



of State Energy Officials

ENERGY'S WASHINGTON VOICE

State Energy Program and Activity Update

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1414 Prince Street, Suite 200
Alexandria, VA 22314
Telephone: 703.299.8800
Facsimile: 703.299.6208
Website: www.naseo.org



STATE OF ALABAMA – State Energy Program (SEP)

The Science, Technology and Energy (STE) Division administers a variety of programs that assist schools, businesses, non-profit organizations and communities across the state. Through the State Energy Program, STE promotes technologies that reduce operating costs, improve energy efficiency and improve air quality. STE conducts energy efficiency projects for the elderly, energy education programs for children, recycling programs for cities and counties, ENERGY STAR® outreach projects, renewable and alternative fuels projects, energy emergency planning, and a public building energy efficiency program. STE works closely with businesses, utility companies, and other state agencies to promote energy-efficiency for all economic levels in Alabama.

ENERGY STAR®

Through the ENERGY STAR program, STE encourages energy efficiency in homes and businesses through the use of ENERGY STAR-labeled products and by energy saving practices, saving Alabama consumers money on energy costs and at the same time cleaning up our environment. Through exhibits at home expos and fairs, training workshops for county extension agents, and presentations to various sectors of the building community, STE is educating Alabamians about the benefits of using ENERGY STAR products and practices. ENERGY STAR works with programs such as Habitat For Humanity and the ADECA Weatherization Program to help low income individuals achieve a comfortable standard of living without paying out a large percentage of their income for energy costs.

STE also promotes ENERGY STAR'S Million Monitor Campaign, a program that encourages putting computer monitors in a sleep mode after a period of non-use. To date 15 cities and counties have responded, pledging to put 1,800 computers to sleep. This action will save these cities and counties a total of over \$25,000 a year in energy costs.

Recycling

STE's State Recycling Program has been a major contributor to energy efficiency, preserving the environment, and the reuse of valuable resources that Alabama factories manufacture into new products. The recycling program reduces the stream of waste sent to landfills and creates new jobs in Alabama. Local governments can apply for grants up to \$10,000, and nonprofit organizations can apply for grants up to \$5,000 to assist with solid waste recycling. Since FY2000, a total of \$413,500 has been awarded in grants for this program. These funds were matched by grant recipients in the amount of \$84,700 and were leveraged by providing an additional \$151,561 for a total of \$236,261, allowing small grant awards to have a major impact on communities. STE has provided financial assistance to 82 local governments, 31 counties, and 88 non-profit organizations planning to start or expand their local recycling initiatives since the inception of the program. Through the efforts of the STE recycling program, several hundred thousand tons of recyclable materials have been diverted from local landfills, saving precious energy resources in the process. Alabama's recycling industry employs more than 19,000 workers and over the past decade has had a \$3.4 billion impact on the state's economy.

Project ROSE (Recycled Oil Saves Energy), supported by STE, is Alabama's used motor oil recycling program. Project ROSE reported a total of 1,337,206 gallons of used oil recycled from

registered vehicles in the private sector and 534,882 gallons from do-it-yourself oil changers for the year. There are over 500 used motor oil collection locations statewide including at least one in each of the state's 67 counties.

Alternative Fuel Vehicles

The Alternative Fuel Vehicle Program encourages and promotes the use of transportation alternative fuels as a way to increase the overall efficiency of the transportation system. Alternative Fuels improve air quality and promote energy independence by reducing the need for foreign oil imports. STE provides fleet managers technical assistance concerning the use of vehicles powered by electricity, natural gas, ethanol and propane as a substitute for gasoline and diesel fuel. The program is currently assisting the cities of Birmingham and Mobile in applying for the U.S. Department of Energy's Clean Cities program.

Energy Codes

The Energy Codes Program promotes energy code adoption for residential housing and for commercial construction.

Residential: In December 2002 the Residential Energy Code Board of Alabama voted to adopt the International Energy Conservation Code 2000 as the state's residential energy code. STE is promoting the adoption of the residential energy code at the local level. STE works with builders, utilities, and local building code officials to educate the building community on the benefits of energy-conserving building codes and the benefits of building energy-efficient homes.

Commercial: This program promotes the state buildings energy code in partnership with the Alabama Building Commission. The state buildings energy code, known as ABC-4, applies to state government buildings, colleges, and K-12 public schools. In January 2004 the Alabama Building Commission adopted the new International Building Code for state funded buildings. The adoption of the Intentional Code revises ABC-4 to the new 2001 energy standard.

Building Energy Efficiency Program (BEEP)

The Building Energy Efficiency Program helps Alabama small businesses, local governments, schools, and other institutions increase profitability by advising them on ways to reduce their energy costs. The program provides technical support to building owners seeking energy-efficiency technologies, workshops, reference materials, self-audit energy guides, energy audits and training on energy audit techniques. The program has conducted over 155 energy audits in Alabama. These audits have encompassed more than 8.7 million square feet of floor space resulting in estimated energy savings of \$800,000 per year.

BEEP conducted an energy audit of the W.B. Jones Hall, a 64,860 square foot building on the campus of The University of Alabama. Recommended lighting, window, and HVAC improvements to this building would save about 40% of current energy use.

Energy Education Program

The Energy Education Program works with educators and students to provide resources and opportunities for science and energy education in Alabama. The emphasis of the program is to provide K-12 students with energy efficiency measures that can be used in and out of the classroom. These measures provide useful information that the students can share with their families and ultimately lead to a more energy-efficient community. The program provides teachers and students a wealth of energy education curriculum and publications. Last year the STE distributed 2000 energy education classroom booklets to students and teachers.

Arizona

The Energy Office promotes and coordinates efficient development and utilization of energy to sustain the economy and environment. Programs, services and training seek to maximize Arizona's use of natural resources through conservation, efficiency, and renewable energy. The Energy Office promotes energy policy, public education, and community outreach that will lead to cleaner air, increased use of alternative energy sources, and reduction of energy costs in government, commercial, and residential buildings.

The State Energy Program (SEP) funded by the U.S. Department of Energy is the foundation for many of the programs within Arizona's Energy Office. Here is a summary of programs that receive SEP funding.

Energy Conservation and Engineering Programs

Residential Training and Technical Assistance: In partnership with Arizona utilities, Energy Office staff provides training and technical assistance to Arizona's largest private sector employer, the residential building industry. Residential Training and Technical Assistance innovations and techniques adopted by the building industry resulted in energy savings of approximately \$150-\$200 per home in over 40,000 homes built during FY 2001. Additionally, over 2,000 homes built, with guaranteed heating and cooling costs, will be able to guarantee an annual heating and cooling cost of less than \$.30 per square foot.

State Energy Efficiency Demonstration (SEED): Provides training, technical assistance and funding to encourage energy efficiency in state government buildings. SEP funds staff to provide this program of technical assistance to state agencies. In FY 2001, the SEED program distributed \$161,710 (non-SEP) for the installation of energy efficient equipment in state government buildings. As an example, SEED provided \$81,000 towards \$158,000 of lighting projects at the University of Arizona. A total of 1,949 light fixtures were retrofitted, for an annual savings of \$45,000.

Summer 2001 – State Agency Smart Energy Usage Program: As a result of a Governor's Executive Order to reduce summer electricity consumption to avoid shortages, the Energy Office held workshops for state government facility staff on low cost ways to save energy costs. State agencies responded by adjusting the thermostats up, turning off or removing unnecessary lighting, and directing employees to turn off computers, monitors, printers, and copiers when not in use. A sample of six large agencies showed savings of \$61,962 in July 2001 and \$68,588 in August 2001.

Municipal Energy Management Program (MEMP): Provides technical assistance, utility tracking software and matching grants to help Greater Arizona communities, counties, Indian tribes, and improvement districts reduce energy operating costs. MEMP staff visited more than 20 Arizona communities to assist in determining energy saving opportunities. Four communities that received grants saved over \$53,000 in energy costs the first year.

Facility Management Training: Based on results of forensic audits and utility tracking, training and technical assistance are provided to facility management teams in state facilities to assist with performing diagnostics, tracking energy consumption, and completing retrofits on equipment and buildings. The Facility Management Training Program demonstrated and trained facility representatives from 33 state government, universities and community colleges, resulting in a reduction of seven to eight percent in energy cost.

Education and Community Outreach Programs

Information and Publications: Compile and post on the internet monthly and quarterly publications listing developments that impact Arizona through state energy policy formation and implementation, energy data compilation, and economic analysis related to energy markets. The *Arizona Built 2000 Directory* lists Arizona companies and energy-related products and services.

Solar and Renewable Energy Programs: Provide statewide coordination about various aspects of solar energy. Solar education programs, for elementary and high school students, include summer camps and hands-on teaching about the benefits and use of passive and active solar design and application. Through a grant from the Million Solar Roofs Program of the U. S. Department of Energy, the Energy Office created an interactive exhibit on solar energy development and use in Arizona. The exhibit has been displayed throughout the state, including the State Capitol, the Arizona Science Center, three county fairs, two conferences, the Arizona Historical Society Museum, and other statewide events. During fiscal year 00-01, more than 5,000 users have participated with the exhibit videos, IQ test, survey, and web pages.

In partnership with local utilities, the solar industry and Arizona citizens created the Virtual Solar Center, a web site of solar information: www.azsolarcenter.com. During 2001, there were more than 100,000 visitors to the site.

Energy Management Conference (EMC): Annual conference attracts 200-300 energy professionals and facility managers from throughout the state. The EMC serves as a forum to exchange information on conservation trends, techniques, products, and energy policy issues. The Governor's Awards for Energy Efficiency recognize selected cities, educational institutions, and state government agencies for outstanding energy conservation projects.

Energy Office Statistics for FY 00-01

- Households assisted - 1,411 (272 rural, 1,139 urban)
- Facility Management Training - 33 state and university facilities
- Energy Audits Completed - 35
- Total building space audited - over 700,000 square feet
- Homes built/retrofitted incorporating energy saving techniques - 40,000
- Visitors to the Solar website - 100,000

Arkansas

Arkansas Energy Office Highlighted Arkansas SEP Programs

Smarter Architecture – Publication on High Performance Sustainable Communities and Buildings in Arkansas

Smarter Architecture is a 170-page (full color) publication developed to highlight Arkansas communities and buildings that apply sustainable concepts and energy efficient design techniques and technologies. The publication identifies Arkansas as a steward of its environment and how design professionals, building owners and community leaders are utilizing energy efficiency and sustainable practices as a means to improved economic development. The publication was developed in partnership with the University of Arkansas Community Design Center (UACDC) and the Arkansas Energy Office.

Energy Efficiency Improvements – HOME SERIES

The *HOME SERIES* is a collective set—six in total—of brochures designed to inform the consumer on the energy efficiency improvements, suggested low-cost, no-cost means to reduce their utility costs and instructions for “do-it-yourself improvements.” Each series also includes reviews, considerations and guidelines for energy efficient improvements that require a greater investment and resources for further information and services. The *HOME SERIES* is available in hard copy and now on the Energy Office web site in the newly created “Consumers Page” located in: <http://www.1800arkansas.com/Energy/index.cfm?page=energy> saver.

Builders’ Clearinghouse

The Builder’s Clearinghouse is a web site developed by the AEO to provide building and design professionals and homeowners with unbiased information about developments in building technology, critical product reviews, energy performance design and building tips, practical research reports and regulations. The web site is located at:

www.1800ARKANSAS.com/clearinghouse/. Included in the Builder’s Clearinghouse are five individual videos produced by the Arkansas Energy Office to visually show step-by-step construction practices and product installation to improve energy efficiency and performance in new home construction. This site is the most popular in the Energy Office web site consistently exceeding other topics in site visits and downloads.

Alternative Fuels

The Arkansas Energy Office is committed to promoting biodiesel use in Arkansas to encourage use of alternative fuels and benefit the Arkansas farm economy from use of agricultural products. The AEO developed and is implementing a biodiesel demonstration program for three central Arkansas school districts and is in the process of offering the Biodiesel School Bus grant program to interested school districts in the state. Studies show that air quality inside school buses can reach dangerous levels, and the breathing patterns of school age children, especially

young children, make them more susceptible to the adverse effects of pollution. The three districts are operating 150 school buses using a B20 biodiesel fuel made with an 80% diesel and 20% soybean blend. Project partners include Oil Marketers Association, Farm Bureau, the Arkansas Department of Environmental Quality, Metroplan and the Central Arkansas Clean Cities Coalition.

The Arkansas Energy Office granted \$175,000 to the Little Rock Airport Authority to build a natural gas compressor station and convert its vehicles in the airport fleet to use compressed natural gas as an alternative fuel.

Energy Education

The AEO funded, and along with three partners developed a Fuel Cell Energy Education Project. Included were three two-week pilot presentations consisting of lectures and hands on experience for students. The classes were held at three Central Arkansas High Schools for the purpose of using fuel cell equipment for environmental and energy benefits in the area of fuel cell technology.

A permanent Interactive 750 square foot Energy Exhibit at the Museum of Discovery in the capital city was designed and funded by the Arkansas Energy Office. An estimated 55,000 students will participate in the exhibit each year. The exhibit includes an entry kiosk providing energy geo games with 10 True/False energy facts followed by a brief explanation, a solar power lab/work table providing four-to-six solar energy experiments, an energy touch screen "How to build an energy efficient home in the State of Arkansas," a twin pedal generator, hydro power – renewable energy, energy efficiency, hydrogen exhibit to extract hydrogen from water, light emitting diode (LED) lamps with explanations of uses, and a mural on the surrounding walls telling the story of Arkansas energy source fuels.

An animated CD was developed to accompany the new edition of the 2003 Arkansas Energy Data Profile. The EDP compiles state consumption and production data for information dissemination and policy development purposes. The full Data Profile text and the animated CD will soon be available at www.1800Arkansas.com/energy. The CD is intended for use as an electronic learning aid for educational outreach.

Sustainable Arkansas Conference

The Sustainable Arkansas Conference is designed to introduce, inform and raise awareness in the building trades professions, community developers, and local and state leadership on the principles and applications of sustainable resource management as it relates to energy performance in buildings, local planning efforts and economic development. The AEO was the lead sponsor to the USGBC – Arkansas Organizing Chapter – Sustainable Arkansas Conference for Energy and Resource Conservation in buildings. The conference served as professional continuing education for architects and engineers.

The speakers, most of whom were national speakers included John Knott, Chairman of the Urban Land Institute's Coastal Region Roundtable, part of the South Carolina Smart Growth Initiative; Mark Bailey, USDOE, Group Leader for State and Community Programs in the Office of Energy Efficiency and Renewable Energy; Gail Vittori, Co-Director, Center for Maximum Potential Building Systems, Austin, TX; and Tia Henegan, Commissioning Agent for the Pentagon.



Florida Energy Office

Florida Department of Environmental Protection

<http://www.dep.state.fl.us/energy>

The Florida Energy Office is the central clearinghouse for the development and implementation of energy policy within Florida. The office coordinates energy conservation and energy efficiency projects, along with the research, development, deployment and commercialization of next generation technologies. The office also implements federal energy programs within the state.

In 2003, the Florida Energy Office moved to the Florida Department of Environmental Protection to spearhead Governor Jeb Bush's comprehensive initiative to secure Florida's energy future:

State Government Leading by Example

The purchasing power of state government is a potent force to expand the market for advanced energy technologies. Under the leadership of Governor Bush, state government will reduce energy consumption five percent annually, seek Energy Star designation for state office buildings and increase the number of hybrid gasoline-electric and other alternative fuel vehicles within the State fleet.

Expanding Savings to Families and Communities

Advanced energy technologies deliver financial savings and the promise of a brighter tomorrow for our communities and our schools. Front Porch Sunshine is delivering solar water heaters to underserved low-income communities across the state. Solar for Schools is bringing advanced energy technologies into the classroom through the installation of solar energy panels. Florida's SunBuilt program is integrating passive and active solar technologies into new home construction.

Modernizing Regulations and Regulatory Processes

As a national leader in clean energy technology, Florida is proposing legislation that would streamline and standardize building codes, siting requirements and permitting for hydrogen infrastructure. The Florida Energy Office is working with the State Fire Marshal, local government, fire marshals and industry to realize this goal.

Diversifying Florida's Economy

Florida is open for business for advanced energy technologies in biomass, "Clean Coal," solar and hydrogen. In 2003, Florida boasted a \$6 million state hydrogen program focused on providing risk capital for mobile and stationary technology partnerships and corporate recruitment. In 2004, Governor Bush called for a 150 percent increase in funding to place Florida at the vanguard of the hydrogen economy.

Georgia

Georgia Environmental Facilities Authority—Division of Energy Resources Sample of GA SEP Programs

City of Atlanta Assistance—In February 2003, with funding from the SEP program, the City of Atlanta hired a full-time research fellow who works closely with the City's Environmental Manager and City Council President to manage the daily operations of the Energy Conservation Program. Over the course of 2003, the City conducted a rate analysis of more than 600 electricity accounts, performed energy audits on two major facilities, reduced energy consumption at City Hall by 12%, coordinated an energy conservation training for City employees, hosted an educational Green Fair, distributed more than 300 energy efficient light bulbs (saving 32,000 kWh compared to regular light bulbs), developed an energy tracking system, incorporated energy efficient criteria in procurement and passed an ordinance requiring that all new city buildings incorporate energy efficient measures to save taxpayers money and protect the environment. Together these initiatives have saved \$455,000 in 2003 and permanently reduced the City's electricity bill by \$367,000. The efficiency upgrades at City Hall alone eliminated the emissions of 2,328,061 pounds of greenhouse gases.

EarthCraft House—Through the SEP program, GEFA supports the EarthCraft House program, which encourages homebuilders to build healthy, comfortable, affordable homes that cut energy and water bills and protect the environment. Homebuilders receive training on how to build more efficient homes, one-on-one design and construction advice and marketing materials. Many suppliers of environmental building products and services also support EarthCraft House, as well as national home programs such as Energy Star and Fannie Mae. Any size and type of site-built new home can be an EarthCraft House, and builders have great freedom in selecting which environmental measures are best suited for their projects. Currently, there are approximately 100 Atlanta-area homebuilders involved in the program. In addition to the \$145,000 that GEFA contributes, the program leverages an additional \$500,000 from both public and private entities. Program partners contribute approximately \$350,000 and include the Atlanta Journal-Constitution, Building America, DuPont Tyvek, Energy Star, Fannie Mae, Georgia-Pacific, Georgia Pollution Prevention Assistance Division, Home Depot, Icynene Inc., IDI Group, Keener Marketing, Packer Industries, The Real Estate Book, Tech Shield, and Whirlpool. HomeBuilders contribute approximately \$150,000 to the program. Additionally, the Atlanta Journal-Constitution supplies approximately \$500,000 of advertising for the EarthCraft House program for free.

Greenprints—Co-hosted by GEFA, the Greenprints conference brings together decision makers and practitioners involved in creating sustainable homes, workplaces and communities. The conference attracts more than 1,200 attendees and includes more than 25 sessions that address architecture, energy and transportation issues. With over 70 expert presenters, a Green Design Charrette, and a Green Tradeshow, attendees learn to take a "whole systems approach" to the built environment. In addition to the \$75,000 provided by SEP, the conference leverages approximately \$350,000 from other public and private organizations. Sponsors include: Georgia Power, U.S. Department of Energy, U.S. Environmental Protection Agency, Georgia Pollution Prevention Assistance Division, Beers Skanska Inc., Fannie Mae, Interface Research Corporation, Philips Lighting, CH2M Hill, Home Depot, DuPont Tyvek, Jacoby Development, The Turner Foundation, and 25 other private and non-profit institutions.

Agriculture—GEFA works with the University of Georgia College of Agricultural & Environmental Sciences to promote energy conservation in agriculture. The program provides

education, demonstration and general information regarding the efficient use of energy sources and focuses on the following: Application of Energy Saving Sprinkler Packages for Center Pivot Irrigation; Urban Irrigation Audits; Increased Efficiency in Poultry House Operation; Dimmable Fluorescent Lighting for Poultry Houses; Energy Saving Methods for Cotton Tillage; Energy Efficient Application of Agricultural Pesticides; Improved Energy Efficiency on Dairies Using Variable-Speed Drives; Energy Efficient Peanut Curing Demonstration; Decision Making Tools for Energy Efficient Precision Farming Management; and Energy Efficiency for Residential Structures in Rural Georgia. In 2002, the program saved 64,300,000 kWh, which approximates to 71,212 tons of CO₂, 107 tons of NO_x and 309 tons of SO₂.

Energy & Environment Initiative—With SEP Special Project funding, GEFA spearheaded an Energy and Environment Initiative in Georgia. A group of 10 state agencies, including the Georgia Public Service Commission, The Consumers Utility Council of Georgia and the Board of Regents of the University System in Georgia, successfully analyzed state agency programs to save energy and highlighted areas for partnership and collaboration that will help all state agencies address future environmental challenges. As a direct result of this collaboration, participating agency members have begun discussions on a NO_x Trading program for Georgia, submitted a consensus-based list of recommendations on energy to the new Governor, and proposed a project as part of the state Congestion Mitigation Air Quality (CMAQ) competitive solicitation. Additionally, GEFA was able to encourage agencies to institute energy savings programs of their own by showing Initiative partners the benefits other states had received by instituting similar programs. Interest was so great, that the Initiative is now focusing on programs that will focus on all state agencies. The Energy and Environment Initiative also reviewed and cataloged all current state agency efforts to reduce energy consumption and, through this process, was able to identify overlapping programs and gaps where no programs were addressing specific needs. The Initiative also yielded some unanticipated benefits by becoming a model for southeastern states looking to integrate the activities of their transportation, environment and energy offices. GEFA subsequently partnered with DOE, Atlanta Regional Office, to provide advice and training to other southern state energy offices in Mississippi, Kentucky and North Carolina on how to structure a working group of state agencies. GEFA has been encouraged by the progress of the Initiative and plans to continue holding the quarterly meetings that have formed and strengthened interagency cooperation.

HAWAII

State Energy Program Impacts

Model Energy Code Program

The Model Energy Code (MEC) for commercial buildings, alone, has saved consumers about \$78 million over the last nine years. Estimated 20-year total cumulative MEC impacts of statewide adoption are 2.4 billion kWh of electricity saved (enough electricity to power 16,000 homes), 4.1 million bbls. of oil displaced, 50 MW in peak demand reduced, and \$240 million savings for Hawaii's businesses and homeowners. Code compliance rate is an impressive 87%.

The passage of a revised MEC by the City and County of Honolulu in 2001 has saved consumers an additional \$1.25 million to date. The revised MEC for commercial buildings was primarily for lighting and air conditioning and for residential buildings primarily for ceiling insulation. It is expected to yield a cumulative savings of \$75 million by 2121. The State Energy Program (SEP) budget for the Model Energy Code and the Revisions to the City and County of Honolulu energy codes was \$437,004, which will result in: Total energy efficiency investment of \$97 million, or \$222 of energy efficiency investment for every \$1 of SEP funding.

Green Business Program

With our Green Business partners (Chamber of Commerce of Hawaii, Hawaiian Electric Company, Department of Land and Natural Resources, County Board of Water Supplies, and Hawaii Hotel Association), we developed a Water Conservation Card project. Letters were sent to Hawaii hotels, offering free generic water conservation cards. The cards invited guests to participate in a water conservation program for hotel linens. Current participation in the program is at about 15 percent of the total number of rooms statewide. It is estimated that at this level of participation, 25 to 35 million gallons of water could be saved each year.

Rebuild America Program

The award winning Rebuild Hawaii, a partner in USDOE's Rebuild America program, leverages public and private sector funds to support energy efficiency projects and programs throughout the State. To date, we have leveraged \$778,000 in SEP Special Projects grants and basic SEP funds to support projects totaling \$59.6 million in investment, including performance contracts. The impact of these programs includes saving \$9.7 million annually on utility bills; creation of 824 jobs; adding \$31 million in estimated income to the economy, and reducing CO2 emissions by 54,000 tons. The cost of the Rebuild Hawaii, energy performance contracting, and demand-side management programs, over the period 1997 to 2003, was \$778,000, which resulted in a total energy efficiency investment of \$266 million, or \$345 of energy efficiency investment for every \$1 of SEP funding.

Hawaii BuiltGreen™ Program

The building and construction industry in Hawaii is partnering with the State to promote energy efficient homes, thus saving homeowners thousands of dollars over the life of their homes. The industry also represents a large market and source for recycled and reusable products. The Hawaii BuiltGreen™ Program is a partnership with the Building

Industry Association of Hawaii (BIA); Hawaiian Electric Company; Honolulu Chapter of the American Institute of Architects; Hawaii Pacific Steel Framing Alliance and American Society of Interior Designers. This partnership has resulted in the promotion of the Hawaii BuiltGreen™ Program, a three-star rating system in which developers and architects rate their homes according to 258 energy and resource efficient features and appliances. With funding from SEP, the BIA developed a *Developers' and Architects' Users Guide to the Hawaii BuiltGreen™ Self-Certification Checklist*. For the consumer, we published *The Home Owner's Guide to Energy, Comfort, and Value*.

Energy Efficient State Facilities Program

The completion of a key study, State Facility Energy Upgrade Analysis and Performance Contracting Potential, Phase 1, provides essential information on current energy consumption in State buildings. The study found that the total electrical consumption for all State of Hawaii facilities is more than 688 million kilowatt-hours per year, at an annual cost of \$83.6 million. The study also found that 22 of the facilities studied have achieved between 10% and 25% energy savings through demand-side management programs sponsored by Hawaiian Electric Co., Inc., Maui Electric Co., and Hawaii Electric Light Co.

Solar Program

Through the SEP we have partnered with the Million Solar Roofs (MSR) Program to facilitate solar energy partnerships. MSR's public-private partnership leads all states and territories in installing solar systems: Over 18,200 solar systems have been installed statewide, many on military installations and housing, saving participants \$81 million dollars in projected electricity costs over the life of these systems.

The program is highly leveraged. Solar system purchases are funded by:

- **Direct payments by homeowners** - estimated investment by homeowners was approximately \$180 million in 2002 dollars;
- **Utility rebates** - about \$15 million between 1996 and 2001; and
- **Income tax credits from the State of Hawaii** - about \$150 million since program inception.
- **Overall leverage** - an estimated \$345 million has been invested in solar energy systems since program inception, with SEP funding support of \$500,000, ultimately leveraging greater than 600:1.

Details and information on our programs are available at: www.hawaii.gov/dbedt/ert

**STATE OF IDAHO
SUMMARY OF SEP ACCOMPLISHMENTS
JULY 1, 2002 TO JUNE 30, 2003**

General Information and Education:

The Idaho Energy Division responded to 2,200 calls on its toll free energy information hotline this fiscal year. Staff mailed out 6,070 publications. In addition, the division supplied 4,315 publications to nine portable energy information racks throughout the state. Idaho Currents, the quarterly newsletter, was printed four times, and seven other publications were updated and/or reprinted. In the next fiscal year, Idaho Currents will be available only in electronic version to reduce costs.

Alternative Financing Demonstration Program:

The energy conservation and renewable energy resources loan program completed 50 loans for \$304,885.00 during the last fiscal year:

Agriculture:

The division hosted the Pacific Northwest Society of Agricultural Engineers' conference in Twin Falls in October. The division made presentations at the Idaho Irrigation Equipment Association's seminar in Idaho Falls on January 8-9 and the University of Idaho's Cooperative Extension irrigation workshop in Montpelier on Jan. 24. Staff installed a total of 12 Hansen meters this year and downloaded soil moisture data for farmers involved in scientific irrigation scheduling. The division also sent out Keep-Up and ET information weekly to 14 participants. The division conducted a field day at Rexburg on June 17, in cooperation with the Fremont and Madison County extension educators. It loaned out nine more Hansen meters to other extension educators.

Renewables:

The division worked with the Department's GIS staff to develop wind power maps and various map layers, such as roads, transmission lines, etc. for wind resource assessment efforts, and identified 12 potential wind development sites on state-owned lands.

Idaho hosted the annual Harvesting Clean Energy conference in conjunction with the Idaho Ag Summit on Feb. 10 and 11.

The Department of Water Resources completed a plot file map of the geothermal resources in Idaho. All collected geothermal data were migrated to an Access® database. Existing information was updated and new data added. The geothermal website, www.idahogeothermal.org, was created and put on line.

The addition of vegetable oil to diesel is B-20 and it does result in lower emissions and reduced diesel consumption. A number of organizations, agencies and school districts

have signed on as partners in the B-20 Treasure Valley Project. Begun April 1, 2002, the program used 136,532 gallons of B-20 by August 31, 2003. In late September 2002, the division and the University of Idaho co-hosted the Bioenergy 2002 conference in Boise. More than 500 people from 30 different countries attended.

In this fiscal year, the Idaho Solar Information Booklet was updated and reprinted several times. The publication is a one-stop solar reference manual and is very popular with Idahoans contemplating the use of PV or solar thermal systems. The Idaho Solar Initiative brochure was also revised and reprinted several times. The Energy Division and the PV4You Solar Working Group hosted two 2003 teleconferences in Boise. These included the "Public Sector Solar Financing," on Feb. 19, and "Solar for Affordable Housing" on Apr. 16.

Buildings:

Fifty-four ENERGY STAR® Homes were rated and certified during the year. This compares to 40 homes rated and certified ENERGY STAR last year for a 35% increase. Twelve new builder partners joined the program.

The Idaho Real Estate Commission approved a new Realtor education program for continuing education credits. Staff conducted one class on June 19, 2003 at the Idaho Power headquarters. 24 Realtors attended.

Idaho continued to participate in the Northwest Energy Efficient Home™ Manufactured Homes Program, and took a leadership role in marketing to retailers and consumers and technical assistance to manufacturers. Idaho produced 754 certified energy efficient homes during the fiscal year.

The future home for the Energy Division, the Idaho Water Center, will be a commissioned building. The City of Nampa retro-commissioning project, the Ada County Courthouse commissioning project, and the Boise State University project have completed case studies and marketing pieces. All three projects have paybacks of less than eight years. A major revision of the commissioning section of the Energy Division website was completed.

Idaho leverages SEP public buildings energy conservation opportunities with the Rebuild America program. Rebuild Idaho continues to maintain momentum within its current partnerships and strides to build new successful partnerships among communities.

Iowa

Iowa Building Energy Management Program

Using Iowa's Building Energy Management Program, schools, local governments, hospitals and communities identify and implement all cost-effective energy management improvements with no upfront costs. The program, including the Iowa Energy Bank, the State of Iowa Facilities Improvement Corporation and Rebuild America, is a partnership between the public and private sector, offering government administration and private financing. This program has implemented \$200 million in energy efficiency improvements to date and has established energy coordinator positions in six Iowa communities.

Building Energy Code Education (BECE) Program

The goal of the Building Energy Code Education Program in Iowa is to increase local compliance with the State's commercial and residential building energy codes. In the past year, Iowa has helped communities in the adoption and enforcement of codes through a community-based approach. This has included a survey of 81 communities across the state to identify which have adopted and enforced codes, and identified barriers of adopting codes in communities that have not yet adopted building energy codes; plan reviews and field inspections of homes across Iowa to determine level of compliance with building plans with actual construction and building practice; development of a guide to assist communities with adopting and enforcing building energy codes; and the adoption of improved building energy codes in seven communities across the state.

High-Temperature Superconductivity Outreach

The goal of the high-temperature superconductivity (HTS) outreach project is to inform interested stakeholders in the Upper Midwest about the potential benefits of this new emerging technology for the electric power sector. Electric power sector applications have the potential to make the electric grid more efficient and reliable. The technology is still in a research and development phase, but commercially viable applications are expected to enter the market between 2005 and 2010. The Department will prepare a presentation and informational materials about HTS technology, its applications for the electric power sector, the status of the technology development efforts and potential benefits of the technology.

Industries of the Future

Iowa Industries of the Future is a cooperative effort with Iowa companies to develop and deliver advanced technologies and best practices that increase energy efficiency, improve environmental performance and boost productivity. The Department has collaborated with the U.S. Department of Energy, the Center for Industrial Research and Service at Iowa State University and the Iowa Energy Center to prioritize goals and strategies in this regard for the Metal Casting and Bio-based Agricultural Products industries. The Department and its partners are currently working on two new Industries of the Future, Food Processing and Water/Wastewater Processes. Currently steering committee meetings are being held to develop Iowa's Vision & Roadmap for these industries.

FY2004

SEP Formula	DOE	\$624,000
SEP Special Project Grants	DOE	
Rebuild 04 - Special Project		\$100,000
BECE 8 - Special Project		\$ 66,203
High Temp - Special Project		\$ 94,000
IOF 04 - Special Project		\$100,000
Total Grants		\$360,203



Kentucky Division of Energy – State Energy Program

The division provides leadership to maximize the benefits of energy efficiency and alternative energy through awareness, technology development, energy preparedness, and new partnerships and resources. To accomplish this, the division leverages State Energy Program (SEP) resources through state, public and private partnerships. These partnerships help improve energy efficiency, stimulate private investment, retain/create jobs, improve air quality and advance quality of life.

Renewable Energy:

Alternative Fuels – A report from Murray State University predicts that if all diesel vehicles in Kentucky switched to a five-percent blend of biodiesel made from soybeans, the income from Kentucky's soybean crop could increase by \$160 million. The division helps fund a director for the Kentucky Clean Fuels Coalition (KCFC), which coordinates alternative fuel projects throughout the Commonwealth. In addition to an ethanol workshop and a biodiesel showcase in the state capital, KCFC and the division have helped switch vehicles and equipment to alternative fuels in 11 Kentucky school systems, Mammoth Cave National Park and Carmeuse Lime Mine. The division also provided a grant to support the creation of a biodiesel delivery and storage infrastructure in western Kentucky and parts of the surrounding states of Tennessee, Missouri, Illinois and Indiana. Projects are also being coordinated at Fort Knox Military Reservation, Schwann's Fine Foods and the cities of Louisville, Park City and Hopkinsville.

Wind – Two 50-meter towers at sites in eastern Kentucky are providing data that will indicate whether the sites are economically feasible to provide wind energy. The division is working with East Kentucky Power Cooperative and AWS Scientific. A report from the monitoring data will be available in early 2004.

Biomass – The division is working with the University of Kentucky's Department of Mining Engineering and the Center for Applied Energy Research to help the mining and timber industries utilize their waste materials as premium fuel.

Solar – Six Kentucky schools are installing photovoltaic panels to help reduce electricity demand and provide valuable learning opportunities for students. This project is supported through a partnership grant between American Electric Power, National Energy Education Development (NEED) Project and the division.

Energy Efficiency in:

Government – The division provides technical assistance to state agencies to reduce energy costs in government buildings. A Performance Contracting Team was created to assist state agencies; \$15 million worth of Energy Savings Performance Contracts (ESPC) have been identified and \$7 million are under contract. The division is providing staff assistance on nine ESPC projects in government, university and college facilities, and has co-sponsored a workshop for top managers from Lexington-Fayette Urban County Government to help reduce its energy costs.

Schools – A 10-percent savings on Kentucky's K-12 public schools' energy bills would make \$10.7 million available for other needs. The division has provided funding for energy managers in the Kentucky Department of Education and the Fayette County public school system. The division also co-sponsored a workshop on high-performance schools that was attended by 150 school superintendents, facility planners, school board members, engineers and architects from across the state. The division also organized and coordinated a tour of high-performance schools in North Carolina for 17 Kentucky school officials, architects and engineers.

Homes – Eleven one-day workshops on Building the High Performance Home were funded by the division and attended by more than 500. The division also provided funding for the Louisville Metro Air Pollution Control District to coordinate a project to design a high-performance six-unit apartment building as a prototype for a redeveloped public housing project.

Industrial Energy Efficiency: A two-and-a-half-day training was co-sponsored by the division on developing an Industrial Assessment Center in Kentucky to support the Commonwealth's industrial and manufacturing needs. The training was coordinated by the Kentucky Pollution Prevention Center at the University of Louisville to help it determine the feasibility of housing the center at U of L. The division and Secat Inc., located at the University of Kentucky Research Farm, hosted a two-day workshop on energy efficiency in process-heating applications, tailored specifically for the aluminum industry. Since 1999, the division has successfully initiated more than \$15 million in industry-directed, cost-shared research and development projects involving Kentucky companies, universities and national laboratories.

ENERGY STAR: The division received a 2003 national ENERGY STAR award for its efforts at forging a strong ENERGY STAR partnership network of retailers, manufacturers, utilities, home industry professionals and others.

Cooperative Extension Service – Through a grant provided by the division, the University of Kentucky Cooperative Extension Service is providing ENERGY STAR information statewide through its network of county extension agents. Beginning with the Kentucky State Fair, extension agents learned about ENERGY STAR products and shared their knowledge with exhibit visitors. GE Appliances, Clayton Homes, Thomas Lighting, Lowe's, Fischer Group, Osram Sylvania and Champion Windows contributed to the exhibit. The exhibit focused on ENERGY STAR lighting, construction and appliances and is being featured at home and garden shows, builders' conferences and other venues throughout the Commonwealth. More than 75 Kentucky ENERGY STAR partners participate in coordinating meetings hosted by the division.

Change a Light, Change the World – With support from the division, the Midwest Energy Efficiency Alliance recruited 14 Ace Hardware Stores in Kentucky to participate in the national ENERGY STAR *Change a Light, Change the World* campaign. More than 21,000 compact fluorescent lights were sold; the savings represent the electrical energy to power 113 homes for seven years.

Energy Education and Information:

NEED – The Kentucky NEED (National Energy Education Development) Project, a nonprofit organization that focuses on teaching students and teachers about energy, hosted the summer 2003 Kentucky Energy Conference for Educators. Teachers learned about all aspects of energy and toured the region's energy resources. Fifteen fall workshops in all Kentucky Department of Education regions provided energy education to 200 teachers and more than 1,000 students. NEED also honored six Kentucky schools for outstanding leadership and achievement in energy education at the Kentucky NEED Youth Awards ceremony.

Kentucky Energy Watch – A weekly bulletin of national and state energy news, including an update of energy prices, is sent electronically to more than 400 subscribers. A special issue, addressing rising natural gas costs, provided tips for facilities managers to reduce their natural gas consumption.

Partners:

We have well over 100 active partner organizations throughout the Commonwealth and we strive to build new partnerships. These partners include individuals, farm organizations, civic groups, industries, retailers, utilities, home builders, manufacturers, universities, schools, professional organizations, municipalities, non-profit organizations, county, state and federal government agencies.

State Energy Program Grant – U.S. Department of Energy			
Funds Available and Match – Kentucky Division of Energy			
\$millions	Federal Resources	State and Partner Match	Match Percentage
FY 2002	\$3.753	\$1.151	31%
FY 2003	\$2.778	\$.819	29%

Louisiana

Residential: The Louisiana Department of Natural Resources, Technology Assessment Division, Energy Section has a very unique program called the Home Energy Rebate Option Program (HERO). HERO offers a cash rebate of up to \$2,000 to Louisiana homeowners that build or retrofit their homes to meet a high level of energy efficiency.

Staff members train, certify, and provide quality control over more than 50 home energy raters throughout the state. The program is accredited through RESNET. Louisiana Home Energy Raters are private sector entities that operate independently through funds charged to the homeowner for the energy rating.

Since the start of the HERO Program in September 1999, over 10,000 homes have participated in the program. The chart below shows the accumulated average savings attributed to the homes that have gone through the program. The per home savings are for an average of 20 years per home.

	Accumulated Utility \$ Saved by Homeowners	Accumulated MMBtu Saved	Accumulated Lbs. NOx Saved	Accumulated Lbs. CO₂ Saved
After 20 Years for all 10,000 homes	\$104,816,000	8,000,000	4,600,000	2,071,400,000

The LADNR, ERHL, HERO Program has won the EPA's Energy Star high achievement award for the past two consecutive years.

Institutional: The Energy Fund is a public-private cooperative endeavor that provides publicly funded entities the low-cost, third party, budget neutral financing necessary to implement energy and water saving performance contracts. In its simplest form, the Energy Fund is an interest rate buy-down program available to any publicly funded entity in Louisiana. This model provides us the flexibility to structure projects with bond financing, certificates of indebtedness or tax-exempt leases at below market rates.

Under the umbrella of the State Energy Program, the United States Department of Energy has approved the use of \$5 million of petroleum violation escrow funds to launch this program. With the assistance of our private partners, we have leveraged about half of these funds to implement 10 projects totaling \$20 million. An additional \$20 million in projects were implemented without the benefit of a subsidy. Of the projects that we directly funded, 120,000,000 MBTUs in annual energy savings are guaranteed under the performance contracts. In excess of \$30,000,000 are guaranteed to be saved over the life of the contracts. On an annual basis 61 tons of SO_x, 41 tons of NO_x, and 14,000 tons of CO₂ emissions will be reduced as a result of these projects. In addition to funding assistance we provide model RFPs, contract documents, measurement and verification assistance, as well as hands on customized assistance to anyone requesting help with any part of the process.

Industrial: Louisiana Industries of the Future Teams (LIFT) funded by Special Projects IOF awards has resulted in forming a group consisting of 28 chemical, eight petroleum, four forest product and 19 other manufacturing companies.

LIFT has held several “Best Practices” Steam and Compressed Air training courses and plans are to continue the “Best Practices” training through the State Energy Plan. It is estimated that the 20 companies implementing the measures due to training will save 1.02 trillion Btus annually.

The Louisiana IAC, located at the University of Louisiana at Lafayette, is one of 26 centers supported by the Department of Energy. On average, IAC assessment recommendations that are implemented wind up saving a facility about \$83,000 annually (Louisiana IAC has averaged more than 156,000 annually). The Louisiana IAC has done 86 audits over the past three years including one at a Shell refinery with the estimated savings being \$62 million.

Renewables: The Renewables Council of Louisiana established by the State Energy Office and in collaboration with the Departments of Economic Development, Agriculture and Forestry and Environmental Quality, have held informative conferences to attract private industry and moved to establish it as a non-government entity driven by business. Forty-five companies are now members and steps are being taken to incorporate as a non-profit group. The group will direct the legislature’s and the Public Service Commission’s attention to impediments to expansion of renewable resource use.

Energy Codes: Utilizing Special Project funds, Louisiana formed an advisory committee and began the task of getting a statewide energy code enacted. In 1997 the Louisiana Legislature passed the Commercial Building Energy Conservation Code. Based on ASHRAE 90.1-1989, the code applied to all new commercial buildings constructed in the state.

Effective January 1, 2004, the State of Louisiana adopted the IBC 2000 as its Uniform Construction Code. Since the IBC 2000 states that, “the provisions of the International Energy Conservation Code shall apply to all matters governing the design and construction of buildings for energy efficiency,” we are presently following the IECC 2000. COMcheck-EZ is the accepted method of showing compliance with the Code.

Results of Louisiana Commercial Building Energy Code	
	Ten Years From Passage
Energy Savings	323 Billion BTU Annually (equals 2.5 million gallons of gasoline)
Utility Bill Savings	\$4 Million Annually
Pollution Reduction	113 Million Pounds of CO ₂ Annually (equals emissions of 54,249 cars)

Transportation: SEP and Special Project funding has provided support for three coalitions in Louisiana. The Greater Baton Rouge Clean City Coalition has received two special project grants. Baton Rouge has had two major milestones recently, the purchase of six CNG trolleys and the opening of a new CNG fueling facility. The clean city programs are listed as voluntary measures in the State Implementation Plan for Baton Rouge and the Early Action Compacts for Shreveport and New Orleans.

STATE OF MAINE

MAINE's State Energy Program (SEP), a Division of the Maine Public Utilities Commission, provides information on energy efficiency and renewable energy, technical assistance, and appropriate referrals to Maine businesses and homeowners. The Program assists other organizations in applying for Department of Energy efficiency and renewable energy grants. The SEP continues to explore innovative ways to provide needed services to constituents while increasing overall energy savings in the State.

In addition to the programs described above, the following actions have been taken to promote the more efficient use of energy in Maine.

- The Legislature has enacted two recent bills – one requiring the State of Maine to achieve a 25% reduction in energy usage in State facilities, and the second establishing a Clean State Initiative that requires strict compliance with environmental regulations and includes objectives for recycling and energy efficiency.
- Maine has established a renewable resource portfolio requirement of 30% for retail electricity products included in the electric restructuring act, which is generally viewed as a policy encouraging renewable sources of electricity.
- The Maine Legislature established The Energy Resources Council in 2002 to facilitate more effective interagency coordination of State activities related to energy (Sec. 1.5 MRSA c.313-A). The Council is directed to address energy issues of state-level significance that involve or affect more than one agency. Council members include: the Director of the State Planning Office, the Chair of the Public Utilities Commission, The Commissioner of Environmental Protection, the Public Advocate, the Commissioner of Transportation, the Commissioner of Administrative and Financial Services, the Commissioner of Economic & Community Development, the Commissioner of Conservation and the Director of the Maine State Housing Authority. The Council is chaired by the Governor's Director of Energy Independence.
- Free Energy Audit Program - The Division provides up to 150 small business and light industrial energy audits per year. In addition to the small business energy audits already completed, we are conducting follow-up activities to ensure that ideas generated and information provided as a result of the audits were of value to Maine's small businesses.
- Energy Efficiency Loan Program for small businesses - This program provides low interest loans up to a maximum of \$35,000 to small businesses at a current (as of 12/03) interest rate of 3%, to pay for implementation of State Energy Program-recommended energy conservation measures. The outcomes of this program include measurable energy, environmental and cost savings, and improved comfort and productivity for Maine's businesses.

An important part of the State Energy Program's work is accomplished through D.O.E. Special Projects grant awards. A few examples of how special projects funds have helped Maine are listed below:

BUILDING TECHNOLOGIES

Maine received a \$100,000 special projects grant to allow us to work at establishing voluntary building standards, which local code enforcement officers have expressed an interest in

obtaining. Builders and contractors will be interested in this program of voluntary standards as well, as they work with banks to establish mortgages geared to energy efficient housing.

In addition, we have scheduled a series of workshops, which will present the voluntary building standards designed under the \$100,000 grant mentioned above. These workshops are designed for professionals in Maine's residential construction industry and will be presented at five of the Maine Community College campuses.

Builders, designers, architects, engineers, realtors, real estate appraisers, bank loan officers, code enforcement officials, energy auditors, home inspectors and owner-builders will gain valuable information about Maine's Energy Code, performance building and using energy efficiency to enhance their businesses.

INDUSTRIAL TECHNOLOGIES

Grants from the Department of Energy, totaling \$696,000 over the past four years, have been used to lay the foundation of a sustainable Maine Industries of the Future Program. In April of 2001, then-Governor Angus King signed a Memorandum of Understanding between Maine and DOE memorializing Maine's commitment to this program. This program will play a key role in the state's efforts to enhance the productivity of energy intensive industries in Maine by providing access to federal Department of Energy Office of Industrial Technologies (DOE/OIT) and state resources which will help these industries reduce energy, waste, and prevent environmental pollution.

TRANSPORTATION TECHNOLOGIES

A total of \$345,000 in Department of Energy grants will allow the Greater Portland Council of Governments' Clean Cities Coalition to develop compressed natural gas fueling infrastructure at Greater Portland METRO. The Greater Portland METRO has a new General Manager with experience and confidence in CNG buses. Other area fleet operators are eager to take advantage of a CNG fueling facility as well. The facility will be open to the public and equipped with a universal card reading system.

In addition, these grants will provide the incremental cost of the first five (5) new dedicated Compressed Natural Gas low-floor transit buses for the Greater Portland METRO. SEP Special Project funding is critical to the success of creating Maine's first CNG powered fleet.

State of Maryland Executive Department
MARYLAND ENERGY ADMINISTRATION

ROBERT L. EHRLICH, JR.
Governor



MICHAEL T. RICHARD
Director

MICHAEL S. STEELE
Lieutenant Governor

Maryland State Energy Program

The Maryland Energy Administration (MEA) received \$809,000 for the 2004 SEP formula grant, making it possible to leverage the remainder of its \$5.1 million budget (state, special, and other federal funds) to benefit the state. This 7-to-1 ratio does not include matching funds from the various grants and shows the importance and strength of the State Energy Program.

ENERGY STAR®

MEA is working with the DOE and the EPA to promote **ENERGY STAR** products in Maryland through the Maryland ENERGY STAR Program. This program includes promoting the Maryland Clean Energy Incentive Act, a set of Maryland tax incentives for energy efficient and renewable energy products that help reduce energy costs for Maryland residents. The \$1 million funding made available through the settlement of the Pepco/Conectiv merger provided resources for marketing ENERGY STAR appliances, lighting and lighting fixtures, heating and cooling equipment and new homes. Governor Robert L. Ehrlich, Jr. and MEA launched the consumer education program in early 2004. MEA also is joining manufacturers, retailers, utilities and consumer and environmental groups to form the Maryland ENERGY STAR Partnership Initiative, to spur collaboration and leveraging of resources to promote the ENERGY STAR label and their market sector's ENERGY STAR labeled products. A cooperative advertising strategy will be developed from the Partnership.

Industries of the Future

Maryland Industries of the Future (MIOF) is a partnership between state businesses, the Maryland Energy Administration, the state Department of Business and Economic Development and the Office of Energy Efficiency and Renewable Energy within the U.S. Department of Energy. MIOF targets issues of concern to Maryland businesses and provides local access to DOE-developed software tools, technical assistance and materials. The program also leverages corporate interests and resources with university research facilities to bring in federal funds for research and development projects in industrial energy efficiency. MIOF's mission is to assist Maryland industries in saving energy, reducing waste and increasing productivity. At the conclusion of the third year of the MIOF Program, 12 manufacturing facilities have received free energy assessments, 10 companies have received training in energy efficiency best practices and more than 100 companies have participated in the program. One company identified four technically and economically viable projects with a combined savings of \$840,000 in energy costs per year. Another identified \$1.2 million in annual energy savings. And MEA worked with another to prepare a proposal for the U.S. DOE. The proposal was selected and that company will receive more than \$2 million in funding for an energy research project. MIOF has also helped MEA to partner with the University of Maryland Center for Environmental Energy Engineering, resulting in the University of Maryland's selection to host the Mid-Atlantic Regional Center for Combined Heat and Power. The center will work with businesses and institutions to identify opportunities for cogeneration and on-site power generation. It will open early this year.

Energy Performance Contracts

Energy Performance Contracting (EPC) is a program that leverages energy, operational and water savings in state facilities to provide infrastructure improvements allowing capital dollars to be used on other projects. These improvements are paid for through guaranteed energy savings. In 2003, MEA completed three EPCs, with capital costs of more than \$14 million and total savings of more than \$1 million. This brings the total projects completed to 15 with an annual energy savings of almost \$7 million. With MEA's assistance, six local governments have received or are pursuing EPCs.

The State Agency Loan Program

The State Agency Loan Program (SALP), a revolving loan program, was established in 1991 with funds from the Energy Overcharge Restitution Trust Fund. MEA provides loans to State agencies for cost-effective energy efficiency improvements in their facilities. In Fiscal 2003, SALP loaned State agencies almost \$1 million for such projects, which MEA calculates will save more than 13 billion BTUs and \$119,317 annually. In Fiscal 2004, MEA has budgeted \$1 million to continue offering SALP. In Fiscal 2003, SALP loan agreements were signed by:

- The University of Maryland Baltimore County, for \$800,000. UMBC will replace two Central Plant boilers with energy-efficient ones. Completion is expected in mid-2004.
- The University of Maryland Center for Environmental Science Chesapeake Biological Laboratory, for \$135,910. This project will install energy-efficient lighting and air conditioning throughout the campus. Completion is expected in summer 2004.
- DHMH's Springfield Hospital Center, for a \$30,000 loan amendment to cover the increased cost of its EPC. The project was completed in March 2003. It utilized \$280,000 in SALP funds.

Solar Schools

Funds are available through MEA's Maryland Solar Schools Program to partially supplement the costs of photovoltaic solar energy systems for Maryland schools. MEA provides \$4,000 toward the cost of a minimum 1 kW grid-tied photovoltaic system. Schools must identify the funding source for the rest of the cost, which range from \$6,000 to \$10,000. The program introduces younger Marylanders to renewable solar energy.

Energy Emergency Planning

MEA conducts a survey for the Energy Information Administration of the Department of Energy to identify potential supply problems. Each week of the winter heating season, MEA communicates with more than 50 heating oil and propane companies to determine if any are experiencing supply disruptions. MEA also provides information to the Department of Energy's Office of Energy Assurance and sends a weekly update to the Maryland Emergency Management Agency regarding the supply status of all fuels in the state.

MEA participates in biomass-to-energy programs through its membership in the Northeast Regional Biomass Program (NRBP). The NRBP, which is managed by the Coalition of Northeast Governors (CONEG), consists of representatives of all eastern states from Maine to Maryland. MEA works with such organizations as the National Biodiesel Board and the Maryland Corn Growers to identify and implement programs that can use biomass materials to produce energy products.

Tax Credit Programs

In November 2003, MEA launched the **Green Building Tax Credit** to provide a financial incentive for developers to construct or retrofit commercial buildings to make them resource and energy efficient. The program was adopted by the General Assembly in 2001 with a total allocation of \$25 million through 2011 and enables developers to offset the higher cost of design and construction associated with green

buildings. In 2003, SEP allowed MEA to leverage \$1 million from the state in support of green building projects. To date, the tax credit has encouraged projects totaling \$34 million.

Through June 30, 2004, Maryland is offering a **sales tax exemption** on certain ENERGY STAR labeled appliances and **an excise tax exemption** on the purchase of electric and hybrid vehicles. A tax credit is offered through 2004 to individuals and corporations that use a qualified energy resource to produce electricity, such as solar panels, chicken waste and landfill gas.

Loan Programs

The **Community Energy Loan Program** (CELP), authorized in 1989 with \$3.2 million in seed money, provides local governments and nonprofit organizations in the state a chance to reduce operating expenses by installing energy conservation improvements. CELP allows borrowers to use the cost savings generated by improvements as the primary source of revenue for loan repayment. To date, 42 loans have been made, providing more than \$9.1 million for energy efficiency improvements and saving municipalities \$2.05 million. In Fiscal 2003, three projects were initiated, providing an annual savings of \$124,750. In Fiscal 2002, four projects provided an annual savings of \$186,000.

The **Energy Efficiency and Economic Development Loan Program** (EEEDLP) was funded with \$2 million in seed money. The program provides Maryland-based businesses the opportunity to reduce operating expenses by installing energy efficiency and conservation improvements. The program allows borrowers to use the cost savings generated by the improvements as the primary source of revenue for repaying the loans. The program currently funds approximately \$500,000 in new projects each fiscal year.

Clean Cities

The **Metropolitan Baltimore Clean Cities** program is managing \$1.2 million in special projects grants. One million dollars is going to CSX for a demonstration project to reduce emissions and fuel consumption. CSX added \$1.5 million, for a total of \$2.5 million leveraged by the State Energy Program. This year, the total leveraged through the State Energy Program was \$2.7 million.

Michigan Energy Office Program Priorities

State Facilities Program

- Analyze energy-saving opportunities in state facilities; help facilities upgrade via performance contracts. In three years a Capitol Complex project has saved \$1.2 million in energy costs & nearly \$700,000 was in net savings to the State.
- Certify annual energy cost avoidance in state facilities. The average annual cost savings is \$309,000 and total cost savings since FY'94 is nearly \$2.5 million.
- Publish The Energy Observer - a quarterly technical bulletin for facility managers.

Michigan Industries of the Future Program

- Help energy intensive industries access federal technical and financial resources through the Michigan Industries of the Future program

Rebuild America/Rebuild Michigan Program

- Provide grants to 5 community partners to promote local energy efficiency, to upgrade buildings and to develop community resources for renewable energy generation
- School & local government energy services (energy analyses, loans for building studies & project help) have been incorporated into Rebuild Michigan

Consumer Education & Energy Education

- 2003 attendance at energy efficient home seminars and tours - 2400
- Statewide Energy Star program includes Small Business Assoc. of Michigan, environmental organizations, Michigan Interfaith Power & Light and others
- Annual grants to five builders to build and promote Energy Star homes
- Energy education grants to provide training and materials to teachers

Clean Cities/Alternative Fuels Program

- Promote alternative transportation fuels, alternative fuel vehicles & infrastructure development in designated metropolitan areas –Ann Arbor, Detroit and Lansing

10 kW+ Photovoltaic Demonstrations

- Demonstrations completed at Michigan State U. and Oakland U.
- New demonstrations at Calvin College, Western Michigan U., & City of Troy

Wind Working Group

- Two wind town meetings recently conducted
- Developing siting standards for wind generators

Biomass Energy

- In past 5 years, awarded \$350,000 in federal funds to universities and non-profits, and leveraged about \$900,000 of additional project support
- Staff the Ethanol Coalition of Michigan (formerly Ethanol Working Group)



MINNESOTA DEPARTMENT OF COMMERCE STATE ENERGY OFFICE

The Minnesota State Energy Office (SEO) works to promote the benefits of energy efficiency and renewable energy to consumers and businesses in Minnesota. The SEO accomplishes this via education, securing federal funding for projects and bringing together government, business, non-profit and higher education stakeholders on projects beneficial to Minnesota. In 2003, the SEO was responsible for winning over \$1 million in competitive grants for Minnesota businesses to deploy new energy saving technologies.

CONSUMER EDUCATION

Energy Information Center

The Energy Information Center promotes energy conservation and renewable energy to Minnesota consumers and businesses through almost 100,000 contacts annually by telephone, web site, email, tradeshows, classes and public presentations. The Info Center offers dozens of energy conservation publications and distributes more than 136,900 publications and CD-ROMs annually. The Info Center distributes a quarterly electronic newsletter highlighting the SEO's activities to more than 1,000 subscribers.

ENERGY STAR

The Department of Commerce is an ENERGY STAR partner, and encourages households and businesses to be energy efficient consumers by purchasing ENERGY STAR labeled appliances, office equipment and other available products. In 2003 a Minnesota utility was named an ENERGY STAR partner of the year. Each October the SEO promotes the Change A Light, Change the World program by offering a significant rebate that encourages households to use compact fluorescent lightbulbs.

TRANSPORTATION

Ethanol Fuel Network

As a member of the Twin Cities Clean Cities Coalition (TC4) the SEO promotes the use of alternative fuel vehicles which use E85 (85 percent ethanol). Via our work with TC4, Minnesota is number one in the nation in deploying E85 fueling sites with more than 80 stations operating at the end of 2003. This represents nearly half the E85 stations in the United States.

BUSINESS SECTOR

Builder Education

The SEO offers design assistance, industry education and continuing education workshops to the building industry. In addition to builders, the SEO also works with multifamily buildings and with schools on indoor air quality issues.

Commercial & Industrial Programs

The SEO's Commercial & Industrial program focuses on outreach activities that improve systems identified in the DOE's Office of Industrial Technologies Best Practices program. The C & I program assists utilities and state technical assistance organizations with outreach efforts, including funding opportunities and workshops. The C& I program also promotes emerging energy technologies, such as fuel cells and biomass technologies, through workshops and demonstrations.

Industries of the Future

In 2002, the SEO launched an energy efficiency initiative with Minnesota's mining and forest products industries via the Department of Energy's Industries of the Future program. The program works to identify new ways to bring improved industrial competitiveness to these critical Minnesota industries.

RENEWABLE ENERGY

Wind Energy

Since 1982 the SEO has monitored Minnesota's wind resources and annually produced a variety of detailed wind maps and public data sets to advance wind energy development. Today, the state is a leader nationally for producing wind energy, ranking first for installation during 2003 and third nationally for wind energy development.

Solar Energy

The SEO began a solar resource assessment program in 1998, with monitoring stations at schools and environmental learning centers. The SEO uses federal funds to manage a solar rebate program that has resulted in a 70 percent increase in solar electric installations in Minnesota.

Hydrogen

The SEO is one of the founding members of the Minnesota Renewable Hydrogen Initiative, a growing partnership of more than 200 industry, university, government and non-profit organizations. The Initiative is working to promote the production and use of hydrogen and fuel cells in Minnesota and help develop associated jobs and businesses. The Initiative has set a goal of becoming a national leader in renewable hydrogen production by the year 2010.

SEO Contact Information:

Janet Streff, Manager, State Energy Office, 651-297-2545

www.commerce.state.mn.us

MISSOURI

Schools and Local Governments Loans

The Missouri Energy Center offers low-interest loans to publicly owned school districts, colleges and universities and local governments. The loans finance energy-efficiency improvements that have saved these public entities approximately \$52 million since the program's inception. To date, we've provided more than 350 loans under the program. The loans provide especially important assistance during these times of tight budgets and declining state funding for schools.

Utility Rate Cases

The Missouri Energy Center's energy and environment integration initiative (supported by the State Energy Program and SEP Special Projects funds) has leveraged significant benefits. Working closely with Missouri's utility regulatory commission, the Energy Center intervened in several utility rate cases. As a result, utility companies have agreed to invest more than \$8.5 million during the next four years to fund residential and commercial energy-efficiency programs for customers, including low-income weatherization assistance. Other initiatives include market transformation campaigns that encourage consumers to use compact fluorescent bulbs and high-efficiency refrigerators, commercial energy audits and Schools Going Solar. The success of this energy and environment integration initiative goes beyond energy savings and environmental benefits. The working relationships established with energy regulators and Missouri utilities are the foundation for future efforts that benefit Missouri citizens.

Wind Measurement

To accelerate the initial stages of wind project development, an accurate and reliable assessment of Missouri's wind resources is essential. As a result, the Missouri Energy Center engaged a consultant to complete a modern, high-resolution wind assessment. We've also loaned 10 wind anemometers to property owners in parts of Missouri with the greatest wind resource. We will use the data from the new wind maps and the on-site anemometers map to encourage utility companies and property owners to install wind turbines for electricity generation. This provides Missouri the opportunity to diversify its energy resources, produce a new income stream for the rural economy and reduce emissions of air pollutants from combustion of fossil fuels.

St. Louis Zoo Technical Assistance

The Missouri Energy Center is working with the St. Louis Zoo to identify and implement water and energy conservation measures that will reduce zoo expenses and conserve natural resources. This partnership with the Zoo is part of our Rebuild America efforts, which also includes work with a St. Louis-area school district and the Kansas City School District. The Zoo energy audit identified nearly \$80,000 in annual energy savings with a simple payback of three years to implement the energy-efficiency projects. As a result of our Rebuild America effort, the St. Louis area school district is carrying out energy efficiency projects that will save nearly \$400,000 each year in energy costs.

Biodiesel Revolving Fund

The Missouri Energy Center helps increase the use of biodiesel in vehicles owned by state agencies. We sell alternative fuel EPart credits accumulated by state agencies. The monies earned by the credit sales offset the incremental cost of biodiesel over regular diesel. To date, we've realized \$202,000 from EPart credit sales, which will help state agencies purchase and use approximately 1.3 million gallons of B-20 fuel for the state fleet.

Poultry Litter Burner Demonstration Project

The State Energy Program also helps us find energy solutions to environmental problems. We are demonstrating the operation of furnaces that burn poultry litter. The heat generated by the furnaces is used to heat the poultry houses themselves. Calculations suggest that the Btu content of the litter produced in a broiler house each year is very close to the house's energy needs for a year. Thus, the use of poultry waste as a fuel source will save poultry growers significant propane costs. In addition, this beneficial use of waste will help growers avoid excessive land application of poultry litter. The nutrients in the litter pollute nearby streams and lakes in southwest Missouri.

Change-A-Light, Change the World

Change-A-Light, Change the World project offers consumers the opportunity to get significant rebates on energy efficient compact fluorescent lightbulbs (CFL's). The project utilizes targeted rebates, advertising, point-of-purchase materials and Energy Star promotional materials to raise public awareness about energy efficiency and to train Missouri retailers about the value and sales of Energy Star products. Energy Star CFL's last as long as 10 incandescent bulbs and cut energy and lighting cost by up to 75 percent. This market transformation campaign, conducted in five Missouri cities in 2003, met with overwhelming success.

Missouri Department of Natural Resources
Energy Center
January 23, 2004

Montana State Energy Program and Special Project Activities

Building Energy Code Support

Montana will adopt and begin implementation of the 2003 International Energy Conservation Code in 2004. This code is a significant improvement over the existing state energy code. A series of statewide training sessions on the new code will be provided to building code officials, builders and the design community through funding support from a DOE – Special Projects grant award. Program activities include conducting workshops, providing on-site assistance to code officials on code compliance and development of a code training manual.

State Buildings Energy Conservation Program

The State Buildings Energy Conservation Program (SBEP) reduces operating costs in state facilities by identifying and funding energy efficiency projects in state-owned buildings. Montana sells general obligation bonds to fund project costs, and the savings resulting from the energy improvements repay the debt service on the bonds. Once the bonds are retired, the state continues to realize savings over the life of the improvements. Since the start of the program, over \$7.5 million in general obligation bond proceeds have been used to fund 60 projects. In FY03, approximately \$950,000 in energy cost savings was realized from all project activities. The SEP Program provides support for engineering and technical services to SBEP.

Rebuild Montana Partnership

Rebuild Montana works with public buildings, multi-family housing, schools and local governments to identify energy-efficiency improvements in buildings and develop plans for implementing the saving opportunities. A variety of technical assistance services, such as reviewing and evaluating energy performance contracting bids, accessing financing options for energy retrofit projects, etc., are provided to program partners. Current projects include a multi-family housing partnership that is transforming a historic downtown hotel into low-income apartments and retail space, providing building commissioning training and technical assistance to schools, and reducing energy costs in state government buildings through energy retrofits. The Rebuild Montana program has completed partnerships on over 2 million square feet of building space with an investment of \$11.5 million in energy efficiency improvements by program partners.

Residential Housing Market Transformation

The SEP program provides funding to transform the market for energy efficient housing in Montana. Program activities include conducting on-site workshops with builders and sub-trades to promote energy efficient construction practices through the demonstration of diagnostic tools such as blower doors, infrared thermography and duct tightness testing. Consumer training sessions focus on transforming the market for energy efficient housing by promoting the benefits of Energy Star building standards and a \$500 state energy conservation tax credit for new and existing homes that are built above current code. DOE funding is leveraged with an equal amount of non-federal funding from the Northwest Energy Efficiency Alliance.

Greater Yellowstone Teton Clean Cities Coalition

The Greater Yellowstone Teton Clean Cities Coalition (GYTCCC) was formed in 2002, as a rural coalition comprised of 75 active stakeholders. GYTCCC serves a geographic area of

approximately 28,000 square miles that encompasses parts of 3 states, two national parks, nine national forests and about 15 communities surrounding Yellowstone and Teton National Parks. The mission of the GYTCCC is to protect the unique natural environment of the region while promoting the use of alternative fuels including compressed natural gas; liquefied natural gas, propane, bio-diesel, and ethanol. The coalition is developing a regional strategy to increase the number of alternative and renewable fuel fleet vehicles. This effort combines interested public and private participants to implement projects that they otherwise could not do alone. Yellowstone and Teton Parks are also used as a showcase to demonstrate to visitors and residents that there are efficient and cost-effective alternative and renewable energy technologies available now, which reduce emissions, and protect the beautiful natural environment that surrounds the coalition region.

Renewable Energy and Distributive Generation

The goal of this effort is to support successful renewable and distributive generation projects that provide benefits of reduced energy costs, more energy resources available to the Northwest, and environmental benefits with these technologies. Technical assistance, demonstration, and resource development are activities planned to meet these objectives. Specific activities being conducted with the Montana State Energy Program are technical assistance, technology evaluation, and information preparation for Montana's wind resource development, the Alternative Energy Loan, Program, Montana's promotion of large wind energy projects, and implement public sector demonstrations of renewable energy technology and distributive energy generation.

The Small Wind Demonstration Special Project

The Montana Department of Environmental Quality and the National Center of Appropriate Technology (NCAT) teamed up to offer incentives for small wind projects in Montana's rural electric co-op territories and public facilities located in Montana. Seven projects are completed or near completion. DEQ and NCAT worked with rural electric co-ops in Montana that were interested in encouraging net-metering projects within their service territories. An important aspect of wind development is the proper interconnection with the local utility and verification that all electrical code requirements are met.

The Distributive Generation Special Project

The Montana Department of Environmental Quality (DEQ) and the Center for Applied Economic Research at Montana State University – Billings are completing the "Barriers to Distributed Generation Study" in order to reduce the regulatory and market barriers that stifle the widespread acquisition and installation of distributed energy resources (DER).

NEBRASKA



Nebraska Energy Office

The mission of the Nebraska Energy Office is to promote the efficient, economic and environmentally responsible use of energy. In support of the agency mission, the following goals have been adopted:

1. Advance the conservation of traditional energy uses;
2. Encourage the development of alternate and renewable energy sources;
3. Advise the executive and legislative branches of state government in the development of energy policy and;
4. Utilize the Internet and computer technology to augment the delivery of information and service.

State Energy Program

The Nebraska Energy Office operates a number of federal and state energy efficiency programs including the U.S. Department of Energy's State Energy Program:

- **State Energy Program.** The State Energy Program (SEP) provides administrative support for the agency's activities that include emergency planning, statistical and research analysis, and policy advice and options for the governor and other policymakers' consideration. SEP also funds energy initiatives that result in the reduction of energy use or projects that provide energy education.
- **Dollar and Energy Saving Loans.** This oil-overcharge funded revolving loan program has generated \$158.8 million in energy-efficiency improvements as of September 2003. Created in 1990, \$24 million in oil overcharge funds have leveraged \$102 million from participating lenders and borrowers. Of the more than 21,500 projects, 92 percent have been made in the residential sector.
- **Green Built Homes.** More than \$900,000 in oil overcharge funds provided by the agency jumpstarted the Certified Nebraska Green Built Home program that finances new homes that are built to exacting standards and use methods that reduce construction waste, reduce water consumption and achieve high energy efficiency.
- **New Home Construction.** In cooperation with the state's environmental agency, the Energy Office developed an Internet-based library of recycled content product materials, dozens of efficient design details appropriate for new home construction and an informational series dedicated to design and building issues that stressed resource conservation.

Special Projects

Since Special Project grants became available, the Nebraska Energy Office has received a number of grants to support specific activities. The most recent grants are:

- **Rebuild America.** This project, in cooperation with Omaha Public Power District and the University of Nebraska, monitored and analyzed energy use in 50 large buildings. If appropriate, the building owners will make efficiency improvements to reduce energy use to

qualify for an EnergyStar™ designation from the U.S. Environmental Protection Agency. This effort is based on the Continuous Commissioning Leading Retrofit Process that allows building owners to implement major energy efficiency improvements with no or minor initial capital investment.

- **Building Codes.** The agency, in cooperation with the University of Nebraska, assessed the current building codes used across the state and analyzed the cost effectiveness of upgrading the state's energy building code. The report findings can be found at (http://www.nol.org/home/NEO/reports/unl_mec_study.htm). As a result of the study, proposed legislation establishes the Nebraska Energy Code and upgrades the current energy code to the International Energy Conservation Code, 2003 edition.
- **Building America.** The agency, in conjunction with the Nebraska State Home Builders Association, provided training for remodelers and homebuilders on how to apply systems engineering approaches, including production techniques, products and technologies, to the construction of homes that use up to 50 percent less energy than conventional homes and cost no more to build. A second Building America grant, that leveraged more than \$111,000, will finance the development, testing and research needed to construct a prototype of an affordable house suitable for a first-time homeowner and sets the standard for affordable housing in the state.

Related Programs

The Nebraska Energy Office also oversees other related activities:

- **Low Income Weatherization Assistance Program.** The agency has operated the Low Income Weatherization Assistance Program since 1979. Energy-saving improvements have been made in more than 54,000 homes saving an estimated \$62.2 million to date. The agency also provides Low Income Home Energy Assistance Program (LIHEAP) weatherization services to LIHEAP eligible households.
- **Biomass.** The Energy Office, with the assistance of grants from DOE, has been able to move closer to utilizing more of the state's ample biomass resources. Currently, Nebraska ranks third nationally in the production of ethanol from biomass, primarily corn and grain sorghum.
- **Wind Powering America.** Nebraska possesses the sixth-best wind energy resources in the nation, but has struggled to harness that energy to produce electricity because of the state's traditionally low electric rates. Through the support of DOE's Wind Powering America and other wind energy efforts, the state has been able to chart a course that has led to a small, but growing, wind generation capacity. By 2005, nearly 45 megawatts of electricity will be generated from turbines at five sites.
- **National and Regional Organizational Support.** Since 1992, the Energy Office has served as the administrative headquarters for the 29-member Governors' Ethanol Coalition. The agency has also provided support services for the Governors' Public Power Alliance and the Western Regional Biomass Energy Program.

NEVADA

State Energy Program (SEP) formula grant and special project grants are administered by the Nevada State Office of Energy (NSOE), an office within the Governor's Office.

NSOE's director, Dick Burdette, serves as Governor Guinn's energy advisor. The objective of the NSOE is to ensure reliable and affordable energy supplies for benefit of the state's residents and commerce, commensurate with environmental protection. This is achieved through activities to ensure sufficient new supplies relative to forecasted demand; diversity of new supplies, including development of Nevada's abundant renewable energy resources; conservation and efficiency; and response preparedness in the event of supply disruptions. The SEP formula grant and SEP special projects funding provide critical support to NSOE activities as detailed below.

Renewable Resource Development Activities

The lion's share of NSOE staff efforts are currently focused on development of Nevada's abundant geothermal, wind, and solar resources and exploitation of limited (niche) biomass energy resources. **Related goals are to increase electrical generation resource reliability through greater generation plant diversity, and lessened long-term natural gas price volatility.** A side benefit of this objective is the development of sorely needed economic development to Nevada's rural communities.

An important focus of NSOE's director is support of activities to ensure construction of renewable energy plants under contract with Nevada's investor-owned utilities (IOUs), as well as activities to extend renewable development to new generation plants needed in response to meet future IOU resource requirements. The latter would affect both large, central station generation plants and support of smaller, distributed installations for commercial and residential building applications.

Construction of large new plants is threatened by the current poor credit worthiness of the utilities in the aftermath of the Western U.S. energy crisis of 2001, while smaller installations may be delayed over uncertainty regarding the value of the renewable content (renewable energy credit valuation), during the start-up phase of that program.

Current program year (7/1/03 – 6/30/04) SEP formula grant activities include use of SEP formula grant funds to **support wind energy resource mapping, analysis/development of green power tariff options that could be offered by Nevada's IOUs,** and initiation and coordination of renewable energy working groups to support information exchange leading to project development.

NSOE currently administers two SEP special project grants awarded in 2001 and 2003 respectively, to **update Nevada's geothermal resource information database** and user-friendly access (web and CDs), and coordination of a multi-state effort with electric utilities in Nevada and the region to **accommodate strategic new transmission planning and siting access necessary to develop identified wind energy resources.**

Industry/Building Efficiency Activities

Current program year activities are focused on three key strategic opportunities: 1) working with one of Nevada's two major industries – mining – to **improve the energy efficiency and global**

economic competitiveness of mine operations; 2) promotion of performance contracting to finance building energy retrofits of state, local and school district buildings; and, 3) support of upgrading locally-enforced building energy codes. Promotion of the “whole-building” or “systems approach” to above-code levels of energy efficient new home construction is a secondary focus.

An SEP Industries of the Future Special Project was awarded to the NSOE in FFY 2002 in partnership with UNR’s Mining Life Cycle Center (Mackay School of Mines), the Management Assistance Partnership, and Nevada Division of Minerals to assist Nevada’s mining industry in assessing and implementing significant opportunities for reducing energy consumption in this incredibly energy-intensive industry. **Project efforts to date have verified that energy management and potential of rapid energy cost increases were not given due consideration in the development of the majority of Nevada’s existing mining projects, an oversight that had tremendous adverse industry impact when rates climbed significantly starting in 2001.** Project team members have identified numerous opportunities to save upwards of a million dollars per year in annual energy bills through energy retrofit efforts with payback in one case averaging only four months. Working with industry, the project partners seek to also better benchmark energy intensity of different mine operations and promote a new millennium efficiency model for what all future Nevada mine projects should emulate. A very successful conference was held in Elko in August of 2003 titled “Mining Energy Solutions: A Western States Conference on Energy Efficiency and Clean Energy Investments”.

Two SEP Codes & Standards Special Project awards (FFY 2000 and 2003) have provided key assistance to NSOE in **increasing the effectiveness of energy codes to reduce peak demand and energy load growth in Nevada’s utilities.** Nevada has struggled to keep up with population and demand growth, which are the highest in the nation for the 17th straight year. The first of the SEP awards funded a study and report, completed in June of 2003 and posted on NSOE’s web page (www.energy.state.nv.us). The report documented the degree of code compliance at plan check and as-built stages, relative to a variety of different energy code editions in effect and/or under consideration for adoption. The second of the awards will serve to communicate results of the study to building departments as well as industry to support objective, follow up information exchange as to the costs and benefits of voluntarily upgrading the statewide minimum standards to the 2003 IECC. It is important to note that the legislature, as a whole, has not revised the minimum energy code for almost 20 years (since 1985).

The SEP formula grant funds provide key staff support to NSOE’s commercial building energy efficiency activities that seek to use performance contracting to finance and implement energy efficiency retrofit of state government and school buildings/facilities. Staff’s efforts here were initiated to address critical budget shortfalls faced by the state and Nevada’s 17 school districts. The largest of the latter is the **Clark County School District (CCSD), headquartered in Las Vegas. It is the 6th largest district in the nation and has annual energy budget of approximately \$50 million.** NSOE staff helped the district to form an energy task force in September of 2000 that has guided the CCSD in design and implementation of school scheduling changes and energy consumption behavioral modifications. These actions resulted in a total savings of approximately \$6.7 million over the last three school years ending 6/30/03, with \$4 million of savings in the last year alone. NSOE is currently using ’03 SEP formula grant funds to present a conference for the direct benefit of CCSD staff. It is modeled on a successful “Energy Smart Schools In Action” conference hosted in June of 2003 for the benefit of all of Nevada’s districts. That conference has since led to at least two of the 11 attending districts implementing performance contract projects to retrofit some, or all district buildings.

SEP formula grant funds were also used to support **NSOE staff's central role in obtaining necessary changes to current state law in 2003 affecting implementation of operational savings performance contracting on behalf of all state and local governmental agencies, including school districts. The new legislation, a high priority for the Governor, is known as Assembly Bill (AB) 398.** NSOE staff has since invested significant time during the current formula grant year to oversee and assist implementation of the new law through coordination with key implementing agencies.

Transportation Fuel Diversity and Supply Contingency Planning Activities

NSOE uses a combination of SEP formula grant and Clean Cities SEP special project and omnibus funding to expand the number of alternative fuel options for Nevada motorists, particularly vehicle fleets. These activities have included expanding the number of fueling locations, the number of alternatively fueled vehicles and fleets, and the expansion of alternative fuel choices. Regarding the latter, **NSOE staff has invested considerable time and attention during the current and previous formula grant program year to develop in-state production of ethanol. Development of a related industry would be of significant benefit to Nevada's agricultural industry.** Further, given the large number of registered E-85 vehicles in the state relative to all other alternatively fueled vehicles, it should provide Nevada a vital tool in **stretching the available supply of gasoline imported from California in light of the pending next West Coast energy crisis associated with the golden state's maxed-out refinery capacity** (relative to MTBE's replacement with ethanol and increased regional consumption demand).

Questions can be directed to Dick Burdette at 775-684-5670 or rburdette@gov.state.nv.us, or, sent to Dave McNeil, State Energy Program Manager at 775-687-4909 or dmcneil@dbi.state.nv.us.

New Mexico

The New Mexico State Energy Office (Energy Conservation and Management Division-NM Energy, Minerals and Natural Resources Department) has statutory responsibility for planning and implementing “clean energy” programs to achieve environmental and economic sustainability for New Mexico and its citizens. These programs include:

Renewable Energy. Solar, wind, geothermal, biomass and hydrogen technology applications in all sectors; distributed energy technologies such as fuel cells, microturbines and district heating systems; co-generation (combined heat and power).

Energy Efficiency and Conservation. Technology applications such as energy controls and efficient lighting, motors and appliances, as well as behavioral practices, that reduce energy use and costs in buildings and the transportation sector; building energy codes.

Alternative Transportation/Fuels. Ridesharing/carpooling; park-and-ride programs; vehicles and infrastructure for use of clean-burning fuels such as compressed natural gas (CNG), propane, ethanol (E-10, E-85), electricity and bio-diesel.

Program Benefits: Reductions in energy consumption and expenditures; generation of new jobs and revenues; environmental protection and improvement (e.g., fewer emissions of air pollutants and greenhouse gases); enhancement of public health; decreased consumptive water use for power generation; lessened dependence on foreign oil; and greater energy security and independence.

Program Accomplishments during 2003:

- **Third Largest Wind Power Plant in the World.** High-quality meteorological data provided to FPL Energy as part of the state’s Wind Power Program played a key role in development of the world’s third largest wind farm: the 204-megawatt New Mexico Wind Energy Center, which commenced operations in 2003 and annually generates enough electricity for 94,000 homes. Also provided for the revision, update and dissemination of a high-resolution wind map covering all of New Mexico. USDOE’s State Energy Program (SEP) and Special Projects funds were instrumental in leveraging State dollars and incentives for valuable assistance to wind developers.
- **U.S./Mexico Collaboration on Clean Energy along the Border.** Continued participation in the Western Governors’ Association’s *Border Energy Project*, which is designed to improve air quality in the U.S./Mexico border region through increased use of clean, energy efficiency technologies; a new website, www.borderenergy.org, was developed and is now being marketed to prospective end-users.
- **Solar Technology for Schools.** Established and administered the “*Schools with Sol*” Solar Demonstration Program, wherein at least 10 New Mexico schools per year are being retrofitted with solar photovoltaic (PV) or water heating systems; this program includes a significant education and public outreach component on renewable energy.

- **Reducing Regional Haze through Pollution Prevention.** Collaborated with the NM Environment Department in developing the Pollution Prevention section of its Regional Haze State Implementation Plan (SIP). New Mexico's Regional Haze SIP should result in improved air quality and visibility enhancement throughout New Mexico—particularly in Class I wilderness areas and national parks.
- **Public Education and Outreach.** Sponsored/participated two *Advancing the Choice* Alternative Fuels Workshops; *Taos Solar Festival*; NM Hydrogen Technology Partnership's *Strategic Planning Summit*; Alternative Fuels Day/Permanent Display at *New Mexico State Fair*; American Institute of Architects' *Climate Change Symposium*; New Mexico Solar Energy Association's *Solar Fiesta*; Sandia National Laboratories' *Solar Energy Systems Symposium*; and New Mexico Conference of Churches' *Global Warming Conference*.
- **Lighting Retrofit Project: Energy/Cost Savings for Taxpayers.** Retrofitted the Department's main offices in Santa Fe with energy-efficient lighting; this lighting upgrade project was achieved through a partnership among State agencies and is already saving New Mexico taxpayers over \$10,000 per year.
- **Northern NM's First Ethanol and Biodiesel Fueling Stations.** Worked with a private-sector partner in establishing the first publicly accessible ethanol fueling station in Santa Fe; also assisted in developing northern New Mexico's first biodiesel station, in Los Alamos. This infrastructure will help promote use of clean fuels.
- **Energy Savings Contracts for Efficient Public Buildings and Colleges.** Continued to provide technical reviews of proposed Energy Performance Contracts under the state's *Public Facility Energy Efficiency and Water Conservation Act*. In 2003, new contracts were reviewed and approved for Santa Fe Community College, which is estimated to save 2.2 million kilowatt-hours annually or \$108,879 per year; and for Albuquerque Housing Authority, which will save the City an estimated \$1.4 million in energy costs at 28 public housing facilities over a 10-year period.
- **Efficient School Design and Construction.** Reviewed 122 construction plans for NM public schools to ensure compliance with applicable energy codes. These technical reviews for the State Department of Education result in significant energy cost savings for taxpayers and in better, more comfortable learning environments for teachers and students. Also assisted Albuquerque Public School District with design/engineering of an *Energy Smart School*, which will be completed in mid-2004 and serve as a New Mexico showcase for energy-efficient construction.
- **Technical Assistance on Improving Building Efficiency.** Continued to provide for operation of the *Rebuild America/Rebuild New Mexico* program, a public-private partnership to promote energy efficiency in buildings. The program offers walk-through audits, energy information and workshops, third-party review of energy proposals and other technical assistance. Program energy audits have identified potential savings of more than \$1,000,000 per year for existing *Rebuild* partners.

New York

New York State Energy Research and Development Authority

Vincent A. DeIorio, Esq., *Chair*

Peter R. Smith, *President*

17 Columbia Circle, Albany, NY 12203-6399

(518) 862-1090

Fax (518) 862-1091

<http://www.nysesda.org/>

STATE ENERGY PROGRAM (SEP)

The New York State SEP (base and competitive) grant funding from the U.S. Department of Energy supports the deployment of various energy efficiency programs and services by the New York State Energy Research and Development Authority (NYSERDA). NYSERDA leverages these SEP funds with System Benefits Charge funding and private sector funds. In addition to reducing energy use, the energy programs improve productivity, stimulate private investment, retain/create jobs, displace petroleum, reduce electric peak load concerns and improve air quality, while achieving the following statewide impacts:

Each year, Over 100 Small Businesses and Non-Profits Receive Detailed Technical Assistance

The **FlexTech** (Flexible Technical Assistance) service provides co-funded, on-site energy engineering services to small businesses and non-profits through 20 retained energy service providers. A series of evaluations determined that **every \$1 of funding from SEP leverages \$18 in capital investments and saves participating customers \$5 in annual energy operating costs.**

\$125 Million Leverage in Private Financing for Energy Capital Improvements

Committing \$125 million in private financing for energy performance contracts at 32 state facilities (SUNY campuses, prisons, etc.) under the **State EnVest** program, with cost savings to exceed \$20 million annually.

Over 91 Green Building Projects with Higher Efficiency Equipment

These “green buildings” projects in new construction and building renovation total over 14.9 million square feet of floor area and, on average, exceed the current Energy Code by 18% at an incremental cost of only 1%.

New York State Energy Code Upgraded in July, 2002

Impacts will include over \$3.5 million in annual energy savings that affect 24,000 new single family homes and over \$42 million in annual energy operating cost reductions in over 120 million square feet of new commercial space. The new Energy Code based upon the IECC 2000 platform represents a 12-14% higher standard from the previous New York Energy Code.

110 Alternative Fuel Vehicles and 11 New or Expanded Fueling Facilities Deployed; 2 Million Gallons of Petroleum Displaced

Supports the expansion to seven **Clean Cities** across the State and accelerates the introduction of electric, natural gas, and biodiesel-fueled vehicles in public and private fleets. Activities include vehicle deployment, refueling facility/infrastructure development, information sharing and stakeholder coordination.

\$5 Million Leveraged in Financing of Industrial Improvements

Seven industrial sites around the state were designated Showcase Demonstrations, promoting underutilized technologies which can improve productivity, energy efficiency and environmental performance.

Rebuild New York's Energy Smart Communities

The nine regional partnerships target local needs by bringing together organizations that contribute to highly visible projects that demonstrate how energy efficiency and energy resource approaches create economic, social and environmental benefits. Over 2.1 million square feet of projects have been referred to NYSERDA for assistance. To date, incentives totaling \$1.1 million have been awarded to 151 projects valued at more than \$2.2 million.



North Carolina Department of Administration

Michael F. Easley, Governor
Gwynn T. Swinson, Secretary

Larry E. Shirley, Director
State Energy Office

North Carolina 2003 Highlights *State Energy Program*

State Facilities and Universities: Established the most comprehensive program in the U.S. to address energy efficiency at state facilities and public universities. Set goal of 4% reduction in consumption per year for the next five years, or 20% total reduction by 2008. Achieved over \$1 million in electric rate and billing savings in 2003, in addition to conservation savings. Received National Outstanding Program of Excellence Award from the National Association of Chief State Administrators. Received Third Place in Innovation Awards in South, out of 125 nominees, from Council of State Governments. Rebuild America has assisted with this effort.

Clean Cities Program: Triangle Clean Cities Programs provided nearly \$300,000 in incentive grants to local governments and large private fleets to use biodiesel in buses, trucks and other vehicles, with area-wide participation and success. Charlotte Clean Cities Program submitted their official application to DOE for designation as a Clean City and Asheville received a grant from the NC State Energy Office to begin work that should lead to their designation.

Manufactured Housing: The State Energy Office launched a new pilot program to make manufactured housing more energy efficient at the time of sale of the home. Incentive grants are being provided to change out the highly inefficient and costly electric furnaces to more energy efficient heating systems. Given that one-third of new housing starts in NC are manufactured housing, and that heating bills can reach \$400/month or more, this is a critically important effort.

NC GreenPower Program: North Carolina is the first state in the nation to bring together all of its utility companies to provide renewable, or "green," power to consumers, businesses and governments in the state. The State Energy Office is one of the two largest funders of this

Mailing Address:
1340 Mail Service Center
Raleigh, NC 27699-1340

Telephone (919) 733-2230
Fax (919) 733-2953

Location:
1830A Tillery Place
Raleigh, North Carolina 27604

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program and has advocated for its creation since 2000. Launched only four months ago, the program already has over 4,000 subscribers that are paying a monthly premium for green power.

Energy Efficient Mortgages: The State Energy Office is funding and has joined with RESNET and Fannie Mae to promote Fannie Mae's new energy efficient mortgages program.

Several key lenders, including Wachovia and Countrywide, have actively joined the program.

Wind Energy: as a result of leadership and funding from the State Energy Office, the state is about to embark on wind energy development in its mountain and coastal regions. Excellent wind speeds have been mapped and identified in both regions, far surpassing earlier estimates. Working groups have been established in both regions to identify barriers, conduct public opinion surveys, analyze bird migration patterns, assess access to transmission, and install wind monitoring devices to verify the wind speeds.

Solar Energy: the State Energy Office is the largest sponsor of the NC Solar Center, based at NC State University, which has established itself as one of the premier solar energy institutes in the nation. The Solar Center has established Million Solar Roofs Initiatives in eight (8) communities of the state, is leading the effort to resolve interconnection issues, and is the national host and staff for the Database of State Incentives for Renewable Energy (DSIRE).

Industries of the Future: Led by the State Energy Office and NC State University, the state has a very active Industries of the Future program, with five industries now targeted and funded for assistance: mining, agriculture, glass, wood products, and chemicals.

Performance Contracting: the State Energy Office is in charge of rolling out a new \$50 million performance contracting program for state agencies and universities, based upon legislation passed in 2002-03. Sixteen (16) Energy Service Companies (ESCOs) have been qualified to provide services in the state, agencies and universities have been trained, rules have been put into place and applications are now being accepted for contracts up to twelve years.

Request for Proposals: In addition to its support of over 50 projects and programs, the State Energy Office issued three Requests for Proposals in 2003 that will result in funding of new projects totalling nearly \$2 million. The areas covered included alternative fuels, sustainable community development, and clean energy technology demonstrations.

State Energy Plan: In 2003, the NC Energy Policy Council, staffed by the State Energy Office and charged with advising the legislature and Governor on energy policy, issued the first state energy plan since 1992. The plan details 93 recommendations and will be the cornerstone for future activities of the State Energy Office and State of North Carolina.

Emergency Plan: In 2003, the State Energy Office engineered the preparation and adoption of the state's first emergency energy plan since 1992. Significant assistance was provided in this effort by the National Association of State Energy Officials (NASEO). The director of the State Energy Office has subsequently been asked to serve on DOE's Office of Energy Assurance Task Force that is working with state agencies.

High Performance Guidelines for State Buildings: the State Energy Office is administering a green building pilot program for 15 community colleges, public universities and state agencies. The program utilizes the concepts from the LEEDS Green Building Rating System and encourages energy efficiency, daylighting, water conservation and other sustainable concepts in construction. Most of the pilot facilities are now in the design stage.

SEP/PVE ENERGY ACTIVITIES IN NORTH DAKOTA

North Dakota depends on its annual State Energy Program (SEP) appropriation to fund a variety of beneficial energy efficiency and renewable energy activities. Petroleum Violation Escrow (PVE) funds are used to supplement the annual SEP appropriation and allow the state to undertake a much greater level of EE/RE activity than the state would otherwise be able to accomplish. North Dakota has conservatively used its PVE funding since 1986 but is nearing the end of this financial resource and will soon need to develop other sources of EE/RE funding or significantly pare down the level of activity.

This report will briefly highlight our state activity in two highly successful initiatives: wind energy development and energy efficiency in state facilities.

1. Wind Energy Development

North Dakota has long been recognized as having the greatest wind energy resource in the United States, both in terms of consistent wind speeds and land availability. The state does have a robust electricity generation industry, fueled mainly by lignite coal and hydro resources. In fact, North Dakota exports over 60 percent of the electricity currently generated, mainly to neighboring states east and south. The two major limiting factors to North Dakota's wind energy industry are the lack of in-state load growth and the constraints on the current transmission grid. Wind energy development is taking place even so, with total installed capacity now at 65 MW and an additional 20 MW expected in the spring of 2004.

The North Dakota Department of Commerce has a long history of promoting and working towards wind energy development in the state. We began with educational workshops, provided partial funding for one of the first utility-scale turbines installed in the state, convened a state wind energy working group, funded a number of local wind resource monitoring efforts and provided funding toward specific feasibility analyses.

Resource Monitoring – A wind resource map put out by the National Renewable Energy Laboratory identified North Dakota as having the greatest wind energy resource in the lower 48 states. The map was based on computer modeling, national weather service information and only a few site-specific, higher altitude measuring stations in the state. It was decided that in order to attract wind energy developers to the state, more needed to be done to provide good quality, site-specific wind speed and directional data for several good wind areas in the state. Using SEP and SEP-PVE funds, the state offered matching grants to local development corporations and to cities and counties for the purpose of conducting wind resource monitoring programs. The information collected was then made publicly available through the state energy office web site and through the Energy & Environmental Research Center web site at the University of North Dakota. In a matter of a few years, North Dakota went from having almost no site-specific wind data to having one of the best monitoring programs in the country. To date, 15 matching grant awards have been made to LDC's, cities and counties, most of them involving more than one site.

In addition to the more recent monitoring sites, the state energy office facilitated a statewide wind resource monitoring program conducted by seven generation and transmission utilities, and the Electric Power Research Institute. Information from that study (which involved eight sites

around the state) was eventually made public. North Dakota has also participated for two years in the DOE Wind Powering America anemometer loan program.

Feasibility Analyses – The Department of Commerce has funded a couple feasibility studies that could result in unique applications for wind energy development in the state. Using SEP-PVE funds, matching dollars were used to contract with an engineering firm to explore the potential of integrating wind energy on five North Dakota university system campuses. Scheduled for completion in February 2004, the study is looking at the costs and potential savings available for wind energy applications at the University of North Dakota in Grand Forks, the North Dakota State University campus in Fargo, the ND State College of Science in Wahpeton, Bismarck State College in Bismarck, and Lake Region State College in Devils Lake. In addition to exploring the potential for wind energy to supply a portion of the campuses electrical needs, the study is also looking into possible curriculum applications at the schools. For example, Bismarck State College serves as a resource center for the power generation industry, including power plant operation, and is a good candidate for programs related to wind energy.

A second current analysis involves seven school districts in the southeast quadrant of the state that are exploring the potential for jointly owning and receiving a portion of their electrical needs from a centrally located wind energy development. That study is also scheduled for completion in mid-2004 and may result in proposed legislation for the January 2005 legislative session. Two additional studies are in the proposal stages having to do with wind energy applications at large industrial sites.

2. Energy Efficiency in State Owned Facilities

The North Dakota Department of Commerce has a very active and comprehensive program in place to assist state facilities with the reduction of energy consumption and costs. A staff energy engineer, whose position is funded with SEP and SEP-PVE resources, works very closely with the North Dakota Association of Physical Plant Administrators (NDAPPA) and other state facility personnel on project analyses, project financing, and follow-up measurement and verification. In addition, the Dept. of Commerce works closely with NDAPPA to select and provide training programs once or twice a year on energy efficiency and renewable energy technologies and applications.

Project Analyses – Matching funds are provided to state facility personnel to conduct energy analyses of their buildings. The analyses examine existing energy systems and energy usage, and provide cost estimates and life-cycle cost savings for proposed energy efficiency improvements. All engineering studies are reviewed by the Department of Commerce for accuracy and then reviewed with personnel from the participating institutions. The institution then decides which, if any, of the recommended energy efficiency improvements they choose to implement, and financing options are then discussed.

Project Financing – There are two main financing mechanisms in place for state institutions to fund larger (over \$20,000) energy efficiency improvement projects – performance contracting and the State Facility Energy Improvement Program. The latter uses state-issued bonds to finance the projects and the savings resulting from the projects are used to pay back the bonds. Engineering analyses are required, and the projected payback, including bond interest, must be within a 10-year period. Proposed projects are included in the Governor’s budget and acted upon

by the state legislature, which meets every two years. To date there have been two rounds of the State Facility Energy Improvement Program. A total of \$4.5 million has been approved for projects in 37 buildings. An estimated \$715,000 in annual energy cost savings will result from the energy improvements, a payback of 6.3 years.

The more widely utilized financing mechanism for energy efficiency improvements is performance contracting. A carefully crafted procurement process is used to hire an energy services company to complete campus-wide energy analyses and to recommend energy efficiency improvements. After the energy services company and the state facility have agreed on the energy efficiency measures to be implemented, the energy services company arranges for financing of the project, with energy cost savings again used to pay back the project costs. While legislation allowing state facilities to participate in performance contracting arrangements was passed in the mid-1990's, it is only in recent years that participation in performance contracting has dramatically increased. A total of 12 institutions, including nearly all of North Dakota's university system campuses, have undertaken performance contracts. Over \$14 million of energy efficiency improvements have been funded, involving 184 buildings. The projects are estimated to result in annual savings of \$1.48 million, for a payback period of 8.9 years.

Ohio's State Energy Program (SEP) Funding

Office of Energy Efficiency (OEE)

Community Development Division, Ohio Department of Development

<http://www.odod.state.oh.us/cdd/oeef/>

Ohio's Office of Energy Efficiency (OEE) serves Ohio residents, communities, businesses, and industries with programs that promote energy efficiency and renewable energy. Through its advisory role in energy policy, and the work of its nonprofit, community based grantees and for-profit entities, OEE works to improve the quality of life for all Ohioans. Recognizing the natural links between energy, economics, and the environment, OEE fosters programs to meet the needs of those most sensitive to energy costs and reliability, including low to moderate-income residents, schools, and energy-intensive industries. SEP funding makes it possible for Ohio to introduce and pilot innovative renewable and distributed energy programs, to educate Ohioans about energy efficient products and services available in the marketplace, and to build capacity through training programs for design professionals, financial decision makers, and operations and maintenance workers.

Builders, developers, and homeowners seeking to implement energy efficiency and renewable energy technologies benefit from financial assistance and capacity-building programs:

- Funded by an electric bill rider, *Energy Efficiency Revolving Loan Fund (ELF)* programs aid in the construction and rehabilitation of multi-family and single-family housing to meet energy efficient design and build standards. Since its inception, *ELF* has evolved into multiple low interest loan programs including these which fund energy efficiency improvements and renewable energy projects:
 - *Double Savings Loans For Energy Home Improvements* save money for homeowners in two ways: through lower interest costs to finance energy home improvements, and by the resulting lower utility bills.
 - The *Energy Loan Fund Renewable Energy Financial Assistance Program* lowers interest costs for businesses, institutions, and residents seeking to finance the installation of renewable energy technologies.
 - The *Energy Loan Fund Rental Housing Program* lowers interest costs for construction partnership projects that have qualified for federal low-income housing tax credits and follow energy efficient construction guidelines.
- *Builder/Contractor Training* programs and those which build capacity in *Home Energy Ratings* services emphasize the benefits of energy efficient construction, and promote a whole house approach to durable, safe, comfortable, and affordable housing.

Communities including public housing, colleges and universities, state, county and local governments benefit from planning, auditing, training, and technical assistance in SEP programs:

- The *Governor's Energy Smart Community Challenge* since 2002 has recognized, promoted, and facilitated energy efficiency and renewable energy projects in ten communities across Ohio. Selected for community-based, ongoing programs, these communities demonstrated innovative applications from the installation of solar panels for use in technical training programs on an Appalachian Ohio joint vocational school (*Million Solar Roofs*), to securing grant funding for clean exhaust technology and bio-diesel fuel bus retrofits, to the dedication in October, 2003 of the first utility-scale wind farm in Ohio.
- *Rebuild America (RA)* brings technical and planning assistance to help qualifying, community-based projects retrofit existing buildings to lower energy costs, and improve comfort. Thirty active Ohio *RA* partnerships are saving annually 520,822 MMBTUs, or \$12.5 million in energy costs on total efficiency investments of \$49 million.
- *Builder Operator Certification* training improves the skills of individuals responsible for the operation and maintenance of public facilities including schools. Piloted in one community college, this program is poised for rollout to other areas of the state with the assistance of a key grantee, *Ohio Public Facilities Maintenance Association*.
- *Smart Energy Building Practices* seminars organized by SEP funded "green building" groups in Cincinnati, Cleveland, and Columbus develop building and code officials' awareness of LEEDS and the standards to be met for LEEDS certification.

- *High Performance Schools* deliver workshops and technical assistance to facilitate high performance school building design and construction.
- *Energy Smart Schools* brings the work of non-profit partners to support students in meeting state standards while improving energy literacy through energy fairs, workshops, and the installation of solar panels for educational use. *Ohio Energy Project*, a key grantee, has engaged hundreds of thousands of k-12 students and teachers in learning about energy sources, uses, and conservation since its beginnings ten years ago.

Businesses from manufacturers to farmers benefit from programs available to help them learn ways to manage their energy use to improve efficiency and competitiveness while developing approaches to concerns about unpredictable energy costs and reliable, high quality supplies:

- *EnVinta One-2-Five®* and *Energy Challenger®* provide senior managers with the tools to identify opportunities to improve business systems to achieve sustainable cost savings.
- *Business and Institutional Energy Loan Fund Program* finances investments in energy efficiency improvements and technology for on-site power generation.
- *Industries of the Future* establishes public-private partnerships to increase the efficiency of industrial energy use, now and in the future. Executives from seven industry groups (Ag/Food Processing, Aluminum, Glass & Clay, Metal Casting, Mining, Polymer, and Steel) participated in a forum that led to the distillation of six cross-industry issues now under review to identify state resources available to assist.
- *Ohio Materials Exchange* is a statewide information system that matches companies with useable, but unwanted materials with companies that need those materials reducing both solid wastes and input costs.
- *Motor Challenge* makes available technical expertise and knowledge necessary for managing motor systems and purchasing more energy efficient motors.

Cross-sector programs made possible through SEP funding address the needs of a broad spectrum of Ohio citizens:

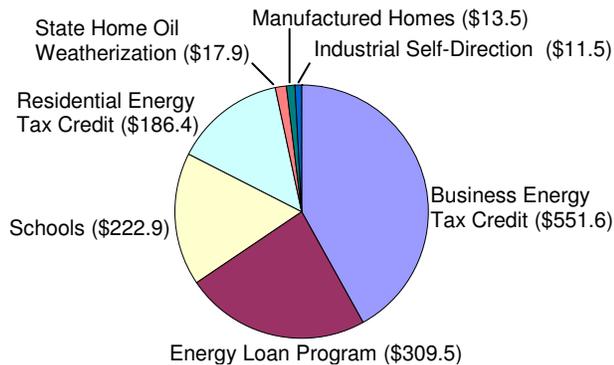
- ENERGY STAR™ partnerships for consumer, commercial, and industrial sectors use the power of the marketplace to promote energy efficient products and services.
- *Program Design/Monitoring, Verification, and Evaluation* project assistance is helping OEE establish systematic measurement processes and tools to more completely report activities and their outcomes in energy dollars saved, jobs created, and pollution avoided.
- *Renewable energy education and awareness* programs promote wind, solar, and biomass initiatives through *Green Energy Ohio*, the *Ohio Clean Energy Business Association*, and the *Governor's Biomass Taskforce*. Awards of \$924,019 to 26 *Distributed Energy Resource* grantees will result in demonstration projects across the state.
- Three *Clean Cities* partnerships have been designated for their work demonstrating and promoting the use of alternate fuel vehicles.
- *Public Information* activities at community events round-out OEE's outreach efforts by addressing informal education opportunities.

Funds Awarded and Match-Office of Energy Efficiency

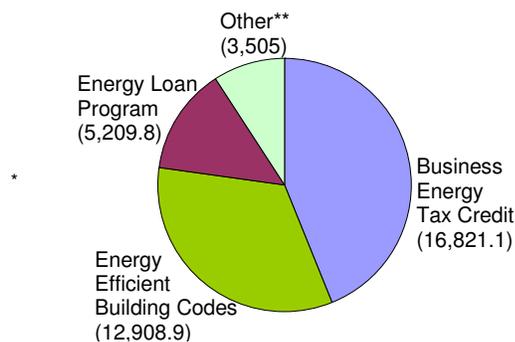
Program Year	SEP Funds Awarded	Total Matched	Match Percentage
98/99	\$ 1,273,800	\$ 260,474	20.45%
99/00	\$ 1,324,000	\$ 309,400	23.37%
00/01	\$ 1,338,000	\$ 267,600	20.00%
01/02	\$ 1,498,686	\$ 298,200	19.90%
02/03	\$ 1,728,000	\$ 345,596	20.00%

Overview — Oregon Department of Energy (ODOE) — All Programs for 1980-2002

1980-2002 Energy-Efficiency Project Investment Totaled \$1.3 Billion (Millions of Dollars)*



2002 Energy Saved and Generated from ODOE Projects Totaled Over 38.4 Trillion Btu (Billions of Btu)*



- ▶ ODOE’s current schools programs include Public Purpose Charges with \$1.4 million in project costs, High Performance Schools, with \$69.5 million in project costs, and Rebuild America with \$152 million in project costs. (Figures are through 2002.)
- ▶ The total number of homes built to energy standards is more than 379,000.
- ▶ Business Energy Tax Credit program records over 6,500 energy-saving projects completed.
- ▶ Residential Energy Tax Credit (RTC) program provides tax credits for more than 118,600 residential energy-saving purchases.
- ▶ State Home Oil Weatherization implements over 58,100 energy-saving measures in Oregon homes.
- ▶ Over 570 energy projects receive loans from the Energy Loan Program.
- ▶ More than 800 schools benefit from the Schools program.
- ▶ Over 18,000 employers receive information about the Telework program to conserve fuel, relieve traffic congestion and improve air quality.
- ▶ In excess of 22,500 new energy-efficient manufactured homes are sited in Oregon.

State Energy Program (SEP) Formula Grant

- ▶ SEP formula grant funds used for Public Buildings leveraged \$1.6 million in project costs by Portland Public Schools.
- ▶ SEP formula grant funds used for RTC leveraged more than \$20 million in tax credits for appliances, heat pumps, air conditioners, ducts and furnaces.
- ▶ In 2002, ODOE reviewed and approved tax credits for 27,000 energy-efficient appliances.

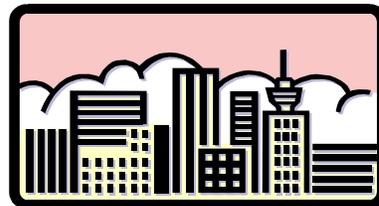


*Some programs don’t track energy saved.

**Other includes ODOE programs: Industrial Self-Direction, Manufactured Homes, Residential Energy Tax Credit, Schools and Hospitals, Local Governments, State Buildings and State Home Oil Weatherization.

SEP Special Projects

SEP Special Project grants support ODOE programs: Building Codes, Rebuild America SWEEP (Saving Water and Energy Education Program), Remote Photovoltaic Systems, Industries of the Future, Clean Cities (Alternative Fuels), Combined Heat and Power, NICE³ (National Industrial Competitiveness through Energy Environment, and Economics) Promotion, and Alternative Fuels Pilot.



- ▶ The Rebuild America program identifies building and related energy-saving projects for partners. Total energy savings for the Rebuild America program is \$9.4 million and 812 billion Btu. Estimated project costs total \$75.9 million.
- ▶ Remote Photovoltaic (PV) Systems program establishes a market for remote PV water-pumping systems and remote PV homes in Central and Eastern Oregon. Fifty-four systems are installed with total project costs of \$589,000.
- ▶ One particular NICE³ project assists the state's Lumber and Wood Products industry to improve efficiency and reduce waste. Ventek, Incorporated and Boise will develop and demonstrate a new technology, near-infrared sensor system that will increase productivity and product quality and reduce waste. Annually, this will save about \$23,000 in energy costs.
- ▶ Building Codes program implements residential- and commercial-building energy codes. Recently passed measures include reduced energy required for lighting in buildings, required demand-control ventilation for high-occupancy buildings and improved duct-sealing requirements.

Leveraging Funds

The Oregon Department of Energy leverages the federal funds we receive for our energy efficiency programs to make them as effective as possible. In fiscal year 2000-2001, Oregon's SEP federal grant funds leveraged expenditures of state, Petroleum Violation Escrow (PVE), private and other funds totaling an estimated \$97.9 million. For each federal dollar spent, there was \$143 in leveraged expenditures that achieved energy savings.

Contribution Source	Administration	Public Energy Projects	Public Buildings	Residential Energy Tax Credit	Solar Pilot	Special Projects	Total
SEP federal	\$48,742	0	\$ 120,961	\$ 251,134	\$309	\$ 249,431	\$ 670,577
Other federal	0	0	0	0	0	\$ 13,990	\$ 13,990
State	0	\$ 1,681,760	\$ 534,104	\$ 3,014,160	0	\$ 1,768,216	\$ 6,998,240
Exxon PVE	0	\$ 28,800	0	0	0	0	\$ 28,800
Private	0	0	0	\$18,832,872	0	\$ 1,060,061	\$19,892,933
Other	0	\$ 14,100	\$1,990,000	0	0	\$68,937,338	\$70,941,438

Expenditure Description	Total Expenditures	Leveraging Ratio
Total Non-federal	\$97,861,411	\$143
Total Federal	\$ 684,567	\$ 1

Pennsylvania
Pennsylvania Department of Environmental Protection (DEP)
Office of Energy and Technology Development (OETD)

Pennsylvania State Energy Program

OETD's mission is to promote advanced energy technologies and to encourage markets that will help Pennsylvania realize dividends in environmental protection, economic growth and energy security. DEP recognizes that energy efficiency and the use of clean and renewable energy sources enhances our quality of life. The majority of our energy efficiency and renewable and clean energy initiatives are supported or leveraged by the State Energy Program.

Pennsylvania Energy Harvest

This innovative grant program finances the implementation of clean and renewable energy technologies, such as biomass, solar power and wind power. Recognizing Pennsylvania's indigenous energy resources, special consideration was given to farmers and waste coal reclamation projects. The program has been a success, with 139 applications requesting \$45 million in funding that will leverage \$96 million in private investment for this \$5 million offering. We received an exciting variety of projects in all the categories, wind, solar, waste coal, energy efficiency/distributed generation and biomass. The largest proportions of applications were in the biomass and energy efficiency/distributed generation categories. Plans are underway for another solicitation in the near future, as we finalize selection of the current applications. We expect cutting edge achievements in the next several years as these projects are developed and implemented.

Governor's Green Government Council

Leading by example, the GGGC was created in 1998 to help the state government adopt environmentally friendly operation policies and sustainable practices and striving for continuous improvement in environmental performance. The GGGC has advocated green, energy efficient buildings using the U.S. Green Building Council's standard as a guide. As of December 2003, Pennsylvania leads the nation with eight buildings certified under the internationally recognized Leadership in Energy and Environmental Design (LEED) program, with the recent certification of the Pittsburgh Convention Center. The GGGC has been influential in doubling the state's commitment to its Green Power program. Beginning July 1, 2004 the Commonwealth will purchase 10% of its electricity from environmentally preferable sources.

Alternative Fuels and Clean Cities Program

The AFIG program provides grants to residents of the Commonwealth, school districts and vocational schools, municipal authorities, political subdivisions, non-profit entities, corporations and partnerships incorporated or registered in the Commonwealth. The grants cover a percentage of the cost of purchasing vehicles that operate on alternative fuels, constructing the refueling and recharging infrastructure, and advancing innovative alternative fuel technologies. Since May 1995, the annual allocation from the General Fund for the AFIG program has been between \$3.5 and \$3.8 million dollars. During an eight-year period beginning in October 1994, DEP awarded close to \$20 million dollars for 291 projects covering 35 counties in the Commonwealth. Vehicles funded under AFIG that operate on CNG have logged 12,649,635 miles, consumed 2,430,582 gasoline or diesel gallon equivalents of CNG and saved 57,871 barrels of oil. The Clean Cities program promotes and provides incentives for the purchase and use of alternative fuel vehicles. Clean Cities sponsors workshops to provide public education, maintains a website, administers AFV rebate programs for light duty vehicles, shuttle buses and school buses. Clean Cities complements and promotes the state's Alternative Fuel Incentive Grant program and assists local fleet operators with their grant applications.

In PA there are two Clean Cities programs—Greater Philadelphia Clean Cities (GPCCP) and Pittsburgh Region Clean Cities (PRCC). Philadelphia Clean Cities recently received a SEP Special Project award for E85 infrastructure development.

Wind Energy in Pennsylvania

Pennsylvania is the leader in wind energy production east of the Mississippi River. Many of the operating wind farms and pending wind power projects are a result of SEP involvement. SEP funded the development of a business plan for Community Energy, Inc. to market wind energy to the retail electric market for some of these wind farms. SEP involvement in a wind ad campaign and the GGGC involvement in Pennsylvania's green energy purchase also were influential in implementation of these wind power projects. In addition, SEP funded the development of a wind map for Pennsylvania, as well as other Mid-Atlantic states. SEP funding has also supported on-site wind assessments for future wind farm development. Currently there is 130 megawatts of active wind generation in Pennsylvania.

Industries of the Future

The Pa. State IOF partnership is a process that delivers the opportunities and accomplishments of the National IOF Strategy to the local level. The PAIOF is not recreating the national efforts but expanding these opportunities and subsequent results to a larger number of participating companies within industrial sectors in Pennsylvania. The PAIOF plan is developing partnerships with local industrial facilities, universities and research institutions to find common means to address the pressing needs of industry relative to technology, financial, regulatory, environmental and policy issues. The goal is to enhance economic development and find a path to keep local industry healthy, productive and prosperous in times of growing energy, environmental and economic pressures. Lehigh University is the academic lead of the PA Aluminum IOF and has hosted two IOF work group sessions. Penn State University has produced a PAIOF Vision and Roadmap The University of Pittsburgh began leading the PA Mining IOF in November 2002. Chairman, George Ellis, President of the Pennsylvania Coal Association, is leading the group and has held three workshops to develop their draft vision and roadmap.

Site Visits

The Pennsylvania Department of Environmental Protection's has been conducting Pollution Prevention/Energy Efficiency (P2/E2) site visits at businesses and industries across the Commonwealth that are free of charge since 1995. In 2003, DEP has conducted 125 site visits. A P2/E2 Site Visit is an opportunity for companies interested in improving their bottom line to have objective outsiders come on-site to evaluate their operations and suggest ways of saving money. DEP estimates that PA companies have saved over 20 Billion Btu's through energy efficiency recommendations that have been implemented.

State Energy Plan Grant – U.S. Department of Energy

Funds Awarded and Match – Pennsylvania Department of Environmental Protection

State FY	SEP Funds Awarded	Total State Match	Match Percentage
FY 1997/98	\$1,393,400	\$793,390	57
FY 1998/99	\$1,293,600	\$288,600	23
FY 1999/00	\$1,344,500	\$268,900	20
FY 2000/01	\$1,357,000	\$1,135,000	84
FY 2001/02	\$1,508,000	\$457,000	31
FY 2002/03	\$1,722,000	\$1,300,000	75
FY 2003/04	\$1,717,000	\$1,065,000	62
Totals	\$10,335,500	\$5,307,890	51

RHODE ISLAND

The Rhode Island State Energy Office State Energy Program

The primary mission of the Energy Office is to maintain a healthy economy, foster economic development and ensure the health, safety and welfare of the people of Rhode Island. As a self-sufficient division, the office ensures that Rhode Island's energy resources are efficiently and economically managed, and consistent with sound environmental practices for the benefit of future generations.

Revolving Loan Fund

In 1991, the Energy Conservation Revolving Loan Fund was created with monies provided by the U.S. Department of Energy (DOE). The Fund became an important vehicle for state agencies to conduct cost-effective energy conservation activities as utility company rebates were paying less and less of the share of the projects as part of their Demand Side Management Programs. In 1995, legislation was signed by the Governor that added the availability of funding water conservation, and water and sewer cost reduction measures.

The Rhode Island State Energy Office expanded the Revolving Loan Program to include municipalities effective January 1, 1999. Direct funding from DOE for the Institutional Conservation Program (ICP), a 50-50 matching grant for schools, was eliminated and is now replaced with the Fund to create a self-perpetuating fund not only for state agencies but also municipal buildings. In addition, the Fund began funding finance the incremental cost of alternatively fueled vehicles effective January 1, 1999.

RI NEED Project

One of the missions of the RI State Energy Office is to offer good and sound information on energy to all Rhode Islanders. To that end, the RISEO has been a member of the National Energy Education Development Project (NEED) since 1991. The NEED Project has been instrumental in helping the Energy Office achieve its goals of providing quality energy education materials to K-12 schools.

NEED's Energy Management for Schools program also allows many schools to participate in saving vital energy dollars for their districts. These new programs are correlated to the U.S. DOE EnergySmart Schools initiatives. The RI NEED Project has been the recipient of numerous national awards, including NEED State Program of the Year in 1999. Recently, RI NEED has been an active player in Rhode Island's REACH Program by providing energy education materials and services to low-income REACH families.

Ocean State Clean Cities

Ocean State Clean Cities (OSCC) was formed in 1998 by a diverse group of initial stakeholders and is coordinated by the U.S. Department of Energy (DOE) to expand the use of alternatives to gasoline and diesel fuel. OSCC undertakes initiatives to improve the quality of Rhode Island's air, encourage economic growth, and increase energy independence. OSCC's goal is to greatly expand the use of alternative fuel vehicles (AFV's) in Rhode Island. OSCCC was successful in securing \$4.5 million from the Federal Highway Administration (CMAQ) to help implement its programs. To date, OSCCC has provided assistance with the construction of several CNG refueling stations statewide, supported the purchase of AFV's for state agencies, and provided grants and rebates to private sector groups who purchase AFV's (e.g., New England Pest Control, New England Gas, Cumberland Police Department and others).

Energy Codes

For several years, DOE's SEP Program has provided support to Rhode Island, which has allowed the state to participate in the Northeast Energy Efficiency Partnership (NEEP). NEEP provides policy and technical support to Rhode Island building code officials in their efforts to update energy codes and more recently, is spearheading an important initiative to provide training for the 2003 IECC update.

Rebuild America

Created by the U.S. Department of Energy in 1994, Rebuild America serves as a mechanism for revitalization and job creation in many communities. RISEO is an active partner in this program since 1996. Our mission is to assist local government and schools implement energy efficiency and renewable energy improvements. To help achieve these goals, RISEO provides the necessary technical assistance and services to meet these objectives.

Fossil Fuel Retrofit Programs

The Fossil Fuel Retrofit Program was born out of discussions with Rhode Island's Greenhouse Gas Group. The program has two distinct approaches and is based on the size of the participant. The Small Commercial/Industrial Program is targeted toward smaller buildings that use 100 kW or less monthly in electrical demand. RISE Engineering has operated a program for Narragansett Electric for 14 years called the Small Business Solutions Program where the utility pays 75% of the cost of electrical conservation initiatives. The Fossil Fuel Efficiency Program will add to this program and add a boiler component. RISE will perform the technical review and identify and arrange cost effective opportunities to reduce fossil fuel usage. RISEO will provide incentives to participants capped at 25% of installed cost or \$3,000 per building total. Incentives range from \$75 per individual thermostat to \$3,000 for a premium efficient heating system.

For Large Buildings, RISEO is identifying a pool of prospective participants to enter into an Energy Performance Contract to reduce heating, cooling, ventilation, lighting and other energy uses. Measures involve controlling, modifying, adding and replacing equipment and systems. The ESCO's must include fossil fuel reduction measures in their proposal to the client.

Renewable Energy

RISEO promotes the use of renewable energy sources to reduce reliance on foreign sources of energy, reduce air and water pollution, and promote local economic development. Rhode Island is a Million Solar Roofs Partner and promotes the use of solar in homes, schools, commercial and government facilities. As of January 1, 2003, the Rhode Island State Energy Office took over the administration of the RI Renewable Energy Fund (RIREF). RIREF is a major partner in the RI MSRI.

Conservation and Fuel Purchasing

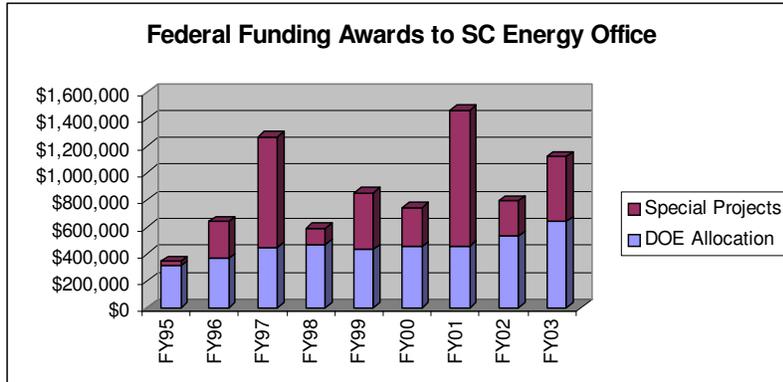
RISEO assists the State of Rhode Island in energy conservation initiatives in state facilities using rebates provided by the utilities and/or the Revolving Loan Fund. RISEO is also involved with the purchase of transportation gas and oil contracts for the state in cooperation with State Purchasing.

South Carolina Energy Office

The South Carolina Energy Office connects local expertise with federal funding for state, regional and national energy priorities. The Energy Office is a catalyst for deploying renewable energy and energy efficiency to benefit the state's citizens.

Bringing Federal Resources to South Carolina

The South Carolina Energy Office increases energy efficiency and diversity, enhances environmental quality and saves energy dollars for South Carolina. One of SCEO's primary roles is to apply federal funding from the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy



(EERE) to a portfolio of energy projects in South Carolina. Through EERE's State Energy Program (SEP), SCEO applies funding from SEP energy grants to priorities within the state. In addition, South Carolina competes with other states for SEP and EERE funding for specific technology projects. Currently, annual SEP funding to South Carolina is \$641,000, and

SCEO garnered another \$400,000 in FY03 from EERE for four renewable energy projects.

Reducing Energy Expenditures for Schools and Government Buildings

Another important role is to help school districts and state government agencies reduce energy expenditures. SCEO offers technical energy audits and supports workshops for facility managers, architects and engineers. SCEO's ConserFund program finances energy cost saving improvements in state agencies and other public buildings. In FY03, SCEO committed nearly \$3 million to finance 11 energy conservation projects for five state agencies, one school district and one local government. Taxpayers will save \$12 million in energy costs over the lifetime of the 17 ConserFund projects SCEO financed through the end of FY03.

SCEO also helps the state's poorest school districts with the School Energy Efficiency Improvement grant program. Seventeen grants totaling \$1.4 million were awarded in FY03, and the life cycle energy cost savings from program grants will save millions of dollars for school districts as well as improve lighting quality in numerous classrooms that were below building code requirements.

SCEO created a metric process whereby savings can be tracked and measured over time for past, present and future SCEO projects. Life cycle savings for all public sector projects through FY03 totaled nearly \$50 million.

TOTAL PUBLIC FACILITY ENERGY SAVINGS			
	Savings Over All Project Lives	Total SCEO Investment (All Projects)	Total Number of Projects
State Government	\$27,345,814	\$5,181,503	54
School Districts	\$18,977,471	\$6,811,106	79
Local Governments	\$3,661,182	\$875,535	17
TOTALS	\$49,984,466	\$12,868,144	150

Public Awareness

Distribution of information plays an integral part in achieving the goals of awareness and education in the community. The SCEO reaches a variety of audiences in the state through its web site, newsletter, marketing materials, information distributed through the news media and attendance at a variety of community events. To help South Carolina students learn about energy, SCEO facilitated the training of more than 1,000 teachers in energy lessons from the Action for a Cleaner Tomorrow curriculum. These teachers represent 46 school districts and 32 counties in the state. SCEO educates the public on energy efficiency and answers information requests from the public. SCEO also participated in regional Home Shows around the state to showcase energy-saving techniques and technology for the residential sector.

Fostering a Competitive Economy

Many of SCEO's energy efficiency and renewable energy projects directly benefit South Carolina's economy and help mitigate environmental degradation and the loss of economic investment. Concentrated efforts and focus on Landfill Gas to Energy (LFGTE) projects have resulted in significant energy and environmental benefits for the state. SCEO played a key role in getting the Palmetto Landfill/BMW LFGTE project operational. The site generates 5 MW of power and will satisfy approximately 25 percent of BMW facility's energy needs for the next 20 years. Santee Cooper, a state-owned power provider, generates 3 MW from the Horry County landfill and is working with the SCEO and others to develop similar LFTGE facilities at three other sites.

Another renewable energy project SCEO supports is DOE's Million Solar Roofs Initiative (MSRI). South Carolina has committed to promoting the installation of over 500 systems by 2010. Two types of solar technologies are being promoted: 1) solar thermal systems, which produce heat for domestic hot water, swimming pools and space conditioning, and 2) photovoltaic systems, which convert sunlight into electricity. Specific objectives for SC's new MSR Initiative include the development of a SC Chapter of the American Solar Energy Society (ASES), creation and execution of an education and marketing program to increase knowledge and acceptance of solar technologies in SC, and determination of the means to finance solar systems.

SCEO also promotes solar technology in public buildings through the Public Building Solar Initiative. This program demonstrates solar water heating technical and economic efficiency in SC's public facilities.

Alternative Fuels for Transportation

The Energy Office led the way in organizing the Palmetto State Clean Fuels Coalition (PSCFC), which has become the newest Clean City in the United States. The Department of Energy approved the final application on August 4, 2003, which recognized the commitment to building an alternative fuels market in South Carolina by stakeholders in the coalition. Stakeholders are working together to reduce energy used for transportation and the impacts of transportation on the quality of life and environment of South Carolina.

As a result of this effort, more than 1,200 Alternative Fuel Vehicles (AFV's) in government and private fleets are using alternative fuel 100 percent of the time in the Palmetto State Clean Fuels Coalition. In addition, state government fleets used 82,660 gallons of alternative fuel in FY03, up from 7,025 gallons the previous fiscal year. Also, SCEO's telecommuting, mass transit, and e-government projects were instrumental in helping the state avoid the use of more than 231,000 gallons of gasoline in FY03.

Tennessee

The Energy Division is a unit of the Tennessee Department of Economic and Community Development and is the state agency that provides leadership and direction in promoting the most efficient and economical use of energy. The Energy Division receives grant funds from the Department of Energy and the Petroleum Violation Escrow Funds. Developing and implementing energy efficiency plans for various sectors of Tennessee's economy is one of the primary objectives of the Energy Division. The programs managed by the division directly benefit state and local governments, businesses and industries, schools and residential energy consumers throughout the state.

The **Tennessee Energy Education Network** (TEEN) promotes energy education in grades K-12. Although the classroom is the main focus, the program also works with other community organizations. TEEN services include in-service training workshops for teachers, energy education materials for the classroom, classroom presentations, and a bimonthly newsletter. All services and materials are free to Tennessee teachers.

Public Outreach programs target small businesses, local governments and residential energy users with information that helps them to make informed energy decisions. An information center and toll-free Energy Hotline operated by the Energy Division aids consumers in finding information on home energy audits, implementation of low-cost energy efficiency measures and other energy efficiency concerns. The Information Center also houses copies of published reports about fossil fuel production and consumption trends, alternative fuels and energy education curriculum materials.

Transportation Alternatives conserve significant amounts of motor fuel through the promotion and implementation of carpools, vanpools and mass transit. The Energy Division has initiated efforts toward the development and adoption of alternative fuels within the transportation sector, and is monitoring activities and issues relative to alternative fuel vehicles. Our office acts as the conduit for state government as federal information is made available.

The **Intergovernmental** element of the SEP provides support to businesses and local governments throughout the state with a variety of activities that produce energy savings, such as energy audits, assistance in project financing and energy use management. The initiative also includes initiatives within the national Clean Cities program, and supplements the State of Tennessee's own 3-Star Program for community development.

The **Industrial/Commercial Program's** primary objective is to provide assistance to industrial and commercial concerns to identify and implement energy efficiency measures in facilities and/or processes. Under this program the Energy Division contracts with the University of Memphis - Office of Technology and Energy Services to provide technical support for the Small Business Energy Loan Program, Local Government Energy Loan Program and various other Energy Division initiatives relating to building energy efficiency.

Industries of the Future Program funded through a grant from the US DOE, Office of Industrial Technologies has the goal "*to invest in research, development and deployment of cost-shared technologies that save energy and improve the environment in selected high energy and waste intensive manufacturing industries.*" Those industry sectors selected include: glass, forest products, aluminum, metal casting, chemicals, agriculture, steel, mining and petroleum.

Energy Emergency Planning was established by the Energy Division to encompass the activities pertinent to energy emergency preparedness. The Tennessee Emergency Management Agency (TEMA) has established a framework for the development of a comprehensive emergency management plan for the State of Tennessee. Within TEMA's Plan, the Energy Division's role has been to comply with the Emergency Support Function-12/Energy, as described under the 12 Emergency Support Functions (ESF) implemented under the Federal Response Plan (FRP) for federal assistance in the event of a disaster. The Energy Division's *Petroleum Contingency Plan* is a part of the ESF-12, as are additional resources and databases that would be needed in the event of an energy-related emergency.

Tennessee's **Geographic Information System** (GIS) is also part of Energy Emergency Planning, and was developed as a coordinated effort of the Energy Division and the Local Planning Assistance Office. Tennessee Technological University contracted to provide a turnkey GIS including hardware, software, training, documentation and user manuals, and demonstration projects to Regional Local Planning offices and communities. The primary goal of the GIS has been to develop a computer mapping and information base capable of geographically locating a wide range of information. The State's goal is to complete all 95 counties and establish a computerized system for statewide GIS.



Texas State Energy Conservation Office (SECO)

SECO helps the state make the most of domestic energy, reduce state and local government energy costs and promote cost-effective clean energy technologies. SECO's mission is to increase the efficient use of energy and water, while protecting the environment.

State Energy Program (SEP) Funding

STATE ENERGY PROGRAM (SEP) - U.S. DEPARTMENT OF ENERGY				
Funds Awarded and State Cost Share – Texas				
State FY	Federal SEP Grant	Cost Share	Total State Match	Cost Share
FY 1999	\$1,819,500.00	42%	\$2,469,835.71	58%
FY 2000	\$1,819,900.00	42%	\$2,502,300.05	58%
FY 2001	\$1,864,000.00	51%	\$1,807,518.61	49%
FY 2002	\$2,182,000.00	47%	\$2,421,118.53	53%
FY 2003	\$2,653,000.00	69%	\$1,196,525.26	31%
Totals	\$10,338,400.00	50%	\$10,397,298.16	50%

State Energy Program (SEP) Activities

- 1) **LoanSTAR Program** has saved taxpayers more than \$137 million through energy-efficiency projects for state agencies, institutions of higher education, school districts, county hospitals and local governments. Borrowers repay loans through cost savings generated by the projects. LoanSTAR-funded projects have also prevented the release of 5178 tons of nitrogen oxides (NO_x), 1.4 million tons of carbon dioxide (CO₂) and 3,400 tons of sulfur dioxide (SO₂).
- 2) **Schools/Local Government Energy Program** helps more than 3,500 schools and other units of local government set up and maintain effective energy-efficiency programs. SECO provides facility energy audits, energy management training workshops, technical support in designing new facilities and on-site training for student energy awareness projects. Texas schools also employ the computer power management software that puts monitors to "sleep" when not in use. Over 105,000 school computers now use this software saving 33 million kWh and reducing their energy costs by \$2 million annually.
- 3) **State Agencies/Higher Education Program** ensures that state facilities are operated and maintained efficiently and that new facilities are designed and built with energy efficiency and water conservation in mind. Projects include the administration and maintenance of the Energy and Water Conservation Design Standard for new state buildings and major renovation projects.

- 4) **Codes and Standards Program** provides education and outreach on residential and commercial energy code statewide. The goal is to demonstrate the clear benefits of energy codes and standards in improving the quality of life, the environment and the safety and health of communities.
- 5) **Renewable Energy Program** promotes the use of renewable energy and sustainable building design. Technology demonstration, training, and renewable energy educational activities increase public awareness. SECO also gives the public better access to vendors, financing options, policies and procedures and laws. The program also has an “Ask the Expert” feature on its educational web site: www.infinitepower.org.
- 6) **Housing Partnership Program** promotes the efficient use of energy in low- to moderate-income housing through partnerships among nonprofit organizations, community action agencies, local governments, utility companies, public housing authorities and social service organizations. The program encourages community and residential involvement in energy-efficiency projects such as housing retrofits, model demonstration projects, the development and demonstration of stationary fuel cell applications, technical training assistance, and energy education workshops and seminars.
- 7) **Transportation Program** focuses on reducing fuel consumption, air pollution and traffic congestion. Projects include traffic signal synchronization, intelligent traffic management systems, Texas/Mexico colonias vanpools and telehealth programs. Local partners (governmental units, hospitals, school districts, and not-for-profit providers) maintain, dispatch and operate the equipment. Each year these vans cover more than one million passenger miles.
- 8) **Alternative Fuels Program** demonstrates the positive environmental impact, technical feasibility and energy efficiency of domestically produced alternative fuels. Originally designed to assist state agencies operate more of their fleets on alternative fuels, schools, local government and private fleets are now involved. Initiatives include support for the Clean Cities Program, financial assistance for a secondary school course curriculum in energy basics and alternative fuels, and the Adopt-A-Bus Program and Clean School Bus USA Program.
- 9) **Texas Emissions Reduction Plan (TERP)/Texas Energy Partnership** assists political subdivisions in 41 urban counties to reduce electric consumption in their facilities by implementing cost-effective energy efficiency projects. SECO provides technical support and guidance through the Texas Energy Partnership, a joint initiative involving SECO, the U.S. Department of Energy’s Rebuild America Program and EnergyStar®. Information, planning tools and electronic reporting are offered on the web site: www.texasenergypartnership.org.
- 10) **Water Systems Efficiency Program** assists water districts along the Texas/Mexico border to increase the energy and water efficiency of irrigation systems. In partnership with the Texas Water Development Board, SECO funded feasibility studies that helped secure over \$23 million in North American Development Bank (NADBank) awards to construct these projects.

11) Fuel Cell Commercialization Initiative identified a number of initiatives that the state could use to encourage a Texas-based fuel cell industry. These initiatives are in the report *Accelerating the Commercialization of Fuel Cells*, delivered to Texas House Energy Resources and Senate Business and Commerce committees.

12) State Facilities Utility Management Program reduces the almost \$50 million a year the State spends on energy and water it does not need. SECO requires state agencies and public higher education institutions to implement all cost-effective energy and water conservation measures by September 2006. To help these entities develop their Resource Efficiency Plans, SECO produces guidelines, model documents, templates and an electronic reporting system.

Texas State Energy Conservation Office

111 E. 17th Street

Austin, Texas 78711

Phone: 512.463.1931 Fax: 512.475.2569

www.seco.cpa.state.tx.us

Success Story: SEP Special Projects

State Agencies/Higher Education-Codes and Standards Program

Background:

Following the passage of Senate Bill 5 by the 77th Texas Legislature on May of 2001, the State Energy Conservation Office (SECO) broadened its promotion of voluntary adoption of energy codes through a successful implementation of a statewide education and outreach program. The program provides training and technical assistance to home builders, city building officials, industry representatives, community groups and other stakeholders to promote and facilitate implementation and compliance with the energy provisions of the 2000 International Residential Code and the 2001 International Energy Conservation Code in selected jurisdictions in Texas. Throughout SECO's voluntary energy adoption effort during 1995-2000, there was little interest, resulting in low attendance at the training sessions. Using U.S. DOE Special Projects funds, SECO contracted with the Texas Engineering Experiment Station of Texas A&M University and the Sustainable Living Alliance to provide the training using the new approach. The Texas Association of Builders (TAB) and the Texas Municipal League (TML) joined SECO as team players in the effort.

Program Success:

In less than a year, from October 12, 2001 to August 7, 2002, this joint effort provided a total of 31 training sessions with 1,905 attendees. SECO's original proposal to DOE was for 27 training sessions but due to high demand, four additional sessions were scheduled. TML scheduled training sessions for all of its members in Austin, Dallas, Houston, and Corpus Christi. TAB scheduled training sessions in 26 chapters statewide. Training was also provided to local governments in the city of Georgetown and the city of Laredo.

The project accelerated the transition from voluntary adoption to full compliance with the new energy code requirements in Texas. Critical to the success of the program were the efforts of TML and TAB to ensure that their members would be in a position to fully and expeditiously commit to the codes once they were officially announced. One effective strategy was to have enough supplies readily available before the compliance date was set. The glass industry was impressive in its quick response to provide window manufacturers with an adequate supply of materials that complied with the new energy code.

Utah

Utah Energy Office

Public Buildings Energy Efficiency Programs - In 2001-02 the State of Utah received \$102,000 from U.S. Department of Energy State Energy Program and Rebuild America grants to support Utah Public Buildings Energy Efficiency Programs. These programs target local governments, state buildings, universities, and public schools. For state buildings alone, the goal is to meet the Governor's Executive Order to reduce cumulative energy use in state buildings by \$20 million over the next 10 years. The Energy Smart Schools component is providing outreach to Utah's 40 school districts. This year the Jordan School District saved \$170,247 at 37 schools by implementing the Energy Smart Schools classroom module conservation educational materials for teachers, students, and their families. For the Millard School District, \$7,000 in technical assistance has netted a \$3.5 million in upgrades using a performance contract. For the University of Utah, \$19,000 in technical assistance has netted \$44 million in energy upgrades throughout the campus.

STATE OF VERMONT

The Energy Efficiency Division of the Vermont Department of Public Service works to promote energy efficiency and renewable energy in Vermont through several forums, including regulatory, legislative, informational and educational. The program also assists other organizations in applying for Department of Energy efficiency and renewable energy grants.

In addition to the programs described above, Vermont has taken the following actions to promote the more efficient use of energy:

- **Renewable Energy Bill (Passed, June 2003)**
The bill includes “Renewable Pricing Programs” for Electricity; Alternative Regulation for Electric and Natural Gas Utilities; and an appropriation of over half a million dollars for the Vermont Solar and Small Wind Development Incentive Program, which provides financial incentives to Vermonters who install small wind, photovoltaic, solar hot water or other renewable energy systems in their homes and businesses.
- Governor Jim Douglas recently stated an initiative on energy efficiency in state buildings.
- The State is reviewing fleet management policies.
- Efficiency Vermont was awarded the Innovations in American Government Award by Harvard University’s Kennedy School of Government. This award is often referred to as the Oscar of Government Awards. Efficiency Vermont was selected from a nationwide field of 1,200 nominees. They received the award for their pioneering approach to energy efficiency services, and thus a tremendous impact on Vermont’s environment, economy and energy policies.

Sample of Vermont SEP Programs

School Energy Management Program: The purpose is to maximize the long-term benefits of federal, state, and local investments by providing schools with management tools and with the support required to successfully implement effective, long-term energy management systems and practices. Since the late 70’s Vermont schools have received more than \$7 million in DOE energy conservation investments.

Methane: These funds have been used to develop an ongoing capability to assist farmers in devising and installing manure management systems that improve environmental quality and farm economics through the use of anaerobic digestion and methane production and use. Vermont has received nearly \$700,000 over the past few years towards this program.

Sample of Special Projects

BUILDINGS

Vermont Residential Building Energy Standards (RBES): Vermont received \$195,000 from DOE to fully implement the Vermont Residential Energy Standards by creating and disseminating code compliance materials and training architects and builders on energy efficient design and construction techniques.

Rebuild America: DOE recently awarded \$95,900 to Vermont for developing a partnership to create a Rebuild America program that will improve energy efficiency and develop renewable energy alternatives on Vermont’s colleges and university campuses.

TRANSPORTATION

Clean Cities Conference: This regional conference provided an opportunity for each of the 15 Clean Cities coordinators in the region to share the local successes and barriers that they have encountered while implementing their program. The conference also strengthened local Clean Cities organizations due to the exchange of “lessons learned,” from other stakeholders involved in the promotion of the alternative fuels industry.

Clean Cities Coalition: Most recently, Vermont was awarded \$20,000 to provide EVermont with the funding to operate the Vermont Clean Vehicles Coalition, which will include staff salaries for the coordinator and outreach activities and materials. This organization provides Vermont with the organization, motivation and the staff to direct and sustain its statewide Clean Cities activities. Activities include facilitating the sales of alternative fuel vehicles, organizing and holding events, writing grant applications and implementing other fundraising activities, holding public education and outreach campaigns and developing and promoting training programs on the maintenance of AFVs, to name a few.

INDUSTRIAL

Industries of the Future: Vermont was recently awarded \$60,000 to help develop a Vermont Industries of the Future partnership structure. The core partners will use their existing technical skills to work in tandem with Vermont industry and each other to address energy and environmental needs of the industrial sector. The granite industry will be used as a test vehicle.

Virginia Energy Office Accomplishments

Small Energy Project Grants

Established and implemented a grant program for energy projects at state facilities. 16 participating agencies are performing a combination of mechanical, electrical, and building envelope upgrades improving the energy efficiency in 1.9 million square feet of state owned facilities. DE awarded \$473,866 of federal State Energy Program funding matched by state agency contributions of approximately \$240,000. Estimated annual savings are \$287,000 for a simple payback of two and a half years.

Performance Contracting

Partnered with the Department of General Services in developing/implementing a performance contracting program. Initial program participants include William and Mary, Mary Washington, Norfolk State, School of the Deaf and Blind, Mental Health, Virginia Community College System, Virginia State, George Mason, VCU and ODU. Program will result in significant energy improvements and upgrades in state facilities.

Utility Tracking

Developed and in the process of implementing state of the art techniques for energy consumption accounting in state facilities. System replaces and enhances FASER system previously used by agencies and supported by DMME. System will help facility managers determine opportunities to enhance facility energy performance as well as help DMME identify procurement opportunities in a deregulated electricity market.

Clean Cities

Provided support to create active Clean Cities Coalition in Hampton Roads. Clean Cities is a primary target program sponsored by DOE with the goal of displacing petroleum products as a transportation fuel. Program has collected commitment and support from a broad range of stakeholders to include the U.S. Navy, Virginia Beach Schools, City of Norfolk, Hampton Roads Transit, Colonial Williamsburg, Langley/NASA and Newport News Shipyard. Activities include considerable economic development opportunities in the areas of hydrogen/fuel cell deployment, bio-diesel production/sales and ethanol product distribution.

Rebuild Virginia

Rebuild Virginia is a part of DOE's Rebuild America Program. DMME has provided support in creating an active and productive Rebuild Partnership. Program supports government and institutions in pursuit of energy efficiency and sustainability. Sixteen partnerships were recruited over a two-year time period. Recruitment of partnerships from priority sectors—affordable housing and K-12 schools was accomplished via workshops, presentations and exhibits. Local governments and universities also became engaged in the program during the first two years.

Wind Powering America

Supported James Madison University and a broad range of private stakeholders in pursuing wind energy opportunities in Virginia. Activities have been noted by DOE as a model and example for other states to follow. Program has the potential to support significant economic development opportunities. An example is the recently announced U.S. Department of Agriculture award of a \$500,000 grant for development of a wind farm site in Highland County. The venture will be called Highland New Wind Development, LLC and is a partnership between Community Energy, Inc and the Highland County landowners.

West Virginia State Energy Program (SEP) Activities - 2003

Administered by the West Virginia Development Office, Energy Efficiency Program (EEP)

- **Energy Assessment Program** – Contract in place with West Virginia University (WVU) Industrial Assessment Center (IAC) to provide industrial assessments to West Virginia industries that are either below or above the energy consumption criteria established by DOE for the IAC centers. Assessments conducted in five plants in 2003 had identified total savings of 371,024 MMBTU, potential annual savings of \$1,999,959 and an average payback period of six months.

Funding Sources

SEP – \$75,000

WVU – \$29,428

- **Boric Acid Treatment Project** – New international standards proposed by the European Common Market requires that pallet lumber be heat-treated to eliminate insect and disease infestation. The 40 to 50 West Virginia pallet manufacturers are concerned that heat-treating pallets would price hardwood pallets out of the market. This project is a demonstration of boric acid as an energy efficient alternative to heat treatment (kiln drying).

Funding Sources

SEP – \$50,000

WVU – \$10,000

- **Poultry House Biofilter Project** – This initiative, developed by the WVU Extension Service, examines the use of a compostable biofilter to remove ammonia from poultry houses and reduce energy consumption by 50 percent. The largest poultry producer in West Virginia, Pilgrim's Pride, will provide the birds and feed for the demonstration.

Funding Sources

Oil Overcharge funds – \$98,588

Pilgrim's Pride – \$90,765

- **Energy Roadmap Implementation Workshops** – The West Virginia Energy Task Force presented the West Virginia Energy Roadmap to Governor Wise in 2002, which identified key policy options to be implemented from 2001-2020. Acting on the recommendation for workshops to discuss energy issues impacting West Virginia, a series of workshops on energy infrastructure, hydrogen, coal-bed methane and wind energy issues in West Virginia was conducted in Fall, 2003. Approximately 450 decision-makers attended these sessions.

Funding Sources

SEP – \$60,000

WVU – \$12,000

- **Industries of the Future – West Virginia** – This program serves to foster the adoption of new technologies in the aluminum, chemical, forest products, glass, metals casting, mining and steel industries. The IOF-West Virginia steel industry team and 15 industry partners received in 2003 \$1.4 million to fund a proposal entitled "Multifunctional Metallic and Refractory Materials for Energy Efficient Handling of Molten Metals."

Funding Sources

State – \$100,000

DOE Special Projects – \$100,000

WVU – \$109,200

- **Hydrogen Roadmap Studies (Two Projects)**

Carbon Sequestration – Initiatives such as FutureGen and the West Virginia Hydrogen Roadmap session highlighted the need for identification of the optimum carbon sequestration locations. EEP contracted the West Virginia Geological and Economic Survey to conduct site specific carbon sequestration studies.

Funding Sources

SEP – \$15,000

Survey – \$3,000

Hydrogen Markets Study – Marshall University (MU) will provide a study of potential hydrogen markets and the hydrogen infrastructure in West Virginia. This study will focus on identifying markets and uses that currently exist for hydrogen in the Ohio Valley and the associated in-place hydrogen infrastructure.

Funding Sources

SEP – \$55,000

Marshall University – \$11,000

- **Energy Use in Historic Structures** – A cooperative effort with the West Virginia Weatherization Program to improve the energy characteristics of public use historic buildings in West Virginia. Twenty-one audits have been performed and seven renovation grants have been implemented. Energy savings of \$28,697 have been provided by these renovations. In 2003, West Virginia Public Television produced a television program on this community revitalization program.

Funding Sources

SEP – \$100,000

Rebuild America – \$92,000

Oil Overcharge funds – \$18,000

Building owners – \$30,000

Focus on Energy in Wisconsin

The Wisconsin Division of Energy oversees the Focus on Energy program, which is the statewide public benefit program. For Focus on Energy, the past year has been the best of times and the worst of times.

Now in its third year of operation, Focus programs are starting to report some significant successes.

- The Focus Business Program created the Center for Technology Transfer (CTT) to accelerate the movement of new technology from the laboratory to the field. In the past year, Fiber Recovery Technology, a start-up firm aided by the CTT, commercialized a new process to recycle coated paper, not only saving energy but resolving a significant disposal issue in the process.
- The CTT provided a grant to Virent Energy Systems. Virent is developing a process to take sugars from crops like corn and produce hydrogen for use in fuel cells.
- Focus has sponsored a comprehensive “One-2-Five[®]” benchmarking process of state facilities in Wisconsin. The process confirmed that state building and equipment practices are among the best in the nation, but that the state can save millions of dollars with improved management practices. These practices are now under development.
- In the consumer goods sector, we have achieved significant market share gains in several products.
 - Compact Fluorescent Lamps hold a 12% market share in Wisconsin compared to 1% nationally.
 - ENERGY STAR[®] clothes washers now hold a 38% market share compared to 14% nationally.
 - Furnaces with ECM motors are at 16% market share in Wisconsin, compared to less than 1% nationally.
 - 13 SEER Central Air Conditioning units have moved from .3% market share to 2.5% over the past 2 years.

For the most recent fiscal year, we were able to report, based on total expenditures of \$53.4 million:

FY03 Energy Savings	FY03 Economic Benefits	Program to Date Environmental Benefits
214.8 million kWh	\$13.2 million residential savings	1,800,000 lbs – Nitrogen Oxide
32.5 KW	\$11.1 business savings	2,900,000 lbs – Sulphur Dioxide
7.2 million therms	\$20.8 million increase in personal income	375,000 tons – Carbon Dioxide
	\$87.2 million increase in business sales	10 lbs - mercury
	1,194 new job years created	

Overall, in FY03 the residents of Wisconsin received \$3.00 in direct lifetime energy benefits for every \$1.00 invested. When non-energy benefits are added to the calculation they realized a return of \$5.70 for every \$1.00 invested.

On the other hand, the economy and the state budget situation have severely impacted the program. The biennial budget cut \$17.6 million (28%) from the FY04 funding and \$29.4 million (47%) from FY05 funding. In response, Governor Doyle has created a Task Force to conduct a ground up review of the public benefits program. The Task Force is considering a wide range

options, including a return to PSC supervised utility delivery of some or all energy efficiency programs, changes in funding sources, and changes in program direction.

For the immediate future, the Focus on Energy program will operate in FY05, although with sharply reduced budgets.

- A new administrator will be contracted to operate the Business Programs
- Existing contractors will administer the Residential, Renewable, and Environmental Research Programs.
- Contracts for evaluation and program-wide marketing will be terminated and not replaced.

Wyoming

The Wyoming Energy Conservation Office has participated in the State Energy Program and its predecessor since its inception. While the Office has a small staff, every effort has been made to participate in each of the allowable activities available under SEP in order to foster energy efficiency and renewable energy in as broad a spectrum as possible. Every effort has been made to work with governments at all levels, as well as with school systems, industry, and the general public in order to maximize the benefits to be realized to each entity and to the state. While sometimes not shown as an SEP measure, most Stripper Well projects can trace their heritage directly to SEP. The following list describes some of the projects being carried out in Wyoming:

General Education.

General education measures promote energy efficiency through publications and energy advertising. Currently, ten different projects are being conducted under this activity. The Energy Office believes that 5th grade level students are at the ideal age to instill a desire to preserve the environment and to conserve energy. To this end, every 5th grader in the state receives an energy workbook, which teaches them these virtues in a fun, enjoyable way. For the older more mature citizens in the state, a statewide recycling directory is produced and distributed as well as an annual Mineral/Energy Yearbook, and a quarterly newsletter, which contains up to date discussions of equipment and technologies. A series of television advertisements are aired statewide, which promote different times of energy efficiencies, which are applicable for the different seasons of the year. Funding is provided to the University of Wyoming to be used to educate engineering students in efficient electric motor selection, and for students/staff to go out to Wyoming industry and test their motors on site. Opportunities in the bio-mass field are explored and an up-to-date inventory is being produced. Emergency planning is an issue that is on everybody's mind. While The old Wyoming Emergency Plan is only two years old, there has been enough change in the production and distribution of different types of energy along with the problems associated with 9/11, that an update plan is being developed.

Buildings.

Buildings, especially older buildings, are tremendous energy hogs. Sometimes, the best way to affect change in society and to help overcome these inefficient uses of energy is to lead by example. To this end, the Energy Office is providing for energy efficiency improvements in state owned buildings. These include buildings used by state government and by the Wyoming National Guard. Funding has been provided to the Laramie County School District so they can purchase and install micro-turbine generation in order to save money and to capture waste heat. North West Community College has received funding reminiscent to the old ICP program, which they are using to determine cost effective measures to help provide a better environment for their students while lowering their energy expenditures. To further promote efficiencies in buildings, seminars are held at various locations through out the state, which offer training in boiler operation, and pneumatic controls. Energy Audits are also available on a first come, first served basis to building operators.

Transportation

In order to promote alternative fueled vehicles and the environmental benefits to be received by using them, and to promote a local domestic fuel, Wyoming has made funding available for OEM upgrades to new vehicles, and for retrofits to older vehicles so that compressed natural gas can be used as a fuel. Discussions are ongoing with Wyoming school systems in an attempt to convert a large number of school buses to this fuel source.

Utilities:

Wyoming has always desired to utilize the renewable resources available within the state as well as to use wasted energy in a reasonable manner. Small grants are made available to qualified recipients, which allow for the purchase and installation of photovoltaic systems. On an average, 20 to 25 kw of new PV generation goes on line in the state every year due to this program. This program is always over subscribed, primarily by residents who do not have access to commercial power at a reasonable rate. The University works closely with the rural residents in the state, and promotes both the installation of PV systems as well as passive solar systems for stock water heating and pumping. One passive system developed by the university using off-the-shelf components is showing efficiency improvements of 300% above the best commercial systems out on the market. Waste heat from one of the coal fired power plants in Wyoming has been sent to an industrial park through a pipe line system, and is available for tenants to use. Lastly, non-commercial grade coal bed methane, which previously was allowed to escape to the atmosphere, is now being mixed 70/30 with diesel fuel and used in diesel powered generators. Emissions from the generators indicate that this may be the best available control technology for these systems.