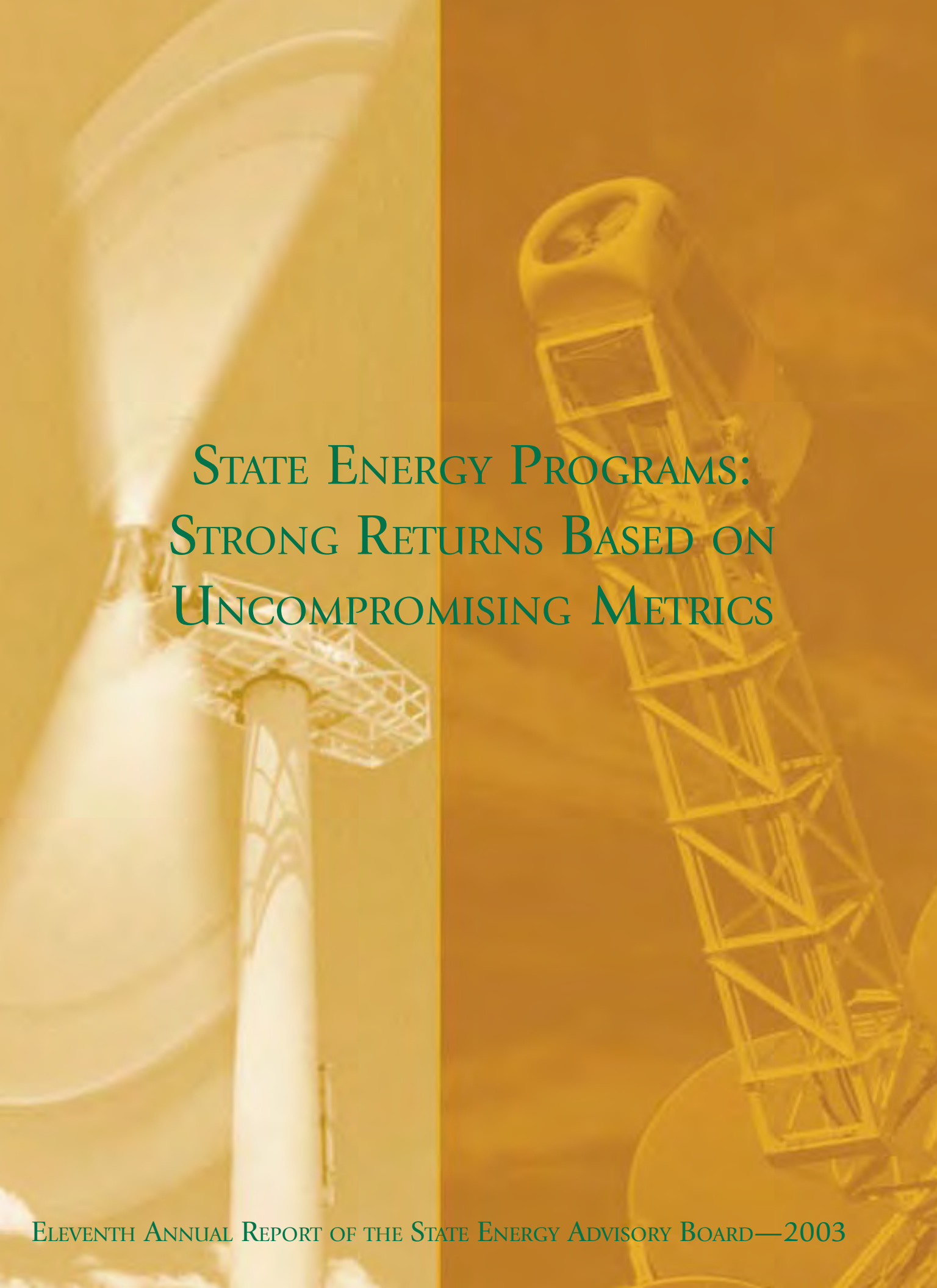

State Energy Programs: Strong Returns Based on Uncompromising Metrics

Eleventh Annual Report of the State Energy Advisory Board—2003

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August 2003

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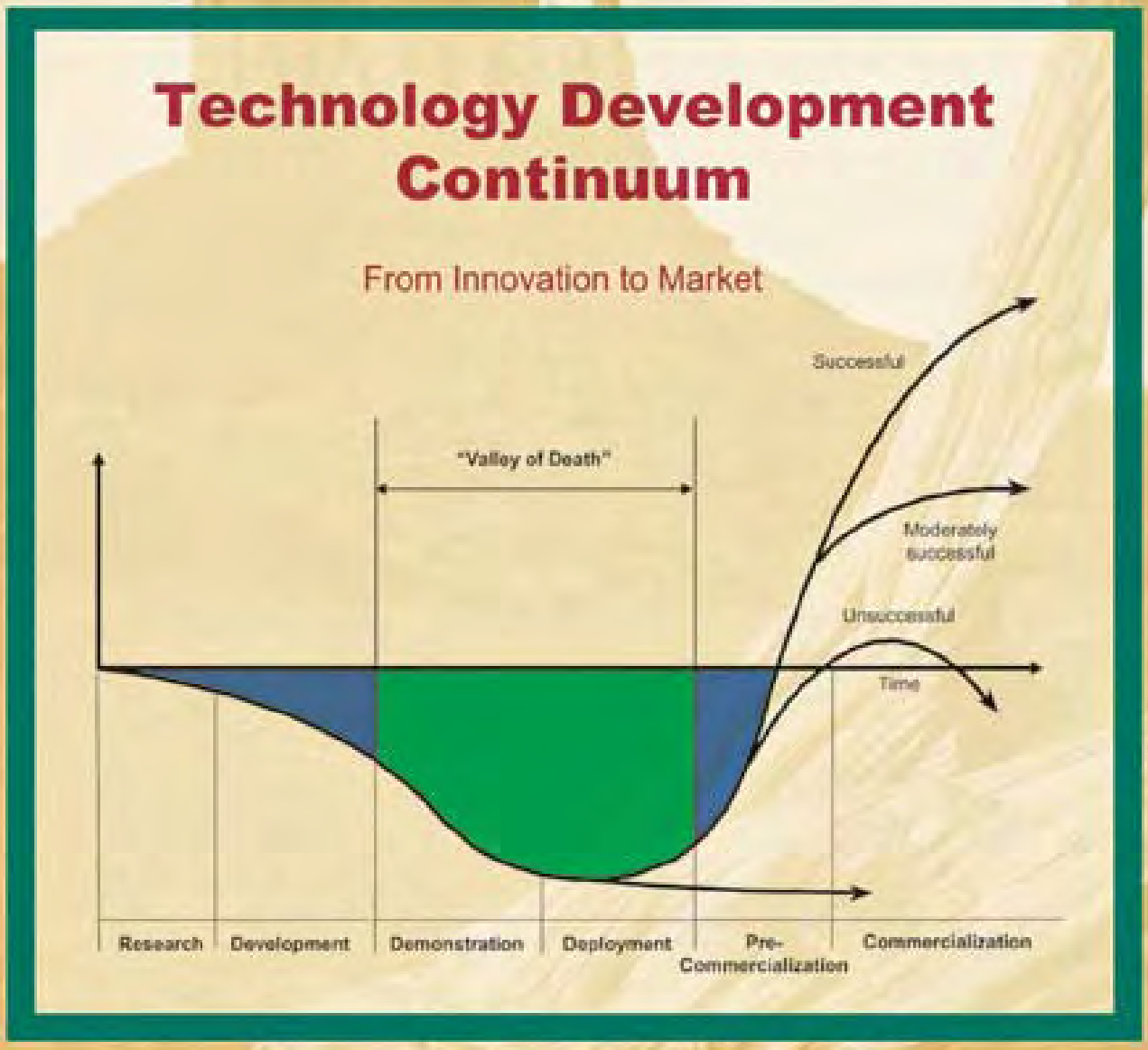
The "Valley of Death"



INTRODUCTION

The State Energy Advisory Board (STEAB) presents its 11th Annual Report during a crucial period of congressional debate over what may turn out to be the first major energy bill in more than a decade. This renewed debate has been sparked by a confluence of forces that have returned energy concerns to the forefront of our nation's agenda — war with Iraq, unstable oil and gas consumer prices, a staggering economy, instability in the power industry, the delayed start-up of the Administration's new Department of Homeland Security, elevated concerns over the vulnerability of central power-generating stations, enhanced scrutiny over corporate accounting and tax reporting practices, and ongoing debate over opening the Arctic National Wildlife refuge to oil and natural gas exploration.

All of these external issues can — and do — influence the U.S. Department of Energy's (DOE's) Office of Energy Efficiency and Renewable Energy (EERE) budget. Indeed, these events dramatically underscore the need for more efficient energy use and for secure domestic energy supply sources that can be marshaled in the short and medium term. Continued price volatility in the natural gas markets, plus the predicted upward trend in natural gas prices, present unique opportunities for price hedging through investment in renewable energy technologies. Rather than add dependence on imported liquefied natural gas (LNG) to national balance of trade and security burdens, the United States can meet significant portions of its transportation fuel and electricity generation needs through aggressive development of domestic renewable energy resources.

Current events also stress the need for the United States to use its economic resources more efficiently and effectively in meeting its energy priorities. Thus, against this backdrop, STEAB has chosen to direct its attention this year toward a mostly internal issue with significant budget ramifications for EERE — the Administration's new emphasis on measuring the results of government programs as part of the federal budgeting process.

The President's Management Agenda is an effort designed to improve budgeting and management to achieve better results on a more consistent basis through two complementary approaches: 1) using performance information to make budget decisions, and 2) linking performance and cost in a performance budget. STEAB welcomes and supports the Administration's increased emphasis on "metrics" and measuring federal program benefits. Where program evaluations show success and strong results, STEAB supports increased funding for federal energy programs. Similarly, where results are undocumented or lacking, the Board supports program cuts or termination.

Over the past several years, it has been documented consistently that state energy efficiency and renewable energy programs are not only vital components of a national energy security strategy, but they also deliver strong results. Therefore, with respect to the FY 2004 federal budget, STEAB urges the Administration to revisit the rationale for its budget request for energy efficiency and renewable energy programs and correct the imbalance that exists between the proposed funding and the level of results that these programs have generated.

The United States' current energy challenges require a variety of creative and innovative solutions that strike a balance between increasing supply and reducing demand, relying on traditional as well as on newer energy sources, and meeting the needs of both the economy and the environment. A key to achieving this balance successfully lies in the nation's ability to bring promising new energy efficiency and renewable technologies into the marketplace.

TEXAS: LoanSTAR Program

Purpose and Goals:

To reduce building energy consumption and taxpayers' energy costs through efficient operation of public buildings.

Program Activity:

LoanSTAR is a revolving loan program that provides financing for energy efficiency projects for state agencies, colleges and universities, school districts, county hospitals, and local governments. The program has a legislatively mandated minimum capitalization of $95 million. Loans are repaid from cost savings generated by funded projects. To date, the program has made 144 loans totaling over $164 million.

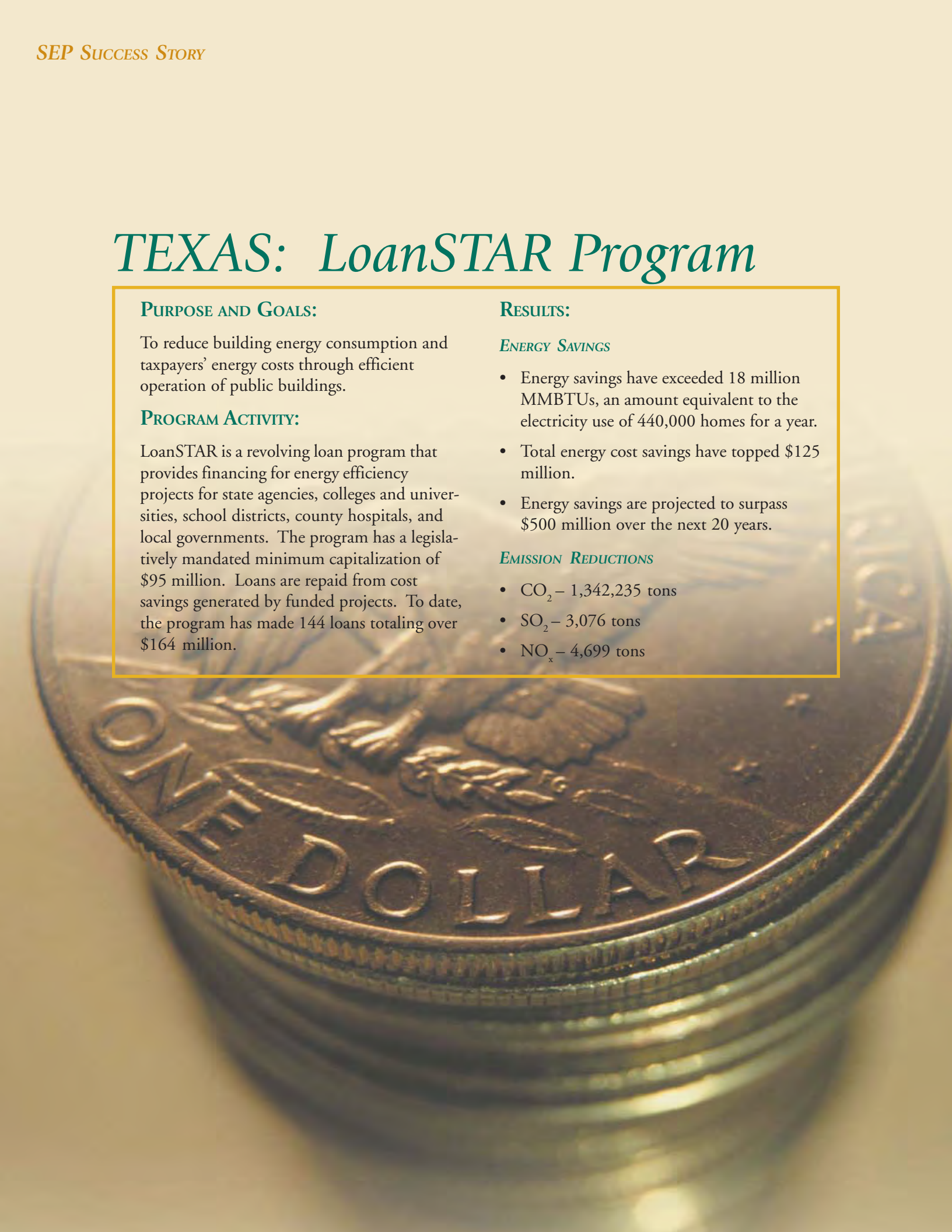
Results:

Energy Savings

- Energy savings have exceeded 18 million MMBTUs, an amount equivalent to the electricity use of 440,000 homes for a year.
- Total energy cost savings have topped $125 million.
- Energy savings are projected to surpass $500 million over the next 20 years.

Emission Reductions

- CO_2 – 1,342,235 tons
- SO_2 – 3,076 tons
- NO_x – 4,699 tons



No R&D program is complete without a deployment component. However, companies often face daunting financial hurdles as they try to bring new technologies to market. Investments needed for production start-up, marketing, distribution infrastructure, and manufacturing learning curves, among others, can overwhelm companies that lack significant capital resources. Many technologies do not survive the transition from prototype to mass production. This well-documented phenomenon is known as the "Valley of Death." New technologies attempting to break into markets dominated by established, mature industries — and particularly those that enjoy substantial public subsidies, such as America's conventional energy industry — are especially susceptible to the Valley of Death phenomenon.

Only through sustained investments of capital and expertise throughout the entire technology development continuum can the United States ensure that the best of its energy efficiency and renewable technologies successfully cross the "valley" from prototypes through to commercial deployment. These technologies have repeatedly demonstrated their worthiness for increased levels of federal support across the complete spectrum of research, development, demonstration, and deployment activities. They provide important energy diversity, protect the environment and public health, promote economic development, and — in this new age of performance-based budgeting — they generate tangible, measurable, and in many cases very impressive returns on each federal dollar of investment.

WEST VIRGINIA: Weatherization Assistance Program

Purpose and Goals:

To reduce energy costs for low-income West Virginians, improve the energy efficiency of their homes, and ensure their health and safety.

Program Activity:

The Office of Economic Opportunity administers the WAP, and 12 local agencies deliver services to eligible state residents. The WAP uses computerized energy audits to determine the most effective measures to install in each home.

Results:

Homes Weatherized

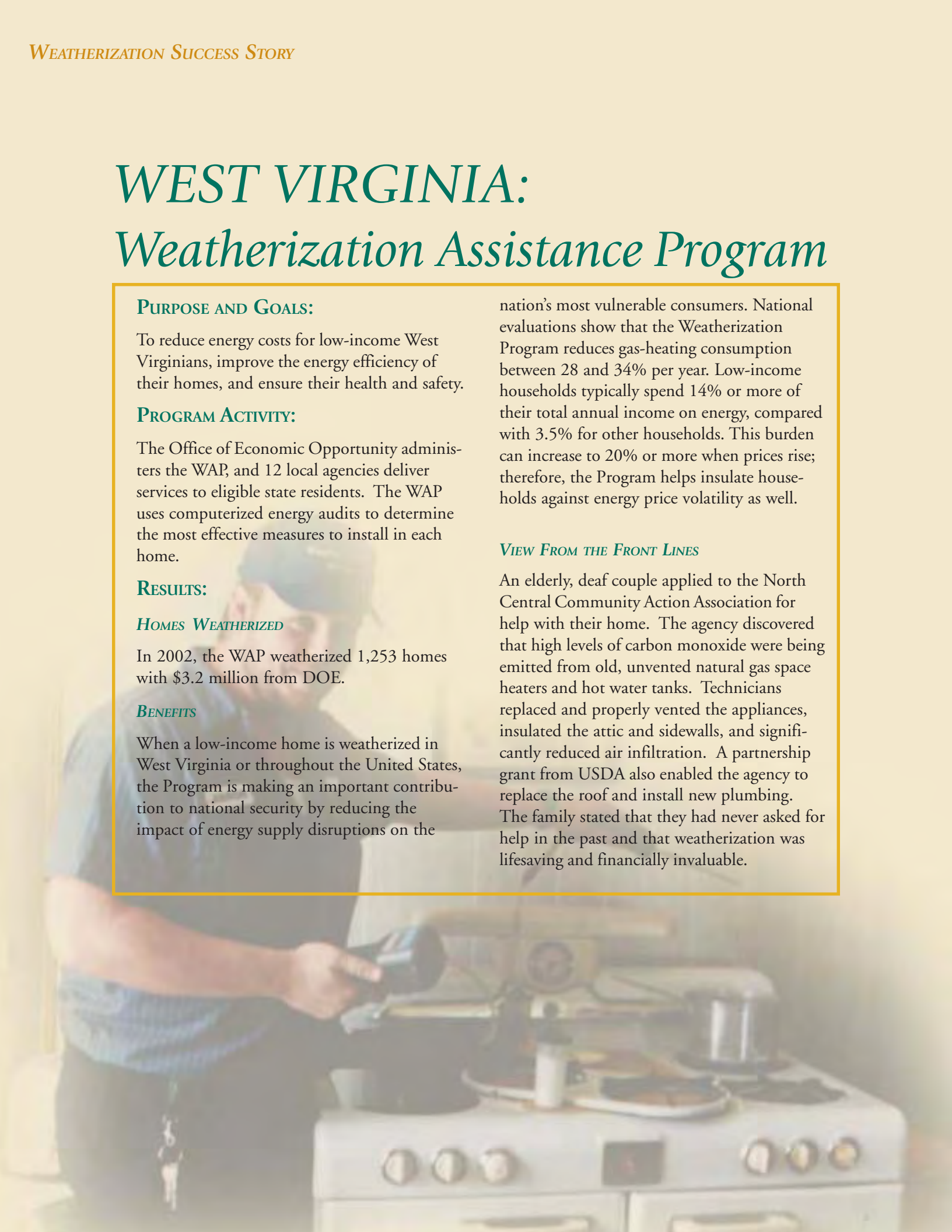
In 2002, the WAP weatherized 1,253 homes with $3.2 million from DOE.

Benefits

When a low-income home is weatherized in West Virginia or throughout the United States, the Program is making an important contribution to national security by reducing the impact of energy supply disruptions on the nation's most vulnerable consumers. National evaluations show that the Weatherization Program reduces gas-heating consumption between 28 and 34% per year. Low-income households typically spend 14% or more of their total annual income on energy, compared with 3.5% for other households. This burden can increase to 20% or more when prices rise; therefore, the Program helps insulate households against energy price volatility as well.

View From the Front Lines

An elderly, deaf couple applied to the North Central Community Action Association for help with their home. The agency discovered that high levels of carbon monoxide were being emitted from old, unvented natural gas space heaters and hot water tanks. Technicians replaced and properly vented the appliances, insulated the attic and sidewalls, and significantly reduced air infiltration. A partnership grant from USDA also enabled the agency to replace the roof and install new plumbing. The family stated that they had never asked for help in the past and that weatherization was lifesaving and financially invaluable.



Making the Case: DOE's Investment in Energy Efficiency and Renewable Energy Technologies Pays Off

STEAB generally supports the Office of Management and Budget's (OMB's) increased use of program performance measurement as a decision-making tool for the allocation of federal budget resources. STEAB wishes to bring to the attention of Administration and congressional decision-makers the successful, audited results stemming from investments in key energy efficiency and renewable energy programs that are worthy of increased funding.

The Weatherization Assistance Program (WAP)

DOE's Weatherization Assistance Program (WAP) makes an important difference in the lives of tens of thousands of low-income Americans by making energy more affordable and improving safety and health. According to a February 2003 Oak Ridge National Laboratory (ORNL) revised metaevaluation report, researchers estimated that weatherized households average direct energy savings of $224 per year. The report also concluded that, adjusted for current energy costs, for every dollar of DOE investment in weatherization assistance, there are non-energy-related benefits of $1.30. These benefits take many forms, including increased property values, reduced costs to utility customers through decreased bill collection and shut-off costs, job growth, increased spending in other sectors of the economy due to lower spending on energy bills, reduced levels of air pollutant emissions, and decreased health care costs for all Americans. Weatherization also contributes to national security by decreasing national energy use by the equivalent of 15 million barrels of oil annually. When coupled with the direct energy savings achieved by weatherized households, the ORNL report estimated that the WAP returns approximately $3.70 in energy and non-energy benefits for every dollar invested by DOE. Moreover, through cooperation with other federal, state, and local agencies, DOE leverages an additional $3.39 in funding from outside sources for every dollar DOE invests in weatherization.

Based on these very strong results, STEAB supports the President's call for a budget increase in this program, and considers the $325 million per year figure for weatherization included in the proposed House and Senate comprehensive energy bills a minimum target level for FY 2004.

The State Energy Program (SEP), Leveraged Funding, and the 2003 ORNL Evaluation

DOE's State Energy Program (SEP) provides financial assistance to states to design and implement energy efficiency and renewable energy programs and to promote the widespread deployment of these technologies in communities across the country. A February 2003 ORNL study of the SEP concluded that there were strong taxpayer benefits delivered through the program by the state and territory energy offices. Most striking is the ORNL finding that each dollar of SEP funding, leveraged against other public and private sector funds, results in $7.23 in annual cost savings for citizens and businesses. This analysis shows that in FY 2002, a $45 million federal investment in the SEP yielded $256 million in annual energy cost savings alone. However, because the effects of these energy-saving activities tend to last for

CALIFORNIA: Builder Energy Code Training

Purpose and Goals:

To save energy through code training for large production builders in California, and improve compliance with California's Residential Building Energy Efficiency Standards (Title 24).

Program Activity:

Launched with funding from the SEP, this code training program provides technical assistance to local governments from Southern California Edison via ratepayer funds. To date, more than 400 builder companies and 3,000 builder employees and local building department staff have received code training under this program.

Results:

Improved Compliance

Prior to the program, new homes complied with the standards only 15% of the time. Following training, participating builders were in compliance 77% of the time, and approximately 125,000 new homes have directly benefited.

Energy Savings

- More than 69 trillion Btus are saved annually in energy efficiency; this is an amount equivalent to the electricity use of nearly 1.7 million households, and represents $600,000 in energy cost savings.
- Over 6 years, the program has saved 388 trillion Btus or $3.3 million annually for the life of the homes; this represents an amount equal to the electricity use of nearly 9.5 million households.
- Annual consumer savings represent over 150% of one-time training costs.
- Total savings have equaled the production of 2 "peaker" power plants; typically, peaker plants range between 200 and 400 MW.

Emission Reductions

- CO_2 – 101,196 pounds
- SO_2 – 7,197 pounds
- NO_x – 7,833 pounds

many years, these benefits continue to increase over time. These metrics also do not include the monetized value of emissions reductions or other non-energy benefits that these programs provide.

As noted above, one important key to the SEP's success in achieving such impressive energy cost savings is the Program's ability to leverage additional public and private sector funding. Each dollar invested by DOE in the SEP is matched on average with $3.54 in leveraged funding from the state and private sectors, not including public benefits funds. When public benefits funds are included, the potential for leveraged federal dollars escalates considerably.

For example, a $100,000 SEP investment in FY 2002 in a Builder Energy Code Training program in California was matched by $100,000 from the California Energy Commission and another $750,000 in public benefits funds from Southern California Edison's voluntary Community Energy Efficiency Program. This "SEP Synergism" with complementary programs is common in most states, and the California experience shows that federal SEP dollars can provide an important catalyst for attracting additional funding from non-federal sources.

Thus, STEAB strongly supports funding the State Energy Program at $100 million in FY 2004, commensurate with authorization levels in the proposed House and Senate comprehensive energy legislation.

Energy Efficiency Programs: They Are Worth It!

The ORNL evaluation of the State Energy Program essentially confirms the findings of several recent reports, including the 2001 report from the National Academy of Sciences (NAS), *Energy Research at DOE: Was It Worth It? Energy Efficiency and Fossil Energy Research 1978 to 2000.* The conclusion: energy efficiency programs at DOE deliver huge savings.

Going as far back as 1978, the report examined 17 R&D programs in energy efficiency and 22 programs in fossil energy funded by DOE. The authors reported that just three energy efficiency programs costing less than $11 million (compressors for refrigerators and freezers, energy-efficient fluorescent lighting components called electronic ballasts, and low-emission, or heat-resistant, window glass) produced nearly three-quarters of an estimated $40 billion benefit. Overall, NAS found that "the benefits (of DOE's energy efficiency programs) substantially exceeded their costs and led to improvements to the economy, the environment, and the energy security of the nation."

One vitally important benefit of EERE's energy efficiency and renewable energy efforts was not evaluated by ORNL — the ability of these technologies to provide a hedge against price volatility and fossil fuel price increases, particularly in natural gas. As discussed in STEAB's 2001 Annual Report, America's domestic natural gas resources are vastly overcommitted, with a hefty level of demand coming at a time when production in the lower 48 states is in decline. The natural gas industry is drilling more, but producing less as it taps into smaller, more easily depleted pools. As this report is written, there is some pressure to meet the growing demand for increasingly expensive natural gas through imported LNG. STEAB feels this would be a mistake, the negative consequences of which would be felt by all Americans in terms of rising balance of trade deficits and a critical increase in vulnerability to terrorist attacks at U.S. ports of entry.

Currently, interest rates are low, natural gas prices are high, unemployment is at record high levels, and American citizens are supporting the U.S. military at war overseas — with the related budget impacts and threats to homeland security. STEAB believes that all of these factors suggest that now is a fortuitous time to make capital investments in energy efficiency and renewable energy. Such investments will grow domestic industries and jobs, as well as revitalize America's heartland by producing renewable ethanol for transportation fuels and biomass power for local and regional electricity needs. STEAB also believes that EERE and the National Laboratories

WASHINGTON: Telework Collaborative

Purpose and Goals:

To reduce vehicle miles traveled, and thus save energy, improve air quality, reduce traffic congestion, and enhance job opportunities.

Program Activity:

The Telework Collaborative is a five-state partnership (including Washington, Oregon, California, Arizona, and Texas) to provide training, technical assistance, and implementation tools to employers in an effort to promote telework opportunities across the country.

Results:

The Collaborative has leveraged more than $1 million in state and federal funds to create a comprehensive package of telework tools including guidebooks, training kits, on-line training, case studies, and Web sites, and has helped organizations in 46 states and 12 countries to establish telework programs. A 1999 U.S. West survey reported that more than 40% of employers in Oregon, Washington, and Arizona now offer telework.

Energy Savings and Emission Reductions

State agency teleworkers in Oregon, Washington, Arizona, and Texas drive 8.5 million miles less, saving 283,000 gallons of gasoline and avoided emissions of 2,300 tons of CO_2 annually.

should accelerate the pace of R&D in renewably produced hydrogen, as the overcommitment of natural gas resources likely will make hydrogen produced from renewable fuels cost competitive with hydrogen produced from natural gas.

Applying the Performance Assessment Rating Tool (PART) Consistently

STEAB notes that energy conservation programs in the Department of Defense (DoD) are receiving six-percent increases in the FY 2004 budget based on OMB estimates of leveraged dollars and energy savings, yet, energy conservation programs at DOE are receiving significant cuts, despite greater leveraging and accountability, better management, and larger economic gains. OMB officials categorize DoD energy conservation programs as "high performers," and reward them with higher budgets under PART.

STEAB supports OMB efforts to evaluate federal programs using PART; however, it must be noted that DoD energy conservation programs save on average $4 for every dollar invested, while DOE's SEP energy conservation programs are proven to save more than $7 for every dollar invested. A consistent method for evaluating energy programs should be pursued immediately.

STEAB agrees with OMB officials who declare publicly that "…poor performing programs should be cut, while successful programs should be rewarded." Therefore, STEAB recommends that DOE SEP energy conservation programs should, at minimum, receive equal budget increases to those promised by OMB to non-DOE energy programs.

IOWA:
Chariton Valley Biomass Project

Purpose and Goals:

To demonstrate electricity production from co-firing and gasification of biomass, and to assess the environmental impact of biomass-generated electricity.

Program Activity:

The Chariton Valley Biomass Project is transforming warm- and cool-season grasses such as switchgrass and reed into cash energy crops. Through support from public agencies, private organizations, and landowners, the Project is establishing and managing biomass plantings, and working toward the development of an effective biomass energy market.

Results:

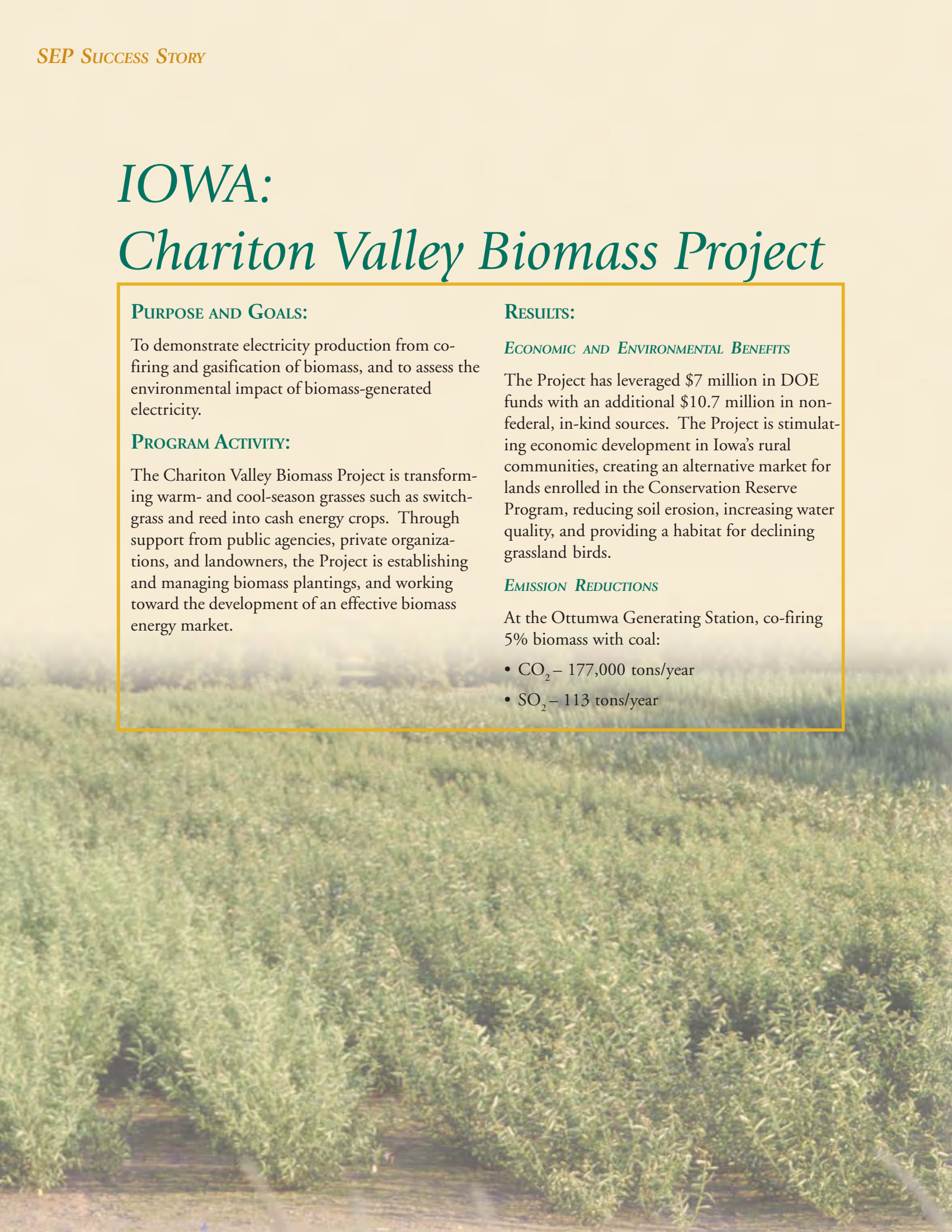
Economic and Environmental Benefits

The Project has leveraged $7 million in DOE funds with an additional $10.7 million in non-federal, in-kind sources. The Project is stimulating economic development in Iowa's rural communities, creating an alternative market for lands enrolled in the Conservation Reserve Program, reducing soil erosion, increasing water quality, and providing a habitat for declining grassland birds.

Emission Reductions

At the Ottumwa Generating Station, co-firing 5% biomass with coal:

- CO_2 – 177,000 tons/year
- SO_2 – 113 tons/year



Deployment Programs at Risk

A De Facto Double Standard?

tate energy office officials and senior officials at OMB indicate that an unintentional double standard may adversely affect state energy programs managed by EERE. Simply put, state energy deployment programs may be required to meet more strenuous standards than traditional DOE R&D programs.

STEAB is concerned that the Administration may be selling the near future short by cutting funding for deployment programs and claiming that it is in the best interest of long-term R&D. State energy deployment programs are the bridges to commercialization — they are the conduit between the laboratory and the marketplace. As noted in the Introduction, with respect to energy efficiency and renewable energy technologies, the R&D "Valley of Death" is well documented. In addition, marketplace feedback is essential for informing R&D efforts. Without deployment programs, a vital piece of the R&D continuum is missing and important R&D opportunities may be overlooked. The Administration's FY 2004 budget request indicates that deployment programs are being de-emphasized and their budgets are being decreased, which unnecessarily puts the American public at financial risk, given the SEP's proven record of generating results.

The VCR Lesson Learned (or "One Good Reason Not to Cut State-Managed Technology Deployment Programs")

After spending hundreds of millions of U.S. taxpayer dollars on traditional R&D for Video Cassette Recorder (VCR) technology, the U.S. Congress arbitrarily cut the funding for deployment of the technology — just as U.S. laboratories and industry were trying to commercialize the technology through the states. The technology stalled, Japanese government and industry bought it, and they took it through to the commercialization stage in Japan. U.S. citizens subsequently exported billions of dollars to Japan to purchase a technology that was originally developed in U.S. laboratories.

Similarly, the American wind energy industry — built in large part on the investment made by American taxpayers in EERE's wind energy R&D — has succumbed largely to overseas firms. The rural economic development potential of this domestic energy resource has not yet been fully realized, and job creation and other economic benefits have not yet been harvested. It is not clear that American firms will profit from the projected future demand for this technology. STEAB wishes to voice its concern about the consequences of cuts in deployment budgets.

The EERE Reorganization: The Jury is Still Out

STEAB members understand that it takes a long time for reorganizations to achieve their desired outcomes. Consequently, the Board believes that, at the one-year anniversary of EERE's changed organizational structure, it is too soon to tell how effective the reorganization will prove to be. On a positive note, STEAB appreciates the Administration's efforts to reduce the paperwork burden on the states, and the Board looks forward to further progress on this issue. However, STEAB also has some concerns, and thus takes this opportunity to raise them as potential issues:

1. Will the reorganization result in the expedited movement of funds to states and other critically important recipients? The Board's understanding is that this was an objective of the reorganization and, in the opinion of some, this has not yet been achieved.

2. What will be the role of the Golden Field Office in the transfer of EERE's program funds directed to the states? Is this office, as a strictly administrative entity, too removed

ALASKA:
Weatherization Assistance Program

Purpose and Goals:

To increase the energy efficiency of dwellings occupied by low-income Alaskans, thereby reducing their energy costs and safeguarding their health and safety.

Program Activity:

The Alaska Housing Finance Corporation administers the WAP and five local agencies deliver services to eligible residents across the state. Because Alaska's housing stock and energy supply varies dramatically by region, the WAP takes a "whole house" approach to determine the appropriate weatherization measures for each home.

Results:

Homes Weatherized

Alaska leverages core DOE dollars with funding from utilities and other organizations to service more homes. In 2002, Alaska weatherized 664 homes with $1.7 million from DOE.

In rural Alaska, adequate, affordable housing is extremely limited. Excessive freight and labor costs together with extreme temperatures make a conventional WAP difficult to implement in these areas. To address this challenge, Alaska developed the Residential Energy Rehabilitation Program using DOE and leveraged funds to serve four remote villages a year, providing extensive rehabilitation and energy efficiency work.

Benefits

When a low-income home is weatherized in Alaska or throughout the United States, both its energy bill and fuel consumption are reduced each year for many years to come. In the event of future energy supply and price problems, weatherization recipients will be better able to cope with rising prices. For example, in the event of a $2.00 per MBtu price spike for natural gas and home heating oil, the five million weatherized households nationally will experience an additional aggregate decrease of $1.2 billion due to conservation from weatherization. Thus, weatherization not only insulates low-income homes, but helps to insulate low-income budgets as well.

View From the Front Lines

Kathleen K., a divorced Alaska mother of two, realized she could no longer afford her growing energy bill. She contacted Interior Weatherization, a local agency for help. The crew ran an audit and installed extensive weatherization measures throughout the home. In a letter of thanks, Kathleen remarked, " This program permanently reduces fuel consumption for my children and me...[and] it enables people like me to have enough heat until the next paycheck comes."

from the actual programs to meet the needs of recipients, customers, allies, and stakeholders?

3. What changes are anticipated in the roles of EERE's Regional Offices (ROs) pursuant to the reorganization? Are the ROs receiving resources and support sufficient to enable them to succeed?

4. Are the links and working relationships between EERE headquarters and "the field" (through the ROs) effective enough to achieve two-way technology and information transfer? Is EERE headquarters receiving timely and useful information about needs and activities "on the street" to help inform its program and budget activities?

5. Is the "cross-fertilization" anticipated by organizing the technology programs under one Deputy Assistant Secretary (DAS) occurring? Are there issues or concerns regarding the large number of "direct reports" to one DAS?

6. Does the reorganization make it more difficult to institutionalize needed deployment activities in the technology programs? If so, how can this be fixed?

More Funds Needed for State-Laboratory Partnerships

State access to the expertise and resources of the DOE National Laboratories is still quite limited due to well-intentioned, but outdated and obsolete, legal restrictions. Issues related to patents and competition can now be easily overcome with innovative thinking on both sides. Thus, STEAB supports DOE allocation of a percentage of program funds to states for use in accessing laboratory expertise. While some DOE programs currently offer funding to states for this purpose, typically the funding is limited and not well known to the states. The Board recommends the establishment of a single point of contact within the DOE family of laboratories to coordinate state access to these resources in close collaboration with DOE technology programs.

NEW MEXICO: Wind Energy Program

Purpose and Goals:

To develop commercial wind power in New Mexico, and produce clean, affordable electricity for New Mexicans.

Program Activity:

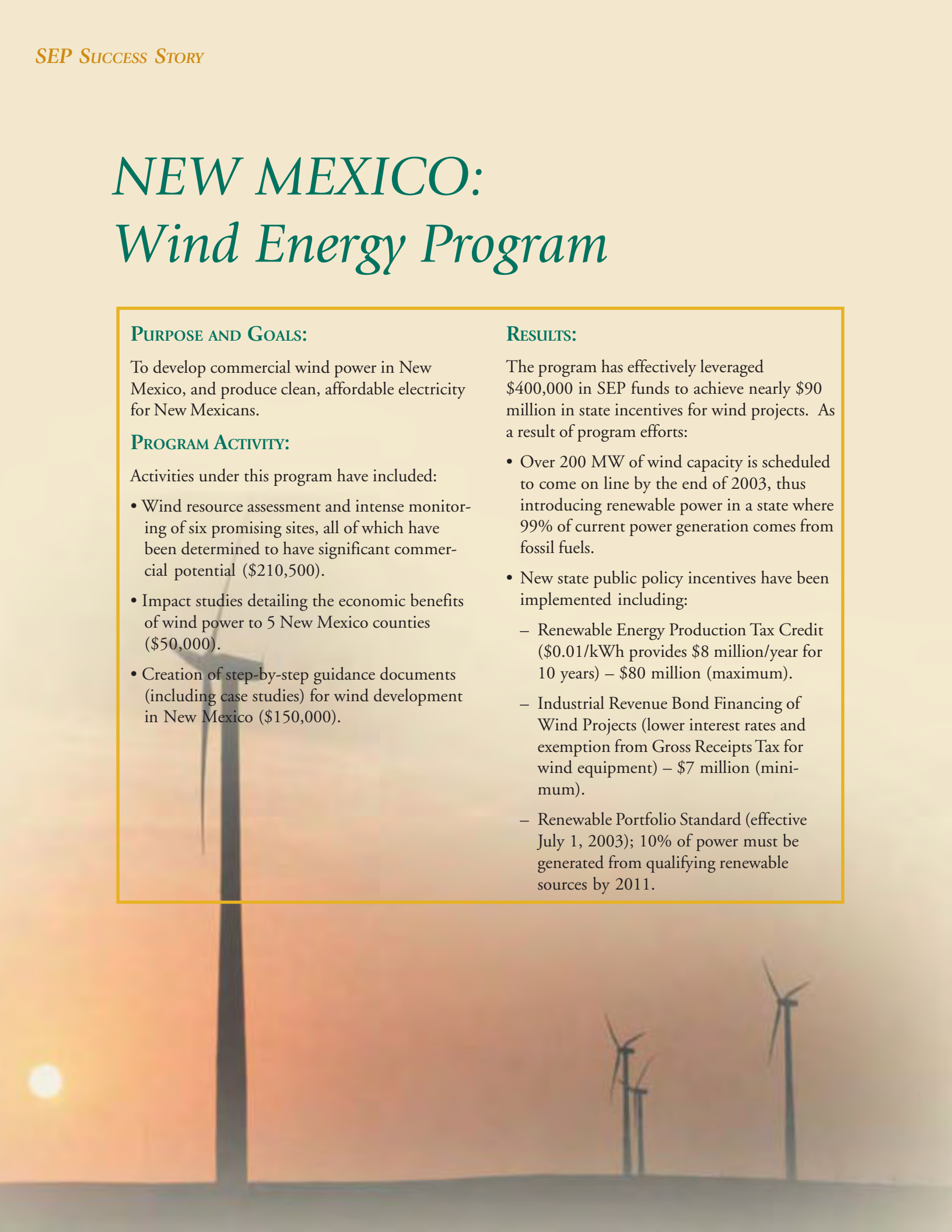
Activities under this program have included:

- Wind resource assessment and intense monitoring of six promising sites, all of which have been determined to have significant commercial potential ($210,500).
- Impact studies detailing the economic benefits of wind power to 5 New Mexico counties ($50,000).
- Creation of step-by-step guidance documents (including case studies) for wind development in New Mexico ($150,000).

Results:

The program has effectively leveraged $400,000 in SEP funds to achieve nearly $90 million in state incentives for wind projects. As a result of program efforts:

- Over 200 MW of wind capacity is scheduled to come on line by the end of 2003, thus introducing renewable power in a state where 99% of current power generation comes from fossil fuels.
- New state public policy incentives have been implemented including:
  - Renewable Energy Production Tax Credit ($0.01/kWh provides $8 million/year for 10 years) – $80 million (maximum).
  - Industrial Revenue Bond Financing of Wind Projects (lower interest rates and exemption from Gross Receipts Tax for wind equipment) – $7 million (minimum).
  - Renewable Portfolio Standard (effective July 1, 2003); 10% of power must be generated from qualifying renewable sources by 2011.



Evaluating the FY 2004 Budget

nergy efficiency and renewable energy technologies offer the most cost-effective short- and long-term routes to a safer, more reliable, and more resilient energy infrastructure. Deploying these technologies plays a critically important role in promoting public health and enhancing the energy security of the nation. Energy efficiency and renewable energy promote fuel diversity, harness safe and abundant domestic resources, and expand the use of small-scale, dispersed technologies.

In recognition of the importance of these technologies, STEAB urges Congress and the Administration to reevaluate proposed budgets in these areas. Specific areas of Board concern are noted below.

Energy Efficiency and Renewable Energy Budgets Are Flat or Decreasing

STEAB is concerned that overall no new money is proposed for energy efficiency and renewable energy programs. In addition, although EERE's total budget appears to be only slightly lower than in FY 2003, most established programs face cuts in spending to pay for the administration's new hydrogen fuel cell research program, the *Hydrogen Fuel Initiative*, which was announced in President Bush's State of the Union Address. STEAB recognizes that hydrogen is a major priority for this Administration, and the Board supports research in this area, particularly in the development of hydrogen from renewable resources. However, hydrogen technology, while promising, is still (conservatively) more than 15 years away. Contrast this with energy conservation, which was mobilized in 30 days during the California energy crisis, and energy efficiency and renewable energy technologies, which can be deployed within 6–24 months. The nation cannot afford either to wait 15 years or to invest so heavily in one technology. This budget shortchanges effective technologies and programs at a time when the United States can least afford it, in favor of long-term research that may or may not pay off in the coming decades.

Energy Efficiency

While STEAB applauds the President for following through on his promised increase for the Weatherization Assistance Program, the Board is surprised that energy efficiency research funding overall is greatly reduced. DOE's FY 2004 efficiency budget request totals $875.8 million, which is $20.7 million (2.3 percent) lower than the FY 2002 level. However, compared to the 2002 budget, the Administration's request for efficiency R&D is effectively a 12-percent cut.

To fund the proposed *Hydrogen Fuel Initiative*, the Administration has proposed cuts in several market-oriented energy efficiency deployment programs. Key buildings and industry programs were reduced by 15 percent and 30 percent respectively compared to 2002 appropriated levels.

Renewable Energy

Although renewable energy programs receive a slight increase overall, this comes from a large (over 100 percent) increase in funding for the hydrogen program, and not all hydrogen is renewably generated. In addition, the money appropriated for the Climate Change Initiative can also be used for carbon sequestration projects that benefit fossil fuel sources, further reducing the real amount of money going toward clean renewable resources.

Funding for wind power, which brought 410 megawatts of electricity online in 2002, was cut by 5.5 percent. Geothermal technology also received a 3.8 percent funding hit. Solar energy programs have been cut by 2 percent compared to 2002 appropriated levels. Ironically, the cuts in funding for these re-

newable sources that can generate hydrogen could also impede the President's plan for bringing clean hydrogen fuel cell cars and trucks to the road.

The recent history of the renewable energy industry in the United States suggests that budget cuts are the wrong way to go. Cooperative research and development with laboratories, universities, and the private sector has led to groundbreaking improvements in nearly all renewable energy technologies that are now beginning to make their way into the market.

For example, aided by the modest federal investment in renewable energy research and development over the last two decades, the price of wind energy has been reduced from 30 cents/kWh to 4-6 cents/kWh. Over the past two years, the wind industry installed turbines delivering more than 2,000 megawatts of power, and the industry grew by 10 percent in the United States in the last year alone. The cost of photovoltaic modules has decreased by nearly a factor of ten, and the cost of solar systems has been reduced by 50 percent in the last decade. In addition, solar production in the U.S. grew by about 40 percent, and the deployment of grid-connected solar technologies doubled over the same time period.

In particular, STEAB notes with alarm that DOE's bioenergy research program was cut substantially. The Biomass Program funds research on biofuels, bioenergy, and biobased product development. The administration has requested $78.5 million for the program in FY 2004, a 28.5 percent cut from its FY 2003 request. Specifically, the proposed FY 2004 budget reduces funding for bioenergy and biorefinery systems by over $16 million as compared with the previous year's budget — a cut of almost 19 percent.

Biomass technologies, which already account for nearly 4 percent of the nation's domestic energy production, have the potential to achieve substantially greater shares of the power, liquid fuels, and chemicals markets. In particular, through its use as a petroleum substitute, biomass is poised to make key contributions toward offsetting our nation's imports of overseas oil — a key national security policy objective. However, the extent to which biomass is successful in meeting its potential is in large part contingent upon continued funding for research and development in cleaner, more efficient biomass technologies.

For more than two years, EERE has publicly proclaimed that creating a new domestic bioenergy industry is one of the Office's 'Top Nine' priorities. STEAB finds it difficult to reconcile these statements with the proposed budget cuts in biomass, and believes that these cuts are against the best interests of the American public.

Conclusion

STEAB supports the Administration's recent efforts, formalized in the President's Management Agenda, to strengthen the linkage between budget decision-making and program performance and to shift budgetary resources to emphasize those programs that have proven to be the most effective. If the Administration applies the principles espoused in the President's Management Agenda on a consistent basis, the Board believes that significant increases are warranted for both the WAP and the SEP in FY 2004.

These two programs deliver significant taxpayer results. Each dollar of DOE funding applied to the WAP and SEP, leveraged against other public and private sector funds, results in noteworthy returns on federal investment. ORNL estimates that the WAP returns $3.70 in energy and non-energy benefits and that the SEP returns $7.23 in annual cost savings for each dollar of investment. Based on these findings, STEAB supports the President's call for a budget increase in the WAP program, and considers the $325 million per year figure for the WAP included in the proposed House and Senate comprehensive energy bills a minimum target level for FY 2004. Furthermore, STEAB supports funding the SEP at $100 million in FY 2004, commensurate with authorization levels in the proposed House and Senate legislation.

With respect to other FY 2004 budget items that are still under negotiation, STEAB urges the Administration to reconsider its budget requests for energy efficiency and renewable energy programs in light of the level of results that these programs have generated. The modest federal investment in energy efficiency and renewable energy technologies, and particularly in state technology deployment programs, has produced significant national energy, economic, environmental, and security benefits. However, while the Board generally supports many other state-related EERE programs (e.g., Building America, Rebuild America, Zero Energy Homes, renewable energy programs, etc.), the Board has chosen to focus its support solely on the WAP and SEP. STEAB strongly believes that these two programs should see substantial increases in FY 2004, *without offsets that adversely affect other EERE programs*.

With oil imports steadily increasing, natural gas shortages looming, and the global climate deteriorating, the United States needs effective immediate and long-term solutions to its energy concerns. Energy efficiency and renewable energy technologies offer the most cost-effective short- and long-term routes to a cleaner, more efficient, and more secure energy future. Unlike most other energy supply options, these technologies can be brought online almost immediately and with a minimum of environmental and security impacts. Increasing federal investments in energy efficiency and renewable energy technologies now across the complete spectrum of research, development, demonstration, and deployment activities is vital for ensuring a diverse national energy portfolio that can respond to a multitude of complex economic, environmental, and security-related challenges, both now and in the future.

Energy efficiency and renewable energy technologies, and particularly the DOE state energy programs that deploy these technologies, have repeatedly demonstrated their worthiness for increased levels of federal funding. In addition to providing clean and efficient sources of energy for communities across the country, they have encouraged significant, economically justifiable, and environmentally sound private and state investment, which raises U.S. economic competitiveness and creates thousands of jobs. They have provided tangible, measurable energy cost savings and non-energy benefits for U.S. citizens and businesses, and they have generated significant returns for every federal dollar of investment. Therefore, STEAB calls on Congress and the Administration to use metrics-based budgeting and to reward DOE energy efficiency and renewable energy programs in FY 2004 with the funding increases that their performance has so clearly merited.

Appendix A: Legislative Charge of the State Energy Advisory Board

The State Energy Advisory Board was established by Public Law 101-440 (The State Energy Efficiency Programs Improvement Act of 1990) to advise the U.S. Department of Energy on the operation of its federal grant programs. The board also advises on energy efficiency and renewable energy programs in general and on the efforts of the Department relating to research and market deployment of energy efficiency and renewable energy technologies.

The specific responsibilities of the Board, as mandated by statute, are:

1. To make recommendations to the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy with respect to:
    a. The energy efficiency goals and objectives within the federal grant programs, and
    b. Programmatic and administrative policies designed to stimulate and improve federal grant program effectiveness;
2. To serve as a liaison between federal and state governments on energy efficiency and renewable energy resource programs;
3. To encourage the transfer of research and development results from activities carried out by the federal government with respect to energy efficiency and renewable energy technologies; and
4. To submit an annual report to the Secretary of Energy and the Congress concerning the Board's activities for the prior fiscal year.

The Board met regularly throughout FY 2002. Its first meeting was held at Oak Ridge National Laboratory in Oak Ridge, Tennessee on October 25-26, 2001. The Board's second meeting was in Washington, D.C. on February 28-March 1, 2002, and the third meeting took place at the National Renewable Energy Laboratory in Golden, Colorado on June 20-21, 2002. The Budget Committee met once in FY 2002 in conjunction with the February 28-March 1, 2002 meeting. The Board's other committees also conducted business via conference calls throughout the year.

Appendix B: Board Membership

The State Energy Advisory Board consists of 18-21 members appointed by the Secretary of Energy. Membership regulations are outlined in Public Law 101-440, Section 365(g)(1)(A) as follows:

> *At least eight of the members for the Board shall be persons who serve as directors of the State Agency, or a division of such agency, responsible for developing State energy conservation plans pursuant to Section 362. At least four members shall be directors of State or local low-income weatherization assistance programs. Other members shall be appointed from persons who have experience in energy efficiency or renewable energy programs from the private sector, consumer interest groups, utilities, public utility commissions, educational institutions, financial institutions, local government energy programs, or research institutions. A majority of the members of the Board shall be State employees.*

The following is a membership listing of the State Energy Advisory Board, as well as U.S. Department of Energy contacts.

State Directors

Maurice Kaya
Program Administrator
Energy, Resources & Technology Division
State of Hawaii Department of Business,
Economic Development and Tourism
Honolulu, Hawaii

Alexander Mack
Operations Manager
Florida Department of Environmental Protection
Florida Energy Office
Tallahassee, Florida

MaryAnn Manoogian
Director
Governor's Office of Energy and Community Services
State of New Hampshire
Concord, New Hampshire

William P. Nesmith
Division Administrator
Oregon Office of Energy
Salem, Oregon

John F. Nunley, III
Manager, State Energy Programs
Energy/Minerals Division
Wyoming Business Council
Cheyenne, Wyoming

Robert Pernell
Commissioner
California Energy Commission
Sacramento, California

Anita Randolph
Director
Energy Center
Missouri Department of Natural Resources
Jefferson City, Missouri

Peter R. Smith
Vice President for Programs
New York State Energy Research and
Development Authority
Albany, New York

William E. (Dub) Taylor
Director, State Energy Conservation Office
Texas Comptroller of Public Accounts
Austin, Texas

Weatherization Directors

Lisa Capen-Kesecker
Program Specialist
Weatherization Assistance Program
West Virginia Office of Economic Opportunity
Charleston, West Virginia

Ed Gerardot
Executive Director
Indiana Community Action Association
Indianapolis, Indiana

Joseph E. Guerrero
Assistant Program Manager
Energy Assistance Section
Community Affairs Division
Austin, Texas

Brenda Williams
Agency Deputy Director
Office of Community Development
Oklahoma Department of Commerce
Oklahoma City, Oklahoma

Other State Officials

Carolyn S. Turner, PhD
Professor and Associate Dean for Research
School of Agriculture and Environmental Sciences
North Carolina A&T State University
Greensboro, North Carolina

Other Representatives

George Burmeister
President
Colorado Energy Group, Inc.
Boulder, Colorado

Carol Tombari
President
Mountain Energy Consultation
Conifer, Colorado

Carol Werner
Executive Director
Environmental and Energy Study Institute
Washington, D.C.

Stan Wise
Commissioner
Georgia Public Service Commission
Atlanta, Georgia

Department of Energy Contacts

David K. Garman
Assistant Secretary
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, D.C.

John Sullivan
Deputy Assistant Secretary for Business Administration
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, D.C.

Tobin Harvey
Senior Advisor
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, D.C.

William (Bill) Raup
STEAB Designated Federal Officer
Office of Planning, Budget, and Management
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, D.C.

Appendix C: Travel Expenditure Report 2002

In accordance with Section 365(g)(1)(B)(I) (7)&(8) of Public Law 101-440, which requires a reporting of federal reimbursement of Board members' expenses (including travel expenses) incurred in the performance of their duties, the following accounting is provided:

For FY 2002, travel expenses of $54,933.64 were incurred and reimbursed for State Energy Advisory Board meetings.


STEAB
State Energy
Advisory Board