Driving Electric in Vermont

Vermont ASHRAE

MAY 1, 2019

Drive Electric Vermont

Why Electric Transportation?

Clean Air

Clean Energy

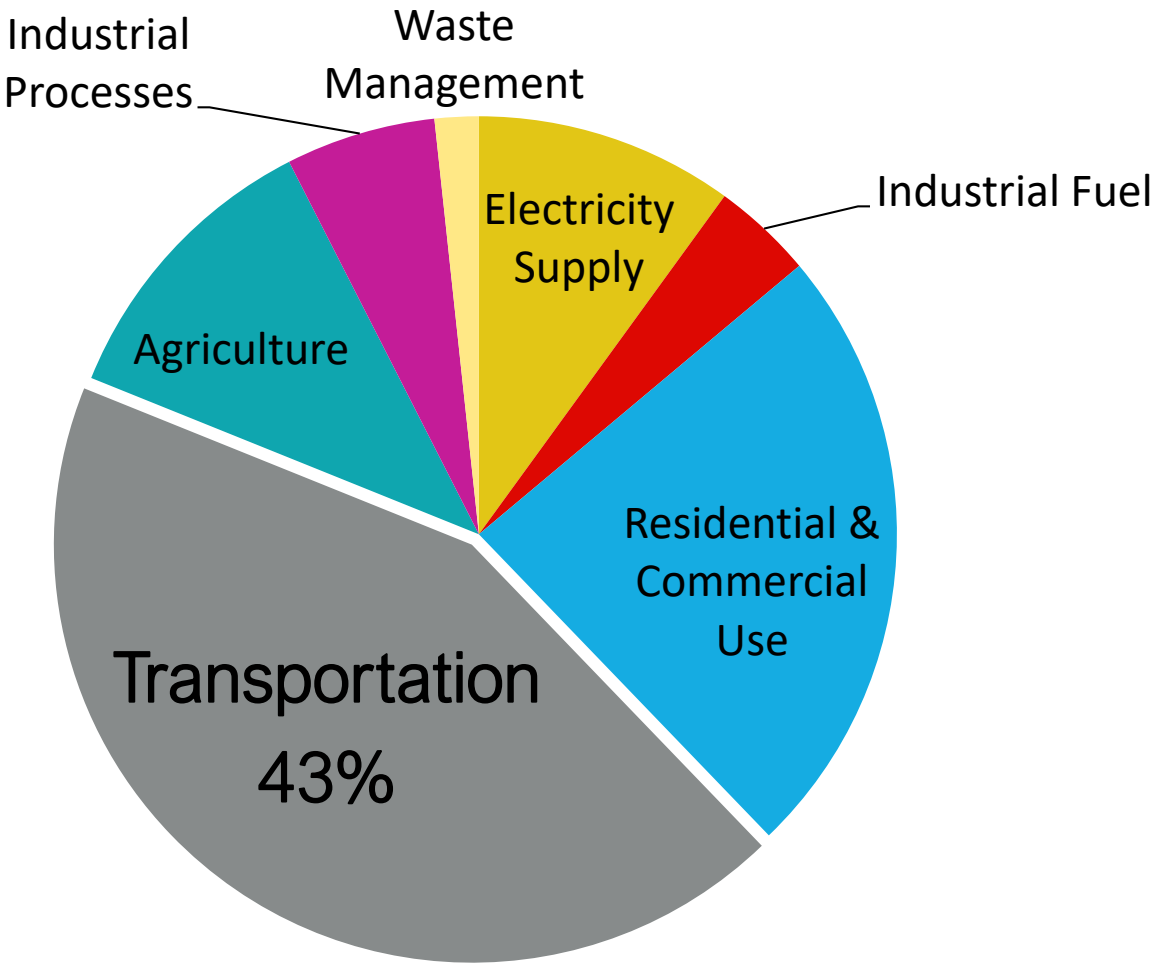
Affordability

Climate Change

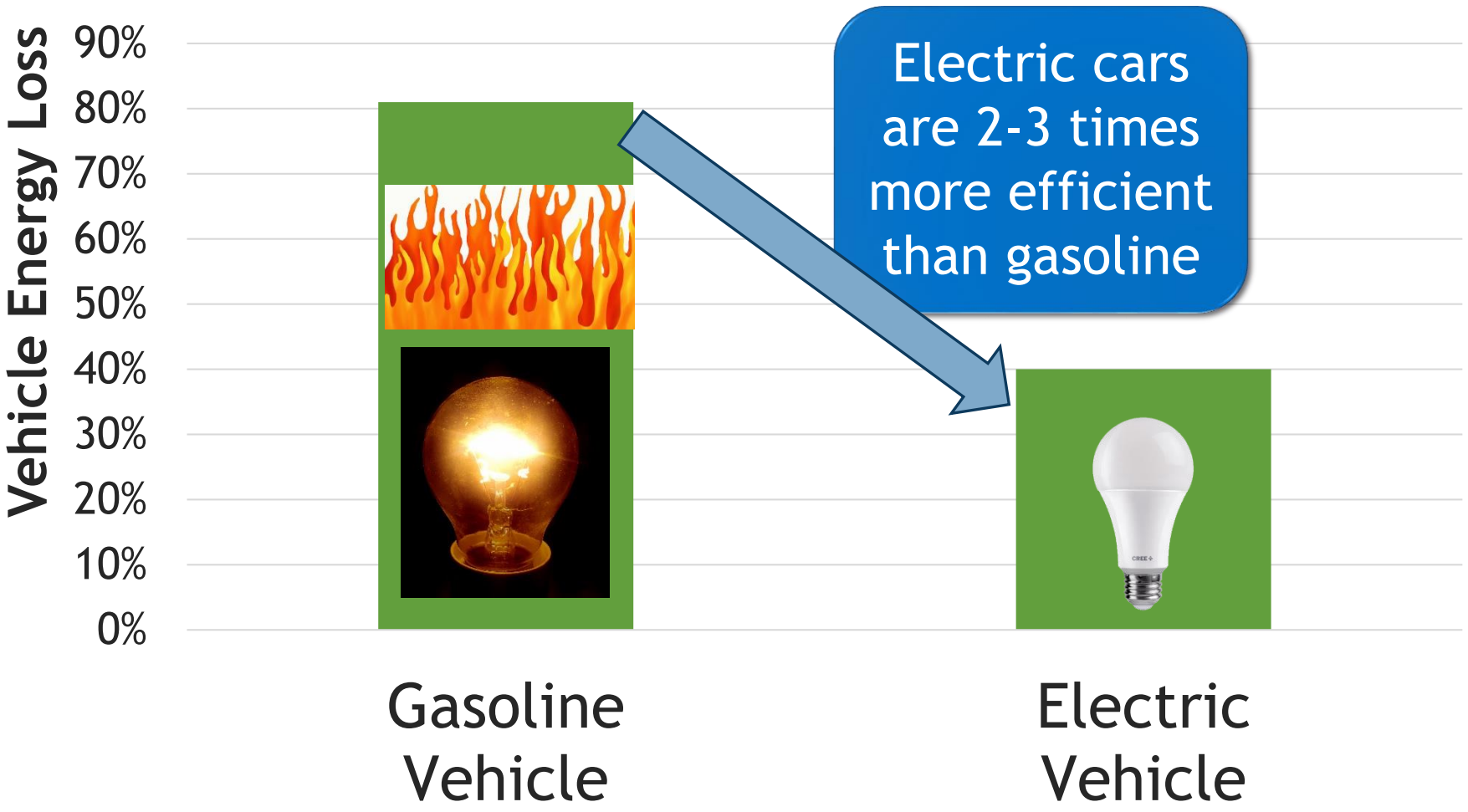
Overview

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

Vermont Greenhouse Gas Emissions

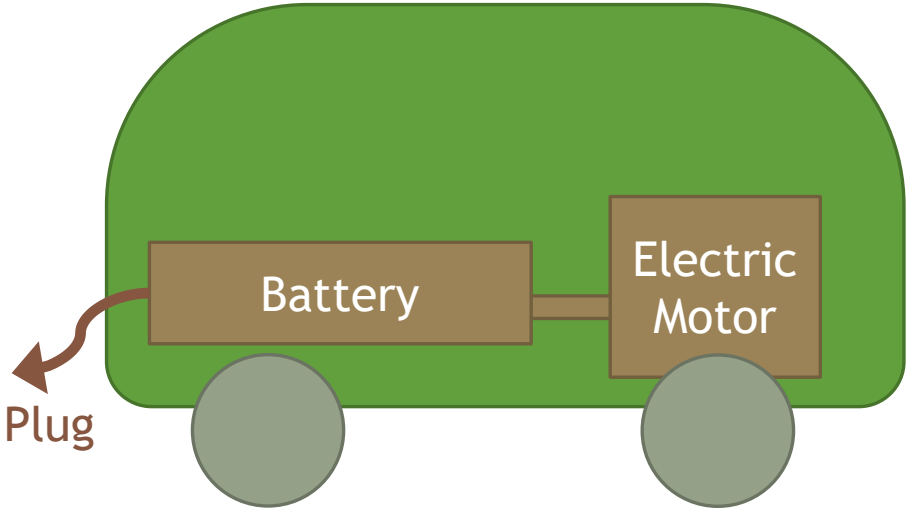


Light Duty Vehicles



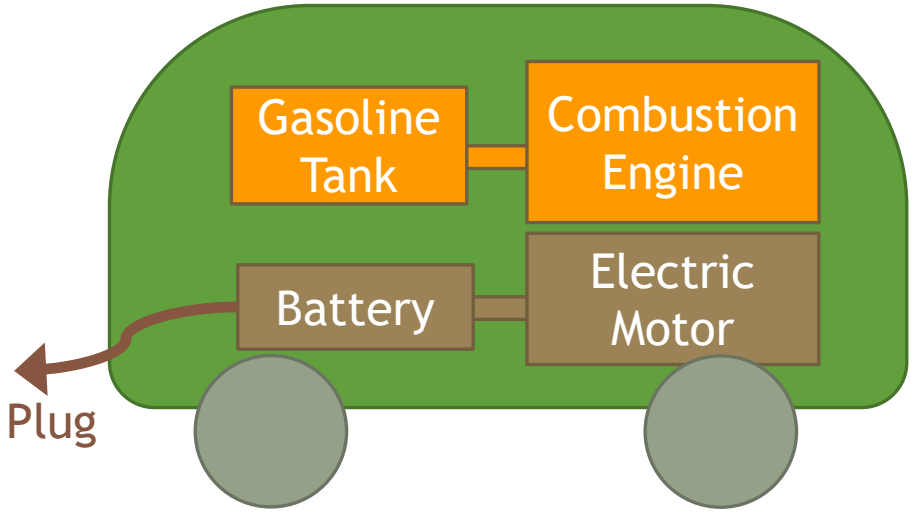
Types of Plug-in Vehicles

All Electric



70 – 300+ Mile Range on Battery

Plug-in Hybrid



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

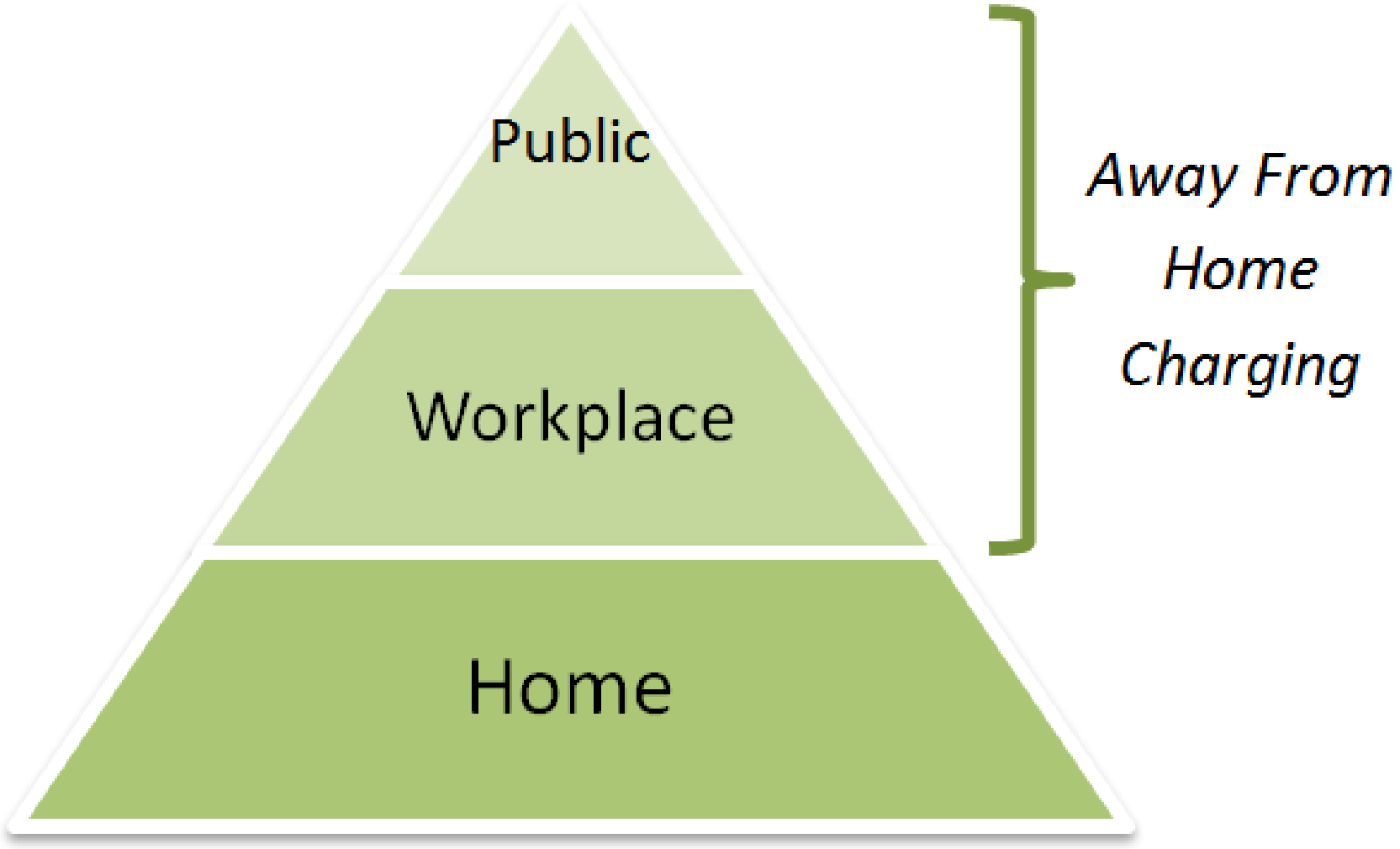
Chrysler Pacifica Hybrid

30+ additional models in next 5 years

EVs in Vermont Conditions

Cold weather reduces electric range 20-40%

EV Charging



Charging Equipment

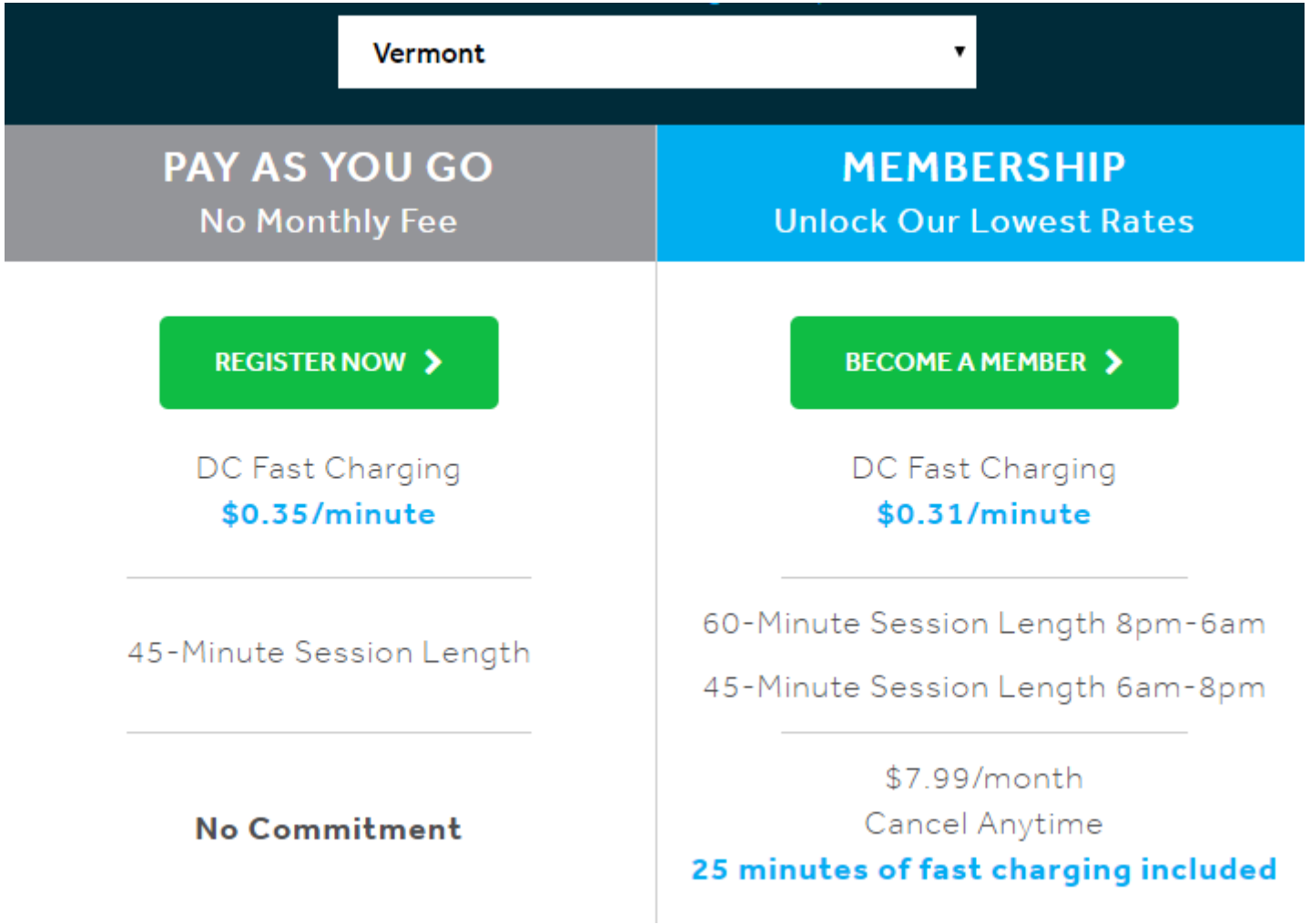
Level 1 Charging
120V
5 miles range / hr

Level 2 Charging
240V
10-20 miles / hr

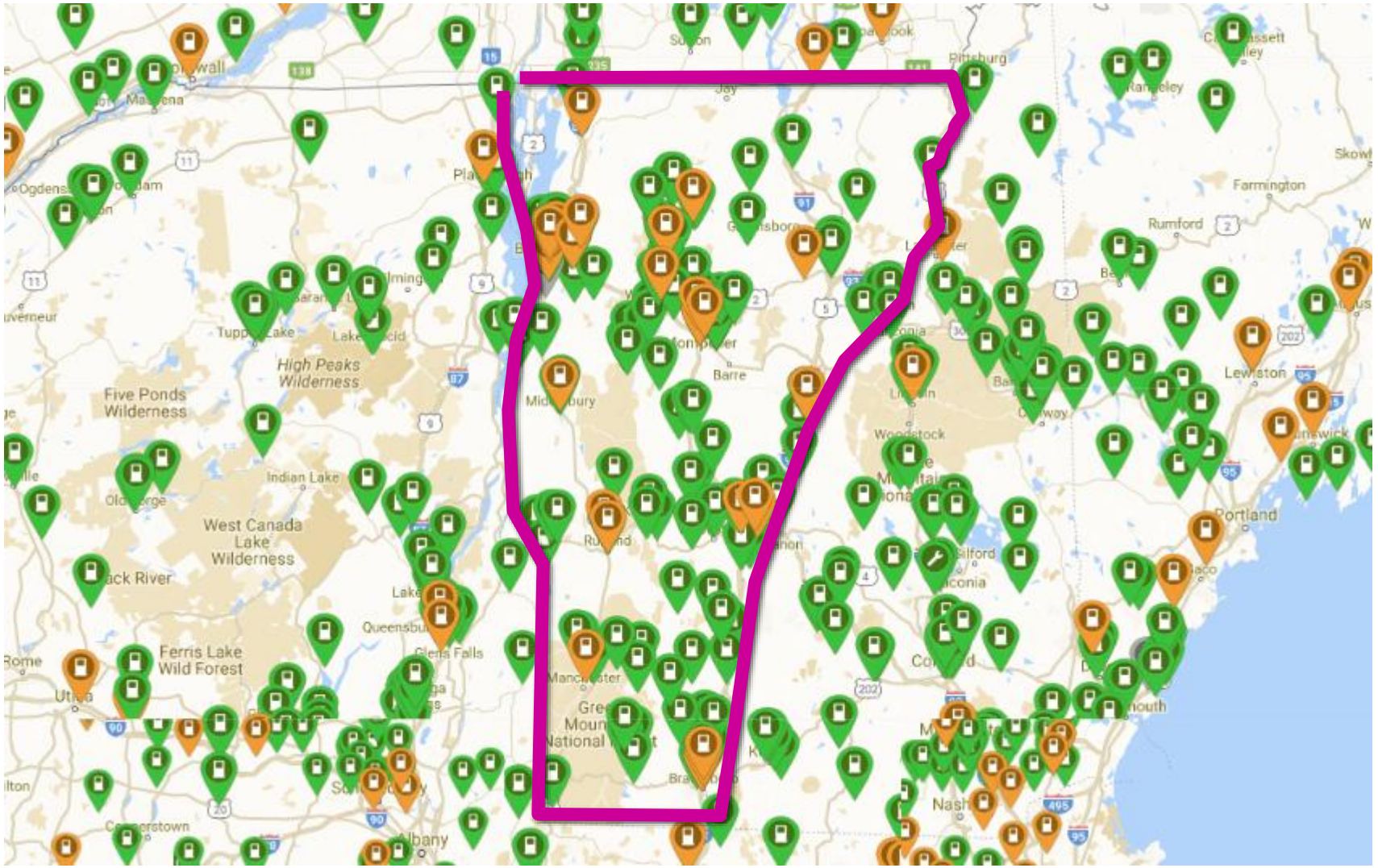
DC Fast Charging
480V
70+ miles / hr

DC Fast Charging Plugs

EVgo Fast Charging Pricing



EV Public Charging Availability



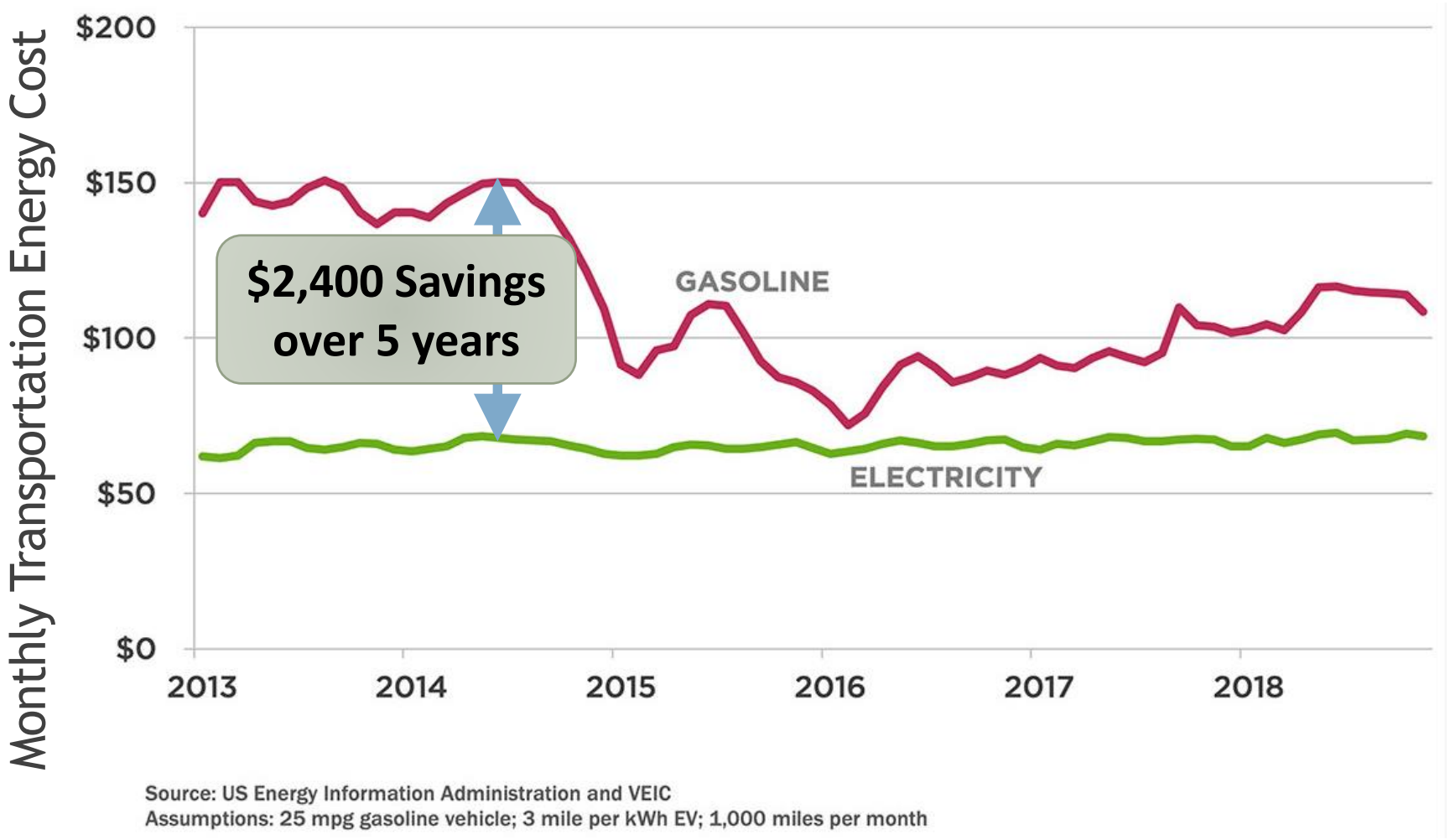
VT Building Energy Stretch Code

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

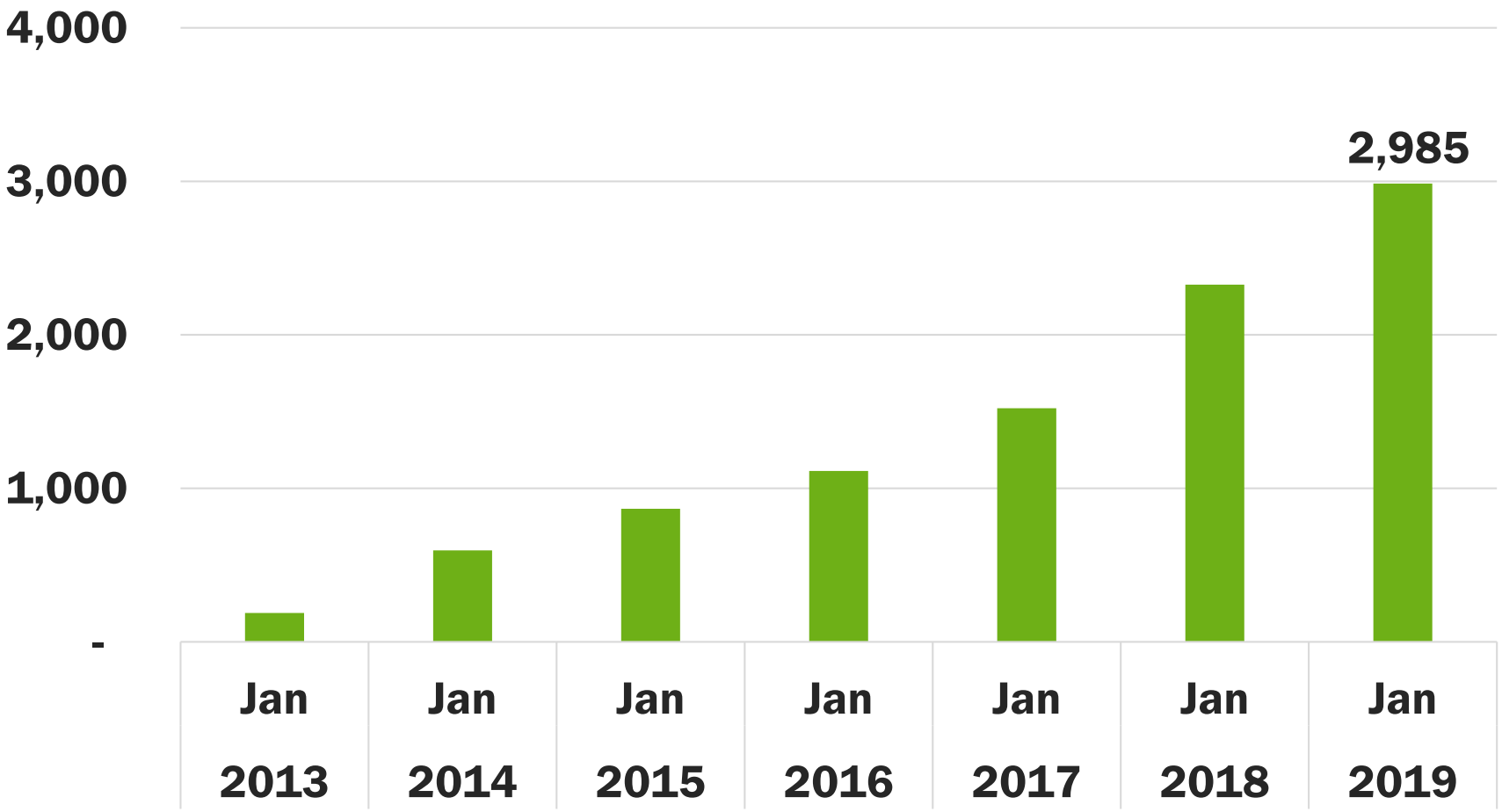
https://publicservice.vermont.gov/content/building-energy-standards

Monthly Cost Comparison



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



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

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://driveelectricus.com/

   https://www.greencarreports.com/

   https://www.insideevs.com/

   https://electrek.co/

Discussion