Driving Electric in Vermont

Vermont ASHRAE

MAY 1, 2019

It's time.

PLUG IN, VERMONT

Drive Electric Vermont
Why Electric Transportation?

- Clean Air
- Clean Energy
- Affordability
- Climate Change
Overview

1. Plug-in Electric Vehicle Overview
2. EV Charging
3. EV Market Trends
4. EV Purchase Considerations
5. Discussion
Vermont Greenhouse Gas Emissions

Transportation: 43%

- Industrial Processes
- Waste Management
- Electricity Supply
- Industrial Fuel
- Residential & Commercial Use
- Agriculture

Vermont Agency of Natural Resources 2015 Inventory Update, June 2018
Light Duty Vehicles

Electric cars are 2-3 times more efficient than gasoline.
Types of Plug-in Vehicles

All Electric

- Battery
- Electric Motor
- 70 - 300+ Mile Range on Battery

Plug-in Hybrid

- Battery
- Electric Motor
- Gasoline Tank
- Combustion Engine
- 15 - 80 Mile Range on Battery + 300 or More Miles on Gasoline
All-Electric Vehicles in Vermont

Compact to Full Size
Many Automakers
- Nissan
- Tesla
- Chevrolet
- Volkswagen
- Mitsubishi
+ others
Plug-in Hybrid Vehicles in Vermont

Wide range of models

Popular Automakers
- Toyota
- Chevrolet
- Mitsubishi
- Ford
- BMW
Other Electric Options

Electric Buses

Electric Motorcycles and Bicycles
Recent arrivals

Chevrolet Bolt

Tesla Model 3

Chrysler Pacifica Hybrid

30+ additional models in next 5 years
EVs in Vermont Conditions

Cold weather reduces electric range 20-40%
EV Charging

- Public
- Workplace
- Home

Away From Home Charging
Charging Equipment

Level 1 Charging
120V
5 miles range / hr

Level 2 Charging
240V
10-20 miles / hr

DC Fast Charging
480V
70+ miles / hr
DC Fast Charging Plugs

SAE Combo

CHAdeMO

Tesla Supercharger
EVgo Fast Charging Pricing

**PAY AS YOU GO**
No Monthly Fee

- **DC Fast Charging**
  - $0.35/minute

- **45-Minute Session Length**

- **No Commitment**

**MEMBERSHIP**
Unlock Our Lowest Rates

- **DC Fast Charging**
  - $0.31/minute

  - **60-Minute Session Length** 8pm-6am
  - **45-Minute Session Length** 6am-8pm

- **$7.99/month**
- **Cancel Anytime**

**25 minutes of fast charging included**
EV Public Charging Availability

https://www.driveelectricvt.com/charging-stations/public-charging-map
VT Building Energy Stretch Code

Stretch code compliance required for Act 250

1. Commercial
   a. About 2% of parking EV ready
   b. Half ready to go on occupancy
   c. Level 1 and/or 2

2. Residential
   a. Multifamily with 10+ units
   b. 4% of parking
   c. Level 1 or 2 receptacles

https://publicservice.vermont.gov/content/building-energy-standards
Monthly Cost Comparison

$2,400 Savings over 5 years

Source: US Energy Information Administration and VEIC
Assumptions: 25 mpg gasoline vehicle; 3 mile per kWh EV; 1,000 miles per month
Vermont EV Registrations

- Jan 2013
- Jan 2014
- Jan 2015
- Jan 2016
- Jan 2017
- Jan 2018
- Jan 2019

VT ANR, VT DMV, DEV
EV Purchase Considerations

1. Available Incentives
2. Lease vs Buy
3. New vs Used
4. Shopping Tools
Purchase Incentives

1. Federal Tax Credit
   a. Up to $7,500, based on battery size
   b. Begins to sunset when manufacturer reaches 200,000 EV sales
   c. Claim on income taxes (unless leasing)
   d. Does not carry-over into future years

2. Employee Benefit Programs
Electric Utility Incentives

$1,200 on new all-electric or plug-in hybrid
+ Up to $600 for low and moderate income
+ Discounted off-peak charging program
+ $5,000 discount on Nissan LEAF

$1,500 on new all-electric; $1,000 for PHEV
+ Up to $1,000 for low and moderate income
+ Discounted off-peak charging program
+ $5,000 discount on Nissan LEAF

See our website for other utilities

http://www.driveelectricvt.com/buying-guide/purchase-incentives
Lease vs Buy

1. **Lease Benefits**
   a. Half of EVs are leased
   b. Tax credit included in lease, offering good deals
   c. Rapid technology advancement
   d. Less worry over battery and other components since vehicle will be under warranty

2. **Purchase Benefits**
   a. Lowest total cost of ownership
   b. No mileage limitations like leasing
   c. Some manufacturers may not offer EV leases
New vs Used

1. New
   a. Federal tax credit available
   b. New vehicles generally have more range and better performance in Vermont conditions
   c. Less worry over battery and other components since vehicle will be under warranty

2. Used
   a. Growing availability, now about 15% of Vermont EV market
   b. Lowest total cost of ownership
   c. No federal tax credit
Shopping Tools

1. Drive Electric Vermont website
   https://www.driveelectricvt.com/

2. FuelEconomy.Gov
   https://www.fueleconomy.gov/

3. Automaker / EV websites and forums
   https://driveelectricicus.com/
   https://www.greencarreports.com/
   https://www.insideevs.com/
   https://electrek.co/
Discussion