How Does Generating More of Our Electricity with Wind Power Help Us Do Our Part To Reduce Climate Change?

Reducing Our Electrical Grid's Reliance on Imported Fossil Fuels

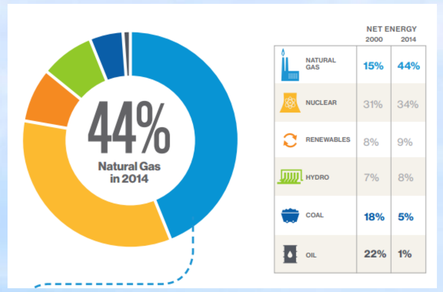
The Challenge: Vermont is part of the New England regional grid, known as ISO New England, which utilizes fuel sources from inside and outside of the region. In terms of air emissions, our regional power grid has improved over the last decade, but still relies heavily on imported fossil fuels, primarily natural gas, that contribute to climate change.

Natural gas-fired power plants are a major source of greenhouse gas emissions in New England as they currently supply nearly half of the region's electric power. At times when the peak demand is at its highest, grid operators also fire up dirty oil power plants to meet spikes in demand.

How Wind Power can Help: Clean electricity generated from wind power can replace dirty fossil fuel generation used to maintain baseline electricity flowing through our regional grid.

Improvements in wind forecasting are now being implemented by grid operators to more accurately predict the amount of clean energy wind farms will generate at any given day and time. Natural gas and oil-fired power plants can be rapidly ramped up and down. When stably-priced and carbon-free power from wind power is available, grid operators can tell the fossil fuel plants to dial down their production. The more wind we harvest in our region, the less fossil fuels we have to burn.

A NASA photograph of Tropical Storm Irene as it devastated Vermont communities. Scientific consensus predicts more extreme weather for Vermont as climate change continues.
Source:
http://yubanet.com/uploads/4/582679main_Irene-GOES-LARGE-20110828.jpg



A graphic showing sources of electric supply from the ISO New England regional energy profile for 2014.
Source:
http://www.iso-ne.com/static-assets/documents/2015/02/2015-powergridprofile-final.pdf

Clean Energy for Carbon-Free Car and Truck Transportation

The Challenge: According to Vermont's Comprehensive Energy Plan, nearly half of all Vermont greenhouse gas emissions come from the transportation sector. That's because ninety-five percent of our cars, trucks, and other vehicles are fueled by petroleum products.

How Wind Power can Help: Automakers are producing an increasing number of electric and plug-in hybrid-electric vehicles to replace polluting gas and diesel-powered vehicles. The Vermont Agency of Transportation has set a goal that twenty-five percent of all vehicles registered in Vermont be powered by renewable energy sources by 2030 (this includes electric vehicles and plug-in hybrids).

Clean, stably-priced, carbon-free energy produced by Vermont wind farms can help meet the increased demand for electricity that this transportation transformation will require. And, as the Vermont Energy Investment Corporation points out:

"Most of the cost of charging electric vehicles stays in Vermont. Rather than sending gasoline dollars out of state, and out of the region, electric powered vehicles keep more revenues in-state, contributing to energy independence for Vermont, and supporting Vermont's economy." This is especially true when that electricity comes from a locally-produced and locally-owned Vermont wind energy.

Much of the natural gas burned by power plants in ISO New England comes from Hydraulic Fracking, which uses open air water impoundments (shown above) to store toxic wastewater.
Source:
http://www.marcellus-shale.us/impoundments.htm

Clean energy generated by wind farms can help meet increased electrical demand for electric vehicles as we transform our transportation system away from reliance on expensive and dirty petroleum-based fuels
Source:
http://www.dr-oetker.com/images/stories/content_pdf/en/Kaeselikt/Hopes_and_Fears_2.pdf

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