Sustainable Energy in Virginia

Clean, Safe Energy That's Renewable and Efficient

Did you know ... that the price of photovoltaic electricity has dropped dramatically from $15 per kilowatt-hour in 1975 to less than 25¢ per kilowatt-hour today; the cost of wind energy has dropped over 50%?

And... that although renewable energy resources compose less than one percent of Virginia's electricity generation, Virginia has demonstrated potential in most renewable technologies, including biomass, wind, solar, and geothermal?

Jobs in Sustainable Energy

The U.S. Department of Energy's (DOE's) National Renewable Energy Laboratory (NREL) leads the nation in research and development and lab-scale demonstration of sustainable energy technologies. In FY 1997, a total of $5,940,189 in research contracts, service subcontracts, and procurements was awarded to Virginia organizations by NREL.

NREL's many programs help facilitate technology development with interested consumers and potential partners from industry, business, academia, and the global community. NREL's technologies, which are clean and green, include:

- Photovoltaics
- Wind
- Biofuels
- Biomass power
- Hydrogen
- Superconductivity
- Solar thermal
- Geothermal
- Hybrid vehicles
- Building energy systems
- Industrial applications of solar power.

DOE's Federal Energy Management Program (FEMP) activities could add about 600 jobs each year and save people in Virginia $31.9 million in annual energy costs.

Clean Energy = Clean Environment

The clean electricity generated from renewable energy sources in Virginia from both utility and nonutility generators displaces about 321 tons of carbon dioxide per year (measured in carbon units) that would be emitted by coal-fired power plants.

Between March 1996 and March 1997, EPA Green Lights and Energy Star programs helped save 275 million kilowatt-hours in Virginia, saving the state's consumers at least $16 million in energy bills and preventing 425 million pounds of carbon dioxide from entering the atmosphere. Projected cost savings through the year 2000 resulting from energy investments already made is $68.2 million.

Economic Benefits

In FY 1996, DOE's Office of Energy Efficiency and Renewable Energy (EE) invested $26.8 million in Virginia. Virginia's consumer energy cost savings from EE research and development products are estimated to be more than $700 million.[1]

- Thirty-seven businesses in Virginia specialize in renewable energy-related products and services.
- State weatherization programs, aided by federal funding from DOE, helped at least 7,700 low-income and other disadvantaged Virginia families last year.
- Teams of engineering students and faculty members from the EE Industrial Assessment Center at Old Dominion University in Norfolk and other universities performed 79 assessments in Virginia. These assessments, provided at no cost to businesses, include recommendations for energy-saving and environmentally friendly technologies and practices at each facility. Small- and medium-sized manufacturers that followed these recommendations have already saved more than $13 million.
- Directed Technologies, Inc., is working with EE to analyze the value of hydrogen to accelerate the development of a

Did you know... that 41% of Virginia's electricity is generated from coal, 3.7% from natural gas, 4.4% from petroleum, 50.2% from nuclear, and 0.7% from other sources, including hydroelectric, wind, solar thermal, and photovoltaics?

And... that Virginia is a net energy importer, meaning that more electricity comes into the state than goes out of the state?

refueling infrastructure. This $125,000 effort is determining the refueling infrastructure requirements for hydrogen and hydrogen blends, and comparing the design and economics of production and fuel storage options for hydrogen refueling stations.

- NREL recently signed a cooperative research and development agreement (CRADA) with Solarex Corp. to conduct further research on thin-film photovoltaic modules. This partnership is an excellent example of how industry and the government can work together to develop commercial products that will not only create U.S. jobs but will also improve the quality of life worldwide.
- FEMP provided technical assistance to Virginia to implement daylighting controls in a training facility in Arlington. FEMP will provide feasibility analyses for installation of desiccant cooling systems for this showcase project as well.
- Virginia state agencies are the primary client sector served by the Division of Energy. Services include: low-interest financing for energy efficiency projects, including sustainable building design through the Virginia Energy Leasing Program; technical and financial assistance for special energy projects such as lighting upgrades, motor replacements, and cost-effective alternative and renewable energy applications; energy accounting and tracking assistance; and overall energy management planning and consultation.

Want More Information?

Office of Energy Conservation Consumer Hotline
800-OEC-6662

Energy Efficiency and Renewable Energy Clearinghouse (EREC)
800-363-3732
http://www.eren.doe.gov

National Renewable Energy Laboratory (NREL)
800-644-NREL
http://www.nrel.gov

Federal Energy Management Program (FEMP)
http://www.eren.doe.gov/femp/

National Association of State Energy Officials
http://www.naseo.org/

U.S. Environmental Protection Agency's (EPA) Green Lights and Energy Star
http://www.epa.gov/energystar.html

[1]Based on a GAO review and validation of the energy savings of EE research and development success stories.

Questions?
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National Renewable Energy Laboratory
NREL is a national laboratory of the U.S. Department of Energy (DOE), managed for DOE by Midwest Research Institute

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