

VIA ELECTRONIC FILING

April 27, 2020

Hon. Michelle L. Phillips
Secretary to the Commission
New York State Public Service Commission
Empire State Plaza
Agency Building 3
Albany, NY 12223-1350

*RE: Comments by ChargePoint on Whitepaper in Case No. 18-E-0138: Proceeding on Motion
of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure*

Dear Secretary Philips,

Attached for electronic filing in the above-referenced matter, please find comments by
ChargePoint, Inc.

Respectfully,



Kevin George Miller
Director, Public Policy
ChargePoint

I. Introduction & Background on ChargePoint

A. Introduction

On January 13, the New York Department of Public Service (“DPS”) Staff (“Staff”) released its *Whitepaper Regarding Electric Vehicle Supply Equipment and Infrastructure Deployment* (“Whitepaper”). The Whitepaper was developed at the direction of the Public Service Commission (“Commission”).

ChargePoint applauds DPS Staff for the proposed Make-Ready Program (“MRP”). We are pleased to support the MRP and offer these comments in response to the proposed program design, as well as related issues raised in the Whitepaper.

In summary, our comments are as follows:

- The proposed MRP is, and must remain, consistent with the Reforming the Energy Vision (“REV”) Order Adopting Regulatory Policy Framework and Implementation Plan.
- Cost assumptions should include both *low-* and *high-end* ranges for direct equipment and make ready costs to better reflect industry experience.
- A Program Advisory Council should be established to enhance program evaluation and implementation at regular intervals, especially in the early years of the MRP.
- Barriers to participate in the MRP should be reduced via mechanisms to broadly recruit site hosts, both by avoiding inadvertent limitations on participation and by seeking MRP participants through multiple channels.
- Fiscal control mechanisms will be an important part of the MRP that should be established with the benefit of actual MRP program data.
- The MRP should require a minimum number of two (2) EVSE ports per location installed upfront and maintain prudent future-proofing requirements.
- There should be parity among Incentive levels for workplace, public, and residential to ensure Zero Emission Vehicle (“ZEV”) goals are achieved.
- Utilities should have flexibility to propose additional incentives for strategic locations and underserved communities.
- The demand charge incentive should be modified to design incentives to support EV adoption should value more ports with smart power sharing over fewer ports with unused power and diminishing returns in incremental charging speed.

B. Background on ChargePoint

ChargePoint is the world’s largest electric vehicle (“EV”) charging network, with charging solutions for every charging need and all the places EV drivers go: at home, work, around town and on the road. With more than 111,000 independently-owned charging spots, ChargePoint drivers have completed more than 77 million charging sessions, saving upwards of 91 million

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gallons of gasoline and driving more than 2 billion gas-free miles. Drivers have over 4,700 places to plug in across New York.

ChargePoint designs, develops, and deploys residential and commercial AC Level 2 (“L2”) and Direct Current (“DC”) fast charging (“DCFC”) stations, cloud-based software applications, data analytics, and related customer and driver services aimed at creating a robust, scalable, and grid-friendly EV charging ecosystem.

In almost every case, ChargePoint does not own or operate the equipment. ChargePoint sells charging solutions to a wide variety of customers, including residential EV owners, employers, commercial and industrial businesses, cities and public agencies, ports, schools, public transit, delivery truck fleet operators, and multi-unit dwelling owners.

The site host network services offered by ChargePoint provide the station owner or operator with everything needed to manage and optimize utilization of their charging stations, including online management tools for data analysis, billing and payment processing, load management and access control. ChargePoint’s network services can similarly be managed by utilities to enable load management and data analytics more broadly.

Stations connect to ChargePoint over a secure, cellular data network (or Wi-Fi in the case of single-family residential) allowing station owners to manage all their charging operations from a single dashboard. Maintenance and customer service are a priority. ChargePoint offers a comprehensive set of support services, including: a 24/7/365 hotline for station users, parts and labor warranty, site qualification, installation and validation services, and a helpline for site host specific questions.

ChargePoint also offers customers a subscription solution for EV charging called, “ChargePoint as a Service”. which is an easy way for customers to provide EV charging solutions. It is similar to “Software as a Service” models, which offer access to smart solutions at a reduced cost through subscription pricing.

II. Comments on General Program Design

A. The Make-Ready Program will help to achieve state goals, aligns with REV principles, and is consistent with best practices in utility EV charging programs.

Staff explain the MRP as *“utility ownership of the distribution system infrastructure needed to serve private entity owned charging stations [with the] ... private market expected to build, own, and operate the charging stations in order to foster a competitive environment and drive down EV customer costs.”*¹

¹ Whitepaper at 55

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The MRP is consistent with approaches taken in the majority of utility EV charging programs around the country and plays to the strengths of utilities as well as competitive market site hosts, vendors, and EV service providers (“EVSPs”). A cohesive partnership between regulated utilities and competitive market actors will be critical to meeting New York State’s ambitious energy, environmental, and transportation goals.

B. MRP is, and must remain, consistent with the REV Framework Order

The MRP “seeks to enable a competitive private market” for EVSE in New York “that is only accessible to competitive third-party developers.”² This approach is consistent with the Commission’s REV Framework Order. The MRP will incentivize EVSE deployment in a manner that supports product innovation and customer choice of equipment and services, without discouraging private investment. The Whitepaper accurately observed that competitive ownership “is a core REV principle”³ and that, in order to “encourage maximum participation and ensure appropriate State support, this Make-Ready Program should be discreet from other publicly funded initiatives.”⁴

Staff identifies that the MRP was designed to avoid the “several significant downsides” of “utility ownership of charging...including limiting market competition and innovation.”⁵ We urge the Commission to clarify its above-referenced definition of “competitive third-party developers” includes neither investor-owned nor public utilities in New York that are capable of exercising market power.

We should note that our concerns regarding competitive market impact do not extend to individual municipal utilities, regional electric cooperatives, or in circumstances that have been clearly defined by the Commission, such as aiding underserved communities and for limited demonstration purposes. The scale and scope of the MRP exceed the bounds of that which could reasonably be considered a demonstration project.

III. Comments on MRP Cost Assumptions and Design

A. Suggested Revisions to Whitepaper Cost Assumptions

ChargePoint appreciates that the MRP relies heavily on an analysis of capital and operating costs. We offer our feedback on cost assumptions and analysis below.

² Whitepaper at 20.

³ Id. at 21

⁴ Id. at 20

⁵ Id. at 21

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1. Capital Costs

After reviewing Whitepaper assumptions⁶ alongside internal, non-proprietary cost guidance,⁷ we recommend Staff revise projections to reflect (i) cost variability and (ii) typical direct capital costs. This cost guidance does not reflect indirect costs borne by investor-owned utilities, such as overhead or allowance for funds used during construction (“AFUDC”), which are included in total capital costs closed to plant.

Table 1. Comparison of Direct DCFC Cost Assumptions

Comparison of DCFC Cost Assumptions - Upstate					Comparison of DCFC Cost Assumptions - NYC/Metro				
Cost Component	4 x 50kW		4 x 150kW		Cost Component	4 x 50kW		4 x 150kW	
	Low	High	Low	High		Low	High	Low	High
Make Ready	\$136,000	\$592,000	\$312,000	\$847,000	Make Ready	\$136,000	\$592,000	\$312,000	\$847,000
Equipment	\$120,000	\$200,000	\$240,000	\$440,000	Equipment	\$120,000	\$200,000	\$240,000	\$440,000
Total	\$256,000	\$842,000	\$552,000	\$1,337,000	Total	\$256,000	\$842,000	\$552,000	\$1,337,000
Delta	(\$23,500)	(\$609,500)	(\$152,000)	(\$937,000)	Delta	\$68,760	(\$517,240)	\$11,881	(\$773,119)
Whitepaper	\$232,500	\$232,500	\$400,000	\$400,000	Whitepaper	\$324,760	\$324,760	\$563,881	\$563,881

Table 2. Comparison of Direct Level 2 Cost Assumptions

Comparison of Level 2 Cost Assumptions - Upstate					Comparison of Level 2 Cost Assumptions - NYC/Metro				
Geographic Region	Equipment		Installation		Geographic Region	Equipment		Installation	
	Low	High	Low	High		Low	High	Low	High
Upstate	\$4,500	\$7,210	\$6,000	\$15,000	NYC Metro	\$4,500	\$7,210	\$6,000	\$30,000
Delta	(\$1,300)	(\$4,010)	(\$2,660)	(\$11,660)	Delta	(\$1,300)	(\$4,010)	(\$2,660)	(\$26,660)
Whitepaper - L2	\$3,200	\$3,200	\$3,340	\$3,340	Whitepaper - L2	\$3,200	\$3,200	\$3,340	\$3,340

- Cost Variability.** The Whitepaper assumes fixed values for direct capital costs, which does not reflect the significant variability experienced by developers and site hosts. This is particularly true for make ready costs, which are driven by a range cost components that differ significantly by site. We recommend revising MRP cost projections to include both a *low-end* and *high-end* range to better reflect industry experience and appropriately set expectations for MRP participants. We further recommend noting that MRP cost projections, to the extent they include make ready costs that would be included in IOU rate base, do not include indirect costs like overheads and AFUDC.
- Typical Capital Costs.** We find MRP capital assumptions to be significantly below what can be expected in the market. If Staff maintain fixed values in the Final Whitepaper, we recommend adopting more conservative assumptions than the average of our *low-end* and *high-end* costs (i.e., budgeting between 125% and 200% of average capital cost per-site). Should Staff agree to adopt *low-end* and *high-end* assumptions, we recommend values consistent with the scale identified in Attachment A.

⁶ Non-proprietary cost guidance was developed internally and reflects industry-wide experiences with equipment and customer-side make ready installation costs and is included as Attachment A.

⁷ Whitepaper Table 1 at 24

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2. Operating Costs

ChargePoint cautions against basing rigid program requirements on station utilization assumptions. As explained in Section II.B, EV charging is frequently provided as an amenity to employees, visitors, residents, and guests. Reviewing station utilization in the abstract may therefore fail to account for the variety of direct and indirect revenue streams and value propositions associated with successful EVSE deployments.

If Staff prefer to include modeling of operating conditions in the Final Whitepaper, ChargePoint recommends avoiding excessively optimistic assumptions. For example, the Whitepaper assumes that an Upstate deployment of four (4) 50kW DCFC will experience an average of 2-to-3 sessions/port/day in the first year of the program. We recommend more conservative initial assumptions (e.g., 0.5-to-1.5 sessions/port/day).

In addition, we also wish to make Staff aware of emerging EVSE deployment business models in which EV charging stations are offered through an “as-a-Service” model. In this model, the site host CapEx would be limited to make ready site preparation and OpEx would cover EV charging equipment and network services, with EVSE title retained by the third-party provider.

B. Suggested Revisions to Process and Program Design

1. Establish a Program Advisory Council to inform program evaluation

The Whitepaper proposes “*quarterly utility-specific program reports to facilitate incentive adjustment and an annual progress report to facilitate midpoint review*”⁸ that would not take place until October 1, 2023. ChargePoint is concerned that committing to any program design for three years without an opportunity for review would prevent the program from adapting to technological and market developments and fail to take advantage of valuable insights from participating stakeholders.

In order to increase program transparency and accountability, we recommend establishing a Program Advisory Council (“PAC”) that would meet quarterly to review pertinent metrics and evaluate program options. The PAC would also inform a formal bi-annual program review by the Commission.

To the greatest extent possible, and as detailed further in Section II.B.2, the Commission should delay implementation of overly-prescriptive budgetary and programmatic controls until concluding its first bi-annual review. We also suggest that detailed controls be developed in the context of utility-specific proceedings to reflect unique service-territory circumstances.

We recommend that the PAC comprise of representatives from a relevant constituencies, including Staff, municipalities, public agencies and authorities, the Joint Utilities, EV charging

⁸ Id. at 62.

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industry, environmental justice advocates, labor and installation partners, environmental stakeholders, and the automotive industry.

2. Minimize barriers to participate in the Make-Ready Program

The Whitepaper proposes that the Joint Utilities identify and select locations and site host participants by:

- Developing EV Charging Infrastructure Forecasts “to identify and characterize the existing and potential EV charging scenarios in the utility service territories;”⁹
- Using the Forecast to identify potential site hosts and suitable EVSE locations; and
- Qualifying eligible site hosts and locations based on a JU evaluation of available load serving capacity, the business case of a potential site host, and the extent to which a location is of strategic importance.

Utilities can, and should, play a central role in supporting the deployment of EVSE in New York. However, we are concerned that the proposed process would (a) inadvertently exclude critically important locations and participants and (b) unduly burden utilities with the sole responsibility of designing comprehensive EV charging networks without the assistance of third-parties with significant industry experience.

a) Encourage site host recruitment without restricting participation

ChargePoint recommends that the Final Whitepaper allow for a variety of participants and avoid imposing strict eligibility criteria based on load capacity and site host business models.

Load serving capacity data is critically important to inform developers and site hosts and should be an important consideration when deploying EVSE. However, installation and interconnection costs are not the sole consideration. Other key site considerations include, but are not limited to: safe and well-lit access; access to key locations and amenities (workplaces, dining, restrooms, shopping); and wi-fi and cell connectivity.

EV charging stations are not only operated by entities whose sole business is the provision of charging services. The EV charging market is growing and dynamic, and there is not a uniform business model for the industry or for EV charging site hosts. The business case, or value proposition, for various entities to install and operate charging stations incorporate many different value streams and varies across use cases.

Should Staff prefer to impose strict eligibility criteria, we recommend delaying such implementation until the first bi-annual program review to allow for collaborative development of criteria through the PAC process.

⁹ Id. at 44.

b) Recruit program participants through multiple channels

We recommend against making utilities uniquely responsible for identifying locations and recruiting MRP participants. Instead, we recommend that the Final Whitepaper allow for competitive service providers to develop appropriate locations and for independent site hosts to directly participate in the MRP.

Allowing for broad customer engagement by third-party vendors, and by independent site hosts themselves, would be in both customers' and the public interest. There are no one-size-fits-all charging solutions, and EVSE providers often work closely with site hosts to provide bespoke infrastructure and equipment deployment solutions that meet their specific needs, which reduces the risk of stranded assets.

Including third-parties in developing locations and recruiting site hosts would not prevent utility engagement with potential program participants. Utilities should, of course, freely engage with their customers about the MRP, provided that such utility engagement does not inadvertently limit third-party participation.

3. Develop fiscal control mechanisms with actual program data

The Whitepaper proposes several mechanisms, such as cost bundling and Maximum Incentive Level ("MIL"), to control program costs. We support the inclusion of meaningful fiscal control mechanisms that accurately reflect the real-world costs and advance intended program goals. However, we are concerned that the proposed mechanisms do not reflect real-world costs and would fail to advance intended program goals.

a) Maximum Incentive Level (MIL)

We recommend against setting an MIL at this time. As noted previously, MRP assumptions do not reflect real-world capital costs that are borne by developers and site hosts. Augmenting the MIL would only partially address our concern, as a static MIL fails to capture the wide variability of equipment and make ready costs.

Instead, we recommend a delayed implementation of an MIL until the first bi-annual review. This will ensure that the eventual MIL is appropriate, sustainable, and reflects CapEx variability. The PAC process will provide ongoing transparency and oversight of MRP costs during early implementation. Data and best practices developed through the PAC process will provide a sound basis to establish MILs at the first bi-annual review.

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b) Cost bundling

ChargePoint appreciates that the cost bundling mechanism could theoretically put downward pressure on program costs by spreading CapEx across multiple sites. We have concerns that bundling would inadvertently favor EVSPs over independent site hosts, which are typically unable to spread costs across multiple locations. Our concerns would be mitigated if the Final Whitepaper includes a delayed MIL implementation, which would account for site-specific variability in the short-term and establish an MIL based on actual program data.

c) Reduce minimum number of ports-per-site

The Whitepaper identifies that a minimum of four (4) ports must be installed at Level 2 and DCFC deployments. While we appreciate the value of port redundancy at charging locations, this minimum deployment number could unnecessarily increase capital and operating costs (i.e., demand charges) and inadvertently limit independent site hosts from participating in the program. We recommend revising to a minimum of two (2) EVSE ports per location deployed up front, with sufficient make ready installation to support the eventual deployment of a four (4) ports. This approach is consistent with Staff's recommendation to future proof MRP locations while also balancing the need for meaningful pacing of installation of actual ports to scale with demand, particularly for DCFC sites that would expect lower initial utilization in the near term.

4. Provide incentive parity to achieve ZEV goals

Achieving New York's ZEV goals by 2025 will require deploying 79,798 Level 2 EVSE at work and 49,730 Level 2 EVSE at public locations.¹⁰ However, the Whitepaper proposes to provide half of the incentive amount for workplace and residential locations than it would for public locations. This incentive structure will lead to an over-deployment of EVSE at public locations and under-deployment of EVSE at workplaces.¹¹ More importantly, this program design would fail to account for the significant value for ratepayers and the public created by deploying workplace and residential EVSE.

We recommend that the Final Whitepaper provide incentive parity for public and non-public locations. Parity across charging locations will align incentives with deployment targets and increase benefits for all ratepayers:

- Over 90% of EV charging takes place at home and at work.¹² The EVSE-related load at residential and workplace locations is flexible and responsive to price signals, as drivers at these locations typically park for extended periods of time.

¹⁰ Id. at 33.

¹¹ Staff also assume that 75% of vehicle owners will have dedicated overnight charging at home, which likely underestimates the additional number of multifamily residential Level 2 EVSE that will need to be deployed in NY.

¹² Smart, John, "Lessons Learned About Workplace Charging in the EV Project," Idaho National Labs (2015), available at https://www.energy.gov/sites/prod/files/2015/07/f24/vss170_smart_2015_p.pdf.

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- Workplace and residential charging load profiles are good matches to support increased volumes of variable energy resources like wind and solar on the grid, because it can be moved to times when variable renewable energy resources are more prevalent.¹³
- Supporting the deployment of EVSE at workplaces, where availability thereof makes employees are six times more likely to buy an EV, would accelerate the achievement of New York's EV goals.¹⁴

5. Staff's recommendation on protocols, open access, and interoperability are appropriate

ChargePoint agrees with Staff's recommendation that "the Commission encourage open communications protocols, open access networks, and interoperability without penalizing proprietary technology types."¹⁵ We have helped develop a variety of standards through international standards-making organizations and consistently supported open protocols. Staff's proposed working group would be an appropriate venue to evaluate whether, and when, to adopt standards as baselines for infrastructure programs.

ChargePoint supports Staff's proposed requirement that site hosts "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."¹⁶ This approach is consistent with "Open Access" statutes adopted around the country.

State	Year	Citation	Payment Requirement
CT	2016	Public Act No. 16-135	The owner or operator of a public electric vehicle charging station, as defined in section 16-19f of the general statutes, as amended by this act, that requires payment of a fee <i>shall provide multiple payment options that allow access by the public.</i>
MA	2016	Ch. 448 of the Acts of 2016	The owner or operator of a public electric vehicle charging station <i>shall provide payment options that allow access by the general public.</i>
NH	2018	SB 575	The owner or operator of a public electric vehicle charging station that requires payment of a fee <i>shall provide multiple payment options that allow access by the public.</i>
VT	2019	Act No. 59 of 2019	Electric vehicle supply equipment available to the public shall... <i>provide multiple payment options that allow access by the public</i>

¹³ Regulatory Assistance Project, "Beneficial Electrification of Transportation," at 37 (Jan. 2019) ("RAP 2019 Electrification Report"), available at <https://www.raponline.org/wp-content/uploads/2019/01/rap-farnsworth-shipleigh-sliger-lazar-beneficial-electrification-transportation-2019-january-final.pdf>.

¹⁴ "Workplace Charging Challenge Mid-Program Review: Employees Plug In". US Department of Energy

¹⁵ Whitepaper at 53.

¹⁶ Id. at 32.

6. Provide utilities with the flexibility to propose additional incentives

ChargePoint encourages Staff to carefully expand the circumstances in which supplemental EVSE incentives can be made available. Staff acknowledges that Upstate New York should “be designated as strategic locations where a limited quantity of stations would be eligible for additional incentives.”¹⁷ We recommend that utilities be authorized to propose additional incentives to support EVSE deployment at (i) strategic locations and (ii) underserved communities. Granting utilities the flexibility to propose additional incentives in response to unique community needs will support wider and more equitable access to electric transportation. Authorization for additional incentives could be granted temporarily and revisited at the bi-annual review.

IV. Comments on Rate Design and Operating Costs

On February 7, 2019, the Commission adopted a Consensus Proposal and issued an Order that each utility establish an annually declining per-plug incentive for DCFC. DCFC with “plugs capable of simultaneously charging at or above 75 kW” receive the full incentive (“Tier 1”), while DCFC with a “plug capable of simultaneous charging at or above 50 kilowatts (kW), but less than 75 kW”¹⁸ receive a 60% incentive (“Tier 2”).

The Commission acknowledged that the incentive program design “provides higher incentive levels for DCFC installations that are overbuilt for the current market,” in order to “*stimulate the market, not to maintain existing conditions and capabilities.*”¹⁹ However, we contend that the incentive program design neither stimulates the market nor materially supports future conditions and capabilities.

ChargePoint recommends modifying the Tier 1 incentive to include “plugs capable of simultaneously charging at or above 75 kW, or plugs capable of independently charging at or above 62.5kW and sharing power to charge one vehicle at or above a combined 125kW.”

This modification will (i) appropriately reflect the fact that 75kW-capable EVs do not typically charge at or near 75kW, and (ii) serve as a de facto cost control mechanism for the MRP.

1. 75kW-capable EVs do not typically charge at or near 75kW

75kW+ vehicles do not typically charge at or near 75kW, whether plugged in at 75kW plugs or at plugs capable of delivering more than 75kW. To illustrate the diminishing returns of DCFC plugs that charge in excess of 75kW, Figure 1 demonstrates the charging behavior of a Jaguar iPace at 175kW and 125kW plugs. At most, a 175kW plug delivers 20kW more power to the iPace than the 125kW plug. However, once the iPace reaches 50% State of Charge (“SoC”),

¹⁷ Id. at 47.

¹⁸ Case No. 18-E-0138 – Commission Order on Petition for Rehearing at 22

¹⁹ Id. at 24

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there is no longer a material difference in power delivered. This also shows how the amount of charging power that can be accepted by an EV decreases as approaches a full charge.

Figure 2 illustrates the time for an iPace to achieve 80% SoC when plugging in at a 20%, 40%, and 50% SoC. Even at 20% SoC, with a 20kW difference, the iPace only charges 6 minutes faster with a 175kW plug than with a 125kW plug. There is no difference in time to achieve 80% SoC when the iPace begins to charge at 50% SoC.

Fig. 1

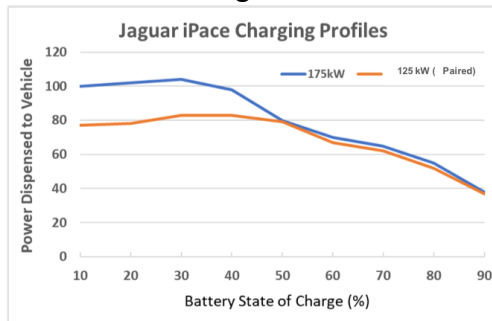
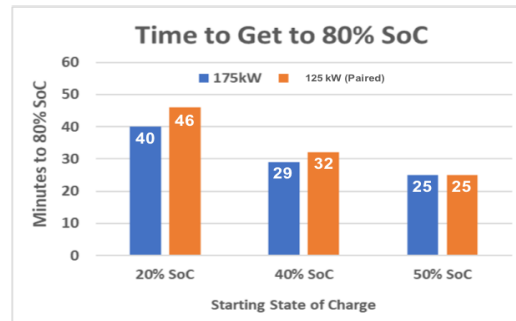


Fig. 2



2. The proposed modification will control MRP costs

The existing per-plug incentive is explicitly designed to deploy DCFC that are “overbuilt for the current market.” As explained in Section II, equipment and installation costs balloon are significantly higher for deployments of 150kW vs. 50kW DCFC. Maintaining the current per-plug incentive will therefore encourage the deployment of chargers that will deplete the MRP more rapidly than is necessary to support market needs.

On the other hand, by adopting our proposed Tier 1 modification, the Commission will incentivize DCFC that decrease average MRP deployment costs, accelerate the deployment of a greater number of high-value plugs, and deliver a substantially similar charging experience to drivers.

V. Conclusion

ChargePoint appreciates the opportunity to provide comment on Staff’s Whitepaper, which would establish a statewide framework for utilities to support the deployment of EV charging stations throughout New York State. Our recommendations would strengthen the Whitepaper’s proposed MRP by accelerating the achievement of New York’s statewide energy and environmental goals, minimizing costs and maximizing benefits for ratepayers, and ensuring that New York gets the world-class electric transportation network it deserves.

Attachment A: Cost Guidance for DC Fast Charger Capital Costs

Description	Two 50kW Class Chargers		Two 150kW Class Chargers	
	Low	High	Low	High
Site Acquisition	\$ -	\$ 25,000	\$ -	\$ 25,000
DCFC Equipment	\$ 60,000	\$ 100,000	\$ 120,000	\$ 220,000
Electrical Panels and Switchgear	\$ 6,000	\$ 20,000	\$ 14,000	\$ 29,000
Engineering, Design, Permitting	\$ 5,000	\$ 14,000	\$ 8,000	\$ 16,000
Utility Upgrades	\$ 4,000	\$ 50,000	\$ 35,000	\$ 100,000
Project Management	\$ 8,000	\$ 12,000	\$ 9,000	\$ 18,500
Construction Costs	\$ 45,000	\$ 200,000	\$ 90,000	\$ 260,000
Total	\$ 128,000	\$ 421,000	\$ 276,000	\$ 668,500

Key

Equipment Costs

Customer-Side
Make Ready Costs

**Table was developed internally to reflect industry-wide experiences.*