Here Today, Green Tomorrow: The Long-Term Implications of the Economic Stimulus Package for the Energy Efficiency and Renewable Energy Industry

Therese Dorau, ICF International

ABSTRACT

The American Recovery and Reinvestment Act of 2009 (ARRA) pumped tens of billions of dollars into all sectors of the economy for energy and sustainability projects, including over $10 Billion to be invested in state and local governments and regional non-profits via the Department of Energy. As the last of the stimulus dollars are being spent on energy efficiency (EE) and renewable energy (RE) programs, how will this impact the market for these services long-term and what will be the lasting impact on the industry as it works to sustain the momentum?

This paper examines possible causes of a perceived lag of industry impacts. It also highlights the experience and lessons learned from ARRA energy projects that will encourage long-term growth in the EE and RE industries. Finally, the paper highlights opportunities beyond the stimulus for industry to develop new business, particularly with state and local government customers, and support real market transformation.

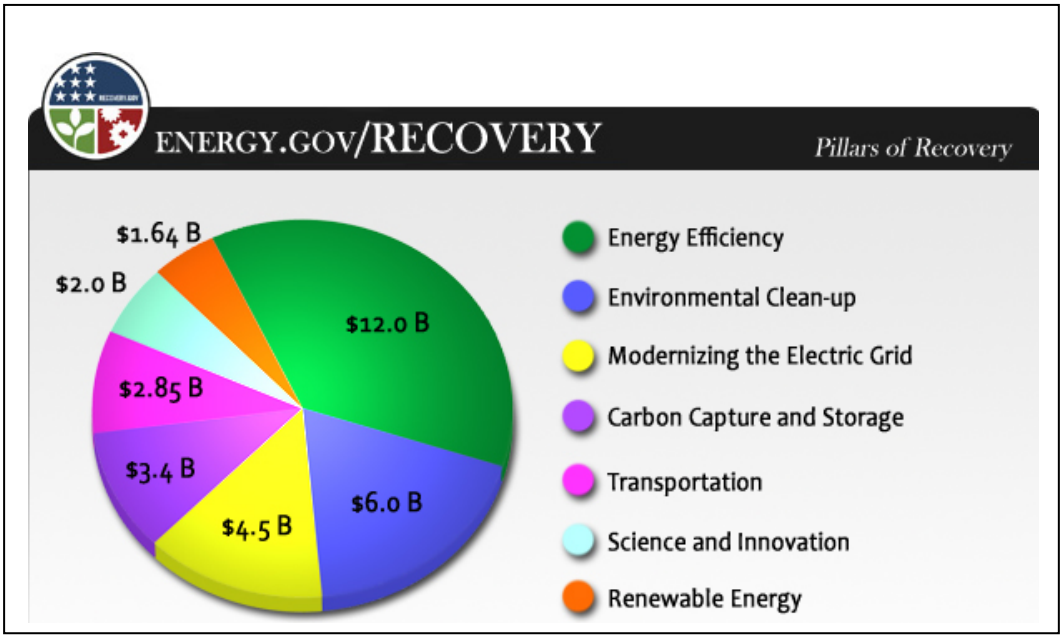
Introduction

The American Recovery and Reinvestment Act of 2009 (ARRA) provided tens of billions of dollars for energy and sustainability projects in all sectors of the economy. Funds flowed through federal agencies such as Housing and Urban Development and Department of Energy (DOE) for investment ranging from in modernization of schools, public housing, and other public buildings to rebates for efficient appliances and vehicles. Funding supported loan guarantees, bonds, grants, and tax credits, transportation infrastructure, and workforce development, all with a focus on sustainability, clean energy, and "green" jobs. In addition, the federal government invested stimulus dollars in clean energy and sustainability for its own infrastructure through agencies such as General Services Administration and Department of Defense. These investments targeted fuel-efficient fleets, energy efficiency retrofits in federal buildings, and installation of renewable energy systems on federal property (Crownover, 2009). Other "green" Recovery dollars funded the Department of the Interior, the Environmental Protection Agency, and the National Oceanic and Atmospheric Administration environmental cleanup and conservation and coastal restoration efforts, and the National Institute of Standards and Technologies received funding for electric power grid efficiency and electronic health records (Columbia University , 2009).

As one of the largest recipient agencies, the DOE was infused with $32.4 billion (Recovery Accountability and Transparency Board) to invest in a variety of technology and program areas. The primary areas of investment and the amounts of investment are shown below. Industry sectors such as electric grid modernization, transportation, renewable energy, and energy efficiency, gained access to grant funding for development and commercialization of

technologies and programs. Manufacturers and installers of market-ready technologies took advantage of new markets and increased sales demand from ARRA grant recipients (state and local governments, residents, businesses, and public and non-profit institutions).

DOE Economic Stimulus Programs



"Pillars of the Recovery Act," Energy.gov/Recovery

Although many industries were impacted by DOE ARRA funding, this paper will focus primarily on the manufacturers and installers of energy efficiency (EE) and renewable energy (RE) equipment and related service providers. The Energy Efficiency and Conservation Block Grant Program (EECBG) ($3.2B), the State Energy Program (SEP) ($3.1B), and the Weatherization Assistance Program (WAP) ($5B), (Department of Energy) will serve as the basis for discussing the extent of ARRA's benefits to the EE/RE industry and the likelihood of realizing lasting market transformation as a result of these historic investments in clean energy.

When Obama signed the ARRA in February 2009, expectations were high for a quick influx of orders and rapid hiring of new staff. However, after two years of stimulus funding, there is a sense that some stakeholders perceive results to be slow, insignificant, or at risk. Companies may wonder how market changes can be sustained without further government stimulus. This paper will discuss: why market growth has been lagging behind Federal investment; ARRA's role in spurring long-term growth in the EE/RE industries; and strategies for industry to take advantage of ARRA trends after the Recovery Act funding period has ended.

What's the Hold-up? Reasons for Slow Growth for the EE/RE Industry

As unprecedented investment in clean energy projects and programs flowed into state and local government, a number of roadblocks slowed the subsequent flow of grant dollars into industry or hampered the measurement of the impact of those dollars. While federal implementation was indeed a challenge, this discussion will focus on recipient issues. Roadblocks included:

Conforming to ARRA Requirements

Unprecedented funding required new levels of responsibility and oversight to ensure compliance with federal requirements. Transparency and the avoidance of "waste, fraud, and abuse" were a key feature of ARRA implementation. Grant recipients and their suppliers experienced challenges at every step of project implementation: from the selection of eligible projects, through the bidding process, during the selection of equipment, and throughout construction. Additionally, each project required monitoring and auditing long after the grant period ended. Conforming with unusual labor and sourcing rules such as Davis Bacon and Buy American (along with common laws regarding historic preservation, environmental, and waste stream) involved not only the direct recipient, but their contractors, planners, installers, equipment suppliers, manufacturers, and several layers of DOE and other agency staff.

Result: Local procurement was slow as staff learned to navigate terms and conditions.

Recipients Vary in Project Management Capacity

Each state and each local government varied widely in its approach and ability to implement ARRA. Differing priorities, as well as internally competing interests and local politics, affected the range of projects considered. Government structure and election cycles impacted the speed of decision-making and implementation, while state and local enabling legislation dictated possible projects. Recipients also varied in their understanding of energy and carbon management—for several grantees, the DOE ARRA programs are the first time that energy discussions have taken place in their communities. These grantees may have been challenged by a lack of expertise and insufficient state or local organizational and policy infrastructure. For others, ARRA funding fit into pre-existing goals, strategies, and institutions such that projects and programs could be quickly deployed using existing staff resources.

Result: Some governments were unable to quickly launch their ARRA programs.

The Department Responsible for Managing the Grant for Each Recipient Varied Widely

The decision of where in the government organization to manage the ARRA grants significantly contributed to the selection of projects, the quality of measurement and reporting, and the success of implementation. Staff assigned management responsibility for funded projects include facilities managers, special assistants to the mayor, grant specialists, sustainability

coordinators, accounting staff, interns, and outside consultants. Across these varied positions, there is a wide range of capabilities, knowledge, interest, financial support, and decision-making power.

Result: Projects requiring planning, consensus, or technical expertise were slow to launch in some communities.

There is a Demonstrated Time Lag between Investment and Job Creation

Several Office of Management and Budget analyses have confirmed that job creation (and retention) will lag the initial investment by a period of several months (Congressional Budget Office, 2011). Funding recipients must complete procurement and project design phases before making initial payments. This may take several months, creating a time lag between the initial purchase and the beginning of work. In addition, due to the "trickle-down" nature of these investments, many of the jobs created in other areas of the value chain occur significantly after the first purchase is made by the direct recipient.

Result: Near-term job creation may not have met expectations relative to investment.

Quantitative Measurement of Economic Benefits is Difficult

Measuring national and state-wide trends relative to ARRA investment has been a key focus of federal and other analyses of economic impacts. However, it is more difficult to get a picture of Recovery Act impacts at the individual EE/RE company level. This is especially true within the WAP, EECBG, and SEP programs, where the majority of impacts are indirect—as a result of spending by direct recipients. The trickle-down nature of this funding through the industrial supply chain made direct measurement of purchases impossible to measure and difficult to estimate. The reporting guidance also requires grantees to only report on jobs directly supported with ARRA funds, which excludes jobs created by indirect economic activity.

In addition to the difficulty of quantifying private-sector benefits from ARRA projects, many grant recipients in the WAP, EECBG, and SEP programs did not have established metrics or infrastructure for monitoring and verification (M&V) of internal and community energy use. These recipients often struggled with reporting jobs created, energy saved, and greenhouse gases (GHGs) reduced. Reports of success at the local level have often been anecdotal and qualitative. It is also challenging to reconcile recipient reporting with the results of economic forecasting, models, and historical data (Congressional Budget Office, 2011).

Aggregated results at a national level are slightly easier to measure, with development of methodologies for measuring job creation, sales, and energy and GHG reduction across the value chain. Economic input-output and economic equilibrium models are often used to estimate benefits to specific industrial sectors, and M&V methods have been evolving over time.

Result: The EE/RE industry has likely experienced benefits that have not been appropriately measured, aggregated, or reported.

Leveraging of Private and Other Public Funding is Not Captured in Economic Benefits Measurement

DOE's Recovery Act recipients often leveraged additional funding to increase the impact of ARRA dollars. This may include funding state budgets and programs, non-profit institutions, non-ARRA Federal dollars , foundations, or private investment from residents, business owners, or financial institutions. A year-end report from The White House states that "on $95 billion of Recovery Act project spending, for every dollar that was invested by the Federal government, three dollars were invested by external sources. This means that $286 billion of investments brought off the sidelines by the Recovery Act are generating economic activity and employment not captured in these models" (Office of the Vice President, 2010). These numbers, while representing the whole value of the Recovery Act, signal again the difficulty in adequately quantifying the wide benefits of Federal investment.

Result: The full scale of investment has not been reported and is difficult to measure.

ARRA Outcomes Will Facilitate Ongoing State and Local Market Growth

Although the steep learning curve encountered by some state and local government recipients, as highlighted in the above barriers, resulted in a slower-than-expected flow of funding into industry, there are several reasons why the momentum of these programs can be expected to continue due to the Recovery Act investments.

GHG Emissions Reductions are Increasingly Important to Variety of Stakeholders

Due to pressures as varied as air quality, energy costs, and constituent pressure, state and local governments are taking a leadership role in reducing GHG emissions, notably through agreements such as the US Conference of Mayors' Climate Protection Agreement (representing more than 1,000 communities and 86 million Americans) (U.S. Conference of Mayors, 2009)and the Regional Greenhouse Gas Initiative. ARRA programs have linked EE/RE investment to emissions reductions, reinforcing the connection between energy management and greenhouse gases. Stakeholders in state and local governments, national and regional nonprofits, the press, local businesses and institutions, and the general public have been exposed to information about the impacts of energy consumption and GHG emissions and the technologies and policies in play domestically and internationally. Renewed awareness and concern around these issues has created expectations that state and local governments should play a leadership role in reducing energy use and GHG emissions.

Result: Growing awareness and concern will result in continued program development and local spending.

Increased Number of Local Energy Decision Makers and Energy-Focused Municipal Staff

Many ARRA recipients, especially small-to-medium counties and cities and certain geographic regions, had to develop completely new energy efficiency, renewable energy, and GHG emission policies. Two years later, many of these recipients have hired dedicated energy or

sustainability staff, established specialized offices, developed clear energy priorities, and trained employees in technologies and strategies needed to develop programs. The number of energy-focused state and local staff has increased dramatically. Governments want to retain these staff positions and will be looking to continue their ARRA-funded programs into the future.

Result: New state and local institutional infrastructure will allow rapid project development in coming years.

Significantly Increased Body of Knowledge Among Energy Practitioners and the Pubic

Industry and advocacy groups have been rushing to educate themselves on topics related to ARRA grants. This has led to a huge amount of training, research, development, local and state legislation, and transparency. This flurry of activity has added technical and policy knowledge to the realm of the energy practitioner.

- **Training for dedicated energy staff.** Energy and sustainability staff in recipient governments have attended webinars, participated in conferences, received one-on-one support, and networked with their peers.
- **Availability of technical support.** DOE and its technical assistance partners, as well as universities, non-profit research groups, and consultants developed sector-specific technical resources for public use. These include webinars, tools and calculators, case studies, planning guidelines, policy forecasts, peer networks, and many other resources.
- **Technological advancement.** Universities, national labs, and businesses have developed new technologies or improved on existing systems.
- **Increased awareness.** Policy decision-makers, as well as the general public, have an increased awareness of the terminology, the technology, the policy roadblocks, and the benefits of EE and RE.
- **Stronger local, regional, and national organizational networks.** The EE/RE industry has proactively engaged with new and existing local, regional, and national support organizations.

Result: Government staff have experience and training, as well as access to new technologies and a network of technical resources. All will support energy initiatives after ARRA funding has ended.

Federal Grant Experience "Boot Camp" for Municipal Energy Practitioners

Recovery Act funding came with a significant reporting and transparency burden. Many grant recipients were at least partially unfamiliar with programmatic requirements that included historic preservation and environmental protection laws, as well as waste management, Buy American and Davis-Bacon wage requirements. After working closely with DOE programmatic staff and receiving technical assistance to complete grant reporting, all grantees now have an understanding of the applicability and meaning of these rules and regulations. This will benefit industry trying to enter the state and local government marketplace in a few ways:

- **American-made technologies.** Due to Buy American requirements, municipal and state energy practitioners are more aware of domestically available technologies. Additionally, domestic manufacturers have been highlighted by the public and the press due to ARRA.
- **Procurement process tools.** Grantees have access to a pool of RFPs and other procurement tools developed by their peers, enhanced by technical assistance and vetted by DOE throughout the ARRA process.
- **Experience with contracting.** Through the ARRA awards process, all parties have gained a better understanding of local and federal requirements. Experience with federal awards and local procurement processes will facilitate conversations between installers and suppliers and the purchasing government.
- **Governments are ready for a strategic approach.** Grant recipients were required to provide a long-term strategy for EE/RE in their communities, and many now have clear priorities and detailed lists of projects ready to be implemented. As priority and low-hanging fruit projects are completed with ARRA funding, the community can more quickly and easily focus on the next projects on the list.
  Result: Grantees' administrative experience will enable faster local procurement.

Strategies to Continue Building Business with State and Local Customers

The institutions and infrastructure for, and interest in, energy efficiency and renewable energy will remain after the funding period is over. Installers, suppliers, and manufacturers will have opportunities to expand their businesses in the state and local government markets, but should understand local processes and be sure to "play by the rules" of each community. Some additional suggestions follow.

Partner with an ESCO

An Energy Service Company (ESCO) can create a major market and increase visibility for energy efficient building equipment. The ESCO model is popular among local governments as it requires lower initial capital investment to achieve higher rates of return, and include guaranteed savings that reduces project risks. Government customers can also benefit from the full-service solution most ESCOs offer—audits, retrofits, and monitoring and verification. As governments own many of their buildings and are motivated to reduce long-term ownership costs, delayed ownership structures are more appealing than they would be to a leasing tenant. Many ESCOs are willing to partner with suppliers and manufacturers to market products to interested clients.

Educate Government Customers and Contribute to your Field

Contributing to the body of knowledge available to energy decision-makers in state and local governments is a way for your company to be seen as knowledgeable and trustworthy. Helping governments learn may also allow them to be more aggressive and innovative with their energy projects. Showing familiarity with the local needs of prospective government customers can boost your reputation as well. Some additional suggestions include:

- Hold open houses at your local sales branches or manufacturing facilities to introduce decision-makers to your products and services.
- Author white papers and targeted sales materials to show you know and understand the municipal audience. Participate on panels and in conferences, particularly those that are regionally focused, and work with regional energy non-profits or local universities or community colleges. Partner with state or local governments whenever possible to co-author papers and co-host events.
- Add to the current monitoring and verification research by developing methods to calculate indirect jobs, energy savings, and local impacts.

Market to the Right Audience

Knowing who to talk to at a municipality or state agency is key to getting your products and services in front of key decision-makers. Consider these suggestions:

- Develop a specialized marketing package for state and local government customers.
- Do your homework. Know communities' recovery act projects before you begin direct marketing. Tune in to local news and events to identify opportunities. Press releases, DOE blogs, watchdog group blogs, community websites, and sites of local and regional non-profits are all good resources, as is www.recovery.gov. Keep in mind the listed contact may not be the most appropriate or has retired or left. Contacts for individual projects are often most aware of which technologies and services would be valuable.
- Utilize local news outlets to identify communities that are leaders, with strong institutional support for EE/RE. Building partnerships with these communities may allow you to encourage development of new outreach programs, getting your name and your products and services in front of local property owners.
- Many local governments have hired new staff dedicated to energy or climate, and some were initially hired with ARRA funds. These staff will have the best sense of the overall strategy and vision of the community and be particularly motivated to continue developing and implementing efficiency and sustainability projects.
- Many grant recipients are sponsoring audit, weatherization, or retrofit programs within their communities. In some cases, communities will pre-screen vendors and service providers to compile "preferred" lists from which program participants must choose. Partnering with a program for auditing, weatherization, and retrofit programs, including loan programs, may help you build a reputation within a community.
- Network with other regional energy practitioners such as equipment manufacturers, installers, engineers, architects, and designers, to build partnerships.

Identifying Funding Resources/Tax Incentives for State and Local Government Clients

Being knowledgeable and creative about leveraged funding opportunities will be highly valued by state and local government customers. Staff members without an energy background or resource network may be particularly receptive to your experience and research. Ideally you

work as a team with your contact to make a business case for the proposed project, amidst on-going government budget cuts, to the community's decision-makers.

Identify or develop simple calculators for your sales team. Train staff to perform *pro forma* analysis that is quick and basic, but provides a sense of expected payback and return on investment. Also have a reasonable method for estimating energy and emissions reductions. Understand the ownership structure of the facilities you are targeting, state and federal incentives available, and other sources of funding or support that is offered by non-profit organizations, and present this knowledge proactively to your potential state and local government customers.

Be Willing to Ease the Burden

Many state and local governments are understaffed—lack of personnel is cited as a key reason why communities are not able to pursue energy projects. Government clients appreciate a contractor which is willing to serve as an agent for local governments—assisting with grant writing, loan applications, and rebate paperwork, helping ensure regulations and reporting requirements are met, writing RFPs or assisting in procurement activities if appropriate, and taking an expert role in evaluation, monitoring, and verification. Many municipalities currently benefit from highly collaborative contractor relationships that make implementation easy for stressed staff and allow vendors to provide services over a longer time frame.

Future Outlook and Resources

Legislative Forecast

The most common legislative question is whether these programs created under ARRA will be funded further. The likelihood of additional funds beyond the original allocation, expiring in 2012, is small. However, the State Energy Program, which was established in 1996 from two programs initially created in 1975, and the Weatherization Assistance Program, established in 1976 (Department of Energy) will probably continue to receive a funding allocation from congress that is comparable to these programs' budgets in pre-ARRA years.

State-Specific Legislation Provides the Next Big Growth Opportunity

State policy and program activity, prior to ARRA, was generating substantial energy funding. State ratepayer-funded programs, in particular, provide $4 B per year, and will remain the largest sources of public support for energy efficiency in the markets where they operate (Consortium for Energy Efficiency, 2010, p. 6). State-based programs and policies, including ratepayer-funded programs, efficiency standards, building codes, and local government enabling legislation all will impact units of government as they attempt to move their programs forward post-ARRA. Some examples of meaningful policies and programs include:

- **Property Assessed Clean Energy (PACE) enabling legislation.** In 24 states and D.C. (LBNL; Clinton Climate Initiative, 2011, p. 3), this enabling legislation allows local cities and counties to create PACE programs to fund commercial EE/RE installations.

Currently this is focused primarily on the commercial and industrial sectors due to issues with residential mortgage programs. States like California, New York, Michigan, and Colorado are home to localities that are creating local tax assessments to fund efficiency and renewables (Askins, 2009; LBNL; Clinton Climate Initiative, 2011).

- **Renewable portfolio standards and energy efficiency resource standards.** These requirements placed on utility companies, will drive installation of renewable and increased efficiency to meet required standards. This will expand the market for EE/RE products and services for all sectors of a utility's customer base. Additionally, utilities are already beginning to partner with non-profits and state and local governments, creating another market pathway.
- **Energy codes for buildings.** Increasingly stringent building codes are being adopted at the state, county, and local levels. This will increase the market for energy efficiency knowledge, products, and services among all building-related sectors.
- **Public transportation guidelines.** Many states and local governments are updating public transportation infrastructure design standards, planning documents and policies. Many in the transportation and renewable energy sectors can benefit by educating planners and decision-makers about efficient, low-carbon options .
- **State and local procurement guidelines.** Many government agencies have or are developing standards to reduce the environmental impacts of government spending. This may include green building standards, minimum efficiency requirements for building improvements, vehicle efficiency standards, green purchasing programs, and others.
- **State tax incentives.** Some states offer tax breaks for efficiency and renewables that can be combined with federal incentives.
- **Direct-to-consumer incentives.** Federal programs like HomeStar, PowerSaver, and ENERGY STAR can provide the additional leveraged funding that a state or local community-focused program needs to be feasible. In addition, states and utilities often have their own rebates or other incentives.
- **Solar-specific laws.** Laws like interconnection standards, net metering and credit banking affect the return on investments in solar photovoltaics, as do power-purchase agreement financing structures which vary from state to state. Potential government clients need to fully understand the impacts of existing laws and ownership options that will impact up-front and life-cycle costs and benefits of a solar PV system.

One key resource to begin researching state-specific rules and incentives is the nonprofit DSIRE website, found at www.dsireusa.org.

A Variety of Groups Support Efficiency and Renewables at the State and Regional Levels

Energy practitioners are collaborating more than ever. Non-profit advocacy, research, and technical assistance groups have been energized by the partnering needs of state and local governments receiving ARRA funding. In addition, regional energy efficiency organizations (e.g., NEEP, MEEA), national laboratories (e.g., NREL, LBNL), universities and colleges (e.g.,

UNC), and federal agencies such as DOE, HUD, and EPA, and their contractors, are working to provide current and future support to state and local government energy programs.

Many organizations and associations have a regional, state, or local focus. While these groups may not have the scale, scope, or reputation of national organizations, they have a sense of context and audience, as well as a pool of locally-accessible experts, that make them great partners for city and county governments. Many also offer valuable training and networking opportunities for EE/RE practitioners and state and municipal staff.

Alternative Sources of Capital Will Keep Projects Moving

The excitement of creating and maintaining energy efficiency and renewable programs is evident on a national scale, across cities, counties and states. However, one significant concern is how to procure capital to replace ARRA funds. A few trends are evident:

- **State and local grants.** A number of state governments and regional and local non-profit organizations have on-going federal, state, and utility funding to distribute from pre-existing programs. These funds may be earmarked for transportation, energy efficiency, low-income housing, air quality, or economic development. Thinking outside the box and knowing the rules of the funding allows for innovative approaches to spending restricted dollars on EE/RE products and services.
- **State, local, or utility loan programs.** Utilities as well as state and local government agencies have received pass-through funding to offer sector-specific no- or low-interest loans. Local governments, non-profits, institutions, and companies can be eligible for these funds. In some cases, programs have difficulty recruiting participants or marketing the programs and would benefit from industry members helping to enroll loan recipients. Know which communities in your key business regions have funds established, as they will have long-term financing available for larger efficiency and renewables projects.
- **Qualified Energy Conservation Bonds (QECBs) and Clean Renewable Energy Bonds (CREBs).** Federal bond money has been distributed to SEOs in the form of a tax credit bond, to provide low-cost capital to state, local, and tribal governments. The favorable conditions of this funding make it a good choice for mid- to large-sized communities with high bond ratings. A wide range of renewable, energy efficiency, R&D, and transportation projects are eligible for funding through this mechanism.
- **Private capital.** There is a rapidly growing trend of financial institutions partnering with state and local governments to provide lower cost capital to customers for energy efficiency retrofits and renewable energy installations. Programs such as loan loss reserves, revolving loan funds, and interest rate buy-downs can provide favorable loan terms to residents and businesses. These new loan products leverage a moderate amount of government capital with the resources of large investors, reducing the risks to lenders and expanding the lender's market with new loan products, while encouraging financial institutions to offer financing to a wider range of customers.
- **Local energy funds.** Some governments used ARRA funding to establish internal funds to implement capital-intensive energy projects. Project costs are returned to the fund based on energy savings over several years. Governments with these energy funds will be

able to continually invest in energy projects and may need guidance in identifying investment-grade retrofit opportunities.

By becoming well versed in the funding opportunities in your targeted sales areas, your company can serve as a resource for governments that are not sure how to keep the momentum going for their energy programs.

Conclusion

Measurement and implementation roadblocks may have tempered, delayed, or made it difficult to measure the positive impacts of the American Recovery and Reinvestment Act of 2009 for the energy efficiency and renewable energy industries. However, as this paper describes, there are several "lessons learned" from the Recovery Act that will support sustained growth in the market for EE/RE products and services in the future. Most notably, the EECBG, SEP, and WAP programs have paved the way for savvy companies to forge strong relationships with potential state and local government customers by adjusting marketing and business models to provide high-value services.

As ARRA moves into its final year, industry should recognize that significant investments in energy efficiency and renewable projects will continue in 2012 and beyond. While Recovery Act opportunities will not last, other opportunities will take their place. In addition, state and local governments will need to learn to do more with less. It is important, then, to grow with state, local, and regional programs as they evolve, and take advantage of opportunities as they arise. This paper presented several strategies for building on federal investment and driving the initial influx of funding into long-term business partnerships and real market transformation. If you produce, design, sell, or install energy efficiency or renewable energy technology, the real work is yet to come.

References

Askins, D. (2009, October 23). **Special District Might Fund Energy Program**. *The Ann Arbor Chronicle* .

Columbia University. (2009, March 3). **Stimulus (ARRA)**. Retrieved from Columbia University Office of the Executive Vice President for Research: http://evpr.columbia.edu/files_sponsoredprojectprocedures/imce_shared/ARRA_Summary_03_05_09_0.pdf

Congressional Budget Office. (2011, February). **Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2010 Through December 2010.** Retrieved from Congressional Budget Office - Economic Stimulus: http://www.cbo.gov/ftpdocs/120xx/doc12074/02-23-ARRA.pdf

Consortium for Energy Efficiency. (2010). *2***010 State of the Efficiency Program Industry** Report. Retrieved from CEE-Energy Efficiency Program Industry: http://www.cee1.org/files/2010%20State%20of%20the%20Efficiency%20Program%20Industry.pdf

Crownover, C. (2009, March 23)**. Recovery Act - Summary of Energy Efficiency Provisions.** (A. t. Energy, Ed.) Retrieved from Alliance to Save Energy: http://ase.org/sites/default/files/arra_summary.pdf

Department of Energy. (n.d.). **Pillars of the Recovery Act.** Retrieved March 16, 2011, from Energy.gov: http://www.energy.gov/recovery/pillars.htm

Department of Energy. (n.d.). **Weatherization and Intergovernmental Programs - About.** Retrieved March 17, 2010, from Energy.gov: http://www1.eere.energy.gov/wip/about.html

LBNL; Clinton Climate Initiative. (2011). **Property Assessed Clean Energy (PACE) Financing: Update on Commercial Programs**. Retrieved from Lawrence Berkeley Lab: Electricity Markets and Policy: http://eetd.lbl.gov/ea/ems/reports/pace-pb-032311.pdf

Office of the Vice President. (2010, October 1). **2010 Fiscal Year End Report to the President on Progress Implementing the American Recovery and reinvestment Act of 2009**. Retrieved from The White House: http://www.whitehouse.gov/sites/default/files/recovery_act_report_9-30-2010.PDF

Recovery Accountability and Transparency Board. (n.d.). **Agency Reported Data.** Retrieved from Recovery.gov: http://www.recovery.gov/transparency/agency/reporting/agency_reporting1.aspx?agency_code=89

U.S. Conference of Mayors. (2009, October 2). **1,000th Mayor -- Mesa, AZ Mayor Scott Smith Signs the U.S. Conference of Mayors Climate Protection Agreement.** Retrieved from http://www.usmayors.org/pressreleases/uploads/1000signatory.pdf