Oak Ridge National Laboratory Reports:

State Energy Program and State, Territory Energy Offices Continue to Deliver Annual Energy and Cost Savings

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"The impressive savings and emissions reductions numbers, ratios of savings to funding, and payback periods... indicate that the State Energy Program is operating effectively and is having a substantial positive impact on the nation's energy situation."

- Oak Ridge National Laboratory

About the State Energy Program

The State Energy Program (SEP) is the only federally funded, state-based program (administered by the U.S. Department of Energy) that provides resources to the states for their deployment in addressing local needs and opportunities. The program, funded at $44 million in FY 2005, is costshared by states; many energy initiatives would not be possible without SEP seed funding. As a result of SEP, states spend and invest more than three-and-a-half times as much money on these initiatives. More specifically, every $1 of SEP federal funds is leveraged by $10.71 of state and private funds.

With these resources, the State and Territory Energy Offices develop and manage a variety of programs geared to increase energy efficiency, reduce energy use and costs, develop alternative energy and renewable energy sources, promote environmentally conscious economic development, and reduce reliance on oil produced outside the U.S. Also, State Energy Offices are involved in providing input on state energy policy development, administering public benefits and other state energy funds, and energy emergency preparedness.

Oak Ridge National Laboratory (ORNL) has performed an evaluation for the U.S. Department of Energy (DOE) to quantify the nationwide energy and cost savings and emissions reductions associated with a wide variety of energy efficiency and renewable energy activities performed by the states and territories during the 2002 program year under the State Energy Program (SEP). This is the second evaluation of SEP accomplishments performed by ORNL for DOE; the first one was completed two years ago and was documented in a January 2003 ORNL report. The new report, titled "An Evaluation of State Energy Program Accomplishments: 2002 Program Year," represents the most in-depth metrics effort to date on benefits of the State Energy Program with participation by all 50 states, the District of Columbia and four of the five U.S. Territories.

Total Annual Energy and Cost Savings

Annual energy savings	47,600,000 MMBTUs
Annual cost savings	$333,600,000

Total Annual Emissions Reductions

Substance	Reduction of Emissions
Carbon	~826,000 metric tons
Sulphur-Dioxide (SO2)	~8,500 metric tons
Nitrogen Oxide (NOx)	6,200 metric tons
Carbon Monoxide (CO)	1,000 metric tons
Fine Particulate Matter (PM10)	~160 metric tones
Volatile Organic Compounds (VOCs)	~130 metric tons

~ indicates an approximate amount

Key ORNL report findings include:

- Each $1 of SEP funding was associated with annual savings of 1.03 million source BTUs and a cost savings of $7.22.
- SEP funding and support contributed to a tremendous number and variety of outputs, including state adoption of 22 new residential building codes and 20 non-residential codes; the auditing of almost 325 million square feet of floor space and the retrofitting of another 153 million square feet; over a third of a million technical assistance contacts; and the provision of approximately $46 million of tax credits, $30 million of loans, $21 million of rebates, and $12 million of grants.
- Each $1 of SEP funding leveraged $10.71 from non-federal sources.
- In all 17 project areas for which outcomes were quantified, estimated annual energy savings from the activities performed by the states and territories during their 2002 program year totaled 47.6 trillion source BTUs and cost savings exceeded $333 million (Table ES.2).

To put the key findings in perspective, the annual estimated energy saving of 47.6 trillion source BTUs is equivalent to the average amount of energy used for all non-transportation applications in more than 289,000 U.S. households over the course of an entire year. And the annual carbon reduction of 826,000 metric tons is the same as all the carbon emissions produced by over 582,000 passenger cars in a one-year period. Because the energy and cost savings reported here are annual savings numbers and are expected to continue for many years to come, lifetime savings are expected to greatly exceed the total investment required to achieve them.

Table ES.2.

Estimated total annual nationwide energy and cost savings for combined project areas

Estimated annual energy savings (trillion source BTUs)	Estimated annual cost savings (million $)
47.6	333.6

Through the use of 32 distinct metrics, the ORNL report quantifies the benefits of 17 program areas, representing about 60% of SEP activities and funds; thus, the report understates the total benefits provided by the State Energy Program. Among the vital activities funded by the states and SEP that are not quantified in the report are: strategic planning and climate-change planning efforts; policy development and energy legislation; telecommuting programs; waste management and recycling efforts; water system efficiency projects; and various traffic-flow improvements.

While this study measures energy and cost savings and emissions reductions, it does not attempt to quantify other important benefits that also are associated with the SEP. These include positive effects on national security, the economy, and individual health and safety. For instance, many of the activities performed by alternative energy programs are aimed at decreasing petroleum consumption and increasing the nation's energy security rather than reducing the absolute amount of energy consumed, and those benefits are not quantified in this study. Also, this study does not quantify the achievements of state energy emergency plans, which help communities address possible supply shortages and interruptions but typically do not cut the total amount of energy used. Activities in other project areas also can have important economic, social, and national security benefits in addition to the energy and costs savings and emissions reductions that they engender. These non-energy benefits are important and intended products of the SEP and contribute substantially to its social value.

The State Energy Program's ultimate goal is to help assure energy reliability, and strengthen America's competitive position and national energy security.

For More Information

For a copy of the complete ORNL report or to learn more about your State Energy Office's activities, please visit the National Association of State Energy Officials online at www.naseo.org.

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