

# Vermont Public Interest Research Group

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*House Energy & Technology Committee  
February 2, 2017*







Vermont's largest consumer and environmental organization

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## THE ISSUES



### Global Warming Solutions

Cutting carbon pollution and saving Vermonters money.



### Energy

Repowering Vermont and fighting global warming with local, green energy solutions.



### Health Care

Ensuring all Vermonters have access to quality, affordable health care.



### Elections & Government Reform

Making government more open, responsive to and reflective of ordinary citizens.



### Toxics & Environmental Health

Protecting public health and our environment from dangerous toxins.



### Environment

Protecting the natural environment that is so central to our ecosystem, economy and Vermont way of life.



### Consumer Protection

Standing up to powerful special interests on behalf of Vermont consumers, putting people ahead of profits.



# RESOURCES

[Global Warming Solutions](#)

[Energy](#)

[Health Care](#)

[Government Reform](#)

[Toxics](#)

[Zero Waste](#)

[Consumer Protection](#)

## New Solar Energy FAQ



Last month, in response to all of the questions, comments, and conversations we were having about wind power, we released a Wind FAQ page on our website. We've since been receiving a lot of positive feedback about the page and many of our members have found the information both helpful and clarifying. After the success of ...

## Climate Solutions Summit mobilizes hundreds



On November 19th, nearly 200 Vermonters from all across the state gathered at Main Street Landing in Burlington to push for action to address global warming in the upcoming legislative session. The "Climate Solutions Summit," – which VPIRG co-hosted with our coalition partners at Energy Independent Vermont – included a variety of panels and workshops designed ...

## New Wind Energy FAQ



We talk to Vermonters nearly every day about clean energy — so we know that people have a lot of questions when it comes to renewables. So, VPIRG is taking the most common questions we've heard and putting all the answers in one place — and we're starting with wind power. We've answered questions like: Is wind power going to ...

## Annual Reports:

[2015](#)  
[2014](#)  
[2013](#)  
[2012](#)  
[2011](#)  
[2010](#)  
[2009](#)

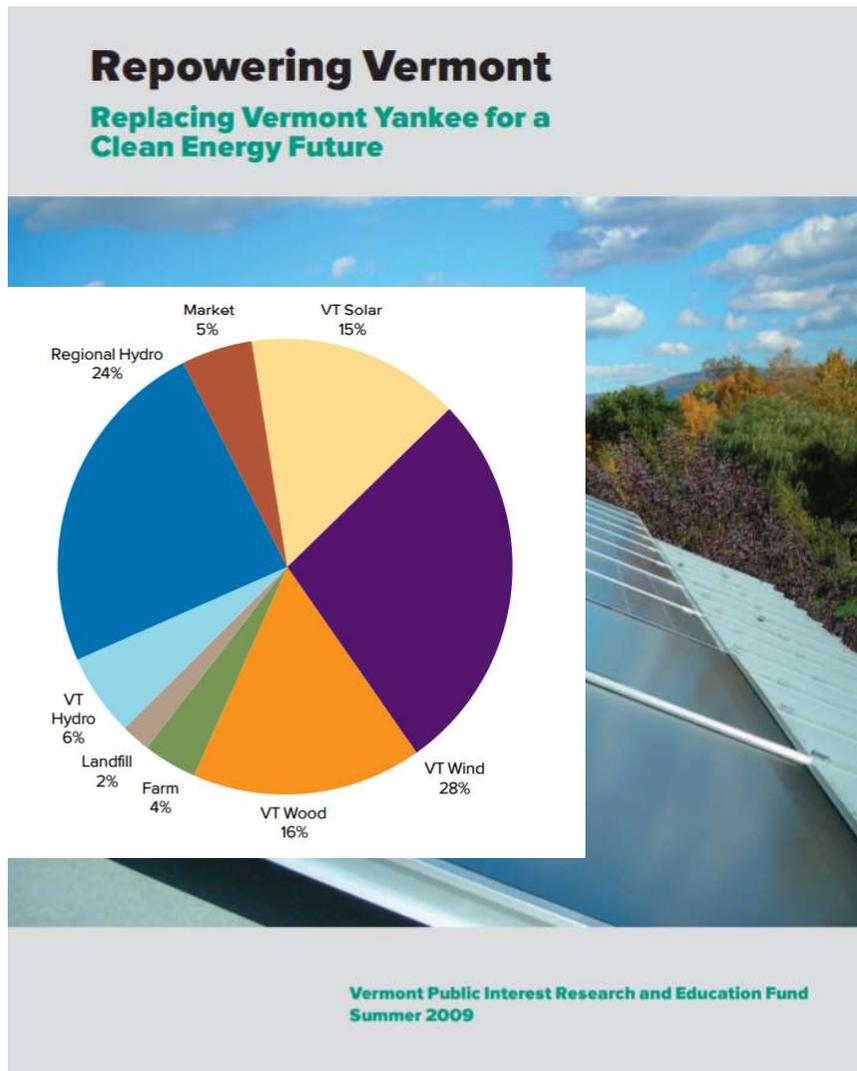
## Legislative Scorecards:

[2015-2016](#)  
[2013-2014](#)  
[2011-2012](#)  
[2009-2010](#)

# Moving toward clean energy, and away from dirty



# 90% by 2050 – How do we get there?



# Efficiency

**12.7 million**  
megawatt-hours

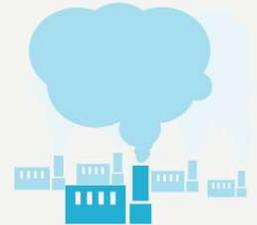
Total savings from Efficiency Vermont's work since 2000

**5.3**  
years



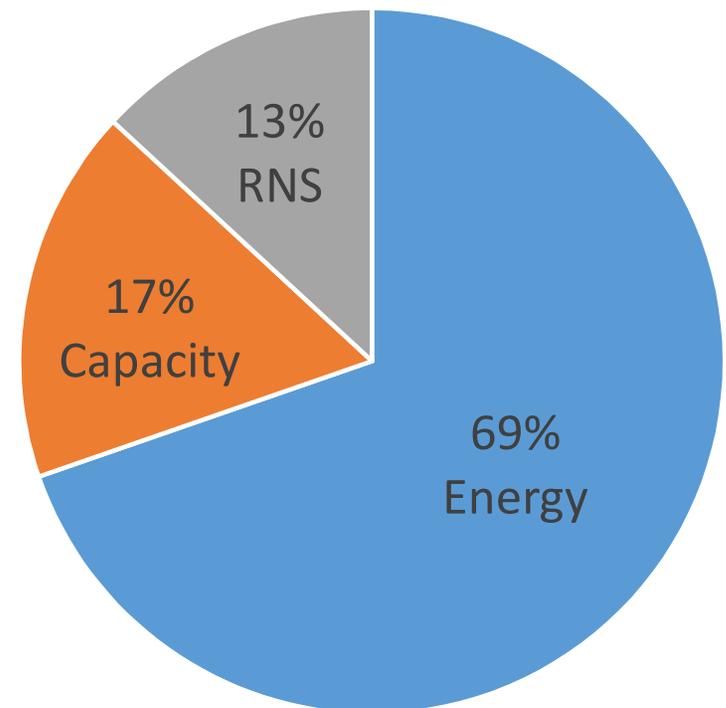
That is enough energy to power every home in Vermont for 5.3 years.

**32**  
power plants



That is equivalent to the energy generated at 32 fifty-megawatt power plants running continuously for a year.

**\$500 million in**  
*net savings*  
From EVT's work from  
2000-14



Source: Efficiency Vermont, DPS analysis for Joint Energy, Jan 8, 2016

■ Energy ■ Capacity ■ RNS



# Emissions Efficiency

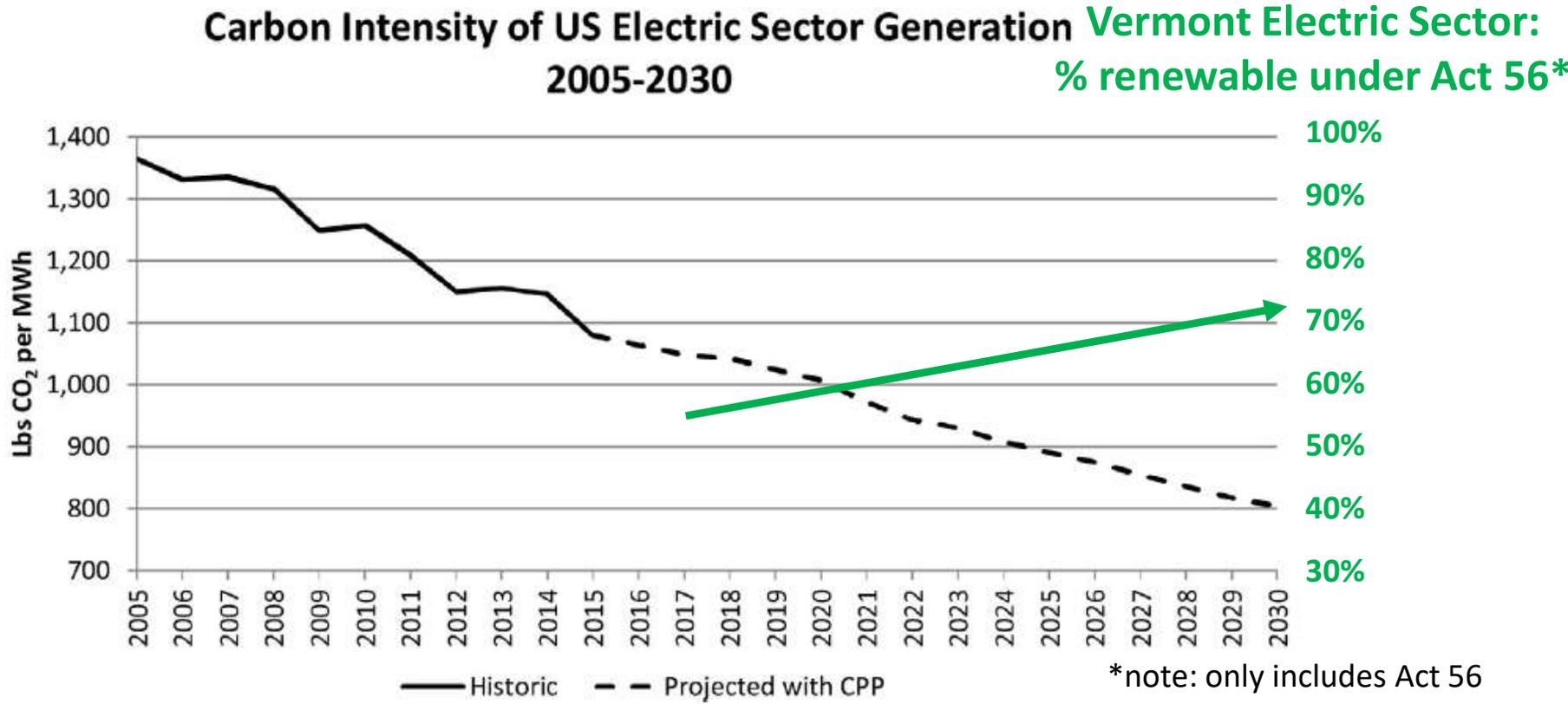


Fig. 1. Carbon intensity of U.S. electric generation, 2005–2030.<sup>13</sup>

*K. Dennis et al./The Electricity Journal 29 (2016) 52–58*



# Scale Matters

Sharon solar farm  
(3 MW capacity):  
3,800 MWh/yr

Lowell Wind farm:  
185,000 MWh/yr

Circle volumes  
represent total annual  
energy production

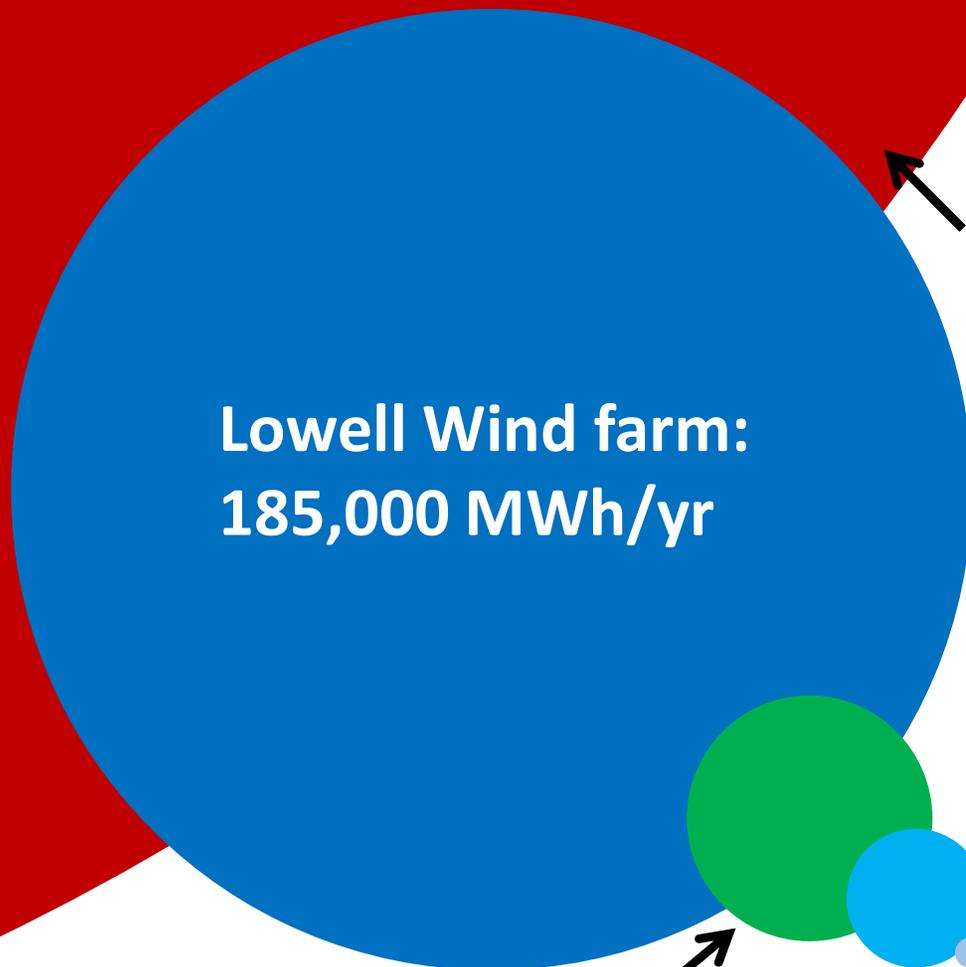
VYCC Monitor Barn solar  
array off I-89 in Richmond  
(14 trackers): ~100 MWh/yr

Weatherized home  
w/an EV and air-  
source heat pump:  
19 MWh/yr

Crossett Brook solar  
farm (150 kW – a  
common community  
solar size): 184 MWh/yr

Typical VT residential  
electric usage: 6.9  
MWh/yr

\*Numbers are approximate.



**Lowell Wind farm:  
185,000 MWh/yr**

**Vermont Yankee:  
4,800,000 MWh/yr**

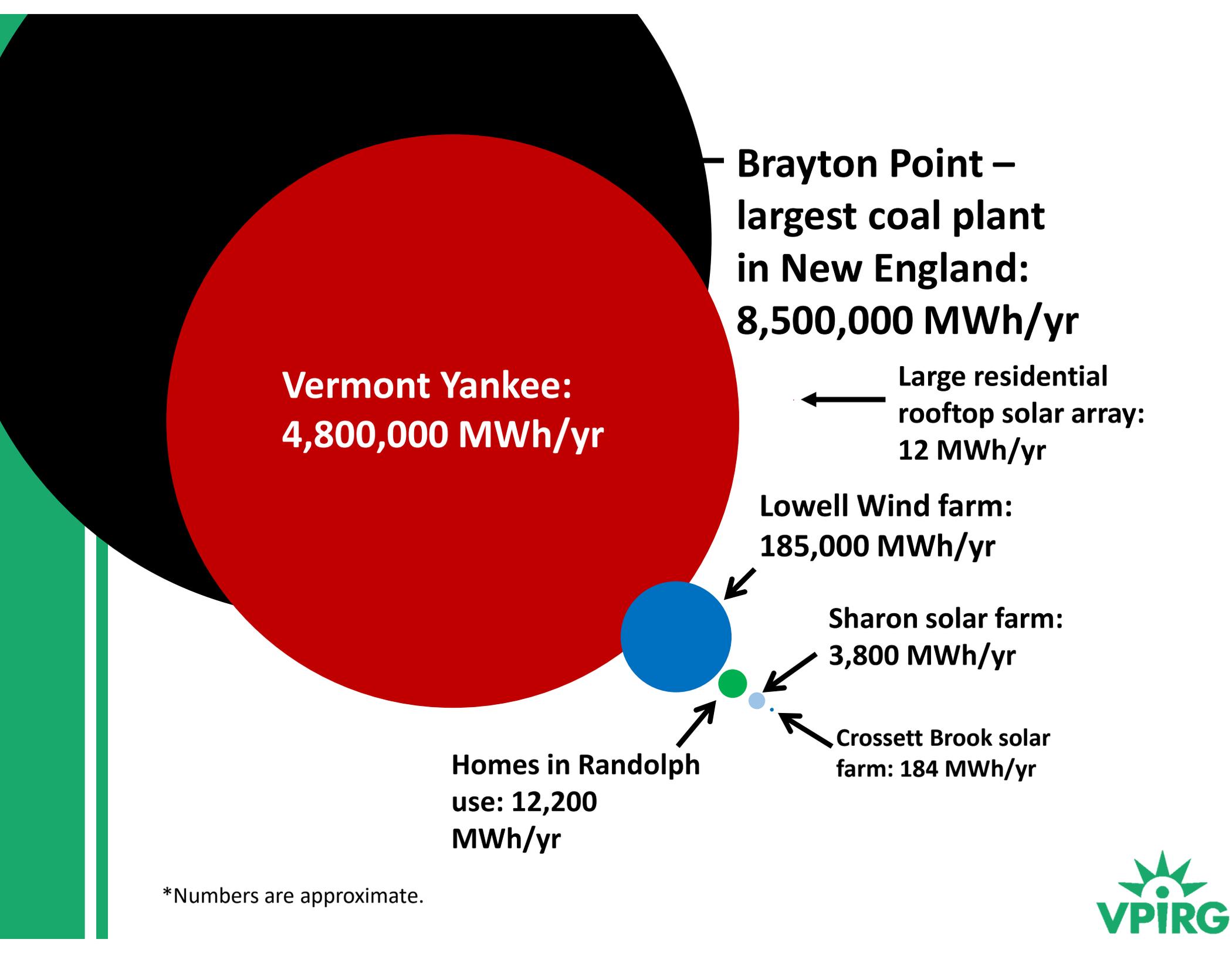
**Typical residential  
rooftop solar:  
7 MWh/yr**

**Sharon solar farm:  
3,800 MWh/yr**

**Crossett Brook solar farm:  
184 MWh/yr**

**Homes in  
Randolph (5000  
people) use:  
12,200 MWh/yr**

*\*Numbers are approximate.*



**Brayton Point –  
largest coal plant  
in New England:  
8,500,000 MWh/yr**

**Vermont Yankee:  
4,800,000 MWh/yr**

**Large residential  
rooftop solar array:  
12 MWh/yr**

**Lowell Wind farm:  
185,000 MWh/yr**

**Sharon solar farm:  
3,800 MWh/yr**

**Crossett Brook solar  
farm: 184 MWh/yr**

**Homes in Randolph  
use: 12,200  
MWh/yr**

\*Numbers are approximate.



# Diversity Matters

## **Diverse grids are more reliable and less expensive:**

- Wind and solar are complementary (sun goes down, wind comes up)
- If we rely on one source, we would need to build far more of that source – raising costs, reducing reliability

## **Could we get to 100% with rooftop solar?**

- Need 786,000 residential rooftops\* (we have ~100,000 good solar roofs)
- Including commercial, could support likely just under 25% of necessary energy production

## **What about small wind?**

- If we aim for 25% of total energy from wind, we need additional:
  - 126 3-megawatt turbines
  - 7,850 100-kilowatt turbines
  - 104,740 10-kilowatt turbines

*\*Note: Assuming current load of 6,000 GW*



# Innovation Matters



Starting at  
**95¢**  
special in-store pricing

And then, save \$200  
over the life of the bulb



Starting MSRP

**\$37,495\*\***

**\$29,995** after federal tax credit<sup>5</sup>

EPA-estimated

**238**

miles of range per full charge<sup>2</sup>

And then, drive for the equivalent  
of \$1 per gallon



# Current Priorities

- Net metering
- Wind sound rulemaking
- Act 174 implementation
- Demand Resources Proceeding (Efficiency Utilities budget process)
- Preventing roadblocks to our renewable energy future
- Reforming VT's tax system, while putting a price on carbon pollution

# Thank you!

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