Senate Natural Resources Committee
Proposed Electric Vehicle Investments & EV Utility Rate Design

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Electric Vehicle Futures

Vermont System Planning Committee, June 2020
2.3 MMTCO\textsubscript{2}e reduction by 2025 is required to meet the Paris Agreement\textsuperscript{1}

**TRANSPORTATION:** 34%\textsuperscript{2}
- Add 90,000 EVs: 0.405 MMTCO\textsubscript{2}e (18%)
- Increase non-EV fleet MPG by 5%: 0.187 MMTCO\textsubscript{2}e (8%)
- Reduce solo commutes: 0.172 MMTCO\textsubscript{2}e (8%)

**THERMAL:** 39%\textsuperscript{3}
- Add 90,000 heat pump systems: 0.370 MMTCO\textsubscript{2}e (16%)
- Add 25,000 advanced wood heat systems: 0.258 MMTCO\textsubscript{2}e (11%)
- 90,000 APD retrofits: 0.160 MMTCO\textsubscript{2}e (7%)
- Add 10,000 heat pump water heaters: 0.106 MMTCO\textsubscript{2}e (5%)

**ELECTRICITY:** 16%\textsuperscript{4}
- 1,000 GWh from new solar, wind, or hydro: 0.373 MMTCO\textsubscript{2}e (16%)
- Other: 0.25 MMTCO\textsubscript{2}e (11%)

**LATEST STATUS**
- 3.541 EVs (2019)
- 2.2 EVs (2019)
- 81% of work commutes (2017)
- 17,717 heat pump systems (2018)
- 21,421 pellet units (2018)
- 27,186 building retrofits (2018)
- 11,687 heat pump water heaters (2018)
- 62% of generation (2019)

\textsuperscript{1} Vermont Agency of Natural Resources, January 2020
\textsuperscript{2} Transportation data is the latest available from the Energy Information Administration (EIA) (2019), Vermont Agency of Transportation/UTM Transportation Research Center (2019), and Drive Electric Vermont (Oct 2019).
\textsuperscript{4} Electric data from the Department of Public Service (2019) and ePUC (Certificates of Public Good, September 2019).
Governor’s EV Proposal Package
Overarching Goals

Remove barriers to adoption of EVs
• Higher purchase price
• Lack of customer and sales force knowledge of EVs
• Distance between public charging stations

Increase Access for All Vermonters
• Stacked Incentives with Replace Your Ride Program
• More Transportation Options such as Ebikes, Emotorcycles, Transit Passes, Shared Mobility, Ride Hailing & Microtransit

Implement Supportive Policies
• EV Rate Design
• Electric Demand Charge Modifications
Governor’s EV Proposal Package
Build on the Successes of Prior Investments In EV

EV Incentives for New Vehicles
• FY20 $1.1M
• FY21 $950K
• FY22 $2M Proposed

EV Charging Equipment
• 2014 $200K – Community Based
• 2019 $1M – Highway Fast Charging Network – within 30 miles of all Vermonters
• 2020 $1.7M – Highway Fast Charging Network – within 30 miles of all Vermonters
• 2021 $750K – Infill of Highway Network
• 2022 $1M Proposed – Multi Family Dwellings
Governor’s EV Proposal Package
Roll Out New Investments

VT Replace Your Ride Program ($1.5M proposed)
- Income sensitized program
- Scrap a registered and inspected older high-polluting vehicles
- Receive and incentive of up to $3,000 towards one or more of the following clean-transportation options:
  - A new or used Electric Vehicle (or Plug-in Hybrid)
  - Electric Bicycle or Motorcycle
  - Public transit Passes
  - Shared-mobility options such as CarShare VT or bike-share programs
  - Vouchers for private ride hailing like Lyft/Uber or other new mobility programs
Governor’s EV Proposal Package
Roll Out New Investments (continued)

EV Sales Incentives for Dealers and Salesforce ($250K proposed)
• Incentives for auto dealers and salespersons to sell electric vehicles
• Education regarding electric vehicles and complimentary incentive programs

Public Transportation Electrification Plan
• Working in coordination with Vermont’s public transit providers, prepare a long-range plan which will outline the costs, timeline, training, maintenance, and operational actions required to move to a fully electrified public transportation fleet

Public Transit Electric Buses
• Funding for 7 electric buses for the public transit network
Fuel Cost Comparison

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<th>$/Gallon of Gas Equivalent</th>
<th>Annual Household Transportation Fuel Spending (Sedan/Wagon)</th>
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<tr>
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<tr>
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<td>Average Electricity Rate</td>
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<tr>
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<td>EV-Specific Rate</td>
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<tr>
<td>$2.34</td>
<td>High Electricity Rate</td>
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Spending Assumptions (Sources: CNT H+T Affordability Index; EPA eGallon Calculator)
23,107 miles per year per household, 30.8 miles per gallon for gas vehicle, 0.326 kWh/mile for electric vehicle

Fuel and Electricity Prices
(1) $2.40/gallon of regular gas is AAA reported Vermont average for 2/1/2021; (2) Average residential electricity rate of $0.179/kWh; (3) GMP Time-of-Use Off-Peak EV Rate of $0.128/kWh; (4) WEC marginal residential rate of $23.292 for block over 100 kWh/month
Governor’s EV Proposal Package
Implement New Complimentary Policies

EV Electric Utility Rate Design (Pricing)
- Smooth utility loads and reduce the cost of EVs to the system (for lower electricity prices)
- Introduce EV rates that can be differentiated for the benefit of EV customers
- Secondary benefit of controlled loads to help serve environmental objectives

Modify Utility Demand Charges
- Demand charges are fees applied to the electric bills of commercial and industrial customers based upon the highest amount of power drawn during any (typically 15-minute) interval during the billing period to lessen the burden of providing electricity
- Support commercial providers of Level III DC Fast Charging stations who are providing a new market product with a very limited return on investment at this time.
- Restructuring demand charges for Fast Charging Stations will attract more installations
Electric Cars Are Coming, and Fast. Is the Nation’s Grid Up to It?

GM’s decision this week to phase out gasoline vehicles is the latest in a major shift that will mean drastic new demands on electric utilities.

New York Times, January 29, 2021
VELCO Peak Load Forecast Components

Technology forecasts do not include effect of load control

Source: VSPC 1/27/21 presentation on draft VELCO 2021 Long-Range Transmission Plan (medium adoption scenario)
Observations

• EV rates/load management are important to Vermont electricity consumers and Vermont climate objectives
• The Public Utility Commission (PUC) can be used to sensibly apply standards set in law to address individual utility circumstance
• Now is the time for policy and regulatory reform
Questions