State Energy Offices' Role in Promoting Economic Development and Accelerating Market Transformation in Industrial Energy Efficiency through Partnerships and Collaboration

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ABSTRACT

The industrial sector is a critical sector of the U.S. economy and supports an estimated 18.6 million direct and indirect jobs, or about one in six of private sector jobs in 2009.[1] At the same time, the sector also represents around thirty percent of energy consumption in the United States (EIA 2010) and presents a major opportunity for dramatically reducing energy intensity, while improving productivity and economic viability. Resilient, competitive industry is critical to maintaining a high standard of living in an increasingly competitive and globalized world. Rising energy costs and price volatility have significant impacts on a company's bottom line; energy efficiency will factor heavily into the planning and operations of the American economic engine: industry.

Through a comprehensive survey of all 56 State and Territory Energy Offices (SEOs), the National Association of State Energy Officials (NASEO) systematically captured a snapshot of state industrial energy efficiency and clean energy programs underway. Of the 56 SEOs in the U.S., more than 30 administer energy programs for manufacturers and the industrial sector. The diversity of programs available is a testament to the states as laboratories of innovation, capable of reacting to the unique needs of their local communities and industries. Loan programs, incentives and grants are coupled with technical assistance, project management support, and free or subsidized audits and assessments to empower companies to improve energy efficiency and productivity in their facilities.

With the recent dramatic increase in funding, primarily in the State Energy Program through the American Recovery and Reinvestment Act (ARRA), many programs which have existed for years were able to expand and reach aggressively into areas they could not impact before due to limited resources. Total current energy efficiency investment available to the industrial sector at the state level amounts to about $782 million.[2] Of that amount, state funds from systems benefit charges,[3] state appropriations, proceeds from greenhouse gas credit sales, and public bond financing initiatives accounts for over $400 million. The remainder of funding comes from the federal government, and is invested by states according to priorities in their State Energy Program plans (over $312 million). In the case of *Save Energy Now* (SEN) grants to state energy offices (around $22.1 million[4]), programs are implemented according to ITP direction in collaboration with regional and state-level partners.

[1] 11.8 million jobs were directly within manufacturing and more than 6.8 million were indirect jobs which rely on the manufacturing sector.

[2] This figure only includes programs which the state energy offices operate and fund in their state. This amount generally spans the years ranging from 2008-2012. More detailed

[3] Terminology differs among states. For example, other interchangeable terms include public benefits charge and societal benefits fund.

[4] This amount can be further segmented between SEN grants funded with ARRA resources in and future rounds of SEN funding which will come directly from ITP spread across several years. These amounts total $6.5 million and

Though it is still too early to analyze the results of these new programs, the ability of SEOs to draw on existing relationships built over years and even decades of collaboration with industry, utilities, sister state agencies, and other state, regional, and national partners provided the necessary infrastructure to identify and implement projects quickly. Future study will focus on drawing lessons learned and best practices from how these state programs and partnerships functioned.

Introduction

Representing around thirty percent of energy consumption in the United States (EIA 2010), the industrial sector presents a major opportunity for dramatically reducing energy intensity, while improving the economic viability and competitiveness of private industries through direct energy and cost savings, increased productivity, and improved operations. In an economic and political environment that heavily emphasizes the imperative of preserving U.S. competitiveness and creating jobs, U.S. manufacturing will play a critical role in economic recovery. As the world's largest manufacturing economy, the U.S. produces roughly twenty percent of the global manufactured products (TMI 2009). Tellingly, if the U.S. manufacturing were its own country, it would rank as the world's eighth largest economy (TMI 2009). This critical sector of the U.S. economy supports an estimated 18.6 million direct and indirect jobs, or about one in six of private sector jobs in 2009.[5]

For all these reasons, the manufacturing and industrial sector presents to state governments great potential for achieving state economic development goals and preserving and creating jobs, while also achieving energy savings and greenhouse gas emissions reductions. State governments have long maintained promoting economic development within their state as a top priority, and current efforts at the state level are making large impacts on the manufacturing sector. Historically funded at limited levels, SEO industrial programs in the past have generally focused on providing technical assistance, training and education to complement other federal and utility programs. Typically, industrial projects are larger and require higher levels of funding, and with the large influx of stimulus funding from ARRA channeled to states primarily through the State Energy Program, many SEOs were able to invest in these programs as never before.

Through a comprehensive survey of all 56 State and Territory Energy Offices, the National Association of State Energy Officials (NASEO) systematically captured a snapshot of state industrial energy efficiency and clean energy programs underway. Of the 56 SEOs in the U.S., more than 30 administer energy programs for manufacturers and the industrial sector. The majority of these programs are closely coordinated with other programs and activities administered by utilities, regional energy efficiency groups, , U.S Department of Energy (DOE) Industrial Technology Program's (ITP) initiatives such as *Save Energy Now* (SEN) and regional Industrial Assessment Centers (IAC), and the National Institute for Standards and Technology's (NIST) Manufacturing Extension Partnership (MEP).

In support of ITP's national industrial energy efficiency objectives, many SEOs provide outreach, training, resources, and technical assistance to manufacturers and industrial facilities in

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$15.6 million respectively (Glatt 2011). SEN awards to universities, regional groups, IACs and other state partners are not included in this count.

[5] 11.8 million jobs were directly within manufacturing and more than 6.8 million were indirect jobs which rely on the manufacturing sector.

their states to help them operate more efficiently by identifying and reducing energy use in key industrial processes and systems and adopting energy management strategies. Currently, 25 SEOs have existing work to support ITP initiatives in their state or region. Additionally, states apportioned around $217 million of State Energy Program funds exclusively for industrial programs. These programs built on existing efforts in training and technical assistance support and sought to improve the energy efficiency in industrial facilities and catalyze investment and production in clean energy technology through technology demonstrations, pilot projects, and plant retooling.

Existing relationships with manufacturers in their state, allowed SEOs to launch programs which attended to the specific needs of manufacturers in their state while responding to state policy and economic development priorities. Years of laying the groundwork with private industry through assessments, audits and technical assistance, supported by DOE and deployed by states, resulted in a selection of ready projects—many of which simply lacked an infusion of capital to get off the ground. Mutual trust, cultivated over the course of years and even decades through the SEOs' continuous presence as a trusted source of technical assistance, enabled SEOs to target their outreach and achieve high subscription rates for their programs. Finally, established partnerships with other relevant stakeholders and program administrators such as utilities, regional energy efficiency groups, and federal agencies including the DOE's ITP and the NIST's MEP program, allowed SEOs to coordinate their new and expanded programs with existing resources available to manufacturers.

Though it will be some time before the results of these industrial projects are available, the high levels of investment SEOs dedicated to the industrial sector with their augmented resources signifies a major recognition of the opportunities in that sector to reduce energy intensity, increase productivity and competitiveness, and positions the states as leaders in the economic development of growing energy efficiency and clean energy markets. As program administrators and key partners in other regional and state-wide programs, SEOs play a vital and increasingly expanded role. Looking ahead, as the peak of ARRA funding declines, whether and how SEOs can sustain the momentum of these programs and how their role in industrial energy efficiency will evolve remains to be seen. Regardless, experiences so far have shown that SEOs will continue to add value in utilizing their existing partnership and information network as a ready platform for ongoing support and deployment of state-level programs and training in the industrial sector.

Methodology for Data Collection

The primary objective of this report is to develop a comprehensive catalogue of the industrial energy efficiency programs run by the 56 SEOs.[6] Information was collected from SEOs initially through online and literature searches and verified in individual correspondence with each SEO. Additional phone interviews were conducted when further clarification was needed or to develop a deeper understanding of a particular state's program development, motivation, and results to date. At least one state in each of the seven regions in NASEO's Regional Program was interviewed to illustrate the diversity of form and intention that comprises such programs.

[6] At the time of writing, Puerto Rico, Rhode Island and California have not confirmed information on their industrial energy efficiency programs, and they are not included in the final figures presented here with one exception; SEN program funding to California, however, is confirmed and included in the total for state SEN programs.

For the purposes of this report and due to length limits, only a few are highlighted below. The three featured states were selected for their geographical, funding, and program diversity, as well as for their success in leveraging a wide range of partnerships to launch and expand their industrial programs. An expanded follow-on report by NASEO will include more information than is presented here. A list of these interviews can be found in the References section.

In order to gain a better understanding of how SEO funds were invested and how they may leverage other state, regional, and national programs, NASEO collected data only on programs that are administered by the SEOs or programs which receive direct funding from SEOs. Programs which are run by the State Public Utility Commissions, utilities, or other third-parties with minimal connection to the SEO were not included. The DOE's Industrial Assessment Center (IAC) network, which is hosted at universities across the country, is recognized as a critical asset to the national industrial efficiency landscape, but only included in states where IACs are closely affiliated with their SEO and receives direct funding from them.

Finally, the data collected here represents a snapshot of current and ongoing activities. The state programs represented in this report do not share a single timeline and the programs which were included range roughly from the years 2009 to 2012. As NASEO continues to refine this information in subsequent rounds, more attention will be paid to identifying the time frames associated with each state program and their appropriate funding levels to allow for more detailed analysis over time.

SEO Industrial Energy Efficiency Programs

Total current energy efficiency investment available to the industrial sector at the state level amounts to over $782 million.[7] Of that amount, state funds from systems benefit charges,[8] state appropriations, proceeds from greenhouse gas credit sales, and public bond financing initiatives accounts for over $400 million. The remainder of funding comes from the federal government, and is invested by states according to priorities in their State Energy Program plans, or, in the case of *Save Energy Now* (SEN) grants to state energy offices, is implemented in collaboration between ITP and state and regional partners.

The following table shows all energy efficiency and clean energy development programs exclusively targeted towards a state's manufacturing and industrial sector that are funded through SEOs. These programs include energy assessments and audits, technical assistance, training, and access to capital through loans or grants to implement projects. Programs which encompass multiple sectors, such as commercial or agriculture, are not included in Table 1.0 but are presented in a later table.

[7] This figure only includes programs which the state energy offices operate and fund in their state. This amount generally spans the years ranging from 2009-2012.

[8] Terminology differs among states. For example, other interchangeable terms include public benefits charge and societal benefits fund.

Table 1.0: State Programs Targeting Only Industrial Sector

State	Program Name	Description	Total Funding
Alabama	Reducing Industrial Energy Intensity in Alabama	Audits, TA, Training	$900,000
Alabama	Alabama Saves Revolving Loan Program	Financing	$25,000,000
Arizona	Manufacturers' Energy-Efficiency Grant Assistance (MEGA) Program	Grants	$2,735,000
Arkansas	Arkansas Industrial Energy Technology Loan (AETL) Program	Financing	$9,757,658
Arkansas	Arkansas Green Technology Grant Program	Grants	$3,049,653
California	California Partnership for Improving Industrial Plant Productivity	Audits, TA	$1,332,634
Colorado	Colorado Industrial Energy Challenge	Audits, TA	$1,650,000
Georgia	Southeast Industrial Energy Alliance	Audits, TA	$1,433,000
Georgia	Certified Energy Manager Training Program	Training	$400,000
Georgia	Industrial Energy Efficiency Grant Program	Grants, TA	$2,000,000
Idaho	Idaho Save Energy Now - Industries of the Future	Audits, TA	$900,000
Illinois	Midwest States Save Energy Now (SEN) Partnership Program	Audits, TA	$1,398,537
Illinois	Large Energy User Grant Program	Grants	$14,000,000
Indiana	Purdue Technical Assistance Program-Industrial Energy Efficiency Assessment Initiative	Audits, TA	$1,042,900
Kentucky	Kentucky Program for Industrial Energy Efficiency	Audits, TA	$899,861
Kentucky	Industrial Facility Retrofit Showcase	Grants, Incentives	$4,400,000
Louisiana	Louisiana Save Energy Now	Audits, TA	$890,774
Maine	Large Project Grants	Grants	$14,501,044
Maryland	Save Energy Now for Maryland Industries	Audits, TA	$733,765
Massachusetts	Massachusetts Save Energy Now	Audits, TA	$1,400,000
Michigan	State of Michigan Regional Delivery of the DOE Save Energy Now Program	Audits, TA	$830,550
Michigan	Clean Energy Advanced Manufacturing Program	Grants, Loans	$49,380,000
Minnesota	Implementing an Industrial Energy Efficiency Program in Minnesota	Audits, TA	$922,252
Minnesota	Emerging Renewable Energy Industries Grant		$4,000,000
Mississippi	Reducing Industrial Intensity in the Southeast	Audits, TA	$1,141,393
Missouri	Best Price Energy Efficiency Program	Grants	$3,000,000
Missouri	Industrial Pilot Projects	Incentives	$1,800,000
Montana	Industrial Energy Assessment Program	Audits, TA	$100,000
Montana	Industrial Energy Audits	Audits	$150,000
New Jersey	New Jersey Industrial Energy Program (NJIEP)	Audits, TA	$900,000
New York	Industrial and Process Efficiency Incentive Program	Incentives	$103,000,000
New York	New York Industrial Partnership Network	Education, Audits, TA	$900,000
Ohio	Energy Efficiency Program for Manufacturers	Audits, TA	$16,500,000
Ohio	Ohio Center for Industrial Energy Efficiency	Audits, TA	$1,311,546
Pennsylvania	Comprehensive Statewide Pro-Active Industrial Energy Efficiency Program	Audits, TA	$847,257
South Carolina	Save Energy Now - South Carolina	Audits, TA	$1,040,291
Texas	Supporting Texas Manufacturing to "Save Energy Now"	Audits, TA	$1,080,595
Utah	Utah Industrial Efficiency Program	Education	$300,000
Virginia	Southeastern Industrial Efficiency Alliance	Audits, TA, Training	$211,050
Washington	Save Energy Now: State, Regional and Local Delivery	Audits, TA	$1,340,652

State	Program Name	Description	Total Funding
West Virginia	Industries of the Future- WV Assessment	Audits, TA	$150,000
West Virginia	Projects with Industry	Training, Audits, TA	$120,000
West Virginia	E3	Training, TA, Audits	$94,375
West Virginia	Regional Assessment/Implementation SEN Delivery System Partnership	Audits, TA	$1,288,050
Wisconsin	Clean Energy Business Loan Program	Financing, Grants	$53,700,000
Wisconsin	Expanding the WisconSEN Program	Audits, TA	$1,179,000
Total			**$331,711,837**

These programs, which exclusively target the industrial sector, are funded by a mix of State Energy Program funds, DOE-ITP funds, and state and private sector leveraged funds and cost-share. Of the total figure, federal funds equal $220 million and state and private sector leveraging equal $113.6 million. In general, the infusion of additional money channeled into the flexible State Energy Program from ARRA enabled the creation and significant expansion of many of these programs. In many cases, these programs built upon and complemented existing work accomplished over time through DOE-supported SEN awards to states.

Additionally, a diverse portfolio of programs that provides different kinds of support to the industrial sector is important. Often, these programs may encompass more than just the industrial sector, as states design flexible programs that can accommodate multiple kinds of end-users. Table 2.0 provides a summary of all programs for which manufacturers and industrial companies may be eligible, though they may not be the sole beneficiaries. Commonly, these programs include the commercial sector, local governments, and the agricultural sector in addition to the industrial sector. It is difficult and resource-intensive to isolate how much funding from these programs only benefit the industrial sector, yet these programs are important to note as they provide a fuller picture of a state's overall investment and support for industry.

Unlike the programs detailed in Figure 1.0, a higher proportion of these programs include funding from a local source: e.g., a Systems Benefits Charge (or similar) (SBC), public debt raised via bond sales, general appropriations, or some revenues generated from varying portfolio standards. Only about 25% of the funding available in these other programs comes from the federal government.

Table 2.0: State-Level Programs Targeting Multiple Sectors[9]

State	Program	Description	Sectors Served[10]	Total Funding
Arizona	State Energy Program Technical Assistance	Audits, TA	I, Ag	$15,000
Colorado	Direct Lending Revolving Loan Program	Financing	I, C, Muni	$11,000,000
Florida	Florida Energy Opportunity Fund	Financing	I, C	$36,089,000
Idaho	Low Interest Energy Loans	Financing	I, C, Ag, Muni, Res	$750,000
Iowa	Agricultural/Industrial/Commercial Loan Program	Financing	I, C, Ag	$1,500,000
Maine	Cash Incentives (No Name Given)	Incentives	I, C, Ag	$4,900,000
Maryland	Jane E. Lawton Conservation Loan Program	Financing	I, C, Muni	$2,500,000
Massachusetts	Alternative Portfolio Standard (for CHP)	Incentives	I, C, Muni	$9,000,000
Michigan	Retired Engineer Technical Assistance Program	Audits, TA	I, C, Muni	$1,000,000
Michigan	Energy Efficiency Technology Demonstration	Grants	I, Muni	$1,750,000
Minnesota	Energy Efficiency Revolving Loan Fund		I, C	$10,000,000
Minnesota	Energy Programs in Commercial and Industrial Buildings	Grants	I, C, Muni	$4,100,000
Mississippi	Commercial and Industrial	Audits, TA	I, C	$90,000
Nebraska	Dollar and Energy Saving Loan Program	Financing	I, C, Ag, Muni, Res	$11,307,475
New Hampshire	Expanded Business Energy Efficiency Program	Audits, Incentives	I, C	$922,000
New Jersey	New Jersey New Construction	Incentives, TA	I, C	$9,275,463
New Jersey	New Jersey Retrofit	Incentives, TA	I, C	$36,478,000
New Jersey	New Jersey Pay for Performance New Construction	Audits, Incentives	I, C	$7,487,495
New Jersey	Combined Heat and Power	Incentives	I, C, Muni	$18,000,000
New Jersey	New Jersey Pay for Performance	Audits, Incentives, TA	I, C	$54,849,805
North Carolina	Energy Efficiency for Commercial, Industrial and Large Nonprofit Sector	Grants	I, C	$9,147,000
Pennsylvania	Alternative and Clean Energy Program	Financing, Grants	I, C	$165,000,000
Pennsylvania	Green Development Loan Program	Financing	I, C, Muni	$48,000,000
South Carolina	Clean Green Investment Incentives	Audits, Grants	I, C	$2,113,910
South Carolina	Energy Technical Assistance Program	Audits	I, C, Ag, Muni	$1,700,000
South Carolina	Training	Training	I, C	$976,610
West Virginia	Clean Energy Standard Offer Program	Education	I, C	$50,000
West Virginia	Industries of the Future	Audits, TA	I, Muni	$200,000
Total				**$448,201,758**

[9] Does not include New York's Flex Tech Program or Maryland's Commercial and Industrial EE Loan Program due to incomplete information at time of writing.

10 "I" stands for industrial sector; "C" stands for commercial sector, including non-profits; "Ag" stands for agricultural sector; "Muni" stands for local and municipal governments; and "Res" stands for residential sector.

History of State-Run Industrial Energy Efficiency Programs

A common element of a majority of SEO programs for the industrial sector is providing technical assistance and training. Overall, SEOs operate over 25 programs providing free or subsidized energy assessments and audits, sometimes cost-shared with utilities, ongoing technical assistance, and/or training for manufacturers and industrial facilities in their state. These programs generally support other related programs in their state. For instance, several SEO energy assessment and audit programs include utility cost-share, and training workshops organized or supported by SEOs are often offered in conjunction with universities, IACs, and state MEPs. These programs cover topics such as DOE Best Practices training and energy management.

Due to lower funding levels in the past, SEOs have relied heavily on partnerships with other program administrators and technical assistance providers to broaden their impact. Core technical assistance and training activities, organized or supported by SEOs drew on their in-house expertise, utilized existing connections with industry, and reinforced working relationships with other stakeholders. Through years of engagement with these key state and regional partners, SEOs proved to be able facilitators and coordinators even as they further developed deeper understandings of the unique economic development needs in their states and reinforced relationships with the private sector.

As a result of this history, SEOs were well-positioned to launch new and expanded programs, which served the distinctive needs of the industrial sector in their state, when the large influx of ARRA funding into the State Energy Program and SEN in 2009 was made available.

Idaho OER Bridges Space between Industry and Policymakers

In Idaho, there are no appropriated state funds for industrial energy efficiency efforts, and all activities by the Idaho Office of Energy Resources (OER)[11] to date have resulted primarily from competitive funds granted by DOE ITP. Prior to ARRA, all of the grants Idaho received were parts of a larger regional collaborative, facilitated by Washington State University's Energy Extension Program, a leading industrial energy efficiency program implementer and technical assistance provider in the Northwest. In 2009, SEN grants funded with ARRA money allowed OER to scale efforts that were already under development over the course of several years and increase their program from pre-2008 funding levels of around $90,000 to $350,000 in 2010 and 2011.

As an expansion of providing energy assessments and audits in accordance to ITP program guidelines, OER used program money to fund 50% of two full-time energy engineers spread across a 16-facility portfolio to provide personalized and continuous technical assistance, conduct in-depth training, and champion and manage project implementation in those facilities. Participating facilities provided the remaining 50% of the engineers' salary, ensuring the private companies had a stake in the process while leveraging public dollars. In addition to the direct energy savings of implemented projects and the lasting benefits of fostering a company culture around energy management, OER intends to use this pilot project as a way to demonstrate to companies the value of retaining energy engineers and begin creating sustained market demand.

Another natural extension of previous work is OER's current partnership with The Amalgamated Sugar Company (TASCO) to explore the feasibility of constructing a proposed

[11] OER is Idaho's state energy office.

large (100MW) combined heat and power (CHP) plant at TASCO's Nampa, Idaho site. Leveraging up to $60,000 of private and utility cost-share for $40,000 of OER funding through ITP (OER 2009 & 2010), the project is currently in the process of completing a second, highly-detailed feasibility study following onto a successful first study. As testament to the singular role that SEOs can play in providing a feedback loop from program work back to policy, the results of this partnership with TASCO has seeded efforts by the SEO to inform state policymakers of regulatory hurdles in constructing CHP plants on the scale that TASCO proposes, and ultimately, intends to alleviate these barriers to allow for the integration of more CHP in Idaho's energy mix.

Arizona Spurs Development in Nascent Clean Energy Technology Sector

Historically, the Arizona Commerce Authority Energy Office has used a small portion of their State Energy Program funding to support staff time to provide businesses in Arizona with access to technical expertise and assistance. Both manufacturers and agricultural companies could call on the SEO to provide technical review of proposals for grants and loans to other programs such as USDA's Rural Energy for America Program (REAP) Guaranteed Loan Program. Many businesses are referred to the SEO for technical assistance through the Arizona Manufacturing Extension Partnership.

With the infusion of additional State Energy Program funds from ARRA, Arizona's State Energy Program budget expanded to $55.4 million (ACAc). Of that amount, the Arizona SEO allocated 11% to two programs specifically for manufacturers of energy efficiency or renewable energy technologies in their state. Housed within the state's economic development agency,[12] the Arizona Commerce Authority, the Arizona SEO designed their programs specifically for energy efficiency and renewable energy companies as part of the state's driving priority to develop and support a growing clean energy sector in the state.

Based on the assumption that improved energy efficiency will increase productivity and competitiveness, the Manufacturers' Energy-Efficiency Grant Assistance (MEGA) Program was funded with $2.735 million available in competitive grants, which targeted energy efficiency improvements only in renewable energy technology manufacturing facilities to bolster that emerging sector. The program eligibility requirements, which specify that projects should create or retain at least 2 full-time employees for every $100,000 requested; provide at least 50% of matching or in-kind cost-share; and be expanding or relocating within Arizona, further demonstrate the program's strong job creation and economic development focus.

Presently, over $2.7 million have been awarded to seven renewable energy companies, and the Arizona Commerce Authority Energy Office estimates these projects will create almost 180 new jobs in the state. Awardees include manufacturers of energy storage batteries, systems that use solar thermal energy to power Stirling engine, power distribution systems, wind turbines, and photovoltaic system components and modules (ACA 2010a).

A second program, designed for the purpose of supporting nascent energy efficiency and renewable energy manufacturing in Arizona, the 21st Century Energy Demonstration Projects Grant Program, provided about $3.4 million in grants and leveraged at least $1.2 million in cost-share for four demonstration projects.[13] These innovative projects include a demonstration of

[12] Thirty SEOs are a part of their state's economic development or commerce agency.

[13] Because this was not strictly and industrial energy efficiency program, this program was not included in the total sums for Figure 1 or Figure 2.

using solar powered systems for water pumping and aeration in two municipal wastewater treatment facilities and support for a manufacturer of high-efficiency, lightweight motors for electric bicycles.

Ultimately, the popularity and success of these programs in Arizona's industrial community rested on the strong working relationship between the SEO and the rest of the Arizona Commerce Authority. By coupling existing networks with the business community that Commerce had built in the past with the technical expertise of the SEO, Arizona was able to effectively mobilize millions of dollars to achieve the state's desired outcomes in clean energy development and job creation.

To sum up Arizona's strategy in the words of Governor Brewer, "When I unveiled a new Arizona job creation and economic development plan in June [2010], it was projects such as these that are focused on creating quality jobs and advancing energy innovation that I envisioned…Each of these projects demonstrates how successful collaboration between the business community and the State of Arizona benefit the citizens of this great state (ACA 2010b)."

South Carolina Leverages Partnerships with Other State Stakeholders

South Carolina's recent experience provides another example of a state employing existing networks and partnerships. In South Carolina, the Energy Office partnered with the South Carolina Coordinating Council for Economic Development and the South Carolina Department of Commerce to launch a $2.1 million Clean Green Investment Incentive program under the State Energy Program. The program aims to encourage manufacturers to locate, stay, and/or expand in South Carolina by providing funding for energy efficiency and renewable energy projects.[14]

Similar to Arizona's MEGA program, the Clean Green Investment Incentive program targeted funding to energy efficiency and renewable energy companies, and granted several demonstration projects as part of the larger portfolio. For instance, one successful applicant will combine energy efficiency and demonstration by retrofitting their facilities with their own highly-efficient aerated concrete. Another demonstration project seeks to convert landfill waste gas to power fuel cells for floor and warehouse equipment in a BMW facility. Yet another project uses a project site as a training ground as the facility implements energy efficiency retrofit measures and plant retooling for solar technology production.[15]

As in Arizona and most of the states NASEO interviewed, the SEO's working relationship with the state commerce department or economic development agency, who were then able to tap into existing networks with state businesses to identify projects and conduct outreach, was a key to success. Additionally, in South Carolina, the SEO's established partnership with the state's Manufacturing Extension Partnership (MEP) provided a ready conduit for increased funding from DOE ITP resulting from ARRA and allowed an effective ramp-up of SEN and Superior Energy Performance technical assistance and training efforts.

[14] The SC Energy Office pays 100% of energy efficiency projects and 50% of renewable energy projects. Companies could also seek equal funding from the SC Department of Commerce for renewable energy projects. (Jerman 2011).

[15] There are at least 10 number of manufacturing retooling programs in the U.S. These programs were not part of this initial report but will be a subject of a future NASEO study.

Lastly, in collaboration with the state's Technical College System and Office of Economic Opportunity, the SEO is channeling nearly $1 million to the state's seven energy efficiency training centers to provide training and certification in the residential, commercial, and industrial sectors. Though industrial participation in these programs have been relatively low thus far, these training centers support the growth of South Carolina's energy efficiency market overall and will continue to provide opportunity to the state's workforce into the future as the economy recovers.

Conclusion

With over $331 million of state programs exclusively allocated to the industrial sector and another $448 million available to them in other programs, the opportunity to make a large impact in the energy performance, productivity, and competitiveness of manufacturers is great. Largely capitalized with increased State Energy Program and ITP funding, made possible by ARRA, many results still remain to be seen. Even so, this early look at all state and territory energy offices, has already drawn several useful conclusions that may inform program development and delivery in the future.

The ability of almost all of the state programs surveyed to draw on existing relationships built over years and even decades of collaboration with industry, utilities, sister state agencies, and other state, regional, and national partners provided the necessary infrastructure to identify and implement projects quickly. The demonstrated capability of SEOs to serve as facilitators amongst these diverse partners to realize dramatic results proves the value of ongoing industrial sector programs at the state level. Looking ahead, future research could assess the results of these state programs and identify ways to continue building on the progress achieved, while building a historical set of data to improve understanding of the changing trends in state industrial programs.

References

[EIA]. *Annual Energy Review 2009*. Report No. DOE/EIA-0384(2009). Washington, DC: U.S. Energy Information Administration.

[ACA 2010a]Arizona Commerce Authority, press release: "Governor Jan Brewer Announces $2.7 Million in Grants for Renewable Energy Manufacturers." http://www.azcommerce.com/NewsRoom/ViewRelease.aspx?568.

[ACA 2010b] Arizona Commerce Authority, press release: "Governor Jan Brewer Announces Energy Innovation Grants," 16 August 2010. http://www.azcommerce.com/doclib/energy/8-16-10_governor_jan_brewer_announces_energy_innovation_grants.pdf.

[ACAc] Arizona Commerce Authority. *State Energy Program.* http://www.azcommerce.com/Energy/SEP.htm. 17 March 2011.

Asrael, Joel (Colorado Governor's Energy Office). 2011. Personal communication. March 9.

Boudreau, Robin (Arizona Commerce Authority, Energy Office). 2011. Personal communication. March 2.

Brooks, Jeff (Idaho Office of Energy Resources). 2011. Personal communication. January 26.

Burnes, Ian (Efficiency Maine). 2011. Personal communication. March 1.

De Fiebre, Jeremy (Minnesota Department of Commerce, Office of Energy Security). 2011. Personal communication. June 1.

DelVecchio, Gene (Pennsylvania Department of Environmental Protection). 2011. Personal communication. January 20.

Glatt, Sandy (U.S. Department of Energy). 2011. Personal Communication. March 1.

Hudkins, Tom (South Carolina Energy Office). 2011. Personal Communication. March 3

[OER 2009] Idaho Office of Energy Resources 2009. "Memorandum of Understanding Between the Idaho Office of Energy Resources and the Amalgamated Sugar Company Dated 9 October 2009." MOU presented after personal communications with Jeff Brooks (Idaho Office of Energy Resources), 17 March 2010.

[OER 2010] Idaho Office of Energy Resources 2010. "Memorandum of Understanding Between the Idaho Office of Energy Resources and the Amalgamated Sugar Company Dated 14 September 2010." MOU presented after personal communications with Jeff Brooks (Idaho Office of Energy Resources), 17 March 2010.

Jackson, Robert (Michigan Department of Energy, Labor & Economic Growth). 2011. Personal Communication. June 3.

Jenkins, David (Wisconsin Office of Energy Independence). 2011. Personal Communication. March 1.

Jerman, Trish (South Carolina Energy Office). 2011. Personal Communication. March 3

[TMI] *The Facts About Manufacturing*. 8th Edition. 2009. Washington, DC: The Manufacturing Institute.

Westberg, Jim (Arizona Commerce Authority, Energy Office). 2011. Personal communication. March 3.