



CAROL WERNER
EXECUTIVE DIRECTOR

ENVIRONMENTAL AND ENERGY STUDY INSTITUTE
122 C STREET, N.W., SUITE 630 ■ WASHINGTON, D.C., 20001 ■ 202-628-1400 ■ www.eesi.org

Sustainable Energy Coalition Factoid #19

EESI Release: December 2006
Contact: Ken Bossong, 202-293-2898, x201, kbossong614@yahoo.com

VERMONT CAN GET MORE THAN HALF ITS ELECTRICITY FROM RENEWABLE ENERGY SOURCES BY 2016

Vermont can get more than half its electricity from renewable energy sources by 2016, more than enough to replace the power the state currently gets from the Vermont Yankee nuclear power plant or from Hydro Quebec according to a new Vermont Public Interest Research Group (VPIRG) report.

The 26-page report, "A Decade of Change: A Vision for Vermont's Renewable Energy Future" was authored by James Moore, a Clean Energy Advocate with VPIRG, and released on August 17, 2006. It outlines a clear, achievable path to a clean, safe and affordable electricity future for Vermont.

SUMMARY:

In ten short years, Vermont can meet over 55 percent of its needs through Vermont-based renewable energy and rely on fossil fuels for less than 20 percent of its electricity supply.

The first step in Vermont's decade of change will be to use less electricity, plus make sure that citizens use it wisely. According to the Vermont Department of Public Service (DPS), if the state does not invest in conservation and efficiency, Vermont's electricity consumption in 2015 will be 16 percent more than today. But if the state combines common-sense conservation actions with moderate investments in energy efficiency, Vermont can instead reduce its electricity consumption to at least five percent below 2005 levels.

The second step in Vermont's decade of change will be to start building a clean electricity future today with local Vermont resources. Renewable electricity generated from Vermont resources provided just 15 percent in 2005. By 2015, that can be increased to 55 percent.

ENERGY EFFICIENCY:

As Vermont moves forward in developing an electric plan for the next decade, the first question to answer is how much electricity supply will the state need in 2015. DPS is currently projecting that Vermont's electricity demand will grow 1.5 percent each year, absent any investment in efficiency. In 2015, that would place demand at 16 percent more than we use today. But if Vermont combines common-sense conservation action with moderate investments in energy efficiency, it can instead reduce its electric generation needs to five percent below 2005 levels.

Two separate studies conducted for the Vermont Department of Public Service over the past four years have shown there continues to be tremendous investment potential in additional efficiency measures that will deliver electricity savings to Vermonters at or below market prices.

The first report, released in 2002, estimated that Vermont could meet 30 percent of its 2012 electricity demand through cost-effective efficiency.

The second report, released in 2006, estimated that Vermont could meet 19 percent of its 2016 electricity demand through cost-effective efficiency.

WIND ENERGY:

A recent study conducted by Vermont Environmental Research Associates (VEA) found and mapped an astonishing 6,000 MW of potential wind resources in Vermont.

Based on the capacity factors of the latest available technology, VEA estimated an annual resource of between 17,300 GWh and 19,100 GWh. If all of Vermont's wind resources were utilized, it would provide three times Vermont's current annual demand of 6,500 GWh.

In 2015, electricity from in-state wind farms could supply 1,260 GWh or 20 percent of the state's needs. This would require tapping less than seven percent of the wind potential in Vermont.

To meet 20 percent of the state's electricity needs would therefore take about 46 miles of Vermont ridges. That's less than 10 percent of the 517 miles of Vermont ridgeline above 2,500 feet and less than one-half of one percent of available land in Vermont.

Thus, Vermont wind farms can provide 20 percent of the state's electricity needs by 2015 and create jobs, generate tax revenue, and grow locally-owned businesses. In addition, wind farms would provide added price stability to the state's utilities and would be sited on just a small fraction of the state's 500+ miles of ridgeline.

BIOMASS:

Presently, Vermont's forest growth-to-removal yield is 3:1, meaning that the amount of wood in the state's forests is increasing three times faster than it is being harvested. The state adds 11 million tons of new growth each year. Vermont's forests are part of the northern forest stretching from the Adirondacks through northern Vermont and New Hampshire to Maine.

The region contains more than one billion tons of biomass and adds 23 million tons a year, almost half of that in Vermont. New biomass growth, plus the need to thin existing low-grade wood in forests, present a tremendous source of renewable energy based in Vermont that can be used and harvested on a sustainable basis.

With 80 percent of the state covered by forests, Vermont's biomass or wood-fired generation can sustainably provide 19 percent of Vermont's electricity needs by 2015. Electricity generated from sustainably harvested biomass will support local forest-based economies while providing needed reliable power.

METHANE RECOVERY:

Officials at Central Vermont Public Service believe farm methane systems could produce up to 5 MW of generation by 2015. Others have estimated the potential to be much higher. In 2015, landfill methane and farm methane gas recovery systems could generate two percent of Vermont's electricity needs.

Vermont farm and landfill methane projects can provide 2 percent of Vermont's electricity needs by 2015. Converting farm waste into methane and non-polluting by-products will help reduce air and water pollution, while capturing methane from landfills keeps the potent greenhouse gas from being released into the atmosphere.

ON-SITE SOLAR AND OTHER SMALL-SCALE RENEWABLES:

Photovoltaic solar arrays could supply about 1,170 kWh for every installed kW based on 30-year weather data. Energy contributions are even greater when considering solar thermal panels. Solar thermal panels reduce the amount of electricity needed to provide hot water for a home or business.

For every one kW panel installed, 3,120 kWh of electricity can be saved every year. Thermal and photovoltaic sources together can provide 60MWh of solar energy, or about 1 percent of Vermont's total in 2015.

Vermont businesses and homeowners can provide 4 percent of Vermont's electricity needs through customer-sited generation projects by 2015.

Small-scale wind, solar, and hydroelectric projects together with combined heat and power projects will increase the reliability of the electric grid and decrease the need for additional transmission projects.

HYDROPOWER:

In 2005, Vermont's run-of-the-river and pool-water dams were expected to generate 513 GWh, almost 10 percent of Vermont's electricity mix.

Vermont utilities own and manage additional dams that produce nearly 400 GWh of electricity in 2005. Of this total about 51 MW is run-of-the-river, generating electricity from the river as it flows. The remaining use dams to store water, allowing electricity to be generated during periods of peak use.

Utilities have been upgrading dam technology, and this "repowering" will allow for an increased generating capacity in years to

come.

All together, the capacity of Vermont's dams will grow slightly in the next ten years, and will provide ten percent of Vermont's electricity supply needs.

Vermont hydroelectric facilities can provide 10 percent of the state's electricity needs by 2015. Vermont utilities and independent dam owners can make moderate improvements to the existing dams in Vermont to make them run more efficiently, slightly increasing the total output from the dams.

CONCLUSION:

A future with clean, safe and affordable electricity is possible using current technologies. Renewable energy technologies including wind farms, biomass facilities, and smaller distributed generation projects based on Vermont farms, at Vermont businesses, and in Vermont homes can meet the majority of the state's energy needs. Many of these projects are already being actively considered in communities across the state. When these in-state renewables resources are combined with a portion of the hydroelectric power Vermont currently purchases from regional suppliers, the state can meet 80 percent of its electricity needs by 2015 and make a substantial contribution toward reducing its future impact on the climate.

The remaining 20 percent will be met through market purchases.

The data presented in this report show that a clean, safe and affordable electricity future is possible. Now Vermont's citizens must create it.

Doing so will require tremendous leadership by our elected officials an action by each and every Vermonter. Together, the state's residents can realize this vision for Vermont's renewable energy future.

#####

Read the full report at:

<http://www.vpirg.org/documents/decadeofchange.pdf>

Read the press release at:

<http://www.vpirg.org/documents/press-release-aug1706.pdf>

Copies of the report can be purchased for \$20.00 (including postage) from:

VPIREF

141 Main Street

Suite #6

Montpelier, VT 05602

<http://www.vpirg.org>

###

The Environmental and Energy Study Institute is a non-profit organization established in 1984 by a bipartisan, bicameral group of members of Congress to provide timely information on energy and environmental policy issues to policymakers and stakeholders and develop innovative policy solutions that set us on a cleaner, more secure and sustainable energy path.