



Michael Zimmerman
Senior Counsel, Regulatory

411 Seventh Avenue
Mail drop 15-7
Pittsburgh, PA 15219

Tel: 412-393-6268
mzimmerman@duqlight.com

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Via Electronic Filing

Ms. Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120

**Re: Duquesne Light Company's EV ChargeUp Pilot Annual Report
Docket No. R-2018-3000124**

Dear Secretary Chiavetta,

Pursuant to Paragraph 45(f) of the *Joint Petition for Approval of Settlement Stipulation*, approved in relevant part by the Pennsylvania Public Utility Commission by Order entered December 20, 2018, at the above-captioned docket, please find enclosed for filing Duquesne Light Company's EV ChargeUp Pilot Annual Report for the period March 1, 2020 through February 28, 2021. This report was also filed at Docket No. R-2021-3024750 on April 16, 2021, as Exhibit SO-2 to Duquesne Light Company's general rate increase filing.

Please do not hesitate to contact me with any questions.

Best Regards,

A handwritten signature in blue ink that reads "Michael Zimmerman".

Michael Zimmerman

Enclosures



EV ChargeUp Pilot Annual Report
March 2020 – February 2021

April 16, 2021

Introduction

Duquesne Light Company (the “Company”) hereby submits this Report pursuant to the *Joint Petition for Approval of Settlement Stipulation* (“Settlement”), approved in relevant part by the Pennsylvania Public Utility Commission by Order entered December 20, 2018 at Docket No. R-2018-3000124 (“Settlement”). Settlement ¶ 45(f) provides that the Company will submit an annual report concerning the Company’s implementation of the EV ChargeUp Pilot (“Pilot”), including: (a) charging infrastructure deployed over time, including by location, and activation date; (b) charging infrastructure installation costs by site type (broken out by capital and rebate costs); (c) for all charging stations deployed, the usage rate by site type and charger type; and (d) estimated avoided emissions resulting from the programs.

The Company’s EV ChargeUp Pilot commenced on January 1, 2019. The first reporting period covered January 1, 2019 through February 29, 2020. This Report covers the period March 1, 2020 through February 28, 2021.

Charging Infrastructure Deployment

Level 2 Charging Station Evaluation

The Pilot has deployed 49 Level 2 dual-port charging stations (98 plugs) at nine publically-accessible customer sites. Each site included a minimum of four Level 2 dual port charging stations. Table 1 indicates the date of site electrification for each of the Level 2 charging station evaluation sites.

Table 1: Level 2 Charging Station Evaluation

Customer Site	Site Electrification Date	Number of Plugs	DLC Installation Costs (Up to and Including Meter)	DLC Installation Costs (Rebate)	Electricity consumed (kWh) (Activation – 2/29/20)	CO ₂ Avoided (Tons) (Activation – 2/29/20)	Electricity consumed (kWh) (3/1/20 – 2/28/21)	CO ₂ Avoided (Tons) (3/1/20 – 2/28/21)	Electricity consumed (kWh) (Total)	CO ₂ Avoided (Tons) (Total)
1	10/11/2019	16	\$977	\$69,149	2,116	2.49	10,647	12.6	12,763	15.1
2	11/20/2019	10	\$1,572	\$18,650	1,393	1.64	2,594	3.1	3,987	4.7
3	12/19/2019	8	\$1,545	\$52,819	2,511	2.96	7,594	9.0	10,105	12.0
4	12/30/2019	8	\$1,627	\$32,342	2,153	2.54	10,115	11.9	12,268	14.4
5	12/30/2019	8	\$624	\$24,056	685	0.81	3,428	4.0	4,113	4.8
6	1/14/2020	8	\$1,872	\$55,514	3,017	3.56	4,964	5.9	7,981	9.5
7	1/14/2020	8	\$2,103	\$29,550	496	0.58	3,000	3.5	3,496	4.1
8	1/21/2020	8	\$1,959	\$32,740	203	0.24	1,058	1.49	1,261	1.7
9	2/28/2020	24	\$343	\$100,000	0	0	0	0	0	0

Data indicates Level 2 charging station utilization across all sites was negatively impacted due to the COVID-19 pandemic. Beginning in March 2020, shortly after sites were electrified, customer site hosts generally observed decreased usage of their parking facilities. In one instance, Customer Site Host 9, the charging stations have not been utilized since the site was electrified. The Company attributes this to the COVID-19 pandemic.

Table 1 depicts only Duquesne Light’s costs. As the table shows, Duquesne Light incurred relatively low front-of-meter costs associated with each installation. This indicates that Duquesne Light is able to serve these charging station installations mainly through pre-existing distribution grid capacity.

Participating customers have demonstrated a high level of “buy-in” with respect to charging station installation. Duquesne Light worked closely with customers as part of the Pilot, including assisting customers in leveraging the Pilot to obtain other sources of project funding. Customer-reported project cost data (including costs related to charging station installation, charging station hardware, service fees, signage, etc.) indicates that the Company’s rebate covered about 1/3 of project costs, customers themselves

covered 1/3 of project costs, and the state’s Driving PA Forward rebate program covered 1/3 of project costs.

DC Fast Charging Station Evaluation

The Pilot deployed two DC fast charging stations at one Port Authority of Allegheny County location for electric buses and Company fleet vehicles. The DC fast charging stations were activated on February 20, 2020, and the Port Authority’s electric buses were placed into service on March 30, 2020.

Table 2: DC Fast Charging Station Evaluation

Customer Site	Site Electrification Date	Number of Plugs	DLC Installation Costs	Electricity consumed (kWh) (Activation – 2/29/20)	CO ₂ Avoided (Tons) (Activation – 2/29/20)	Electricity consumed (kWh) (3/1/20 – 2/28/21)	CO ₂ Avoided (Tons) (3/1/20 – 2/28/21)	Electricity consumed (kWh) (Total)	CO ₂ Avoided (Tons) (Total)
1	2/20/2020	2	\$854,736 ¹	0	0	25,198	34.8	25,198	34.8

Estimated Avoided Emissions

The Company has developed a framework to estimate the avoided emissions from the Level 2 Charging Station Evaluation (Appendix 1) and the DC Fast Charging Station Evaluation (Appendix 2). The objective of these frameworks are to measure the difference in emissions from the use of electricity as a transportation fuel resulting from the Pilot relative to a business-as-usual scenario in which petroleum-based transportation fuels are used for vehicle travel.

The Pilot has resulted in total estimated avoided emissions of 66.3 Tons CO₂ for the Level 2 Charging Station Evaluation and 34.8 Tons CO₂ for the DC Fast Charging Station Evaluation from 3/1/20 through 2/28/21. Table 1 indicates estimated avoided emissions (CO₂) of the Level 2 charging stations for each of the Level 2 Charging Station Evaluation sites. Table 2 describes the avoided emissions recorded as a result of the DC Fast Charging Station Evaluation.

¹ Settlement ¶ 45(a) \$500,000 of this investment approved for recovery in rate base.

Conclusion

The Company continues to be encouraged by the positive overall response to the Pilot to date, particularly with respect to the high degree of “buy-in” demonstrated by participants. This response affirms the Company’s continued support for transportation electrification. With strategic planning, transportation electrification can provide benefits to all utility customers, the electricity system, and the environment. The Company is uniquely positioned to realize these benefits by supporting the deployment of critical electrical infrastructure, spurring the deployment of innovative technologies, generating customer awareness of transportation electrification, and managing EV load to enhance system flexibility and reliability.

In spite of the pandemic the Company continues to experience ongoing interest from customers, and foresees significant additional opportunities to accelerate the benefits of electric transportation for all Duquesne Light customers. The Company looks forward to further engaging with the Commission and stakeholders on transportation electrification in future proceedings.

Appendix 1

Level 2 Charging Station Evaluation Avoided Emissions Framework

Avoided Emissions Framework Inputs

Input	Unit	Assumption
Energy dispensed	kWh	EV Charge Rebate data
EV Fuel Economy	kWh per mile (kWh/mi)	0.3 kWh/mi ²
Gasoline Vehicle Fuel Economy	miles per gallon (mpg)	24.9 mpg ³
2018 Average Pennsylvania Carbon Intensity of Electricity Generation	grams of CO ₂ per kWh (lb. CO ₂ /kWh)	.789 lb. CO ₂ /kWh ⁴
Carbon Intensity of Gasoline	pounds of GHG per gallon (lb/gal)	23.5 lb/gal ⁵

Avoided Emissions Framework Intermediate Outputs

Intermediate Output	Unit	Calculation
Electric Vehicle Miles Traveled (eVMT)	mi	Energy Dispensed / EV Fuel Economy
Electric Vehicle Total Emissions	lb. CO ₂	Energy Dispensed * 2018 Average PA Carbon Intensity of Electricity Generation
Avoided Gasoline Vehicle Emissions	lb. CO ₂	(eVMT / Gasoline Vehicle Fuel Economy) * Carbon Intensity of Gasoline

Avoided Emissions Framework Final Output

Final Output	Unit	Calculation
Net Avoided Emissions	Tons of CO ₂	(Avoided Gasoline Vehicle Emissions – Electric Vehicle Total Emissions) / 2,000 lb.

² Most commercially available EVs have fuel economies between 0.25kWh/mi and 0.35kWh/mi.

<https://www.fueleconomy.gov/feg/PowerSearch.do?action=noform&path=3&year1=2017&year2=2018&vtype=Electric&srchtyp=newAfv&pageno=1&sortBy=Comb&tabView=0&tabView=0&rowLimit=50>

³ <https://www.epa.gov/automotive-trends/highlights-automotive-trends-report>

⁴ Includes CO₂ emissions https://www.eia.gov/electricity/data/state/emission_annual.xls;
https://www.eia.gov/electricity/data/state/annual_generation_state.xls

⁵ https://afdc.energy.gov/vehicles/electric_emissions_sources.html

Appendix 2

DCFC Evaluation Avoided Emissions Framework

Avoided Emissions Framework Inputs

Input	Unit	Assumption
Total Energy Consumed by Bus Trip	kWh	Measured directly by bus
Diesel Transit Bus Avg Fuel Economy⁶	MPGe	3.26 MPGe
2018 PA Total Electrical Power Generation⁷	MWh	215,385,830 MWh
2018 PA Total CO₂ Emissions from Electrical Power Generation⁸	metric tons CO ₂	77,030,723 metric tons CO ₂
Carbon Intensity of Gasoline⁹	lb CO ₂ / gal	23.5 lb / gal

Avoided Emissions Framework Intermediate Outputs

Intermediate Output	Unit	Calculation
Electric Bus CO₂ Emissions per Kilowatt-Hour	lb CO ₂ / kWh	(2018 PA Total CO ₂ Emissions from Electrical Power Generation * 2204.62 lb / metric ton) / (2018 PA Total Electrical Power Generation * 1000 kWh / MWh)
Electric Bus Trip CO₂ Emissions	lb CO ₂	Total Energy Consumed by Bus Trip / Electric Bus CO ₂ Emissions per Kilowatt-Hour
Diesel Transit Bus Equivalent Trip CO₂ Emissions	lb CO ₂	(Trip distance miles / Diesel Transit Bus Avg Fuel Economy) * Carbon Intensity of Gasoline

Avoided Emissions Framework Final Output

Final Output	Unit	Calculation
Net Avoided Emissions	Tons of CO ₂	(Diesel Transit Bus Equivalent Trip CO ₂ Emissions - Electric Bus Trip CO ₂ Emissions) / 2,000 lb / ton

⁶ <https://afdc.energy.gov/data/10310>

⁷ "Net Generation by State by Type of Producer by Energy Source, 1990-2019"; found at <https://www.eia.gov/electricity/data/state/>

⁸ "U.S. Electric Power Industry Estimated Emissions by State, 1990-2019"; found at <https://www.eia.gov/electricity/data/state/>

⁹ https://afdc.energy.gov/vehicles/electric_emissions_sources.html