State Energy Advisory Board
Meeting Minutes: June 7 - 9, 2011
Washington, DC

MEETING ATTENDEES

Designated Federal Officer (DFO):

- Gil Sperling, STEAB DFO, Senior Management Technical Advisor, Intergovernmental Projects, Department of Energy, Washington, DC.

STEAB ATTENDANCE		
BOARD MEMBERS	Present	Absent
Susan S. Brown, Deputy Administrator, Wisconsin Division of Energy	✓	
Dan Carol, Strategic Advisor/Organizational Consultant		✓
William Vaughn Clark, Director, Office of Community Development, Oklahoma Department of Commerce	✓	
John H. Davies, Director, Division of Renewable Energy and Energy Efficiency, Kentucky Office of Energy Policy	✓	
Cris Eugster, Executive Vice President and Chief Sustainability Officer, CPS Energy		✓
David Gipson, Director, Energy Services Division, Georgia Environmental Facilities Authority	✓	
Philip Giudice, Commissioner, Massachusetts Department of Energy Resources	✓	
Ryan Gooch, Energy Policy Director, Tennessee Economic and Community Development		✓
Paul Gutierrez, Vice Provost for Outreach Services, Associate Dean and Director, Cooperative Extension Service, College of Agriculture and Home Economics, New Mexico State University	✓	
Duane Hauck, Director, Extension Services, North Dakota State University	✓	
Elliott Jacobson, Vice President for Energy Services, Action Energy	✓	
Peter Johnston, Project Manager, Clean Energy Technologies, Burns & McDonnell	✓	
Maurice Kaya, Hawaii Renewable Energy Development Venture	✓	
Steve Payne, Managing Director, Housing Improvements & Preservation, Department of Commerce, Washington State	✓	
Larry Shirley, State Energy Office Director, North Carolina Department of Administration	✓	
Roya Stanley, Deputy Director, Iowa Office of Energy Independence	✓	
Janet Streff, Manager, State Energy Office, Minnesota Department of Commerce		✓
David Terry, Executive Director, ASERTTI	✓	
Steve Vincent, Regional Business Manager, Avista Utilities	✓	
Daniel Zaweski, Assistant Vice President - Energy Efficiency and Distributed Generation Program, Long Island Power Authority	✓	

Contractor Support:

- Emily Lindenberg, SENTECH, Inc.

Public:

- Bill Farris, Commercialization Group, NREL, Golden, CO
- Diana Lin, NASEO
- Anna Garcia, SEP, EERE, DOE
- Jeff Genzer, NASEO

WELCOME & INTRODUCTION

The June 2011 STEAB meeting commenced at 8:30 am EST on Tuesday, June 7, 2011.
Paul Gutierrez (PG) Board Vice Chair, welcomed members to the meeting and thanked them for traveling to Washington, DC for the last meeting of FY 2011. PG introduced Gil Sperling (GS) as the new Designated Federal Officer (DFO) and GS provided brief comments about the overall agenda for this meeting, the proposed outcomes

and provided some background on the politics and potential budget cuts facing DOE as well as other agencies. He encouraged the STEAB as the hear the presentations during the meeting to think about ways in which the Board can assist DOE and EERE Programs maximize dollars and work towards President Obama's goals for carbon reduction, our dependency on foreign oil, as meeting the renewable energy generation goals for 2050. GS asked which members of the Board attended the OWIP/State Energy Program (SEP) All States meeting in May of 2011, and Elliott Jacobson (EJ), Phil Giudice (PGD), John Davies (JD) and David Terry (DT) were all in attendance. EJ expressed his concerns over the Weatherization Assistance Program (WAP) being cut and addressed a question to Secretary Chu at the meeting about the future of the program. PGD indicated the meeting highlighted the value of bringing these stakeholders together to discuss tough issues and felt like there was the intention to get states together to sign-on for certain initiatives, but without states knowing what resources would be available, many states were hesitant to commit. JD agreed with PGD's assessment saying states and DOE do not know how to capture everything that is going on with SEP and OWIP, and though hearing the success and best-practices stories are beneficial, there was no "real" or "actualized" outcome from the meeting. DT felt the networking opportunities were beneficial, but there was a distinct lack of policy discussion. At this point, Anna Garica asked to comment as she was both a host and attended the OWIP/SEP meeting. GS gave the floor to these public attendees, and Ms. Garcia commented that this meeting was a great starting point for SEP to begin work on a more regional basis and that the Program will continue to work with states and liaise with NASEO to move the program in a positive direction. All members of the Board commented that the real issue facing SEP, WAP and other programs is funding, and the question of what happens once Recovery Act (ARRA) funding is gone.

SPEAKERS

Speakers from the Department of Energy, the National Renewable Energy Lab (NREL), and others participated in the June 2011 STEAB meeting providing updates/insight with regard to specific areas of interest to the Board.

- **"Overview of EERE Programs and Potential Initiatives"**
  Dr. Henry Kelly, Acting Assistant Secretary, EERE, DOE.
- **"Update on Energy Efficiency Programs"**
  Dr. Kathleen Hogan, Deputy Assistant Secretary for Energy Efficiency, EERE, DOE.
- **"Update on the Technical Assistance Program"**
  Pam Mendelson, Energy Technology Program Specialist, DOE.
- **"Update from OWIP and Discussion on Next-Steps and the Future of WAP"**
  LeAnn Oliver, Program Manager, OWIP, EERE, DOE.
- **"Update and Discussion on National Lab Deployment and Commercialization Efforts"**
  Casey Porto, Sr. Vice President of Commercialization and Deployment, NREL.
- **"Update on ERAC and Overview of Committee Actions "**
  Phil Giudice, ERAC and STEAB Board member, Boston, MA.
  JoAnn Milliken, DFO, ERAC, EERE, DOE.

Copies of all of the presentations can be found online at www.STEAB.org, under the "Meetings" tab. All presentations can be viewed or downloaded directly from the website.

Overview of EERE Programs and Potential Initiatives

- GS wrapped up the morning overview and introduced Acting Assistant Secretary for Energy Efficiency and Renewable Energy (EERE), Dr. Henry Kelly. Dr. Kelly gave an overview to the STEAB regarding the myriad of activities occurring within EERE, indicating Dr. Hogan would be speaking to the Board later specifically about the EE activities. The biggest challenge is keeping the Programs running with a diverse portfolio in face of the funding issues and budget cuts. The Buildings Program has had remarkable successes, and the Vehicles Program is pushing renewable fuel and biomass, as well as making progress in the battery industry. The Industrial Technologies Program is working to reduce the energy needed in various types of manufacturing, understanding the best way to commercialize is to make the cost cheaper to the consumer. The Solar Program is heavily focused on the $1/watt for PV by the end of the decade and is looking at trying to improve the installation costs which are the most expensive part of PV. The Wind Program is focusing on offshore wind development but faces a host of environmental challenges. Geothermal faces the same issues. Dr. Kelly made it clear to the STEAB that to mitigate these challenges there is no 'one-size-fits-all' answer, but each program and

the office needs to look within the regulatory environment and encourage innovation at the state and city level to face these challenges. He asked the Board to help EERE gather ideas the states have for moving forward nothing the Board may also be able to work with states to figure out how to make revolving loan funds operate since each program in each state can work together. Dr. Kelly concluded his remarks noting states are the key to solving contractual and regulatory issues, and however the Board can assist with this, EERE would be grateful.

- PGD indicated the government wants DOE focused on research and development, not deployable technologies. How can the Board help change the focus to getting DOE to begin deploying the market-ready technologies available now? Dr. Kelly responded by saying the hardest part is getting the cost to consumers down so commercialization and deployment is successful. DT asked how the Board can help get revolving loan funds on the right track, and the response was that DOE was looking at the DOE FOA and will be issuing their own solicitation based on the DOD responses. Maurice Kaya (MK) asked Dr. Kelly about the relationship between EERE and the states about how to maintain the intellectual capital and existing infrastructure in light of budget concerns. Dr. Kelly indicated that EERE must maintain the existing infrastructure otherwise it is a significant loss to progress.

Update on Energy Efficiency Programs

- Dr. Kathleen Hogan, Deputy Assistant Secretary for Energy Efficiency (DAS-EE), presented the Board with a more in-depth review of current EE Programs and focus areas[1]. The EE Programs are interested in promoting state and local policy in order to make change happen. The Programs need to keep pace with education and outreach efforts with regard to technology/systems solutions and market-based solutions and also policy drivers to help realize possible already existing energy solutions. Dr. Hogan reviewed EE Program funding for FY 11 and projected for FY 2012 noting she is working with Program managers to balance research and development with deployment activities. She reviewed the challenges facing EE Programs such as promoting more engaged consumers, trying to gain access to better information and access to more funding, maintaining and cultivating a skilled workforce and creating better evaluation models and noted EE still struggles with communicating success stories. The overview then touched on programs which are successful such as rolling-out pilot programs for a version of a MPG for the home. EnergyStar® has launched a pilot program called "Most Efficient 2011" for 6 categories of appliances and has created a new label as a way to reach more conscious consumers. With regard to workforce training and education, DOE is working on job task analysis and there will be a second round of public comment for the Standard Work Specifications, and DOE is looking to roll-out a standardized training curriculum and program accreditation worker certification as well. On the residential side, BetterBuildings has been successful with neighborhood by neighborhood retrofits and sustainable EE improvements. There are 40 or so communities actively engaged in working towards a 15 to 30 percent energy savings from these EE upgrades. On the Commercial side of BetterBuildings there is a new initiative touting 20 percent improvement by 2020. Other programs EE is spearheading include tax incentive, financing opportunities and grant programs. Dr. Hogan indicated the big issue now is maintaining jobs created under ARRA once funding is gone. She made it clear that DOE and EE need to leverage local and state policies to help maintain jobs and continue delivering EE savings. She briefly discussed SEEAction and the work groups focused on creating roadmaps and strategies for moving forward post-ARRA, and indicated that both trickle-down and bottom-up approaches are needed.
- Dr. Hogan asked if there were questions and JD elaborated for her that the USDA/DOE Task Force participated in a State Energy Extension Partnership (SEEP) Working Group meeting the previous day and indicated that DOE and USDA were closer to establishing an MOU or other official partnership document to help bring energy education, technical training, and initiatives like this to the local level. Steve Vincent (SV) asked about the home energy score "MPG" rating and exactly how EE is involved in that process since there are a variety of other organizations which have already put programs like this in place. Dr. Hogan responded by saying that the role DOE and EE has is to set the rules so that ratings are consistent across different programs and states, but the private sector has the tools to do the rating and delivery. GS thanked Dr. Hogan for speaking to the Board and then turned the floor over to the STEAB for a discussion regarding the previous presentations and how STEAB can get involved.

[1] The presentation that Dr. Hogan gave to the Board can be found as Appendix A directly following the meeting minutes.

- Peter Johnston (PJ) made the observation that this was the first time he heard from DOE about the institutional issues facing deployment and the obstacles of cost and utility which need to be overcome. He indicated that states are the avenues to helping remove these barriers and it was clear Dr. Kelly and Dr. Hogan were looking for STEAB's assistance as a liaison between states and DOE. JD reminded the Board that Dr. Kelly asked for assistance looking for innovative loan funds and regional funds so states can pull together and have revolving loan funds post-ARRA. GS commented that the country already has an existing infrastructure of state and local officials looking for pilot innovations so how does STEAB build on that. He also indicated that as DOE moves into a more difficult budget environment how could STEAB help the interplay between DOE, EERE, the Labs and the private sector funding that is available. Additionally, what level of assistance is needed to start engaging DOE with the existing state and local infrastructure to answer some of these questions and challenges? Finally, GS told the Board there was a need for better analysis of what market barriers are to commercialization and deployment on the EE and RE sides. How does the STEAB heighten these issues with EERE? PJ, as a member of the Lab Task Force, volunteered that group undertake the issue of research and development at the labs, versus the private sector to determine where overlap, innovation and collaboration could occur. SV thought that would be a great idea and asked the Task Force to also address the issue of communication out of the Labs to DOE and the private sector since there is a perceived lack of relevance of the labs to the private sector.

Update on the Technical Assistance Program

- GS then introduced Pam Mendelson of the Technical Assistance Program as the next speaker. Ms. Mendelson thanked the STEAB for having her and reviewed the Technical Assistance Program (TAP) with the Board[2]. TAP, though it existed before ARRA, received massive levels of funding under the Recovery Act though the goal remained the same; provide grantees with resources needed to swiftly implement successful and sustainable clean energy programs. The objective being to accelerate, improve and increase the effectiveness of programs and projects. TAP provides direct assistance, aggregated assistance, and peer exchanges on topics like EE and RE technologies, program design and implementation. There have been 1325 requests for direct assistance and 233 in process and over 1,000 requests handled and closed. Nearly 200 webinars have been held and a multitude of peer exchanges. The Program is working to roll-outs version 3.0 of their online solution center to provide essentially a community of practice which shows next-steps and insight into issues that have been solved or challenges that are occurring. TAP hosts peer exchange calls with the goal to develop regional networks to share resources and experiences to overcome barriers to EE and RE projects. These are monthly calls that reach over 2,000 people on the 72 regional calls. Ms. Mendelson indicated residential retrofits and energy use in public buildings are big areas TAP is undertaking in the policy arena. TAP is creating took-kits for these arenas which will be publicly available on their website. The presentation concluded with the contact information for TAP. The website can be accessed at https://tac.eecleanenergy.org and the phone number is 1-877-EERE-TAP.
- GS thanked Ms. Mendelson for the update and review of the Technical Assistance Program. He then indicated the 5 STEAB Task Forces (SEP, USDA/DOE, Deployment, Weatherization, and Lab) meet in small groups to discuss how the updates from the morning affect their Task Forces' goals and objectives. After an hour of small-group discussion, the Board came back together as a group to share what was discussed in the Task Force break-out sessions.

Task Force Updates and Next-Steps

- The Lab Task Force provided the first update to the STEAB. Roya Stanley (RS), Chair of the Task Force, let the STEAB know that when the Task Force (TF) met for a teleconference call the month before they had decided the first step was to send letters to the Lab directors asking for information about deployment, market-transformation, commercialization and outreach initiatives and programs currently being undertaken by each lab. As of the meeting they had not received many responses, but were working closely with NREL, AMES, LBNL and ORNL at the moment to gather information and background. RS indicated the purpose of this was for the TF to educate themselves on the current activities and then facilitate a dialogue with the Labs, the STEAB and DOE about what the metrics for success are as they correlate to deployment of technology out of the Labs. The TF wants to understand what those metrics are, how they were developed, how they are being

[2] Ms. Mendelson's presentation can be found as Appendix B.

measured and can the metrics be defined in the same way by all Labs or does each institution have its on indicators for success. She reminded the Board that the key to success is really collaboration between not only the Labs themselves, but the Labs and DOE, the private sector and the community. The Lab Task Force is going to take another look at the Deployment White Paper which was put together by the Deployment Task Force in order to start a dialogue with the Labs and DOE about how to make deployment successful.

- The next TF update came from the SEP Task Force. David Gipson (DG) as Chair provided the update noting the TF has been actively engaged with ORNL and KEMA regarding the SEP Evaluation since February and has participated on several calls with the Lab and the consultant to discuss issues and concerns. One of the issues they raised was that building codes and energy codes were at first not going to be part of the evaluation but because the TF and states raised an issue about this, both of these will now be included. Second, the TF understood that energy assurance and the fuel emergency plan were also not going to be part of the study because even though the programs are doing well, its difficult to measure the success in the metrics being used such ass BTU's saved or dollars spent. Attribution is another big issue which was raised by the TF. If a state has tax credits and the employees who run the program are paid with SEP formula dollars, do the results of that spending get included as a whole? The TF has indicated it would like this to count but the ultimate decision on that has yet to be determined. DG went on to say how the TF has been talking about the issue of data collection and that the study must reach sub-recipients in order to gain the best data. Since most data collection is happening from November 2011 through January 2012, there may be an issue reaching all of the individuals employed by ARRA since some of those were hired for a specific amount of time, and when those individuals move on, there can be significant sources of data which will be lost. The TF, in order to encourage state involvement and participation, has advocated for a system of feedback where NASEO and KEMA will find a time to address the evaluation together to make sure DOE was getting the correct information from the States. MK asked DG if the TF was looking at the SEP Program as a whole, but DG indicated it was the role of this TF to work solely on the evaluation with ORNL and KEMP. GS and PGD advocated for the creation of a TF which would look at the SEP Program itself as a whole so the STEAB could weigh in on the future of SEP. PDG encouraged the creation of a new TF which would also interface with NASEO for an even larger impact. DG indicated that the current TF was interested in writing a letter to DOE about the evaluation and the recommendations the TF has made.
- The USDA/DOE Task Force gave the next update. Duane Hauck (DH) let the STEAB know that positive progress was being made by the TF in an effort to bring together DOE and USDA in a joint venture for a Cooperative Extension Service (CES) and State Energy Office (SEO) partnership. Per direction from DOE, the TF gauged interest from both agencies and after receiving positive feedback, members of CES, NIFA, and DOE's OWIP met on April 18, 2011 to discuss the concept paper and metrics which the TF had compiled. This meeting became known as the State Energy Extension Partnerships (SEEP) Working Group once strong and positive support was shown for moving forward. A smaller group of these stakeholders met on June 6, 2011 to review a draft proposal which would be submitted to both DOE and USDA which outlines the basics of a partnership between the two agencies in an effort to bring energy education and training to local communities. The draft concept paper is slated to be finalized and delivered to USDA and DOE by July 1, 2011 and the ultimate outcome is that the agencies will enter into an MOU and begin funding a pilot program later in FY 2011 or in early FY 2012. The current draft of the proposal discusses funding, transformational learning at the local level, training and professional development and educational outreach. If the SEEP Working Group is able to establish a national program opportunity between USDA and DOE, the actual collaboration would be done between SEO and CES, and the two entities will work together to disseminate information and provide training and educational opportunities. The Working Group has taken the lead on this initiative from the TF and the TF currently only participates in an advisory role to the Working Group. Mark Bailey of DOE and Caroline Crocoll of USDA are the co-chairs of this new SEEP group. The concept paper also outlines some funding requests in phases. Phase One asks for roughly $1 million for a pilot program, Phase Two asks for $5 million if Phase One is successful and the ultimate hope is that this type of program will roll-out to all states in Phase Three and be funded with roughly $20 million. DH indicated that both Senator Bingaman and Senator Conrad have been briefed on this concept and both have shown their support with letters to Secretary Chu and Secretary Vilsack. Overall the TF and the Working Group feel this concept has been very well received whenever the idea has been presented. They are very hopeful that by the end of FY 2011 there will be an MOU signed and some sort of pilot program rolled-out in test states.

- Members of the Board were very excited to hear about the progress made by the TF and the SEEP Working Group and MK asked if the TF would be interested in looking at this same type of partnership with DOD. He feels there are many opportunities to partner with that agency in a similar way they have partnered with USDA.
- PGD provided the fourth update as the Chair of the Deployment Task Force. The brief update reminded the STEAB that in March of 2011, the Deployment TF met at DOE with Dr. Henry Kelly and provided him with a copy of the adopted Deployment White Paper from the February meeting, and held an hour long discussion about deployment efforts within DOE, the Labs and the EERE Programs, as well as provided Dr. Kelly with recommendations about how to improve initiatives moving forward. The TF would like to do a follow-up meeting with the EERE Senior Leadership in the coming months to continue the discussion and see what ideas from the White Paper the Office has utilized and in what areas EERE Programs are still in need of guidance and assistance.
- The final TF update was provided by EJ, Chair of the Weatherization Task Force. EJ told the Board the TF is concerned with the future of the Weatherization Assistance Program (WAP) as well as the future of SEP. The TF is concentrating on two issues; the ultimate survival of WAP in light of the budget and funding concerns, and in the long-term how to get the program on a road of success through 2020 and prove the value of WAP to DOE and the Federal government. In light of the March 2012 deadline looming, the TF understands there are states which will have used up all their funding by that time, states that have already used their funding, and then some states which will have ARRA funds remaining by the deadline. The question now is what happens to the programs which are out of money and how do we keep them moving forward and being successful post-ARRA. EJ and the TF feel the biggest issue is one of policy. Reinstating Weatherization Plus is key to creating a long-term sustainable WAP Program. Vaughn Clark (VC) suggested a way to show the value of WAP was to use the existing network of personnel to deploy new technologies, and use those homes which have been weatherized to showcase new and emerging technologies from the Labs and EERE. GS told the Board that the focus DOE is concentrating on right now is energy efficiency because EE can pay for itself because of the return in savings so to DOE, EE makes the biggest impact. How can the TF proceed with making WAP successful in the long-term knowing that EE is a hot-button issue for DOE right now? MK continued on that thought recommending the TF get together with OWIP and WAP personnel to hear what their vision is for the program and then also interface with the states and local government to see what their hope is for the program. There needs to be that feedback loop between DOE and the states in order to continue a successful program.

Update from OWIP and Discussion on Next-Steps and the Future of WAP

- LeAnn Oliver, Program Manager of OWIP, presented to the Board on Wednesday morning about where OWIP was now, where the office is going and where it wants to be in the future[3]. She noted one of the biggest challenges has been the turn-over with Governor's in the states which has inhibited the states' ability to move forward and get to the level of spending OWIP wants to be at. After reviewing briefly the funding history of her Program Office, reviewing the EECBG and other investments noting how successful the EECBG program has been, she also provided background on SEP and how the $1.3 billion in funding went mostly into buildings, electric power and renewable energy projects. Overall her feeling is that with the massive injection of funding from ARRA, OWIP was able to fund a variety of programs and initiatives, but the most successful ones were where localities and regions worked together to move EE and RE programs forward via collaboration and partnership. It was these types of integrated deployment activities that contributed to the success of many OWIP funded programs across the country.
- With regard to WAP, there are 6.9 million homes that have been weatherized and 38 million more that are eligible. During ARRA she feels WAP has been successful because it has been able to leverage its dollars in a way where DOE is spending about $1,000 less per home than the $6,500 allotted under ARRA. Because of all the leveraging of funds, there is additional money that allows for more homes to be weatherized than predicted and also acts as "seed money" for other WAP related projects to piggy-back on. He concern for WAP is that if these types of programs cease after ARRA funding ends in March of 2012, the ripple effect on homeowners, contractors, inspectors, ect. will be huge. EJ pointedly asked Ms. Oliver if she was aware that many states will have unspent funds come March 2012 while other states will have used all of their funding. Is there a way in which OWIP can help states with additional funds remaining transfer some of those to states who are out of funding? Ms. Oliver responded that at this time, that issue is one that goes back to the formula and both

[3] LeAnn Oliver's presentation to the STEAB can be found as Appendix C.

Congress and DOE are looking at options and what can be done with remaining funds while still adhering to the law. She continued by saying most of the funds that "appear" to remain are actually spoken for but have not yet been allocated by the state.

- The discussion on WAP continued with Ms. Oliver talking about leveraging partnerships and expanding resources. 31 states leverage utility funds each year, $140 million - $210 million has been leveraged annually since 2005 from private sources, and $350 million - $500 million has been leveraged annually from Federal and non-Federal sources since 2005. Additionally, training crews and contractors are now part of a broader workforce, and DOE partnered with HUD, EPA and HHA on a *Healthy Homes* imitative. In terms of monitoring, OWIP is conducting on-site following-up, annual visits to SEP grantee sites, and on-site visits to EECBG grantee locations. PGD noted how low the numbers are for waste, fraud and abuse within WAP, SEP and EECBG and encouraged Ms. Oliver and her Program Office to showcase these numbers to the IG and Congress as they are clearly demonstrate the success of ARRA funding within DOE. LeAnn agreed with PGD and noted that her office is going to be doing a "best-practices" campaign where leading grantees will identify the best-practices, lessons-learned and success stories so that they are able to lead by example and assist other states with finding better financial strategies or overcoming policy regulations.
- JD harkened back to EJ's question about reallocating remaining funds to states which are out of money after March 2012. He elaborated that states all started with predictions, but not all of those have gone according to the plan which is why some states have either over or under spent and the point now is when will DOE make a decision about what to do with remaining ARRA dollars come 2012? Anna Garcia answered this question saying that DOE has been conducting 'Quick Draw' calls with states to discuss strategies and get suggestions on how to creatively and quickly spend remaining dollars. Some states suggested turning the funding back in to DOE, or reallocate those funds to other agencies or other states which are in need of additional ARRA funds. Ms. Oliver added that OWIP and DOE don't want to leave any money on the table. Ms. Garcia continued by asking the STEAB for their suggestions and recommendations on how to ameliorate this issue of funding. She continued by saying that this will be a topic of discussion throughout the summer and was also addressed at the regional NASEO meeting.
- VC asked about the EECBG Program and if OWIP and DOE saw a future for that program post-ARRA. Though the monitors of this program realized that things move more slowly at the local government level, there were great lessons-learned and the grantees of EECBG had well thought out programs which are still being implemented and many have been highlighted as strong successes in the states. He wanted to know if there was a future for this program and if so, would there be a greater emphasis on DOE and OWIP partnering more closely with local government to enhance the speed with which programs were implemented. Ms. Oliver agreed with everything VC stated and emphasized OWIP will maintain their relationship with localities moving forward and right now, with all of the funding questions, they are looking at how to leverage what funds they have remaining as well as leveraging the new partnerships to continue the success of EECBG. EJ asked a question about the delivery networks that exist within WAP, nothing the Weatherization TF is hopeful that DOE will maintain the existing networks so as not to lose the institutional knowledge and training which currently exists. What will DOE be doing to help maintain this network and utilize it in an advantageous way? Ms. Oliver responded by saying what she is seeing in EERE is that scientists are looking for new game-changing technologies. What she sees in this network is a ready-made engaged group of people who are interested in RE and EE technologies and are anxious to work-with and adopt any kind of new technologies no matter what they are or how innovative they are. With such an engaged network it allows the DOE scientists to test out new technologies with a lot of latitude and encourages the DOE scientists to test out a variety of technologies because they have a network of willing new-adopters.

Update and Discussion on National Lab Deployment and Commercialization Efforts

- Casey Porto, Sr. VP of Commercialization at NREL, provided the next presentation to the STEAB on Wednesday morning[4]. Her presentation began by noting NREL is the only lab dedicated to RE and EE technology research and deployment. The goal is to accelerate the rate of deployment of new technologies into the marketplace. On the deployment side, NREL wants a broad impact in the marketplace in order to remove market barriers and encourage the broader adoption of existing technologies. On the commercialization side the goal is speed; making sure new technologies are developed and disseminated to consumers quickly.

[4] The presentation by Casey Porto can be found as Appendix D.

- Specifically with regards to commercialization, NREL launched the Energy Innovation Portal 2 years ago where NREL is cataloging all of the Intellectual Property (IP) that DOE has either developed or paid for. The website for this portal is http://Techportal.eere.energy.gov. This database tracks whether the IP comes from DOE, the Labs, universities, etc. Also, this portal assists companies who have developed a product but have not yet commercialized it, there is information on how to get this technology into the marketplace. Additionally there is the Innovation and Entrepreneurship Center. The Center is a virtual collection and allows for engagement with the community and investors to cultivate innovation. NREL also sponsors the Industry Growth Forum which allows technology and scientists to get out the lab and into an environment where they can meet and network with investors and companies looking for EE and RE technology investment opportunities. Over the last several years, these companies have raised $3.4 billion in investments. NREL also has the Center for Renewable Energy and Economic Development (CREED) which allows the lab to have a public side. Members of the Colorado clean tech industry rent space at NREL in a facility on the same floor as the technology and commercialization work in an effort to bring everyone together in one space to cultivate innovation, commercialization, partnerships and deployment opportunities. This project is going very well and the state of Colorado is funding 50% of the project, with NREL covering the other 50%. Ms. Porto concluded her comments on the commercialization side of NREL by talking to the Board about the Venture Capital Advisory Board which advises national labs and other collaborators on strategic plans and programs occurring in the clean energy sector.
- On the deployment side of NREL, all new activities fall under Ms. Porto's purview. DOE is very focused on deployment and NREL has two deployment categories that all deployment is organized into in order to offer structured support to the right type of client; Market Transformation Center (MTC) and Integrated Application Center (IAC). One deals with a client specific technology and the other with a client neutral technology. Over the past several years NREL realized that there are many non-technical barriers to deployment and the wide-spread adoption of EE and RE technologies. The barriers include a lack of capacity at the state and local level to fully adopt new technologies, and inadequate understanding with regards to expertise, as well as a sever lack of any type of deployment framework while at the same time, a total lack of awareness and understanding by consumers about the basics of EE and RE. While NREL has a framework and a mission for deployment, there is no consistent framework across all labs, if one exists at all. There are so many activities going on at the labs, but they all fall under different categories or within programs like technology support, or project support. Very few fall directly in some kind of deployment framework.

Update on ERAC and Overview of Committee Actions

- JoAnn Milliken, the DFO of the Efficiency and Renewables Advisory Committee (ERAC), joined the Board via conference call to update them on the progress and undertakings of the committee since its creation in November of 2010[5]. Ms. Milliken reminded the Board that the ERAC's role is to provide advice on research and development portfolio and design to the 10 EERE Program Offices. Currently the ERAC has four sub-committees; Appliance Standards, Electricity, Program Design and Implementation and Transportation. The role of these sub-committees are as follows:
  - Appliance – To streamline and improve DOE's negotiated rulemaking process for appliance standards. This subcommittee engages key stakeholders to address central issues of new standards.
  - Electricity – To improve EERE's efforts addressing electricity demand (e.g., building efficiency, EVs, and manufacturing) and encourage RE sources of electricity generation and the corresponding transmission. This subcommittee coordinates with DOE's Office of Electricity and its Advisory Committee (EAC) while addressing EERE's collaborations with the Federal Energy Regulatory Commission, the Bureau of Land Management, and the International Organization for Standardization.
  - Program Design – To evaluate EERE's management strategies to maximize the likelihood of EERE programs achieving impact at scale. This subcommittee works with one or two specific EERE efforts to examine and advise on program implementation.
  - Transportation – To improve EERE's efforts in the transportation system as a whole. This subcommittee focuses on efforts of EERE's Vehicles, Hydrogen and Fuel Cells, and Biomass Programs and their collaboration with Department of Transportation, Department of Housing and Urban Development, Environmental Protection Agency, and other agencies.

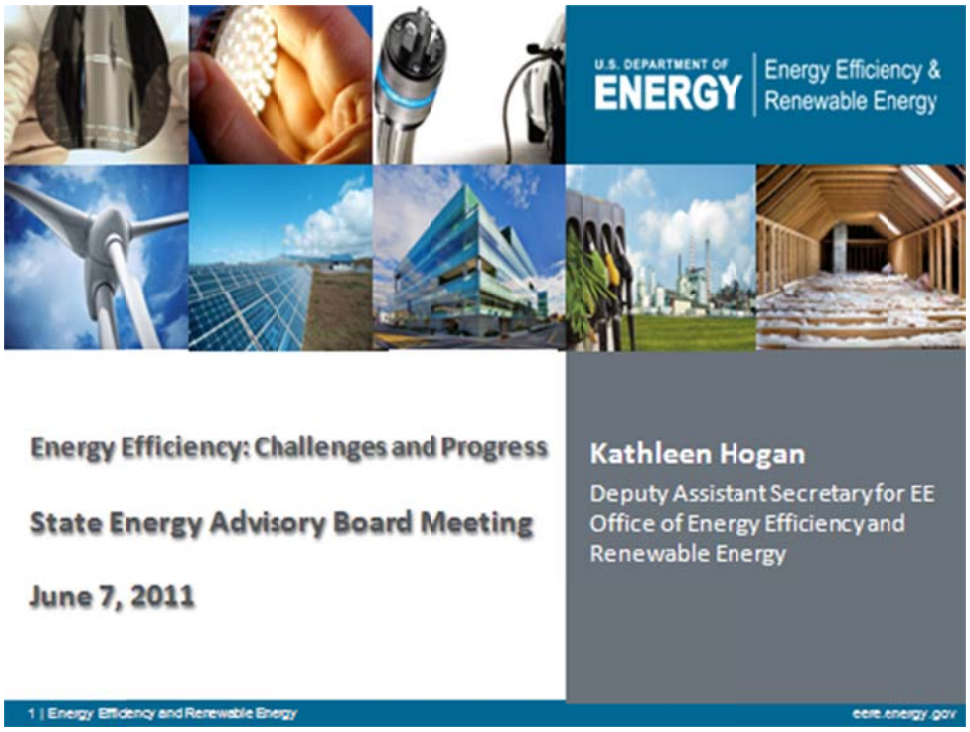
[5] The presentation and update on the ERAC by JoAnn Milliken is included as Appendix E.

- Ms. Milliken provided a brief review of the last two ERAC meetings, held in March of 2011 and in November of 2010, letting the STEAB know the next meeting will be in California in September of 2011. PGD who is a member of the ERAC as well contributed that this group is made up of a number of individuals who have some EERE and DOE experience and others who have none. Because of this make-up, the ERAC has many fresh perspectives and observations as many are venture capitalists and see ways in which DOE and EERE can improve their deployment and R&D.
- GS thanked Ms. Milliken and PDG for their comments and asked the STEAB to please, once again, break out into their Task Forces to continue discussions based on the mornings' presentations and also from what was discussed and addressed after Tuesday afternoon's break-out sessions. Once the TF's have met in a small group, they then came back and summarized for the Board what was discussed and determined during the hour break-out.
- The Weatherization TF presented first after the Board came back together from their break-out sessions. EJ said their TF had a very good and enlightening session where it looked at the WAP Program with a dual focus; short-term and how to deal with the March 2012 deadline and keep the delivery system alive and working, and long-term and how to keep the program alive and successful through 2030. The types of questions that were discussed included what do we do to keep funding up and what do we do to increase funding to do homes quickly and more homes., and what is driving that is trying to get people affordable energy. There are lots of environmental goals the STEAB and TF have to look at moving forward. The TF decided that these are issues which need to include DOE, NASCSP and other participants in order to come up with the most advantageous solution for both states and DOE. The TF asked GS if they could come to Washington, DC in August of the year to meet with OWIP and other stakeholders to continue these discussions. GS indicated that this would be a great idea and the TF should plan on coming to DC and start reaching out to the individuals they would like to meet with.
- DG of the SEP TF presented next and noted that after a brief conversation with LeAnn Oliver, the issue of attribution needs to be addressed with both DOE and OMB. He noted the TF will get together to draft a letter to Secretary Chu and OMB and the SEP attribution issue later in the summer. Additionally, he wants the TF to meet as a team to continue discussions with ORNL and KEMA regarding the SEP evaluation. DG noted he hopes to participate on the upcoming evaluation status calls that are slated for later in the summer.
- RS of the Lab TF summarized for the STEAB the TF break-out discussion by noting the most important thing the Lab TF needs to do is get all labs on the same page to focus on the infusion of clean energy technology into the marketplace. During their break-out the TF talked a lot about where funding for Labs were coming from and how that funding was being utilized. The impression after a lengthy discussion was that despite the funding going into the Labs, there are not metrics to measure how well funding is spent or allocated. There is no evaluation which collects information on how successful the levels of funding are, and the Labs are not reporting what is being done with that funding or if funding has led to technologies which are being commercialized or deployed. RS admitted that the TF is now going on a fact-finding mission to gather as much information about funding, deployment activities, metrics, etc from all the Labs so they can determine how best to proceed. The TF will have a conference call later in the summer to discuss the information gathered and discuss a strategy and direction. The biggest question the TF needs to undertake is to determine if the labs are truly a national resource and if so, to what extent and in what ways. PGD commented that perhaps the TF could also look at ways in which DOE and states can best utilize the National Lab structure. He feels this concept has not been articulated and that both the Labs and the private sector are engaged in similar R&D, but there is not link between the two, and no strategic plan to bring those two entities together.
- PGD provided a quick update on the Deployment TF noting the group is trying to schedule a follow-up meeting with the DOE senior leadership to continue discussion the Deployment White Paper as well as work with DOE to potentially use some of the NREL model of deployment and commercialization at other Labs.
- The USDA/DOE TF presented last and indicated their goal now was to discuss the possibility of a DOE and USDA partnership with as many stakeholders as possible. They had conversed with Molly Lunn of the White House Council on Environmental Quality, and Katrina Pielle of DOE and both women were interested in this type of partnership as the focus is energy education. The TF also conversed with Ana Garcia and briefed her on the background of this potential collaboration. The reaction was positive and Ms. Garcia mentioned she would look at FY 2011's competitive funding piece to see if there would be any remaining funds which could potentially go to this initiative. DH mentioned the same type of support is needed from USDA, and the SEEP

Working Group would continue looking at ways to try and creatively fund this initiative and a pilot program by the end of the fiscal year.

- GS thanked the TF's for their updates and then asked the STEAB for their general impressions of the presentations, discussions and involvement of DOE at this summer meeting. VC noted that DOE seemed more engaged this time around and PGD asked the question about how can the STEAB fit all of these pieces about commercialization, deployment, TAP, SEP, WAP, and the end of ARRA together in a positive and action-oriented way to make an impact on states and EERE. GS suggested the Board keep doing what they are doing which is engaging stakeholders at all levels. He indicated the TF's have been successful reaching out to ORNL, NASCSP, DOE personnel and states to begin dialogues and discussions which have led to initiatives like the CES and SEO partnership and the engagement with the SEP evaluation. The best thing the STEAB can do is to continue to ask pointed questions and hold the right people accountable. MK made the observation that the STEAB and DOE want to move towards a clean energy economy. STEAB cannot rely simply on DOE to help change policy and move forward. The STEAB needs to collaborate with stakeholders and other agencies to facilitate any change. What would be helpful would be if STEAB could get some recognition that there is a view out there that in order to get the country where it needs to go it will take more than just DOE. DOE will need to engage and partner with other government agencies to get to where the country needs to be. MK continued by saying nowhere has he seen anyone in DOE make this kind of statement or even allusion to the fact that thinking of this kind may exist within the department. DOE needs to recognize and accept the fact that collaboration and partnership is the real answer to moving forward towards a clean energy economy.
- GS then turned to the portion of the agenda where the meeting opened up to public comment. Neither GS nor the contractor support had received written statements or verbal statements from members of the public to be presented at the meeting. Seeing as there were no members of the public present at the Board meeting, the public comment portion of the meeting was closed by GS.
- GS then moved on to the STEAB logistics portion of the meeting. The group decided to keep the teleconference calls on the third Thursday of each month at 3:30 PM Eastern Time. The next live Board meeting is scheduled for November 15 -17, 2011 in Knoxville, TN at the Hilton Knoxville. Members discussed possible presentation topics and the overall consensus was for the meeting to focus on deployment initiatives and the future of WAP, SEP, EECBG and other Programs post-ARRA.
- GS asked if there was any additional Board business. Seeing as there was none, he and PG thanked everyone for coming to the STEAB meeting and by a motion from DH and a second by JD and a unanimous vote by the Board, adjourned at 11:05 am on Thursday, June 9th.

APPENDIX A


U.S. DEPARTMENT OF ENERGY
Energy Efficiency & Renewable Energy
Energy Efficiency: Challenges and Progress
State Energy Advisory Board Meeting
June 7, 2011
Kathleen Hogan
Deputy Assistant Secretary for EE
Office of Energy Efficiency and Renewable Energy
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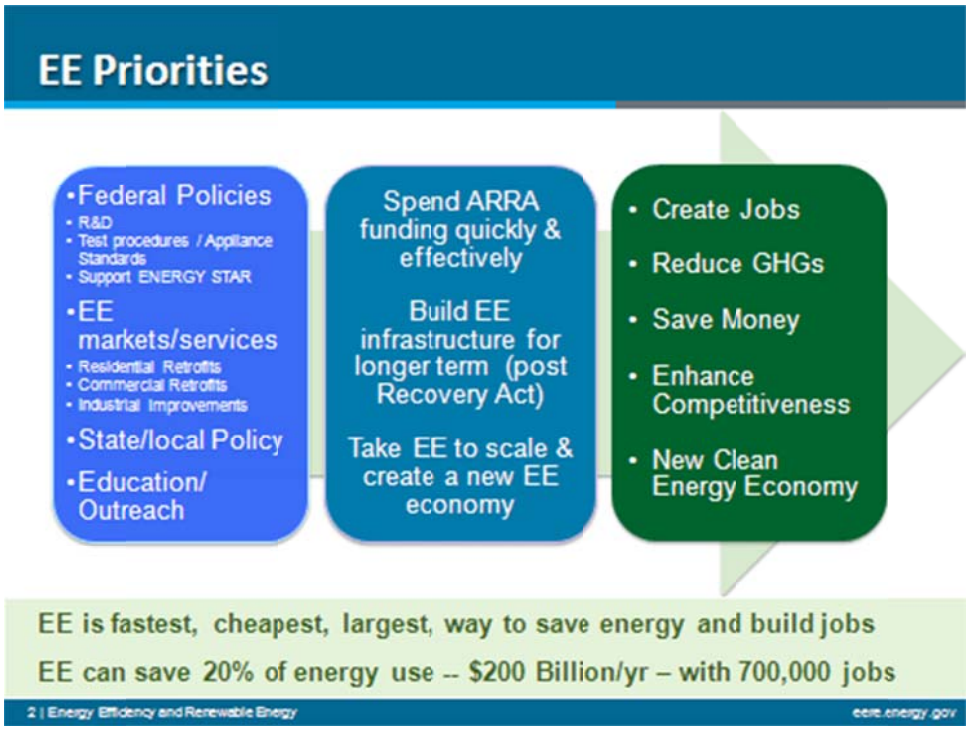

EE Priorities
•Federal Policies
• R&D
• Test procedures / Appliance Standards
• Support ENERGY STAR
•EE markets/services
• Residential Retrofits
• Commercial Retrofits
• Industrial Improvements
•State/local Policy
•Education/ Outreach
Spend ARRA funding quickly & effectively
Build EE infrastructure for longer term (post Recovery Act)
Take EE to scale & create a new EE economy
• Create Jobs
• Reduce GHGs
• Save Money
• Enhance Competitiveness
• New Clean Energy Economy
EE is fastest, cheapest, largest, way to save energy and build jobs
EE can save 20% of energy use -- $200 Billion/yr – with 700,000 jobs
2 | Energy Efficiency and Renewable Energy
eere.energy.gov

Administration Clean Energy Goals

Emissions Reduction / Clean Energy Deployment:

- Greenhouse Gas (GHG) emissions reduction -- 17% by 2020; 83% reduction by 2050
- Renewable energy generating capacity -- double by 2012[1] from 2008
- New clean energy standard: 80% of electricity from clean energy by 2035[2]
- Federal government: reduce GHG emissions by 28 percent by 2020 *(EO 13514)*

Transportation / Vehicles:

- Imported petroleum reductions -- one-third by 2025, from 11 million barrel per day
- 1 million electric vehicles on the road by 2015
- Advanced battery manufacturing capacity to support 500,000 plug-in hybrid electric vehicles a year by 2015
- Federal government: all new federal vehicles to be alternative fueled vehicles by 2015

Buildings:

- Residential: Retrofit 1.1 million housing units by the end of FY 2013 (DOE and HUD)
- Commercial: Improve commercial building efficiency by 20% by 2020
- Demonstrate sustainable business models for residential, commercial, and industrial efficiency

[1] excluding conventional hydropower
[2] Including renewable energy sources like wind, solar, biomass, and hydropower; nuclear power; efficient natural gas; and clean coal

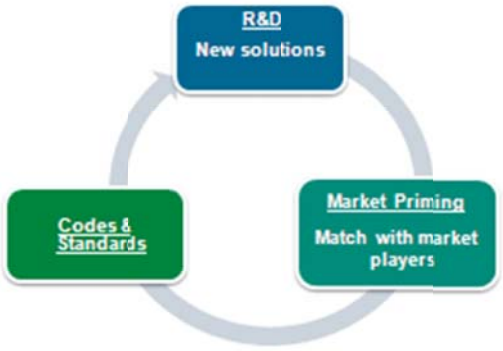
Achieving 20% Savings Goals – or More

Technology solutions

- refrigerators
- windows
- lighting

Systems-based solutions

- integrate building envelope
- right sizing of equipment



Market-based solutions

- new construction
- retrofit ~ 2/3rd of the facilities to be here in 2050 that are with us today

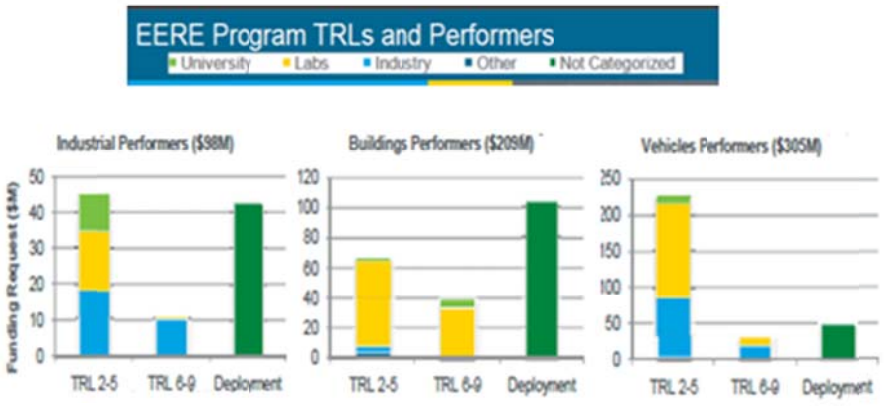
Policy solutions

- Federal
- State and local

EE Programs – Funding (millions)

EE Program	ARRA	FY10	FY11 CR	FY12 Request
Building Technologies		219	210	471
FEMP		32	30	33
Industrial Technologies		94	108	320
Vehicle Technologies		304	300	588
Weatherization and Intergovernmental		270	231	394
WAP	*5.2*	*210*	*173*	*320*
SEP	*3.1*	*50*	*50*	*64*
EECBG	*3.2*			
Total		**919**	**880**	**1,805**

EE Funding by Technology Readiness Level (TRL)

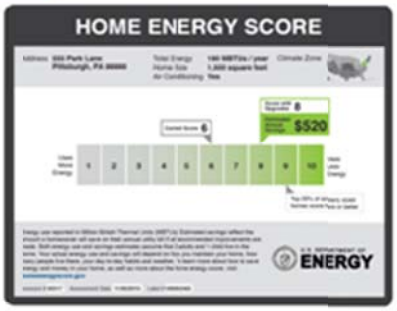


EE Challenges

• Better Information for Consumers	Home Scoring Program Building asset ratings
• More Engaged Consumers	ENERGY STAR growth
• Improved Access to Financing	Best practices
• Better Information as Basis for Financing	New ee savings data
• Skilled/Trained Workforce	Resid workforce guidelines Com. workforce guidelines
• Strong, consistent state and local policies	ARRA best practices SEE Action
• New Business Models	Better Buildings
• Better evaluation methods	Voluntary EM&V Guidelines
• Communicating Success	New materials on successes / future goals WAP/SEP/EECBG Evaluations

Better Homeowner Information: Home Energy Score

- Homeowner
  - MPG Rating for the Home
  - Low cost, easy, understandable, comparative score – 1 to 10
  - Asset-based
  - Recommendations for home improvements and estimate of savings
  - Being piloted this Spring: 10 pilots
  - Additional research: NYSERDA and others
- Delivery
  - Administered by partnering organization
  - Work in tandem with other Home improvement programs;
  - Not replacement for comprehensive energy audit
- Next steps
  - Pilot / refinement / national availability in Fall 2011



Home Energy Score Testing Locations

ENERGY STAR: Most Efficient

- Leverage ENERGY STAR; link to DOE R&D
- Connect high efficiency products with consumers that want to
  - Do right thing for the environment
  - Do the most they can
  - Buy the most efficient product available
  - Be an early adopter; trendsetter
- 2 Rounds of stakeholder comments
- Next steps
  - Criteria available this month
  - 2011 Pilot
  - Fall assessment
  - 2012 Full year program

Needs to be Useful Tool for
- Consumers
- Manufacturers
- Program Administrators
- Retailers

Workforce Standards, Education and Training

Premise: Demand is function of price and quality

Work standards --

- Help improve retrofit work quality and provide a foundation for quality assurance
- Increase workforce career mobility
- Assist trainers developing training materials
- Build confidence amongst consumers and the energy efficiency finance community

Workforce Standards, Education and Training

1) Job Task Analyses -- final production underway; published in late June

2) Standard Work Specifications -- Second round of public comment late Summer

3) Worker Training -- Standardized Training Curriculum available online

4) Training Program Accreditation -- ready late June, announcement and outreach in the summer

5) Worker certification -- certification blueprints being finalized, new certifications ready by December 2011

BetterBuildings Residential: Creating A Long-Term Efficiency Market

Goals to Leverage Grants for the Market

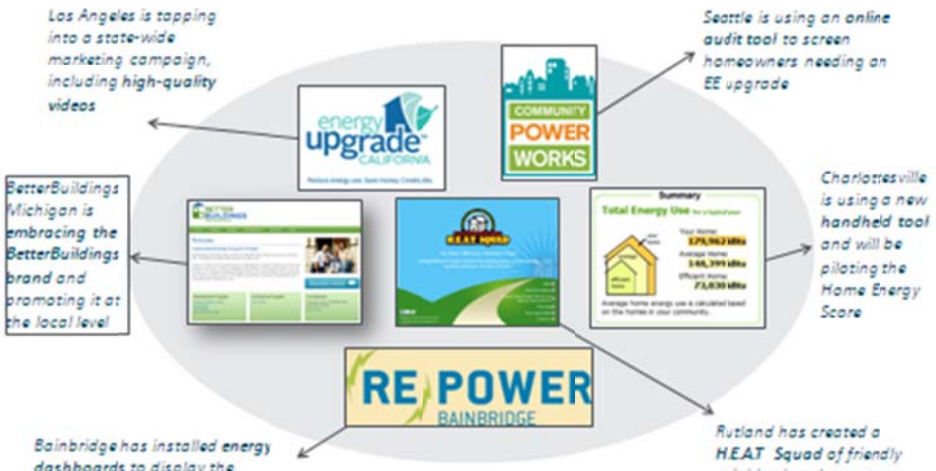
- Develop sustainable energy efficiency improvement programs
- Reduce the cost of retrofit program delivery by 20% or more
- Achieve 15-30% energy savings from energy efficiency upgrades

Grantee Goals by Late 2013

- Retrofit 170,000 buildings (residential and commercial)
- Use the $508 million grants to leverage $3 billion in additional resources
- Create or retain approximately 30,000 jobs
- Save consumers approximately $50 million annually on energy bills

Progress: Over 5,500 cumulative retrofits to date.

Innovative Marketing



Innovative program delivery strategies

BetterBuildings is working to reduce retrofit delivery costs for providers and consumers

Bulk purchasing	• Camden, NJ • Rutland, VT
Concierge services	• Boulder County, CO • Connecticut
Pre-qualified contractor list	• Los Angeles County, CA • Austin, TX
Packaging multiple jobs for contractor bidding	• Omaha, NE
Geographically-based contractor scheduling	• Cincinnati, OH

BetterBuildings: Better Information for Improved Financing

Targeted data from recipients and partners

Building Information	Retrofit Information
• Energy types used • Energy audit data • Energy use data (pre and post retrofit)	• Installed measures/equipment • Estimated energy savings • Contractor qualifications • Cost
Financial Information	**Communication Strategies**
• Leveraged funds • Loan types and value • Underwriting criteria • Financial performance (e.g., payment history)	• Communication type • Messaging approach (Primary and Secondary Messages) • Outreach tactic

The program is gathering quarterly information and will have preliminary data analysis the first year after grant recipient program launches (approximately December 2011)

(Commercial) Better Buildings: Overview

Goals

- Achieve a 20 percent improvement in the energy efficiency of commercial buildings by 2020.
- Reduce companies' and business owners' energy bills by about $40 billion per year.
- Save energy by reforming outdated incentives and challenging the private sector to act.

President Obama at Penn State University
February 3, 2011

http://www.whitehouse.gov/the-press-office/2011/02/03/president-obama-s-plan-win-future-making-american-businesses-more-energy

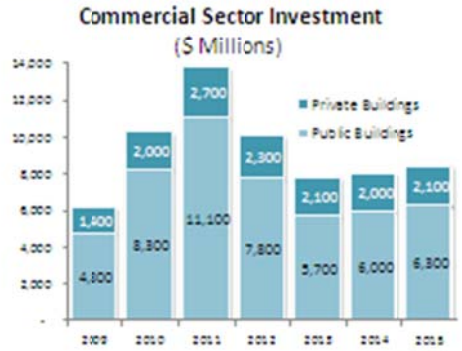
Overview: Initiatives

1. Tax incentives. Streamline the 179D commercial building tax deduction for tax year 2011 and restructure the tax incentive for tax year 2012.
2. Financing. Increase and accelerate financing opportunities for commercial and public building energy improvements through existing SBA loan program & proposed DOE loan guarantee program
3. Grants. Give competitive grants to state and local governments to streamline and update codes and regulations and to adopt policies and programs to attract private-sector investment in building retrofits.
4. Challenge. Challenge CEOs and university presidents to systematically upgrade their facilities for improved efficiency.
5. Workforce. Improve and expand workforce training and pilot a buildings extension service.

State and local policy

- State/Local Programs and policies critical to clean energy future
  - Lead by example
  - Clean energy policies
- ARRA Successes
  - Big down payment
  - Large jobs impacts
- Challenges
  - Sustain investment
  - Sustain jobs and savings
- Solutions
  - Key strategies
  - Work together for largest, quickest impact

Investments in Residential and Commercial Sectors



Non-Low Income Programs
- Non-low income investments are primarily utility ratepayer programs, tax credits for EE home improvements and private investments stimulated by programs and tax incentives.
- Utility ratepayer program spending is projected to increase 6.1% annually from 2009 to 2015.

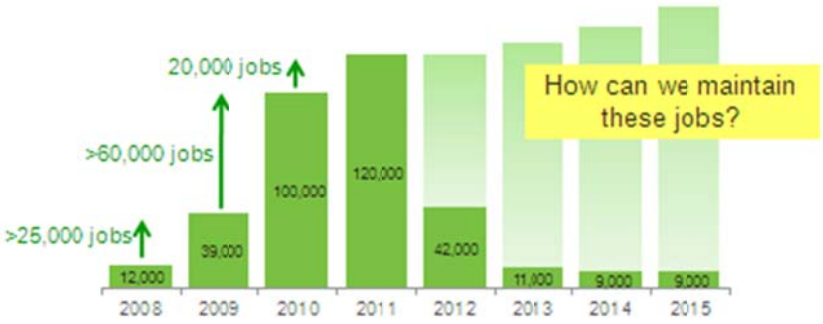
Low Income Programs
- Investments in low income homes are utility ratepayer programs and federally funded weatherization programs (DOE-WAP, LIHEAP), and in some cases supplemented by state funds.
- Federal funding increases 3% annually.

Private Sector Buildings
- Investments in private sector dominated by utility ratepayer program spending; projected to increase 6.1% /yr 2009 to 2015.
- Program participants estimated to provide >40% cost share to utility ratepayer programs and federal programs (e.g. State Energy Program and ARRA grants to local governments.)

Public Sector Buildings
- Investments dominated by ESCO projects, increasing 5.4% annually from 2012-2015 (LBNL business as usual scenario).
- ARRA contributed nearly $12 B from 2009 to 2010 through DOE, GSA and DOD public building programs.

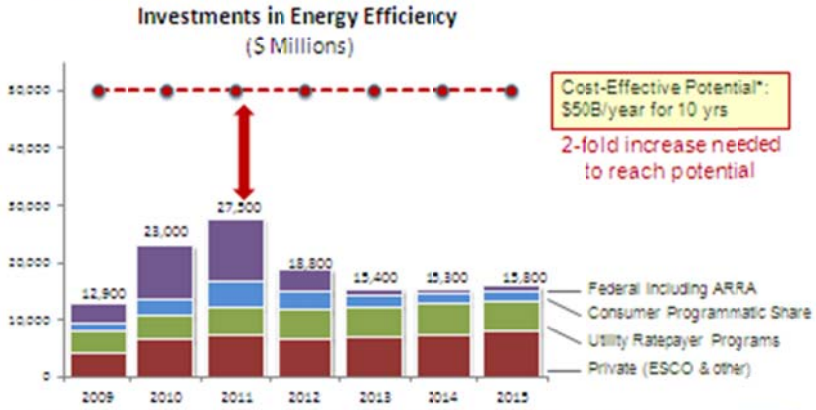
Jobs in the Clean Energy Industry

Job-Years Created or Retained by Direct ARRA and Annual DOE Spending on EE



The EE services sector has the potential to double in size under a moderate case scenario, from 380,000 individuals to over 700,000 by 2020 (LBNL)

Investments in Clean Energy: ARRA/EE in Perspective



- Federal funds are annual and ARRA awards across DOE, GSA, and DOD. 2011-15 payments are targets.
- Consumer investment estimated at 30% of total ratepayer program costs
- Utility ratepayer programs in 35 states represent for electrical and gas programs excluding load management. Projections are based on LBNL's mid-case scenario, increasing annually at 6.1%
- Private investments include ESCO projects, and spending due to tax incentives in residential, commercial and industrial sectors. Investments on EE processes by manufacturing and non-manufacturing companies are excluded.

* Cost-effective (all NPV>positive) economic potential includes residential, commercial and industrial sectors (with combined heat and power), but does not include program costs. Source: Unlocking Energy Efficiency in the U.S. Economy, McKinsey Global Energy and Materials, 2009.

Strategies to Maintain Workforce and Deliver Energy and Cost Savings

State Governments

Direct Strategies:

- Lead by Example Programs
- EE and RE Incentives
- Energy Saving Performance Contracts (ESPCs)

Enablers/Policy Framework:

- Building Codes
- Transportation Policies
- Aligned Utility Incentives
- EE Targets/Goals (e.g. EERS)
  - EE programs for residential, commercial and industrial sectors
- RE Targets/Goals (e.g. RPS)
- Financing (Revolving Loan Funds, credit enhancements)

Local Governments

Direct Strategies:

- Lead by Example Programs (including financing)
- Infrastructure Improvements (street and traffic lights)
- Green Power Procurement

Enablers /Policy Framework:

- Strategies for commercial buildings:
  - Energy audits and retrocommissioning
  - Energy and water benchmarking/rating and disclosure
  - Lighting upgrades and sub-metering
  - Financing
  - Workforce development
  - Expanding access to performance contracting
- Strategies for residential buildings:
  - Audits
  - Home rating
  - Required audits at time of sale
- Coordinated planning (across state/local agencies)
- Advanced codes (where applicable)
- Expedited permitting and siting of efficient distributed generation including renewables and combined heat and power

Sources: EERE Analysis; [illegible]; ACEEE Energy Efficiency Policies for Local Communities, 2011.

States Energy Efficiency Action Network (SEE Action)

- Executive Group
- State/local Co-Chairs
- Diverse WGs
- Aggressive Goals
- Blueprint/Roadmap to Achieve Goals
  - -- Where are we today
  - -- What we need to do
  - -- Roles/responsibilities
  - -- Coordination/outreach
- Implementation

DOE/EPA facilitate
- Working Groups
- Meetings
- Development of key deliverables
- Coordination platform

SEE Action: Next Steps

- Implementation discussions
  - WGs
  - Executive Groups
- Two phase release
  - Spring 2011 (phase 1) – ~ 4 Blueprints
  - Summer 2011 (phase 2) – ~ 4 Blueprints
- Ongoing implementation
  - Energy Policy Summit with ARRA grantees: May 2011
  - Development of key materials
  - Outreach goals to key states and local governments

SEE Action

Better Evaluation Methods: DOE Uniform Methods Project

Goal: Uniformity in how we calculate energy savings.

- Develop definitions within a clear set of end-use efficiency programs and measures for:
  - Program/measure applicability conditions,
  - Specific baseline definitions for specific measures and/or criteria for establishing such baseline definitions,
  - Approaches for verifying installations and determining first-year and life-cycle savings,
  - A level of certainty for the verification activities and savings determination, and
  - Reporting requirements.

WAP National Evaluation

- Two National Evaluations of WAP
  - "Retrospective" which covers PY 2007 & 2008,
  - "ARRA Period" which covers PY 2009, 2010, & 2011.
- Key areas of evaluation include:
  - National energy savings, cost savings, and cost-effectiveness;
  - Studies of Grantees, local agencies, clients, and weatherization workers;
  - Non- energy benefits (health improvements, utility bill arrearages, environmental pollution reductions);
  - Indoor air quality effects of weatherization (radon, formaldehyde, carbon monoxide);
  - Territories, large multifamily buildings, SERC, WIPP, deferrals, persistence, and under-performers.
- Timelines:
  - Retrospective: State & Agency survey results in July/ August 2011. Initial energy savings results for PY2007-8 and partial 2009 in August 2011. Detailed draft reports in for PY 2007-8 results in December 2011
  - ARRA: Pending OMB Approval, preliminary results Summer/Fall 2012

SEP Evaluation

- NASEO and the states briefed on status of the evaluation.
  - States volunteered to participate on the SEP evaluation network committee.
- March -- Draft evaluation plan.
- June -- Final evaluation plan reflecting DOE and review panel input.
- June – Finalize sampling procedure for the selection of activities to be studied finalized.
- July -- Individual program activities for analysis will be selected in early and the data collection will begin immediately thereafter.
- Draft evaluation report planned for review in August of 2012.

EECBG Evaluation

- Goal: determine the total magnitude of energy and cost savings, and other key outcomes, achieved in program areas that cumulatively account for approximately 80% of total Formula Grant expenditures in the 2009 – 2011 program years.
- The EECBG evaluation will be performed by an independent evaluation contractor selected through a competitive solicitation process and managed by Oak Ridge National Laboratory (ORNL).

Timeline:

- **April 2011** – Evaluation plan reviewed by an independent peer review panel and finalized. Request for proposal issued.
- **June 2011** - The ORNL evaluation team will be evaluating the received proposals over the next two weeks.
  - The evaluation team will meet in late June for selection
- It is expected that the study will be completed by the end of 2012

Taking EE to Scale

- Robust business models
  - Better Buildings – Residential, Commercial, and Industrial
- Quality work
  - Work standards, training, certifications
- Measurement and evaluation
  - New voluntary guidelines for EM&V
- Financing
  - Based on good data
- Multi-stakeholder engagement to capture full value of EE
  - State and local policy makers
  - Business
  - Public sector

Discussion / Questions

- What role can STEAB play in advancing these goals?
- How can EERE assist STEAB in communicating successes?

Thank you!

APPENDIX B

The SEP/EECBG Technical Assistance Program

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

STEAB – Washington, D.C.
June 7, 2011

Pam Bloch Mendelson,
DOE Lead , Technical Assistance Program

Agenda

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Goals and Priorities
- TAP by the Numbers
- Solution Center and Resources
  - Local
    - Peer to Peer Exchange
    - Policy Toolkits
    - Community Energy Strategic Planning
  - State
    - Peer to Peer Exchange
    - Energy Service Performance Contracting
    - Private Finance

eere.energy.gov

TAP Goals & Objectives

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Goal: To provide SEP & EECBG recipients with the resources needed to swiftly implement successful and sustainable clean energy programs.

Objectives

- ***Accelerate*** implementation, by proactively providing assistance to grantees
- ***Improve*** the performance of programs and projects, by connecting grantees to technical expertise and sharing best practices
- ***Increase*** the return on Recovery Act investments, by focusing on highly-leveraged initiatives
- ***Increase*** the sustainability of Recovery Act investments, by assisting grantees in developing polices and programs
- ***Build*** protracted capacity at the state, local, and tribal level, by supporting and expanding a network of energy practitioners

eere.energy.gov

Technical Assistance Program

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

TAP offers:

- Direct assistance
- Aggregated Assistance
  - Materials Extensive online resource library
  - Webinars
- Peer exchange
  - Monthly calls
  - Regional Meetings
  - Peer Matching
  - TAP Blog

On topics including:

- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting
- State and local capacity building

eere.energy.gov

Technical Assistance Program by Numbers

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- 1,325 requests for direct technical assistance, 1092 closed and 233 in process
- 197 webinars held to date
  - Over 17,600 attendees (on average 175-200 attendees per session)
  - Highest demand for new technologies, alternative financing, and sustainability
- 2068 attendees on monthly regional peer exchange calls
- 655 attendees in 7 regional peer exchange meetings and 8 Tribal meetings

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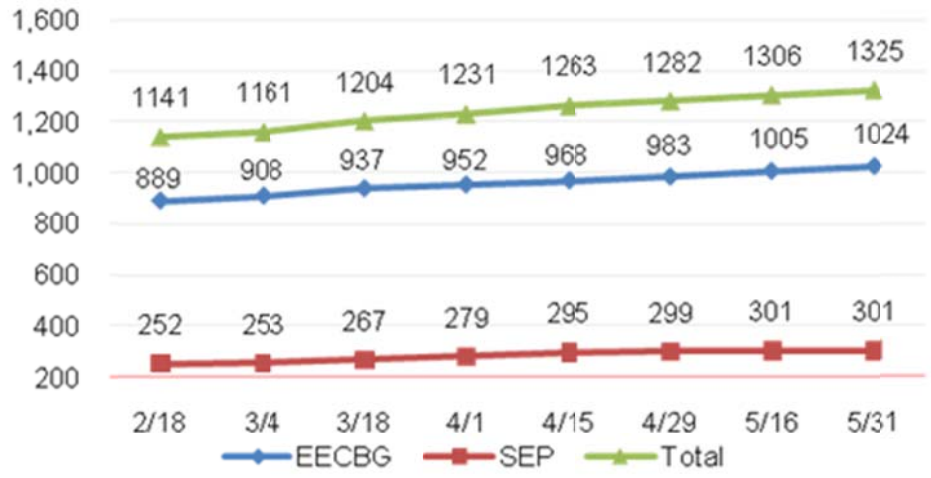
Total Cumulative TAC Requests by Program

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



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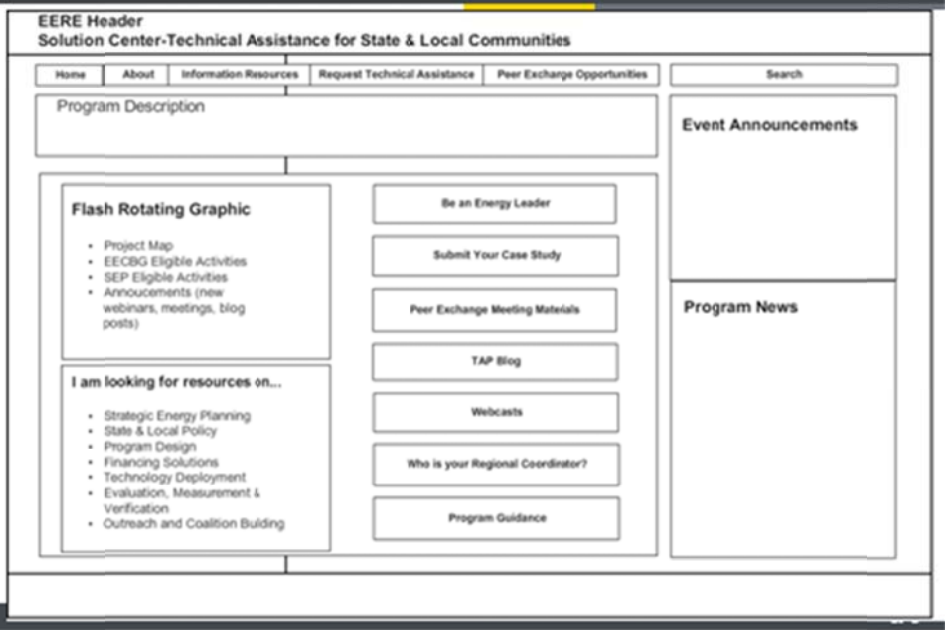
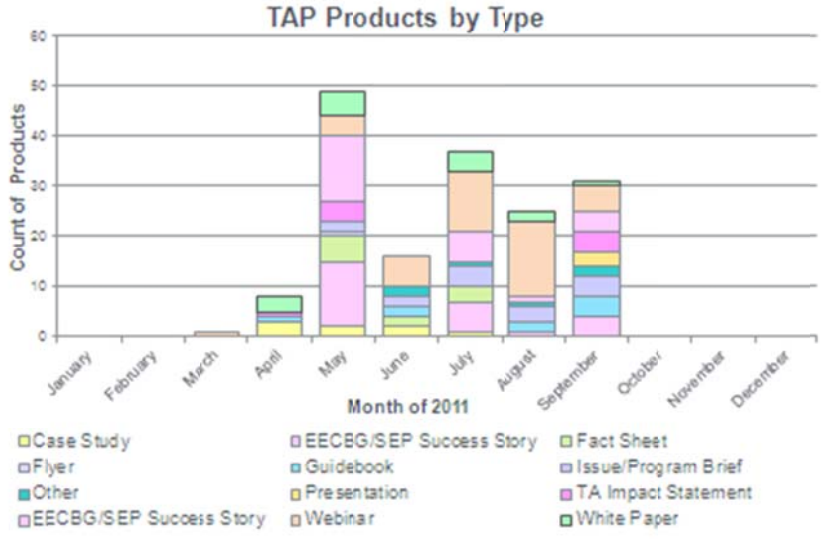
Solution Center 3.0 under construction

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Distribution by Product Type

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



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Webinar Distribution by Topic & Month

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

TAP Peer Exchange Activities

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Goal

  Develop regional networks among federal, state and local level energy practitioners and share resources, experiences, and best practices to overcome barriers, and implement EERE projects.

- Peer Exchange Forums/Results

  - **Monthly Regional Peer Exchange Calls**
    - 72 regional calls; 2,068 attendees
    - Forum for presentations by grantee and technical assistance providers and office hours
    - Useful tool to identify champion grantees, mentors and innovation

  - **Regional Peer Exchange Meetings**
    - 7 meetings January–March 2011; 490 grantees
    - 97% indicated they established connections with fellow grantees
    - 90% indicated they left the meetings with new ideas about how to improve their ARRA programs

TAP Peer Exchange Activities

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Peer-to-Peer Matching (Calls)
  - RCs have identified 98 peer-to-peer (P2P) providers – champion grantees willing and able to help other grantees.
- RC-Facilitated Aggregated Peer Exchange
  - 17 group calls; 58 grantees (does not include peer exchanges via email)
  - Group calls address similar questions from multiple grantees
  - Examples:
    - Northeast RC worked with 10 towns across Rhode Island to set up a larger energy savings performance contract across several jurisdictions.
    - Southeast RC is working with 6 sustainability managers to organize an Appalachian Peer Network that will help local governments engage with their utilities and form partnerships.
    - North Central RC worked with 5 grantees to facilitate a lighting peer exchange call. Grantees continue to assist each other on an individual basis.
    - Southwest RC helped the San Diego Regional Street Lighting Working Group share information with local municipalities and connect them to the interactive file sharing site containing the Working Group's resources.
    - Tribal RC worked with Alaska grantees to exchange best practices for woody biomass heating systems in remote native villages.

Policy Toolkits: Topics

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Residential Retrofit
  - Homes account for 22% of current US energy consumption, and 2/3 of facilities that will be in use in 2050 exist today
  - Programs or projects addressing existing buildings made up about 1/3 of the EECBG spend
  - Addresses workforce issues; codes and disclosures; incentives and financing; program support
- Energy Use in Public Buildings
  - Many projects identified in EECBG plans are for public buildings
  - Provides savings potential and an ideal opportunity to Lead by Example
  - Includes operational as well as building-related policies

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Policy Toolkits: Topics

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- High-Efficiency and Alternative Fuel Vehicles
  - The transportation sector in the US represents 28% of the nation's energy use, and 96% of the sector's energy comes from petroleum-based fuels
  - Local governments also import petroleum products to meet their transportation needs
  - Addresses alternative and high efficiency vehicles; transportation-related operations; education & training; community incentives
- Local Renewable Energy
  - Increasing interest in including RE in energy future – over 1800 EECBG grants included RE
  - Addresses goals; codes and permitting; interconnection; government operations and community incentive mechanisms; workforce development

Policy Toolkits Design Framework

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Decision Frameworks will provide guidance to users, Residential ex.:

Policies to Consider		Develop a Contractor Network	Offset the Costs of Retrofits	Make Energy Use Transparent	Maintain or Reduce Energy Use
	Foundational				
	Incorporate "green jobs" training into workforce curricula	■			
	Establish incentives for local financial institutions to finance home retrofits		■		
	Establish a voluntary rating and disclosure program			■	
	Set up support mechanism for code inspectors				■
	Intermediate				
	Adopt home retrofit worker training requirements	■			
	Issue bonds to raise funds for efficiency financing		■		
	Require disclosure of home energy use at time of listing			■	
	Set codes that require energy efficiency measures during major renovations				■
	Advanced				
	Establish home retrofit worker certification requirements	■			
	Set up a Property Assessed Clean Energy program		■		
	Require home energy upgrades at time of sale			■	
	Establish a clean energy district that keeps energy use flat even with new development				■

Community Energy Strategic Planning Academy - Goals and Expected Value

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Create 40 local government community energy plans to facilitate achievement of community long term energy goals
- Strategic planning directly impacts long term energy savings and avoided consumer costs
  - Ex. Average 6.5 Million MMBtu savings by 2040 per Academy participant, realizing $98 Million in annual
  - savings in year 30
  - Ex. Arlington County, VA implemented CESP and since 2007 $450K in annual energy savings
- Provide effective long-term legacy materials that serve as a guide for strategic planning process and the implementation of energy programs

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State Regional Coordination

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- State Energy Office monthly regional calls
  - to share best practices 40 states per month
- Regional Topical regional calls
  - special topics like building codes, solar on schools
  - 7-10 states per region per call
- Monthly State/DOE legal issues calls with DOE GC (at least 40 states)
- Monthly financing task force conference calls
  - Focus on near-term ARRA-related financing program obligations, and discuss best practices (18 states)
- State regional meetings on sustaining work post ARRA

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TAP Financing Progress -- Private Capital to EERE, 12/2010

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Over $1 Billion of private capital will go to work thanks to ARRA Programs

Total ARRA Funds in Reserve or Capital	Private Capital	Total Loan Capital
$300 Million	$1.1 Billion	$1.2 Billion

Data was collected by TA Engagement Leaders from grantees who have engaged with TA Team to design, develop, and implement financing programs. Additional financing activity is occurring though in smaller volume than the grantees represented here. December 2010.

	ARRA Funds	Private Capital	Total Loan Capital
Workshop Attendees	$122,476,000	$501,950,000	$561,200,000
Eagle County	$600,000	$17,000,000	$17,600,000
Boulder	$6,000,000	$40,000,000	$40,000,000
American Samoa	$300,000		$300,000
Kansas City	$3,000,000	$60,000,000	$70,000,000
Maryland	$12,000,000	$12,000,000	$24,400,000
Plano	$700,000	$7,000,000	$7,000,000
Shreveport	$500,000	$8,000,000	$8,500,000
Michigan DELEG	$16,750,000		$16,750,000
Santa Barbara	$1,000,000	$30,000,000	$30,000,000
San Diego	$1,000,000	$28,000,000	$29,000,000
Rutland	$1,800,000	$4,200,000	$6,000,000
Phoenix	$4,000,000	$16,000,000	$20,000,000
Fort Worth	$600,000		$600,000
New Orleans	$708,000	$7,000,000	$7,000,000
Arkansas	$16,000,000		$16,000,000
Missouri	$9,000,000		$9,000,000
Chicago	$12,750,000	$99,250,000	$99,250,000
Wisconsin	$6,000,000	$76,500,000	$76,500,000
Cincinnati	$17,000,000	$68,000,000	$68,000,000
North Carolina	$6,400,000	$6,400,000	$6,400,000
Bainbridge Island	$100,000	$2,000,000	$2,000,000
Other 1A Recipients	$164,476,000	$522,476,000	$561,726,000
Michigan Saves	$4,000,000	$50,000,000	$54,000,000
California	$24,000,000	$250,000,000	$250,000,000
Alabama	$20,000,000	$40,000,000	$40,000,000
Camden City	$250,000	$2,500,000	$2,750,000
Connecticut	$0	$18,000,000	$18,000,000
Hidalgo County	$100,000	$3,000,000	$3,000,000
Los Angeles	$2,000,000	$25,000,000	$25,000,000
New Bedford	$100,000	$2,400,000	$2,400,000
Seattle	$694,000	$4,274,000	$4,274,000
Snohomish County	$694,000	$13,000,000	$13,000,000
Southampton	$1,500,000	$4,400,000	$4,400,000
Austin	$4,000,000	$40,000,000	$40,000,000
San Antonio	$5,000,000	$68,000,000	$68,000,000
Delaware	$12,000,000	$24,000,000	$24,000,000
Kansas	$24,000,000		$24,000,000
New Hampshire	$10,000,000	$20,000,000	$20,000,000
San Francisco PUC	$400,000	$8,000,000	$8,000,000
Santa Fe	$100,000	$1,200,000	$1,200,000
Toledo Port Authority	$12,000,000	$72,000,000	$72,000,000
Cleveland	$200,000	$3,600,000	$3,800,000
Maryland Clean Energy Comm	$2,600,000	$10,000,000	$10,000,000
University Park	$120,000	$1,320,000	$1,320,000

ESPC Technical Assistance to States and Localities

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Assisting over 20 states in helping develop or expand state Energy Savings Performance Contracting (ESPC) program
  - Assisted over 40 EECBG grantees retrofitting public buildings via ESPC
- Potential Impact of State Direct TA:

Anticipated results (over 3 years) based on trends in implementing ESPC Programs

States/ Territories (examples)	Scope	ESPC projects in pipeline or construction	Job-years created	Energy savings (MMBtu/ yr source energy)	GHG avoided (tons of CO_2)
GA, IA, ME, MI, MN, NM, PR, VI	Develop and implement sustainable, self-funded, statewide ESPC programs	$450 million	4,950	3,734,100	238,050
AK, CO, KY, LA, NV, VA, WY	Support and expand current efforts to implement statewide ESPC programs	$250 million	2,750	2,074,500	132,250

For More Information on TAP:

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Pam Bloch Mendelson
  - 202-287-1857 or pam.mendelson@ee.doe.gov
- For tools and resources see the Solution Center 2.0 at: http://wip.energy.gov/solutioncenter
- To place a request for TA, see either the Technical Assistance Center website: https://tac.eecleanenergy.org/ or call 1-877-EERE-TAP (1-877-337-3827)

THANK YOU!

eere.energy.gov

APPENDIX C

Update on Progress: Weatherization and Intergovernmental Program

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

STEAB Meeting
June 8, 2011

LeAnn M. Oliver
Weatherization and Intergovernmental Program

WIP Recovery Act Spending

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

June 2011 – 50% Spend Goal

	Cumulative Payments Target for June ($ million)	Cumulative Payments to Date ($ million)	Percent of 50% Spend Goal Reached
WAP	3,371.7	2,915.8	86%
SEP	1,753.7	1333.7	76%
EECBG	1,468.4	1109.1	76%
WIP Total	**6,593.8**	**5,358.6**	**81%**

Total Recovery Act Spending

	Cumulative Payments Target ($ million)	Cumulative Payments to Date ($ million)	Percent of Total Goal Reached
WAP	4,975.0	2,915.8	58.6%
SEP	3,084.5	1333.7	43.2%
EECBG	2,803.2	1109.1	39.6%
WIP Total	**10,862.7**	**5,358.6**	**49.3%**

Weatherization Assistance Program 2

WIP Funding History

($ 1,000)

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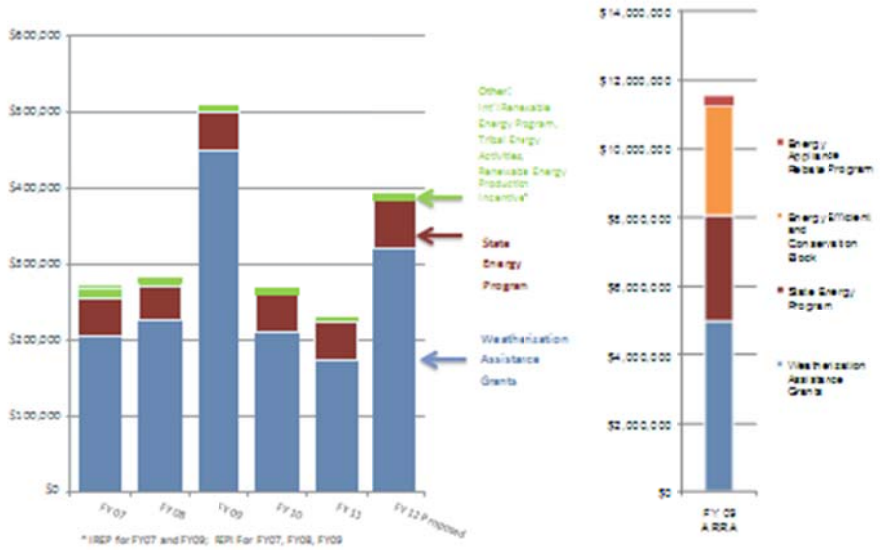
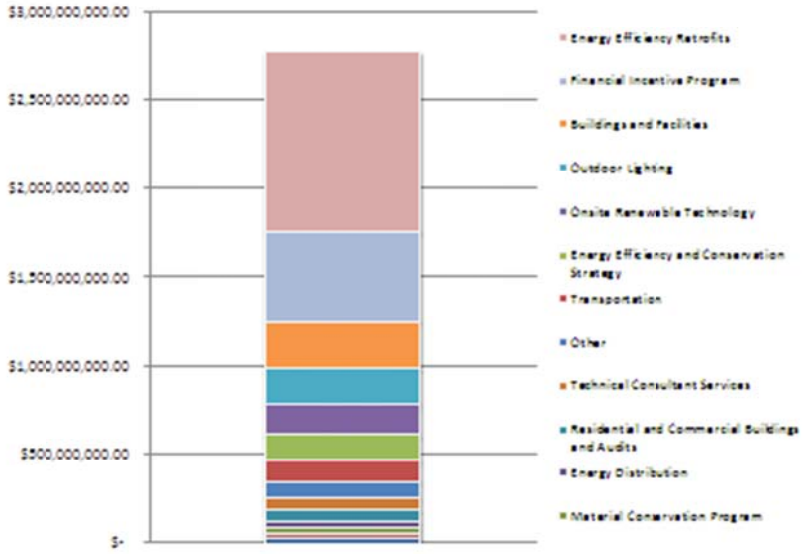


Energy Efficiency Conservation Block Grants (EECBG) - Investments By Activity Type

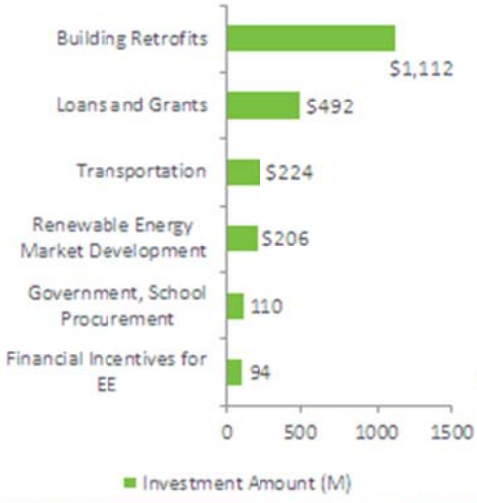
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



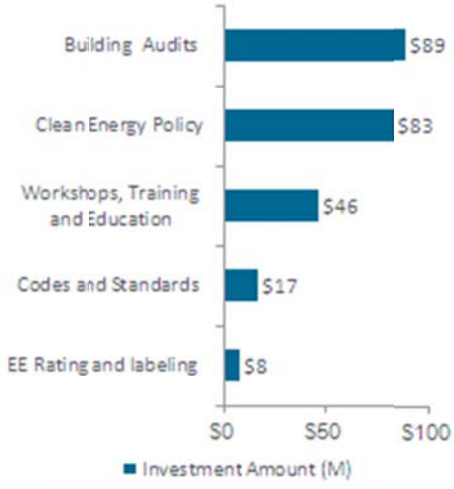
EECBG: Making Investments for Today *and* the Future

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Majority of Funds for Capital Equipment Investments with Immediate Benefits



Smaller but Important Investments in Shifting Local Approach to Energy



EECBG - Impact

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Creating jobs in local clean energy – EECBG is the **top 25 job-creating program** on *Recovery.gov*
- **Injecting stimulus into** to communities where over 225 million Americans live and work
- **4,494 direct jobs** last quarter (Jan-Mar 2011)

EECBG - Impact

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Driving the adoption of energy efficiency by state and local governments:

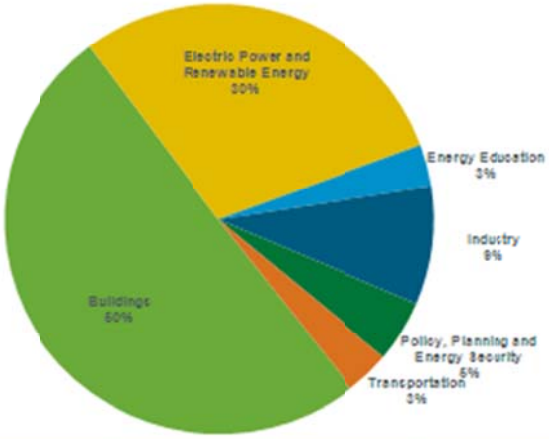
- Energy upgrades in 17,600 buildings totaling approximately 150 M square feet
- 219,000 energy-efficient streetlights and traffic signals installed
- Nearly 8,000 energy efficient loans and grants valued at approximately $400M

State Energy Program (SEP) ARRA Funding Overview

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

$3.1 billion in funding

- Allocated using the Base program formula
- No cost match required, unlike Base program
- Leveraging additional private capital (provisionally estimated in excess of $1 billion)

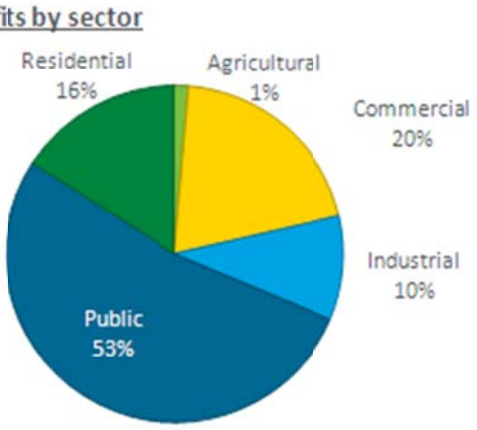


Creating a market for efficiency in the built environment

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- *Retrofits* are the largest activity within the $1.5 billion SEP ARRA *buildings* market.
- *Retrofits*, nearly $1.3 billion of them in total, take place in many economic *sectors*.

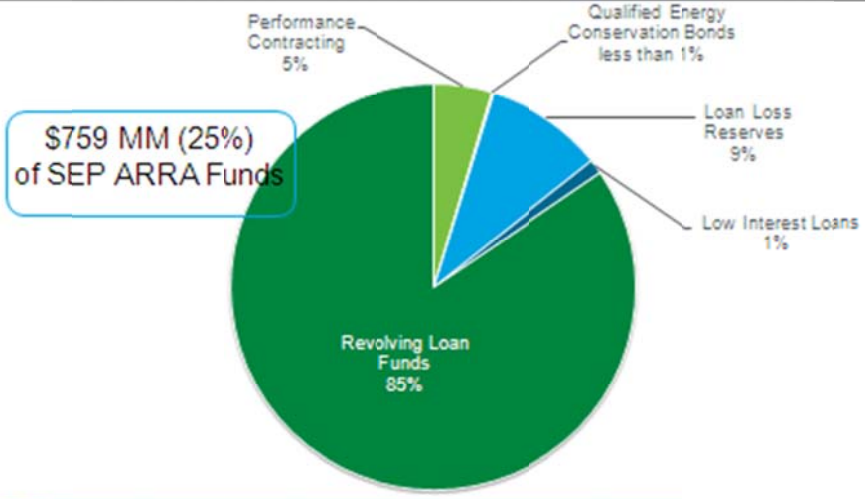
Agricultural	$	13,035,446
Commercial	$	129,725,960
Industrial	$	147,426,749
Public	$	766,570,418
Residential	$	226,423,309
Total	$	1,283,181,872



Focus on Financing

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Financing mechanisms give States the ability to create sustainable programs that can generate energy savings, jobs, and economic development beyond the Recovery Act period.



Impacts of SEP ARRA

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Selected ARRA achievements through Spring 2011:

- 165 million square feet of building space retrofitted to increase energy efficiency.
- $290 million in loans made for energy-efficiency and renewable-energy projects.
- 452 MW of solar photovoltaic capacity installed.
- 118,000 Americans trained in energy-efficiency and/or renewable-energy issues.

Energy Enhances Lives

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Advanced Batteries in Wisconsin: ZBB Energy

$1.3 MM from State Energy Program

Tripling flow battery manufacturing capacity

10 jobs retained, 80 expected to be created

Regional Cooperation in Washington: EV Charging Stations

Coordination of grant applications in the Seattle area

$90,000 in seed money from King County

Counties and cities working together to ensure regional distribution of charging stations

Weatherization Assistance Program (WAP)

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

The largest residential energy efficiency program in the nation, providing weatherization services to low-income families:

- Low-income **households typically spend 14.4% of their total income on energy** vs. 3.3% for other households
- **58 ARRA Grantees** contract with **1,007 local sub-grantees** to deliver services to single-family, multi-family, and mobile homes

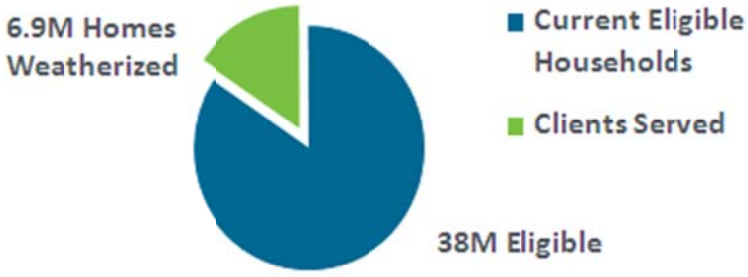
A federally-funded, state-administered, locally-operated grant program:

- WAP received **$5 billion dollars** under ARRA
- **$29 million** in ARRA funds to establish **26 new Weatherization Training Centers** (WTC) & supplement 8 existing centers.

Weatherization Works

Weatherization – Potential

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



- More than 100,000 homes weatherized *annually* with regularly appropriated DOE funds*
- 275,000 weatherized using ARRA funds in 2010 alone
- Nearly 600,000 will be weatherized during Recovery Act period

New Activities for WAP in 2010-11

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Innovative Programs

- **$30 million** in FY2010 to increase the leverage of Federal funding through partnerships with traditional and/or nontraditional service providers
- **16 selections** include:
  - Financing programs
  - Workforce development and volunteer approaches
  - Green and healthy homes
  - New technologies
  - Behavior interventions

Sustainable Energy Resource For Consumer Grants

- **$90 million** in grants to 27 states, 100 local agencies
- **Expands funding** for materials, benefits, and renewable and domestic energy technologies not currently covered under WAP including:
  - Solar hot water, solar PV, solar home heat, high-efficiency hot water heating (tank-less heat pump), residential wind, cool roofs, in-home devices, innovative foam insulation

WAP - Leveraging Partnerships and Expanding Resources

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Leveraging and Expanding Partnerships:

- 31 states leverage utility funds each year
- $140 million - $210 million leveraged annually since 2005 from private sources
- $350 million - $500 million leveraged annually from federal and non-federal sources since 2005 (e.g. LIHEAP funds from HHS)

Training crews and contractors to become part of a broader workforce:

- DOE partnering with HUD, EPA, CDC, & HHS on new *Healthy Homes* initiative - Local crews receiving training in LEAD to look health issues.
- Agencies performing HUD projects and Ag rural housing rehabilitation
- National Residential Retrofit Guidelines:
  - Creating standard work specifications/ assisting training providers in developing consistent course content
  - Increasing workforce mobility: Laying a foundation for worker certification and training program accreditation architecture
  - Building confidence among consumers

Monitoring WIP's Investments

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

WAP

- Desktop, Onsite and Follow-up Reviews
- Based on the value of the grant

SEP

- Minimum two annual visits to each of the 56 SEP Grantees
- Validate records keeping, policies, processes, and sub-recipient monitoring

EECBG

- Project Officers have conducted a total of 533 onsite visits, which is 5% ahead of schedule

Best Practices Campaign

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Mission

Identify leading grantees, outline best practices and promote the adoption of sustainable models

Best Practices

- Leading by example
- Financing strategies
- Policy/codes/regulations
- Outreach and coalition building

Recognizing themes

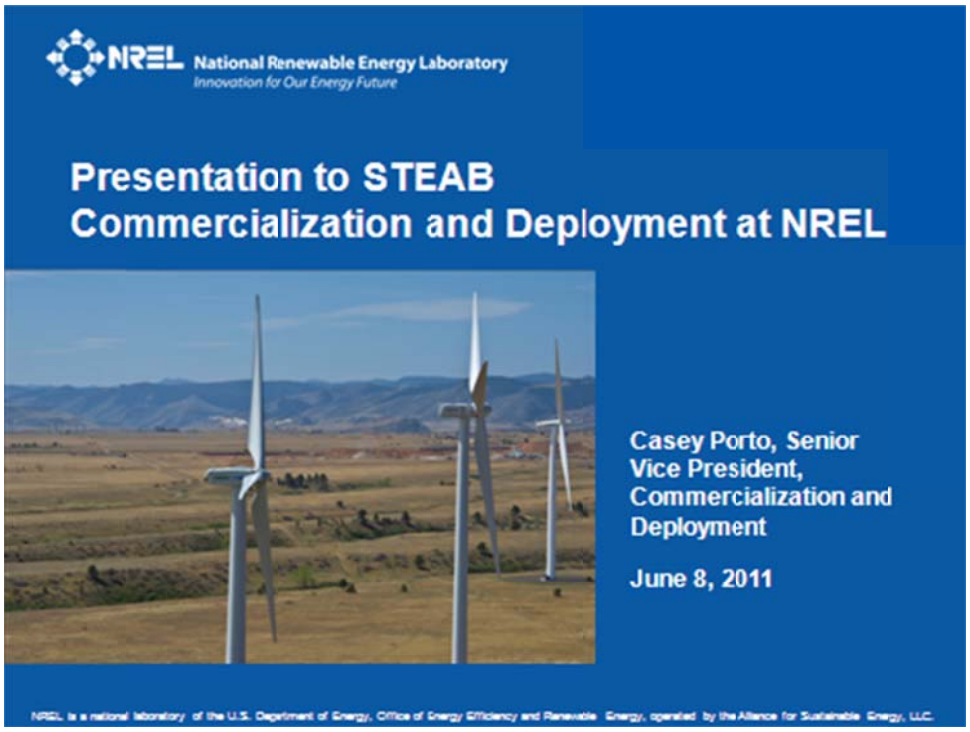
- Consumer savings through energy efficiency
- Education and workforce development
- Improvements in public infrastructure
- Supporting small businesses, American manufacturing & retooling
- Saving taxpayer dollars through efficiencies in govt., commercial & residential buildings

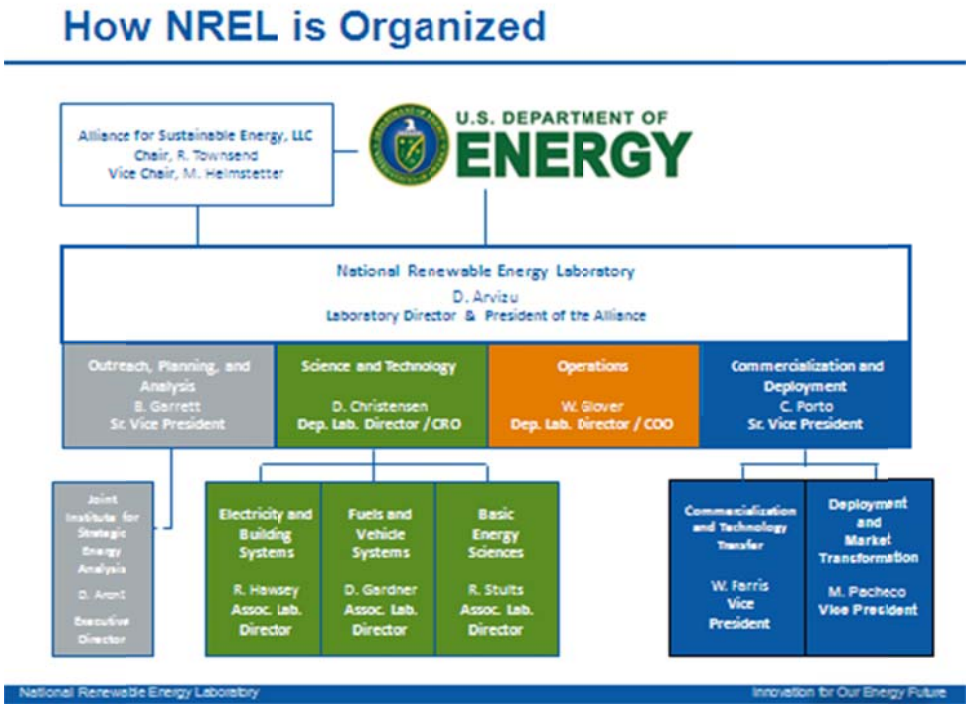
WIP FY11 Budget & FY12 Request

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Weatherization and Intergovernmental	FY 2011 ($ million)	FY 2012 Request ($ million)
Weatherization Assistance Program (WAP)	171.0	320.0
WAP Technical Assistance	3.3	
State Energy Program (SEP) Formula	39.0	63.8
SEP Competitive	5.0	
SEP Technical Assistance	6.0	
Tribal Energy Program (TEP)	7.0	10.0
Total	**231.3**	**393.8**

Appendix D


NREL National Renewable Energy Laboratory
Innovation for Our Energy Future
Presentation to STEAB
Commercialization and Deployment at NREL
Casey Porto, Senior Vice President, Commercialization and Deployment
June 8, 2011
NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

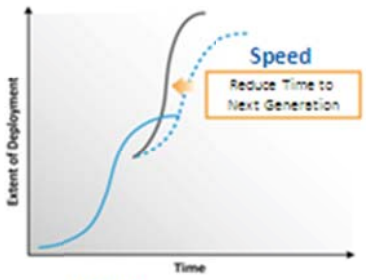

How NREL is Organized
Alliance for Sustainable Energy, LLC
Chair, R. Townsend
Vice Chair, M. Helmstetter
U.S. DEPARTMENT OF ENERGY
National Renewable Energy Laboratory
D. Arvizu
Laboratory Director & President of the Alliance
Outreach, Planning, and Analysis
B. Garrett
Sr. Vice President
Science and Technology
D. Christensen
Dep. Lab. Director /CRO
Operations
W. Glover
Dep. Lab. Director / COO
Commercialization and Deployment
C. Porto
Sr. Vice President
Joint Institute for Strategic Energy Analysis
D. Arent
Executive Director
Electricity and Building Systems
R. Hawsey
Assoc. Lab. Director
Fuels and Vehicle Systems
D. Gardner
Assoc. Lab. Director
Basic Energy Sciences
R. Stults
Assoc. Lab. Director
Commercialization and Technology Transfer
W. Farris
Vice President
Deployment and Market Transformation
M. Pacheco
Vice President
National Renewable Energy Laboratory
Innovation for Our Energy Future

NREL's Mission is Unique

Commercialization and Deployment Goals

Commercialization

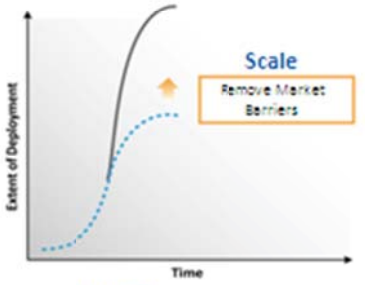
Accelerate the availability (speed) of *next generation* technologies



Examples
- Cellulosic ethanol by 2012
- Cost-competitive photovoltaics by 2015

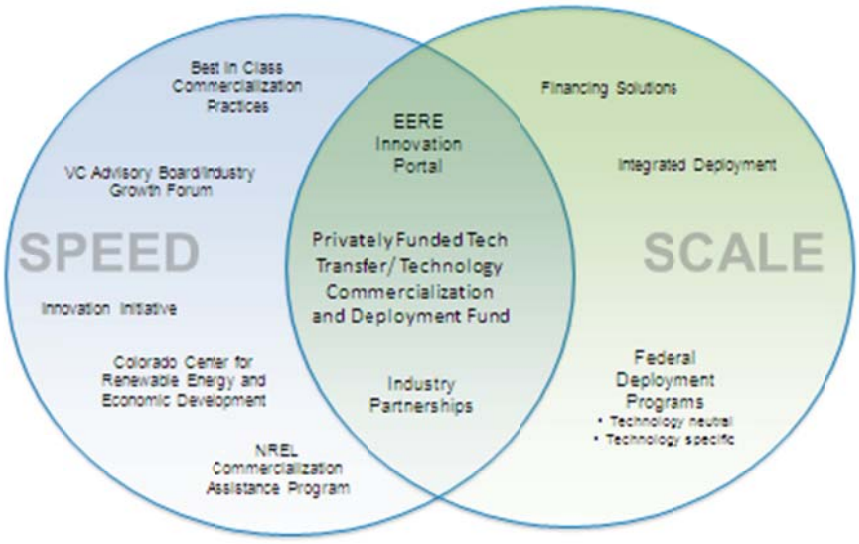
Deployment

Increase market adoption (scale) of *current generation* technologies



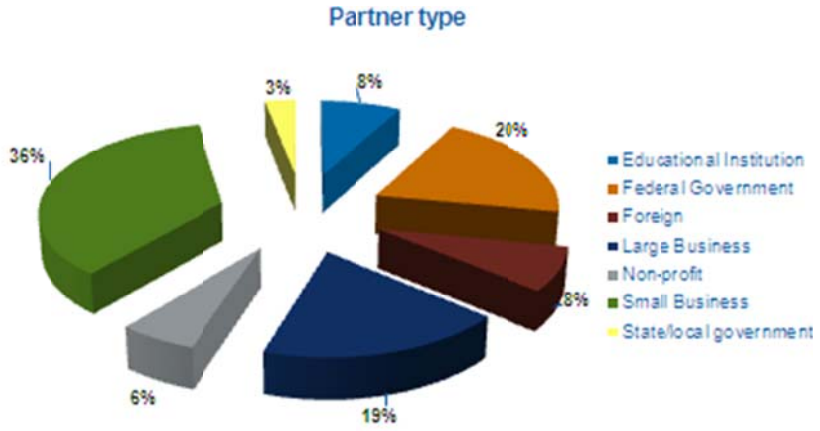
Examples
- Full E10 market penetration
- Compact fluorescents and adv. windows

Commercialization and Deployment Programs and Activities



Map of Partnership Agreements

Technology Partnership Agreements



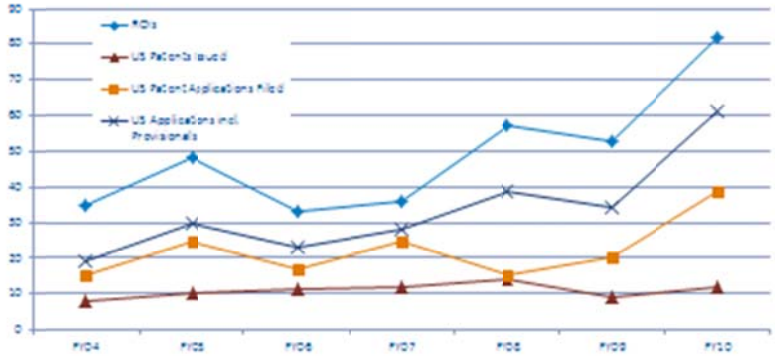
Partnership Cycle Times

	Baseline FY04 – 08	Process Improvement period 05/01/09 – 02/08/10	02/09/10 – 12/13/10
CRADAs	118.5 days	83 days	59.3 days
Funds-In Agreements	124.5 days	83 days	79 days

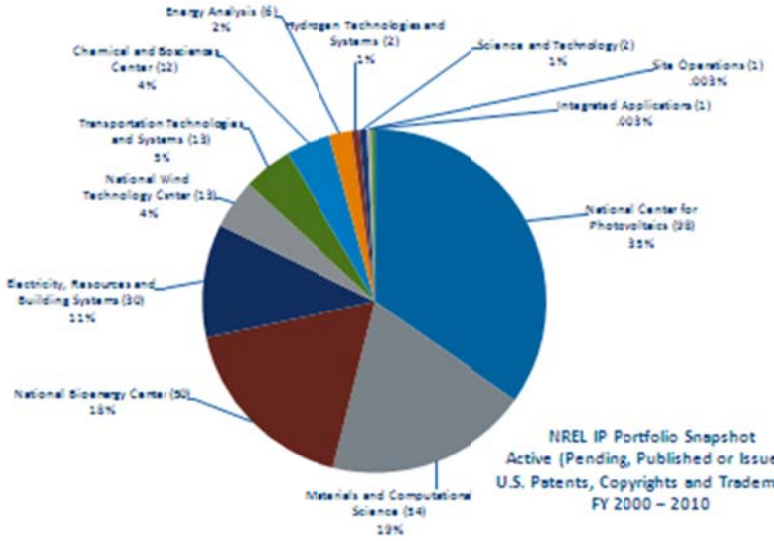
- Cycle times for CRADAs reduced by 50%.
- Cycle times for Funds-In Agreements reduced by 37%.

Inventions and Patents, FY04 – 10

	FY04-08 (median)	FY09	FY10	FY11 (est.)
ROIs:	36	53	70	90
U.S. Patent Applications Filed:	17	20	39	45
U.S. Patents Issued:	11	9	12	18
U.S. Applications Including Provisionals:	28	34	61	80



NREL IP Portfolio Snapshot



Energy Innovation Portal

Information on energy efficiency and renewable energy technologies createdas a result of U.S. Department of Energy funding

- 15,000 patents
- 400+ marketing summaries
- 12 DOE laboratories, NASA, and three University partners
- 14 technology areas

http://techportal.eere.energy.gov

Leads from the Energy Innovation Portal

Innovation & Entrepreneurship Center

IEC leads NREL's innovation at the intersection of the public and private sectors relating to entrepreneurship, new ventures, and growth capital. IEC goals:

1) Creating an *innovative and Entrepreneurial Environment* that is a seamless part of the fabric of NREL

2) Promoting NREL as a key catalyst for economic development by *Accelerating and Improving the Yield* of regional clean energy innovations

3) Fostering broad based *Investor Relationships* for clean energy entrepreneurs

4) Enhancing NREL's *Small Business Program*

NREL Industry Growth Forum

- The premier clean energy investment event
  - **Hands-on-management and coaching** for evolving clean energy companies
  - **Relationship platform** for companies seeking funding

The 2010 Forum featured:
- Presentations from 34 emerging clean energy companies
- Provocative panels led by thought leaders
- One-on-one meetings
- Strategic investors

Since 2003, more than half of the companies participating in the Forum have received funding, cumulatively raising more than ***$3.4 billion*** in growth financing* and creating more than **3,000 U.S. jobs****

*Source: New Energy Finance
**Source: Hoovers

NREL | INDUSTRY GROWTH FORUM

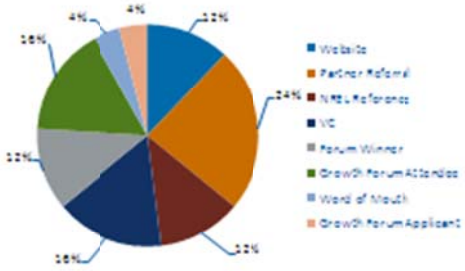
INNOVATE • PARTNER • NETWORK • INVEST

Join us November 8, 9, and 10, 2011 in Denver, Colorado for the 24th NREL Industry Growth Forum

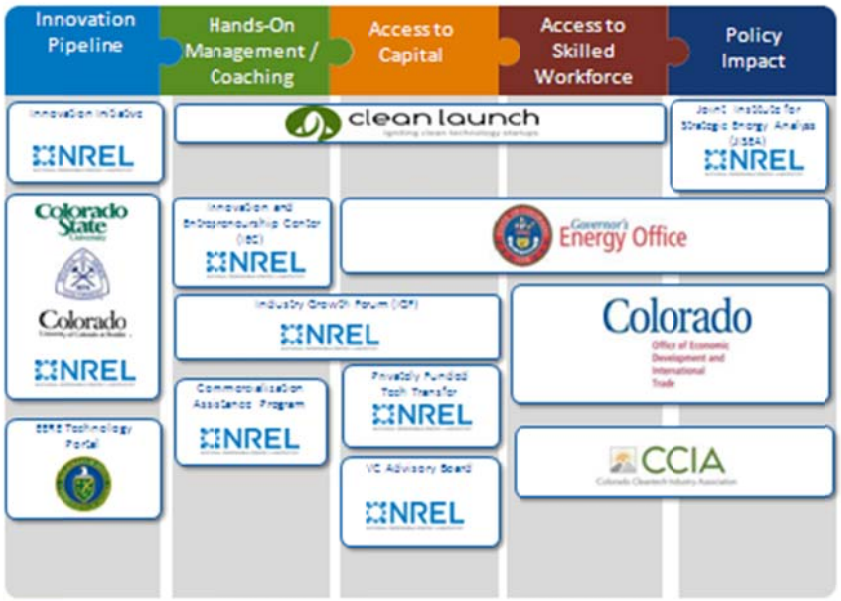
NREL Commercialization Assistance Program

NCAP provides assistance and information to help energy efficiency and renewable energy small businesses with **technology challenges**

Where do NCAP projects come from?



Colorado Center for Renewable Energy and Economic Development—CREED



Venture Capital Advisory Board

The NREL Venture Capital Advisory Board advises the laboratory and our collaborators on our strategic plans and programs in the clean energy sector:

- Development of clean energy start-ups and how they can successfully raise financing
- Commercialization of mission relevant technologies
- Speed to market for new technologies
- Identification and fostering of technologies that can serve an unmet market
- Identification and analysis of market trends
- Assessment and commentary on the technology pipeline.

The funds represented on the Board have more than $4 billion under management.

Technology Commercialization Funds

The Ultra-Accelerated Weathering System won an R&D 100 Award and received TCDF funds.

The TCDF program provides funding for technology maturation to bridge the "valley of death" that many promising nascent technologies face when research funding ends, but the technology requires further development before a commercial partner will invest.

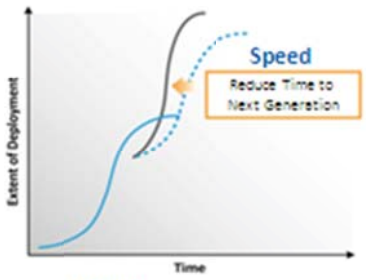
Under the TCDF program, commercial partners cost-share project development costs, which typically range from $150,000 to $1 million.

Privately Funded Technology Transfer (PFTT)

Commercialization and Deployment Goals

Commercialization

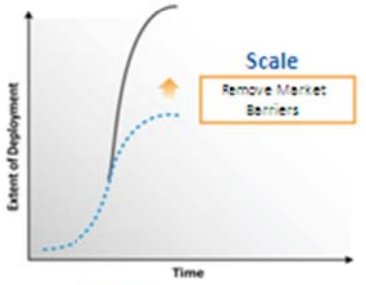
Accelerate the availability (speed) of *next generation* technologies



Examples
- Cellulosic ethanol by 2012
- Cost-competitive photovoltaics by 2015

Deployment

Increase market adoption (scale) of *current generation* technologies



Examples
- Full E10 market penetration
- Compact fluorescents and adv. windows

Today: Responding to the National Challenge

"Accelerate the commercialization and market penetration of these technologies, technologies that will enable the nation to meet our current and future energy challenges head on." Section C.4 (a) of DOE RFP

In 2008, NREL created the Deployment & Market Transformation directorate to:

- Centralize deployment activities to work across the spectrum of energy efficiency and renewable energy technologies
- Leverage resources across NREL to create synergy and best practices across technical programs

This change expands our capabilities to:

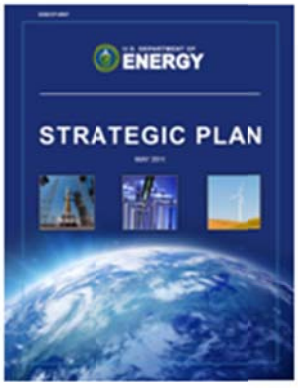
- Help define and understand attributes of a sustainable future energy system
- Accelerate large-scale adoption of proven technologies to meet national energy goals

Deployment is a DOE Priority

"Deploy the technologies we have."

- Drive energy efficiency to reduce demand growth
- Demonstrate and deploy clean energy technologies
- Modernize the electric grid
- Enable prudent development of our natural resources

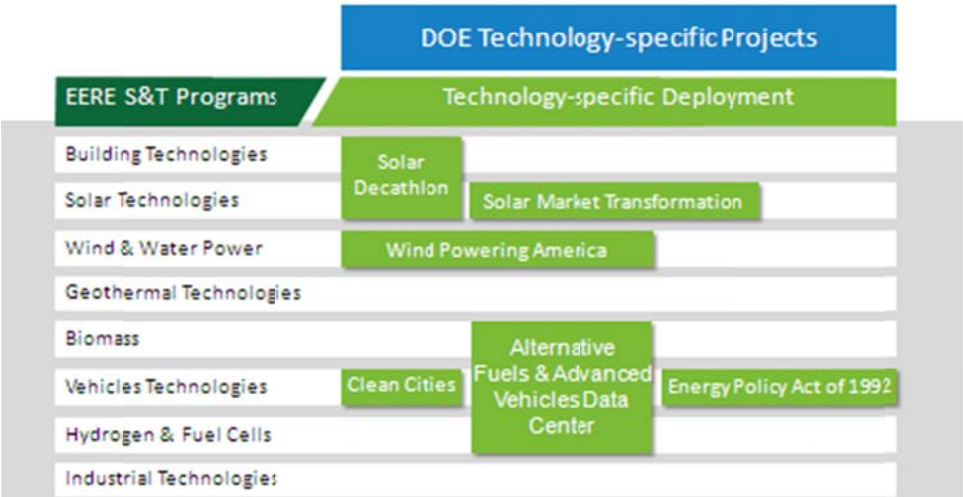
U.S. Department of Energy Strategic Plan, May 2011



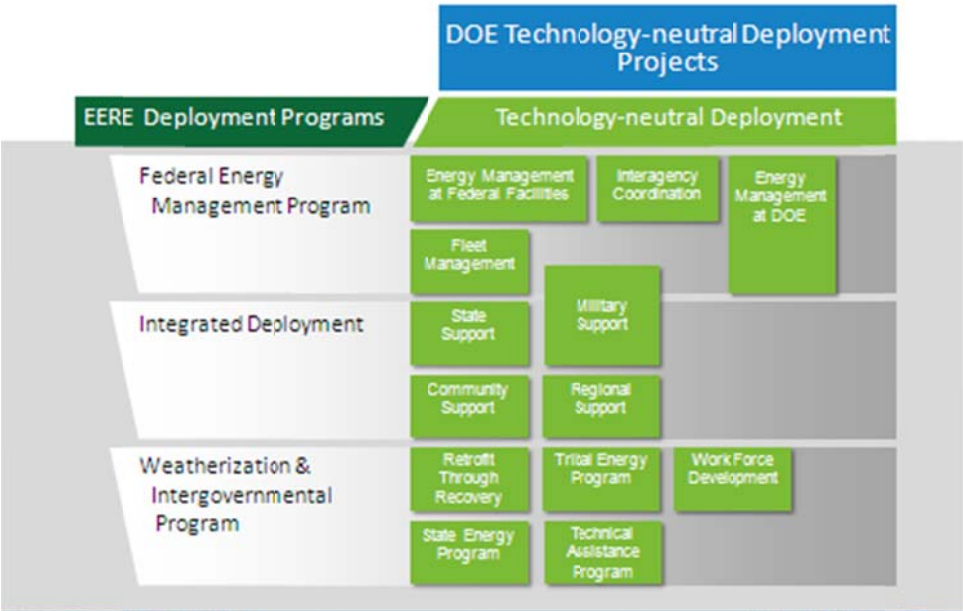
Structured to Support Two Client Types

	Market Transformation Center (MTC)	Integrated Application Center (IAC)
Clients	• Interest in support for a specific technology solution—have made technology decision • Typically in the supply chain for the technology, or part of user community	• Does not have a specific technology solution in mind • Typically communities, facility managers, government agencies
Needs	Tools and processes to accelerate deployment of a family of technologies	A suite of decision support tools and processes to select among options
NREL Support	Focuses on removing barriers to adoption of the specific technology	Provides assessments, analyses, project development, financing approaches, workforce development
Example Programs	• Alternative Fuels Data Center • Clean Cities • Solar Decathlon • Solar Market Transformation • Wind Powering America	• Technical Assistance Program • FEMP • Integrated Deployment • WIP

Technology-specific Alignment with EERE



Technology-neutral Alignment with EERE



Non-Technical Barriers to Adoption of EE and RE

- Need for additional capacity at the state and local level
- Inadequate means to access expertise, tools, and know-how
- Marketplace status quo
- Lack of a deployment framework and consensus w.r.t. DOE Labs' role, metrics, and goals in Deployment
- Human factors and limited public awareness of energy issues

Communities need easy access to information and tools to plan their energy future.

Greensburg after May 2007 Tornado

- City destroyed by tornado May, 2007
- Strong local and federal government partnership and commitment
- Demonstrates absence of typical infrastructural barriers

Kiowa County Memorial Hospital March 2010

- ✓ 1st U.S. city requiring govt. buildings to meet LEED Platinum standard
- ✓ Voluntary building standard that exceeds industry EE std by ~ 30%
- ✓ Greensburg Sustainable Building dbase provides details on 23 different building projects in Greensburg

Best Practices of Technology Deployment

NREL addresses barriers through best practices that deliver market relevant support

Focus on Stakeholder Needs

- Access depth and breadth of the lab's world-class technical expertise
- Develop a comprehensive understanding of regulatory, political, social, economic, and market issues
- Identify the right regional solutions

Measure Impact on Deployment

- Work closely with DOE to establish market adoption targets
- Get stakeholder buy-in on targets
- Track progress: leveraged federal investment, customer satisfaction, and scale of deployment/investment/jobs

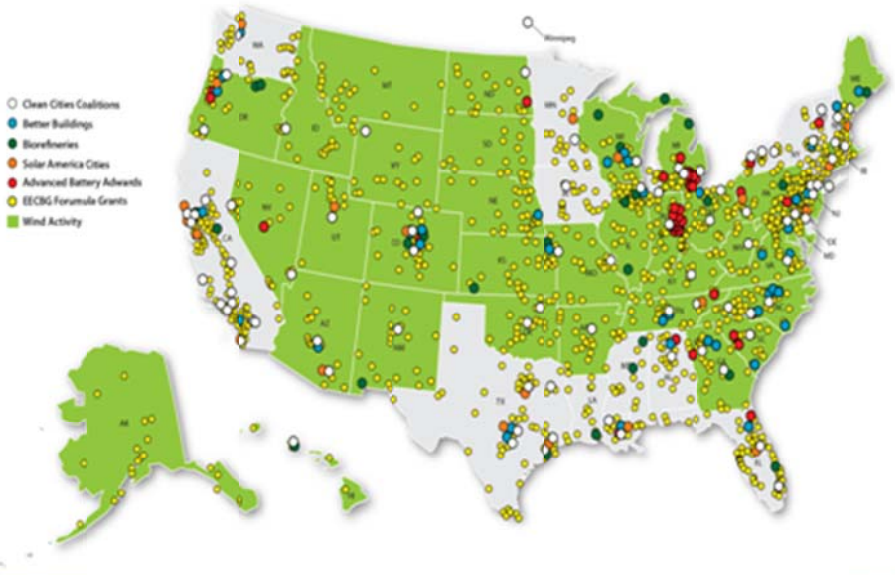
Partner with Governments

- Lead by example by collaborating with state, local, and federal agencies
- Implement, evaluate, and document projects to accelerate deployment
- Customize technical assistance methods based on community and local market needs

Create an Integrated Deployment Model

- Think holistically about transforming energy system and energy usage
- Develop comprehensive approach, scalable at local, state, federal, and national levels
- Support deployment of specific technologies and integration of multiple technologies

Leverage Overlapping EERE Efforts



RE Program Deployment Goals – FY11

Program	Deployment goals
Fuel Cells	Market Adoption of 12,000 kW of fuel cell power by FY15
Biomass	21 Bil gal by 2022 to meet Energy Independence and Security Act of 2007 RFS requirement
Solar	Domestic market growth to enable 600MW of solar installations in the U.S. by FY11
Wind	Facilitate 1,000 MW in at least 15 states by 2018

EE Program Deployment Goals – FY11

Program	Deployment goals
Vehicles	• Support 500,000 PHEV a year by 2015 • Improve fuel economy of new vehicles to an average CAFÉ standard of 35.5 MPG by 2016 • Achieve a petroleum reduction of 2.5 bil gal/year by 2020
Buildings	Residential: Support ramp up of retrofitting industry to 1.3 Mil homes by 2013 Commercial: Ramp up retrofits to save 20% by 2020
FEMP	• Reduce agency energy intensity 3% annually or 30% by FY2015 from a 2003 baseline • 5% of Federal electricity consumption is generated from renewable sources in FY 2010-2012; 7.5% by FY 2013; half from new renewable source
WIP	500,000 energy retrofits in homes occupied by low-income families
Industrial	Partner with leading industrial companies, plants, and supply chains to reduce their energy intensity by 25% over a 10 year period. Partnership activities are estimated to result in energy savings in 2025 of 1,651 trillion BTUs and a carbon savings of 24.5 MMT CO2

Examples of Deployment Products & Services

Technical Support

Workforce Development and Outreach
- Training, workshops, webinars
- Web and new media
- Information portfolio

Technical Advisement
- Codes and standards
- Protocols
- Design review
- 3rd party proposal review

Stakeholder Development
- Partnerships with other agencies
- On-site support

Tool Development

Project Support

Project Identification
- Technical screening
- Option analysis reports

Project Development
- Feasibility assessments
- Financial modeling advice
- Energy expert advice

Project Implementation
- Consulting
- Technical RFP advisement
- Technical proposal reviews

Performance Verification

Market Support

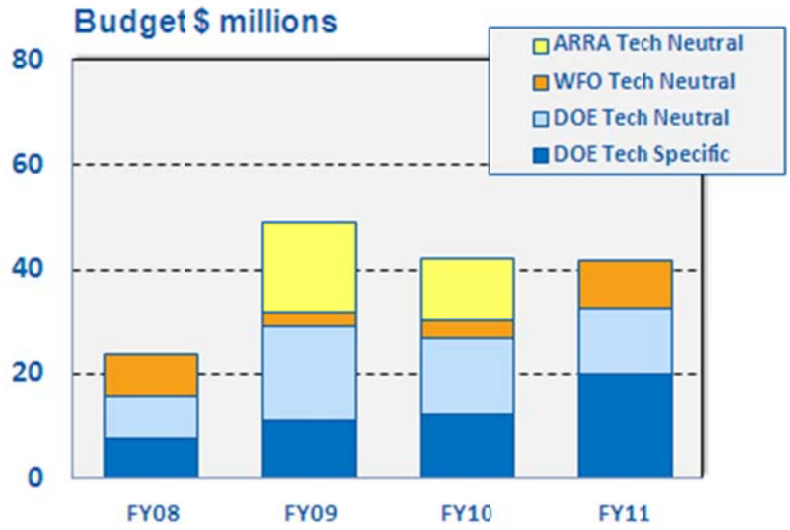
Market Identification
- Outreach and opportunity assessments

Market Development
- Expert assistance in market establishment by location






Actual D&MT Funding since FY2008



Other Federal Customers - Examples

Department of Defense
Supporting transformation of Miramar to pilot net-zero energy installations.

Department of State
Directly supporting Energy Service Provider contracting efforts at embassies in Santiago, Chile and Frankfurt, Germany.

Department of Treasury
$7.1 billion in cash grants awarded supporting 10.5 GW of RE as of May 2011.

General Services Administration
Performing detailed building assessments and developing renewable energy master plan for National Capital Region.

Department of Interior
Providing technical assistance and training for wind energy on Bureau of Land Management lands.

Department of Homeland Security
Supporting energy programs by identifying, assessing, and recommending renewable energy and energy efficiency opportunities.

Department of Commerce
Developing strategic sustainability performance plan, steam and gas metering plan, and fleet assessment.

Department of Agriculture
Supporting implementation of Sections 9003,9005, and 9007 of 2003 Farm Bill

Additional Resources

Learn more about NREL and EERE Deployment and Market Transformation activities:

NREL Applying Technologies Website
www.nrel.gov/applying_technologies/

EERE Deployment Website
www1.eere.energy.gov/deployment/

Appendix E

ERAC Update

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Efficiency and Renewables Advisory Committee

June 7, 2011
Washington, DC

JoAnn Milliken
Designated Federal Officer

Committee Overview

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

- Charter updated and filed on April 12, 2011
  - Name change from Energy Efficiency and Renewable Energy Advisory Committee to Efficiency and Renewables Advisory Committee
- 21 ERAC members and 6 Subcommittee Only Members
- Four Subcommittees formed
  - Appliance Standards Subcommittee
  - Electricity Subcommittee
  - Program Design for Impact Subcommittee
  - Transportation Subcommittee
- Held two FY11 meetings and have a third planned for September

The Efficiency and Renewables Advisory Committee (ERAC) is a discretionary advisory committee formed under the authority of the U.S. Department of Energy (DOE) to ensure the Office of Energy Efficiency and Renewable Energy (EERE) continues focus on transformative research that allows technological innovations to move quickly into the marketplace.

2 | Program Name or Ancillary Text eere.energy.gov

ERAC "Class of 2011"

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

ERAC (Full Committee)

- Chaired by Dr. Arati Prabhakar and Dr. Lonnie Edelheit
- Members include19 other accomplished individuals with diverse scientific and technical backgrounds related to EE, RE, and crosscutting activities:

Row 1	Row 2	Row 3
Dr. Yet-Ming Chiang	Dr. Jay Keasling	Mr Stanley Pruss
Hon. Vernon Ehlers	Dr. Neal Lane	Dr. Burton Richter
Mr. Ira Ehrenpreis	Dr. Ed Lazowska	Dr. Arthur Rosenfeld
Mr. Philip Giudice	Dr. Richard Lester	Ms. Janette Sadik-Khan
Mr. Hal Harvey	Ms. Kathleen McGinty	Dr. Subir Sanyal
Dr. Mark Jacobson	Hon. Michael Nutter	Dr. Maxine Savitz
		Mr. Mark Stoering

Full biographies may be found online at www.erac.energy.gov

ERAC Subcommittees

- Members of the Full Committee are encouraged to participate in the Subcommittees (18 of 21 have Subcommittee role)
  - Each Subcommittee is chaired by a member of the Full Committee
- Six Subcommittee Only Members
  - Accomplished individuals seected by ERAC and Subcommittee chairs:

Mr. Steven Nadel, Dr. James Hill, Mr. John Mandyck, Kelley Kline, Mr. John Jimison, and Dr. David Hungerford

All belong to the Appliance Standards Subcommittee

ERAC Subcommittees

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Appliance Standards

Streamline and improve DOE's negotiated rulemaking process for appliance standards. This subcommittee will engage key stakeholders to address central issues of upcoming standards.

Chairs	Art Rosenfeld and Maxine Savitz
Members	Jim Hill, David Hungerford, John Jimison, Kelley Kline, John Mandyck, and Steve Nadel
Other Contributors	Hal Harvey
Ex Officio Members	Lonnie Edelheit and Arati Prabhakar
DOE POCs	John Cymbalsky, Roland Risser, and Robert Van Buskirk

Electricity

Improve EERE's efforts addressing electricity demand (e.g., building efficiency, EVs, and manufacturing) and encourages RE sources and corresponding transmission. This subcommittee will coordinate with DOE's Office of Electricity and its Advisory Committee (EAC) and address EERE collaborations with the Federal Energy Regulatory Commission, the Bureau of Land Management, and the International Organization for Standardization.

Chair	Katie McGinty
Members	Yet-Ming Chiang, Philip Giudice, Mark Jacobson, Stanley Pruss, Subir Sanyal, and Mark Stoering
Other Contributors	Ira Ehrenpreis and Art Rosenfeld
Ex Officio Members	Lonnie Edelheit and Arati Prabhakar
DOE POCs	Steve Chalk and Rachel Thornstein

Program Design for Impact

Evaluate EERE's management strategies to maximize the likelihood of EERE programs achieving impact at scale. This subcommittee will start by working with one or two specific EERE efforts to examine and advise on program implementation.

Chair	Richard Lester
Members	Ira Ehrenpreis, Philip Giudice, and Burton Richter
Other Contributors	Hal Harvey, Mark Jacobson, and Stanley Pruss
Ex Officio Members	Lonnie Edelheit and Arati Prabhakar
DOE POCs	Jamie Link and JoAnn Milliken

Transportation

Improve EERE's efforts in the transportation system as a whole. This subcommittee will focus on efforts of EERE's Vehicles, Hydrogen and Fuel Cells, and Biomass Programs and their collaboration with Department of Transportation, Department of Housing and Urban Development, Environmental Protection Agency, and other agencies.

Chairs	Hal Harvey and Janette Sadik-Khan
Members	Yet-Ming Chiang, Jay Keasling, and Edward Lazowska
Other Contributors	Mark Jacobson
Ex Officio Members	Lonnie Edelheit and Arati Prabhakar
DOE POCs	Austin Brown and Patrick Davis

Past FY11 ERAC Meetings

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

November 30, 2010

- Inaugural meeting at DOE Headquarters (Washington, D.C.)
- 100 percent member participation; ~50 public attendees
- Focused on overview of EERE's strategies for research, development, demonstration and deployment of EE and RE technologies
- *Post-Meeting:* Chairs and EERE senior management framed Committee and Subcommittee scope and structure

March 2-3, 2011

- Held at Capitol Skyline Hotel (Washington, D.C.)
- 17 of 21 members participated; 21 public attendees
- Hon. Vernon Ehlers introduced as newest member
- Continued EERE strategy discussion with specific questions for ERAC to consider
- Discussed and approved the formation of the four Subcommittees
- *Post-Meeting:* Subcommittees have started gearing up

Next Steps

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Next Meeting

San Mateo, CA – September 22-23, 2011

- Closed Subcommittee Meetings on September 22nd
- Open Full Committee Meeting on September 23rd

Agenda and Federal Register notice being drafted

To RSVP, e-mail ERAC@ee.doe.gov with your name

www.erac.energy.gov

JoAnn Milliken, ERAC Designated Federal Officer
202-586-2480
JoAnn.Milliken@ee.doe.gov

ERAC offers periodic e-mail updates related to its activities. The content of the e-mails may relate to the following:

- Meeting/event notification
- New member notification
- Subcommittee actions
- ERAC reports and publications
- Any other news related to ERAC

Register at www.erac.energy.gov