

February 26, 2020

2020 Midwest Energy Solutions Conference:

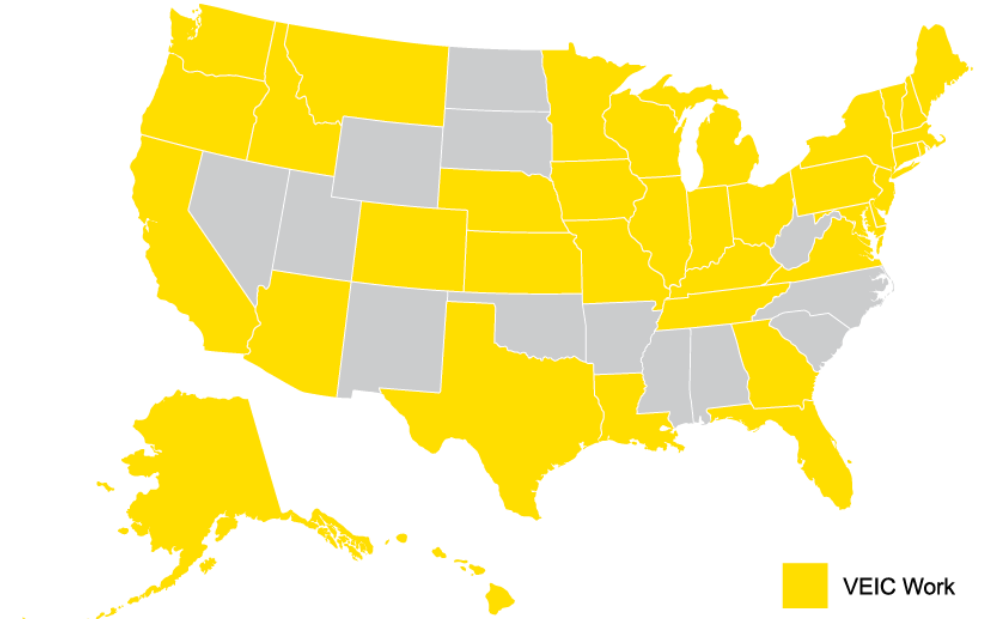
Efficiency & Electrification: 6 Steps to Success

Bridget French
VEIC



About VEIC

- Nonprofit founded in 1986
- 300+ employees
- Locations: DC, OH, VT, WI
- Design and deliver programs and policies nationwide:
 - Energy efficiency
 - Clean transportation
 - Building electrification
 - Renewable energy

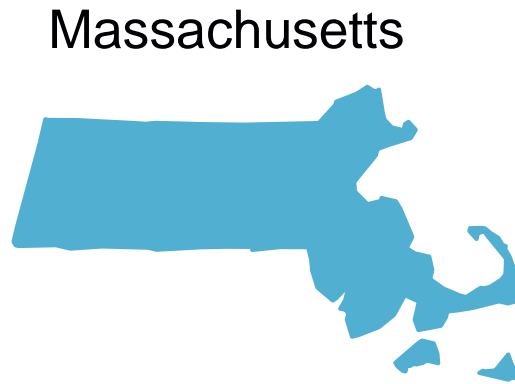


- Our customers:
 - Utilities
 - Government
 - Foundations
 - Environmental & consumer groups
 - Business

EE and Electrification Strategy: Steps to Success



Wisconsin



Massachusetts



New York

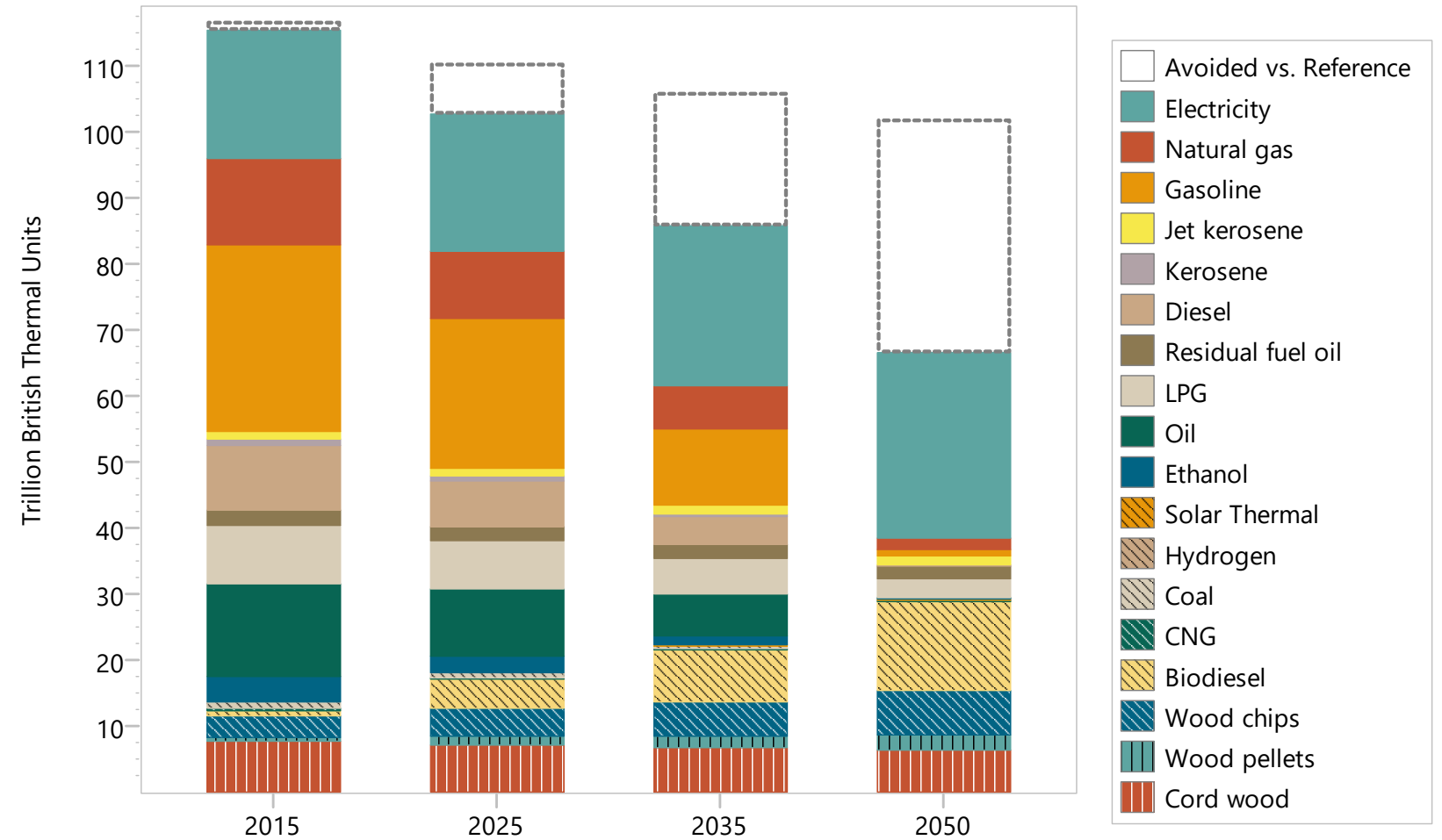


Vermont

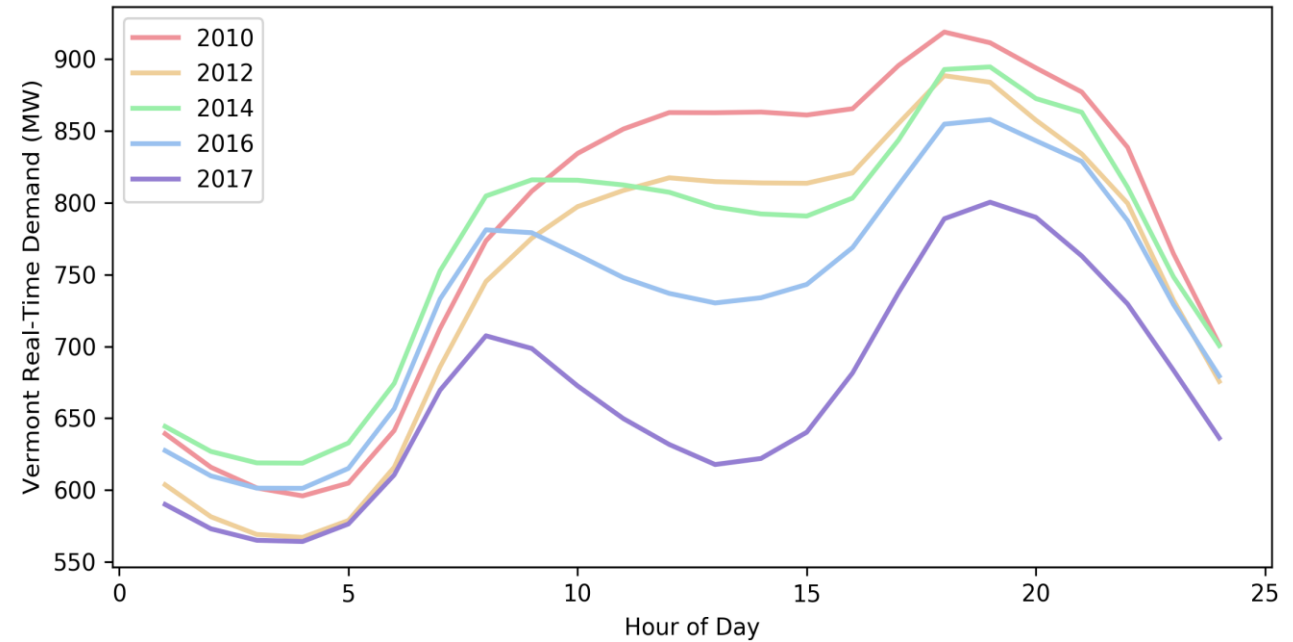
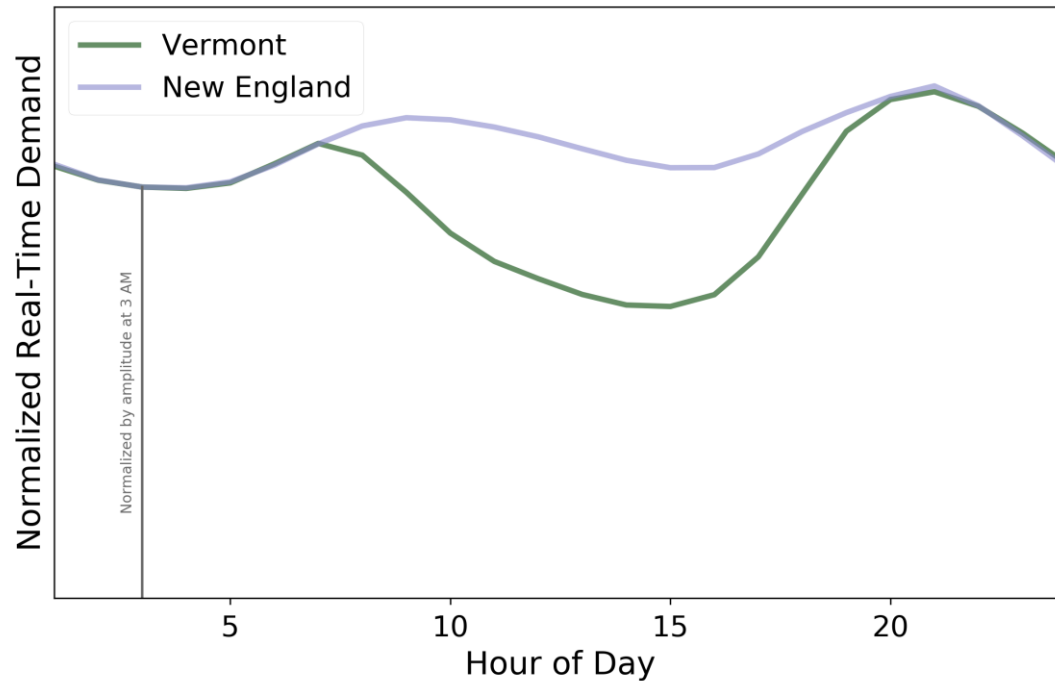


Step 1: Continue EE as Foundation of Clean Energy Transition

Vermont's Pathway:
Efficiency, Electrification,
and Renewables

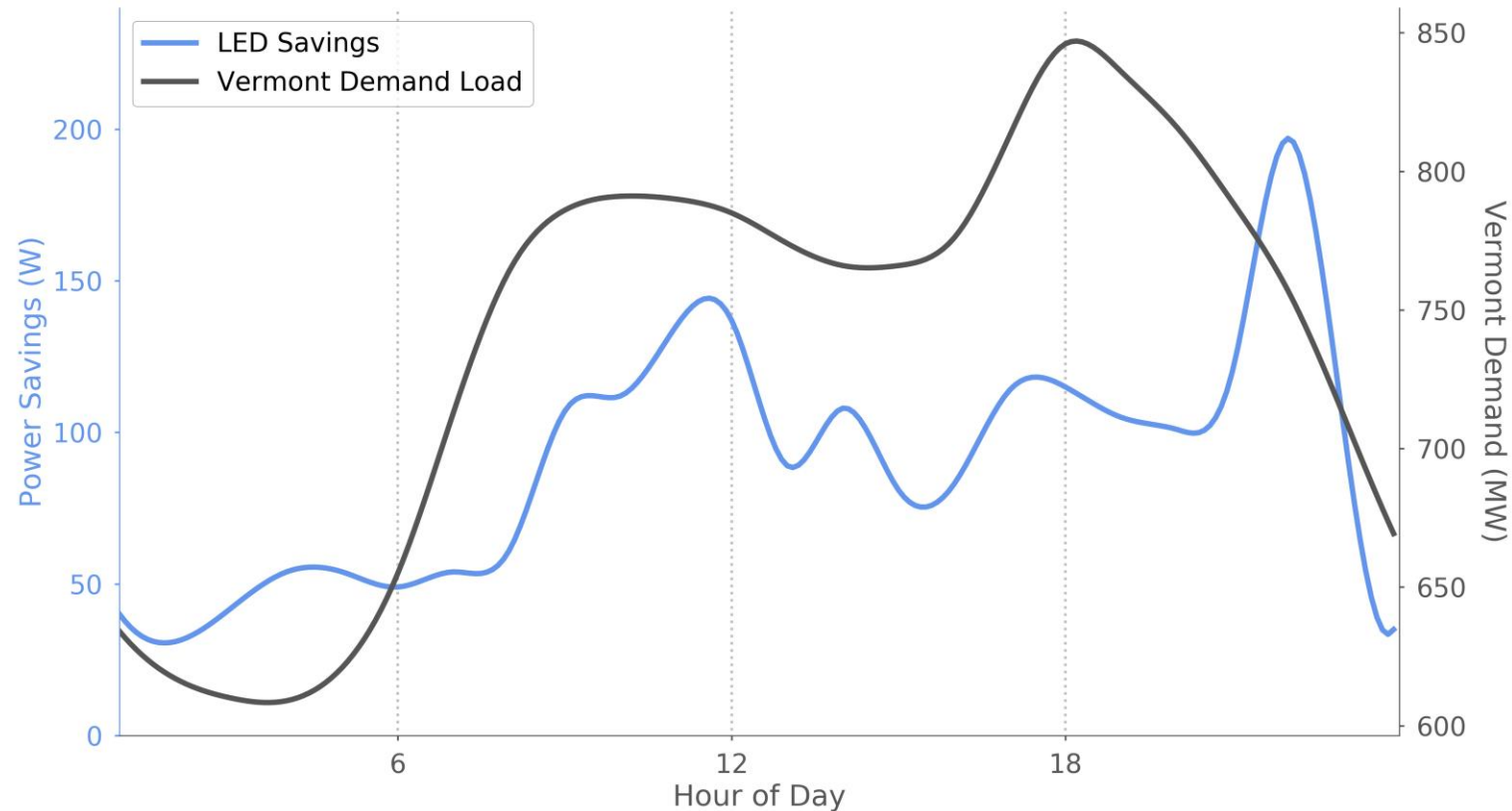


Step 2: Use Efficiency Smarter

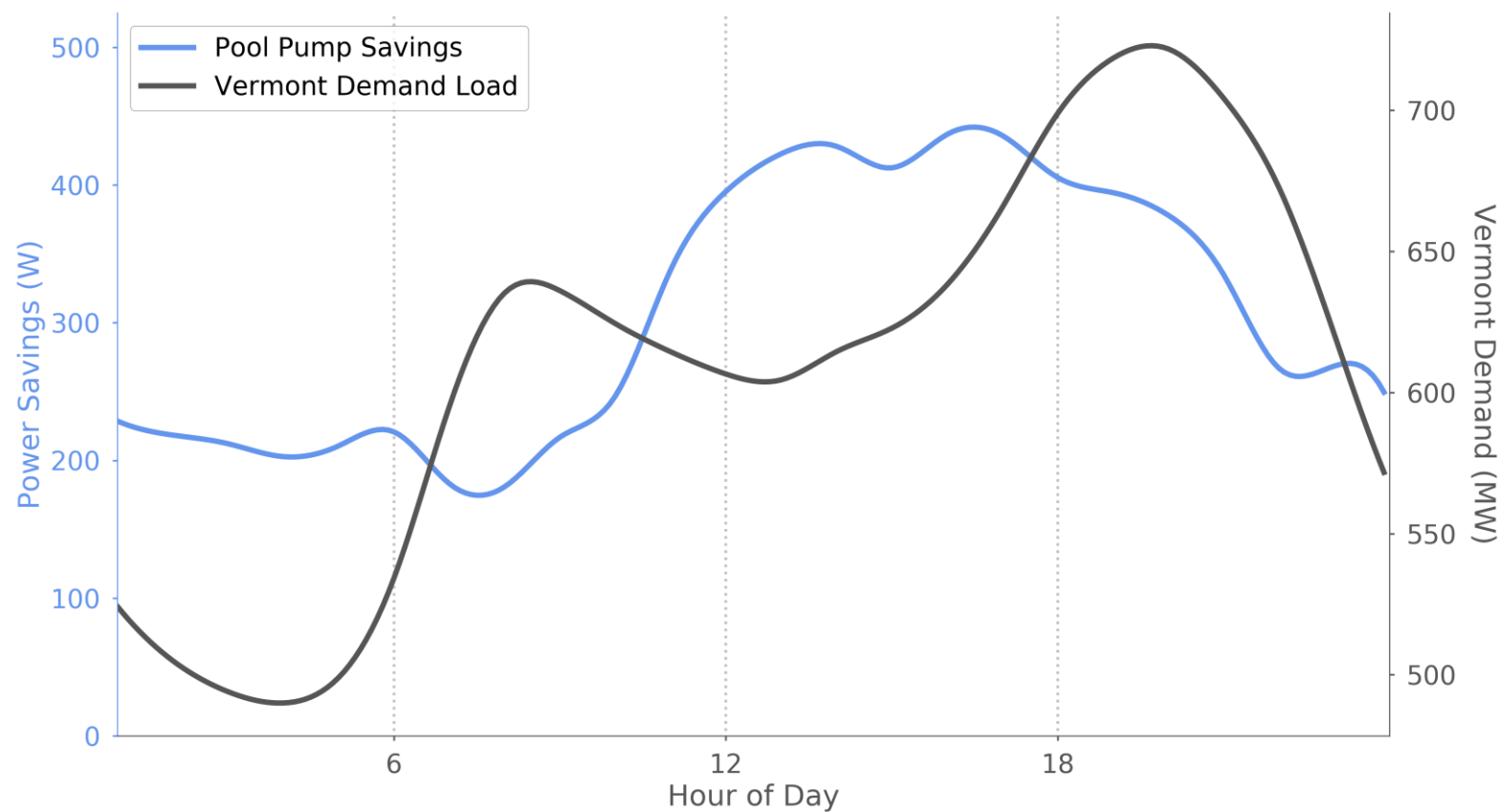


Goal: Flatten Vermont's Growing Duck through Time-Targeted EE

Savings Curve for LEDs on High Stress Cold Days

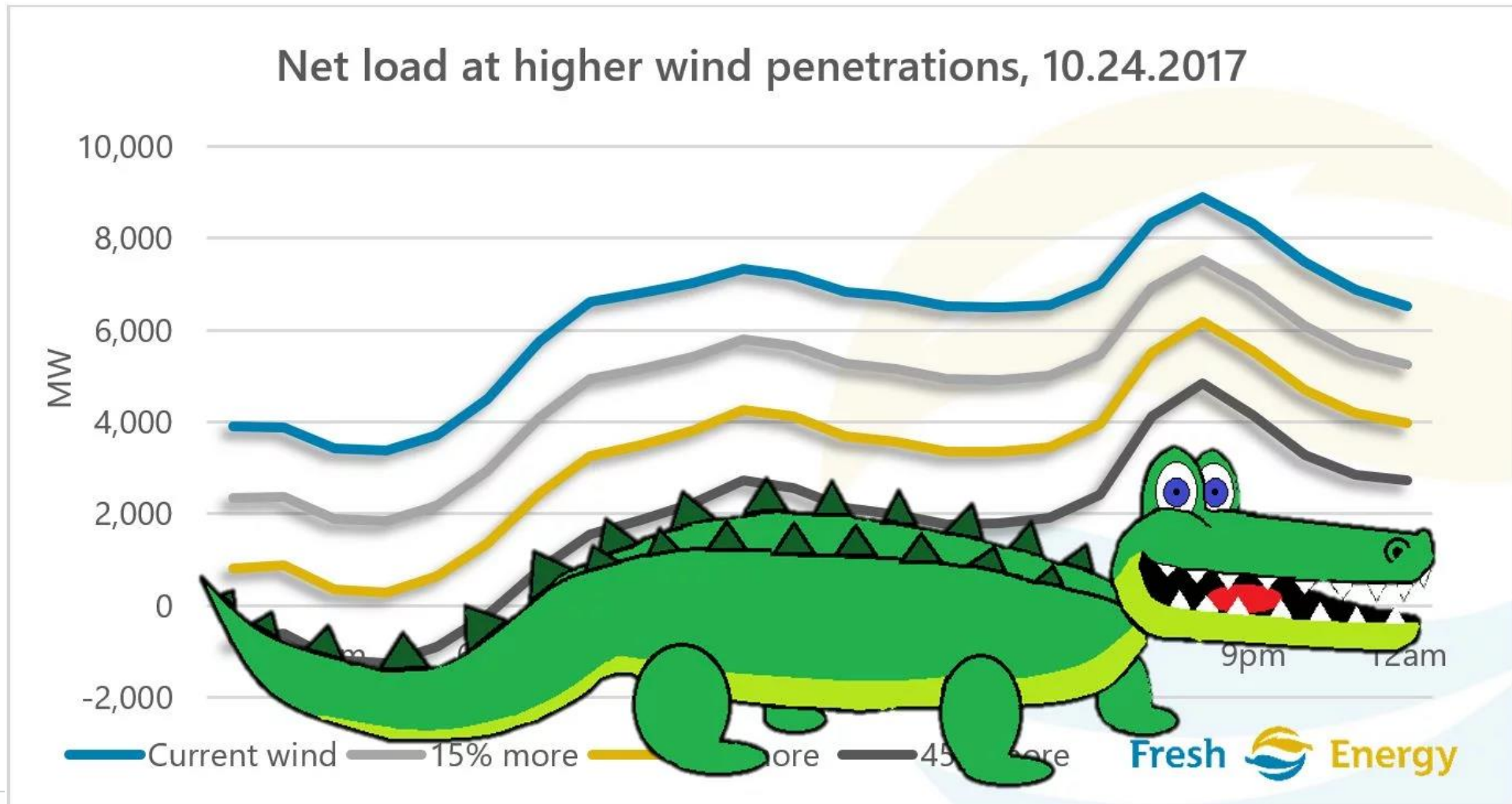


Savings Curve for High Efficiency Pool Pumps on High Stress Hot Days



Ducks ≠ Gators

Source:
Greentech
Media, "Forget
the Duck
Curve.
Renewables
Integration in
the Midwest Is
a Whole Other
Animal",
Author:
Andrew Twite

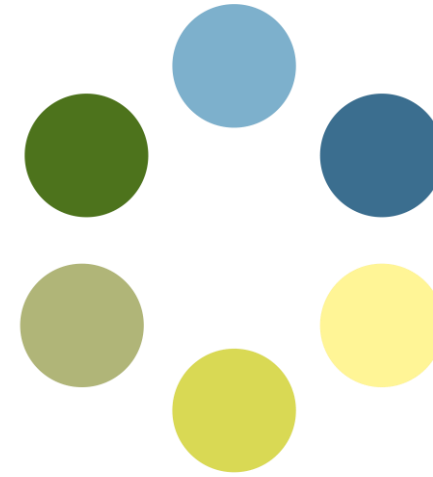
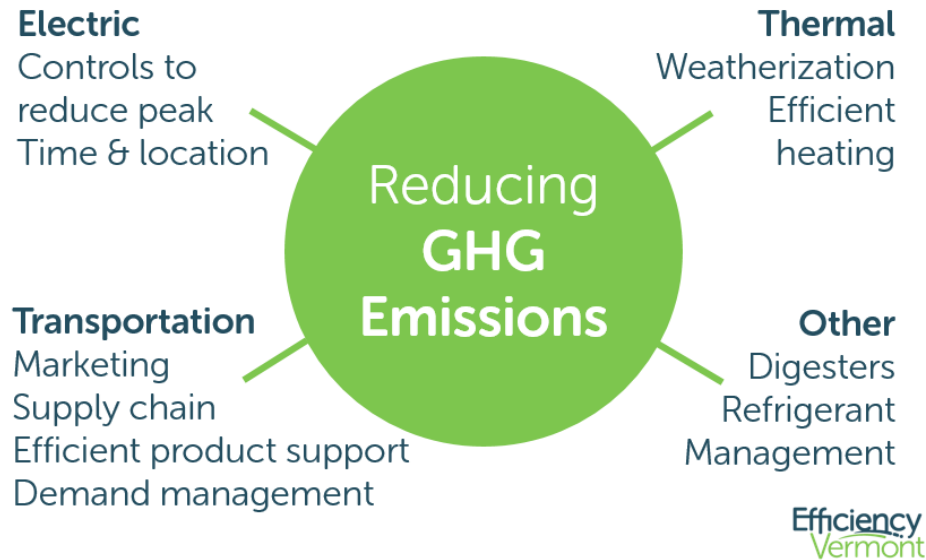


Step 3: Establish a Bridge Between Efficiency, Grid Flexibility, & Electrification



Efficiency Vermont Future Vision

Redefined Efficiency



focus on energy®

Partnering with Wisconsin utilities

Appendix A – Research Topics Identified by Focus on Energy for EERD Funding

Demand Response (DR) Ready Program Offerings

Recently Released Call for Concept Papers

Step 4: Get Started with a Targeted Approach

- At current fuel prices, it often makes sense to target:
 - **Existing homes** that currently heat with electric resistance, oil, or propane
 - **New construction:** Net zero program tiers and stretch codes to promote construction integrating heat pumps with high-performance building shells



Efficiency Vermont: Zero Energy
Modular Home

Midwest Take

- Establish **short-term solutions** to continue momentum where coal plant & gas line infrastructure isn't cost-effective to retire
- Invest in gap technologies
- Prepare customers to make better decisions through education & program design



Mysa Communicating Line
Voltage Thermostat

Step 5: Leverage Partnerships for Greater Success

- **Integrate and coordinate delivery** of efficiency, demand flexibility, electrification programs to break down program silos



Partnerships: Utility & Efficiency Provider

- Pilot testing grid-interactive water heaters as a virtual thermal battery
- Collaboration between WEC and Efficiency Vermont



Partnerships: Efficiency Program & Trade Allies

- Vermont Zero Energy Now Pilot:
 - Wx + heat pumps + PV
 - 50-80% reduction in total energy use
- NYSERDA Heat Pump Ready Pilot:
 - Demonstrate affordable standard packages of whole house load reduction measures (air sealing, insulation, duct repair/sealing, low E windows, smart controls)
 - Create a viable and innovative service model for contractors

Zero Energy Now 2016 Summary Statistics

Participants	22 Vermont existing homeowners
Customer investments	\$1.2 million (split relatively evenly between efficiency and solar PV)
Median total project cost	\$44,739 (ranging between \$22,000 and \$170,000)
Net customer project cost	\$31,090 (after incentives from Zero Energy Now, Efficiency Vermont and 30% Federal tax credit)
Median energy cost savings	\$3,692/year
Average annual energy savings	95 MMBtu (60 MMBtu from efficiency and 31 MMBtu from solar PV) from 120 MMBtu pre- to 25 MMBtu post-improvement
Customer return on investment	11.9%

<http://bppa-vt.org/page-1737726>



Building Performance Professionals
Association of Vermont

BPPA-VT

Vermont's Authorities on Energy Efficiency

Partnerships: Utility, Customers, & EE

- Offered to C&I customers
 - Real-time energy dashboard
 - Demand limiting strategies
 - Financial incentive
- By end of pilot, customers had better understanding of their demand & it's impacts



focus on energy®

Partnering with Wisconsin utilities

Step 6: Set Next-Generation Goals

- **Align EE program goals (and utility performance incentives) with state policy goals:**
 - Peak demand reduction
 - Fuel-neutral energy savings or GHG reduction
 - Market transformation indicators
 - Energy or GHG savings for low-income customers or other target groups

Massachusetts: EE Program Metrics in 2019-2020 Period

Old Goal	New Goal	Advantage
Lifetime kWh savings	Lifetime MMBtu savings	<ul style="list-style-type: none">• Converts electric, oil, and propane savings to common units• Encourages energy optimization by providing holistic view of tradeoffs such as electrification
NA	Peak kW savings	<ul style="list-style-type: none">• Measures savings from both active and passive demand reduction

Vermont & Wisconsin: Evolution of Third-Party Administrators

GHG Reduction

- Efficiency Vermont has proposed as part of next 3-year plan
- WI Gov. Evers signed EO for carbon neutrality by 2050; established task force

Grid Service-Ready Technologies Installed / Customers Served

- Efficiency Vermont proposed as part of next 3-year plan
- Focus on Energy planning greater emphasis on innovation this Quadrennial period – CCHP demo project

To Recap

- ✓ Continue EE as foundation of clean energy transition
- ✓ Make EE smarter with data-driven insights and time & location targeting
- ✓ Establish connection between electrification, flexibility, & EE
- ✓ Get started with targeted approaches
- ✓ Explore partnerships to further goals & impact
- ✓ Set next-generation performance metrics and incentives

Bridget French
Senior Consultant, Energy
Programs
608-293-0903
bfrench@veic.org

Thank
you!