

Vermont SMARTgrid: Environmental Benefits

What is “smart grid”?

“Smart grid” is an upgraded electric system that uses fiber optic cable and digital technology to relay information back and forth between customer meters and the utility, and between the utility and various components of the electric grid. When fully operational, smart grid will provide a more reliable electric system, with the ability to more easily incorporate renewable energy sources and to offer customers innovative rate options and other tools to better manage their electric use. For individual customers, the link to smart grid is a “smart meter.”

Why do we need a smart grid?

The electric power grid has been a primary driver of the economy for more than a century. It contributes incalculably to the comfort, security and safety of everyday life. However, the demands of the digital age, the cost of energy, population growth, and concerns about the environment, reliability and security are increasing requirements from the electric system. By updating this critical infrastructure, and offering new rate choices for customers, the smart grid will provide new tools to improve reliability, increase security and balance the increasing demands of the electricity system.

The Smart Grid and the Environment

Vermont’s smart grid investment creates the potential for significant environmental benefits such as:

- Supporting increased use of small- and large-scale renewable energy and energy storage technologies.
- Enabling customers to use energy more efficiently, reducing overall power usage.
- Encouraging customers to shift their energy usage to times of the day when the power supply is cleaner.
- Enabling more efficient management of the electric system to better match generation to demand for power.
- Reduce the loss of power that occurs over long-distance transmission of electricity.
- Facilitating electric transportation as a means to decrease the use of fossil fuels.

Support for Renewables

A smarter grid will enable better integration of intermittent renewable energy sources (such as wind and solar power) and energy storage into Vermont’s

power grid. As the number and size of renewable energy systems grow throughout the state, grid management becomes more complex. The smart grid will enable operators to manage the complexity, making better use of renewables.



Support for Energy Efficiency

Traditionally, electric usage information has only been available on a monthly basis, making it difficult for customers to identify opportunities for energy efficiency or conservation. Smart grid technology will

provide more information and tools to empower customers to take more control of their energy use. This can reduce air pollution associated with energy generation and help customers save money.

Reducing Peak Electricity Demand

Peak generators tend to produce higher emissions of carbon dioxide and other pollutants. The smart grid can help customers reduce their energy use during “peak” periods when energy is more expensive and more polluting. New rate options will provide

incentives to customers to use less energy during peak periods.

Electric Vehicles

Today, cars are a significant source of carbon emissions and air pollution. Electric cars may be a key strategy to reduce transportation-related emissions. As the transportation sector is powered more by electricity, the smart grid will better integrate electric vehicles into the grid.

Produced by the eEnergy Vermont Communications Working Group. eEnergy Vermont is Vermont’s statewide smart grid project, funded in part with Department of Energy Smart Grid funds from the American Recovery and Reinvestment Act.

For more information: <http://www.velco.com/smartgrid> or <http://www.sgiclearinghouse.org/>