2007 Innovations Awards Program
APPLICATION

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ID # (assigned by CSG): 07-S-34NCUTILITYSAVINGS

Please provide the following information, adding space as necessary:

State: North Carolina

Assign Program Category (applicant): Natural Resources: Energy (Use list at end of application)

1. *Program Name*
   Utility Savings Initiative for State Facilities

2. *Administering Agency*
   State Energy Office, N.C. Department of Administration

3. *Contact Person (Name and Title)*
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   http://www.energync.net/programs/usi.html

9. *Please provide a two-sentence description of the program.*

   The Utility Savings Initiative for State Facilities demonstrates state government leading by example through a program to reduce energy consumption and costs by 20% over a five year period in state and public university facilities. It is the nation's first program of its kind and has saved the State of North Carolina more than $62 million in avoided utility costs since its inception in 2002.

10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on April 2, 2007, to be considered.

The Utility Savings Initiative for State Facilities began in June 2002.

11. Why was the program created? What problem[s] or issue[s] was it designed to address?

The Utility Savings Initiative for State Facilities was created in 2002 through the endorsement of North Carolina Governor Michael F. Easley to save state agencies and public universities—and ultimately North Carolina taxpayers—significant energy costs through increased efficiency. The State Energy Office, an agency within the N.C. Department of Administration, was tapped by the Governor's Office to guide agencies in their efforts and to administer the program.

It is the nation's first program of its kind. No other government entity is known to have created an efficiency program that comprehensively addresses utility accounting, operations and maintenance, performance contracting, and awareness and training in order to save taxpayer dollars and conserve the environment.

The program tasks each state agency and public university with reducing energy consumption by at least 20% within five years, for an average of 4% per year. This is accomplished through concentrating efforts in four key areas: utility accounting, operations and maintenance, performance contracting, and awareness and training.

- The first area, *utility accounting*, includes reviewing and tracking monthly utility bills, resolving billing errors, negotiating and optimizing rates, and analyzing supplier quality and reliability. While these steps may seem minor, they have helped agencies save nearly $4 million since the program's inception.
- *Operations and maintenance* comprise the demand side component of the initiative. This includes performing facility and equipment surveys to identify areas of opportunity, then securing resources to perform corrective and preventative maintenance. One of the most successful programs in this area is the HVAC controls tune-up effort. Projected cost savings from this program alone are expected to exceed $700,000 for participating agencies this year.
- *Performance contracting* provides the means to finance large capital projects by using the realized energy savings to pay off the project. To date, approximately $45 million has been identified for performance contracting.
- *Awareness and training* is the fourth area. Agencies are required to appoint a liaison to work with the State Energy Office. The Office then provides the liaisons with the tools and knowledge necessary to perform their work. All liaisons are trained in the preparation of an energy management plan, and each plan must outline procedures to engage all staff, students and faculty in the effort to save energy. An energy mandate is also created and signed by facilities directors and senior administrators agreeing to the 20% reduction goal. Conservation Awareness Teams are created at each agency and university to assist liaisons with marketing the program to its constituents. Senior level buy-in and employee education is the key to getting constituents to realize the long-term benefits of the program and accordingly modify behavior.

Once the energy management plan is created, baselines are established and key performance indicators are identified for tracking progress. Energy consumption is indexed by gross square foot

where appropriate, though agencies are encouraged to use a different indicator if gross square footage does not adequately reflect their energy usage.

In 2005-2006, 66 state agencies, public universities and affiliates, and community colleges had signed on for the program, creating their energy management plans and establishing their baseline measurements. By the end of that fiscal year, more than $62 million had been saved in avoided utility costs.

12. Describe the specific activities and operations of the program in chronological order.

September 2001: The N.C. General Assembly passes N.C. General Statute 143-64 requiring each state agency and university to develop and implement an energy management plan consistent with the state's energy plan.

February 2002: The Governor's Commission to Promote Government Efficiency and Savings on State Spending is created. The Capital Management Subcommittee, chaired by the Secretary of the Department of Administration, discusses ways to reduce state expenses by cutting energy consumption.

May 2002: The State Energy Office of the Department of Administration conducts a feasibility study that determines significant savings potential from electric rate reviews and no- and low-cost energy conservation measures.

June 2002: The Utility Savings Initiative for State Facilities is created with approval from the Energy Policy Council, the body charged with overseeing the state's energy policies and providing recommendations for policy changes to the Governor and General Assembly. State Energy Office director Larry Shirley designates staff members to manage the program.

July 2002: Governor Michael F. Easley sends a memo to all state agencies and public universities directing each to promote energy conservation to reduce utility consumption and expenses.

August 2002–December 2003: The State Energy Office conducts electric rate reviews of more than 5,000 electric accounts in consultation with the Office of the State Controller and electric utilities to determine appropriate rates using State Energy Office-specified load factors. The Office also creates a no- and low-cost survey checklist and establishes survey teams to conduct walk-through surveys in 500 buildings comprising approximately 20 million square feet, or approximately 20% of the state's total 96 million square feet.

September 2002-Today: The State Energy Office begins training designated "utility managers" (mostly agency volunteers) in Strategic Energy Planning Workshops on how to create an energy management plan and mandate. Seminars are conducted across the state for state employees on optimal operations and maintenance and no- and low-cost energy conservation measures for boiler, chiller and heating, ventilation and air conditioning systems.

October 2002-Today: The State Energy Office holds an annual 14-day Energy Management Diploma Series to train energy liaisons and facilities managers about energy management principles.

November 2002-Today: The State Energy Office provides a summary of checklist findings to liaisons and facilities directors of recommended no- and low-cost efficiency measures in surveyed buildings.

March 2003: The first N.C. Sustainable Energy Conference is sponsored by the State Energy Office, bringing together Utility Savings Initiative liaisons and state personnel for additional training and awards for achievement.

July 2004: The State Energy Office expands the program to Department of Administration tenant agencies that rent space not owned by those agencies.

June 2005: The State Energy Office creates a Western North Carolina office to better respond to the needs of state agencies, universities and colleges located in the western part of the state.

December 2005: The State Energy Office expands the Utility Savings Initiative for State Facilities to the N.C. Community Colleges System through a pilot program involving 8 community colleges. It also makes its program resources available to the state's K-12 public school systems and local governments.

March 2007: The State Energy Office, the Utility Savings Initiative for State Facilities steering committee and other stakeholders begin discussion of extending the USI program and expanding efficiency goals beyond the original 2008 deadline.

13. Why is the program a new and creative approach or method?

At the time of the Governor's memo, no formal means for measuring energy costs or consumption by state agencies in North Carolina existed. The creation of new infrastructure to manage these costs, on an agency by agency basis, is the greatest innovation of the Utility Savings Initiative for State Facilities. The program didn't just shift the paradigm—it created a new one.

The program is also comprehensive; it addresses energy rates through utility accounting, energy performance through surveys under the operations and maintenance program as well as awareness education and training, and large capital improvements through performance contracting.

As a lead-by-example program, the Utility Savings Initiative is also working to incur long-term behavioral and environmental benefits for the state. As more organizations join the program, more people are educated about the benefits of energy conservation. These folks then take this knowledge and apply it to their homes and educate their friends and family about the benefits. While this is a dynamic that cannot be measured, program managers have heard many stories about clients who are helping spread the tenets of the program beyond agency and university walls into the community.

The State Energy Office also has a memorandum of understanding with the N.C. Division of Air Quality and the N.C. Division of Pollution Prevention and Environmental Assistance to explore ways to quantify the air quality benefits of the energy <u>not consumed</u> through the efforts of the Utility Savings Initiative program.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

The program's start-up costs were $507,650.00. Below is a detailed list of expenditures.

<u>Staffing</u>
Initial Staffing – 3 full-time employees required

- 1 utility accounting program manager – hired a new SEO contract employee for this position
- 1 strategic planning program manager – hired a new SEO contract employee for this position
- 1 low- and no-cost operations maintenance manager – employee already worked with SEO full-time, USI became his full focus

Total Salary and Fringe **$182,000.00**

In-State Travel **$7,550.00**

Additional Technical Consultants

- One consultant for feasibility study and preliminary rate reviews $ 8,000.00
- One consultant for USI database set-up $12,800.00

Total Consultant Fees **$20,800.00**

Kick-off Meetings **$5,000.00**

Workshops

- Strategic planning workshops $10,000.00
- Operations and maintenance seminars $20,000.00

Total Workshop Fees **$30,000.00**

Surveys

- Operations and maintenance survey of state buildings **$100,000.00**

Equipment Purchases

- Occupancy sensors, programmable controllers **$158,300.00**

Conservation Awareness Materials

- 30,000 stickers $2,000.00
- 2,000 posters $2,000.00

Total Awareness Materials **$4,000.00**

GRAND TOTAL **$507,650.00**

15. What are the program's annual operational costs?

The program's current operating budget for fiscal year 2006-2007 is $1,042,302.

16. How is the program funded?

The program's funding sources are petroleum violation escrow funds from the U.S. Department of Energy. This is money that was collected by the federal government in court settlements from major petroleum suppliers for overcharging customers. This funding is slated to run out by the end of 2007. Funding beyond 2007 is being explored by the Office of the Governor and the North Carolina General Assembly.

Performance contracting is another finance tool that was recently added to the program. It is a method of financing energy-saving improvements by reducing utility expenditures. The energy savings a project achieves fund the new equipment, design and installation. Up to $100 million is allowed for efficiency upgrades in the state's existing buildings with a payback period of no longer than 20 years. Currently, there are $25 million in contracts underway, with another $20 million in the pipeline.

No income is derived from the Utility Savings Initiative program.

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

In September 2001, the N.C. General Assembly passed N.C. General Statute 143-64 requiring each state agency and university to develop and implement an energy management plan consistent with the state's energy plan.

The following February, the Governor's Commission to Promote Government Efficiency and Savings on State Spending was created. The Capital Management Subcommittee, chaired by the Secretary of the Department of Administration, discussed ways to reduce state expenses by cutting energy consumption.

In May 2002, the State Energy Office of the Department of Administration conducted a feasibility study that determined significant savings potential from electric rate reviews and no- and low-cost energy conservation measures.

The following month, the Utility Savings Initiative for State Facilities was created with approval from the Energy Policy Council, the body charged with overseeing the state's energy policies and providing recommendations for policy changes to the Governor and General Assembly. State Energy Office director Larry Shirley designated staff members to manage the program.

In July 2002, Governor Michael F. Easley sent a memorandum to all state agencies and public universities suggesting that each promote energy conservation to reduce utility consumption and expenses. The program is therefore a voluntary, though recommended, program.

18. What equipment, technology and software are used to operate and administer this program?

The State Energy Office works with the State Controller to track energy expenditures and total gross square footage for the state's facilities. No equipment, technology or software purchases are required by the program beyond basic office programs such as Microsoft Office Suite, which most agencies already own. After training and with the support of the State Energy Office, each state agency, university or community college determines how to best achieve the 20% energy and water reduction.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

The Utility Savings Initiative for State Facilities concept, approach and execution are unique and, to the knowledge of all N.C. State Energy Office staff, it is the first program of its kind in the nation. No other government entity is known to have created an efficiency program that comprehensively addresses utility accounting, operations and maintenance, performance contracting, and awareness and training in order to save taxpayer dollars and conserve the environment.

The innovators responsible for this program include: N.C. Governor Michael F. Easley; former N.C. Department of Administration Deputy Secretary for Government Operations Carlton Myrick; former N.C. State Energy Office Program Manager Kathleen Stahl; and N.C. State Energy Office Director Larry Shirley.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

To our knowledge, the program has received outside interest from other state governments in South Carolina, Georgia and Arkansas. Program managers have consulted with these interested parties, and it is believed that some parts of the program have been adopted. Virginia recently announced a similar initiative as well.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

The program has been fully implemented in North Carolina state agencies and public universities. Eight community colleges joined the initiative through a pilot program in 2005. While the program is available to any public entity in North Carolina that expresses interest, discussion is now underway on how best to extend the initiative to all community colleges, K-12 public school systems and city and county local governments.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

The ultimate measure of success for the Utility Savings Initiative for State Facilities is reduced energy consumption per gross square foot (GSF) on the state level. Consumption and cost data for each energy source is reported by each participant and is compiled by the Utility Savings Initiative program manager. This data is then analyzed, and trends are prepared allowing individual participants to gauge their performance against the State composite average. Below is a chart showing avoided energy consumption and costs since the program's inception.

Avoided Costs Summary	
Description	Amount thru 6/30/06
Consumption reductions per GSF	$56,498,048
DOT traffic signals to LED	$879,326
Electric Rate Changes	$1,554,898
Electric and Water Billing Errors	$605,951
Rate negotiations	$3,424,807
TOTAL	**$62,963,030**

Participation in the program is also another key measure of this voluntary program's success. In 2002-03, 46 agencies signed on for the program. In 2003-04, that number increased to 58. In 2005-06, the program added 8 community colleges from the N.C. Community College System through a pilot program for a total of 66 participants. By the close of the year, the Utility Savings Initiative had reached a 95% participation rate for the target audience of state agencies and public universities within the University of North Carolina system. (It is not considered 100% because several divisions within participating departments have requested to act as separate entities and create their own energy

management plans, e.g., the N.C. Zoo, a division of the N.C. Department of Environment and Natural Resources.)

Other state partners, including K-12 school systems, local governments and the rest of the state's community colleges, have expressed interest in participating in the program as well.

23. How has the program grown and/or changed since its inception?

The Utility Savings Initiative for State Facilities has adapted and improved on the original innovation by:

a.) Continually improving annual reporting accuracy
b.) Simplifying the energy management plan and mandate writing/submission process
c.) Expanding the program beyond its original market of state agencies and public universities within the University of North Carolina System to include several pilot-phase colleges within the N.C. Community College System and serving as an information resource for interested K-12 public schools and local governments in North Carolina
d.) Instituting performance contracting as a means to facilitate large, capital-intensive efficiency improvements
e.) Adding special programs to accelerate adoption of cost-effective energy efficiency measures, such as a boiler tune-up program and an HVAC controls tune-up program.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

In the experience of North Carolina and as with any large organization with a long institutional memory, people were initially resistant to change.

When the Utility Savings Initiative for State Facilities was first introduced by Governor Easley asking all state agencies and public universities to promote energy efficiency and conservation measures, many folks were wary of the idea. Doubts were raised as to whether any efficiency measures would actually make a difference in consumption or costs, and it was secretly feared that the new measures would divert money from other purchases or improvements that the agency vitally needed.

The State Energy Office program managers in charge of the Utility Savings Initiative recognized these misgivings and worked hard to reassure agency directors of the usefulness—and ultimate payback—of the program. Initial energy audits were performed in buildings to show where energy was being wasted. Simple no- and low-cost measures such as switching out incandescent light bulbs to compact fluorescents were tried. As the small efficiency measures began to yield real savings results, agencies began to feel more comfortable with the idea of becoming more energy efficient.

With more success came more trust and more buy-in for the program. The program has become so popular now that many other organizations within the state—including public school systems and local governments—are asking for help implementing their own utility savings programs.