive procurement in the first year of the Make-Ready Program to develop a minimum DCFC network to enable travel in Upstate New York and encourage EV adoption.

Thoughtful siting of charging infrastructure may reduce installation costs, improve site host acceptance, and maximize use from EV drivers. DPS Staff's proposal for an EV Charging Infrastructure Forecast would require the Joint Utilities to identify locations suitable for EVSE&I siting, and to proactively educate developers on synergistic cost-saving opportunities. DPS Staff recommends that the Joint Utilities establish common suitability criteria to identify potential public charging sites, with the objectives of maximizing public charging utilization to ensure

efficient use of ratepayer funds invested and provide fair and equitable access and benefits to all utility customers.

INTRODUCTION & BACKGROUND

New York has ambitious climate change mitigation policies that are reflected in the recently adopted Climate Leadership and Community Protection Act (CLCPA). The CLCPA establishes the State goal of economy-wide net zero greenhouse gas (GHG) emissions, as well as a reduction of GHG emissions from all anthropogenic sources by at least 85 percent over 1990 levels by the year 2050, with an interim target of at least a 40 percent reduction by the year 2030.² The CLCPA requires both substantial emissions reductions and complementary adaptation measures to address the severe impacts of climate change, including transportation electrification as a mitigation measure to harness substantial emissions reductions. New York’s transportation sector is responsible for more of the State’s carbon dioxide (CO₂) emissions than any other sector, and these emissions are growing, as illustrated in Figure 1.³

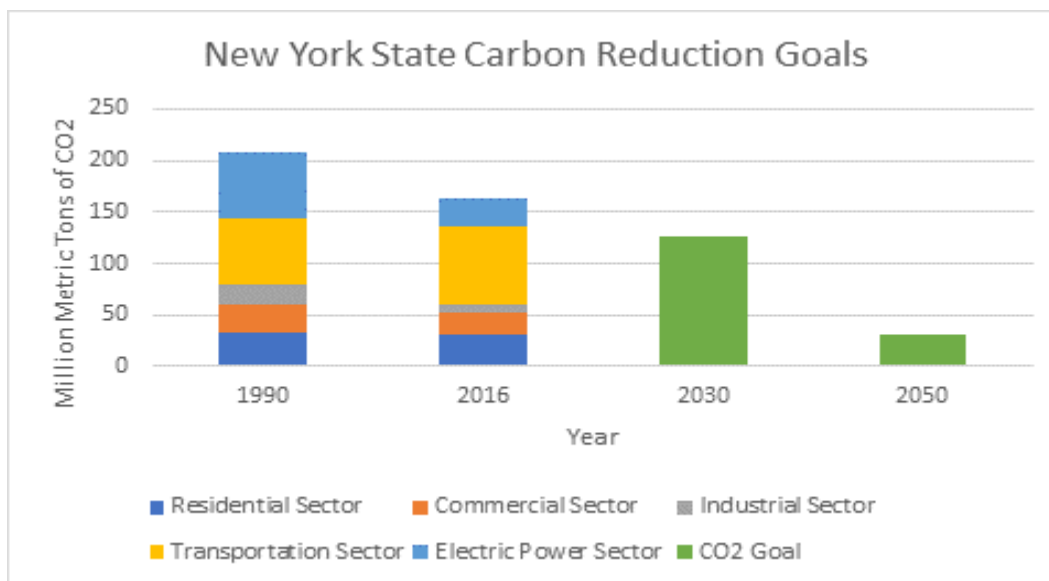


Figure 1: New York State Carbon Reduction Goals

² The CLCPA is available at: <https://legislation.nysenate.gov/pdf/bills/2019/S6599>.

³ CO₂ emissions from New York’s transportation sector increased 18 percent from 1990 to 2016. DPS Staff produced Figure 1 with Energy Information Agency data available at: <https://www.eia.gov/environment/emissions/state/>.

The New York State Energy Plan identified electrifying the transportation sector as one path to help meet State targets of reducing GHG emissions 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.⁴ Governor Cuomo formalized the State’s transportation electrification commitment by signing the Multi-State Zero Emissions Vehicle (ZEV) Memorandum of Understanding (MOU).⁵ Under the ZEV MOU, New York is one of eight states that has a collective target of at least 3.3 million ZEVs on the road by 2025, and has committed to work together with other signatory states to establish charging and fueling infrastructure that will adequately support this number of vehicles.⁶ New York’s share of the ZEV MOU is to deploy 850,000 ZEVs by 2025. Using the National Renewable Energy Laboratory’s (NREL) Electric Vehicle Infrastructure Projection Tool (EVI-Pro Lite) model, DPS Staff concluded that supporting this number of ZEVs may require between 20,000 and 50,000 additional public Level 2 charging ports, between 35,000 and 80,000 additional workplace Level 2 charging ports, and between 1,000 and 4,000 additional DCFC ports. In addition to this publicly accessible charging infrastructure, it is expected that the majority of ZEV drivers will have home charging access, equipped with a Level 1 or Level 2 charger, which will meet the majority of their charging needs.

To support ZEV deployment in New York, DPS Staff proposes a number of actions in this whitepaper to leverage the Joint Utilities’ expertise and unique position to promote ZEV adoption. The Commission has already adopted initiatives to encourage the nascent ZEV

⁴ The Energy to Lead: 2015 New York State Energy Plan Volume I (State Energy Plan), p. 41. Available at: <https://energyplan.ny.gov/-/media/nysenergyplan/2015-state-energy-plan.pdf>.

⁵ On October 24, 2013, Governor Cuomo entered into a Memorandum of Understanding with the Governors of California, Connecticut, Maryland, Massachusetts, Oregon, Rhode Island, and Vermont agreeing to coordinate and collaborate to promote effective and efficient implementation of ZEV regulations. Since 2013, additional states have joined the ZEV MOU. State Zero-Emission Vehicle Programs, Memorandum of Understanding available at: dec.ny.gov/docs/air_pdf/zevmou.pdf.

⁶ The Clean Air Act allows California to adopt more stringent mobile source (vehicle) emission standards than the Environmental Protection Agency (EPA), and under section 177 of the Act other states may adopt California’s standards. On September 19, 2019 the EPA announced it is putting into place the “One National Program Rule” to establish a lower national standard of fuel economy and revoking California’s waiver. Despite this uncertainty, DPS Staff proposes that the Commission continue to promote the goals of the ZEV MOU.

market, including residential time-of-use (TOU) tariffs for eligible EV charging⁷ and annual per-plug incentives to buy down the cost of installing publicly accessible DCFC stations.⁸ In addition, the Commission has approved a number of EV demonstration and pilot projects,⁹ and the Joint Utilities have developed an EV Readiness Framework through their Distributed System Implementation Plans (DSIPs).¹⁰

On November 15, 2018, the Commission addressed residential rate structures associated with home charging in the Residential EV Tariff Order, per Public Service Law (PSL) §66-o. It directed the utilities to apply a traditional residential customer charge for those customers with a registered EV who sign up for TOU rates, and to allow residential customers to take service under a separate account using the residential TOU rate for the sole purpose of charging an EV, subject to an additional customer charge.¹¹ DPS Staff anticipates that these residential-only tariffs will build upon the already available TOU rates that provide EV-owners incentives and benefits to charge during off-peak hours.

On April 24, 2018, the Commission initiated a proceeding regarding EVSE&I.¹² The EVSE&I Order acknowledged that Commission attention was needed to remove “inappropriate obstacles to adoption and ensure critical [electric vehicle supply equipment (EVSE)] and

⁷ Case 18-E-0206, Tariff filings to Effectuate the Provisions of Public Service Law Section 66-o (Residential Electric Vehicle Charging Tariff), Order Rejecting Tariff Filings and Directing Tariff Revisions (issued November 15, 2018) (Residential EV Tariff Order).

⁸ Case 18-E-0138, Electric Vehicle Supply Equipment and Infrastructure, Order Establishing Framework for Direct Current Fast Charging Infrastructure Program (issued February 7, 2019) (DCFC Program Order).

⁹ See Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision.

¹⁰ Joint Utilities of New York EV Readiness Framework (March 2018). Available at: <https://jointutilitiesofny.org/wp-content/uploads/2018/03/Joint-Utilities-of-New-York-EV-Readiness-Framework-Final-Draft-March-2018.pdf>.

¹¹ Residential EV Tariff Order, pp. 8-10. Public Service Law (PSL) §66-o, effectuated through Chapter 337 of the Laws of New York 2017, required New York’s investor-owned electric utilities to file applications to establish a residential tariff for recharging an eligible electric vehicle with the Commission by April 1, 2018.

¹² Case 18-E-0138, supra, Order Instituting Proceeding (issued April 24, 2018) (EVSE&I Order).

infrastructure is in place to support the state's ZEV targets.”¹³ The Commission directed DPS Staff to collaborate with stakeholders to identify and address immediate and long-term actions to best support ZEV market growth, and to convene a technical conference to consider the following topics: (1) potential utility roles in supporting EVSE deployment; (2) potential utility roles in supporting EV charging services; (3) requirements to enable EVs and EVSE to operate as a source of grid services and system value, including possible data and instrumentation needs; (4) location considerations, including electric system, customer need, and community considerations; (5) how to treat EVs and EVSE as distributed energy resources (DER); (6) if tariffs and demand charges should be adjusted; (7) potential utility roles in encouraging EV adoption; (8) compatibility with ongoing regional initiatives and other state's programs; and, (9) other similar actions proposed by stakeholders.¹⁴ The Commission also directed DPS Staff to issue a whitepaper that addresses these topics and any additional topics identified by stakeholders.

Near the time that the EVSE&I Order was issued, the New York Power Authority (NYPA), the New York State Department of Environmental Conservation (DEC), the New York State Department of Transportation (DOT), and the New York State Thruway Authority (Thruway Authority) (collectively, the Joint Petitioners) filed a petition for Immediate and Long-Term Relief to encourage Statewide Deployment of Direct Current Fast Chargers (Joint Petition).¹⁵ The issues raised by the Joint Petitioners were among those identified by the Commission in the EVSE&I Order. A notice regarding the Joint Petition was published in the State Register to solicit public comment pursuant to the State Administrative Procedure Act (SAPA), while DPS Staff continued to engage with stakeholders to accomplish the EVSE&I Order directives.

In coordination with the New York State Energy Research and Development Authority (NYSERDA), DPS Staff hosted a comprehensive technical conference on July 18th and 19th,

¹³ EVSE&I Order, p. 3.

¹⁴ EVSE&I Order, pp. 4-5.

¹⁵ Case 18-E-0138, supra, Joint Petition of New York Power Authority, New York State Department of Environmental Conservation, New York State Department of Transportation, and New York State Thruway Authority for Immediate and Long-Term Relief to encourage Statewide Deployment of Direct Current Fast Chargers.

2018, with over one hundred participants representing various perspectives, including customer, utility, charging station owner and operator, environmental, and automaker interests.¹⁶ Panels were arranged by topic, with presentations covering: Utility Perspectives and Current Landscape; Other New York Government Perspectives; Other ZEV States, Regional, and National Perspectives; Utility Roles in Providing EVSE and Infrastructure Ownership Models; EVs as DER; Demand Charges, Short-Term Bridges and Long-Term Rate Design; and, Customer Outreach and Engagement.¹⁷ NYPA also presented the details of the Joint Petition at the meeting, and parties requested further discussion regarding potential short-term rate design reforms.

In response to stakeholder requests, DPS Staff hosted an additional working group to discuss rate design principles to be applied to EV charging stations on September 21, 2018.¹⁸ NYPA provided a more detailed presentation of the Joint Petition, and Con Edison presented an alternative proposal to accomplish similar rate relief and reduce operating costs for EV charging stations.¹⁹ Con Edison proposed that the parties continue to engage and develop an alternative plan to file with the Commission. These efforts resulted in Central Hudson, Con Edison, NYSEG, NYPA, DEC, DOT, NYSERDA, Thruway Authority, National Grid, O&R, and RG&E filing a Consensus Proposal.²⁰ The Consensus Proposal called for each utility to provide an annual per-plug incentive to support the development of public DCFC stations. Each utility proposed slightly different programs and funding levels since each company has different rate structures and underlying costs.

¹⁶ Case 18-E-0138, *supra*, Notice of Technical Conference (issued May 25, 2018).

¹⁷ Case 18-E-0138, *supra*, DPS Staff Letter and Conference Agenda (issued July 10, 2018).

¹⁸ Case 18-E-0138, *supra*, Notice of Working Group Meeting and Request for Post-Conference Comments (issued August 16, 2018).

¹⁹ Case 18-E-0138, *supra*, Presentation by Con Edison regarding its EV Business Incentive Rate Proposal (filed October 11, 2018).

²⁰ Case 18-E-0138, *supra*, Proposal to Encourage Statewide Deployment of Direct Current Fast Charging Facilities for Electric Vehicles (filed November 21, 2018) (Consensus Proposal).

The Commission issued the DCFC Program Order on February 7, 2019, as a response to the Joint Petition, the technical conference, the working groups, and the Consensus Proposal.²¹ The DCFC Program Order established a seven-year per-plug incentive program through which up to 1,074 newly-constructed, publicly accessible DCFC plugs may receive an annual payment capped at the station's total delivery cost in the twelve-month billing period for which the incentive is calculated.²² On February 28, 2019, Tesla, Inc. (Tesla) petitioned for rehearing of the DCFC Program Order, claiming among other things, that the Commission improperly defined "publicly accessible" to Tesla's disadvantage.²³ In response to Tesla's petition, the Commission modified the DCFC Program Order so that utility programs shall not prescribe particular technology types as eligible plugs for the incentive.²⁴ Instead, the Commission adopted a technology neutral approach in which proprietary plugs are eligible for the incentive if they are co-located with one commonly accepted non-proprietary standardized plug type of the same or greater kW level.²⁵

To complement these initiatives, DPS Staff proposes that the Commission approve a Make-Ready Program in each electric utility service territory and address a number of other issues critical to EV deployment. Illustrating the challenging economics confronting the EV industry today, there are only nine approved plugs enrolled in the DCFC per-plug incentive program.²⁶ DPS Staff's proposals recognize that the Joint Utilities are in a unique position to

²¹ Case 18-E-0138, *supra*, Order Establishing Framework for Direct Current Fast Charging Infrastructure Program (issued February 7, 2019) (DCFC Program Order).

²² The Long Island Power Authority (LIPA) adopted a substantially similar seven-year DCFC plug incentive program that will incentivize up to 360 additional DCFC plugs.

²³ Case 18-E-0138, *supra*, Petition for Rehearing (filed February 28, 2019).

²⁴ Case 18-E-0138, *supra*, Order Modifying Incentive Program and Granting, In Part, Petition for Rehearing (issued July 12, 2019) (Order Modifying DCFC Program).

²⁵ Order Modifying DCFC Program, p. 3.

²⁶ As of December 2019, Con Edison has no approved applications; Central Hudson has one approved application with four plugs, NYSEG has two approved applications, one with one 50kW plug and one station with two 150kW plugs and two 350 kW plugs; RG&E has no approved applications; O&R has no approved applications; and, National Grid has no approved applications. LIPA's DCFC incentive program has four approved applications totaling 42 new plugs.

encourage responsible EV charging station deployment, which should increase EV adoption and put New York on a path to meet the ZEV MOU and CLCPA goals.

SCOPE & PURPOSE OF THE WHITEPAPER

The scope of this Whitepaper focuses on proper and valuable utility roles in the electrification of light duty vehicles as the first step in putting in place the necessary economic, regulatory, and physical infrastructure. The existing statewide DCFC per-plug incentive program aims to support the infrastructure deployment needed to increase EV penetration and to complement existing utility-specific programs like Con Edison's EV quick charging Business Incentive Rate (BIR)²⁷ and National Grid's Electric Transportation Initiative.²⁸ DPS Staff does not propose terminating existing utility-specific EV programs, but recommends establishing a comprehensive, practical, and economically sound statewide Make-Ready Program for light duty vehicles with utility-specific budgets so that EV charging infrastructure developers may access incentives with a common framework across New York State.

DPS Staff identified light duty vehicles as a workable first step given expressed stakeholder interest in the proceeding, as well as the market readiness and the level of progress achievable in the near term. DPS Staff recognizes the need to take additional steps beyond light duty vehicles and anticipates that issues of assuring adequate and useful charging infrastructure for medium and heavy-duty vehicles types will be addressed expeditiously in the open EVSE&I proceeding. The CLCPA clearly anticipates the development of such policies, regulations, and programs. As the scope and sequencing of that work is developed, DPS Staff will clearly and explicitly prioritize those areas that most immediately and directly deliver public benefit aligned with the goals of the CLCPA, notably including electrification of public interest vehicle types such public and school transit, as well as solutions to traffic issues such as heavy truck traffic that disproportionately impact environmental justice communities.

²⁷ The DCFC Program Order modified the BIR so that government customers are eligible to participate; the station need not be receiving government economic incentives; and, the date for delivery rate reductions was extended to December 31, 2025.

²⁸ Case 17-E-0238, National Grid – Rates, NMPC Errata JP Filing, (filed February 16, 2018), p. 105.

ELECTRIC VEHICLE & CHARGING LANDSCAPE

Despite uncertainty regarding the federal government’s proposed rollback of Corporate Average Fuel Economy (CAFE) standards²⁹ and direction to rescind California’s authority to set stricter emissions standards than the national average under the Clean Air Act, ZEV sales are growing and almost every major automaker nationally has committed to introducing additional electric vehicle options in the next five years.³⁰ Importantly, New York joined the states of California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Minnesota, Nevada, New Jersey, New Mexico, North Carolina, Oregon, Rhode Island, Vermont, Washington, and Wisconsin; the Commonwealths of Massachusetts, Pennsylvania, and Virginia; the People of the State of Michigan; the District of Columbia; and, the Cities of Los Angeles and New York in suing the National Highway Traffic Safety Administration (NHTSA) to prevent the “SAFE” act from preempting California’s standards.³¹ DPS Staff suggests that the Commission continue to support New York’s ZEV goals in the face of this federal uncertainty.

As of December 2019, approximately 47,000 EVs are registered in New York,³² which is less than 1 percent of all vehicles in the State. According to the Alternative Fuels Data Center (AFDC) maintained by the U.S. Department of Energy (U.S. DOE), New York has 1,451 public charging stations and 3,618 public EV plugs deployed as of October 2019.³³

²⁹ See The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks proposed rule by the EPA and the National Highway Traffic Safety Administration. Available at: <https://www.federalregister.gov/documents/2018/08/24/2018-16820/the-safer-affordable-fuel-efficient-safe-vehicles-rule-for-model-years-2021-2026-passenger-cars-and>.

³⁰ See Driving in Reverse: The Administration’s Rollback of Fuel Economy and Clean Car Standards House Committee on Energy and Commerce Subcommittee on Consumer Protection and Commerce and Subcommittee on Environment and Climate Change testimony of United Auto Workers (June 20, 2019), p. 5. Available at: <https://duckduckgo.com/l/?kh=-1&uddg=https%3A%2F%2Fdocs.house.gov%2Fmeetings%2FIF%2FIF17%2F20190620%2F109670%2FHHRG-116-IF17-Wstate-NassarJ-20190620.pdf>.

³¹ *California et. al. vs. Nat’l Highway Traffic Safety Admin.*, No. 1:19-cv-02826 (D.C. D. Ct. September 20, 2019). Available at: https://ag.ny.gov/sites/default/files/california_v._chao_complaint_00000002.pdf.

³² Electric Vehicle Registration Map, available at: <https://www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/EV-Registration-Tables.xlsx>.

³³ U.S. DOE AFDC, Alternative Fueling Station Counts by State. Available at: <https://afdc.energy.gov/stations/states>.

According to NYSEDA program data provided to DPS Staff, 1,212 public Level 2 plugs have been deployed in Con Edison's territory, 291 in LIPA's territory, and 1,611 in other service territories. Based on data from projects that NYSEDA has supported, the average cost per Level 2 plug is \$6,500 (\$3,200 for equipment and \$3,340 for installation). Average costs of Level 2 EVSE (per plug) installed in the past year have been approximately \$6,600 for installations at public parking facilities, approximately \$6,000 for installations at multi-unit dwellings (MUD), and approximately \$6,400 for installations at workplaces. Regarding DCFC plugs, Con Edison has 168 deployed in its service territory, LIPA's territory has 65, and 265 are deployed in other service territories. Based on market data obtained by NYSEDA, typical costs per DCFC plug are about \$67,500 for a 50 kilowatt (kW) plug (\$30,000 for equipment and \$37,500 for installation), and \$100,000 for a 150 kW plug (\$50,000 for equipment and \$50,000 for installation). Locational variation in costs is significant, with New York City siting costing 82 percent more than Upstate locations. Cost declines often occur with a larger number of plug installations at each site: 25 percent reduction for 4 stations per site, and a 50 percent reduction for 8 stations per site.

New York State supports investments in charging station installations through its Charge Ready NY program,³⁴ which calls for a statewide network of at least 10,000 public and workplace charging stations to be available by 2021, and provides \$4,000 rebates per Level 2 charging port, and through its "Clean Fuel Corridors," which prioritizes the installation of charging stations at strategic locations along the State's highways. New York also offers a tax credit of 50 percent, up to \$5,000 per station,³⁵ for public and workplace charging stations, and rebates for municipal charging stations.³⁶

³⁴ Charge Ready NY program information available at: <https://www.nyserda.ny.gov/All-Programs/Programs/ChargeNY/Charge-Electric/Charging-Station-Programs/Charge-Ready-NY>.

³⁵ New York State Department of Taxation and Finance; Alternative fuels and electric vehicle recharging property credit information available at: https://www.tax.ny.gov/pit/credits/alt_fuels_elec_vehicles.htm.

³⁶ DEC Grant Funding for Municipalities, 2019 Municipal ZEV Clean Vehicle Rebate and Infrastructure Programs. Available at: <https://www.dec.ny.gov/energy/109181.html>.

New York's Reforming the Energy Vision (REV) initiative tasked the Commission with making a clean, resilient, and more affordable energy system a reality, while actively spurring energy innovation, bringing new investments into the State, and improving consumer choice.³⁷ In keeping with REV, it is DPS Staff's position that public EV charging in New York should be built by private developers engaged in a competitive market. While the EV market is nascent, DPS Staff believes that State initiatives should support these critical investments, and the Joint Utilities should play a role in promoting the necessary infrastructure. The Joint Utilities must also play an appropriate role in building the distribution system's physical infrastructure to support the needed uptick in EV charging, and educating customers about rate options and other implications in using electricity as a transportation power source.

An M.J. Bradley & Associates analysis estimated that a Battery Electric Vehicle (BEV) would consume roughly 10 kWh per average weekday, while a plug-in hybrid electric vehicle (PHEV) operating largely in EV mode would draw 7 kWh per weekday.³⁸ Consequently, increasing EV penetration to meet 2025 ZEV targets could increase average weekday demand for electricity by nearly 6,900 MWh, a nearly 2 percent increase compared to 2016 levels. Furthermore, impacts on peak demand could be higher than total demand depending on how charging systems develop and what policies are put in place to encourage or manage certain charging behavior. DPS Staff suggests that the Joint Utilities also have the responsibility to ensure that any upgrades or necessary changes are made to maintain the reliability and resilience of the grid while the modern distribution grid accommodates new load and uses.

In terms of revenue models, many workplace chargers are provided as a free amenity to employees, while chargers that pass costs on to drivers use various means including a session fee, a per kWh fee, a per hour or per minute fee, a parking fee, or a blend of fees. According to data NYSEDA provided to DPS Staff, approximately 50 percent of workplace chargers are free and 50 percent are pay-to-use, while public chargers and those installed at multi-unit dwellings tend to require payment. For DCFC chargers, Electrify America charges a one-dollar session fee

³⁷ See <https://rev.ny.gov/about>.

³⁸ NYSEDA, Electricity Pricing Strategies to Reduce Grid Impacts from Plug-in Electric Vehicle Charging in New York State (June 2015). Available at: <https://mjbradley.com/sites/default/files/NYSEDA-EV-Pricing.pdf>.

and a per minute charge which increases as charger power level increases: 75 kW stations are \$0.21/min, 125 kW are \$0.58/min, and 350 kW are \$0.89/min.³⁹ Tesla Supercharger fees vary based on the charging rate as well: under 60 kW is \$0.13/min; over 60 kW is \$0.26/min.⁴⁰ EVgo sites charge \$0.30/min for 50 kW.⁴¹ Greenlots (NYS Thruway) charges \$8.00 per 30-minute session at 30-50 kWh.⁴² When comparing gasoline cost to electricity cost, price parity is roughly where the per kWh cost is 10 percent of gasoline per gallon cost. At kWh cost levels below 10 percent of gasoline levels, electricity provides more cost-effective mobility per mile. New York's average gasoline cost at the time of this whitepaper drafting is \$2.65 per gallon,⁴³ so sites charging less than \$0.27 per kWh allow EV owners to pay less than the equivalent level of gasoline per mile.

To date, the Commission has taken a light approach to regulatory oversight of non-ratepayer funded publicly accessible chargers. By Declaratory Ruling in 2013, the Commission declined to exercise jurisdiction over: 1) publicly available EV charging stations; 2) the owners or operators of such charging stations, so long as the owners or operators do not otherwise fall within the PSL's definition of electric corporation; or, 3) the transactions between the owners or operators of publicly available EV charging stations that do not otherwise fall within the PSL's definition of electric corporation.⁴⁴ The Commission did not specifically define "public" or "publicly accessible" in the Declaratory Ruling, but the preceding Secretary's Notice listed examples of where public charging stations may be installed, including: ". . . at numerous locations [that] will allow customers to charge vehicles while parked overnight (e.g., at or near

³⁹ Electrify America: Pricing and Membership, available at: <https://www.electrifyamerica.com/pricing>.

⁴⁰ Tesla Supercharging Support, available at: <https://www.tesla.com/support/supercharging>.

⁴¹ EVgo Fast Charging Plans, available at: <https://www.evgo.com/charging-plans/>.

⁴² Thruway Authority Electric Vehicles, available at: <https://www.thruway.ny.gov/travelers/travelplazas/electric-vehicles.html>.

⁴³ NYSERDA: Weekly Average Motor Gasoline Prices, available at: <https://www.nyserd.ny.gov/Researchers-and-Policymakers/Energy-Prices/Motor-Gasoline/Weekly-Average-Motor-Gasoline-Prices>.

⁴⁴ Case 13-E-0199, In the Matter of Electric Vehicle Policies, Declaratory Ruling on Jurisdiction Over Publicly Available Electric Vehicle Charging Stations (issued November 22, 2013) (Declaratory Ruling), p. 5.

residences and hotels), at work, conducting errands, or at shopping, eating and entertainment venues (e.g., at or near shopping malls, arenas and stadia, or in commercial or entertainment districts).”⁴⁵

DPS Staff is not proposing that the Commission modify its Declaratory Ruling⁴⁶ finding that jurisdiction does not extend to the transaction between owner/operators of charging stations and members of the public to ensure that electric charging costs are less than \$0.27 per kWh, but is proposing that the Commission direct the Joint Utilities and developers to work to drive down the costs. There are meaningful actions proposed in this whitepaper that would drive down total station costs to enable gas parity while allowing the competitive market to grow.

EV Charger Site Types

The degree to which the public has access to an EV charger site has generally been an important consideration in determining the degree of state support and regulatory oversight. Level 2 charger site types vary in degree of public access, while DCFC chargers tend to be mostly public. For Level 2 chargers, public sites include those sited at hotels, places of leisure, parking garages, retail establishments, and at mass transit stations. Non-public chargers can be located at workplaces and at MUDs. As of October 2019, approximately 60 percent of the Level 2 charging stations in the Charge Ready NY program have been sited at public locations, 25 percent at workplaces, and 15 percent at MUDs. DCFC stations are publicly accessible in most cases except for DCFC plugs supporting electrified commercial fleets and at some automotive dealerships.

In the DCFC Program Order, the Commission defined eligible publicly accessible plug types more specifically than in the Declaratory Ruling. DCFC stations that utilize both a SAE Combined Charging System (CCS) plug type commonly in use by American and European manufactures (e.g., Chevrolet, BMW, Mercedes, and Volkswagen) and a CHAdeMO plug type commonly in use by Asian manufacturers (e.g., Nissan and Mitsubishi), must have no site access

⁴⁵ Case 13-E-0199, *supra*, Notice of New Proceeding and Seeking Comments (Secretary’s Notice) (issued May 22, 2013), p. 2.

⁴⁶ Declaratory Ruling, p. 5.

restrictions or fees, be usable without requiring a paid membership in a charging station network, and accept commonly accepted payment methods such as cash, credit, and debit.

The Commission subsequently removed technology-specific references from the definition of eligible publicly accessible plug types, so that any plug type capable of charging at 50 kilowatts is eligible for a 60 percent incentive payment and 75 kilowatts or greater is eligible for a full incentive payment if co-located with a commonly accepted non-proprietary standardized plug-type of the same or greater capacity.⁴⁷ Consequently, all fast charging plug types may receive a ratepayer-funded incentive if the station has no site access restrictions or fees, is usable without requiring a paid membership in a charging station network, contains at least one commonly accepted non-proprietary plug type, and accepts commonly accepted payment methods such as cash, credit, and debit. For example, a Tesla next generation Supercharger V3 that has a 250 kW charging capacity per car⁴⁸ may qualify for the full incentive payment if the station has a co-located standardized plug type of 75 kW or greater, or has a greater capacity plug type such as the ChargePoint Express Plus that has up to 500 kW charging capacity.⁴⁹ DPS Staff believes the Commission’s definition of “publicly accessible” is appropriate for the DCFC per plug incentive program, and can provide the maximum public benefit when applied to other types of ratepayer-funded incentives.

The Make-Ready Proposal detailed in this whitepaper would complement the already available DCFC per-plug incentive, and DPS Staff proposes that the two programs be more closely aligned. As noted above, there are only nine plugs enrolled in the DCFC per-plug incentive as of December 2019. With this Make-Ready Program, it is reasonable to expect much more developer interest in building New York’s EV charging infrastructure. On December 11, 2019, a SAPA notice was issued in the State Register seeking comment on Tesla’s Petition for Program Clarification and Modification of the DCFC Per-Plug Incentive Program.⁵⁰ By that notice, the Commission signaled that it is considering Tesla’s request to extend the first year

⁴⁷ Order Modifying DCFC Program, p. 3.

⁴⁸ See Introducing V3 Supercharging, available at: <https://www.tesla.com/blog/introducing-v3-supercharging>.

⁴⁹ See ChargePoint Express Plus, available at: <https://www.chargepoint.com/products/commercial/express-plus/>.

⁵⁰ The Notice is available at: <https://www.dos.ny.gov/info/register/2019/dec11.pdf>.

(2019) annual incentive amount through 2020, instead of stepping down the annual incentive in 2020, as directed by the DCFC Program Order. DPS Staff supports the Commission holding the 2020 DCFC per-plug incentive level steady at the 2019 level instead of stepping down the annual incentive payment, as must happen under the current program design.

In addition to this incentive level modification, DPS Staff also proposes that the Commission align the DCFC per-plug incentive program interim review with the mid-point Make-Ready Program review if the Commission approves a Make-Ready Program. The DCFC per-plug incentive program interim review must begin by October 1, 2023, or when each utility has completed applications for 45 percent of the total number of plugs eligible in their territory, whichever is earlier.⁵¹ DPS Staff suggests that October 1, 2023, is an appropriate time for the Commission to consider expanding or modifying the Make-Ready Program in ways suggested throughout this whitepaper, such as expanding eligibility to fleets, adopting standards, or requiring that charging station customers take service under specific or new rates.

Volkswagen Settlement

In 2017, Volkswagen AG (VW) agreed to plead guilty and pay up to \$14.93 billion in criminal and civil penalties for violating the Clean Air Act, lying and misleading the EPA and U.S. customers about whether certain VW, Audi, and Porsche branded diesel vehicles complied with U.S. emissions standards, using cheating software to circumvent the U.S. testing process, and concealing material facts about its cheating from U.S. regulators.⁵² The settlement is divided into three parts: up to \$10.03 billion to buy back or modify diesel vehicles from consumers; \$2 billion on ZEV infrastructure and programs over a ten-year period, divided between California (\$800 million) and the rest of the U.S. (\$1.2 billion); and \$2.9 billion for an independently administered environmental mitigation trust which will fund projects to reduce diesel emissions.

⁵¹ DCFC Program Order, p. 41.

⁵² See U.S. Department of Justice Press Release: Volkswagen AG Agrees to Plead Guilty and Pay \$4.3 Billion in Criminal and Civil Penalties; Six Volkswagen Executives and Employees are Indicted in Connection with Conspiracy to Cheat U.S. Emissions Tests, (issued January 11, 2017). Available at: <https://www.justice.gov/opa/pr/volkswagen-ag-agrees-plead-guilty-and-pay-43-billion-criminal-and-civil-penalties-six>.

The VW ZEV component of the settlement requires VW subsidiary Electrify America to invest \$2 billion in ZEV charging infrastructure (for both electric- and hydrogen-powered cars), brand-neutral consumer awareness campaigns that will help grow the ZEV vehicle market, and projects such as car-sharing programs to increase ZEV access, including those in low-income and disadvantaged communities. For the non-California portion, Electrify America will spend \$300 million through four 30-month investment cycles unless otherwise approved by the EPA. Electrify America's Cycle 1 ZEV investment, which ended June 2019, focused on charging station investments in target metro areas throughout the U.S., and along strategic highway corridors. Cycle 2 investments started July 2019 and will end December 2021. The public comment period for this investment cycle concluded on March 1, 2018. VW's National ZEV Investment Plan has been approved by the EPA. As part of its Cycle 1 investments, Electrify America has seven active DCFC sites in New York State and at least four more in development as of October 2019.⁵³

The DEC is the lead agency for administering New York's portion of the VW settlement agreement mitigation funds and has prepared a Beneficiary Mitigation Plan to outline how the \$127.7 million New York allocation will be used to jumpstart a clean transportation system.⁵⁴ The Beneficiary Mitigation Plan describes projects that will reduce nitrogen oxides (NO_x), GHG, particulate matter, hydrocarbon, and mobile source air toxics emissions statewide and allocates funding among projects. Most of the money in the plan is targeted for replacing older diesel trucks and buses with new, cleaner vehicles. DEC expects that New York's mitigation funds will support the purchase of more than 250 medium- and heavy-duty electric vehicles. Fifteen percent of the total funding, or an estimated \$19,200,000, is dedicated to light duty zero emission vehicle supply equipment and hydrogen fueling stations.⁵⁵ DEC is working with NYSERDA and

⁵³ Electrify America, Locate a Charger. Available at: <https://www.electrifyamerica.com/locate-charger>.

⁵⁴ Clean Transportation NY, Using the VW Settlement to Drive Clean Transportation in New York. New York State Beneficiary Mitigation Plan (Beneficiary Mitigation Plan) (revised August 1, 2019). Available at: https://www.dec.ny.gov/docs/air_pdf/vwcleantransportplan19.pdf.

⁵⁵ Beneficiary Mitigation Plan, p. 1.

NYPA to direct funding to: 1) Level 1 and Level 2 workplace charging; 2) Level 1 and Level 2 MUD charging; and, 3) Level 3 DCFC.⁵⁶

Present Technologies and Future-Proofing

Existing Level 2 stations provide 3.3kW - 20 kW charging levels, and some stations are networked, meaning they connect to a back-office network via an internet connection in order to facilitate communicating with the station, transmitting data, and processing payments.

Networked Level 2 stations present Demand-Side Management opportunities, but these may require more advanced communication and control systems than are currently in place. Demand Reduction (DR) programs allow the controlling entity to stop or start charging, and more advanced DR varies the power delivered to increase or reduce load as conditions warrant. Distributed storage opportunities exist as Vehicle to Grid (V2G) technology is developed.

Most existing DCFC stations are networked and provide 50kW - 150kW charging levels, which is adequate for all current EVs with fast charging capability. Peak DCFC charge levels will increase as more powerful charging stations are installed and EVs capable of utilizing these ultra-fast chargers come onto the market. Ultra-fast chargers with charging levels in the 250kW - 500kW range (such as the Tesla V3 Supercharger or the ChargePoint Express Plus) exist but have not yet been widely deployed, and most EV models that are currently on the market are not capable of charging at these higher power levels.

It will be critical for utilities to understand developer plans for upgrades and expansion. DPS Staff believes that ratepayer-funded investments in make-ready work should support both near- and long-term capacity requirements and should be approached in a manner that will mitigate the potential for additional trenching and other costly work in the future. Future-proofing Level 2 charging stations could include installing oversized conduit, ensuring panels include adequate space for expansion, installing additional connection points and conduit for future charging station expansions (including trenching and conduit to additional parking spaces for future stations), and ensuring that there is adequate service for these potential future charging stations. Similar oversizing would also apply to DCFC stations. To future-proof DCFC installations, the International Council on Clean Transportation (ICCT) recommends installing

⁵⁶ Beneficiary Mitigation Plan, p. 22.

necessary connection points for future fast chargers, as well as anticipating upgrades to the number and size of transformers. Providing space for additional or larger transformers, and additional connection points and conduit, allows charging stations to expand without significant redesign.⁵⁷ DPS Staff suggests that the Commission adopt the ICCT’s lessons learned and require that make-ready installations under this program be oversized to accommodate potential upgrades to the quantity or charging capacity of the stations in order to future-proof these ratepayer investments. DPS Staff requests input on the incremental costs associated with oversizing make-ready components for Level 2 and DCFC stations, as well as stakeholder proposals on additional methods to promote future-proofing and limit ratepayer risk.

MAKE-READY EV INFRASTRUCTURE PROGRAM

The infrastructure required to “make-ready” a site for EV charging is a significant cost driver for developers. The make-ready costs include electrical transformer upgrades, trenching and boring for conduits, conductors, poles, and towers. The average costs of the electrical panel and electric service equipment alone constituted nearly 25 percent, and in some cases exceeded 50 percent of equipment costs of Level 2 charging stations recently installed in New York.⁵⁸

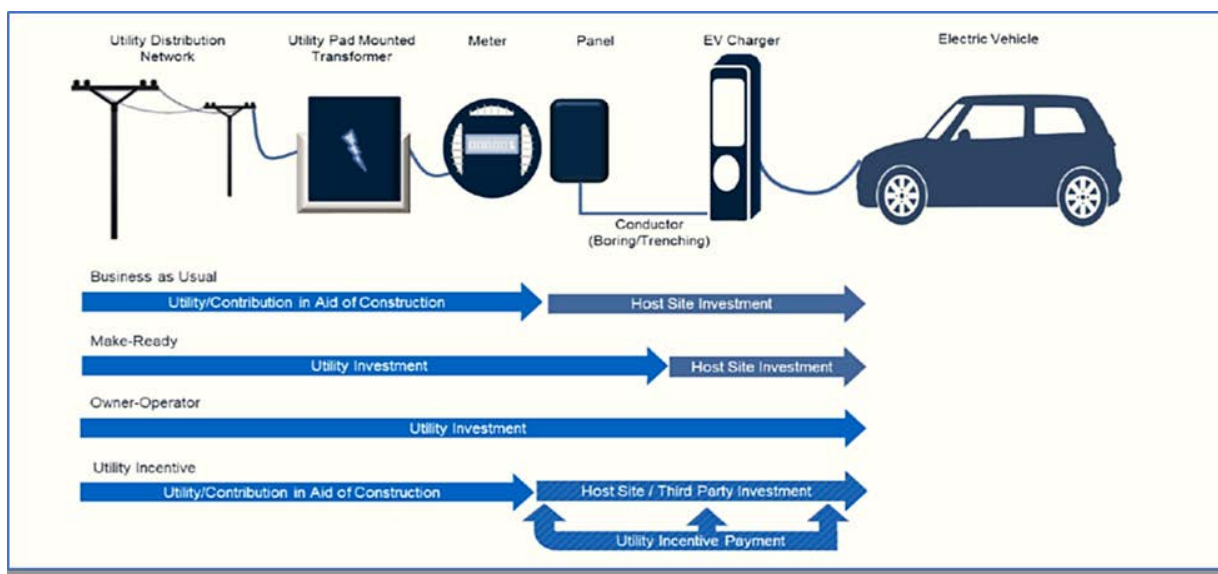
Utilities are necessary partners for any developer, as they supply the underlying infrastructure and power that is resold as a service to the EV charging customer. Utilities can assist in developing EV chargers in a number of ways, including: (1) investing in make-ready installations, which include the electrical infrastructure required up to, but not including, the actual EV charging equipment; (2) fully owning and operating installations, which would include the make-ready components as well as the charging equipment itself; and, (3) providing host sites with financial incentives, such as rebates for the costs of the EV charging infrastructure and/or the make-ready portion of the infrastructure. Make-ready roles relate to activities that utilities perform routinely and well. The investments should have useful lives that align with other utility investments, are at low risk of rapid obsolescence, and have a clear economic and

⁵⁷ See International Council on Clean Transportation, Lessons learned on early electric vehicle fast-charging deployments. Available at: <https://theicct.org/publications/fast-charging-lessons-learned>.

⁵⁸ These stations were installed in partnership with NYSERDA, and these figures are unpublished NYSERDA data provided to DPS Staff.

engineering nexus to the distribution system. Such a definition could be implemented through utility ownership on the utility side of the meter and through a utility rebate on eligible developer make-ready work on the customer side. Defining the utility role in this way would leave ownership and operation of charging equipment to competitive market actors.

DPS Staff’s proposal seeks to enable a competitive private market in New York, that is only accessible to competitive third-party developers. To encourage maximum participation and ensure appropriate State support, this Make-Ready Program should be discreet from other publicly funded initiatives. Figure 2 below illustrates the ownership of the components of the electric infrastructure and EV charging equipment under the different models.



Source: M.J. Bradley & Associates

Figure 2: EV Charging Equipment Investment Models

In the make-ready model, the EV charging infrastructure installation, ownership, operation, and maintenance are left to the host site and competitive marketplace. The make-ready model limits a utility’s investment to the equipment necessary to connect the EV charging infrastructure to the grid. Make-ready costs include upgrades to transformers and service capacity and/or running new service drops, the panel, trenching or boring, running conduit and cable to specific areas of a host site, such as in a parking lot. Utilities can also use their familiarity with permitting requirements, the interconnection process, and the design, operations, and maintenance of the distribution system to efficiently identify and develop appropriate

connection infrastructure. These roles are appropriate for utilities and within their core competencies.

Under the utility owner-operator model, a utility owns and operates all components of the EV charging infrastructure. A utility owner-operator may also oversee other program components, including marketing and host site recruitment, pricing and programs, and ongoing operations and maintenance. While possibly having some initial benefits in terms of quicker deployment and greater load control measures, utility ownership of charging has several significant downsides, including limiting market competition and innovation, potential stranded costs, and ratepayer impacts. These downsides are similar to those that are present when a utility owns DER, and DPS Staff suggests that the principles of utility ownership that the Commission articulated in the REV Framework Order should apply to EVSE&I, which is on the customer side of the utility meter. In the REV Framework Order, the Commission noted that competitive ownership of DER is a core REV principle, and that utility ownership would only be considered in several clearly-defined circumstances, including market failure, aiding underserved communities, and for demonstration purposes.⁵⁹ DPS Staff does not see evidence of one of these clearly defined circumstances in the New York charging landscape and proposes that the utility owner-operator model be limited to those few stations that already exist.

Some states have adopted a singular model, while others, like California, include a combination of these approaches, including make-ready, utility ownership, and hybrids. The San Diego Gas & Electric (SDG&E) Power Your Drive program, for example, requires the utility to install, own, and operate 3,500 charging stations,⁶⁰ whereas the Southern California Edison Charge Ready pilot program includes a utility commitment to install charging stations in disadvantaged communities in return for offering rebates to offset some or all of the costs of

⁵⁹ Case 14-M-0101, Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan (issued February 26, 2015) (REV Framework Order), p. 70.

⁶⁰ SDG&E Power Your Drive FAQs Available at: <https://www.sdge.com/residential/electric-vehicles/power-your-drive/power-your-drive-faq>.

charging station equipment and installation.⁶¹ Other states have similarly adopted a combination of utility ownership and make-ready models.

New York has already instituted utility incentives for charging stations, and with the proposals recommended below, would also appropriately harness the expertise of electric utilities to provide make-ready incentives for EV infrastructure needs. EV ownership at New York's share of the levels contained in the ZEV MOU is expected to produce net benefits in excess of \$2.6 billion for New Yorkers.⁶²

The Benefit-Cost Analysis of EV Deployment in New York State (EV BCA)⁶³ models the impacts of EV adoption in three geographic regions across the State (NYC Metro, Long Island, and Upstate). The EV BCA examines a base case, a behavior modification case where EV owners are encouraged to charge off-peak, and a high infrastructure case which assumes increased DCFC deployment. The BCA model assumes that 100 percent of the make-ready costs (up to the charger) are recovered from ratepayers. From a societal perspective, the EV BCA is positive across all scenarios and regions, as it captures the benefits of reduced GHG emissions, pollutants, and displaced petroleum, which benefit all New Yorkers.

The EV BCA determined that the most beneficial scenario for New York ratepayers in all geographic regions is the behavior modification case. In this scenario, the timing of EV charging is optimized through TOU rates, demand response programs, or smart charging. Ratepayer benefits in this scenario are realized through electricity supply cost savings, incremental revenue collected for EV charging via utility bills, and the mitigation of distribution system upgrades.

The EV BCA also models the effects of EV adoption on utility customers by comparing the marginal costs associated with serving the new EV charging load to revenues collected through utility bills. Marginal costs include electricity supply costs as well as make-ready costs.

⁶¹ Southern California Edison Charge Ready: A Plan for California, available at: <https://www.edison.com/home/innovation/electric-transportation/charge-ready-a-plan-for-california.html>.

⁶² Benefit-Cost Analysis of Electric Vehicle Deployment in New York State, prepared for NYSERDA by Energy & Environmental Economics, ICF, and MJ Bradley & Associates (February 2019 EV BCA), (February 2019). Available at: <https://www.nysesda.ny.gov/-/media/Files/Publications/Research/Transportation/19-07-Benefit-Cost-Analysis-EV-Deployment-NYS.pdf>.

⁶³ Id.

According to the EV BCA, the utility revenues associated with EV charging are expected to be greater than the electricity supply costs in each scenario modeled.⁶⁴ However, there are scenarios in which the utility revenues associated with EV charging are not greater than the electricity supply costs coupled with make-ready costs in the NYC Metro and Upstate areas. For locations that fit this profile, the make-ready investment could not be fully funded from incremental utility revenues.

Make-Ready Program Overview

DPS Staff proposes a utility make-ready initiative, the Make-Ready Program, to complement existing EV programs. DPS Staff's recommendations are supported by the appropriateness of the utility role, a favorable statewide BCA, and favorable deployment as a result of improved developer economics. DPS Staff designed this Make-Ready Program to support the build-out of the minimum infrastructure required to meet New York's ZEV MOU goal of 850,000 EVs by 2025; while there may be additional EVSE&I activity beyond this initial goal, DPS Staff is proposing a time and value limited initial program. Therefore, DPS Staff proposes a Make-Ready Program whereby the Joint Utilities would complete and be allowed to recover the costs associated with make-ready work for Level 2 and DCFC technologies, up to a maximum amount per plug installed. The proposed Make-Ready program would run from 2020 through 2025.

The DPS Staff proposal takes into account the ZEV Task Force's recommendations made in the second iteration of the Multi-State ZEV Action Plan (ZEV Task Force Action Plan).⁶⁵ The ZEV Task Force Action Plan indicates that ". . . regulatory barriers that could act as a disincentive to growth of the private EVSE sector and the willingness of site hosts to invest in

⁶⁴ See EV BCA, Figure 19: Ratepayer Perspective Benefits and Costs per EV, Metro New York Region-All Cases, p. 53; Figure 28: Ratepayer Perspective Benefits and Costs per EV, Long Island Region-All Cases, p. 63; and, Figure 37: Ratepayer Perspective Benefits and Costs per EV, Upstate NY Region-All Cases, p. 75.

⁶⁵ ZEV Task Force Multi-State ZEV Action Plan: Accelerating the Adoption of Zero Emission Vehicles (2018-2021 update) (ZEV Task Force Action Plan). Available at: <https://www.nescaum.org/documents/2018-zev-action-plan.pdf>.

fast charging must be addressed by utilities and public utility commissions (PUCs).”⁶⁶ The ZEV Task Force Action Plan also asserts that it is essential that “. . . public charging stations are broadly accessible to consumers regardless of membership in a specific network and that the consumer’s charging experience is consistent and convenient.”⁶⁷ DPS Staff’s recommended Make-Ready Program is intended to create a consistent and convenient customer experience, independent of the type of vehicle owned or membership to a charging network.

To support DPS Staff’s development of the Make-Ready program, the Cadmus Group (Cadmus) developed an economic analysis of the profitability of DCFC stations for two different configurations and New York geographic locations.⁶⁸ DPS Staff assumed make-ready and charger costs as detailed in Table 1 below.

	DCFC Capital Expenditures Costs			
	Upstate		NY Metro	
	4 X 150 kW	4 X 50 kW	4 X 150 kW	4 X 50 kW
Make-Ready	\$200,000	\$112,500	\$363,881	\$204,760
Charger	\$200,000	\$120,000	\$200,000	\$120,000
Total	\$400,000	\$232,500	\$563,881	\$324,760
Make Ready - Due to variability in utility and customer side make ready, site make ready is consolidated.				

Table 1: DCFC Capital Expenditures Costs

The analysis showed that, barring utility investment in make-ready or another incentive source, the stations analyzed are not expected to be profitable over the initial ten-year period of operations. One of the primary reasons for the anticipated poor economics is due to the assumed low station utilization during the early years of operation. Table 2a below shows estimated station economics including the 10-year NPV and Internal Rate of Return (IRR) for the DCFC station configurations analyzed (both without make-ready support and with make-ready support at 90 percent) developed in year one of the program (calendar year 2020). In this analysis,

⁶⁶ ZEV Task Force Action Plan, p. 18.

⁶⁷ Id.

⁶⁸ Configurations analyzed included stations with four 50kW chargers, and four 150kW chargers. Economics were analyzed for the greater NY Metro area as well as upstate NY.

developer capital costs include the costs of the chargers (\$50,000 per charger for 150 kW chargers and \$30,000 per charger for 50 kW chargers) and site make-ready (Upstate - \$50,000 per charger for 150 kW chargers and \$28,125 per charger for 50 kW chargers and NY Metro \$90,970 per charger for 150 kW chargers and \$51,190 per charger for 50 kW chargers).

Operating costs include electricity, maintenance, communications, warranty, and site access costs. Assumed operating costs vary depending on usage and location.

As can be seen in Table 2a, the 10-year NPV and IRR for DCFC stations are dramatically improved if make-ready costs are decreased for station owners.

	Impact of Make-Ready Program on Station Economics in Year 1 of Program (2020)			
	Upstate		NY Metro	
	4 X 150 kW	4 X 50 kW	4 X 150 kW	4 X 50 kW
Assumed Initial Utilization Factor	3.68%	6.50%	6.25%	10.40%
Assumed Annual Utilization Growth Rate ¹	11.0%	11.0%	13.0%	13.0%
Cost per Site, Public	\$400,000	\$232,500	\$563,881	\$324,760
Utility Funded Make-Ready per Site, Public	\$180,000	\$101,250	\$327,493	\$184,284
Developer CapEx/Site w Utility Funding	\$220,000	\$131,250	\$236,388	\$140,476
Developer CapEx/Site w/o Utility Funding	\$400,000	\$232,500	\$563,881	\$324,760
Developer OpEx/Site 10yr NPV	\$495,123	\$276,665	\$823,563	\$497,912
Developer Merchant Revenue ² /Site 10yr NPV ³	\$625,662	\$406,282	\$1,199,909	\$675,469
Developer Other Revenue/Site 10yr NPV ⁴	\$75,032	\$45,018	\$40,017	\$24,010
Developer Margin Site ⁵	\$205,571	\$174,636	\$416,363	\$201,567
Developer 10yr NPV no Utility funding	(\$181,249)	(\$53,137)	(\$148,676)	(\$112,934)
Developer IRR no Utility funding	NA	-14.0%	-11.3%	-24.3%
Developer 10yr NPV w Utility funding	(\$15,284)	\$36,146	\$123,186	\$47,801
Developer IRR w Utility funding	-3.6%	13.2%	14.4%	13.2%
10yr NPV Improvement thru Utility funding	\$165,965	\$89,283	\$271,862	\$160,735
IRR Improvement thru Utility funding	NA	27.2%	25.7%	37.5%
NOTES:				
¹ For determination of revenues utilization factor is capped at 20 percent.				
² Merchant revenues account for revenues received providing charging service.				
³ NPV discount rate = 7.28%				
⁴ Other revenues consist of DCFC per plug incentive payments (assumed to be maximum value).				
⁵ Developer margin excludes costs related to initial capital expenditure investment and equals merchant revenues plus other revenues less operating expenses.				

Table 2a: Impact of Make-Ready Program on Station Economics in Year 1 of Program (2020)

For Upstate locations, the NPV and IRR are estimated to remain negative for sites that consist of high-power chargers (150 kW) even including make-ready support if developed early in the program. The Upstate NY stations are assumed to have, on average, lower initial utilization rates and utilization growth rates than the NY Metro area. While the average sites appear to be uneconomic, sites that are located in more densely populated areas, along popular transit corridors, and in metro areas will likely have higher utilization than average, and these sites will, in turn, have stronger economics than what is shown in the table above. For example, at Upstate locations with a site configuration of four 50 kW chargers (4x50kW) with an initial utilization factor of 9.63% (which equates to approximately three charging session per day) rather than the assumed utilization factor of 6.5% (which equates to approximately two charging session per day) the 10-year IRR would improve from -14 percent to +13.6 percent without a make-ready incentive.

Furthermore, as EV adoption increases over time, more sites are expected to become economic due to increased utilization and sites in suburban and rural locations will, therefore, become more investable. The impact of increased utilization on station economics has been illustrated in Table 2b by performing an economic analysis for a station developed in year 4 (calendar year 2023) rather than year 1 of the program when higher levels of EV ownership are expected (Table 2b). All assumptions in the analysis have been held constant to those in the year 1 analysis above, except for the assumed higher initial utilization factor in calendar year 2023.

	Impact of Make-Ready Program on Station Economics in Year 4 of Program (2023)			
	Upstate		NY Metro	
	4 X 150 kW	4 X 50 kW	4 X 150 kW	4 X 50 kW
Assumed Initial Utilization Factor	5.03%	8.89%	9.02%	15.01%
Assumed Annual Utilization Growth Rate	11.0%	11.0%	13.0%	13.0%
Cost per Site, Public	\$400,000	\$232,500	\$563,881	\$324,760
Utility funding per Site, Public	\$180,000	\$101,250	\$327,493	\$184,284
Developer CapEx/Site w Utility funding	\$220,000	\$131,250	\$236,388	\$140,476
Developer CapEx/Site no Utility funding	\$400,000	\$232,500	\$563,881	\$324,760
Developer OpEx/Site 10yr NPV	\$548,748	\$309,988	\$934,950	\$528,994
Developer Merchant Revenue/Site 10yr NPV	\$855,291	\$546,335	\$1,629,857	\$797,036
Developer Other Revenue/Site 10yr NPV	\$22,903	\$13,746	\$12,214	\$7,333
Developer Margin Site	\$329,445	\$250,093	\$707,121	\$275,375
Developer 10yr NPV no Utility funding	(\$71,556)	\$11,575	\$108,436	(\$39,328)
Developer IRR no Utility funding	-8.2%	2.2%	7.6%	-9.7%
Developer 10yr NPV w Utility funding	\$86,368	\$95,999	\$376,068	\$110,029
Developer IRR w Utility funding	14.2%	27.4%	47.4%	40.2%
10yr NPV Improvement thru Utility funding	\$157,924	\$84,424	\$267,632	\$149,357
IRR Improvement thru Utility funding	0.224	25.2%	39.8%	49.9%

Table 2b: Impact of Make-Ready Program on Station Economics in Year 4 of Program (2023)

Since the economics are anticipated to become more attractive as utilization rates increase over time, a reduction in the magnitude of the utility-provided funding level may be appropriate. To address the anticipated changes in station economics and hence the need for utility-funded make-ready, DPS Staff recommends that the Commission direct the Joint Utilities, in consultation with DPS Staff, to reduce incentive levels within Commission-established budgets as the station economics improve over time. Changes in incentive levels should be informed by key factors influencing station economics including, but not limited to, station utilization, operating costs, and charger costs, from data the Joint Utilities would publish in quarterly reports, as well as other incentives that become available to EVSE.

In addition to the economic analysis provided by Cadmus, DPS Staff considered the Atlas Public Policy (Atlas) whitepaper that evaluated the business case of hosting a Level 2 charging station in New York.⁶⁹ The Atlas Report relied on charging use data from past NYSERDA

⁶⁹ Atlas Final Report: Assessing the Business Case for Hosting Electric Vehicle Charging Station in New York (Atlas Report), (issued June 2019). Available at:

projects “. . . along with real-world data on equipment use, costs, revenue, and assumptions derived from industry reports and original research.”⁷⁰ Atlas determined that electricity costs have a minimal effect on Level 2 charging profitability, indicating that “[w]hile electricity costs are an important factor for operating expenses, the effect of these costs on profitability appears to be minimal.”⁷¹ However, development grants for Level 2 charging hosts produced a noticeable “positive effect on profitability.” Atlas explains that, “[o]f the more than 30,000 scenarios that included a NYSERDA grant worth between \$5,000 and more than \$20,000 depending on the site, 56 percent achieved profitability. When the NYSERDA grant was excluded, only 36 percent of scenarios achieved profitability.”⁷² The DPS Staff proposed Make-Ready Program is intended to help developers overcome the high cost of station development, which has resulted in poor station economics for many sites in New York.

Ratepayer-funded support for EV infrastructure is not expected to be needed indefinitely. A well-designed Make-Ready program should accelerate EV adoption, allowing for reduced ratepayer incentives over time. The program design and budgets should be reconsidered in parallel with the DCFC per-plug incentive program midpoint review.⁷³ At the midpoint review, DPS Staff suggests specific focus regarding: the need for additional phases of the Make-Ready Program, redirecting unused Make-Ready Program funding to multi-unit dwellings or redefining publicly accessible to include chargers at multi-unit dwellings, revising the definition of publicly accessible to include metered parking spaces and public pay-to-park lots, recalibrating the 50 percent utility-funded make-ready level for private and proprietary technology types, and revisiting future-proofing requirements.

Eligible Project Costs and Technologies

DPS Staff proposes that the Joint Utilities fund and complete make-ready work for Level 2 and DCFC technologies, including:

<https://atlaspolicy.com/rand/assessing-the-business-case-for-hosting-electric-vehicle-charging-stations-in-new-york-state/>.

⁷⁰ Atlas Report, p. iii.

⁷¹ Atlas Report, p. ES-5.

⁷² Atlas Report, p. 45.

⁷³ The DCFC per-plug incentive program midpoint review must begin by October 1, 2023.

1. Utility distribution facilities side make-ready – traditional investments from sub-station to the meter.
2. Customer side of meter make-ready - including conductor, associated trenching, and panel, but excluding the EVSE, mounting hardware, and cost to mount the EVSE.

Costs of charger supply equipment (station, power blocks, or modules), including costs associated with connecting such equipment, as well as costs associated with any co-located distributed generation or energy storage system, would not be eligible for the program. For investments made on the customer side of the meter, site developers would be required to use a utility-approved contractor in order to be eligible for the program. In order to keep appropriate financial responsibility on the station developer, such company or entity would pay the utility-approved contractor, while the utility would provide a rebate to the station developer. In an effort to effectively manage the queue, the Joint Utilities should be required to develop and post a list of pre-approved contractors. Interested contractors should be able to demonstrate that they qualify as an approved contractor and be added to this list at any time; the Joint Utilities should develop requirements and post an application process to their EV websites.

DPS Staff proposes that make-ready work on the customer-side of the meter be eligible for a reimbursement, but DPS Staff does not recommend that the utility be allowed to own such infrastructure. There are costs and benefits associated with EV station ownership. The costs are relatively easily identifiable and include components such as: electricity use, property taxes, insurance premiums, and general operations and maintenance expenses. EV station ownership benefits are less quantifiable and are highly variable depending on the business model of the station owner. For example, some station owners may provide chargers for free to encourage patronage to the host business, while other station owners may charge a fee to use the station. As discussed above, the Commission determined that it lacked jurisdiction over: charging stations, owners/operators of charging stations (so long as the owners or operators do not otherwise fall within the PSL definition of “electric corporation”), or the transactions between such owner/operators of publicly available charging stations (so long as the owners or operators do not otherwise fall within the PSL definition of “electric corporation”) and members of the public.⁷⁴ This determination laid the foundation for a competitive EV charging provider market.

⁷⁴ Declaratory Ruling, p. 5.

Eligibility Criteria

The Make-Ready Program is intended to encourage new charging station development to meet the needs of light duty vehicles. Therefore, DPS Staff proposes that stations that: 1) are operational, 2) are currently under construction, or 3) have made commitments to take service at the location⁷⁵ at the time a Commission Order is issued implementing the proposed Make-Ready Program would not be eligible for the program. All new sites and sites with an existing application that do not have a firm commitment to take service would be eligible. A firm commitment to take service would be evidenced by remitted payments for required a Contribution in Aid of Construction (CIAC) or Excess Distribution Facilities (EDF). A signed application for service should be considered a firm commitment for stations that do not require a CIAC or EDF but has Make-Ready Program eligible infrastructure.

DPS Staff proposes utility funding under the Make-Ready Program for eligible project costs for Level 2 charging stations and for DCFC stations, with some common and some distinct eligibility criteria each. DPS Staff proposes that all installations participating in the Make-Ready Program be sufficiently future-proofed by oversizing all components that can be oversized with minimal incremental cost. On the customer side, this includes trenching and conduit, and likely the panel. DPS Staff requests stakeholder input, particularly from the Joint Utilities, regarding what distribution system components should be future-proofed by oversizing or other means.

New Level 2 stations⁷⁶ that use SAE J plug⁷⁷ technology and meet the Level 2 Make-Ready Program criteria listed below would qualify for utility-funded make-ready of up to 90

⁷⁵ A station that is being developed in a territory with an existing utility-specific make-ready program shall remain eligible for that program but would not qualify for this Make-Ready Program.

⁷⁶ Level 2 stations for single owner personal use (such as home charging and dedicated rented parking) do not qualify for this incentive. At the midpoint review, residential make-ready eligibility should be reconsidered.

⁷⁷ SAE Surface Vehicle Recommended Practice J1772, SAE Electric Vehicle Conductive Charge Coupler North American standard for electrical connectors for electric vehicles maintained by the SAE International. In the event an alternate standard is adopted plugs of the new standard would be eligible for the incentive.

percent of eligible make-ready costs.⁷⁸ Other new Level 2 stations that use SAE J plug technology but do not meet the additional eligibility criteria laid out below would qualify for utility-funded make-ready for up to 50 percent of eligible make-ready costs.⁷⁹ A common EV conductive charging system and interoperability of communications systems are important aspects of an efficient EV charging infrastructure network; the SAE J plug is currently the only commercially available standard, but DPS Staff does not intend to restrict future standardized charging technologies that emerge, such as standardized wireless charging. Updating the commonly accepted standard to include newly commercially available standards that may emerge, other than the SAE J plug, should be part of the Make-Ready Program review. Until such time, stations using technology other than SAE J plug technology would not be eligible for utility-funded make-ready.

The Level 2 component of the Make-Ready Program would pay up to 90 percent of the costs for stations that meet the following eligibility criteria:

1. The station is accessible to the public without an access fee or restricted access. Public pay-to-park lots and metered parking spaces may waive parking fees while an EV is charging to qualify.
 - a. Fees for charging are not considered access fees.
 - b. Workplace Level 2 chargers are not considered to be accessible to the public unless the workplace is a public venue (for example a mall, hospital, hotel, etc.) and the chargers are available for public use without access fee.⁸⁰
 - c. Chargers placed at multi-unit dwellings are not considered accessible to the public unless the public has unlimited access to the charging station, without a fee.

⁷⁸ As described in the Cost Containment section of this Whitepaper, the incentive by site would be capped at each utilities' average cost of developing an L2 site.

⁷⁹ As described in the Cost Containment section of this Whitepaper, the number of eligible Level 2 stations would be incentivized would be capped at each utilities' targeted number of Level 2 stations to be developed.

⁸⁰ Waiving the access or parking fees upon exit would be considered compliant with the no access fee requirement.

2. Charging is available to the general public without requiring a paid membership to a charging network.
 - a. Customers must be able to use general forms of payment at the station at the time of charging. Stations owners may enable commonly used forms of payment with a kiosk, a card reader, a site business accepting payment, or a phone number that enables 24-hour card payments without a fee.

The Level 2 component of the Make-Ready Program would pay 50 percent of the costs for stations that are not accessible to the public, such as stations available to employees at a workplace and stations available to residents at a multiunit dwelling. These Level 2 chargers would be required to be accessible without a paid membership to a charging network.

Recognizing the different technologies that exist and the different use-cases, DCFC stations would be subject to criteria in addition to the Level 2 eligibility criteria listed above. The DCFC component of the Make-Ready Program would pay up to 90 percent of the eligible costs for new stations⁸¹ serving light duty vehicles that meet the following criteria:

1. The plugs must be standardized, non-proprietary DCFC chargers.
2. The station must be accessible to the public without an access fee or restricted access. Public pay-to-park lots and metered parking spaces may waive parking fees while an EV is charging to qualify.
 - a. Fees for charging are not considered access fees.
 - b. Workplace DCFCs are not considered to be accessible to the public unless the workplace is a public venue (for example a mall, hospital, hotel, etc.), and the chargers are available for public use without access fee.⁸²

⁸¹ As described in the Cost Containment section of this whitepaper, the site-specific incentive would be capped at each utilities' average cost of developing a DCFC site.

⁸² Waiving the access or parking fees upon exit would be considered compliant with the no access fee requirement.

- c. Chargers placed at multi-unit dwellings are not considered accessible to the public unless the public has unlimited access to the charging station, without a fee.

All other new DCFC stations serving light duty vehicles, including stations that exclusively install proprietary plug types, would be eligible for utility-funded make-ready for 50 percent of eligible make-ready costs.⁸³ DPS Staff recognizes the value that proprietary charging stations offer to growing the EV market and suggests that the 50 percent level is appropriate for utility-funded make-ready where proprietary charging networks are not coupled with standardized charging equipment. To assuage driver concern about charger availability and to encourage geographic diversity of DCFC locations, DPS Staff recommends a minimum of 4 DCFC plugs be installed and a maximum of 10 DCFC plugs be eligible for utility-funded make-ready at a given location. Additionally, utility-funded make-ready for DCFC plugs should be limited to a maximum charging capacity of 2 MW at a given location.

Estimated Program Cost

DPS Staff used NRELs Electric Vehicle Infrastructure Projection Tool (EVI-Pro Lite)⁸⁴ to estimate charging station infrastructure needs associated with 850,000 EVs.⁸⁵ DPS Staff considered all new charging stations needed to support the 850,000 EVs as eligible for the Make-Ready Program. The number of new plugs estimated to be needed on a state-wide basis was: 79,798 workplace level 2 plugs; 49,730 public level 2 plugs; and 3,287 public DC fast-charging plugs. The number of plugs needed were allocated to three geographic regions based on the

⁸³ As described in the Cost Containment section of this Whitepaper, the number of eligible DCFC stations that may be incentivized would be capped at each utilities' targeted number of DCFC stations to be developed.

⁸⁴ EVI-Pro Lite is available at: <https://afdc.energy.gov/evi-pro-lite>. According to the website, EVI-Pro Lite is a simplified version of EVI-Pro which uses real-world travel data from mass market consumers to estimate future requirements for residential, workplace, and public charging under a variety of scenarios.

⁸⁵ Inputs into EVI-Pro Lite are as follows: 850,000 electric vehicles, 25% PHEVs with 20-mile range, 20% 25% PHEVs with 50-mile range, 10% BEVs with 100-mile range, 45% BEVs with 250-mile range, charging equipment for full support of PHEVs, 75% of vehicle owners with home charging capability.

number of light-duty vehicles registered in each of the territories, resulting in plugs being allocated as follows: (1) the metropolitan NY City area – 28 percent, (2) Long Island – 21 percent, and (3) the rest of the state – 51 percent.⁸⁶ To develop the utility-specific program size, DPS Staff recommends the total number of plugs, by type, be allocated based on the percentage of light duty vehicles registered in each service territory.

DPS Staff used development costs consistent with those used to develop the EV BCA⁸⁷ to determine the estimated cost of the Make-Ready Program. In order to develop utility-specific budgets, DPS Staff recommends that the Joint Utilities submit station development cost estimates that would be filed during the comment period for this whitepaper. The utility-provided estimates should be based on historic costs and current trends. DPS Staff proposes that the estimates be used to establish the utility-specific incentive caps and maximum budgets that would be considered by the Commission. DPS Staff recommends that the maximum budgets remain fixed for the first three years of the program and should only change for the second half of the program if the Commissions determines modifications are necessary during the midpoint review.

Table 3a below shows: (1) the estimated eligible Make-Ready cost per Level 2 plug by geographic region; (2) the estimated total of eligible Make-Ready costs associated with the number of Level 2 plugs DPS Staff estimated are needed; and, (3) the estimated costs associated with the Level 2 Make-Ready Program. In developing the Level 2 program budget, DPS Staff assumed that all new public Level 2 plugs needed would meet the 90 percent eligibility criteria and all new workplace Level 2 plugs needed would meet the 50 percent eligibility criteria.

		Level 2 Make Ready Program Budget Estimate		
		Upstate	NY Metro	Total
Program Size	Public	25,362	13,924	39,287
	Non-Public	40,697	22,343	63,040
Estimated Make Ready Incentive per Plug	Public	\$ 4,500	\$ 8,187	
	Non-Public	\$ 2,500	\$ 4,549	
Estimate of Make Ready Incentive Budget	Public	\$ 114,130,809	\$ 114,004,020	\$ 228,134,829
	Non-Public	\$ 101,742,195	\$ 101,629,168	\$ 203,371,363
Total L2 Make Ready Incentive Budget Estimate		\$ 215,873,004	\$ 215,633,188	\$ 431,506,192

⁸⁶ Neither the plugs, nor the associated costs of the plugs allocated to Long Island are included in the Make-Ready Program budgets.

⁸⁷ EV BCA, p. 32.

Table 3a: Level 2 Make-Ready Program Budget Estimate

The DCFC Make-Ready Program chart below (Table 3b) shows: (1) the estimated eligible Make-Ready cost per DCFC plug by geographic region; (2) the estimated total of eligible Make-Ready costs associated with the number of DCFC plugs DPS Staff estimated are needed; and, (3) the estimated utility-funded costs associated with the DCFC Make-Ready Program. In developing the Make-Ready Program for DCFC chargers, DPS Staff assumed all new public DCFC plugs needed would meet eligibility criteria for the 90 percent level.

		DCFC Make Ready Program Budget Estimate		
		Upstate	NY Metro	Total
Program Size		1,676	920	2,597
Estimated Make-Ready Incentive per Plug	Meet 90% Criteria	\$ 45,000	\$ 81,873	
	Meet 50% Criteria	\$ 25,000	\$ 45,485	
Estimate of Make Ready Incentive Budget	Assume all meet 90% criteria	\$ 75,436,650	\$ 75,352,846	\$ 150,789,496

Table 3b: DCFC Make-Ready Program Budget Estimate

For the purpose of the Make-Ready Program, the number of eligible plugs per charger would be the number of plugs capable of simultaneous charging. For example, a charger with two types of plugs that can only charge one vehicle at a time would be considered one plug, while a charger with two plugs and load-sharing capability that can charge two vehicles simultaneously would be considered two plugs.

DPS Staff’s proposed tiered incentive levels consider the ratepayer perspective component of the EV BCA. The total make-ready costs associated with the number of plugs in the Make-Ready Program is estimated at approximately \$828 million for the NY Metro and Upstate areas combined. The maximum program budget is approximately \$582 million, adjusting the total make-ready costs downward to account for the 90% and 50% eligible make-ready costs for public and non-publicly plugs, respectively. Since the program is estimated to fund approximately 70 percent of make-ready costs, the ratepayer perspective from the EV BCA should be improved under all scenarios modeled.

Cost Containment

In order to encourage charging station development to align with the estimated number of plugs needed, DPS Staff recommends maximum budgets and utility-funded make-ready levels be developed and adopted for each utility. The maximum incentive for Level 2 station components of the Make-Ready Programs would be based on utility-specific average development costs of Level 2 stations. The maximum program budget would be capped at the maximum incentive level multiplied by the number of plugs needed. Each utility's share of the 79,798 workplace Level 2 plugs and 49,730 public Level 2 plugs would be established using the percent of light duty vehicle registrations in each service territory. To capture potential hardware and software cost declines, and the expected improvement in station economics that would result from increased utilization in the latter years of the program, DPS Staff suggests that the Commission limit Level 2 deployment to no more than 50 percent of the total number of plugs per service territory in the first three years of the program.

For the DCFC Make-Ready Program, DPS Staff proposes maximum incentive levels and budget caps similar to those for Level 2 plugs, with a slight modification. To encourage the development of EV charging infrastructure in desirable and geographically diverse locations, some of which may have more significant make-ready costs, DPS Staff recommends that developers be allowed to bundle costs from multiple DCFC site locations within a service territory. Developers would be allowed to create their own bundle of site locations, with the plugs all having to be completed during a developer-chosen 18-month period (Bundle Period). The Bundle Period would begin from the date of the bundling application being approved.

The total incentive payment would be capped at the lesser of 90% of eligible Make-Ready costs for all plugs completed during the Bundle Period submitted by the developer, or the maximum per plug incentive multiplied by the number of plugs installed during the Bundle Period. Once an application to bundle a group of plug installations is approved, the incentive for that application would be deemed committed. If a developer identifies additional locations suitable for development after their most recent bundling application has been submitted and approved, DPS Staff proposes that the developer should be allowed to submit an addendum to the bundling application to add additional plugs, which must be installed during the already-approved Bundle Period. The approval of this addendum would be subject to additional incentive payments being available within the Make-Ready budget.

The utility would put all utility-side Make-Ready work into plant in service once the plugs become functional. Any future EDF/CIAC payments made by the developer, at the conclusion of the Bundle Period, would be used to offset such plant investment. DPS Staff's bundling proposal for DCFC plugs is illustrated in Table 4 below:

DCFC Make-Ready Reimbursement Examples					
Utility Average of Eligible Make Ready Costs per Plug					\$50,000
[A] Maximum Incentive Level per Single Plug					\$45,000
[B] Percent of Eligible Costs Reimbursed					90%
Example 1					
Bundled Incentives Capped at 90% of Eligible Costs					
	Eligible Cost Per Plug	Number of Plugs	Eligible Costs at Site	Eligible Per Plug Incentive	Total Site Incentive
Site 1	\$70,000	10	\$700,000	\$45,000	\$450,000
Site 2	\$40,000	8	\$320,000	\$36,000	\$288,000
Site 3	\$20,000	6	\$120,000	\$18,000	\$108,000
		[C]	[D]		[E]
Total		24	\$1,140,000		\$846,000
	[F] Max Incentive Level per Plug		\$45,000		
	[G] 90% of Eligible Costs		\$1,026,000	[D] x [B]	
	[H] # of Plugs Times Max Incentive		\$1,080,000	[C] x [A]	
	[I] Total Incentive with Bundling		\$1,026,000	Minimum of [G] and [H]	
	Incremental Incentive with Bundling		\$180,000	[I] - [E]	
Example 2					
Bundled Incentives Capped at Maximum Incentive Times Number of Plugs					
	Eligible Cost Per Plug	Number of Plugs	Eligible Costs at Site	Stand Alone Incentive Per Plug	Total Site Incentive
Site 1	\$90,000	10	\$900,000	\$45,000	\$450,000
Site 2	\$40,000	6	\$240,000	\$36,000	\$216,000
Site 3	\$20,000	8	\$160,000	\$18,000	\$144,000
		[C]	[D]		[E]
Total		24	\$1,300,000		\$810,000
	[F] Max Incentive Level per Plug		\$45,000		
	[G] 90% of Eligible Costs		\$1,170,000	[D] x [B]	
	[H] # of Plugs Times Max Incentive		\$1,080,000	[C] x [A]	
	[I] Total Incentive with Bundling		\$1,080,000	Minimum of [G] and [H]	
	Incremental Incentive with Bundling		\$270,000	[I] - [E]	

Table 4: DCFC Reimbursement Examples

The maximum budget for the DCFC component of the Make-Ready Program would be capped at the maximum incentive level multiplied by the number of plugs needed (each utility's share of the 3,287 DCFC plugs) for each utility.

Cost Recovery

It is anticipated that EV load will generate incremental revenues, potentially lowering the revenue responsibility of existing customers within existing service classifications. While incremental revenues can be considered as an offset to some portion of the Make-Ready Program costs, DPS Staff proposes recovery through a combination of rate base treatment and existing surcharges.

Under DPS Staff's proposal, a Maximum Incentive Level (MIL) for each installation, by utility service territory, would be determined based on the eligibility criteria. This MIL would act as an offset to a portion of the Make-Ready costs required for EVSE installation. DPS Staff proposes that the incentive would first be used to offset a developer's utility-side Make-Ready costs. Rather than have a developer pay for all such costs, the incentive would have the utility treat such Make-Ready work as traditional plant investment which is incorporated into the utility's plant in service. This approach would align cost recovery for these traditional assets with their anticipated useful life.

If the utility-side Make-Ready cost exceeds the MIL for a given installation, then the developer would be responsible for paying for the balance of the utility-side Make-Ready work via an EDF/CIAC.⁸⁸ Should the MIL exceed the cost of the utility-side Make-Ready work, the utility cost of all such work would be treated as traditional plant in service, with cost recovery via the traditional ratemaking methodology. To the extent the MIL exceeds utility-side Make-Ready costs, utilities would provide a rebate to the developer. Utility expenses related to these rebates, including carrying charges on the net-of-tax balance, at the pre-tax cost of capital, would be deferred as a regulatory asset. It is anticipated that this regulatory asset would be collected through an existing surcharge. Collection would begin at the end of the first program year, with annual updates thereafter. DPS Staff proposes amortization of such over a period of 15 years to

⁸⁸ Those customer contributions would be considered taxable utility income, and the tax burden for such would be borne by all utility customers. DPS Staff expects that most installations would not require an EDF/CIAC payment.

mitigate short-term customer bill impacts and to align cost recovery with a conservative estimate of the anticipated useful life of the customer-side facilities.

Utilities' rate plans do not currently include costs associated with additional plant in service due to utility Make-Ready work. DPS Staff proposes that until such costs are reflected in base rates, utility-side Make-Ready costs⁸⁹ would be deferred as a regulatory asset and, at the end of each program year, be recovered over a one-year period via the same surcharge as the rebate amortization.⁹⁰

Some utilities have existing programs which address similar make-ready costs. Those programs may overlap with the proposed Make-Ready Program or may be complementary. DPS Staff requests proposals from utilities on how best to incorporate existing programs into the proposed Make-Ready Program.

Cost Allocation

It is well established that vehicle electrification results in environmental benefits, particularly reduced GHG emissions. Since CO₂, particulate matter, and NO_x reductions benefit all customer classes, DPS Staff proposes that the costs of the Make-Ready Program be allocated to all customer classes based on transmission and distribution revenues.

Performance-Based Regulation

REV requires performance-based regulation that rewards clean, cost-reducing, and value recognizing⁹¹ utility behavior. DPS Staff proposes that proper performance-based regulation of utility ownership of make-ready upgrades should require proof that the distribution grid is more resilient because of such investment. Deploying the infrastructure to meet the state's ZEV deployment goals at ratepayer cost, without quantifiable and demonstrable ratepayer benefit, would not be a successful program. DPS Staff suggests that it is not the electric regulator's prerogative to set forth a transportation electrification policy, but rather to support the state's

⁸⁹ These costs would include return on the average unrecovered investment net of deferred income taxes, and related depreciation expense.

⁹⁰ DPS Staff proposes that utility make-ready work associated with this program be excluded from each utility's downward-only plant in service reconciliation.

⁹¹ Both locational and temporal values are important.

transportation electrification policy with sound investment decisions that bolster the distribution grid.

A successful program would reward the Joint Utilities when they took a reasonable risk and performed make-ready work at the same time as planned utility construction work at a site where a developer does build an economically rational EV charging station. DPS Staff requests stakeholder input regarding whether an earnings adjustment mechanism (EAM), intended to facilitate near-term measures to create customer savings and develop market-enabling tools,⁹² is an appropriate way to incentivize the Joint Utilities to drive down costs while achieving deployment.

DPS Staff recognizes that many of the Joint Utilities already have access to Beneficial Electrification EAMs⁹³ that reward utilities for EV deployments in their service territories. Any additional incentives considered for the Make-Ready Program should factor in the existing Beneficial Electrification EAMs to ensure alignment and an appropriate incentive level.

Performance Tracking

The first annual reports for both the DCFC per plug rebate program⁹⁴ and the residential TOU rates⁹⁵ per PSL §66-o are due in January 2020. Regarding Make-Ready Program reporting,

⁹² Case 14-M-0101, *supra*, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued May 19, 2016), p. 12.

⁹³ The most recent rate case filings with Beneficial Electrification EAMs are: Case 17-E-0238, National Grid - Rates; Case 17-E-0459, Central Hudson - Rates; Case 19-E-0065, Con Edison - Rates; Case 19-E-0378, NYSEG – Rates; and, Case 19-E-0380, RG&E – Rates.

⁹⁴ The DCFC Program Order directed the Joint Utilities to file annual reports by March 1 following each program year detailing: the cumulative number of plugs for which the utility has received applications; the number of plugs in service and their geographic siting; the number of plugs under construction and their estimated in-service dates; station equipment type; installation costs; energy usage data including kWh dispensed, start/stop times, peak kW per charging station, amount of time each vehicle is plugged in, amount of time each vehicle is actually charging, and load curves; comparisons of peak DCFC station demand with local peak demand and system peak demand; usage fees; and, technologies used to manage demand.

⁹⁵ The Residential EV Tariff Order requires the Joint Utilities to file an annual report no later than March 1 containing: the number of customers who have arranged to have electricity delivered under the special TOU provisions per PSL 66-o; the total amount of electricity

DPS Staff does not think that annual reports alone offer enough market and program data at frequent enough intervals to appropriately scale down Make-Ready Incentives as station economics improve. Quarterly reports would allow DPS Staff and the Joint Utilities to recalibrate the incentive level based on actual market realities. DPS Staff suggests that the Joint Utilities engage a common consultant to perform these quarterly reports, the contents of which are described in greater detail in the “Data Requirements” section of this whitepaper.

DPS Staff proposes that the utilities measure and report performance in terms of infrastructure deployment and grid impacts/resiliency. Where the Joint Utilities take pro-active measures to align their planned work with Make-Ready Program work successfully, they should be rewarded.

Both Level 2 station owner/operators and DCFC station owner/operators would be subject to performance requirements. If a station owner/operator fails to meet these minimum requirements, that company/developer/owner/operator would be excluded from accessing any more Make-Ready Program funds. At a minimum, the following performance standards should apply:

1. All equipment installed at a site benefiting from a Make-Ready Program must be serviced (ongoing operation and maintenance supported) by the company/developer/owner/operator or must be replaced with newer technology that is supported.
2. If a Level 2 or DCFC station is out of service for more than 10 percent of the time, that station company/developer/owner/operator should be put on notice that they will not be eligible to receive future Make-Ready Program funds.

In addition to performance requirements imposed by the Commission, both EV charging stations participating in the Make-Ready Program, and stations not participating in the Make-Ready Program are subject to state regulation through the Department of Agriculture and Market’s Bureau of Weights and Measures. The Bureau of Weights and Measures inspects commercial devices that offer commodities for sale on the basis of weight, measure, or count,

delivered under the TOU special provisions; an estimate of how many EVs are in their service territories; and any future company plans for EVs.

and will test commercial charging stations to ensure that the customer receives the quantity of electricity paid for.⁹⁶

Data Requirements

In order to ensure maximum benefits to ratepayers and program participants, and to benefit from lessons learned that will be the basis of Make-Ready Program modifications, DPS Staff proposes that the Commission adopt minimum reporting requirements to apply to charging stations that receive ratepayer-funded support. Level 2 and DCFC Make-Ready Program participants must report this data to the utilities quarterly, and the utilities must provide DPS Staff with a quarterly report. DPS Staff recommends that each utility submit quarterly reports broken into a Level 2-specific section and a DCFC-specific section. The data should be published, aggregated, and anonymized to preserve sensitivity to competition and EV driver privacy, but the data should also be available to DPS Staff in a more useful and detailed format if needed. This data shall remain the property of the charging station owner/operator, and should not be used by the utility nor a third-party data collector for any purpose other than to inform DPS Staff and the public through an anonymized aggregated report. While the present policy regarding DER ownership and EV charging equipment ownership disfavors utility ownership, the utilities should use a third-party entity to collect, anonymize, and aggregate this data to protect against potential anticompetitive behavior.

To inform each utility's quarterly reports, Make-Ready Program participants should provide the following data: start and stop times of charges; 15-minute interval data; peak kW per charging session; number of sessions daily; amount of time each vehicle is plugged in per session; amount of time each vehicle is actually charging per session; whether the station owner is providing charging for free or if there is a usage fee to the EV owner; operating costs including non-energy related; any technologies being used to manage demand; and, what percent of service applications mature into operating stations, to inform if interconnection tools such as hosting capacity maps are adequate and working well. In addition to the station-level detail, the Joint Utilities should report: the number of station owners participating; number of sites for which incentives were issued; number of plugs installed, broken into Level 2 and DCFC; EVSE&I

⁹⁶ NYS CLS Agr & M §179.

costs incurred (equipment and installation); and, billed usage. DPS Staff is aware of some competitive market actors' concerns regarding utility control of station-level data, and acknowledges that this data should remain the property of the charging station owner/operator. DPS Staff believes where ratepayer funds are used, data must be collected and analyzed to promote maximum ratepayer benefit. To facilitate these quarterly reports and an annual progress report, DPS Staff suggests that the Joint Utilities engage a common third-party data aggregator.

PLANNING AND SITE PRIORITIZATION

System Mapping and Locational Issues

Thoughtful siting of charging infrastructure may support reduced installation costs, improved site host acceptance, and maximized use from drivers. DPS Staff's proposal, more thoroughly discussed in the suitability criteria below, would require electric utilities to identify locations suitable for EVSE&I siting, and to proactively educate developers on synergistic cost-saving opportunities.

Capital Planning Process

DPS Staff's 2018 Guidance regarding the bi-annual DSIP Updates⁹⁷ contained a number of recommendations for the utilities to better integrate EV adoption to the DSIP update process, including the incorporation of EV charging scenarios into the next DSIP Update. The Commission has not adopted that DPS Staff DSIP Guidance, but it is now appropriate to further build upon the Joint Utilities EV Readiness Framework. Specifically, the Joint Utilities' identified role for the near-term, whereby "demonstration and pilot projects will be the primary means for the utilities, in concert with stakeholders, to develop and test different EVSE deployment approaches" should not be true going forward.⁹⁸ While demonstration and pilot projects should remain the primary means for novel programs such as fleet and transit

⁹⁷ Case 16-M-0411, In the Matter of Distributed System Implementation Plans, DPS Staff Whitepaper: Guidance for 2018 DSIP Updates (filed May 29, 2018) (DPS Staff DSIP Guidance).

⁹⁸ Joint Utilities of New York EV Readiness Framework, available at: <https://jointutilitiesofny.org/wp-content/uploads/2018/03/Joint-Utilities-of-New-York-EV-Readiness-Framework-Final-Draft-March-2018.pdf>, p. 5.

electrification, testing metering configurations, and other innovative learning experiences, this should no longer be the primary means for the utilities to approach EVSE deployment.

DPS Staff recommends that the Commission require the utilities to incorporate EV charging scenarios, which will be referred to as EV Charging Infrastructure Forecast going forward, into their annual capital planning processes. The EV Charging Infrastructure Forecast should be developed by the Joint Utilities using a common framework (organization, format, definitions, etc.) to identify and characterize the existing and potential EV charging scenarios in the utility service territories. Each scenario identified should be characterized by: the type of location (home, apartment complex, store, workplace, public parking site, rest stop, etc.); the number and spatial distribution of existing instances of the scenario; the forecast number and spatial distribution of anticipated instances of the scenario over the next five years; the type(s) of vehicles charged at a typical location (commuter car, bus, delivery truck, taxi, ride-share, etc.); the number of vehicles charged at a typical location, by vehicle type; the charging pattern by vehicle type (frequency, times of day, days of week, energy per charge, duration per charge, demand per charge); the number(s) of charging ports at a typical location, by type; the energy storage capacity (if any) supporting EV charging at a typical location; an hourly profile of a typical location's aggregated charging load over a one year period; the type and size of the existing utility service at a typical location; and, the type and size of utility service needed to support the EV charging use case.

The Joint Utilities are in a unique position to leverage their distribution system data with their customer data. DPS Staff proposes that the Joint Utilities take an active role in identifying potential EV charging stations and include a minimum of five sites they believe are good candidates for EV station siting. The potentially successful EV charging station scenario should be informed by considerations that the Joint Utilities have the most knowledge of: adequate load serving capacity (i.e., no distribution system upgrades required); customer willingness to host a DCFC or Level 2 charging based on their customer relationships and prior utility engagement such as participation in energy efficiency or demand response programs; and, likelihood of successfully co-locating distributed generation or energy storage resources.

DPS Staff proposes that the electric utilities leverage the most recent EV Charging Infrastructure Forecast to develop: 1) a method to identify potential host sites, including evaluating load-serving capacity if not already available; and 2) screening criteria to their capital

planning processes to identify parts of the system suitable for hosting DCFC and high densities of Level 2 chargers, and to identify sites where planned work may accommodate infrastructure upgrades and provide enough amenities to justify the ratepayer funding risk.

When planned worksites that may also accommodate charging infrastructure are identified, the Joint Utilities should prioritize developer and site host education and outreach in these locations. In order to best promote these cost-saving opportunities, the Joint Utilities should propose a common methodology for alerting the developer community and a competitive, fair process for choosing which developer will build at such a site. The Joint Utilities should also provide best practices for safeguarding their customer information.

Suitability Criteria

DPS Staff recommends that the Joint Utilities establish common suitability criteria to identify potential public charging sites, with the objective of maximizing public charging utilization to ensure efficient use of ratepayer funds invested and provide fair and equitable access and benefit to all utility customers. Sites identified in the utility’s EV Charging Infrastructure Forecast should be evaluated based on three criteria summarized in Table 5 below: Load Serving Capacity, Charging Business Case and Strategic Location.

Load Serving Capacity Available	Charging Business Case	Strategic Location	Utility Action
YES	YES	YES	Targeted site host outreach
		NO	Targeted site host outreach
	NO	YES	Strategic Evaluation
		NO	No Additional Action
NO	YES	YES	Strategic Evaluation
		NO	No Additional Action
	NO	YES	Strategic Evaluation
		NO	No Additional Action

Table 5: EV Charging Infrastructure Forecast - Utility Action

DPS Staff recommends that locations not identified by the suitability criteria should be eligible to receive the make-ready incentive, subject to the eligibility criteria for the program. Developers should employ innovative business models and varying perspectives of market potential that justify the investment, even if the utility EV Charging Infrastructure Forecast does not identify a positive business case for example, and the Make-Ready Program should encourage this behavior.

Load Serving Capacity Maps

Each utility already has a publicly accessible hosting capacity map, focused on feeder-level analysis for large scale solar photovoltaic (solar or solar PV) systems interconnecting to distribution circuits 12 kV and above.⁹⁹ In the DSIP proceeding, the Commission recognized that “. . . the availability of hosting capacity data is one of the most fundamental elements needed for enabling DER development.”¹⁰⁰ Similarly, the availability of load serving capacity is valuable to EVSE&I developers as well as other customers looking to either expand or build new facilities.

Load serving capacity is similar to, but distinct from, hosting capacity in that the former is the utility system’s ability to supply energy to customer load while the latter is the system’s ability to accept energy from a distributed energy resource. DPS Staff suggests that developers work with the Joint Utilities to determine the most valuable interconnection locations, particularly with respect to siting DCFC stations. It should not be expected that the utilities would provide overlays of load serving capacity and traffic pattern maps, or similar value-added maps, but the utilities should reasonably evolve load serving capacity data to the industry’s needs. The Joint Utilities should not wait to be asked about availability but should publish granular load serving capacity maps. DPS Staff recommends that ratepayer funds be prioritized for sites that already have adequate load serving capacity.

⁹⁹ Joint Utilities of New York Utility Specific Hosting Capacity. Available at: <https://jointutilitiesofny.org/utility-specific-pages/hosting-capacity/>.

¹⁰⁰ Case 14-M-0101 et al., supra, Order on Distributed System Implementation Plan Filings (issued March 9, 2017) (March 2017 DSIP Order) p. 14.

Charging Business Case

The utility's EV Charging Infrastructure Forecast includes expected site utilization, site type and market dynamics impacting the various locations identified by the study, which can be used to identify locations that have positive expected Charging Business Cases. For sites that pass the Charging Business Case and Load Serving Capacity criteria, DPS Staff recommends that the utility develop a targeted outreach and education program for potential site hosts, since these sites will yield the highest system benefits with the least amount of ratepayer funding. For sites that meet the Load Serving Capacity criteria but fail the Charging Business Case criteria, DPS Staff recommends the locations remain on the Load Serving Capacity map, allowing developers the opportunity to consider alternative business cases where there is grid capacity.

Strategic Locations

Certain locations may provide additional benefits not considered in the first two criteria. Strategic benefits could include environmental or public health benefits in environmental justice areas, as well as hard to reach locations that may enable EV adoption and alleviate range anxiety in rural and suburban communities. If a site is deemed a Strategic Location but fails the Load Serving Capacity criteria, requiring system upgrades, the utility should conduct a Benefits Cost Analysis (BCA) to determine if the project is worthy of additional ratepayer support.

EV drivers in Upstate NY currently have few options for fast charging, and the limited options available are distributed over a wide geographic area. Developing additional high-power DCFC stations that are easily accessible and visible to consumers in the Upstate Regional Economic Development Councils (REDCs) will help mitigate range anxiety concerns and may, in turn, accelerate EV adoption in Upstate NY, resulting in an overall improvement to the future EVSE market for developers. The economics for high-power DCFC stations in Upstate NY in the early years of the Make-Ready Program are challenging because of the low EV penetrations and lack of density. Considering these challenging economics, DPS Staff recommends the seven Upstate NY REDCs, Capital Region, Central NY, Finger Lakes, Mohawk Valley, North Country, Southern Tier, and Western NY, be designated as strategic locations where a limited quantity of stations would be eligible for additional incentives. DPS Staff recommends that at least four (4) locations with four (4) 150 kW DCFC plugs at each site be developed in each Upstate REDC through a competitive procurement in the first year of the Make-Ready Program.

The additional strategic location incentive awarded through the competitive procurement would complement the make-ready incentives and would be funded from the Upstate NY DCFC budgets in an amount not to exceed \$5,000,000 state-wide. DPS Staff seeks comment on the need for, timing, and structure of the Upstate REDC strategic location incentive.

Resiliency and Storm Hardening

As EV adoption grows and a larger share of New York's transportation mix becomes electrified, resiliency will be an increasingly important planning and siting consideration for public charging infrastructure to ensure appropriate operation before and after major events. Utilities take measures to mitigate equipment failure and power outages due to storm events by reinforcing grid elements and raising key infrastructure in areas vulnerable to flooding. DPS Staff seeks comment on the need for and appropriateness of resiliency requirements for sites receiving incentives in the Make-Ready Program.

OTHER UTILITY ROLES

Outreach and Education

DPS Staff proposes that electric utilities must conduct effective outreach and education to EVSE&I developers. Electric utilities are naturally incented to promote EVs, as increasing load increases utility revenues, and should collaboratively work with developers absent regulator influence.

As discussed in the previous section, the Joint Utilities should publish load serving capacity maps to aid developers in their site selection process, and the Joint Utilities must ensure that the developer community knows where to find up-to-date maps and how to use them. As required by the DCFC Infrastructure Incentive Program, websites should be updated with useful information, program links, and program enrollment monthly. DPS Staff recommends that the Joint Utilities publish load serving capacity maps and the Make-Ready Programs on the Joint Utilities website¹⁰¹ in a manner consistent with the hosting capacity maps and DCFC per-plug incentive program information, to ensure developers have a common and easy to find location for all of the relevant EVSE&I program resources. Because the Make-Ready Programs may

¹⁰¹ Available at: <https://jointutilitiesofny.org/utility-specific-pages/>.

significantly increase the amount of content for EVSE developers on the Joint Utilities website, DPS Staff recommends that the Joint Utilities also re-evaluate how EV program content is organized on the Joint Utilities website.

Once a ratepayer becomes an EV owner the Joint Utilities should play a critical role to encourage beneficial charging behavior, but outreach and education to induce EV sales should not be ratepayer-funded initiatives carried out by utilities. If the Joint Utilities choose to conduct consumer outreach targeted at influencing their electric customers to become EV owners, they should use shareholder money. The Joint Utilities are best positioned to educate their customers on the many electric rates available and how EV charging impacts the grid.

Utilities should also conduct effective outreach and education to EVSE and charging infrastructure developers. Electric utilities are naturally incentivized to promote EV uptick, as increasing load will generally increase utility capital expenditure, and they should collaboratively work with EVSE developers absent regulator influence. While DPS Staff has not heard of EVSE developer complaints regarding utility interconnection services in New York to date, as the number of charging stations grows so too will the demand on electric utility employees. The Joint Utilities should effectively streamline utility core competencies, build out useful tools, and conduct effective outreach and education to EVSE developers on site selection, availability, and timing with planned capital upgrades or routine construction.

The goal of utility outreach and education directed towards the developer community is to minimize developer soft costs and more effectively use utility personnel.

Interconnection

Each utility processes EV charging infrastructure applications as new service requests, with unique site and system impacts, and in some cases the infrastructure interconnection is likely to require system upgrades.¹⁰² This core utility competency must continue to be effectively managed, even as greater volumes of charging station applications are submitted. There does not currently exist a standard utility rule set for managing EV charging infrastructure applications, although the Standardized Interconnection Requirements for New Distributed

¹⁰² In cases where no distribution system equipment upgrades are needed, the interconnecting utility is likely unaware that a charging station is being installed at all.

Generators and Energy Storage Systems 5 MW or Less Connected in Parallel with Utility Distribution Systems (SIR) may be a useful model. The adequacy of existing processes, and the impacts of any variability among the utilities, should be examined to determine whether efforts should be made to establish specific procedures. Applying one aspect of the SIR, the Interconnection On-Line Application Portal (IOAP), to EV charging service requests, is advisable.

DPS Staff recommends that the Commission direct the Joint Utilities to develop a web-based application submittal process that also provides applicants with updated information regarding the status of their project. Similar to the SIR IOAP minimum information requirements, DPS Staff suggests that the Joint Utilities include: (1) the applicant's name, contact information, and project/application identification number; (2) a description of the project, including at a minimum: the project's technology type, kW or MW size, number of plugs, and location; (3) project application status, including all the steps completed and to be completed, along with corresponding completion/deadline dates and acting party (either the utility or the applicant) associated with each step; (4) information regarding any outstanding information request made by the utility from the applicant; and, (5) the status of all amounts paid and/or due to the utility by the applicant.

Developers should have a common experience across all New York utilities, and the Joint Utilities should develop a common IOAP for EV chargers, and substantially similar Make-Ready Program applications. The Joint Utilities should anticipate an uptick in EV charging station applications once the Commission rules on DPS Staff's Make-Ready Program proposal, and should appropriately manage their resources to meet the industry's needs and avoid queuing problems. Dedicated EV team members should already be in place at each of the Joint Utilities, and these EV teams should be a cross-functional group comprised of interconnection experts, distribution system planners, and other key subject matter experts.

Managed Charging and Vehicle-to-Grid

As EV load grows, the importance of managing charging load to minimize impact to the distribution system will become more important. EVs can operate as a source of grid services and system value bringing down the total cost of ownership of EVs. The Joint Utilities can use customer-owned EVs to balance the expected increase of variable renewable generation on their

systems if they engage in efficient distribution system planning today. In order to tap into that value, data and instrumentation needs require further development. The New York Independent System Operator, Inc. (NYISO) rules for DER aggregations, metering and inverter technologies, EV manufacturer guidelines, and customer acceptance/adoption/propensity are all challenges in this area, and further evaluation is needed.

Vehicle to Grid (V2G) is not a product, but a concept to align electric vehicle charging with the needs of the grid. There are two forms of managed charging: active and passive. Active managed charging relies on communication or dispatch signals from a utility or aggregator sent to a vehicle or charging equipment to adjust the time of charge or rate of charge. Passive managed charging relies on customer behavior, such as by influencing charging times through TOU rates. New York already offers passive managed charging through residential TOU rates and demand charges. Active managed charging initiatives depend on the technology landscape, and more needs to be known before a large-scale program is offered statewide.

DPS Staff sees a potential opportunity to generate value for vehicle owners, grid operators, and ratepayers through vehicle-grid interactions, such as V2G. There are immediate opportunities for utilities to work with partners to enable V1G, which consists of one-way communication from a utility to a vehicle or charging equipment to set times for charging, curtail charging, or otherwise direct charging behavior. At this time, there are a number of questions that must still be addressed before more complex vehicle-grid interactions can move forward at scale, including:

- What is the value of electric vehicles providing grid services?
- What are the technical standards and infrastructure needs to enable V2G?
- Must there be universal bi-directional communication and power standards?
- How do EVs engage with NYISO markets?

The Commission is continuing to learn about the V2G through a REV Demonstration Project in Con Edison's territory utilizing electric school buses.¹⁰³ The project is designed to examine the technical and operational viability of using school buses as both a grid resource and transportation asset. Key tests include determining whether electric school buses function well for transportation purposes, whether their use as grid assets causes excessive wear and tear on the

¹⁰³ Case 14-M-0101, REV Demonstration Project Implementation Plan Electric School Bus V2G (filed November 13, 2018).

equipment, and if they are reliable as grid assets. The large battery capacity and idle time of school buses may provide opportunities to provide wholesale energy market services to the NYISO and distribution services to the utility or Distribution Service Provider (DSP). PSEG-LI has also proposed a V2G School Bus project for LIPA's territory. Utilities and market participants should learn from these projects about the value of V2G for utilities, the NYISO, bus owners, and battery providers.

NYSEG is working on a REV Demonstration project to manage home Level 2 charging, where customers will select when they need their EV fully charged and NYSEG's system will adjust the customer's electric rate based on the available flexibility. From the consumer's perspective, the longer she is willing to delay the receipt of a specified quantity of energy, the less that customer pays (per unit) for said energy. The electric utility, on the other hand, implicitly purchases the right to manage the real-time delivery of energy to participating consumers by offering a discount on energy with longer deadlines on delivery. The longer the consumer-specified deadlines, the more flexibility the electric utility has in meeting their corresponding energy requirements. These demonstration projects are just beginning and DPS Staff recommends that the Commission wait to require standards regarding V2G and V1G until more is known and results of demonstrations are studied.

The California Public Utilities Commission (CPUC), in collaboration with other state agencies, is developing policies that support vehicle-grid integration (VGI). VGI helps align EV charging with the needs of the electric grid. To do this, EVs must have capabilities to manage charging or support two-way interaction between vehicles and the grid. As directed by the CPUC Development of Rates and Infrastructure for Vehicle Electrification and Charging (DRIVE) Final Decision Rulemaking, a new 2019 VGI Working Group will answer at a minimum: 1) what VGI use cases can provide value now, and how can that value be captured; 2) what policies need to be changed or adopted to allow additional use cases to be deployed in the future; and, 3) how does the value of VGI use cases compare to other storage or DER?¹⁰⁴ DPS

¹⁰⁴ 18-12-006, Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification and Closing Rulemaking (issued December 19, 2018). Available at: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M252/K025/252025566.PDF>.

Staff suggests that the Commission direct a collaborative on V2G and V1G to determine how to enable these potential EV uses.

Metering & Technology Standards

DPS Staff recommends that the Commission encourage open communications protocols, open access networks, and interoperability without penalizing proprietary technology types. As shown by the commitment to standardized, non-proprietary plug types in the DCFC per-plug incentive program, New York is driving towards standardization to provide maximum benefits.

To facilitate agreement around needed standards and protocols, DPS Staff proposes that stakeholders and relevant state agencies engage in a working group to develop minimum standards and protocols, similar to the California Energy Commission and California Public Utilities Commission's Vehicle-Grid Integration Working Group.¹⁰⁵ When standards are ready for deployment, DPS Staff suggests that the Commission consider adopting baseline standards in: engineering and safety, payment, communications, and interoperability. Specifically, DPS Staff proposes that the stakeholder group explore open technical standards such as the International Electrotechnical Commission (IEC) accepted OpenADR 2.0b, International Organization for Standardization (ISO)/IEC 15118, and the Open Charge Point Protocol (OCPP).

Utility grade meters are needed for utility grade billing at present, but as AMI is adopted in the utility service territories throughout the State, DPS Staff is hopeful that more economic methods of sub-metering EV chargers will be developed.

The BCA finds that to maximize societal benefits from EV adoption, EV drivers should do most of their charging at off-peak times when there is sufficient capacity in the electrical grid and additional demand will not trigger the need for additional capacity. While the Commission has already addressed residential EV rates in the Residential EV Tariff Order, those rates are whole house rates, which many customers are reluctant to adopt because their household usage patterns cannot be controlled as easily as their EV charging time. Some utilities have addressed this issue by allowing customers to sub-meter their EV charger. In most cases submetering the EVSE in a residential application is cost-prohibitive, as the cost of the additional meter is greater than the achievable savings from an EV-only TOU rate.

¹⁰⁵ See the 2019 Vehicle-Grid Integration Working Group initiatives, available at: <https://gridworks.org/initiatives/vehicle-grid-integrationwg/>.

Con Edison's SmartCharge NY program provided an incentive to charge at off-peak times by tracking the EV's charging through the car's diagnostic port. The three-year program (2017 to 2019) tracked participating enrollee EV driver charging behavior through FleetCarma's tracking device that plugs into the EV's diagnostic port—a smart grid solution that collects driving and charging data and communicates this information using a cellular network. Participants in the SmartCharge NY program earned monthly SmartCharge Rewards, with bonuses applied for avoiding charging during peak hours in the summer months. In addition, off-peak charging was incentivized year-round with per-kWh rewards. SmartCharge Rewards can be redeemed for e-gift cards to retailers such as Amazon, Target, or REI. While this program has proven effective in altering customer behavior to avoid on-peak charging, it is not clear that this is a long term and mass market solution because of the cost of the program, specifically the FleetCarma device and ongoing service. DPS Staff expects that the automated, connected, electric, smart vehicles of the future will adopt varying software, depending on the targeted market and OEM.¹⁰⁶ While DPS Staff does not propose that the Commission regulate vehicle software systems, the importance of current software systems enabling future use cases, like V2G, should be highlighted.

Utility EVSE Ownership

DPS Staff sees no compelling reason to recommend modifying Commission policy on utility ownership of DER as it relates to EV chargers. In the REV Framework Order, the Commission articulated the policy that DER development should occur through competitive markets as opposed to ratepayer funding, and only in limited circumstances would utility ownership of DER be allowed.¹⁰⁷ Because of incumbent advantages, utility ownership- even the potential for ownership, risks discouraging potential investment from competitive providers.¹⁰⁸

¹⁰⁶ For example, the new Porsche Taycan is sold with three years of free in-car mobile internet connectivity to enable Porsche Communication Management (PCM) functionality. After three years, DPS Staff would expect internet connectivity and the PCM to continue to enable Taycan drivers to participate in available smart charge or TOU programs, demand response programs, and other V1G or V2G programs.

¹⁰⁷ REV Framework Order, p. 67.

¹⁰⁸ REV Framework Order, p. 67.

DPS Staff asserts that this underlying rationale for limiting utility ownership of DER applies with equal force to EV charging infrastructure. Therefore, DPS Staff recommends that the Commission continue allowing utility ownership of EV charging assets in very limited circumstances.¹⁰⁹

While the nascent market continues to develop and the number of available EVs grows, aside from REV demonstration projects, future utility ownership of charging stations should be limited.¹¹⁰ As evidenced by the Make-Ready Program proposal, DPS Staff is proposing utility ownership of the distribution system infrastructure needed to serve private entity owned charging stations. The private market is expected to build, own, and operate the charging stations in order to foster a competitive environment and drive down EV customer costs.

As EVs are deployed in greater quantities and the market matures, there may be a role for utility ownership in areas where the market is not satisfying demand. If required, that support, under the market failure reasoning adopted in the REV Framework Order, may include utility ownership of EV charging infrastructure.¹¹¹ DPS Staff does not see evidence of market failure in the broader EV charging industry landscape and suggests that utility ownership of EV charging stations should continue to be restricted, though market animation to drive down costs and encourage consumer choice and confidence is appropriate at this time.

Underserved Communities

As the State Energy Plan and the CLCPA highlight, environmental justice communities have been disproportionately impacted by air pollution from fossil fuel-based transportation infrastructure siting. Current demographics of EV ownership are typically, but not exclusively,

¹⁰⁹ There are a number of existing REV demonstration projects where the value of lessons learned justified utility owned charging infrastructure. For example, NYSEG and RG&E have a Smart Home Rate demonstration project to test price signals and the resulting customer response. RG&E has another demonstration project that pairs battery storage systems with Level 2 and DCFC chargers to minimize charging costs and seek additional value streams for the battery. Con Edison is engaged in an electric school bus V2G demonstration project and has proposed a curbside charging pilot program.

¹¹⁰ DPS Staff is not suggesting that the Joint Utilities divest existing charging assets, but that the Joint Utilities not invest in new EV charging infrastructure outside of Commission-approved programs.

¹¹¹ REV Framework Order, p. 67.

“early adopters,” higher-income individuals living in single family homes. As EV prices come down and more used EVs come to the market, it will be appropriate to develop more charging infrastructure in environmental justice communities and rural neighborhoods. Additionally, communities with low vehicle ownership rates, that are disproportionately impacted by air pollutants due to their proximity to heavily trafficked roads and highways, will benefit from a greater share of EVs on the roads.

As mentioned in the Scope and Purpose of the Whitepaper section, the electrification of certain public interest medium- and heavy-duty vehicle types such as bus fleets and trucking can provide additional access to EVs and improved air quality for many disadvantaged communities. New York State has a number of initiatives underway to expand the use of electric vehicles in the medium and heavy-duty fleets, including the Metropolitan Transit Authority (MTA) commitment to electrify 100 percent of its bus fleet by 2040. Transit agencies across the state have begun working with NYPA, NYSEERDA, DEC, and DOT on infrastructure build-out and electric bus purchases. The Clean Transportation New York plan will invest at least 60 percent of the \$127.7 million Volkswagen settlement fund in vehicle electrification and the New York Truck Voucher Incentive Program administered by NYSEERDA and funded by DOT and DEC has already funded more than 60 electric buses and trucks, and will be spending more than \$18 million on additional buses and trucks going forward. Consideration of utility programs for medium and heavy-duty charging infrastructure will be addressed expeditiously in the open EVSE&I proceeding.

One key barrier to increasing EV usage in LMI households is these communities’ relatively high concentration in multi-family and/or rental units, which can limit charging options. While charging at home is usually the most accessible and convenient charging location, residents without garages, easy access to electrical infrastructure, or the ability to make modifications to existing structures may find it difficult to conveniently charge an EV due to the lack of non-residential charging infrastructure. The DCFC Make-Ready Program is designed to guarantee 20 percent of each utility’s budget is directed within 10 miles of a disadvantaged community, to increase the visibility and accessibility of EV charging infrastructure as well as increase electric miles driven by ride-hailing services in and around environmental justice areas.

As EVs quickly transition from the “early adopter” phase to mass market adoption, more charging infrastructure will be needed to ensure that all residents can take advantage of the

benefits of electric transportation. In particular, EVs can provide significant benefits to low-income households. Lifetime cost savings can decrease the burden of transportation costs, and the reduction of vehicle air pollution can help address environmental justice concerns for communities along highways and major transportation routes, which are already facing inequitable environmental hazards. Access to EV sharing programs can help increase mobility for communities that are otherwise substantially isolated from jobs, schools, health care, and other basic services. Program structures can vary; examples of approved programs that emphasize development in low-income or disadvantaged communities include:

- In Massachusetts, Eversource will install more than 4,000 make-ready Level 2 EV charging stations over five years, at least 10 percent of which will be located in low-income communities.
- California utility Pacific Gas and Electric (PG&E) will install 7,500 Level 2 EV chargers at condominiums, apartment buildings and workplaces, at least 15 percent of which will be located in disadvantaged communities.
- Southern California Edison (SCE) will deploy make-ready infrastructure for DCFC sites in urban areas in or adjacent to disadvantaged communities. Each site will have up to five dual-port charging stations, resulting in a total of up to 50 new DCFC ports that could serve residential customers who do not have access to charging at home. SCE will work with the site host to develop a load management plan and ensure charging rates are not cost-prohibitive. SCE will also provide rebate to help offset the cost of hiring a licensed electrician to install make-ready infrastructure and permitting fees to support Level 2 charging at home for up to 5,000 residential customers; half of the rebate funds will be reserved for customers living in disadvantaged communities.
- San Diego Gas and Electric (SDG&E) will partner with the California Department of Transportation (Caltrans) to install, own, and maintain 20 Level 2 charging stations and two DC Fast Chargers at each of four Park-and-Ride locations. The locations are in or adjacent to disadvantaged communities.

DPS Staff proposes that the Commission direct utilities and developers accessing ratepayer-funded incentives to purposefully deploy DCFC stations within environmental justice communities that have disproportionately poor air quality. Specifically, 20 percent of each

utility's publicly accessible DCFC Make-Ready Program budget should be directed towards stations within 10 miles of disadvantaged communities. DPS Staff welcomes stakeholder feedback on how to identify LMI and environmental justice communities and suggests that the DEC's Maps & Geospatial Information System Tools are an appropriate reference point when siting these publicly accessible DCFC stations.¹¹² Given the demographics of ZEV ownership, it is not clear that promoting Level 2 charging in LMI areas is the most effective path to increase EV penetration and decrease emissions, as opposed to other mechanisms for access to clean transportation.

Prioritizing public investment in disproportionately impacted areas is consistent with the CLCPA directive that actions taken by New York should prioritize the safety and health of disadvantaged communities. While the ZEV marketplace continues to mature to a state where used vehicles are more common and ZEV ownership is more financially feasible for low- and middle-income individuals and families, publicly accessible DCFC stations that serve ride-hailing fleets as well as privately owned and operated cars can reduce internal combustion engine (ICE) emissions and increase electric vehicle miles traveled, particularly in dense urban environments where ride-hailing is common.

Under the proposed Make-Ready Program framework, a public DCFC sited in or within 10 miles of a disadvantaged community would be eligible for 100 percent of the incentive in addition to the per-plug incentive program already available. These sites should be prioritized by the electric utilities, and applications that meet these criteria should be processed and interconnected on a priority basis. Allowing a publicly accessible DCFC station application that is sited in a disadvantaged community to skip an earlier DCFC station application may be disruptive to the private market and the utility administered queue. DPS Staff does not want to disincentivize any developers, and welcomes alternative methods to reward developers building in areas that will benefit historically disadvantaged communities. DPS Staff requests stakeholder feedback on the appropriate incentive level and siting criteria to promote EV penetration into environmental justice areas. It is also worth noting that DPS Staff's proposed budgets assume charging infrastructure is needed for full EV support and assumes that 25 percent of EV owners do not have access to home charging.

¹¹² Potential Environmental Justice Areas by County, available at: <https://www.dec.ny.gov/public/911.html>.

Rural areas

Some of the rural New York landscape is served by municipal electric utilities. The Municipal Electric Utilities Association (MEUA) and the New York Municipal Power Authority (NYMPA) participate in an Independent Energy Efficiency Program (IEEP), which has deployed hybrid trucks and meter readers in many municipal member fleets, as well as supported installing dual charging systems. The IEEP supported charging systems are installed near high visibility areas using in-kind labor provided by the municipal electric departments, but these chargers have seen low usage.¹¹³ DPS Staff will continue to engage with MEUA and NYMPA as appropriate to align municipal electric utility efforts with the needed statewide infrastructure.

ISSUES FOR FURTHER STAKEHOLDER COMMENT

Rate Design

DPS Staff suggests that while supporting the State's ZEV goals, the Commission should use a conventional cost-of-service ratemaking approach. The Commission specifically declined to grant a demand charge holiday in response to the Joint Petition, and stated that demand charges sent the appropriate price signals to consumers to influence behavior and reduce distribution grid impacts.¹¹⁴ At this time, DPS Staff does not propose any modification to the existing Commission policy preserving traditional cost-of-service based rate design. Modifying the rate design at this time is premature; at the DCFC per-plug incentive program's midpoint review the Commission should revisit this issue. DPS Staff continues to assert that electric rates for sophisticated customers, such as DCFC owner/operators, should be designed to reflect cost causation and create efficient use of the system. Customer demands drive a significant amount of electric utility transmission and distribution-related costs. Conversely, the electric utilities incur very limited, if any, transmission and delivery related costs driven by the volume of energy they deliver. Volumetrically applied TOU rates that are revenue neutral to the existing demand charge rates will not likely generate incremental benefits to charging station developers. Depending on station utilization rates, a TOU rate that is designed as revenue neutral to the

¹¹³ Case 18-E-0138, MEUA NYMPA Panel (filed July 20, 2018).

¹¹⁴ DCFC Program Order, p. 34.

applicable demand billed service class will create winners and losers. Under a revenue-neutral volumetric TOU rate, higher utilization stations would see less favorable economics, which could create a disincentive to success.

Commercial Fleets

DPS Staff supports policies that encourage fleet electrification while minimizing impacts on the electric grid. Integrating battery-based energy storage systems into charging infrastructure may offset costly grid upgrades, and this approach should be used to electrify fleets located where the distribution system cannot handle an upgrade of the magnitude needed to support charging the new EV load. The Commission's Energy Storage Deployment Program provides incentives for retail, demand metered customers that install new energy storage systems and meet other eligibility requirements.¹¹⁵ Deploying this complementary technology at charging locations may alleviate some needed distribution system upgrades and provide a potential revenue stream to fleet managers. By participating in a utility demand response program or by participating in the NYISO markets, fleet managers may be able to monetize EV charging assets coupled with energy storage systems to access additional value streams and markets. DPS Staff does not see these participation models as realistic value streams in New York's marketplace right now, but encourages fleet managers and companies offering V2G services to develop replicable participation models.¹¹⁶

Light duty fleet electrification may be encouraged by the workplace Make-Ready Program proposed in this whitepaper, but the program is not envisioned to support electrifying commercial fleets comprised of medium and heavy-duty vehicles. DPS Staff recommends that each electric utility offer new services to customers interested in fleet electrification. This Fleet Assessment service should consist of a site feasibility analysis and a rate analysis. The site feasibility analysis should be based on the maximum power draw of an electrified fleet to determine if the local distribution system can accommodate that increased load. The site feasibility analysis should include all planned utility work on the distribution system both nearby

¹¹⁵ Case 18-E-0130, NYSEDA Retail Energy Storage Incentive Program, Program Manual (filed August 13, 2019).

¹¹⁶ DPS Staff believes that fleet charging will evolve to capture grid benefits, as some companies presently advertise. For example, see: <https://nuvve.com/fleet-solutions/>.

and on the infrastructure serving the existing depot, to find cost-saving synergies that may exist. The rate analysis should be tailored to each depot location, and the fleet manager should understand all rate options available, as well as a reasonably certain range of costs they may expect based on their charging behavior.

CONCLUSION

This Make-Ready Program, coupled with other New York State activities, the DCFC per-plug incentive, and private market development, is expected to enable New York to reach its 850,000 ZEVs by 2025 goal and put the State on a trajectory to increased ZEV adoption through 2030 and beyond. DPS Staff's proposals are based on current best thinking, and should be further informed with ongoing stakeholder engagement. DPS Staff plans to host an "EV Make-Ready Conference" that will allow stakeholders the opportunity to provide feedback and discuss alternatives to the proposals in this Whitepaper. An agenda will be filed in advance which will include topics such as the eligibility criteria, future-proofing, and considerations for underserved communities. Additionally, DPS Staff suggests hosting an "EV Readiness Working Group" to facilitate developing the tools and functionalities needed to meet this level of infrastructure deployment. This EV Readiness Working Group should draw upon the lessons learned and successful examples of the Interconnection Policy Working Group and the Interconnection Technical Working Group. DPS Staff expects to host the EV Make-Ready Conference and EV Readiness Working Group kick-off conference during the SAPA notice and comment period.

EVSE&I MAKE-READY PROGRAM FACT SHEET

Program Timeline & Reporting

- Through December 31, 2025 to coincide with the DCFC per-plug incentive program and the ZEV MOU goal of 850,000 EVs in New York by 2025
- Maximum Incentive Level (MIL) based on utility-specific average development costs of Level 2 and DCFC stations
- Quarterly utility-specific program reports to facilitate incentive level adjustment and annual progress report to facilitate midpoint review
- Socialized cost recovery through existing surcharge, allocated to all customer classes based on transmission & distribution revenues

Eligible Costs and Ownership		
Distribution System to Customer Meter	Panel, Trenching & Conductor	EV Charger
Utility owned	Customer owned	Customer owned
Eligible	Eligible	Not eligible

Eligibility Criteria		
	Level 2	DCFC
Accessibility	Must be accessible to the public (no access fee or restricted access)	
Station Maturity	Must be a new station, without firm commitment to take service-evidenced by building permit issuance or CIAC payment after Commission ruling on proposed program	
Plug Type	SAE J plug	Standardized, non-proprietary
Standards to be Considered	<ul style="list-style-type: none"> • International Electrotechnical Commission (IEC) accepted OpenADR 2.0b • International Organization for Standardization (ISO)/IEC 15118 • Open Charge Point Protocol (OCPP) 	
Future-proofing	Must oversize all components that can be done with minimal incremental cost to accommodate upgrades to the quantity or charging capacity of the station	
Location Capacity	---	4 to 10 plugs per location; Maximum charging capacity of 2 MW
Support Level	<ul style="list-style-type: none"> • 90% if all criteria met • 50% if has SAE J plug but does not meet accessibility criteria 	<ul style="list-style-type: none"> • 90% if all criteria met • 50% if does not meet standardized plug type and accessibility requirement

Estimated Program Cost

- Level 2 budget estimate: \$431,506,192
- DCFC budget estimate: \$150,789,496
- Maximum program budget: ~\$582 million