CENTRAL MAINE POWER

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August 5, 2014

Harry Lanphear
Administrative Director
Maine Public Utilities Commission
State House Station 18
Augusta, ME 04333-0018

RE: CENTRAL MAINE POWER COMPANY, Proposed Electric Vehicle Pilot and Request for Accounting Order, Docket No. 2012-350

Dear Mr. Lanphear:

Enclosed for filing in the above-captioned proceeding please find for review and approval Central Maine Power Company's (CMP) Electric Vehicle Pilot 3 Proposal. CMP and the working group look forward to working with the Commission on the approval of this proposal.

Sincerely,

Kenneth W. Farber

Kenneth Farber
Senior Counsel

cc: All Parties

8/5/2014

Electric Vehicle Pilot 3 Proposal

Pilot Summary

As directed in the Stipulation in Docket No. 2008-255, CMP developed a series of pilot programs related to plug-in electric vehicles. As outlined in the Stipulation to Docket No. 2012-0350 submitted March 15, 2013 and approved August 5, 2013, CMP developed pilots 2-A and 2-B, and the following proposal for pilot 3, in conjunction with a stakeholder working group (Environment Northeast, Natural Resource Council of Maine, Conservation Law Foundation, ReVision, and GridSolar).

EV Pilot 2-A "Get Tires on the Road"

Starting in July 2013, CMP offered grants of up to $15,000 to businesses and organizations throughout its service area to purchase or lease a plug-in electric vehicle (PEV), and install charging station equipment. CMP received a total of 40 applications, and awarded a total of $105,000 in grants to 8 organizations between September and December 2013 (See **Appendix A** for list of grant recipients).

CMP installed data logging equipment from FleetCarma and is monitoring information about vehicle use and performance. Data from these vehicles is being collected and analyzed over a 2-year period and reported to the MPUC on a semi-annual basis.

Funding for grants in pilot 2-A was paid for by CMP shareholders.

EV Pilot 2-B "Localized Proof of Concept"

CMP contracted the Electric Vehicle Alliance of Maine to administer pilot 2-B, and coordinated with the working group to promote the pilot and select grant recipients. Starting in February 2014, CMP offered businesses and organizations in the greater Portland area matching grants up to $7,500 to purchase or lease a PEV, or $2,500 to install charging station equipment.

CMP also provided two $10,000 grants to install level 3 DC "Quick Charge" (DCQC) stations. These two grants also leveraged a donation from Nissan North America of two DCQC charging stations, valued at approximately $20,000 each.

CMP received 19 total applications through June 2014, and awarded a total of 14 grants; two grants for DCQC charging stations, two grants for level 2 charging equipment, and 10 grants to purchase or lease a PEV. (See Appendix for list of grant recipients).

The same data logging equipment used for pilot 2-A is being used for the vehicle grant recipients in pilot 2-B, and data will be included in the semi-annual reports to the MPUC.

CMP paid for the initial cost of grants in pilot 2-B, which will be deferred and recovered through rates.

EV Pilot 3 "Market Catalyst"

Goal

The goal of pilot 3 is to be a "market catalyst" for PEV adoption by reducing barriers to broader consumer adoption of electric vehicles in Maine. This pilot will include an assessment of lessons learned from the first two pilots.

Through 3rd party research and lessons learned from pilots 2-A and 2-B, CMP and the working group have identified some general barriers to customer adoption of PEVs. This proposal outlines several actions aimed at reducing those barriers through changes to legislative and regulatory policies, utility practice, and increased educational efforts.

CMP and the working group agree to jointly promote such changes and practices to the Maine legislature, Commission, or other board or agency.

Electric Vehicle Pilot 3 Proposal

Below is a description of general barriers to PEV adoption. Each barrier is followed by a list of solutions recommended by CMP and the working group:

1. **Barrier: Electric vehicles are significantly more expensive to purchase than comparable gas-powered vehicles, despite lower ongoing operating costs (fuel and maintenance).**

   Although the total cost of operation for electric vehicles may already be lower than comparable conventional vehicles, one commonly cited barrier for broader PEV adoption is the high upfront cost to purchase, compared to a comparable conventional vehicle. The following table lists some examples:

Plug In Electric Vehicle (PEV)	Comparable non-electric vehicle	Extra cost for PEV
2014 Ford Fusion Energi MSRP $36,500	2014 Ford Fusion MSRP $22,400	$14,100 (63% more)
2014 Chevy Volt MSRP $34,185	2014 Chevy Malibu MSRP $22,340	$11,845 (53% more)
2014 Ford Focus Electric MSRP $35,170	2014 Ford Focus ST MSRP $23,625	$11,545 (49% more)
2014 Nissan Leaf MSRP $28,980	2015 Nissan Altima MSRP $22,300	$6,680 (30% more)
2014 Toyota Prius Plug In MSRP $29,990	2014 Toyota Prius MSRP $24,200	$5,790 (24% more)

**MSRP as of 7/9/14. Excludes any rebates or tax credits.*

   CMP received 40 applications for its first EV grant program, which offered grants up to $15,000 to purchase or lease an EV. The grant amount was based on the estimated cost to lease an EV for three years. Only three of the eight grant recipients in pilot 2A chose to purchase an EV, with the remaining five grant recipients choosing to lease instead.

   The second PEV grant program (pilot 2B) offered $7,500 grants for businesses or organizations to purchase or lease a PEV, or $2,500 to install charging equipment only. CMP received 19 total

applications through July 2, 2014, 14 of which were for the PEV grant. Of the eight vehicles that have been delivered to grant recipients as of July 29, five were leased and three were purchased.

The drop in applications from pilot 2-A, which awarded $15,000 grants for PEVs, to pilot 2-B, which awarded $7,500 grants for PEVs, indicates that the up-front cost for PEVs is still too high without incentives. Also, 10 of the 16 grant recipients (63%) that have selected a PEV chose to lease. The preference for leasing PEVs also indicates that the high purchase price is a barrier to broader adoption.

Solution:

- Support legislative action to provide state incentives for PEVs and/or charging stations.

- Study the impact electric vehicle charging has on a customer's electric bill. Using data gathered from pilots 2-A and 2-B, CMP will perform an analysis of the impact that regular use of an electric vehicle will have on a residential customer's bill, using various scenarios for EV models, utility rates, and driving and charging patterns. Use this data to help educate customers about the actual costs of an electric vehicle as a way to offset the higher purchase price.

2. **Barrier: Businesses and organizations hesitate to install publicly available charging stations due to unclear regulatory and utility rules regarding the sale of electricity used to charge electric vehicles.**

Current policies regarding how the electricity used by electric vehicle charging equipment should be treated are unclear, and could discourage the growth of publicly available charging stations. Furthermore, rules for how a utility can communicate or promote electric vehicles are unclear, which could delay broader customer education about electric vehicles.

Solution:

- Revise legislative, regulatory, and utility policies to clarify the use of electricity for charging PEVs

    - Revise Maine Legislative Statute Title 35-A by creating § 316, which will allow the owner/operator of Electric Vehicle Supply Equipment (EVSE) to sub-meter that equipment. This ruling is similar to § 313, which describes submetering for campgrounds.

    - Add language to CMP's T&C Section 11.1 to exempt EVSE from the resale of electricity provision.

    - Support the adoption of state policies and/or standards that ensure the amount of kWh being provided by public charging stations to customers is accurate.

- CMP and the working group believe that electricity used to charge electric vehicles is best characterized as a consumer-charging service, rather than the sale of electricity. Therefore, the position of CMP and the working group on publicly available charging stations is that:

- The rate paid for the use of electricity should be dictated by the load on the charging station owner/operator's utility account to which the charging station is connected. This load corresponds with a service classification and rate under each utility's respective tariff. The utility will work with the charging station owner/operator to determine the appropriate account and rate options, based on the expected usage for the charging station(s).

- Owners/operators of charging stations should be able to develop pricing for a customer refuel (or any other service add-on) in any manner they choose. Prices and fees should be properly disclosed to consumers in advance of charging and open access should be ensured for appropriately categorized public charging stations. There should be ongoing monitoring to ensure a competitive marketplace.

- CMP will review its interconnection standards to see if any changes should be made to facilitate the installation and integration of electric vehicle charging stations.

- Support legislative action requiring state and local building code officials to implement standards related to electric vehicle charging and provide expedited inspection of home charging infrastructure.

3. **Barrier: Customers and auto dealers are generally lacking familiarity, knowledge and understanding about PEVs in terms of their operation, performance (e.g. driving range, recharge time), and costs (purchase price, how much will it cost to recharge, and maintenance costs).**

   The National Research Council is currently compiling a report on overcoming barriers to electric vehicle deployment. They released an interim report mid-2013, which cited multiple studies indicating customer's lack of familiarity with PEVs.[1] Electric vehicles and charging station technology are still relatively new, and most customers in Maine have little or no experience with them. Questions about the distance an electric vehicle can travel, amount of time it takes to recharge, how much it costs to recharge, the total life of a battery in the vehicle, and even how the vehicle operates (e.g. acceleration, speed, performance in cold weather, etc.) are all common, and may discourage customers purchasing a vehicle from considering a PEV.

   Furthermore, auto dealers in Maine may also have limited experience with electric vehicles, as well as the various utility rate options and costs to charge a PEV or the requirements for installing a charging station.

   Awareness of existing electric vehicle infrastructure, such as the location of publicly available charging stations and parking spaces may be limited due to a lack of standards for electric vehicle signage.

   Solution:

   - CMP and the working group will create educational materials for customers and auto dealers related to utility's rates (particularly TOU rates), potential savings, and the charging station

[1] National Research Council "Overcoming Barriers to Electric-Vehicle Deployment: Interim Report" p.15. http://gabrielse.physics.harvard.edu/gabrielse/papers/2013/OvercomingBarriersToElectricVehicleDeployment.pdf

installation process.

- Share data from pilots 2A and 2B (non-customer-identifiable data – e.g. vehicle type, kWh per charge, date/time of charge) with other organizations that are directly involved in promoting or incentivizing the use of electric vehicles.

- CMP and the working group will review existing standards for electric vehicle signage (for directions to EV charging station locations, designated parking spots, etc.) and support their adoption and implementation in Maine.

4. **Barrier: The impact on the grid is unclear if mass deployment of electric vehicles occurs, or if multiple electric vehicles are concentrated on a single distribution section. Utilities are not being notified when customers add electric vehicles and charging stations, which limits the utility's ability to proactively address the added load and could lead to reliability issues.**

   Although current projections for electric vehicle growth do not pose any immediate concerns for grid reliability[2], the PEV market is still maturing and those projections could change significantly in the near future. The US is the strongest market for light-duty plug-in electric vehicles (PEVs), with nearly 100,000 sold in 2013[3]. Therefore it is prudent to determine the impact if mass deployment were to occur.

   Solution:

   - Study potential grid impact scenarios for electric vehicle deployment. CMP and the working group will perform an analysis of the potential impact on the grid from broader adoption of EVs and residential EV charging. To the extent possible, the analysis will use data from the Department of Motor Vehicles (DMV) for the number and location of registered EVs, as well as EV charging data gathered from pilots 2-A and 2-B.

   - CMP will include a review of current PEV adoption levels in its future load forecasting process.

   - Promote existing Time-Of-Use (TOU) rates as a way for customers to save money by charging electric vehicles at night. This will also decrease the potential impact on peak demand load, particularly during early evening hours between 5pm-8pm, by incentivizing PEV owners to charge their vehicles at night.

   - Explore opportunities to test "vehicle to grid" or smart charging opportunities.

[2] National Research Council "Overcoming Barriers to Electric-Vehicle Deployment: Interim Report" p.17. http://gabrielse.physics.harvard.edu/gabrielse/papers/2013/OvercomingBarriersToElectricVehicleDeployment.pdf

[3] Navigant Research: http://www.navigantresearch.com/research/electric-vehicle-geographic-forecasts

Appendix A

Grant Recipients

Pilot 2-A: Tires On The Road

Organization	Town	Vehicle
Greater Portland Council of Governments (GPCOG)	Portland	2013 Nissan Leaf
Environmental & Energy Technology Council of Maine (E2Tech)	Portland	2013 Toyota Prius Plug-In
Maine Energy Education Program (MEEP)	Gardiner	2013 Ford CMAX Energi
Chewonki Foundation	Wiscassett	2012 Chevy Volt
Bowdoin College	Brunswick	2013 Chevy Volt
Colby College	Waterville	2013 Toyota Prius Plug-In
Maine Organic Farmers and Gardeners Association (MOFGA)	Unity	2013 Ford CMAX Energi
Fresh Air Ventilation Systems	Lewiston	2014 Smart ForTwo Electric

Pilot 2-B: Localized Proof of Concept

Organization	Town	Vehicle or charging station
Portland House of Pizza	Portland	2014 Nissan Leaf
Town of Standish	Standish	2014 Ford Fusion Energi
Ecomaine	Portland	2014 Nissan Leaf
Sunrise Guide	Portland	2014 Nissan Leaf
Town of Scarborough	Scarborough	2014 Nissan Leaf
IDEXX	Westbrook	Level 2 workplace charging
City of Portland	Portland	TBD
Bard Coffee	Portland	2014 Nissan Leaf
Green Clean Maine	Portland	2014 Chevy Volt
Kepware	Portland	TBD
Tilson Technology	Portland	2014 Ford Focus Electric
Hannaford	Scarborough	Level 2 fleet and workplace charging
Town of South Portland (So. Portland Community Center)	South Portland	DC Quick Charge Station (Nissan)
East Brown Cow (Fore St. Garage)	Portland	DC Quick Charge Station (Nissan)