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April 2, 2014

VIA E-FILING AND U.S. MAIL
Nicholas E. Neeley
Acting Executive Secretary
Public Utilities Regulatory Authority
10 Franklin Square
New Britain, CT 06051

Re: ***Docket No. 13-12-11***
Request of Connecticut Light & Power Co. for Approval of Electric Vehicle Rate Rider Pilot

Dear Mr. Neeley:

Environment Northeast ("ENE") hereby files this Letter in Lieu of a Brief in the above-referenced docket to support approval of Connecticut Light & Power Co.'s ("CL&P") proposed electric vehicle (or "EV") rate rider pilot.[1] ENE is a non-profit organization that researches and advocates innovative policies that tackle our environmental challenges while promoting sustainable economies. ENE thanks the Public Utilities Regulatory Authority ("PURA") for the opportunity to comment and participate as an Intervenor.

ENE supports approval of the EV rate rider pilot for several reasons: emerging consumer needs, state energy policy goals, and the significant economic, environmental, and energy benefits of EVs. We discuss each in more detail below.

I. The EV Rate Rider Pilot and Consumer Needs

DC fast charging stations provide, as the name suggests, one of the fastest and most convenient ways to recharge an electric vehicle – refueling about 80% of an EV battery's capacity in thirty minutes or less.[2] This is superior performance compared to the technology used in the more common Level I and Level II AC chargers. With this fast-charging capability, DC charging stations are especially useful for serving EV refueling needs along major driving routes in Connecticut, such as Interstate Highways 91 and 95.

Making DC charging stations available in this way will also help address a major barrier to EV adoption by consumers – range anxiety, which is a concern that the EV owner will not have access to a charging station when the vehicle's charge is fully consumed and will thus be stranded with an inoperable vehicle. The proposed EV rate rider pilot will help alleviate this anxiety by facilitating the strategic deployment of DC fast chargers throughout Connecticut. EV owners understandably want the option of fast refueling on long-distance travel.

The proposed EV rate rider pilot also has merit because it will help CL&P better serve customer needs by providing important new data on customer usage patterns, possible grid interactions and

[1] ENE will refer to "zero emission vehicles" (or "ZEVs") and "electric vehicles" (or "EVs") interchangeably for the purposes of this letter brief.
[2] *See* CL&P Response to BETP Interrogatory No. 9.

impacts, and rate design and performance issues specific only to DC fast chargers, an important emerging technology.[3] This data will not only help Connecticut to develop an effective roll-out of DC charging stations over time, but it may also help address the crucial issues around time-varying rates that are pending in the related EV docket before PURA.[4]

The pilot should also go forward because it seeks to resolve the demand charge problem presented by the high power draw of DC fast charging stations and initial expectations for low utilization rates.[5] Specifically, if one applies the conventional rate pricing approach to DC chargers, then a high ratio of kW demand charges to kWh of energy used results in an extremely high effective per kWh rate to provide charging to EV owners. Under this scenario, simple marginal cost recovery could require fees of over $1 per kWh, before even considering a return on investment for purchasing and installing the DC fast charger.[6]

This poses a substantial problem for any reasonable business model for DC fast chargers. A $1 per kWh rate would be significantly uncompetitive compared to charging an EV at home with residential rates. It would likely discourage many potential providers from installing and offering DC fast charging services and, for those that did, it would likely prevent DC fast chargers from being fully utilized by their customers, EV owners.

In other words, high per kWh fees could effectively keep DC fast chargers in a low usage equilibrium because EV owners would only use them as a last resort, thus preventing DC chargers from helping lower the range anxiety hurdle to broader EV adoption by the public. A $1 per kWh charging fee would also erode one of the key consumer benefits of EVs – low fuel costs compared to gasoline.

The proposed EV rate rider pilot is therefore an important and much needed effort to eliminate the serious disincentives to DC fast charging that would result under the application of existing rate design – one that was not developed with the specific technological capabilities of DC fast chargers, or the particular needs of EV owners, in mind.

II. The EV Rate Rider Pilot and State Energy Policy Goals

ENE also supports the proposed EV rate rider pilot because it is fully in line with Connecticut's energy policy goals. The Comprehensive Energy Strategy ("CES") identified the accelerated adoption of electric vehicles as a key state-level policy strategy for achieving significant carbon pollution reductions from the transportation sector, estimating that EV adoption could reduce carbon pollution by at least 1.3 million metric tons by 2050.[7] The CES also recommended a build-out of EV public charging stations throughout Connecticut to help promote the adoption of high-efficiency EVs and eliminate range anxiety.[8] Conducting a small pilot to test and research a new rate design for DC fast chargers will help further these important EV policy goals of the CES.

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[3] *See* CL&P's Response to BETP Interrogatory No. 6.

[4] *See* Docket No. 13-08-39, "PURA Investigation of the Appropriateness of Electric Vehicle Time of Day Rates."

[5] *See* Direct Testimony of Watson Collins, pp. 3-4; *see also* CL&P's Response to BETP Interrogatory No. 14 (noting that other states have developed special rates for EV pilots that exclude the demand charge).

[6] *See* Direct Testimony of Watson Collins, p. 4, lines 13-15.

[7] *See* Department of Energy and Environmental Protection, *2013 Comprehensive Energy Strategy for Connecticut*, pp. 188-190 (Chapter 5, Transportation Sector Strategy).

[8] *See CES*, p. 190 (Recommendation #2).

The proposed EV rate rider pilot will also help Connecticut fulfill its obligations under the State Zero-Emission Vehicle Programs Memorandum of Understanding ("ZEV MOU"), recently entered into by Connecticut and seven other states. This ZEV MOU correctly identifies "accelerating the ZEV market" as a "critical strategy for achieving our goals to reduce transportation-related air pollution, including criteria air pollutants, mobile source air toxics and greenhouse gas emissions (GHGs), enhance energy diversity, save consumers money, and promote economic growth."[9] The proposed pilot will be important to helping increase EV purchases in Connecticut, and should therefore be seen as a critical element of any plan to implement the ZEV MOU in our state.

III. The Economic, Environmental, and Energy Benefits of Electric Vehicles

ENE strongly supports implementing policies in Connecticut and the New England region that seek to accelerate the widespread adoption of electric vehicles by consumers. Electric vehicles will be essential to making our transportation sector sustainable – both economically and environmentally.

Consumers stand to benefit significantly from electric vehicles. Operating costs are approximately 64% lower: about 5 cents per mile for an electric vehicle in the Northeast compared to 14 cents per mile for a conventional medium sedan, for instance.[10] This advantage translates into real monetary savings for consumers.

Electric vehicles can also help improve Connecticut's economic competitiveness. Our overreliance on imported fossil fuels for transportation needs imposes a significant economic burden. In 2011, drivers in Connecticut spent over $6.3 billion on gasoline and diesel fuel, of which approximately $4.7 billion (75 percent) left the state as payments to petroleum producers and refiners in other regions and countries.[11]

Electric vehicles are also key to reducing carbon pollution. The transportation sector is the second largest source of U.S. greenhouse gas emissions, responsible for 28% nationally, and nearly 40% in Connecticut – more than electricity consumption and building energy use.[12] To meet its carbon pollution reduction targets under the Global Warming Solutions Act, the state will need to support cleaner transportation options than the status quo. With the current electricity mix, the per-mile GHG emissions from an electric vehicle are 60% lower than the emissions of a comparable medium sedan.[13]

In its recent *EnergyVision* report, ENE assessed the potential for full electrification of the transportation and buildings sectors to reduce carbon pollution.[14] Replacing only ten percent of the 1.7 million conventional automobiles in Connecticut with electric vehicles could reduce greenhouse gas emissions by over half a million tons *with the current electricity mix alone*.

What this analysis underscores is that electric vehicles – an already commercially available and cost-effective transportation technology – can help dramatically decarbonize our energy system right

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[9] *See* ZEV MOU, publicly available at: http://arb.ca.gov/newsrel/2013/8s_zev_mou.pdf.

[10] ENE analysis, *EnergyVision: A Pathway to a Modern, Sustainable, Low Carbon Economic and Environmental Future*, p. 8 (available online: http://www.env-ne.org/resources/detail/energyvision) (2014).

[11] ENE analysis, Sources: Energy Information Administration, American Petroleum Institute. Tax data is from 2012 and retailers' margin is based on 2010 data.

[12] ENE analysis, *ClimateVision2020*, http://www.eneclimatevision.org/appendix-state-profiles/connecticut.

[13] *Id.* at 9.

[14] ENE analysis, *EnergyVision: A Pathway to a Modern, Sustainable, Low Carbon Economic and Environmental Future*, p. 5 (available online: http://www.env-ne.org/resources/detail/energyvision) (2014).

now, without adding new renewable supply. The key, then, for Connecticut's policymakers is to find ways to speed their deployment to maximize their substantial economic and environmental benefits as soon as possible.

Electric vehicles also offer potential benefits for the electric system. In the short term, increased load from EVs, if properly distributed at times of low impact to the transmission and distribution system with time-varying rates and other policies, could benefit current ratepayers by spreading the fixed costs of the system over a greater amount of energy, thus cutting the volumetric rates paid by ratepayers to cover those costs. By incorporating appropriate demand response technologies, EVs could also serve as an effective mechanism to promote the integration of non-dispatchable renewable resources into the grid, by allowing demand to better match supply on a temporal basis.

In the medium to long term, EVs will be able to provide major system benefits through a suite of technologies collectively known as vehicle-grid integration ("VGI"). These technologies allow an electric vehicle to act as storage and provide energy back to the grid and to provide other grid services, such as frequency regulation. Although these technologies exist, policymakers across the country have only begun to scratch the surface on the changes needed to implement them effectively. The California ISO recently released a report, in conjunction with the California Energy Commission and California Public Utilities Commission, on this very topic.[15] The potential benefits of implementing these VGI technologies are high. Storage capabilities present the most intuitive category of benefits, by reducing all costs associated with higher peak loads, such as investments in transmission and little-used peaking generation capacity, and reducing marginal energy prices and congestion costs. Storage also has environmental benefits, because it shifts generation away from dirtier, less-efficient units that only generate at peak times.

For all of the reasons cited above, we respectfully request that PURA approve the proposed EV rate rider pilot. Thank you again for the opportunity to provide these comments.

Respectfully submitted,

ENE

By: _____
William E. Dornbos
ENE Connecticut Director

Cc: Service List

I hereby certify that a copy of the enclosed has been served via email, mail, and/or hand delivery on all known parties, intervenors, and/or participants of record in this proceeding this 2nd day of April, 2014.

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William E. Dornbos

[15] *See* http://www.caiso.com/Documents/Vehicle-GridIntegrationRoadmap.pdf