STATE OF NEW YORK PUBLIC SERVICE COMMISSION

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

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. AND ORANGE & ROCKLAND UTILITES, INC. REPORT ON THE ELECTRIC VEHICLE DIRECT CURRENT FAST CHARGING PER-PLUG INCENTIVE PROGRAM AND THE ELECTRIC VEHICLE MAKE-READY PROGRAM

2021

Filed April 15, 2022

Contents

Introduction	3
Direct Current Fast Charging Per-Plug Incentive Program	4
Make-Ready Program	5
Requirement 1: Program Participation	8
Con Edison	8
O&R	9
Requirement 2: Utility System and Billing Information	10
Requirement 3: Plug and Charging Session Data	11
Requirement 4: Financial Information	11
Appendix A: Definitions	12
Appendix B: Atlas Data Collection and Validation Methodology	14

Introduction

Consolidated Edison Company of New York, Inc. ("Con Edison") and Orange and Rockland Utilities, Inc. ("O&R") (together "the Companies") provide the 2021 annual report for the Direct Current Fast Charging ("DCFC") Per Plug Incentive Program and the Make-Ready Program as required in the New York State Public Service Commission's ("Commission") DCFC Program Order¹ and the Make-Ready Program Order². The DCFC Per-Plug Incentive Program provides an annual declining per-plug incentive to qualifying DCFC EV Station operators through 2025. The Make-Ready Program incentivizes make-ready infrastructure for eligible Level 2 ("L2") and DCFC EV charging Stations for light-duty vehicles.

During 2021, the Companies continued to market both the Per-Plug Incentive Program and Make-Ready Programs. At the end of the year, one active Participant was enrolled in Con Edison's Per-Plug Incentive Program; no new Participants were enrolled in 2021. As of the end of the year, one active Participant was enrolled in O&R's DCFC Per-Plug Incentive Program and two Participants were enrolled with Stations expected to begin operations in 2022. O&R deemed one Participant ineligible in 2020 and was removed from the program.

By year end 2021, 34 Participants were enrolled in Con Edison's Make-Ready Program and 3 Participants were enrolled in O&R's Make-Ready Program, all of whom enrolled in the Companies' Make-Ready Programs in 2021.

¹ Case 18-E-0138, *Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure* ("EVSE&I Proceeding"), Order Establishing Framework for Direct Current Fast Charging Infrastructure Program (issued February 7, 2019) ("DCFC Program Order").

² ESVE&I Proceeding, Order Establishing Electric Vehicle Infrastructure Make-Ready Program and Other Programs (issued July 16, 2020) ("Make-Ready Program Order").

To develop this report, the Companies collected Participant information and infrastructure costs directly from Program Participants and obtained utility meter data and utility bill costs from the Companies' billing and metering systems³. This report provides Participant information, utility metered usage, and charging Session data for the Companies' Per-Plug Incentive Programs and Participant information, utility metered usage, utility bill data, charging Session data, and financial data including fee structure, revenues, and operating costs for the Companies' Make-Ready Programs.

Direct Current Fast Charging Per-Plug Incentive Program⁴

The Companies are filling Participant information for their Per Plug Incentive Programs confidentially. This includes the Program Participant's Site information, Session data including energy dispensed, Session start and stop times, peak demand per charging Session, amount of time the vehicle is charging, the amount of time the vehicle is plugged in, the Participant's 15-minute utility metered usage data, Participant usage data alongside the utility service territory and local network load on the peak day, and the fee structure the Participant offers to its charging customers.

-

³ The Companies contracted Atlas Public Policy ("Atlas") as a third-party data aggregator to collect charging station Session data and financial information such as fee structure and operating costs as directed by the Make-Ready Program Order. Atlas's data collection and validation methodology are outlined in **Appendix B** of this report.

⁴ The DCFC Program Order directed the Companies to provide the program data reported here annually.

Make-Ready Program

The Make-Ready Program incentivizes make-ready infrastructure for eligible Level 2 ("L2") and DCFC EV charging stations for light-duty vehicles. The Make-Ready Program Order⁵ directed the Companies to provide data annually in four categories: 1) reporting period program participation information; 2) utility system and billing information for each Station; 3) Plug and charging Session data; and 4) financial information. The Companies also provide additional Participant site information that is not included in the Order reporting requirements, ⁶ including location, premise type, and Plug type for each site.

The Companies collected participation information directly from Participants and obtained utility system and billing information from utility billing and metering systems.

The Companies partnered with Atlas to collect Plug and charging Session data and financial information. Atlas also collected interval data showing usage over the course of charging Sessions collected at the Plug level, which supplements the utility meter interval data the Companies provide to meet the second reporting requirement.

Atlas was not able to collect and verify data from all Participants to meet the Plug and charging Session reporting and financial information reporting requirements due to data collection and validation challenges outlined in **Appendix B** of this report.

For Con Edison, Table 1 outlines the number of Sites and Plugs for which Atlas received data. Table 2 shows the number of Sites reporting data for each measure and the number of sites

⁶ EVSE&I Proceeding, Make-Ready Program Order, Pp. 104-106.

⁵ ESVE&I Proceeding, Make-Ready Program Order.

for which Atlas validated data for Session data, Session interval data, operating costs, and fee structure.

Table 1: Total Stations, Data Receipt Status by Site, and Data Receipt Status by PlugCon Edison Make-Ready Program

Station Type	Total Stations	Total Sites	Sites with Use	Sites with No Use	Sites Not Received	Total Plugs	Plugs with Use	Plugs with No Use	Plugs Not Received
DCFC	42	9	8	1	0	42	39	3	0
L2	187	25	15	6	4	222	73	125	24
Total	229	34	23	7	4	264	112	128	24

Table 2: Charging Session and Financial Data Receipt Status for Sites and PlugsCon Edison Make-Ready Program

	Item	Fee St	ructure	Interv	al Data	_	ation osts	Sessio	n Data	To	tal
Station Type	Status	Total Sites	Total Plugs								
	Total	9	42	9	42	9	42	9	42	9	42
DCFC	All or Some Data Received and Validated	9	42	8	17	9	42	9	42	9	42
	No Valid Data Received	0	0	1	25	0	0	0	0	1	25
	Total	25	222	25	222	25	222	25	222	25	222
L2	All or Some Data Received and Validated	6	34	4	26	21	198	21	198	25	222
	No Valid Data Received	19	188	21	196	4	24	4	24	23	210
	Total	34	264	34	264	34	264	34	264	34	264

The reasons Atlas did not receive valid data from Participants varied by data type:

- Session Data: Two Participants did not report Session data for 2021 after at least two
 outreach attempts by Atlas and two attempts by Con Edison to collect data. Two
 Participants reported data that was removed from the dataset in Atlas's data validation
 process.
- Session Interval Data: Of the 22 sites (1 DCFC and 21 L2) for which Atlas did not receive valid data for 2021, 16 were not technically capable of reporting data for 2021 but are prepared to report Session interval data for 2022. One Participant provided Atlas the means to retrieve interval data beyond the reporting deadline and thus this Participant's data are not included; this Participant is prepared to and expects to continue to report data in 2022. Three Participants did not report Session data for 2021 after at least two outreach attempts by Atlas and two attempts by Con Edison to collect data. Two Participants reported data that was removed from the dataset in Atlas's data validation process.
- Fee Structure: 19 sites did not report fee structure after at least two outreach attempts by Atlas and two attempts by Con Edison to collect data.
- Operating Costs: Four sites did not report valid operating costs after at least two outreach
 attempts by Atlas and two attempts by Con Edison to collect data.

Con Edison will continue to work with Participants who are not currently reporting some or all data to bring the Participants into compliance with the reporting requirements of the Order.

For O&R, Table 3 outlines the number of Sites and Plugs for which Atlas received data.

Table 4 shows the number of Sites reporting data for each measure and the number of sites for which Atlas validated data for Session data, Session interval data, operating costs, and fee structure.

Table 3: Total Stations, Data Receipt Status by Site, and Data Receipt Status by PlugO&R Make-Ready Program

Station Type	Total Stations	Total Sites	Sites with Use	Sites with No Use	Sites Not Received	Total Plugs	Plugs with Use	Plugs with No Use	Plugs Not Received
DCFC	0	0	0	0	0	0	0	0	0
L2	23	3	3	0	0	46	38	8	0
Total	23	3	3	0	0	46	38	8	0

Table 4: Charging Session and Financial Data Receipt Status for Sites and PlugsO&R Make-Ready Program

Item		Fee Sti	ructure	Interv	al Data		ation osts	Sessio	n Data	То	tal
Station Type	Status	Total Sites	Total Plugs								
	Total	3	46	3	46	3	46	3	46	3	46
L2 ⁷	All or Some Data Received and Validated	3	46	3	46	3	46	3	46	3	46
	No Valid Data Received	0	0	0	0	0	0	0	0	0	0
Total		3	46	3	46	3	46	3	46	3	46

Requirement 1: Program Participation

Con Edison

In 2021, 34 Participants and Operational Sites were in Con Edison's Make-Ready

Program. Participation information for the entire Make-Ready Program is shown below in Table

5, along with a breakout of those sites located within a mile of a Disadvantaged Community

⁷ O&R has no operational DCFC Stations participating in its Make Ready program.

("DAC") as defined by the New York State Energy Research and Development Authority ("NYSERDA") in 2020.8.

Table 5: Make-Ready Program Participation Information – Con Edison⁹

		ogram-Wi cluding DA		DAC Only			
	L2	DCFC	Total	L2	DCFC	Total	
Total sites applications received	1,375	160	1,492	1,251	138	1,353	
Percent applications that are operating (Operational Sites)	2%	6%	2%	2%	7%	2%	
Operational Sites	25	9	34	21	9	30	
Number of unique Station owners participating	9	2	11	7	2	9	
Installed Plugs (Eligible Plugs at Operational Sites)	222	42	264	196	42	238	

Con Edison is filing infrastructure costs incurred by Participants and Participant Site information for Operational Sites confidentially.

O&R

In 2021, three Participants and Operational Sites were enrolled in O&R's Make-Ready Program. Participation information for the entire Make-Ready Program is shown below in Table 6, along with a breakout of those sites located within a mile of a DAC.

⁸ See, https://www.nyserda.ny.gov/ny/disadvantaged-communities.

⁹ The count of total site applications received excludes duplicate applications and applications for sites outside of the Con Edison service territory. The total number of applications, sites, and station owners may not equal the sum of L2 and DCFC measures because some sites have both L2 and DCFC chargers. Sites located within a mile of a DAC are included in the "DAC Only" count; all of these sites were not eligible DAC tier incentive (up to 100%).

Table 6: Make-Ready Program Participation Information – O&R

		ogram-Wi cluding D		DAC Only			
	L2	DCFC	Total	L2	DCFC	Total	
Total sites applications received	26	5	31	2	1	3	
Percent applications that are operating (Operational Sites)	12%	0%	10%	0%	0%	0%	
Operational Sites	3	0	3	0	0	0	
Number of unique Station owners participating	25	5	29	2	1	3	
Installed Plugs (# Eligible Plugs at Operational Sites)	46	0	46	0	0	0	

O&R is filing infrastructure costs incurred by Participants and Participant Site information for Operational Sites confidentially

Requirement 2: Utility System and Billing Information

The Companies are filing Program Participants' 15-minute utility meter interval data, utility account load profiles for the top ten demand days of the year¹⁰, Participant charging Station Session interval data, and Participant utility bill data confidentially.

10

 $^{^{10}}$ The top ten days are defined as the ten days with the highest maximum hourly load in the Company's service territory.

Requirement 3: Plug and Charging Session Data

The Companies are filing the number of daily charging Sessions, individual Session start and stop times, Session duration, charging duration, energy delivered, and peak kW per charging Session confidentially. Program Participants were not able to report Plug outage information for 2021 because charging network capabilities are not currently able to capture this information.

Requirement 4: Financial Information

The Companies are filing Participants' charging customer fee structures, charging revenue, and operating cost data confidentially.

Appendix A: Definitions

Active Plug: A Plug at which at least one valid charging Session occurred.

Active Site: A Site at which at least one valid charging Session occurred.

All or Some Data Received and Validated: Status that indicates data was received and validated for a Site or Sites but does not guarantee that the Site(s) recorded utilization.

Charging duration: the timeframe within a charging Session over which energy is delivered from the charger to the vehicle.

DCFC: Direct Current Fast Charger.

Eligible Plugs: the number of Plugs capable of charging simultaneously at an Operational Site. 11

L2: Level 2 Charger.

No Valid Data Received: Data was not received for a site due to no response, or data provided was not provided in a valid format and therefore unusable.

Operational Site: Electric Vehicle ("EV") charger installations which were operational and approved for incentives from one of the Companies as of December 31, 2021.

¹¹ Some charging stations have multiple Plugs. In both the Make-Ready and DCFC Per Plug Incentive Programs, the number of Eligible Plugs at a given Site is the number of Plugs that can deliver energy simultaneously. A charging Station may have two Plugs that do not discharge simultaneously and those two Plugs together qualify as one Eligible Plug. In these cases, this report provides the charging data for both Plugs where Plug-level data are

reported.

Participant¹²: an entity that applies for and receives incentives available through a Company's Make-Ready or Per-Plug Incentive Program. **Plug:** the piece or subdivision of the charging equipment that physically interfaces with a single vehicle in a one-to-one connection.

Session: a single charging event which is initiated when a vehicle connects to a Plug and concludes when the vehicle disconnects from the Plug.

Session Data: data collected about a single Session, including start time, stop time, total energy dispensed, and peak demand recorded in a Session.

Session Interval Data: charger power output recorded over the course of a Session.¹³

Session Duration: the duration of a charging Session.

Site: the physical location where one or more Stations are installed. 14

Station: the single piece of charging equipment (e.g., kiosk) that administers charge to a vehicle.

Unmatched Utility ID: The unique identifier for Operating Costs and Fee Structure data could not be matched sufficiently because submissions were completed manually by program Participants using an Atlas ID and not Utility ID numbers.

¹⁴ One location could have multiple Participants and/or configurations. A Participant is counted for each unique site that they develop.

¹² For the Make-Ready Program, the Participant may be (1) a Con Edison electric account holder or customer, (2) a developer, (3) an approved contractor, (4) an equipment owner, or (5) the owner or operator of a site. The Participant receives the incentive and takes on the reporting responsibilities of the program. For the Per Plug Incentive Program, the Participant must be the account holder or customer.

¹³ Charging stations typically report Session interval data in 15-minute intervals.

Appendix B: Atlas Data Collection and Validation Methodology

Atlas's data collection and validation process is extracted below from Atlas's Annual Data Collection Report to Con Edison. The methodology used to collect data for O&R's Participants is consistent with the process outlined below:

Methodology

As part of the data collection for the EV Make-Ready and Per-Plug Incentive programs, the Companies provided Atlas Public Policy with a list of the projects that were considered complete, for Atlas to collect data on. Atlas worked directly with program Participants to request the required charging Session and operating costs and fee structure data, while also establishing direct relationships with EV charging networks^{15,16} to collect the data. Atlas thus had data submitted by program Participants and received data directly from select EV charging networks. Atlas excluded data submitted by program Participants when that data was also provided by their EV charging network. Once data was collected, Atlas normalized, reviewed, and validated the charging Session, 15-min Session interval, and load curve data, along with the operating costs and fee structure data for the confidential and public report.

To prepare the public report, Atlas applied the 15/15 standard as detailed by the Commission: "[T]he 15/15 standard states that an aggregated data set may be shared only if it

¹⁵ The following EV charging networks submitted charging Session data on behalf of the EV Make-Ready and Per-Plug Incentive Program participants: AmpUp, ChargePoint, EV Connect, Evoke, Livingston EV Network, SKYCHARGER, and Volta Charging.

¹⁶ The following EV charging networks submitted 15-min interval data on behalf of the EV Make-Ready and Per-Plug Incentive Program participants: EV Connect, Volta Charging, Livingston EV Network, and ChargePoint.

contains at least 15 customers, with no single customer representing more than 15 percent of the total load for the group."¹⁷ For the purposes of the EV Make-Ready and Per-Plug Incentive program, the 15/15 rule is applied at the project (charging site)¹⁸ level, where no data is surfaced in the public report when there is no more than 15 sites and no single customer is more than 15 percent of utilization.

The steps to review and validate the data are described below.

Once data is normalized, there are three batches of data that Atlas validates and identifies using automated errors or flags. The first batch is the Station registrations, the second is the Session and interval data, and the third is operating costs and fee structure. Atlas defined errors as problems with the Session/EVSE itself or a failure to follow required reporting standards, and excluded data found to be erroneous. Flags are items for evaluation that could represent a problem with the Session/EVSE or simply be an unusual Session; data should be considered on a case-by-case basis. For this report, validated (data considered complete and without errors) and flagged data is included. Once data tables and reports are produced, at least two Atlas staff members conduct a manual review to ensure data is correctly associated to the right utility, and required reporting measure, to be considered final.

Data Collection Limitations

Enumerated below are the limitations and hindrances that arose while attempting to collect, manage, and process data for the EV Make-Ready and Per-Plug Incentive programs:

¹⁷ Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order on Distributed System Implementation Plan Filings (Issued March 9, 2017), Pp. 25-26.

¹⁸ K. Latham, JU: EV MRP Implementation (EV-I) Meeting Notes, Washington DC: Atlas Public Policy, 2022.

1. Participant non-response and non-compliance.

At least two attempts by Atlas Public Policy and two attempts from each utility's program manager to reach program Participants were made for this report. Program Participants were instructed to work with their EV charging network to produce a Session data report, and to fill out a template on their site's operating costs and fee structure and then upload each report through a web link provided by Atlas. Atlas has notified each utility of program Participants that failed to submit data Session data and/or operating costs and fee structure.

2. Incomplete and missing data.

Among those who were able to submit data, many did not include required fields, which necessitated inference and estimation or, in acute cases, rejection of the data as submitted. Inferred fields are substantially less reliable than their counterparts.

3. Poorly formatted data.

While poor formatting of data (unexpected data types, non-standard) can be mitigated via the validation process, large scale poorly formatted data required either normalization—which carries the risk of data loss or misunderstanding the original intent—or exclusion from an already limited dataset.

4. EV charging network technical issues.

EV charging networks have different technical capabilities or software in place to provide Site, Session, or interval data in a timely manner. For interval data in particular, many EV charging networks were not prepared to report on active interval Session data from the past year, resulting in a large set of missing data.

Quality Control

Individual charging Sessions are evaluated against two sets of criteria—potential errors and potential flags. Errors are generally problems with the Session/EVSE itself or a failure to follow required reporting standards. Flags are items for evaluation that could represent a problem with the Session/EVSE or simply be an unusual Session. Errors were excluded from reporting, while flagged data were included. *Registration Validations*

Flags

Validation Name	Description
Site – No Duplicate Site Ids	No sites share a duplicate ID
Site – No Duplicate Site Address	No sites share an address
Station – No Duplicate Station Ids	No Stations share a duplicate ID (usually, the serial number)

Session Data Validations

Errors

Validation Name	Description
Session Date — Null	The Plug start or Plug end date-times for this Session are missing
Session Date — Out of Bounds	The Plug start or Plug end date-times are outside the reporting period (the Session begins or ends prior to the start of the year OR the Session begins or ends prior to the end of the year)
Session Duration — Null, Zero, or Negative	The total duration of the Session (Plug end time – Plug start time) or charging duration (when applicable) is either missing, equal to zero, or a negative number
Session Energy Delivered — Null, Zero, or Negative	The total energy delivered during of the Session (in kWh) is either missing, equal to zero, or a negative number

Flags

Validation Name	Description
Session Duration — Less Than 1 minute	The Session duration (<i>Plug end time – Plug start time</i>) or charging duration (when applicable) is less than 1 minute long
Session Energy Delivered — More Than 250 kWh	The total energy delivered during of the Session (in kWh) is greater than 250 kWh. For reference, the largest available consumer battery (in the 2022 GMC Hummer EV Pickup) is estimated to hold 200 kWh
Session Energy Delivered — More Than .5 kWh	The total energy delivered during of the Session (in kWh) is less than .5 kWh
Session Duration — Multiple Days	The charging duration (<i>Plug end time – Plug start time</i>) is greater than 1440 minutes (1 day) or idle duration (Session duration – charging duration, when applicable) is greater than 2880 minutes (2 days)
Session — Power Above Rating	For L2 Stations, average power, defined as Energy (kWh)/Charging Duration, does not exceed 25 kW. For DCFC Stations, average power, defined as Energy (kWh)/Charging Duration, does not exceed 400 kW

Session Interval Data Validations

Errors

Validation Name	Description
Interval – Negative Energy Delivered	The total energy delivered during this interval (in kWh) is less than 0 kWh
Interval Date — Out of Bounds	The Interval start or Interval end date-times are outside the reporting period (the Interval begins or ends prior to the start of the year OR the Interval begins or ends prior to the end of the year)
Interval – Negative Power Delivered	The Peak kW or Average kW delivered during this interval (in kWh) is less than 0 kWh

Flags

Validation Name	Description
Interval — Power Above Rating	For L2 Stations, Peak kW or Average kW (defined by Energy (kWh)/Charging Duration) does not exceed 25 kW. For DCFC Stations, Peak kW or Average kW (defined by Energy (kWh)/Charging Duration) does not exceed 400 kW.

Operating Cost and Fee Structure Validations

Errors

Validation Name	Description
Costs – Empty Entry	This operating cost entry is blank for all cost-related fields

Flags

Validation Name	Description
Costs – Missing/Incorrect ZIP Code	The Zip Code for this operating cost entry is either missing or greater than 5 characters
Costs – Low Costs	The total costs for this entry are less than \$10
Costs – High Costs	The total costs for this entry are greater than \$100,000