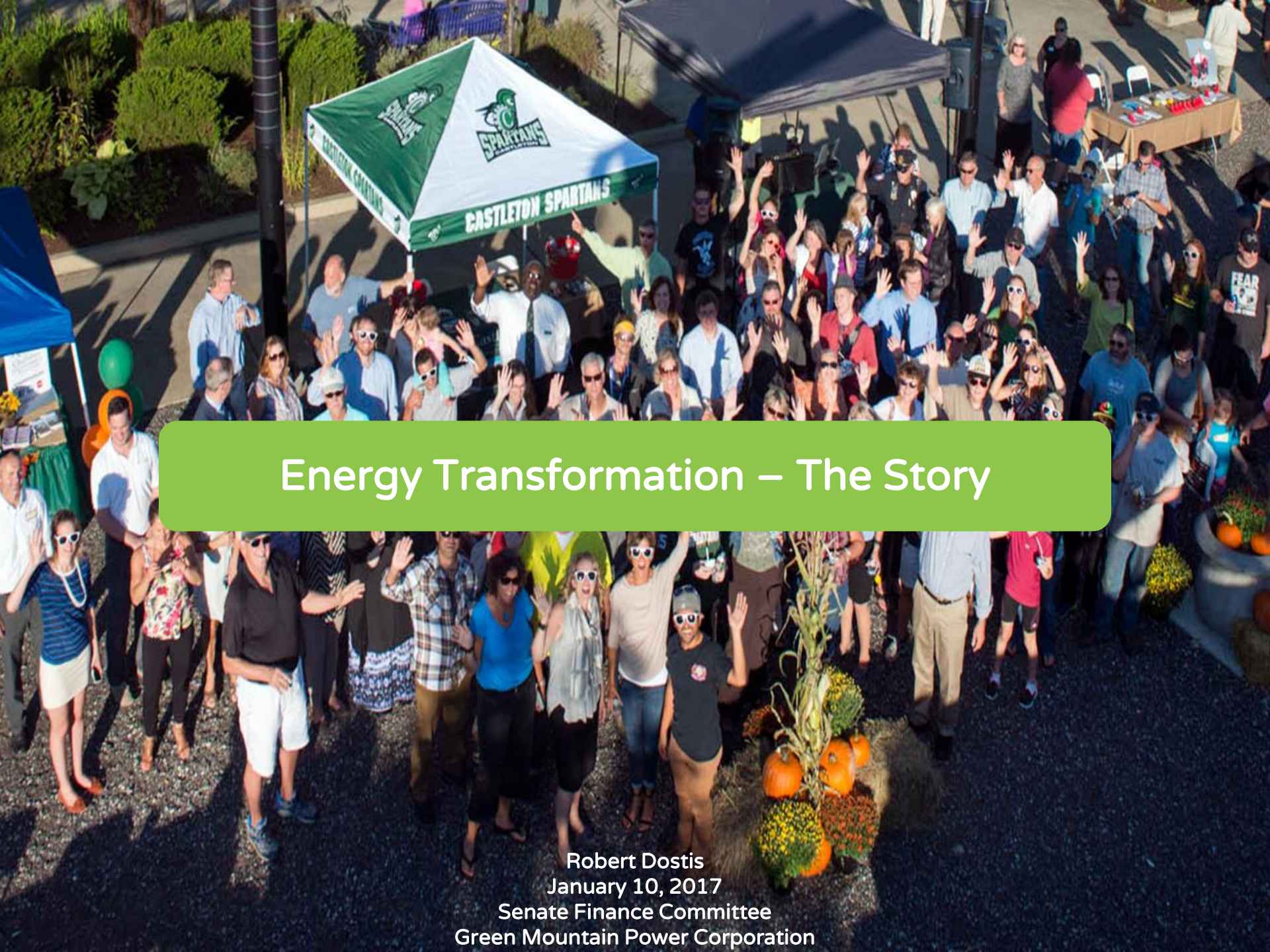


Energy Transformation – The Story

Robert Dostis
January 10, 2017
Senate Finance Committee
Green Mountain Power Corporation

Green Mountain Power

WHO WE ARE TODAY

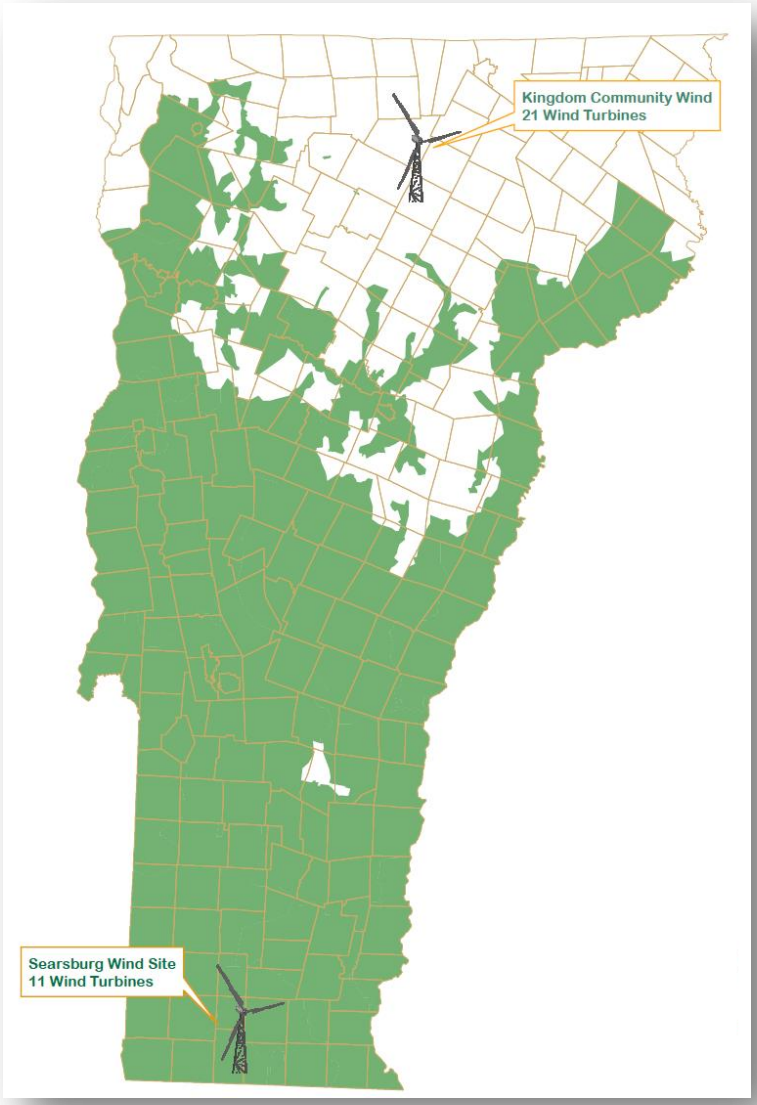
We serve 263,080 customers in 202 towns
in 7,500 square miles of service territory

We operate

- 32 Hydro Plants
- 6 Peaking Plants
- 12 Solar Projects
- 2 Wind Farms
- 3 100-KW Wind Turbines
- 1 Joint-Owned Biomass Plant (McNeil)

We maintain

- 976 miles of transmission lines
- 11,273 miles of distribution lines
- 185 substations



LEADING ENERGY TRANSFORMATION WITH CUSTOMERS!

- Ensuring power is available when needed with a reliable grid and diverse energy portfolio
- Providing an electric supply that is low carbon, low cost, highly reliable as we transition to a more cost-effective community-based and independent system
- Empower customers with innovations to reduce carbon, save money, enhance comfort, and increase reliability

HISTORY – GMP ENERGY VISION - 2008

In 2008, we launched our customer-obsessed vision to fulfill the desire of the Vermonters we serve by delivering low-cost, low-carbon and highly reliable energy.

Our vision - dramatically transform our portfolio:

- Ramp up cost-effective renewable energy
  - GMP launched the first solar adder to promote customer adoption of distributed solar technology
  - Ramp down, but still leverage, large-scale hydro resources as the "green backup system" for more local distributed generation
- Ramp down dependence on nuclear energy

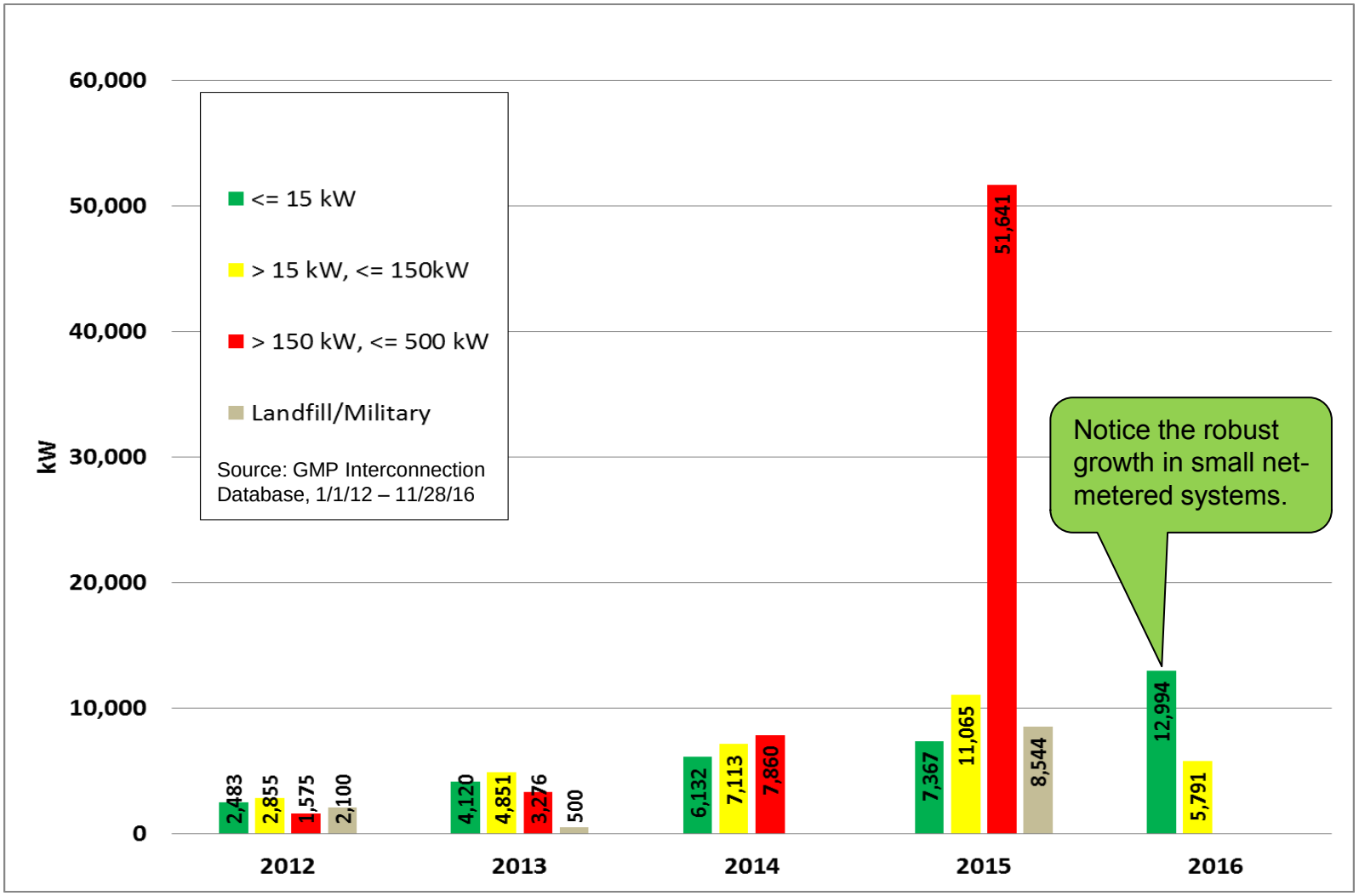
Our vison was achieved – more diverse portfolio, more renewables, less nuclear, while delivering three bill decreases in four years .

Renewable Growth in VT Unprecedented!

IN SERVICE & QUEUED – DG PROJECTS 2016

	GMP	Net Metered	Other	PPA	SPEED	VEPPI 4.1	Grand Total
Batt			1,500				**1,500**
Bio	800	474	65	90	6,515		**7,944**
Hydro	4,543	3,248	12,674		4,139	400	**25,004**
Other			23,261				**23,261**
PowerWall			53				**53**
Solar	23,862	142,592		55,383	56,398	5,000	**283,235**
Wind		1,298			174		**1,472**
Grand Total	**29,205**	**147,612**	**37,553**	**55,473**	**67,226**	**5,400**	**342,647**

ACCEPTED NET METER APPLICATIONS PER YEAR



ENERGY DELIVERY SYSTEM IS CHANGING:

The need for speed and leveraging innovation

Transforming to a more home, business and community-based energy delivery system. Why?

- Bulk power system is not economically efficient, or effective in terms of basic climate resiliency.
- Regional transmission build-out continues to drive up cost of bulk system and drive down economic efficiency.
- Old way of energy use is inefficient, carbon intense, and expensive.
- Technologies exist to help lead a transformation as customers and communities are becoming more “energy engaged.”
- Technology, data and forward-leaning organizations have created a path to a more economically viable future for energy delivery.

TODAY'S GRID

- 130 YEARS
  - Length of time since grid was formed, and the underlying model has not changed
- 60%
  - The amount of energy lost before it performs its useful work
- $70 Billion
  - Average annual financial impact of outages in the U.S.
- $ 40 million
  - GMP T&D maintenance costs

Transforming our Energy Delivery system is overdue!

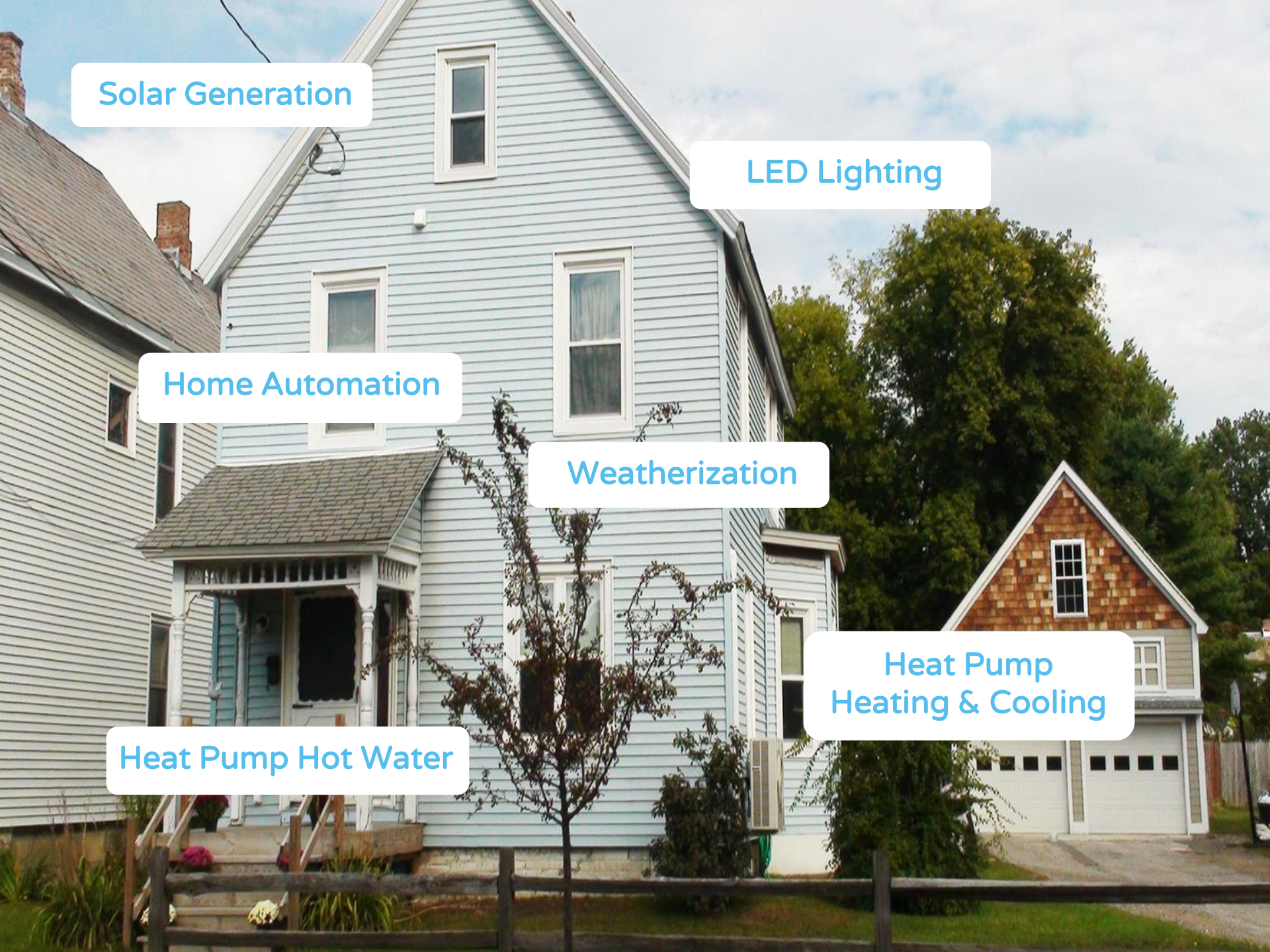
TWIGS AND TWINE!

Expensive to maintain against wild swings in weather due to climate change

ENERGY VISION 2017 – GMP COMMITTED TO . . .

- Transform – Deployment of storage and other distributed renewable technologies to transform the grid and make a leap toward exceeding Vermont's renewable energy goals , i.e. 90% by 2050
- Deliver - clean, cost-effective and reliable power that increasingly is produced near where it is used, transforming the 100-year-old grid to a distribution grid
- Automate - the grid to increase energy independence and resiliency at the home & business, community and statewide levels, including using smart controls that automatically balance demand with available power
- Innovate - Offering products and services to help customers achieve their energy objectives while bringing in new revenues into the regulated utility to lower costs and mitigate the death spiral


The First eHome


Solar Generation
LED Lighting
Home Automation
Weatherization
Heat Pump
Heating & Cooling
Heat Pump Hot Water

PARTNERING TO MAKE VERMONT AN ENERGY LEADER

POWERWALL
TESLA HOME BATTERY

First utility in America to offer Tesla Powerwall - Home Battery Systems.


TESLA

Stafford Hill Solar / Storage Project

The Project

First of its kind to pair solar on capped landfill and battery storage

+ 2.5 MW DC Solar PV

+ 2 MW Lithium Ion Batteries

+ 2 MW Lead Acid Batteries

The Value

To provide clean energy and increase resiliency in an emergency

+ Islanding Emergency Shelter

+ System Reliability Benefits

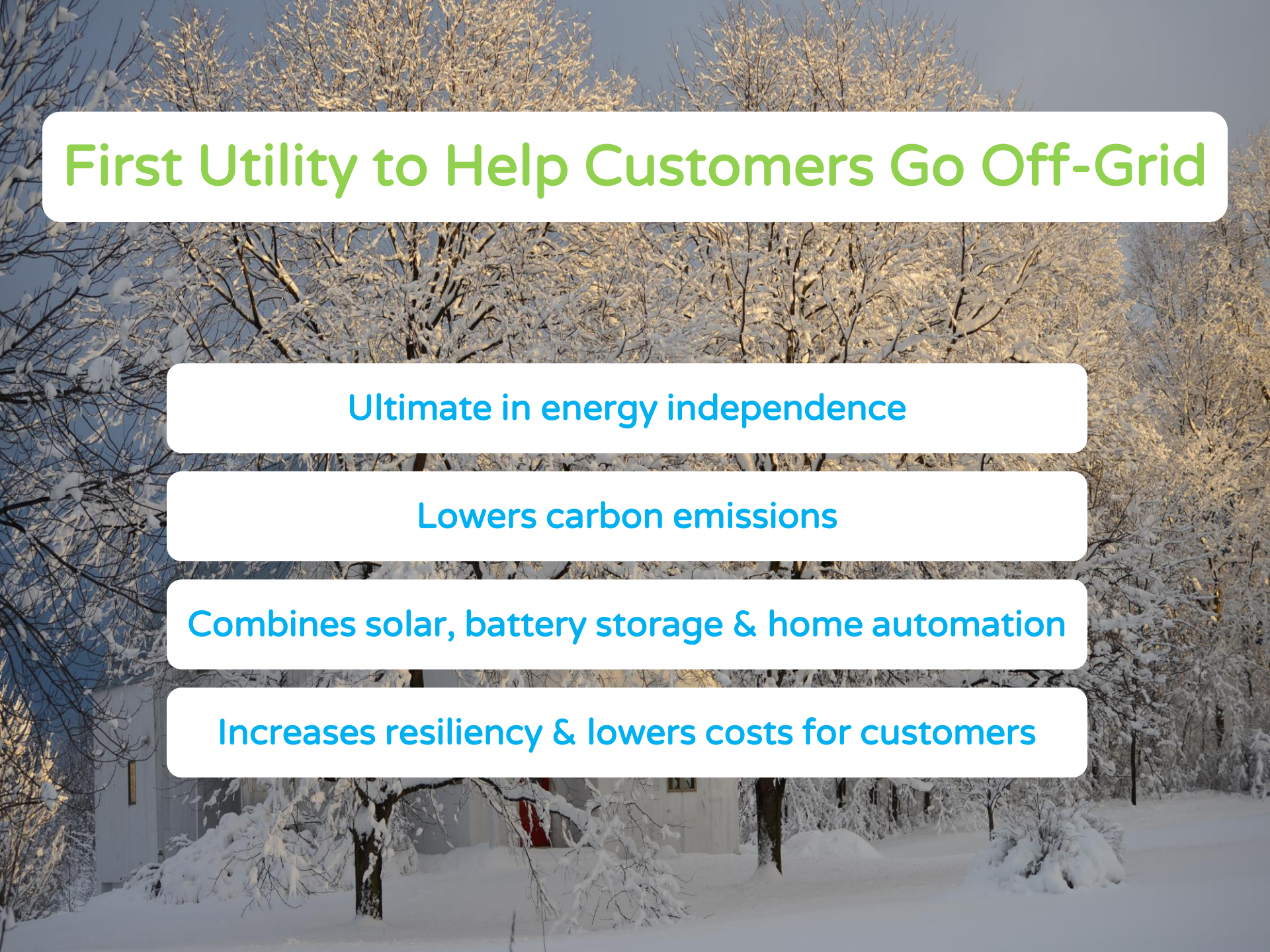
+ Renewable Integration

+ Reduce Transmission Cost

+ Demonstration Project for DOE


What's Ahead?


GMP: bringing together the best in energy technology.



First Utility to Help Customers Go Off-Grid

- Ultimate in energy independence
- Lowers carbon emissions
- Combines solar, battery storage & home automation
- Increases resiliency & lowers costs for customers


eVolve
Panton

eVolve Paton

What is eVolve Panton?

A partnership with Efficiency Vermont & VEIC on a community-wide bundled rapid energy transformation project in Panton VT to dramatically reduce energy costs and carbon for the entire community, homeowners and businesses, lower their use and improve their comfort.

eVolve Paton

What will we do in 12 months?

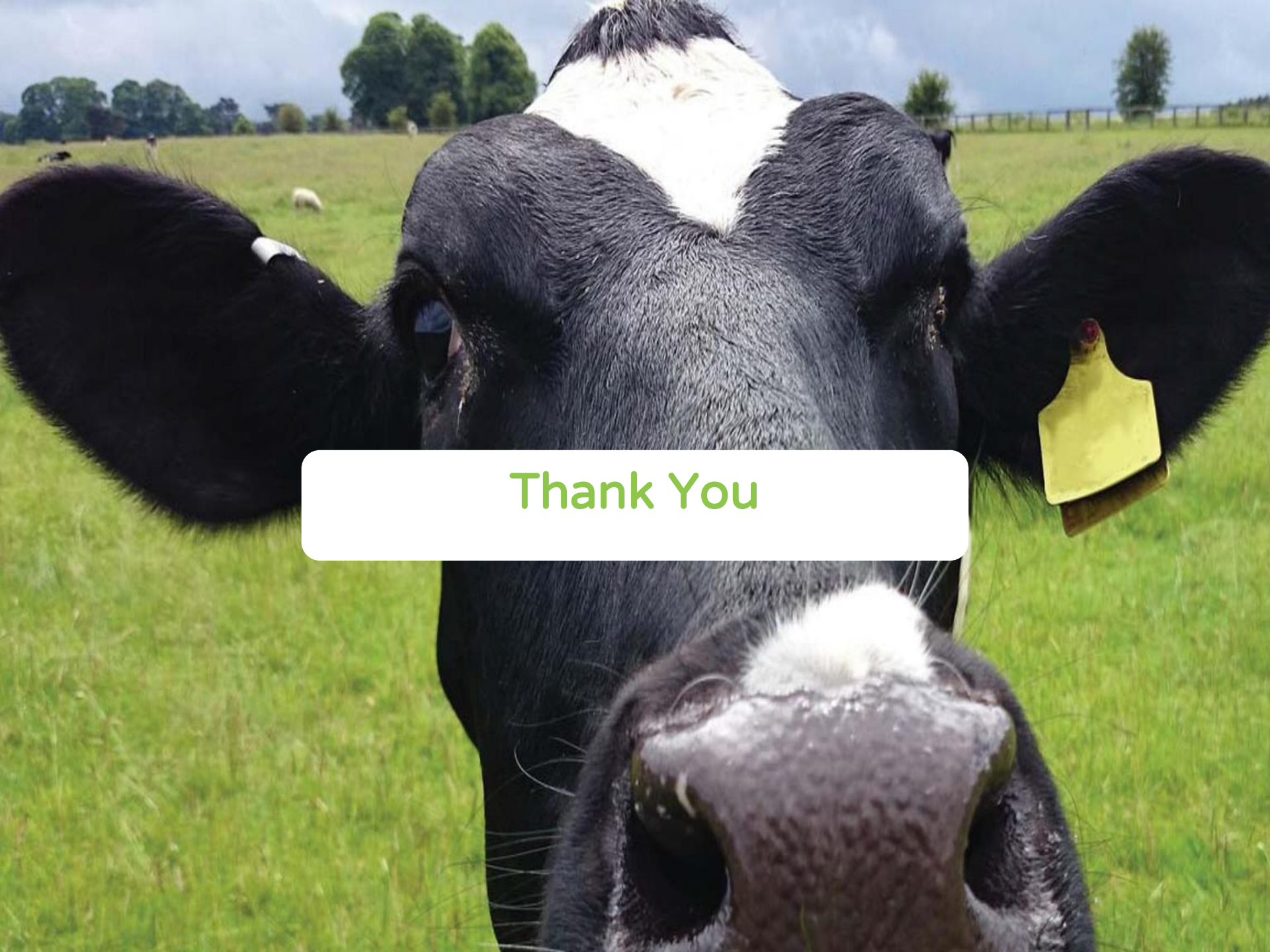
Transform the entire community's relationship with energy. Target to convert 70% of homes, businesses and town offices to reduce carbon, lower costs and run more efficiently.

What will we achieve in 12 months?

What would otherwise take 20 years. We will provide energy transformation that will change the business model for how customers think about energy so they can enjoy cleaner, more reliable, and affordable energy – plus a stronger bond forged through their collective action.

GMP COMMITMENT TO VERMONT'S ENERGY FUTURE:

- Continue the transformation and keep Vermont a leader in energy independence
- Invest in cutting edge products and services to help customers save money, use less energy, and be more comfortable
- Increase reliability & resilience with strategic local DG, storage & microgrids
  - Lower regional costs / Move toward independence
  - Achieve dramatically lower regional costs by bringing GMP peak down
  - Engage directly with partners and communities to accelerate transformation and embrace total energy carbon goals and reduce GHG – Panton serving as the model


Thank You