Driving Electric

The Basics

ESSEX ENERGY COMMITTEE – NOVEMBER 18, 2020

Drive Electric Vermont

About Drive Electric Vermont

- Drive Electric Vermont is a public-private partnership established in 2012 by VEIC and the State of Vermont

- Working to advance transportation electrification through:
  - Stakeholder coordination
  - Policy engagement
  - Consumer education & outreach
  - Infrastructure development

Dave Roberts

https://www.driveelectricvt.com/

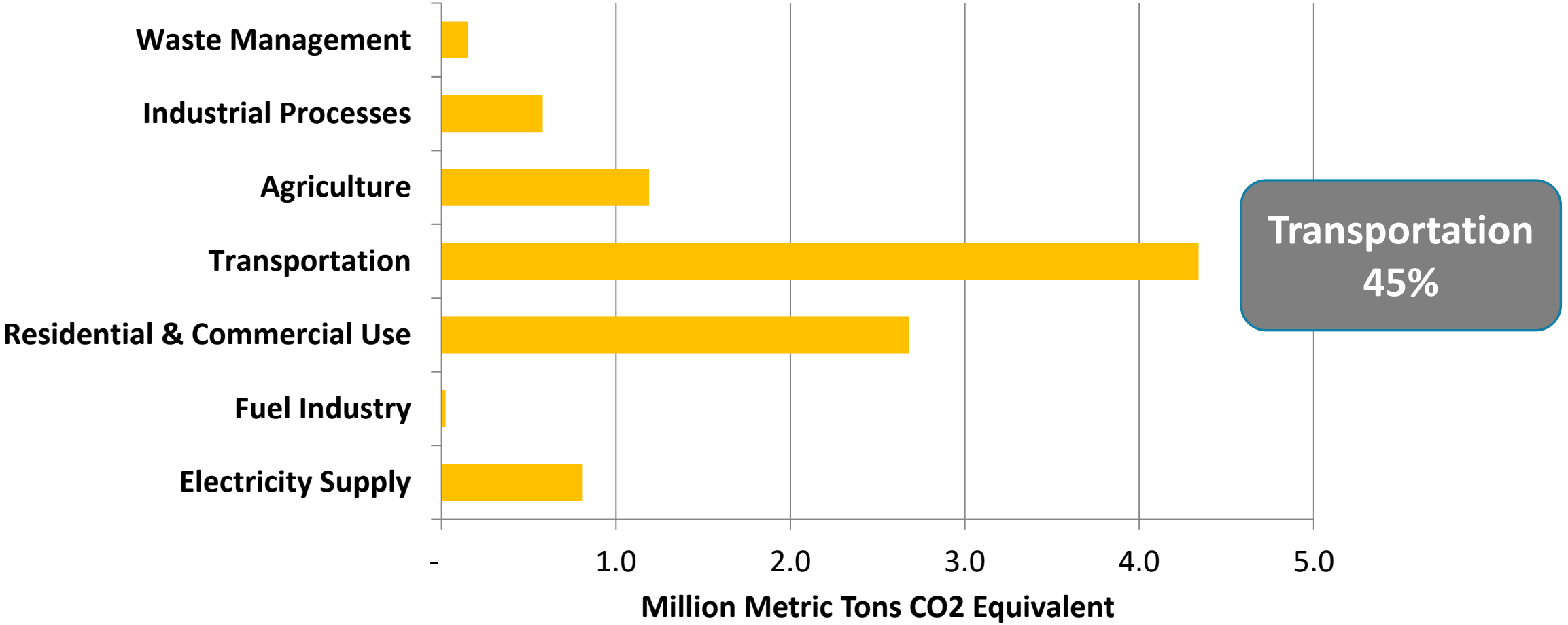
Why Go Electric?

- Reduce emissions
- Great performance
- Quiet
- Convenient charging at home
- Savings

Event Overview

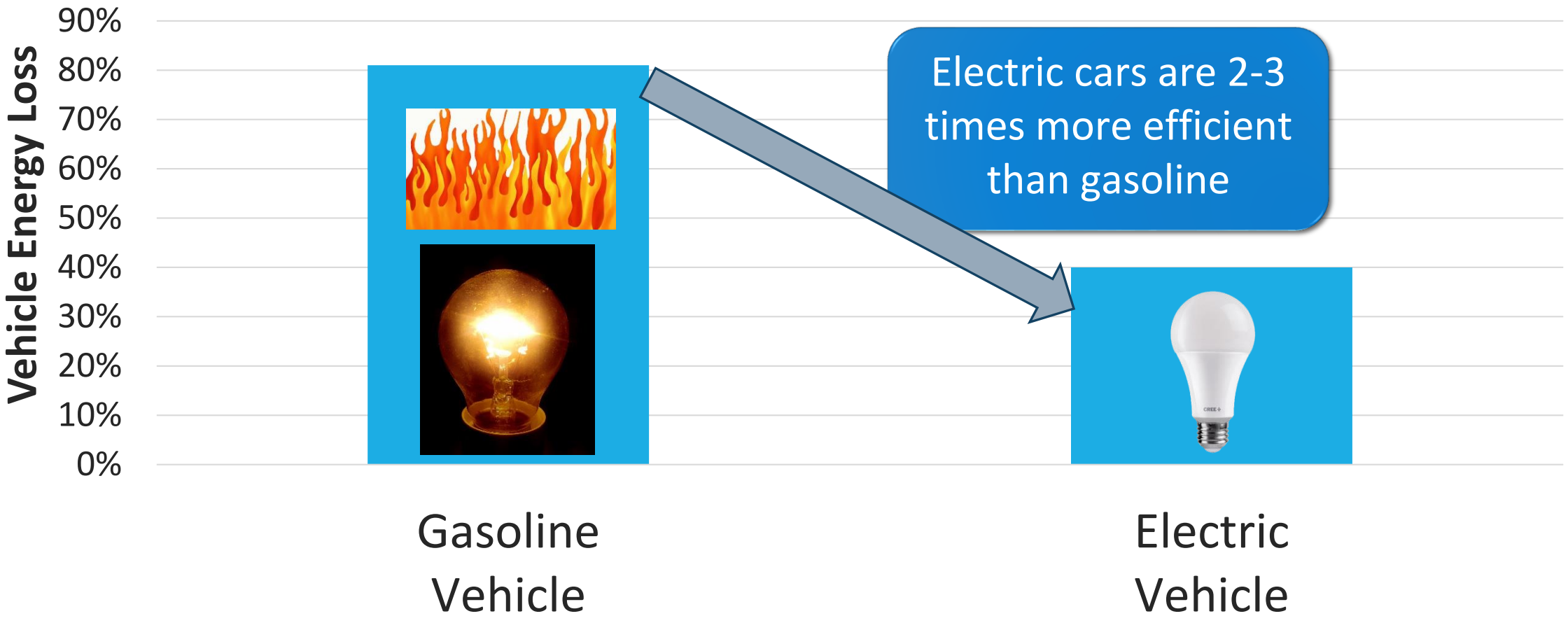
1. Plug-in Electric Vehicle Overview
2. EV Charging
3. EV Market Trends
4. EV Incentives and Purchase Considerations
5. Discussion

Vermont Greenhouse Gas Emissions



Vermont Agency of Natural Resources 2016 Inventory Update, January 2020

Vehicle Efficiency

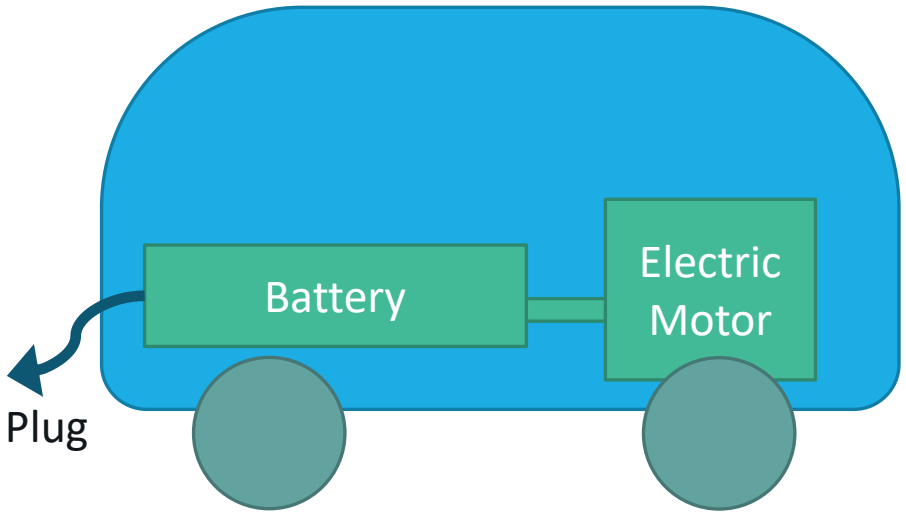


Community Design

Images: Chittenden County RPC

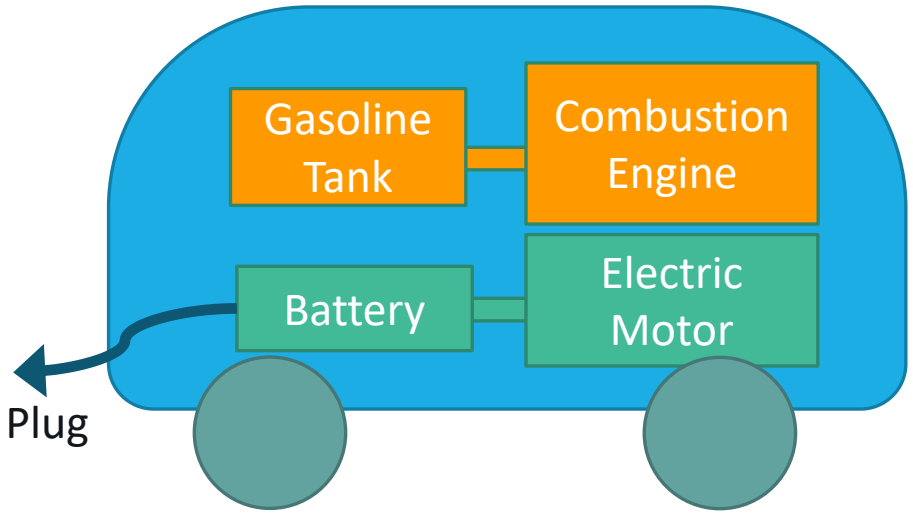
Types of Plug-in Vehicles

All Electric



70 – 300+ Mile Range on Battery

Plug-in Hybrid



15 – 80 Mile Range on Battery

+

300 or More Miles on Gasoline

Popular Models

Nissan LEAF
150-225 Miles
$30-37k

Tesla Model 3
250-322 Miles
$35-50k

Chevrolet Bolt
260 Miles
$37k

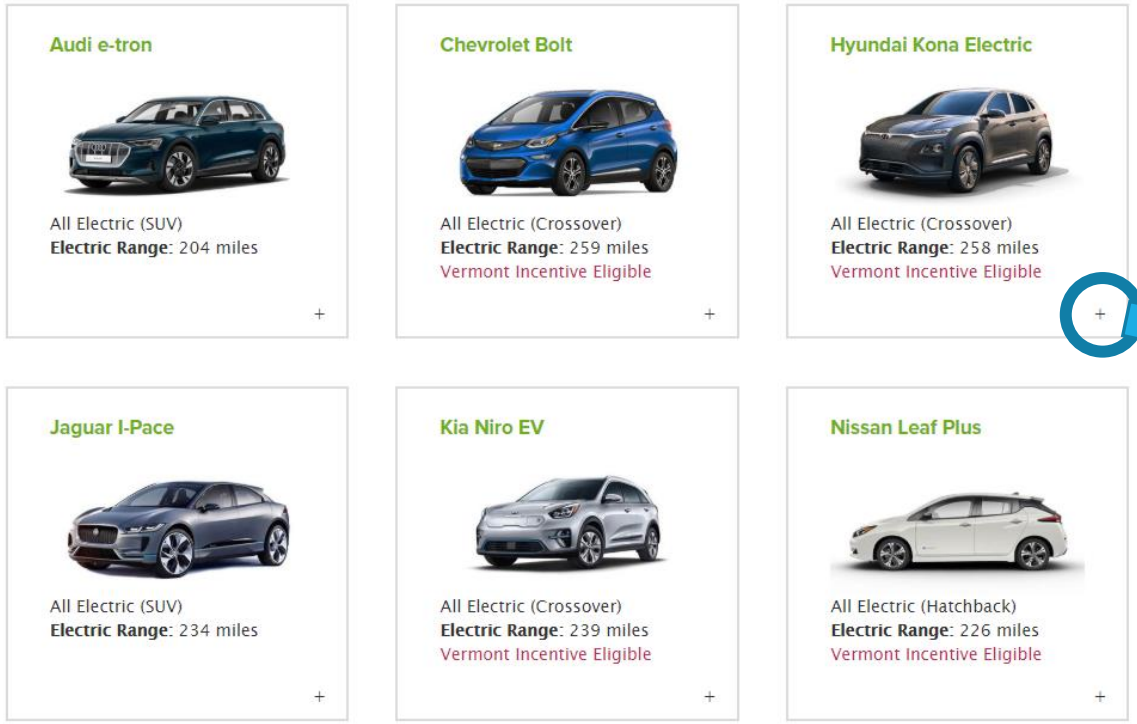
Toyota Prius Prime
25 Miles
$28k

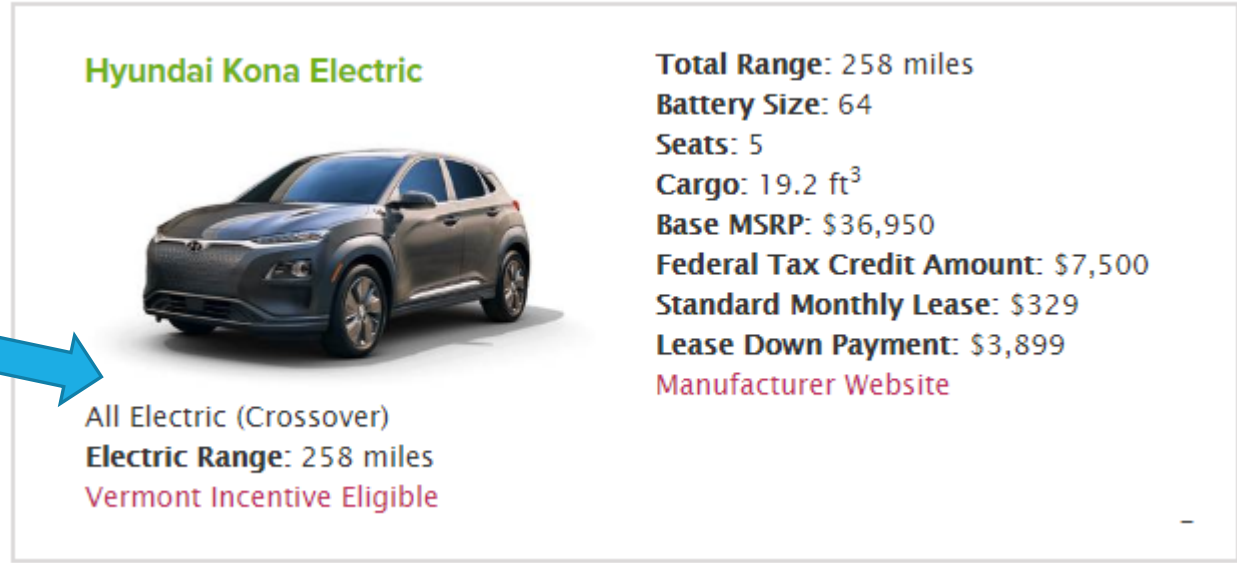
Mitsubishi Outlander PHEV
22 Miles
$36k

Subaru Crosstrek Hybrid
17 Miles
$35k

Website EV Model Explorer

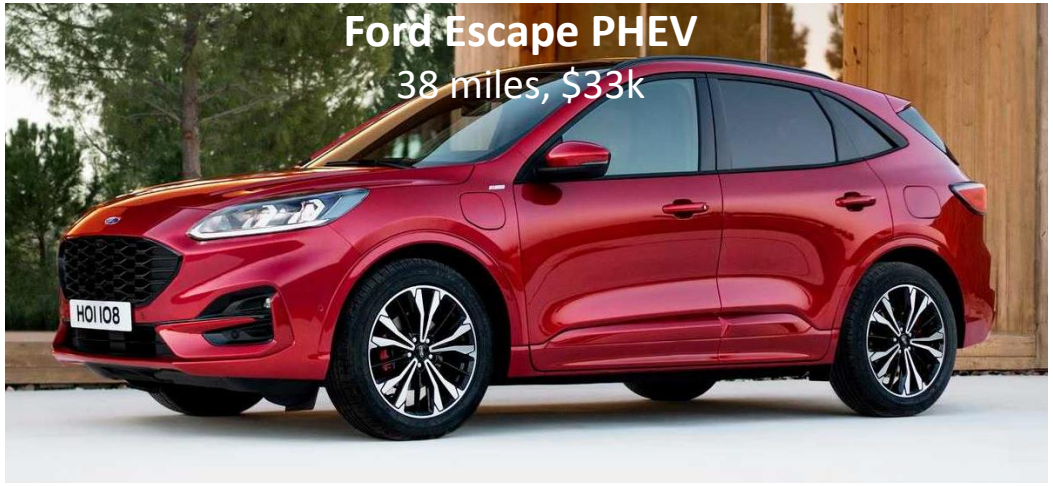
Filters for vehicle characteristics





www.DriveElectricVT.com

New for 2020(ish)



VW ID.4
250 miles, $40k

Other Electric Options

Buses

Bicycles

CarShare

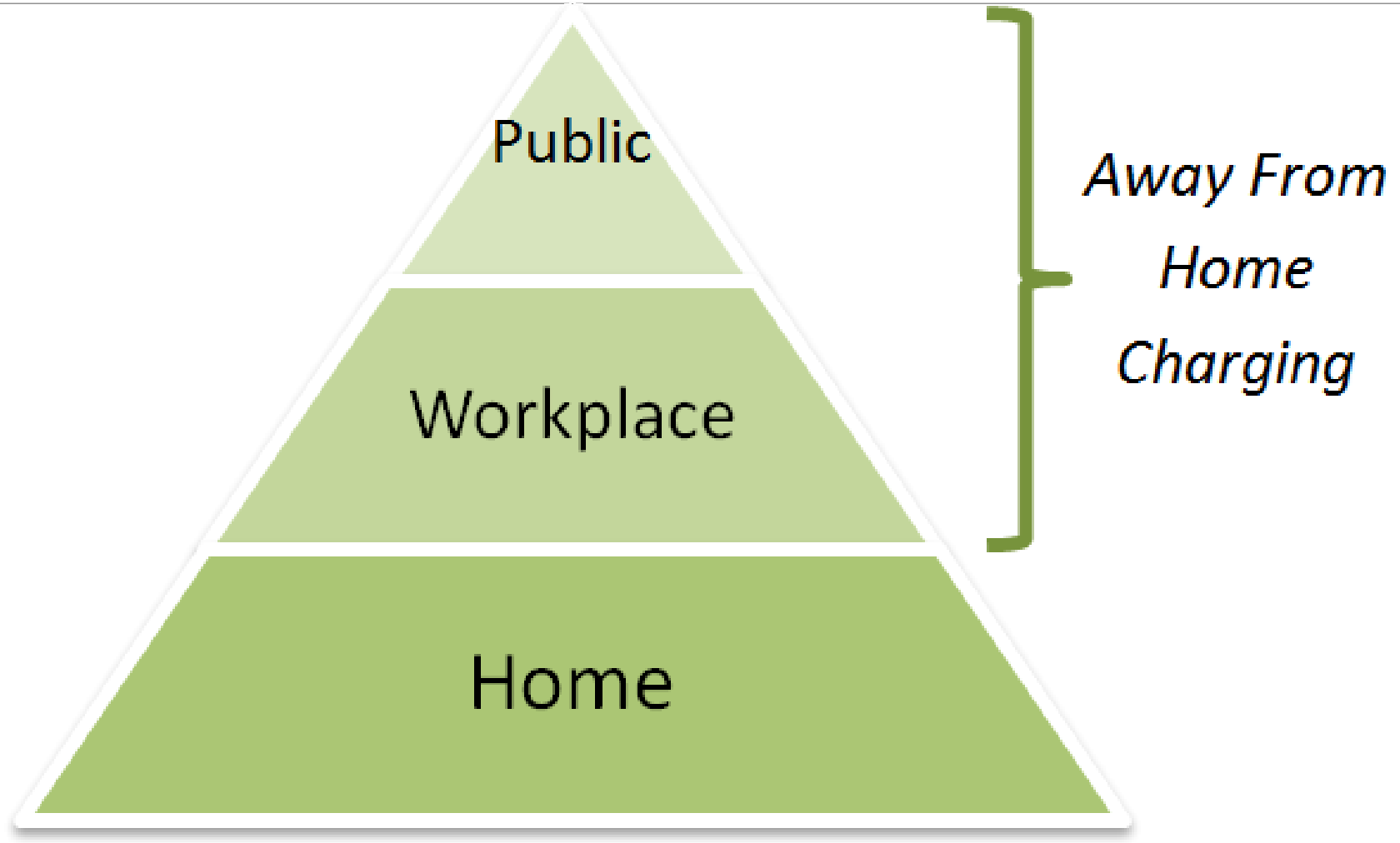
Lawncare equipment

Motorcycles

EVs in Vermont Conditions

Cold weather reduces electric range 20-50%

EV Charging



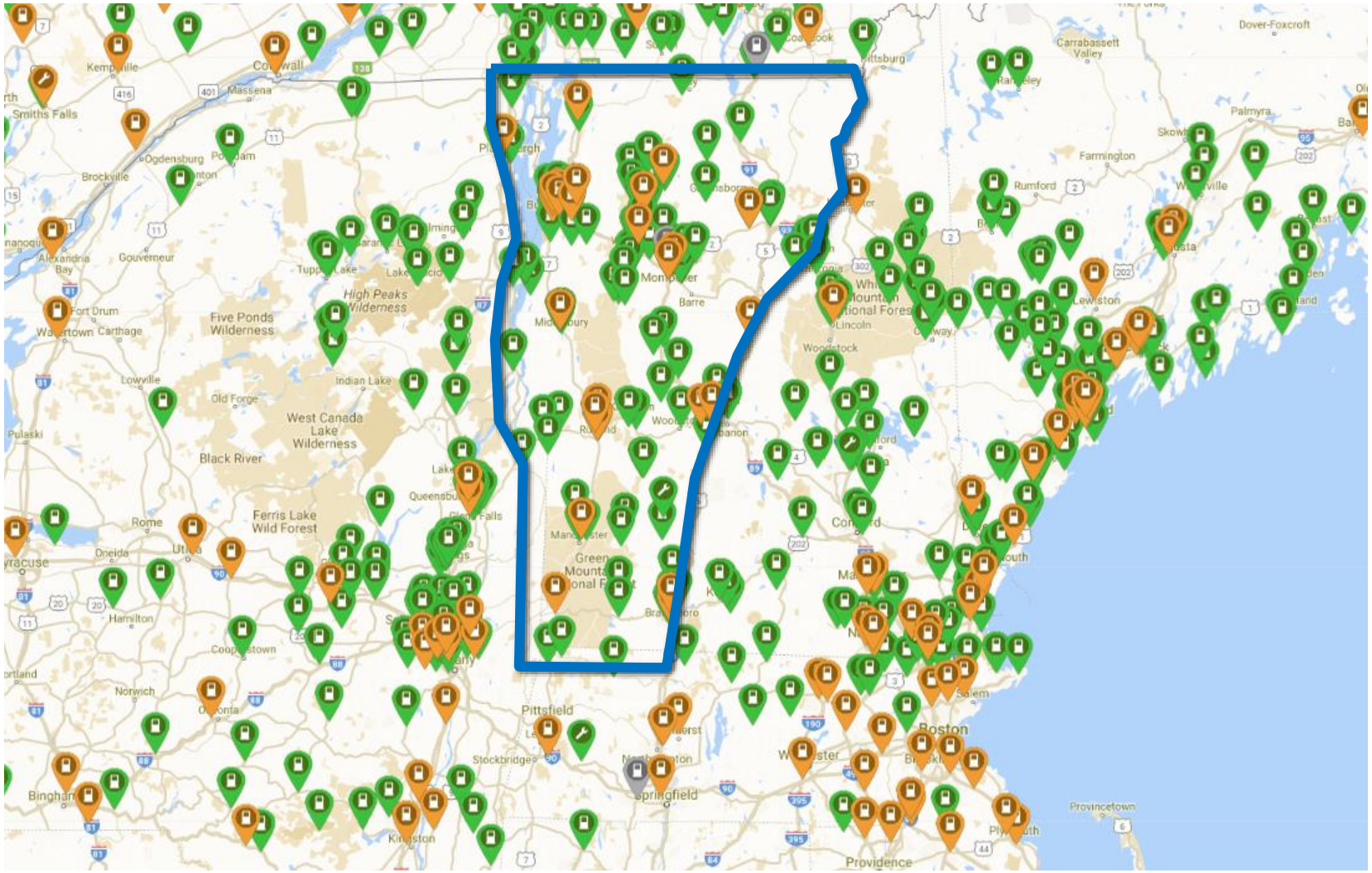
Charging Equipment

Level 1 Charging
120V
5 miles range / hr

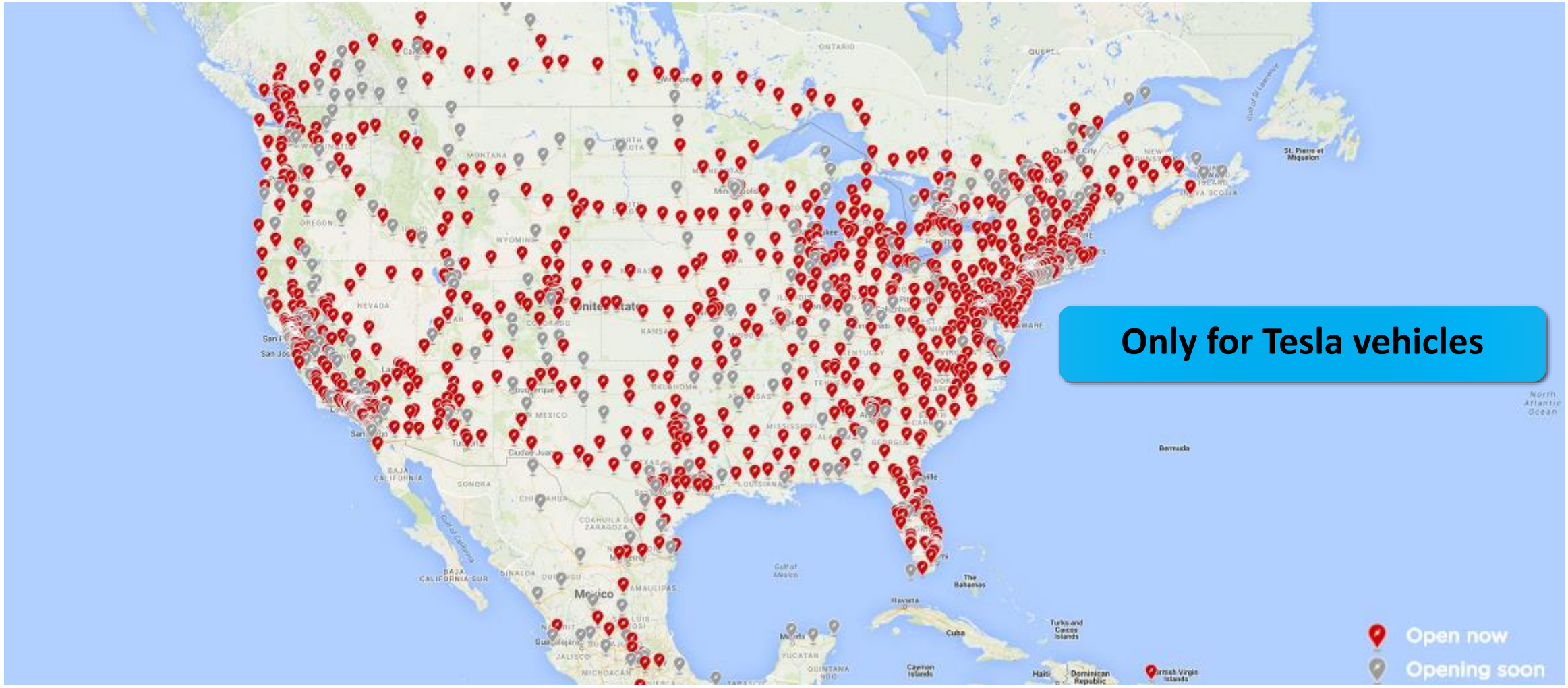
Level 2 Charging
240V
10-20 miles / hr

DC Fast Charging
480V
70+ miles / hr

EV Public Charging Availability

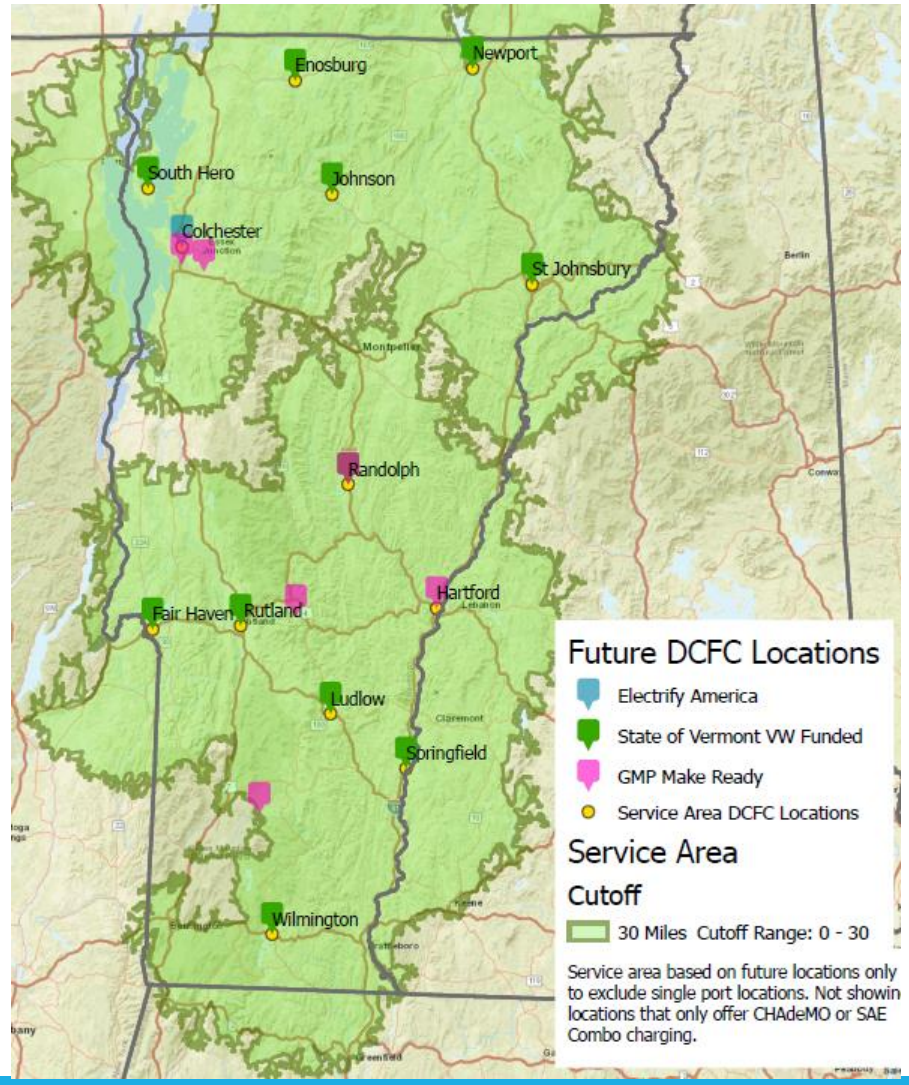


Tesla Supercharging

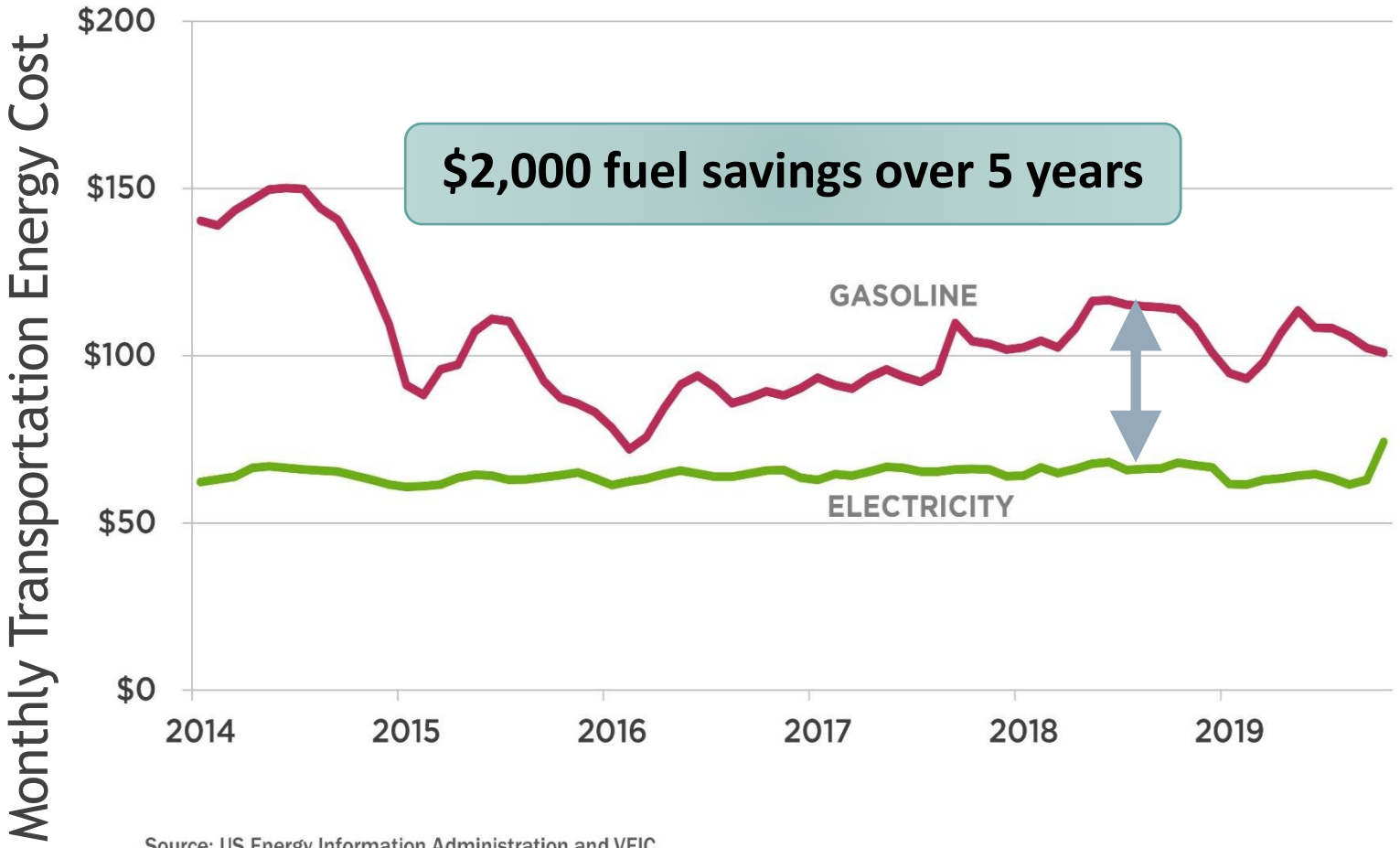


https://www.tesla.com/supercharger

Future Fast Charging Locations



Operating Cost Comparison



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

CR Consumer Reports

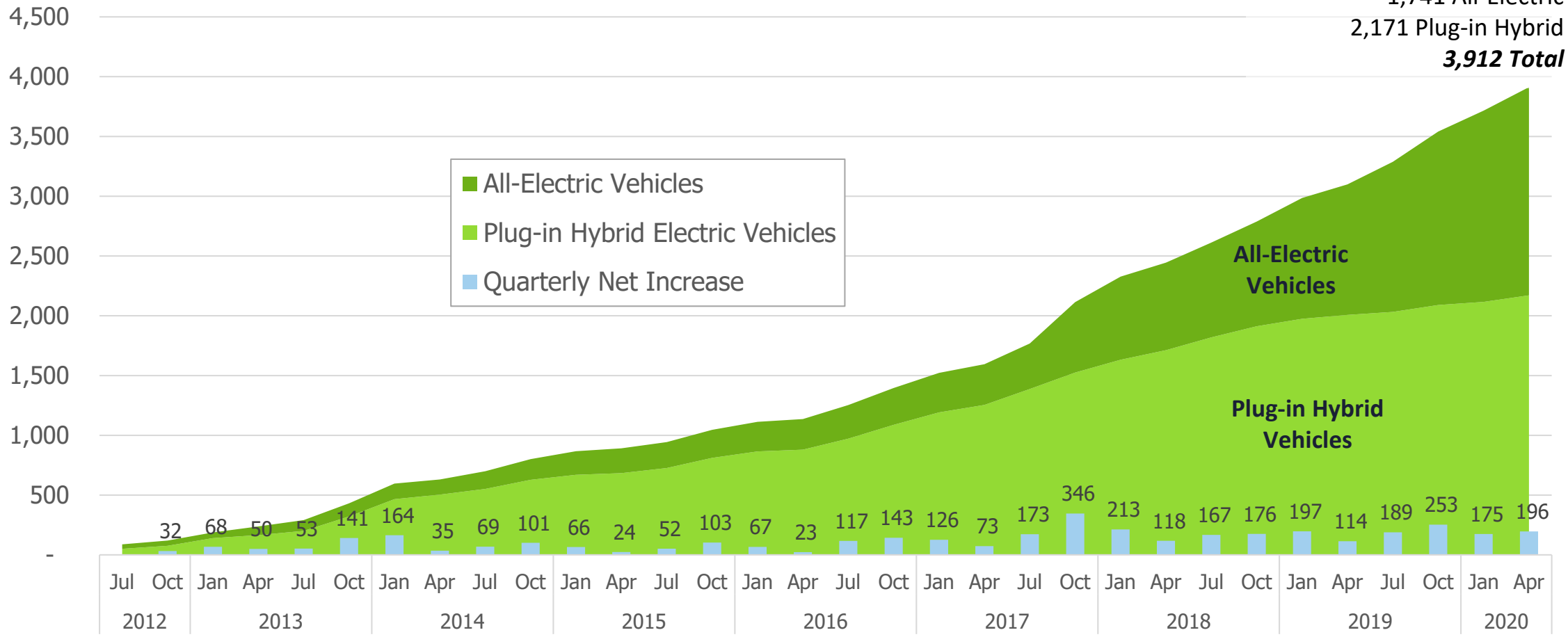
Pay Less for Vehicle Maintenance With an EV

CR research shows that EVs cost less to maintain than gasoline-powered vehicles

Electric cars **save an average of $4,600 in repair and maintenance** costs over the life of the vehicle compared with a gasoline-powered car

Vermont EV Registrations

As of April 2020
1,741 All-Electric
2,171 Plug-in Hybrid
3,912 Total



VT ANR, VT DMV, DEV

Essex EV Registrations

Type / Model	Count
Plug-in Hybrid Electric Vehicles	**81**
Chevrolet Volt	15
Toyota Prius Prime	14
Ford CMax Energi	11
Honda Clarity PHEV	11
Toyota Prius Plug-in	6
Ford Fusion Energi	5
Kia Niro PHEV	5
Mitsubishi Outlander PHEV	3
Chrysler Pacifica Hybrid	2
Subaru Crosstrek Hybrid	2
Audi A3 E-Tron	1
Hyundai Ioniq PHEV	1
Kia Optima PHEV	1
Mercedes-Benz GLE550e	1
Mini Countryman SE	1
Volvo XC90 T8	1
Volvo XC60 T8	1

All-Electric Vehicles	**62**
Nissan LEAF	31
Tesla Model 3	10
Chevrolet Bolt	7
Tesla Model S	3
Hyundai Ioniq EV	2
Kia Soul EV	2
Tesla Model X	2
Ford Focus Electric	1
Hyundai Kona	1
Kia Niro EV	1
Smart ForTwo ED	1
Volkswagen e-Golf	1
NonCar	**1**
Zero Motorcycle	1
Grand Total	**144**

VT ANR, VT DMV, DEV

Purchase Incentives

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

State of Vermont
- Up to $4,000, depending on income and type of EV
- $950,000 in funding added in November
- For new EVs with *starting* MSRP under $40,000
- Distributed in partnership with electric utilities

Electric Utilities
- Up to $2,500, depending on income and type of EV
- Many also offering incentives for home level 2 charging equipment

Electric Utility Incentives

Green Mountain Power

$1,500 on new all-electric; $1,000 for PHEV

$750 for a used EV

+ Up to $1,000 for low and moderate income AEV

+ Free home charging equipment

Vermont Electric Co-op

$500 on new or used all-electric

$250 on new or used plug-in hybrid

+$250 bill credit for home charging equipment

See our website for other utilities

Burlington Electric Department

Stowe Electric

VPPSA

WEC Washington Electric CO-OP

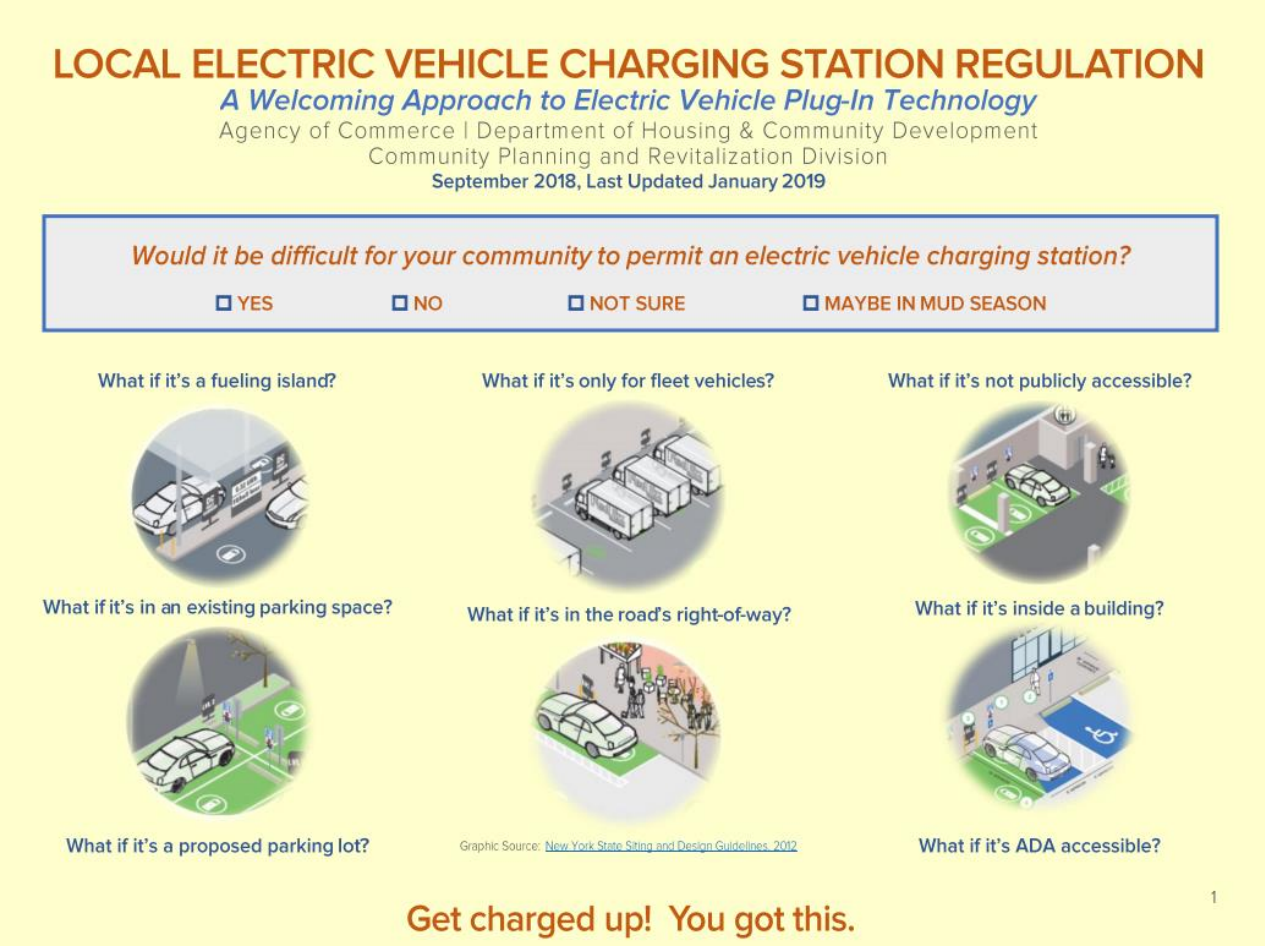
Combined Incentive Example

	Nissan LEAF 150 Mile Range		Nissan Sentra
	Standard Incentive	< $50k Income Incentive	
Starting Price	$31,600	$31,600	$19,310
Federal Tax Credit	-$7,500	-$7,500	--
State Incentive	-$2,500	-$4,000	--
OEM Discount	-$6,000	-$6,000	--
Utility Incentive	-$1,500	-$2,500	--
Price after Incentives	$14,100	$11,600	$19,310

https://www.driveelectricvt.com/why-go-electric/purchase-incentives

Planning & Permitting – VT ACCD Resource

EVSE-friendly Development Regulations for Municipalities



LOCAL ELECTRIC VEHICLE CHARGING STATION REGULATION

A Welcoming Approach to Electric Vehicle Plug-In Technology

Agency of Commerce | Department of Housing & Community Development
Community Planning and Revitalization Division
September 2018, Last Updated January 2019

Would it be difficult for your community to permit an electric vehicle charging station?

☐ YES ☐ NO ☐ NOT SURE ☐ MAYBE IN MUD SEASON

What if it's a fueling island?

What if it's only for fleet vehicles?

What if it's not publicly accessible?

What if it's in an existing parking space?

What if it's in the road's right-of-way?

What if it's inside a building?

What if it's a proposed parking lot?

Graphic Source: New York State Siting and Design Guidelines, 2012

What if it's ADA accessible?

1

Get charged up! You got this.

https://accd.vermont.gov/community-development/funding-incentives/electric-vehicle-supply-equipment-evse-grant-program

VT Building Energy Stretch Code

Stretch code compliance required for Act 250

Commercial (Section C708.1)

- About 2% of parking EV ready
- Half ready to go on occupancy
- Level 1 and/or 2

Residential

- Multifamily with 10+ units
- 4% of parking
- Level 1 or 2 receptacles

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

Performance Standards

The applicant:

- Must demonstrate that the proposed development has been designed to facilitate use of energy-efficient modes of transportation such as walking, biking, transit, and electric vehicles as feasible and appropriate given the location and use (If subject to site plan or conditional use review)
- May establish and collect a service fee for the use of an approved electric vehicle charging station without affecting the land use classification of the property;
- Must construct with equipment and service facilities that are designed and/or located to prevent water from entering or accumulating within the components in river corridor areas;
- Must place charging equipment and manage cords to avoid tripping hazards in public locations;
- Must locate ancillary mechanical equipment and components (but not the charging station itself) so that they will be screened from view to the maximum extent feasible, and if adequate screening is not possible use materials and colors that will camouflage the ancillary equipment.

https://accd.vermont.gov/community-development/funding-incentives/electric-vehicle-supply-equipment-evse-grant-program

Conclusion

- EVs are here
- Home charging options are critical for most EV drivers
- Building new EV-ready housing offers massive savings compared to retrofitting charging
- Municipalities can help by:
  - Ensuring new developments take EV charging into consideration
  - Streamlining EV charging planning and permitting requirements
  - Considering EVs for fleet vehicles and supporting employee/public charging
  - Spreading the word

Discussion

Contact

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