Bridging the Gap Between Communities and Advanced Energy Technologies.



Annual Report

U.S. Department of Energy State Energy Advisory Board October 1, 2007 through September 30, 2008

What is STEAB?

The State Energy Advisory Board (STEAB) is comprised of State energy directors, Weatherization directors, other State officials, representatives of State and local interests, and recognized experts in energy-related disciplines. The Board's statutory charge is to develop recommendations regarding initiation, design, implementation, and evaluation for federal energy efficiency and renewable energy programs and policies and presenting them to the U.S. Department of Energy (DOE) and the U.S. Congress. STEAB maintains a close working relationship with DOE's Office of Energy Efficiency and Renewable Energy (EERE) and provides a conduit through which federal, State, and local voices can be heard at DOE and other offices of the State and local government. STEAB also offers a forum for the exchange of ideas and information on energy issues and policies.

U.S. Department of Energy

State Energy Advisory Board (STEAB)

Annual Report

For Period October 1, 2007 Through September 30, 2008





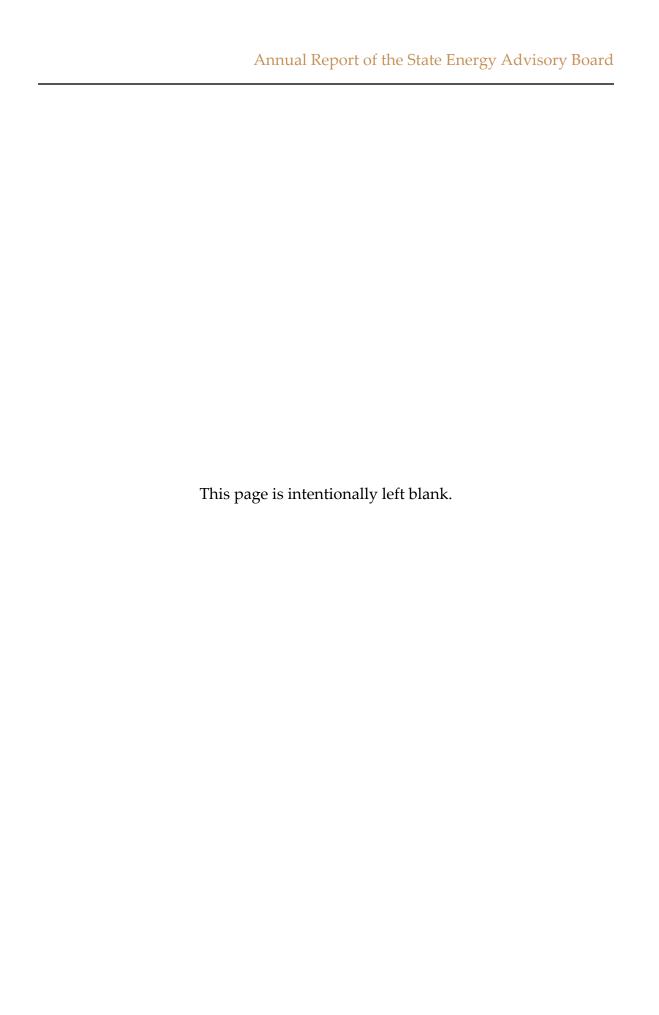
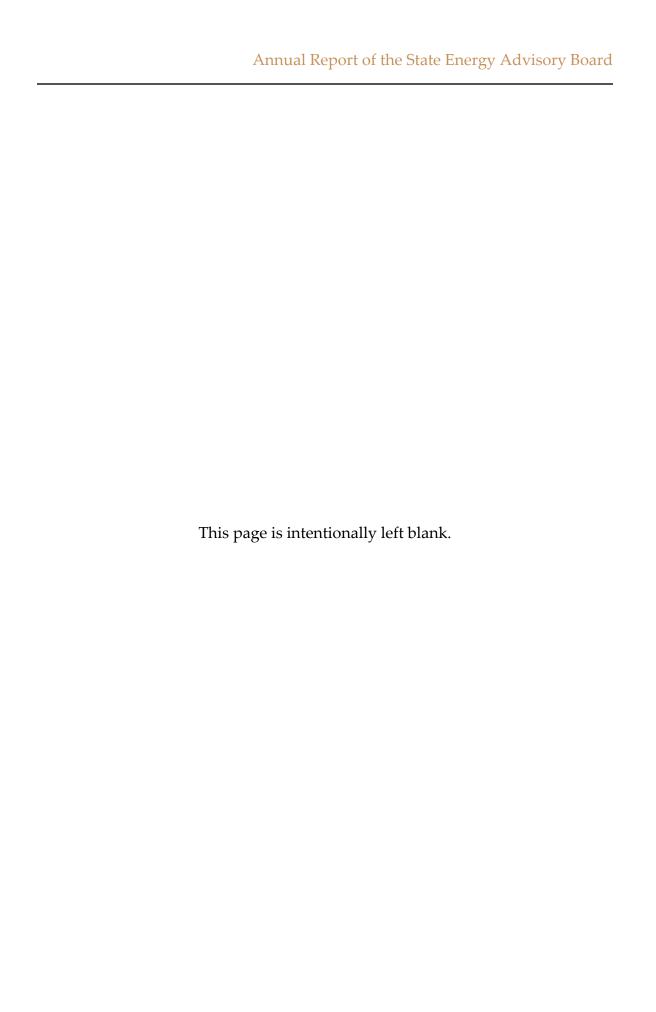


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1. Executive Summary

Fiscal year 2008 was another very active year for STEAB. The board continued its engagement with DOE's Office of Energy Efficiency and Renewable Energy (EERE). The Board held three general meetings, one in Washington, D.C. and the other two at sites where national laboratories are located. The meeting in Washington, D.C. was held in order to maintain an active dialogue with EERE's executive leadership and program officials. The other two meetings were held at Sandia National Laboratory in Albuquerque, New Mexico, and the National Renewable Energy Laboratory in Golden, Colorado, where the Board reviewed ongoing research and development in support of EERE technology advancement programs. Additionally, STEAB's Executive Committee visited key members of the Assistant Secretary's staff occasionally between Board meetings to keep abreast of, and dialogue on, rapidly emerging and/or changing EERE strategies and priorities.

Over the course of the year, the Board assessed the status and tempo of progress in energy efficiency and renewable energy research, development, demonstration, and deployment. Emerging energy efficiency technologies will need a boost in introduction and promotion to achieve their commercial potential. To accomplish this, the Board's unanimous directive is that increased management priorities and innovative approaches will be required to leverage the outreach of the National Laboratories and facilitate expanded cooperation and collaboration by relevant stakeholders.

In FY '08, the Board developed four recommendations that will assist DOE's Office of Energy Efficiency and Renewable Energy in recognizing and meeting important energy, economic, and environmental issues while continuing to preserve the means to meet the energy needs of future generations of America. These recommendations focus on four separate and distinct goals which include:

- 1) To continue and institutionalize the Energy Efficiency and Renewable Energy's Office of Commercialization and Deployment Initiative, to achieve both accelerated commercialization of EERE-sponsored technologies and effective market transformation;
- 2) To encourage collaboration involving U.S. DOE, State Energy Offices (SEOs), and the cooperative extension system to maximize technical assistance and outreach activities that increase consumers' understanding and acceptance of energy efficiency and renewable energy practices across the nation;

- 3) To support the implementation of the Energy Efficiency and Conservation Block Grant program, authorized under Public Law 110-140, Section 541-548, and to pledge to assist in any way possible to ensure the success of this new program;
- 4) To continue EERE's Entrepreneur-in-Residence program, which maximizes the use of private capital in technology commercialization.

Energy education clearly was an area of priority for the Board during FY '08. The Board implemented this through the initiation of webinars as a means to disseminate information helpful to State Energy Offices. This established a commitment to help build a bridge of cooperation between SEOs and the Collaborative Extension Service network to foster consumer awareness and expertise of energy efficient choices. The Board sponsored its first webinar, in conjunction with the Lawrence Berkeley National Laboratory, titled "Remote Duct Sealing in Residential and Commercial Buildings: 'Saving Money, Saving Energy, and Improving Performance'". More webinars are envisioned for the future given the success of this initial one. The Board also took steps to work with the National Association of State Universities and Land Grant Colleges (NASULGC) and SEOs in order to develop better, more cost effective ways of disseminating energy education materials to consumers. Expansion of this effort is of great importance to the Board.

The Board also invested significant effort in refining its strategic direction. This will support STEAB in its present and future commitments to be proactive and provide useful advice when considering important issues that affect DOE and the States. The Board's Strategic Direction document includes four previously established goals to:

- 1) Facilitate Renewable Energy Advancement,
- 2) Accelerate Energy Efficiency Market Transformation,
- 3) Facilitate Technology Commercialization/Deployment, and
- 4) Enhance Federal/State/Local Synergies.

With regards to these four goals, the Board developed a set of expected outcomes, performance indicators, and benchmarks over the course of Fiscal Year 2008.

2. Background and Challenge

In previous STEAB annual reports, the Board has consistently highlighted the need for:

- (1) Reducing America's dependence on foreign energy resources;
- (2) Emphasizing the advantages of energy efficiency strategies;
- (3) Utilizing alternative energy resources wherever possible; and
- (4) Mitigating the impact of increasingly scarce energy supplies on the American economy.

Over the course of time covered by this annual report, both national and international events have reflected the Board's insight and timeliness regarding each of the aforementioned needs and accelerated attention and action to each area accordingly.

The Energy Information Administration (EIA) of U.S. DOE the American Petroleum Institute each issued recent reports showing that the United States now imports more of its oil from foreign before. sources than ever Simultaneously, competition for these foreign sources of energy became stronger than ever due to the fast expanding economies of nations such as China and India. The cost of a gallon of gasoline reached a historically high of over \$4.00 per gallon. Over the course of the recently completed presidential campaign cycle, energy and climate change played a consistent and significant part in the platforms of each candidate, especially regarding energy independence and national security. While high gasoline prices changed people's driving habits and affected household budgets in a negative way, the promise of green jobs from a Clean Energy Economy gives hope to a nation suffering through its worst economic period since the Great Depression.

Clearly all of these factors are driving high public awareness of issues energy and a greatly intensified interest at all levels of government with respect to energy renewable efficiency, energy resources, and new technologies. Consumer demand for information about available federal, State, or local government programs has grown significantly. Specific areas of consumer interest are in home efficiency, alternative energy vehicles and fuels. increased economic assistance to low income families.

Unquestionably, the need for input from STEAB has increased because of recent circumstances. The challenge and goal that STEAB strives to overcome and to achieve is to be a valuable program and asset by providing the best possible advice to U.S. Department of Energy's

Office of Energy Efficiency and Renewable Energy.

Dates	Location	Organization Visit	Primary Agenda Topics
October 16-18, 2007	Washington, D.C.	-	Discuss EERE's programs and policies on commercialization and deployment, weatherization and intergovernmental programs, General Council, Solar Energy Technologies Program, and Industrial Technologies Program; Board discussions on ongoing priorities, recommendations and resolutions, and FY '07 Annual Report;
April 8-10, 2008	Albuquerque, NM	Sandia National Laboratory	Visit Sandia National Laboratory and learn more about energy efficiency and renewable energy sciences portfolio; Presentations on current activities of Sandia including its Energy and Infrastructure Assurance Program; Discuss presentations and proposed resolution; Discuss LBNL webinar logistics and future recommendations and resolutions to EERE.
August 12-14, 2008	Denver, CO	National Renewable Energy Laboratory (NREL)	Learn more about NREL's energy efficiency and renewable energy science portfolio via presentations and discussions regarding renewable electricity, renewable fuels, and clean energy commercialization; discuss collaborations with NREL; Discuss potential roles in the Energy Efficiency and Conservation Block Grant (EECBG) Program and partnerships with SEO's; Discuss future recommendations and resolutions.

3. Summary of Activities

Fiscal Year 2008 was an active and productive year for the Board during which three general meetings were held. The first one was held in Washington, D.C. where a robust dialogue was conducted with EERE officials, the second was in Albuquerque, N.M. which included a visit to the Sandia National Laboratory, and the third was in Golden, C.O. which featured very useful

discussions with employees of the Renewable National Energy Laboratory (NREL). Additionally, STEAB's Executive Committee conducted separate meetings with the Assistant Secretary for EERE's senior staff. To sustain momentum of activity, and to provide for continuity of effort, the Board also held monthly teleconference calls on the second Tuesday of each month. During FY '08, the Board produced and unanimously adopted four Recommendations for consideration by EERE.

The Board also sponsored its first ever webinar in conjunction with Berkeley Lawrence National Laboratory (LBNL). STEAB and LBNL presented "Remote Duct Sealing in Residential and Commercial Buildings: 'Saving Money, Saving Energy, and Improving Performance'". Given the success of this initial webinar, more are envisioned in the future.

a. October 2007 Meeting: Washington, D.C.

At the October 2007 meeting in Washington, D.C., the Board met with the Deputy Assistant Secretary Energy Efficiency, for David Rodgers, and the Deputy Assistant Secretary for Renewable Energy, Steven Chalk. The Board learned that EERE recently decided to split the duties of Deputy Assistant Technology Secretary for Development within EERE there by creating two new positions; one focused on energy efficiency and the other focused on renewable energy. The two will be responsible for managing the organization's ten (10) different program offices. Both Deputy Assistant Secretaries agreed that the inclusion of energy efficiency in general practice by

industries as well as the public is a priority and is vital for strengthening overall energy security environmental quality in the United States. It was also emphasized that the Assistant Secretary for EERE, Alexander Karsner, had personally each Technology looked at Development Office in order to see how each program can improve. This would allow the organization to continue to maintain its respective research and development activities while adding increased focus towards market adoption of current emerging energy efficient technologies without delay.

The discussion that followed enabled the Board members to gain a much better perspective of how STEAB can better assist the Office of Energy Efficiency and Renewable Energy. David Rodgers began the discussion enumerating the following by priority topic areas as way describe what EERE wants accomplish in the near future. EERE is looking for ways to promote efficiency through energy the following:

- Assisting the States with implementing more aggressive building code standards;
- Accelerating appliance standards and advanced lighting;
- Expanding EERE partnerships to demonstrate and promote zero

- and near zero-energy buildings in more high-profile settings;
- Addressing the growing need of energy efficiency in data centers;
- Increasing energy education; and
- Reintroducing "Energy Smart Schools" and "Rebuild America" programs.

David Rodgers further explained that significant R&D projects will remain in the pipeline for building technologies as it is an essential function for increasing the public ethic for energy efficiency in that He explained that the sector. organization will continue to look for more opportunities to partner with public and private entities to reach out and help the public understand the importance of energy efficiency. EERE will be working with many partners to identify and prepare energy-education help materials.

Steven Chalk discussed EERE's renewable energy focus, highlighting several topic areas that they would like to address and achieve in the near future:

 Renewable Energy Credit Systems (RECs); EERE is seeking to integrate RECs on a wider scale, perhaps assigning a "Federal broker" to oversee continued growth and record successes and/or failures.

- Bringing Renewables to the "Next Level": EERE wants to explore how it can overcome the "hurdles" that stymie increased renewable energy production, particularly financing. Current renewable energy power plantsnamely wind farms-struggle to achieve 100 megawatt (MW) levels. In the near future, EERE wants to achieve the "gigawatt (GW) level".
- Geothermal Energy: The EERE Geothermal Energy Technologies Program is in hiatus and its funding has been significantly limited over the past few years. The Massachusetts Institute of Technology (MIT) released a report earlier this year that strongly advocates the expansion of geothermal energy production. EERE is examining the report to see if there is any information within it that may provide them with new methods or ideas for how DOE can "re-invigorate" the program.
- Wind Energy: EERE issued a report on its wind program. The President's Advanced Energy Initiative calls for increased wind energy usage. Several other countries have already achieved 20 percent wind power, and DOE realizes that it will need to significantly expand wind energy to meet its future goals. DOE

wants to see wind energy expand from its current national total of 12 GW to 200-300 GW's in the next 25 years.

Both Deputy Assistant Secretaries stressed that at that time there were marks in the House and the Senate that will likely provide EERE with more resources in the future, and that EERE "plans to hit-the-ground-running fast".

Another presentation by Michael Senior Bruce, **EERE** Advisor DOE's discussed efforts in commercialization, technology capital formulation, deployment. Mark Bailey, Acting Program Manager of Office of Weatherization and Intergovernmental Programs (OWIP) focused on the National Action Plan for Energy Efficiency, the State Energy Program (SEP), and the Weatherization Assistance Program (WAP).

In addition to conducting robust discussions with each of these DOE leaders, the Board also committed to sponsoring a webinar with a national lab, refreshed and updated its strategic direction document, and established these short term areas of focus:

 Using States as "agents" for distributing energy education materials ("canned curricula").

- Supporting the ENERGY STAR program, jointly implemented by DOE and the US Environmental Protection Agency (EPA).
- Using core templates and best practices- compilation of options that have been tested and adopted.
- Creating code models (States) to simplify codes and enhance compliance.
- Assisting companies in taking renewable energy to higher levels nationally.
- Revamping of the Rebuild America program – learning from the past when contractors were driving the program and there was not enough support from and exposure to Federal entities.
- Citing and permitting required for interstate transmission lines.
- Taking advantage of regional manufacturing for wind energy.
- Building public awareness through energy campaigns that bring energy efficiency awareness to the local level.
- Targeting data centers which are experiencing energy consumption growth projected to grow from 1-3 percent.

In short, the meeting provided an opportunity to meet with various DOE officials and then review STEAB's activities so as to achieve

alignment between EERE and STEAB's focus.

b. April 2008 Meeting: Albuquerque, NM

Given that this meeting was arranged for Albuquerque, NM, the Board seized the opportunity to visit Sandia National Laboratory. While there, the Board heard presentations on the following topics:

- 'Overview of Renewable Energy at Sandia' by Rush Robinett III, Senior Manager of the Energy & Infrastructure Future Program.
- 'Photovoltaics' at Sandia by Jeff Nelson, Manager of Solar Technologies.
- 'Concentrated Solar Power (CSP) at Sandia' by Thomas Mancini, CSP Program Manager.
- 'Wind Energy at Sandia' by Daniel Laird, Sandia Wind Energy Technology Department.
- 'Energy Storage at Sandia' by Georgianne Peek, Sandia Energy Infrastructure and Distributive Energy Resources (DER).
- 'Photovoltaic Renewable Systems Integration' by Jim Torres, Manager of Energy Systems Analysis.

- 'Geothermal Energy at Sandia' by David Smith, Sandia Geothermal Program.
- 'Sandia Entrepreneur in Residence (EIR) Program' by Craig Tyner from Sandia National Laboratories, and Tom Brennan from ARCH Venture Partners.
- 'A Venture Capital Perspective on Technology Transfer and Alternative Energy' by Stephanie Spong from EPIC Ventures.

The Board concluded that it had gained a significant understanding of Sandia's renewable energy research and development The **Board** programs. was particularly interested in the Entrepreneur-in-Residence (EIR) Program and, as a result, sparked interest in creating a resolution of support. The EIR program captured the attention of the Board because it could effectively serve as a means to accelerate commercialization deployment efforts that result from both existing and emerging technologies.

Following up on the presentations and discussions by David Rodgers and Steven Chalk at the October 2007 meeting, the Board decided to address their desire for EERE to increase its energy education dissemination efforts. The Board focused on the dilemma regarding

DOE having a plethora of energy materials education but (i.e., "agents") mechanism to disseminate them. Specifically, the Board discussed the opportunity to address this challenge in conjunction with the National Association of State Universities and Land-Grant Colleges (NASULGC), institutions that traditionally operate Extension Services. Cooperative This discussion also ultimately led to the adoption of Resolution 08-02 (seen in "STEAB Recommendations" or Appendix E) by the Board.

Before adjourning this meeting, the Board made final arrangements for its first ever webinar, co-sponsored with Lawrence Berkeley National Laboratory, scheduled for April 30, 2008. Both the National Association of State Energy Officials (NASEO) and the Project Management Center of DOE were coordinated within terms of announcing and promoting the webinar. It was also decided to employ the network that comprises NASULGC in order to disseminate more widely the announcement of the upcoming webinar.

c. August 2008 Meeting: Denver, CO

The third meeting in fiscal year 2008 was held in Golden, CO during August. The Golden, CO location was chosen due to its convenience for various employees of the

National Renewable Energy Laboratory (NREL) to make presentations on topics of interest to the Board. Representatives of both NREL and the Golden Field Office made the following presentations:

- Rita Wells, Manager of the DOE Golden Field Office and Executive Director for Field Operations explained the relationship between NREL and EERE as well as the addition of commercialization efforts combining federal and private funding with developing technologies to achieve commercialization to NREL's traditional role of pure research;
- Bobi Garrett, who discussed the recent organizational changes at NREL and described NREL's progress and challenges in renewable electricity;
- Dale Gardner, who amplified further on work NREL is doing with renewable energy; and
- Tome Williams and Joel Serface, who spoke of NREL's innovative outreach to venture capitalists and its successful implementation of its Entrepreneur-in-Residence program.

In addition, Roger Taylor and Ron Benioff of NREL led a roundtable discussion that touched on the topics of:

- 1. Acceleration of State energy transformation,
- 2. Energy-environment integration,
- 3. Policy and program design,
- 4. Economic development, innovation and workforce scale-up,
- 5. Public awareness and support, and
- 6. Transition planning.

The end result was a spirited discussion involving both the STEAB members and the NREL officials that led to a far deeper understanding of NREL's role, potential, and This series opportunities. interactions represented an example of STEAB's pledge to not just listen but to also participate and provide advice. STEAB's engagement in these discussions with the presenters resulted in a better understanding of the issues, led the way to more helpful decisions and resolutions, and provided the experience for more effective interfacing in the future by the Board with other labs and partners in the energy field.

The Golden, CO meeting also provided the Board the opportunity to spend considerable time updating its Strategic Direction document. The main elements of this document that were reviewed and refined are these four specific goals to:

- 1. Facilitate renewable energy advancement;
- 2. Accelerate energy efficiency market transformation;
- 3. Facilitate technology commercialization/deployment; and
- 4. Enhance federal/state/local synergies.

Another significant development from this meeting was a renewed commitment by the Board continue developing the working relationship with the National Association of State Universities and Land-Gant Colleges (NASULGC), the institutions that traditionally operate Cooperative Extension Services. This commitment added to the discussions held at the April meeting in Albuquerque, NM. The Board specifically pledged to serve as a "bridge builder" by inviting representatives of these entities to the next STEAB meeting set for November 2008 in Washington, D.C. along with State Energy Office directors, and other key stakeholders who can, by working together, ensure greater consumer education on energy efficiency and renewable energy.

4. STEAB Recommendations

During FY '08, the Board's aforementioned activities and meetings as well as its own internal discussions have allowed oversight and evaluations regarding the rate and quality of progress in energy efficiency and renewable energy technology research, deployment, demonstration, and development. From these assessments STEAB was able to identify certain challenges and issues that result in the development and implementation of recommendations. These specific recommendations were conceived, considered, and ultimately adopted by the members of STEAB during the fiscal year.

Resolution 08-01:

"Continuation of Energy Efficiency and Renewable Energy's Office of Commercialization and Deployment Initiative"

The State Energy Advisory Board acknowledges the efforts of the Office of Energy Efficiency and Renewable Energy (EERE) to place increased emphasis on accelerated commercialization of EEREsponsored technologies, as well as market transformation.

In particular, the Board appreciated

the insights provided by Michael Bruce in his presentation at the October 2007 meeting in Washington, D.C. He described the "valley of death" (VOD) between successful development of energy efficiency technology in a lab and the commercialization of it. His suggestion on how to bridge this gap was two-fold:

- To commit to soliciting assistance from the private sector and push for increased funding there for emerging technologies and
- To develop a "technology, commercialization and deployment fund" to accelerate the movement of lab technological breakthroughs to marketplace.

By moving aggressively in this direction, **EERE** can potentially increase the of energy rate technology introduction into the economy and help reshape financial markets to attract venture capital heretofore either unaware of the investment opportunities reluctant to participate.

In order to continue the strategic and important work of the Office of Commercialization and Deployment across future administrations, the Board went on record in strong support of the institutionalization of this initiative with Resolution 08 – 01.

Resolution 08-02:

"U.S. Department of Energy, Cooperative Extension System and State Energy Offices Collaboration on Reinventing the 'Rebuild America' Program"

In its deliberations, STEAB noted that record energy prices and a heavy reliance on fossil fuels are resulting in increased interest in energy efficiency and the utilization of renewable energy when heating, and cooling lighting American buildings. The adoption of new technologies, energy conserving practices and renewable energy could be enhanced through demonstration and educational efforts that provide knowledge and focus on behavior change. The Office of Energy Efficiency of the U.S. Department of Energy (EERE), landgrant universities and State Energy Offices are actively engaged in developing new technologies, researching energy-efficiency practices, evaluating renewable energy sources, and supporting the market transformation of activities. Significant energy savings could be realized if end-users adopt these technologies and practices, and make behavior changes.

In particular, STEAB members took

notice at the October 2007 meeting in Washington, D.C. when both the Deputy Assistant Secretary Energy Efficiency, David Rodgers, and the Deputy Assistant Secretary for Renewable Energy, Steven Chalk expressed their desire for EERE to its energy increase education dissemination efforts. The Board discussed the opportunity to address the need for a corps of outreach experts by working with the Association National of State Universities and Land-Grant Colleges (NASULGC), the institutions that traditionally operate Cooperative Extension Services.

The Cooperative Extension System's (CES) network of over 3,000 county Extension offices provides a direct community connection to partnerships that can play a key role in transformational learning. This approach seeks actionable change in behavior, habits and practices. CES is launching a national effort, called extension, designed to provide continuous learning opportunities American for consumers. Incorporating energy efficiency and renewable energy education into this educational system, in collaboration with State Energy Offices, could provide EERE an important outreach opportunity to its stakeholders. particular, combining these activities with ongoing State Energy Office initiatives will help leverage EERE's efforts to maximize the acceptance

and adoption of energy efficiency and renewable energy practices across the nation.

State Energy Offices and EERE have long recognized that Americans do not fully appreciate or understand the significant benefits that energy efficiency and renewable energy technologies offer. better consumer understanding of these technologies and the benefits derived from adopting energy efficiency and utilizing renewable energy is necessary. Increased educational efforts regarding energy efficiency and renewable energy will improve the rate of adoption by end users. A reinvention of the approach of the "Rebuild America Program" engaging the collective resources of EERE, CES and State Energy Offices can serve as a highly effective delivery mechanism to help educate America.

The State Energy Advisory Board (STEAB) dual, mutually supportive strategic focus areas of Accelerate Energy Efficiency Market Transformation and *Facilitate* Renewable Energy Advancement both identify consumer education as a key focus. The success of a reinvented "Rebuild America Program" is also dependent on consumer adoption. The CES and the state energy offices have a history of consumer trust and educational network that an connects with consumers at the state and local level.

This analysis then led STEAB to recommend that EERE be encouraged to pursue collaborative efforts with CES and state energy offices to reinvent the "Rebuild America Program" with resolution 08-02.

Resolution 08-03: "Energy Efficiency Block Grants"

The State Energy Advisory Board (STEAB) recognizes the potential for significant leveraging of national energy efficiency efforts through the Energy Efficiency and Conservation Block Grants contained in subtitle "E" of the Energy Independence and Security Act of 2007, Public Law 110-140 (December 19, 2007), Energy Efficiency and Conservation Block Grants, Section 541-548.

STEAB is particularly mindful of the Congressionally potential this authorized program can have in achieving energy efficiency and greater use of renewable energy resources at both the state and local levels. Further, once appropriated funding has been put in place, this program represents opportunity also for STEAB encourage effective collaboration between state and local energy leaders in order to achieve the goals of greater energy efficiency and utilization of renewable energy resources.

Once funds for this program are appropriated, STEAB offers to fulfill any role that the DOE deems appropriate in support of this effort. STEAB communicated this willingness to assist via Resolution 08-03.

Resolution 08-04:

"Support for Continuation of Office of Energy Efficiency and Renewable Energy's 'Entrepreneurin-Residence' Program

The Board, at its April 2007 meeting in Albuquerque, NM, noted with great interest the presentations by Craig Tyner of Sandia and Tom Brennan of ARCH Venture Partners about Sandia's Entrepreneur Residence (EIR) Program. It was suggested that this EIR Program was a "positive step" for Sandia, as well as for the other national labs, a showcase new and means to emerging technologies and help facilitate their introduction into the marketplace. At the Board's August 2008 meeting in Golden, CO, Brent Burdick of Sandia gave an update of its technology transfer initiative, including the EIR Program. addition, Tom Williams on NREL made a presentation with NREL's EIR, Joel Serface, which served to reinforce and validate the Board's favorable opinion of the EIR Program.

With all this analysis, the Board supports and recommends the continuation of the Office of Energy Efficiency and Renewable Energy's Entrepreneur-in-Residence Program.

Specifically, the Board recognizes the Entrepreneur-in-Residence (EIR) Program as one of the Office of Energy Efficiency and Renewable Energy's most effective initiatives to catalyze private investment technology commercialization. Board further recognizes the likelihood of success when considering the structure of this initiative. This structure enables the EIR to work directly with laboratory personnel, conduct technology evaluate market assessments, adoption, and propose business rationale and business structure to technologies the bring to marketplace.

In particular, the Board acknowledges the initial progress of the EIR at the Sandia National Laboratory, having visited there in April, as well as at NREL, located in Golden, CO where the Board met in August, 2008. The Board has an interest in the success of this program at all participating labs and offers its continued assistance as appropriate, via Resolution 08 - 04.

5. STEAB Strategic Direction

During the final meeting in fiscal year 2008 (Denver, CO), the Board reviewed and refreshed its strategic direction. The Board chose the following four strategic focus areas to guide STEAB in its future activities.

Strategic Focus Area #1: Facilitate Renewable Energy Advancement

Expected Outcomes:

- Improved deployment of renewable energy information and technologies from national labs and other sources; and,
- Deployment of commercialization opportunities, best practices, and strategies.

Strategic Focus Area #2:

Accelerate Energy Efficiency Market Transformation

Expected Outcomes:

- Improved communications and awareness working with stakeholders;
- Improved deployment strategies and tactics among stakeholders; and,
- Increased priority and policy support for Energy Efficiency.

Strategic Focus Area #3:

Facilitate Technology Commercialization/ Deployment

Expected Outcomes:

- Transfer of information and data;
- Deployment of commercialization opportunities, best practices, and strategies;
- Application and utilization of technology; and,
- Established strategic relationships with EERE's Commercialization Team.

Strategic Focus Area #4:

Enhance Federal/State/Local Synergies

Expected Outcomes:

- Improved collaboration with regional stakeholders;
- Improved collaboration with federal, state, and local governments; and,
- Increased involvement with higher education research and outreach initiatives in energy efficiency and renewable energy.

6. Conclusion

For the State Energy Advisory Board, Fiscal Year 2008 was both a productive and an innovative year. The Board continued its interaction with EERE and provided four specific recommendations for their consideration. The Board also met with officials at two national laboratories to further commercialization endeavors for developed technologies in an effort to make them more widely available to energy practitioners of the State and local levels of government. For the first time ever, the Board sponsored a webinar in partnership with Lawrence Berkeley National Laboratory where a presentation on duct sealing in buildings was given.

In an effort to ensure that its mission was relevant in a period of unprecedented energy developments and challenges in the United States, the Board also spent considerable time updating its strategic direction. The State Energy Advisory Board is confident that it is well prepared to fulfill and continue its three-fold statutory mission:

- 1. Make recommendations to the Assistant Secretary of EERE,
- 2. Serve as a liaison between federal and State governments on energy efficiency and renewable energy resource programs, and
- 3. 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.



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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 DOE on the operations of its Federal grant programs. The Board also advises on the energy efficiency and renewable energy program in general and on DOE's effort 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 Energy Efficiency and Renewable Energy (EERE) with respect to:
 - a. The energy efficiency goals and objectives of programs carried out under Parts D and G of the Energy Policy and Conservation Act and under Part A, title IV of the Energy Conservation and Production Act; and
 - b. To make administrative and policy recommendations to improve these programs, including actions that should be considered to encourage non-Federal resources (including private resources) to supplement Federal financial assistance.
- 2. To serve as a liaison between the States and the Department of Energy on energy efficiency and renewable energy resource programs.
- 3. To encourage transfer of the results of the energy efficiency and renewable energy activities carried out by the Federal Government.
- 4. To submit and annual report to the Secretary and Congress on the activities carried out by the Board in the previous fiscal year.



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Appendix B. Board Membership

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

At least eight (8) members shall be directors of the State office responsible for developing State energy conservations plans pursuant to Section 362 of the Energy Policy and Conservation Act. At least four (4) members shall be directors of State or local low-income weatherization assistance programs. Other members shall be persons who have experience in energy efficiency and 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. Other members may include State, local, county, and city government officials who meet one of the statutory categories. The members shall be appointed for a term of three (3) years with one-third of the total terms expiring each year. The Board is nonpartisan.

The following is a membership listing of the State Energy Advisory Board, as well as DOE contacts and contract staff support.

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Annual Report of the State Energy Advisory Board

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Appendix C. State Energy Advisory Board (STEAB) Strategic Direction

Legislative Mission and Responsibilities

The State Energy Advisory Board was established by Public Law 101-440 (The State Energy Efficiency Programs Improvement Act of 1990) to advise DOE on the operations of its Federal grant programs. The Board also advises on the energy efficiency and renewable energy program in general and on DOE's effort 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 Energy Efficiency and Renewable Energy (EERE) with respect to:
 - a. The energy efficiency goals and objectives of programs carried out under Parts D and G of the Energy Policy and Conservation Act and under Part A, title IV of the energy Conservation and Production Act; and
 - b. To make administrative and policy recommendations to improve these programs, including actions that should be considered to encourage non-Federal resources (including private resources) to supplement Federal financial assistance.
- 2. To serve as a liaison between the States and the Department of Energy on energy efficiency and renewable energy resource programs.
- 3. To encourage transfer of the results of the energy efficiency and renewable energy activities carried out by the Federal Government.
- 4. To submit an annual report to the Secretary and Congress on the activities carried out by the Board in the previous fiscal year.

Proactive Role

STEAB is developing a long-range, proactive approach, and will develop, maintain and periodically update a Strategic Direction and plan to guide its activities, as well as determine its structural, organizational, and operational approach. The Board is committed to making the Strategic Direction and

planning central to carrying out its mission. The Board will adjust the process as necessary to continue to obtain desired high priority and relevant planning outputs, effective follow-up, and documentation of outcomes. General parameters for identifying and addressing STEAB strategic focus areas follow. STEAB's actions will focus on:

- Crosscutting EERE programs,
- Long-term planning,
- Proactive information, advice, analysis and recommendations,
- High-priority issues that are based on documented need and relevance (two to three at a time), and
- EERE programmatic and organizational issues.

Strategic Focus

As noted previously, the legislative mandate of STEAB is to advise DOE on the operation of its federal grant programs encompassing energy efficiency and renewable energy in general, and on the efforts of the Department relating to research and market deployment of energy efficiency and renewable energy technologies. In August of 2008 at a meeting in Denver, Colorado, the Board conducted a planning session to identify and review new strategic focus areas as well as refresh older areas with the intent to align the Board's priorities with those of EERE. These areas were chosen on the basis of the idea that the focus areas of the Board's efforts would be evaluated on an on-going basis and reassessed at least on an annual basis. The Board discussed a wide range of topics at this meeting and decided to focus on four major areas in the immediate future.

Focus areas selected

The Board, in congruence with the legislative mission, will focus time, energy, and activities in the following four strategic areas:

- 1. Facilitate Renewable Energy Advancement;
- 2. Accelerate Energy Efficiency Market Transformation;
- 3. Facilitate Technology Commercialization/ Deployment; and
- 4. Enhance Federal/ State/ Local Synergies

<u>Approach</u>

Each of the strategic focus areas will be guided by expected outcomes and measurable performance indicators with benchmarks to judge progress. These performance indicators and benchmarks will enable STEAB to demonstrate benefit to the U.S. Congress, the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy (EERE), and to document value to the U.S. Department of Energy and to the States. Progress toward meeting goals in each area will be documented in the Annual Report, and re-evaluation of appropriate focus areas will occur on at least an annual basis, or more often as determined by the Board. The detailed approach in addressing these strategic focus areas is as follows:

I. Strategic Focus Area #1: Facilitate Renewable Energy Advancement

Recommended Areas of Concentration:

This focus includes:

- Policy.
- Deployment of Technology.
- Market/Capital.

Expected Outcomes:

STEAB Outcomes will lead to:

- Improved deployment of renewable energy information and technologies from national labs and other sources.
- Deployment of commercialization opportunities, best practices, and strategies.

Performance Indicators:

STEAB will measure the:

 Number of deployment strategies and tactics that facilitate and enhance communication between Federal, State, and local stakeholders.

Benchmarks:

In 2009 STEAB will establish a baseline for benchmarks based on:

• Three national or regional communication events involving stakeholders.

II. Strategic Focus Area #2: Accelerate Energy Efficiency Market Transformation

Recommended Areas of Concentration:

This focus includes:

- Policy
- Deployment of Technology
- Market/Capital

Expected Outcomes:

STEAB Outcomes will lead to:

- Improved communications and awareness working with stakeholders.
- Improved deployment strategies and tactics among stakeholders.
- Increased priority and policy support for Energy Efficiency.

Performance Indicators:

STEAB will measure the:

- Number of recommended communications strategies implemented (i.e., webinars, e-Xtension, etc.).
- Number of recommended strategies and tactics implemented from STEAB recommendations.

Benchmarks:

In 2009 STEAB will establish a baseline for benchmarks based on:

- Increased number of working relationships among stakeholders.
- Documented use of technology transfer among and between partners.

III. Strategic Focus Area #3: Facilitate Technology Commercialization/ Deployment

Recommended Areas of Concentration:

This focus area includes:

- Economic development
- Opportunities in support of EERE's Commercialization Team.

Expected Outcomes:

STEAB Outcomes will lead to:

- Transfer of information and data.
- Deployment of commercialization opportunities, best practices, and strategies.
- Application and utilization of the technology.
- Established strategic relationships with EERE's Commercialization Team.

Performance Indicators:

STEAB will measure the:

Number of commercialization events among stakeholders.

Benchmarks:

In 2009 STEAB will establish a baseline for benchmarks based on:

• Number of commercialization events STEAB has facilitated.

IV. Strategic Focus Area #4: Enhance Federal/ State/ Local Synergies

Recommended Areas of Concentration:

This focus includes:

- Government partner collaboration (federal, State, local).
- Engagement of additional stakeholder groups.

Expected Outcomes:

STEAB outcomes will lead to:

- Improved collaboration with regional stakeholders.
- Improved collaboration with federal, State, and local governments.
- Increased involvement with higher education research and outreach initiatives in energy efficiency and renewable energy.

Performance Indicators:

STEAB will measure the:

- Number of interfaces with stakeholders.
- Number of strategic partnerships facilitated.

Benchmarks:

In 2009 STEAB will establish a baseline for benchmarks based on:

- Increased engagement of involved governmental agencies and higher education representatives related to EERE priorities.
- New strategic partnerships created.

STEAB Strategic Planning Process

The STEAB Strategic Planning Process is a facilitated group activity, conducted in plenary session on a periodic and/or as required basis, to ensure the Board is addressing strategic considerations within the scope of its Charter and that are relevant to the current economic, technological and political situation. The unit of analysis is the "focus area", which may be broad or narrow depending upon criticality of need and availability of STEAB resources. Focus areas will be identified, described and prioritized; and a vital few, perhaps two or three, will be selected for STEAB action.

Process Steps

- **Step 1.** Board uses brainstorming or a similar technique to identify potential focus areas in three categories:
 - Programmatic
 - Organizational
 - Current Issues
- Step 2. The Board discusses potential focus areas for definition, clarification, advantages and disadvantages, opportunities and barriers or constraints.
- Step 3. The Board uses a consensus technique to reach agreement on priority ranking of identified topics.
- Step 4. The Board decides on the number of highest ranking items to address simultaneously (usually 2-3) based on criticality and availability of resources.
- **Step 5.** The Board further defines each selected focus area in terms of its importance, significant considerations and expected impacts.
- **Step 6.** The Board identifies necessary actions and addresses the selected focus areas.
- **Step 7.** The Board's decisions for each focus area are recorded in minutes of the meeting.
- **Step 8.** Action assignees take appropriate actions, e.g., conduct fact finding, draft resolutions, prepare to meet with Government officials to provide advice and recommendations, etc. Proposed

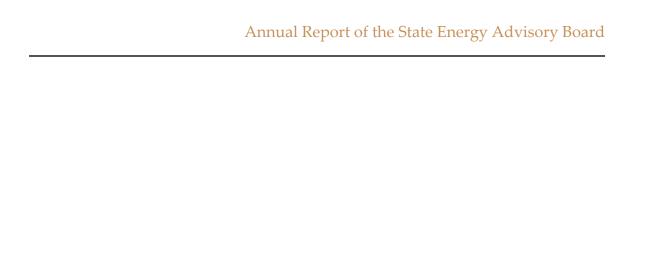
- actions are reviewed by the Board prior to implementation unless otherwise agreed.
- Step 9. At each meeting, the Board will review the actions and outcomes of each focus area to determine which to continue, with or without redirection, and which to close.
- Step 10. The Board decides whether sufficient resources and criticality exist to select, further define, assign and initiate action on the next highest ranking potential focus area.
- **Step 11.** For the new area(s) selected, the Board repeats items 4-6.
- Step 12. The Board conducts a one-day group strategic planning session every other year or sooner if changes in the economic, technological and/or political situation warrant.

Appendix D: FY 2008 Travel Expenditure Report

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

For FY 2008, travel expenses of \$26,594.63* were incurred and reimbursed for State Energy Advisory Board meetings.

^{*} Estimate based on the number, location, and duration of meetings, the number of attendees, the average cost of airfare and local travel, and per diem rates.



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Appendix E: FY 2008 STEAB Recommendations/Resolutions



December 5, 2007

Honorable Alexander A. Karsner Assistant Secretary Office of Energy Efficiency & Renewable Energy U.S. Department of Energy EE-1 / Forrestal Building 1000 Independence Ave., S.W. Washington, DC 20585-1290

Dear Mr. Karsner,

On behalf of the STEAB, I am submitting to you the following Board Resolution for your review and consideration: 08-01, Continuation of the EERE's Office of Commercialization and Deployment Initiative.

The Members of the STEAB have unanimously adopted the fore mentioned document. It is our belief that this Resolution is not only consistent with the STEAB's legislative mission to provide recommendations to the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy regarding energy efficiency goals and objectives, but it is also consistent with EERE's technology transfer goals for deploying commercial-ready energy technologies into the marketplace. The Board is pleased to present this Resolution to you and your Office at this time.

If you have any questions regarding this Resolution, or would like to discuss it in further detail, please contact me at (501) 682-8065 or via e-mail CBenson@ArkansasEDC.com.

Sincerely,

Chris Benson

Chairman, State Energy Advisory Board

Enclosure: STEAB Resolution 08-01

Tobin Harvey, Senior Advisor to the Assistant Secretary for EERE Steven Chalk, Deputy Assistant Secretary for Renewable Energy David Rodgers, Deputy Assistant Secretary for Energy Efficiency Gary Burch, DOE's Designated Federal Officer STEAB Executive Committee

STATE ENERGY ADVISORY BOARD 18757 N. FREDERICK RD., GAITHERSBURG, MD 20879 301.670.6390

U.S. DEPARTMENT OF ENERGY STATE ENERGY ADVISORY BOARD Resolution 08-01

SUBJECT: Continuation of Energy Efficiency and Renewable Energy's Office of Commercialization and Deployment Initiative.

The State Energy Advisory Board appreciates the efforts of the Office of Energy Efficiency and Renewable Energy (EERE) to place increased emphasis on accelerated commercialization of EERE-sponsored technologies, as well as market transformation.

In particular, the Board would like to recognize the creative application of financial perspectives and expertise in the technology deployment process to address and overcome barriers ("Valley of Death") to early introduction and acceptance into the marketplace.

By moving aggressively in this direction, EERE can potentially increase the rate of energy technology introduction into the economy and help reshape financial markets to attract venture capital heretofore either unaware of the investment opportunities or reluctant to participate.

In order to continue the strategic and important work of the Office of Commercialization and Deployment across future administrations, the Board strongly supports the institutionalization of this initiative.

Unanimously Adopted by the STEAB on November 28, 2007



March 20, 2008

Honorable Alexander A. Karsner Assistant Secretary Office of Energy Efficiency & Renewable Energy U.S. Department of Energy EE-1 / Forrestal Building 1000 Independence Ave., S.W. Washington, DC 20585-1290

Dear Mr. Karsner,

On behalf of the STEAB, I am submitting to you the following Board Resolution for your review and consideration: 08-02, U.S. Department of Energy, Cooperative Extension System and State Energy Offices collaboration on reinventing the "Rebuild America Program."

The Members of the STEAB have unanimously adopted the aforementioned document. It is our belief that this Resolution is not only consistent with the STEAB's legislative mission to provide recommendations to the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy regarding energy efficiency goals and objectives, but it is also consistent with EERE's technology transfer and educational goals for the enhancement of energy efficiency and renewable energy use. The Board is pleased to present this Resolution to you and your Office at this time.

If you have any questions regarding this Resolution, or would like to discuss it in further detail, please contact me at (501) 682-8065 or via e-mail CBenson@ArkansasEDC.com.

Sincerely,

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Chairman, State Energy Advisory Board

Enclosure: STEAB Resolution 08-02

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STATE ENERGY ADVISORY BOARD 18757 N. FREDERICK RD., GAITHERSBURG, MD 20879 301.670.6390

U.S. DEPARTMENT OF ENERGY STATE ENERGY ADVISORY BOARD Resolution 08-02

Topic: U.S. Department of Energy, Cooperative Extension System and State Energy Offices collaboration on reinventing the "Rebuild America Program"

Background: Record energy prices and a heavy reliance on fossil fuels are resulting in increased interest in energy efficiency and the utilization of renewable energy when heating, cooling and lighting American buildings. The adoption of new technologies, energy conserving practices and renewable energy could be enhanced through demonstration and educational efforts that provide knowledge and focus on behavior change. The Office of Energy Efficiency of the U.S. Department of Energy (EERE), land-grant universities and state energy offices are actively engaged in developing new technologies, researching energy-efficiency practices, evaluating renewable energy sources and supporting the market transformation of these activities. Significant energy savings could be realized if end-users adopt these technologies and practices, and make behavior changes.

The Cooperative Extension System's (CES) network of over 3,000 county Extension offices provides a direct connection to community partnerships that can play a key role in transformational learning. This approach seeks actionable change in behavior, habits and practices. CES is launching a national effort, called e-Xtension, designed to provide continuous learning opportunities for American consumers. Incorporating energy-efficiency and renewable energy education into this educational system could provide EERE an important outreach opportunity to its stakeholders. Combining these activities with ongoing state energy office initiatives will help leverage EERE's efforts to maximize the acceptance and adoption of energy-efficiency and renewable energy practices across the nation.

Issue: State energy offices and EERE have long recognized that Americans do not fully appreciate or understand the significant benefits that renewable energy and energy efficiency technologies offer. A better consumer understanding of these technologies and the benefits derived from utilizing renewable energy and adopting energy efficiency is necessary. Increased educational efforts regarding energy efficiency and renewable energy will improve the rate of adoption by end users. A reinvention of the "Rebuild America Program" engaging the collective resources of EERE, CES and state energy offices can serve as a highly effective delivery mechanism to help educate America.

Recommendation: The State Energy Advisory Board (STEAB) strategic focus areas of Accelerate Energy Efficiency Market Transformation (#1) and Facilitate Renewable Energy Advancement (#3) both identify consumer education as a key focus. The success of a reinvented "Rebuild America Program" is also dependent on consumer adoption. The CES and the state energy offices have a history of consumer trust and an educational network that connects with consumers at the local level.

Therefore, members of the STEAB respectfully encourage EERE to pursue collaborative efforts with CES and state energy offices to reinvent the "Rebuild America Program."



May 20, 2008

Honorable Alexander A. Karsner Assistant Secretary Office of Energy Efficiency & Renewable Energy U.S. Department of Energy EE-1 / Forrestal Building 1000 Independence Ave., S.W. Washington, DC 20585-1290

Dear Mr. Karsner,

On behalf of the STEAB, I am submitting to you the following Board Resolution for your review and consideration: 08-03, Energy Efficiency Block Grants.

The Members of the STEAB have unanimously adopted the aforementioned document. It is our belief that this Resolution is not only consistent with the STEAB's legislative mission to provide recommendations to the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy regarding energy efficiency goals and objectives, but it is also consistent with EERE's technology transfer and commercialization goals for the enhancement of energy efficiency and renewable energy use. The Board is pleased to present this Resolution to you and your Office at this time.

If you have any questions regarding this Resolution, or would like to discuss it in further detail, please contact me at (501) 682-8065 or via e-mail CBenson@ArkansasEDC.com.

Sincerely,

Chris Benson

Chairman, State Energy Advisory Board

Enclosure: STEAB Resolution 08-03

C: Steven Chalk, Deputy Assistant Secretary for Renewable Energy David Rodgers, Deputy Assistant Secretary for Energy Efficiency Gary Burch, DOE's Designated Federal Officer STEAB Executive Committee

STATE ENERGY ADVISORY BOARD 7475 WISCONSIN AVENUE, SUITE 900, BETHESDA, MD 20814

U.S. DEPARTMENT OF ENERGY STATE ENERGY ADVISORY BOARD Resolution 08-03

SUBJECT: Energy Efficiency Block Grants

The State Energy Advisory Board (STEAB) recognizes the potential for significant leveraging of national energy efficiency efforts through the Energy Efficiency and Conservation Block Grants contained in subtitle "E" of the Energy Independence and Security Act of 2007, Public Law 110-140 (December 19, 2007), Energy Efficiency and Conservation Block Grants, Section 541-548.

Should funds for this program be appropriated, the STEAB offers to fulfill any role that the DOE deems appropriate in support of this effort.

Unanimously Adopted by the STEAB on April 10, 2008



July 18, 2008

Honorable Alexander A. Karsner Assistant Secretary Office of Energy Efficiency & Renewable Energy U.S. Department of Energy EE-1 / Forrestal Building 1000 Independence Ave., S.W. Washington, DC 20585-1290

Dear Mr. Karsner,

On behalf of the STEAB, I am submitting to you the following Board Resolution for your review and consideration: 08-04, Continuation of the Office of Energy Efficiency and Renewable Energy's Entrepreneur-in-Residence Program.

The Members of the STEAB have unanimously adopted the fore mentioned document. It is our belief that this Resolution is not only consistent with the STEAB's legislative mission to provide recommendations to the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy regarding energy efficiency goals and objectives, but it is also consistent with EERE's goals for catalyzing private investment in technology commercialization. The Board is pleased to present this Resolution to you and your Office at this time.

If you have any questions regarding this Resolution, or would like to discuss it in further detail, please contact me at (501) 682-8065 or via e-mail CBenson@ArkansasEDC.com.

Sincerely,

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Chairman, State Energy Advisory Board

Enclosure: STEAB Resolution 08-04

cc: Tobin Harvey, Senior Advisor to the Assistant Secretary for EERE Steven Chalk, Deputy Assistant Secretary for Renewable Energy David Rodgers, Deputy Assistant Secretary for Energy Efficiency Gary Burch, DOE's Designated Federal Officer STEAB Executive Committee

STATE ENERGY ADVISORY BOARD 18757 N. FREDERICK RD., GAITHERSBURG, MD 20879 301.670.6390

U.S. Department of Energy State Energy Advisory Board Resolution 08-04

SUBJECT: Support for continuation of Office of Energy Efficiency and Renewable Energy's Entrepreneur-in-Residence Program

The State Energy Advisory Board supports and recommends the continuation of the Office of Energy Efficiency and Renewable Energy's Entrepreneur-in-Residence Program.

The Board recognizes the Entrepreneur-in-Residence (EIR) Program as one of the Office of Energy Efficiency and Renewable Energy's most capable initiatives to catalyze private investment in technology commercialization. The Board further recognizes the likelihood of success when considering the structure of this initiative. This structure enables the EIR to work directly with laboratory personnel, conduct technology assessments, evaluate market adoption, and propose business rationale and business structure to bring technologies to the marketplace.

In particular, the Board acknowledges the initial progress of the EIR at the Sandia National Laboratory, having visited there in April. The Board also has an interest in the success of this program at all participating labs and offers its continued assistance as appropriate.





U.S. Department of Energy 1000 Independence Avenue, SW Washington, D.C. 20585



State Energy Advisory Board Washington, D.C. 20585 www.steab.org