

Electric Vehicles: Their Promise, Challenge and Future Role in Vermont

VECAN | December 1, 2012

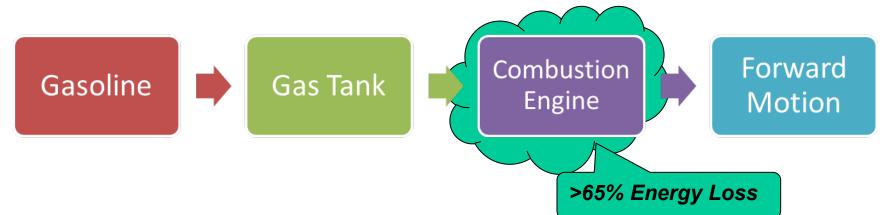
Karen Glitman | VEIC



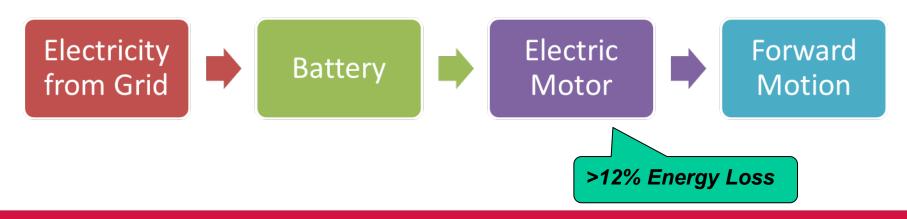


Vehicle Efficiency

Internal Combustion Vehicle Efficiency



Electric Vehicle Efficiency



Types of Electric Vehicles



Hybrid Vehicles – Do Not Plug-In

Powers the vehicle using the engine, electric motor, or both. Electric motor uses energy stored in batteries and is charged by the engine and through regenerative breaking.

Plug-in Hybrid Vehicles

Both an internal combustion engine and electric motor that recharges from the electric grid and allows the vehicle to drive on electricity alone.

All Electric Vehicles
No gasoline.



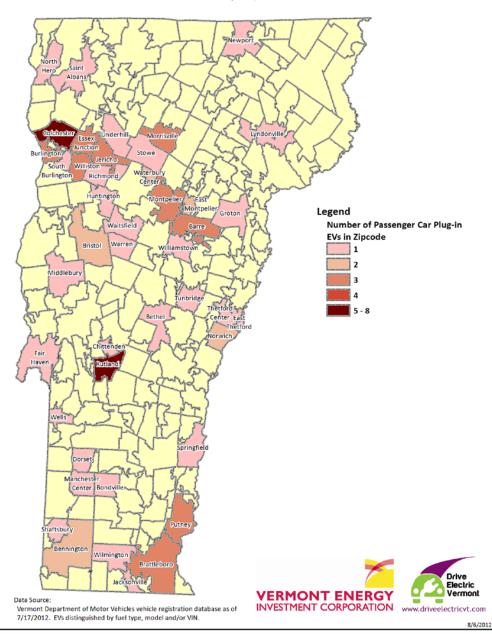






Electric Vehicles Registered in Vermont

As of July 17, 2012





Electric Vehicle Registration Tracking



OEM goals and offerings

OEM	Current Electric Offerings	Soon to be released	Manufacturer Sales Targets
BMW	ActiveE Fleet	i3, i8	
Coda	Coda Electric (AEV)		N/A (all electric)
Fiat		500 (2013)	
Fisker	Karma (PHEV)		N/A (all electric)
Chrysler	Smart ED	Town & Country minivan (test fleet out now)	
Ford	Focus E (AEV)	Fusion, Energi, C-Max Hybrid,	10-25% of 2020 sales electric
GM	Chevy Volt (PHEV)		10% of 2020 sales electric, hybrid
Mercedes		B class E cell	
Mitsubishi	i-MiEV (AEV)		20% electric and hybrid by 2020
Nissan	Leaf (AEV)		10% of 2020 sales electric
Tesla	Roadster, Model S (AEV)		N/A (all electric)
Toyota	Prius Plug-In		20-30% of 2020 sales electric and hybrid

Charging levels



Level 1 Charging



Level 1 Charging - Standard House Outlet

Level 2 charging





Inductive charging

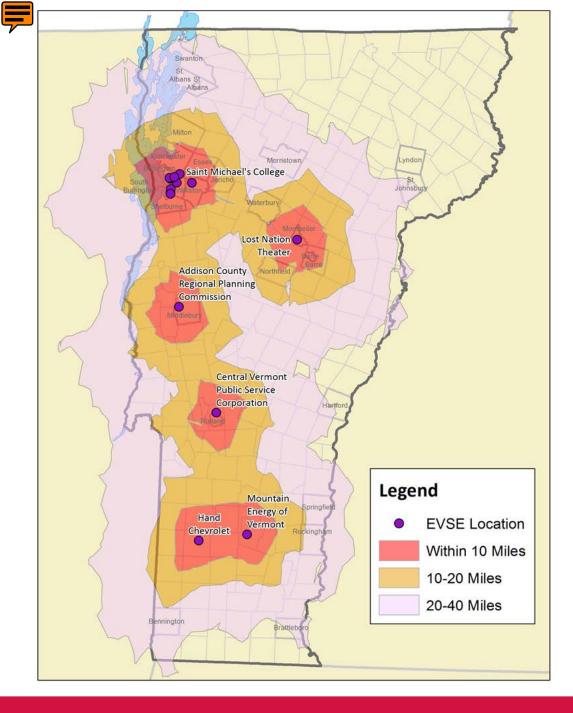


DC Fast Charging



Blink DC Fast Charge Station photo by ECOtality

More than 1.5 million charge stations by 2017 —Pike Research





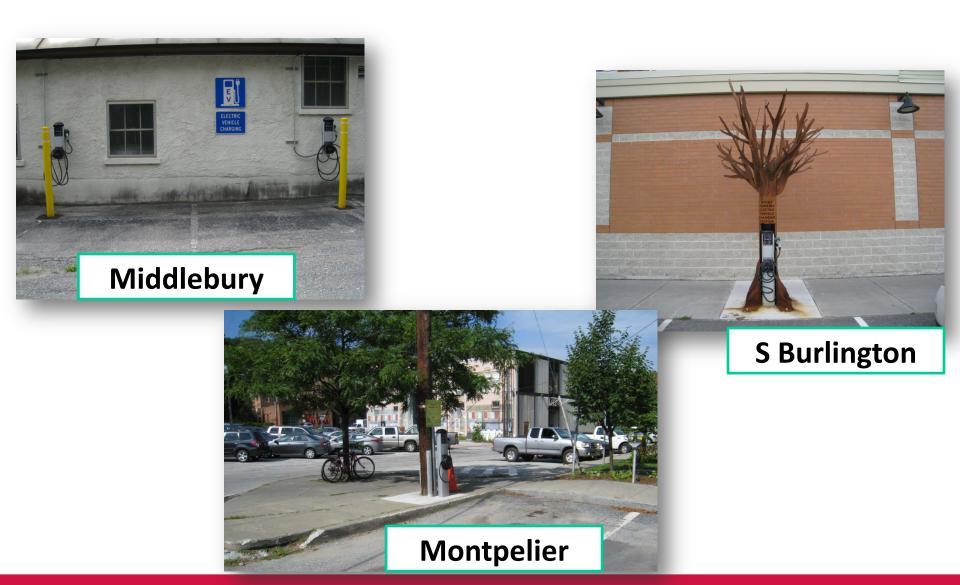
Electric Vehicle Supply Equipment Inventory

Total locations: 15 As of September 15, 2012





EVSE Examples

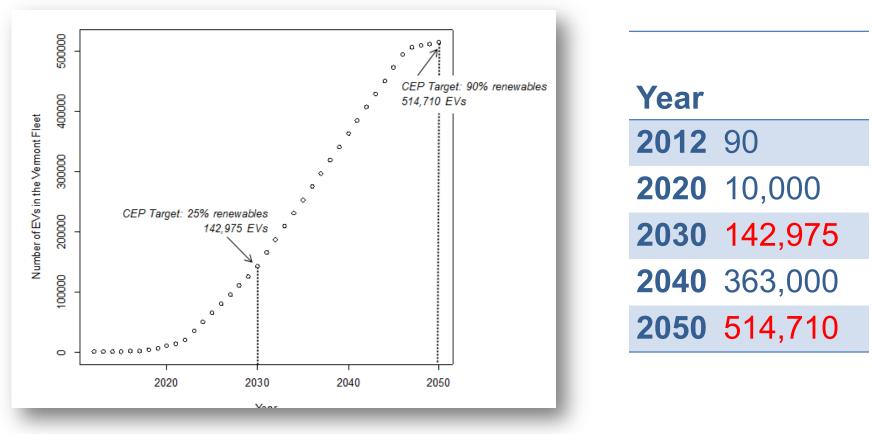


Expect Exponential Growth of EVs





One of many possible scenarios... Number of EVs needed to meet CEP goal

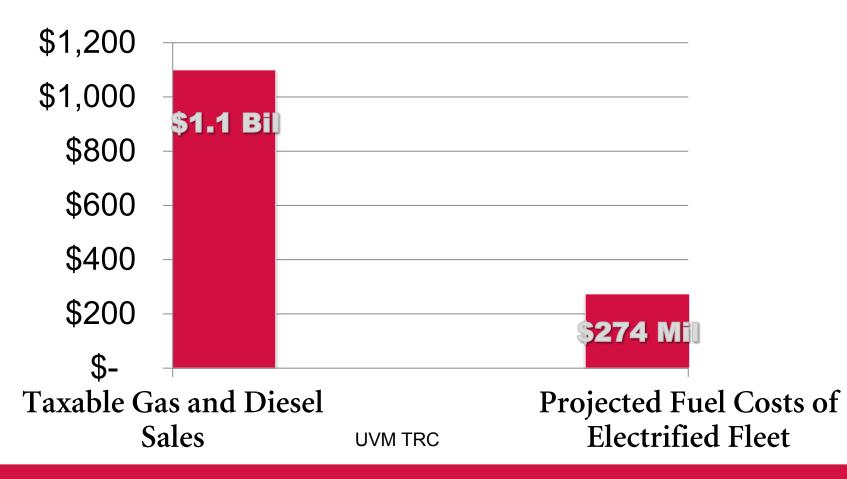






Energy Independence

Vermont Consumer Expenditures (2010)





Online Community



Building -----National Plug In Day + 🔿 v C M- Google 2 + 13 -+ B events pluginday.org/p/salsa/event/con on/public/Tevent_KEV=68398 🛐 Project List 🛄 The Vine 🛃 Marketing 🥼 byoga 🞇 JRA 📫 Perl Tool 🔢 EVT Facebook 🎔 EVT Twitter 🌅 Thesaurus! 🎔 VEIC Twitter » C Bookmark NATIONAL PLUG IN DAY NATIONAL PLUG IN DAY IS SUNDAY, SEPTEMBER 23, 2012 ABOUT MEDIA LOCAL Is this your event? Login to edit it! Win a New iPad at mail the host Tell a friend about this event **National Plug-in Day** Starting September 22 2012, 08:00 AM Vermont - National Ending September 23 2012, 06:00 PM Plug in Day 0.0 oms Stop by Drive Electric Vermont + ake a test drivel + @ driveelectricvt.com 🟫 🔻 C 🛃 - Google P + 19 . 😫 Project List 😓 The Vine 🛃 Marketing 🕼 byoga 🞇 JRA 📹 Perf Tool 🛐 EVT Facebook 🕩 EVT Twitter 🌅 Thesaurust 🖤 VEC Twitter = D Bookmark Interested in electric vehicles? So are we. Learn more at one or all of the events we Drive are participating in this fall: Electric **VECAN Annual Conference** Vermont Visit the public EV demo and attend an EV workshop When: December 1, 2012, 8am- 4pm Where: Lake Morey Resort, 1 Clubhouse Rd., Fairlee, VT What: Join us for the Vermont Energy & Climate Ac VELC's Director of Transportation Efficiency, Karen Gitman, will be on the 10am workshop panel titled "Electric Vehicles their Promise and Challenge and Future Role in Vermont." Drive Electric Vermont will also be hosting an EV demo in the parking lot from by fostering 10am-3pm. rmont Energy **Quarterly Stakeholder Meeting** es, Agency of When: December 18, 2012, 1:30-3:30pm What: The Drive Electric Vermont quarterly stakeholder meeting to review and support EV progress, and share best practices. Past Events download the fact sheet Vermont Plug In Weekend el Plug In Day, we partnered with EV dealerships around the state to To celebrate Na host events at their showrooms during their open hours on the weekend of September connect on facebook 22-23. Vermont Renewable Energy Conference Renewable Energy Vermont hosted an Electric Vehicle Demonstration & Exhibit Hall on sign up for email updates: October 1. The conference also included a session on renewable energy for transportation. Alternative Fuel Vehicle Odyssey Day Email address We hosted a booth at the Vermont Clean Cities Coalition's National Alternative Fuel Vehicle Day event on Church Street Marketplace Subscribe Check out our Events Calendar on Facebook. Ouestions? Contact Drive Electric Vermont at info@driveelectricvt.com Adoption of Electric Vehicles in Vermant





My Nissan LEAF*





The Details

- Live in Jericho work in Burlington, 34 mile roundtrip commute
- Using a Level 1 charger (dedicated, GFI plug, outside)
- 2012 Nissan LEAF SV (lower trip model no back-up camera, solar panel, level 3 charge port or fog lights)
- \$1000 down
- 39 months lease
- \$294/month
- Waiting for Rate 17
- Solar panels on roof net metered.



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Car Wings statistics

- 3038 miles Distance Traveled
- 3.9 Average Energy Economy miles/kWh
- 790 Electricity Consumption kWh
- 93.8 Travel Time hrs
- 1964 CO2 Tailpipe Emission Reduction* lbs
- \$440 saved August 20-November 18
- 96 miles longest one day travel