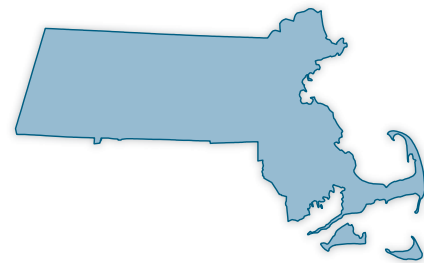




Department of Energy Recovery Act State Memos

Massachusetts



For questions about DOE's Recovery Act activities, please contact the DOE Recovery Act Clearinghouse:
1-888-DOE-RCVY (888-363-7289), Monday through Friday, 9 a.m. to 7 p.m. Eastern Time
<https://recoveryclearinghouse.energy.gov/contactUs.htm>.

All numbers and projects listed as of June 1, 2010

TABLE OF CONTENTS

RECOVERY ACT SNAPSHOT..... 1

FUNDING ALLOCATION TABLE..... 2

ENERGY EFFICIENCY 3

RENEWABLE ENERGY 5

ELECTRIC GRID..... 9

TRANSPORTATION 11

CARBON CAPTURE & STORAGE..... 11

SCIENCE AND INNOVATION 12

RECOVERY ACT SUCCESS STORIES – ENERGY EMPOWERS

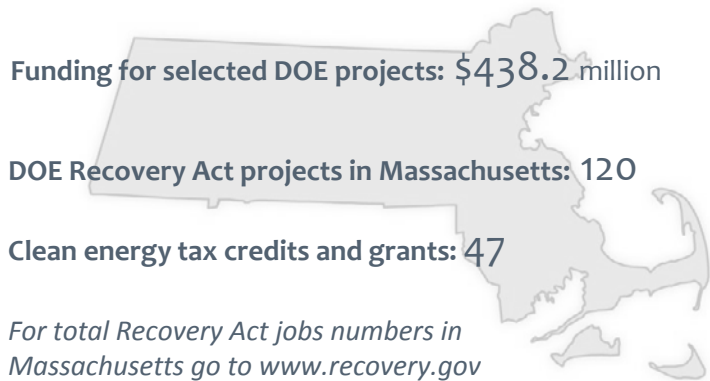
- *Massachusetts wind turbine center creates 300 jobs 13*
- *Recovery Act helps fuel cell company stay on course 13*
- *Iraq vet’s company installing solar across state 14*
- *Massachusetts achieving weatherization goals 14*
- *Business on track with focus on energy efficiency 15*
- *Solar project to spark students’ studies, school’s savings 15*



American Recovery and Reinvestment Act



U.S. DEPARTMENT OF ENERGY • MASSACHUSETTS RECOVERY ACT SNAPSHOT



For total Recovery Act jobs numbers in Massachusetts go to www.recovery.gov

The **American Recovery & Reinvestment Act (ARRA)** is making a meaningful down payment on the nation’s energy and environmental future. The Recovery Act investments in Massachusetts are supporting a broad range of clean energy projects from energy efficiency and the smart grid to solar power and biofuels. Through these investments, Massachusetts’s businesses, universities, non-profits, and local governments are creating quality jobs today and positioning Massachusetts to play an important role in the new energy economy of the future.

EXAMPLES OF MASSACHUSETTS FORMULA GRANTS

Program	State Energy Program	Weatherization Assistance Program	Energy Efficiency Conservation Block Grants	Energy Efficiency Appliance Rebate Program
Award (in millions)	\$54.9	\$122.1	\$43.1	\$6.2
	The Commonwealth of Massachusetts has received \$54.9 million in State Energy Program funds to invest in state-level energy efficiency and renewable energy priorities.	The Commonwealth of Massachusetts has received \$122.1 million in Weatherization Assistance Program funds to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions, and saving money for Massachusetts’ low-income families. Over the course of the Recovery Act, Massachusetts expects to weatherize nearly 17,000 homes. The program also includes workforce training and education as part of the state’s efforts to develop a green workforce.	Forty-five communities in Massachusetts have received a total of \$43.1 million for Energy Efficiency and Conservation Block Grants (EECBG) to develop, promote, implement, and manage local energy efficiency programs.	The Commonwealth of Massachusetts has received \$6.2 million for the Energy Efficient Appliance Rebate Program, which offers consumer rebates for purchasing certain ENERGY STAR® appliances. These energy efficient appliances reduce energy use and save money for families, while helping the environment and supporting the local economy.

EXAMPLES OF MASSACHUSETTS COMPETITIVE GRANTS AND TAX CREDITS

Award	\$35 million	\$24.8 million	\$24.1 million	\$11.4 million	\$9 million
	Massachusetts Institute of Technology in Cambridge and University of Massachusetts in Amherst have been awarded a combined \$35 million to fund 16 Energy Frontier Research Centers for five years.	The Clean Energy Technology Center in Boston has been awarded \$24.8 million to test commercial-sized wind turbine blades.	Beacon Power Corporation has been awarded \$24.1 million for a Smart Grid Regional and Energy Storage Demonstration Project . There are multiple project locations across the state.	Honeywell International, Inc. has been awarded \$11.4 million to deploy an Auto CPP solution. There are multiple project locations across the state.	Massachusetts received forty-three 1603 payments for renewable energy generation totaling \$9 million , which include solar, wind, and biomass projects. For example, BCC Solar Energy Advantage Inc. received \$1 million for a solar project.

Funding Allocation Table (Figure 1)

Total dollar amounts in this document are accurate as of June 1, 2010. Please note that Recovery Act Programs are ongoing and the dollar amounts are subject to change. Recipient locations are based on project sites rather than recipients' headquarters locations.

Recovery Act Pillar	Flagship Program Names & Funding Type ¹	Number of Selections	Selected Amount (in millions) ²
Energy Efficiency	<i>Weatherization Assistance Program (F)</i>	1	\$122.1
	<i>State Energy Program (F)</i>	1	\$54.9
	<i>Energy Efficiency and Conservation Block Grant (F)</i>	45	\$43.1
	<i>BetterBuildings (CM)</i>	1	\$5.0
	<i>Energy Efficient Appliance Rebate (F)</i>	1	\$6.2
	<i>Building Energy Efficiency (CM)</i>	1	\$1.4
	<i>Industrial Energy Efficiency (CM)</i>	1	\$0.5
	TOTAL Energy Efficiency	51	\$233.2
Renewable Energy	<i>Solar (CM)</i>	5	\$4.8
	<i>Wind (CM)</i>	2	\$25.3
	<i>Geothermal (CM)</i>	3	\$4.7
	TOTAL Renewable Energy	10	\$34.8
Electric Grid	<i>Smart Grid Investment and Demonstrations Project (CM)³</i>	10	\$76.3
	<i>State and Local Energy Assurance and Regulatory Assistance (F)</i>	2	\$1.1
	<i>Smart Grid Workforce Training (CM)³</i>	1	\$2.2
	TOTAL Electric Grid	13	\$79.6
Transportation	<i>Transportation Electrification (CM)</i>	1	\$4.4
	TOTAL Transportation	1	\$4.4
Carbon Capture and Storage	<i>CCS Projects (CM)</i>	1	\$0.6
	<i>Research and Training (CM)</i>	2	\$0.6
	TOTAL Carbon Capture and Storage	3	\$1.2
Science and Innovation	<i>Advanced Research Projects Agency - Energy (ARPA-E) (CM)</i>	6	\$33.3
	<i>Energy Frontier Research Centers (CM)</i>	2	\$35.0
	<i>Small Business Research (SBIR/STTR) (CM)</i>	24	\$3.7
	<i>National Laboratory Facilities (C)</i>	1	\$5.0
	<i>Additional Programs</i>	9	\$8.0
	TOTAL Science and Innovation	42	\$85.0
TOTAL - DOE Programs⁴		120	\$438.2
Tax Credits/ Grants ⁵	<i>Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)</i>	43	\$9.0
	<i>Clean Energy Manufacturing Tax Credits (48C)</i>	4	\$5.1
	TOTAL Tax Incentives	47	\$14.1
TOTAL - DOE/Treasury + DOE		167	\$452.3
¹ F=Formula Grant, CM=Competitive Grant, C=Contract			
² "Selected" indicates DOE has selected a potential funding recipient, which begins the process of negotiating an agreement. This does not necessarily indicate that a final agreement has been reached.			
³ Projects may cross state boundaries, signifies HQ location.			
⁴ Total does not include administrative funds.			
⁵ Jointly administered by DOE and the U.S. Department of Treasury.			

ENERGY EFFICIENCY – 51 projects totaling \$233.2 million

Helping millions of American families cut utility bills by making homes and appliances more energy efficient, expanding the home efficiency industry in sales and manufacturing. For more information, visit <http://www.energy.gov/recovery/energyefficiency.htm>.

Award(s): \$122.1 million, Weatherization Assistance Program (WAP)

Location: Statewide

Massachusetts received \$122.1 million in Weatherization Assistance Program funds to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions, and saving money for Massachusetts' low-income families. Over the course of the Recovery Act, Massachusetts expects to weatherize nearly 17,000 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce. Massachusetts is building a Clean Energy Center to train and support the growing energy-efficiency workforce in the state. Under the program, Massachusetts is increasing the number of auditors and other professionals in its workforce to meet weatherization demands.

Award(s): \$54.9 million, State Energy Program (SEP)

Location: Statewide

The Commonwealth of Massachusetts received \$54.9 million in State Energy Program funds to invest in state-level energy efficiency and renewable energy priorities. Massachusetts is using the funds to advance energy efficiency across the state, especially in the building environment. The Governor's Energy Task Force identified a number of energy efficiency retrofit projects at public facilities that hold potential for energy and cost savings. The state is leveraging SEP funds for these projects by using performance contracts wherever possible.

Award(s): 45 totaling \$43.1 million, Energy Efficiency and Conservation Block Grant Program (EECBG)

Location: Statewide

Recipients: Amherst, Arlington, Attleboro, Barnstable, Beverly, Billerica, Boston, Brockton, Brookline, Cambridge, Chelsea, Chicopee, Pittsfield, Revere, Everett, Fall River, Fitchburg, Framingham, Haverhill, Holyoke, Lawrence, Leominster, Lowell, Lynn, Malden Redevelopment Authority, Marlborough, Mashpee Wampanoag Tribe, Commonwealth of Massachusetts, Medford, Methuen, New Bedford, Newton, Peabody, Plymouth, Quincy, Salem, Somerville, Springfield, Taunton, Barnstable, Weymouth, Waltham, Westfield, Woburn, Worcester

Forty-five communities in Massachusetts received a total of \$43.1 million for the Energy Efficiency and Conservation Block Grants Program (EECBG) to develop, promote, implement and manage local energy efficiency programs.

Massachusetts is using its Recovery Act EECBG funds to advance efficiency and conservation goals at the community level. To maximize return on these investments, the commonwealth is leveraging private capital and expertise from local and non-local partners. The majority of Massachusetts' EECBG allocation, administered by the Department of Energy Resources (DOER), is passed to cities and counties with populations less than 35,000. Examples of EECBGs include:

- **City of Boston - \$6.5 million**

The City of Boston received \$6.5 million to provide Boston's residents and small businesses with the financial resources to make their homes and workplaces more efficient while cutting energy bills. Additionally, small portions of the EECBG grant fund various municipal energy efficiency and renewable energy projects. Under the Energy Retrofit Program for existing homes, the City of Boston encourages homeowners to make energy-efficient retrofits. EECBG funds support a weatherization program for homeowners with 60-120 percent of state median income. The EECBG program will also help promote Mayor Menino's "Renew Boston" initiative goals.

Award(s): \$6.2 million, Energy Efficient Appliance Rebate Programs

Location: Statewide

Massachusetts received \$6.2 million for the Energy Efficient Appliance Rebate Program, which offers consumer rebates for purchasing certain ENERGY STAR® appliances. These energy efficient appliances reduce energy use and save money for families, while helping the environment and supporting the local economy. Massachusetts is implementing a mail-in rebate program that helps residents replace older, inefficient appliances with new, ENERGY STAR qualified and ultra-energy efficient appliances.

Award(s): \$5 million, BetterBuildings

Location: Lowell

The City of Lowell received \$5 million for the BetterBuildings program. The Carbon-Neutral Lowell Park and Preservation District initiative is creating a model to demonstrate how energy efficiency upgrades can meet historical preservation standards. The project is partnering with the state's historic preservation office and the National Park Service to demonstrate how energy efficiency retrofits can be achieved in historic buildings while adhering to historic standards. Individual project financing includes a combination of utility rebates, owner contributions and other available grants and loans.

Award(s): \$500,000, Industrial Assessment Centers and Plant Best Practices

Location: Boston

The Commonwealth of Massachusetts received \$500,000 for Industrial Assessment Centers and Plant Best Practices. Funds provide industrial assessments that will help improve energy efficiency and reduce carbon emissions in the New England area. To expedite the implementation rate of the assessments, CEERE is organizing assessment meetings that include the client, client selected vendors and representatives from the state.

Award(s): \$1.4 million, Solid State Lighting

Location: Beverly

Osram Sylvania, Inc., in Beverly received \$1.4 million for a Solid State Lighting project that involves an LED based linear fluorescent replacement luminaire.

RENEWABLE ENERGY – 57 projects totaling \$48.9 million

Developing the clean renewable resources in order to double our supply of renewable energy and boost domestic renewable manufacturing capacity. For more information, visit <http://www.energy.gov/recovery/renewableenergy.htm>.

Award(s): 43 payments totaling \$9 million from DOE / Treasury, 1603 Payments for Renewable Energy Generation

Location: Statewide

*For current number of 1603 awards, see the weekly update at <http://www.treas.gov/recovery/1603.shtml>

- **BCC Solar Energy Advantage, Inc., 10 Locations Statewide - \$3.3 million**
BCC Solar Energy Advantage, Inc., received \$3.3 million for solar electricity projects.
- **National City Energy Capital, LLC - Watertown - \$990,000**
National City Energy Capital, LLC, in Watertown received \$990,000 for a solar electricity project.
- **Acton Bio Energy, LLC, Acton - \$704,000**
Acton Bio Energy, LLC, in Acton received \$704,000 for a biomass project.
- **Forbes Park, LLC, Chelsea - \$621,000**
Forbes Park, LLC, in Chelsea received \$621,000 for a wind project.
- **MRW Business Trust, Newburyport - \$570,000**
MRW Business Trust in Newburyport received \$570,000 for a wind project.
- **Millipore Corporation, Bedford - \$306,000**
Millipore Corporation in Bedford received \$306,000 for a solar electricity project.
- **Millipore Corporation, Billerica - \$302,000**
Millipore Corporation in Billerica received \$302,000 for a solar electricity project.
- **Unistress Corporation, Pittsfield (2) - \$299,000**
Unistress Corporation in Pittsfield received two payments totaling \$299,000 for solar electricity projects.
- **Kingman Yacht Center, Inc., Cataumet - \$249,000**
Kingman Yacht Center, Inc., in Cataumet received \$249,000 for a solar electricity project.
- **Sunsetter Products, LP, Malden - \$202,000**
Sunsetter Products, LP, in Malden received \$202,000 for a solar electricity project.
- **Delaware Valley Corporation, Tewksbury - \$195,000**
Delaware Valley Corporation in Tewksbury received \$195,000 for a solar electricity project.
- **Matouk Textile Works, Inc., Fall River - \$185,000**
Matouk Textile Works, Inc., in Fall River received \$185,000 for a solar electricity project.

- **Lighthouse Masonry, Inc., New Bedford - \$106,000**
Lighthouse Masonry, Inc., in New Bedford received \$106,000 for a solar electricity project.
- **Great Bridge Attleboro Limited Partnership, Attleboro - \$101,000**
Great Bridge Attleboro Limited Partnership in Attleboro received \$101,000 for a solar electricity project.
- **Whaling City Transit, Inc., Westport - \$95,000**
Whaling City Transit, Inc., in Westport received \$95,000 for a solar electricity project
- **Monnick Supply Company, Framingham - \$76,000**
Monnick Supply Company in Framingham received \$76,000 for a solar electricity project.
- **Crosby & Baker, Ltd., Westport - \$69,000**
Crosby & Baker, Ltd., in Westport received \$69,000 for a solar electricity project.
- **Munro Distributing Company, Inc., New Bedford - \$64,000**
Munro Distributing Company, Inc., in New Bedford received \$64,000 for a solar electricity project.
- **Munro Distributing Company, Inc., Brockton - \$62,000**
Munro Distributing Company, Inc., in Brockton received \$62,000 for a solar electricity project.
- **Village Green Residential, LLC, Tewksbury - \$59,000**
Village Green Residential, LLC, in Tewksbury received \$59,000 for a solar electricity project.
- **Cavallo-Cavallo, Inc., New Bedford - \$50,000**
Cavallo-Cavallo, Inc., in New Bedford received \$50,000 for a solar electricity project.
- **Saphire Estate, Sharon - \$50,000**
Saphire Estate in Sharon received \$50,000 for a solar electricity project.
- **Cotuit Solar, LLC, Marstons Mills - \$39,000**
Cotuit Solar, LLC, in Marstons Mills received \$39,000 for a wind project.
- **Cleary Nominee Land Trust, East Falmouth - \$34,000**
Cleary Nominee Land Trust in East Falmouth received \$34,000 for a solar electricity project.
- **Trolley Crossing Farm, Bellingham - \$34,000**
Trolley Crossing Farm in Bellingham received \$34,000 for a solar electricity project.
- **Titus Realty, LLC, Plainville - \$33,000**
Titus Realty, LLC, in Plainville received \$33,000 for a rental property.

- **Ralph P. Pollack, DMD, MSCD, PC, Dartmouth - \$26,000**
Ralph P. Pollack, DMD, MSCD, PC, in Dartmouth received \$26,000 for a solar electricity project.
- **Red Apple Farm, LLC, Phillipston - \$25,000**
Red Apple Farm, LLC, in Phillipston received \$25,000 for a wind project.
- **Richard A Bursch, dba Lakeview Nurseries, Lunenburg - \$22,000**
Richard A Bursch, dba Lakeview Nurseries, in Lunenburg received \$22,000 for a solar electricity project.
- **Greenhouse Car Wash, Inc., Oxford - \$17,000**
Greenhouse Car Wash, Inc., in Oxford received \$17,000 for a solar electricity project.
- **Harp & Eagle Restaurant Co., Inc., dba O'Connor's Restaurant & Bar, Worcester - \$13,000**
Harp & Eagle Restaurant Co., Inc., dba O'Connor's Restaurant & Bar in Worcester received \$13,000 for a solar electricity project.
- **King Phillip Restaurant and Hotel, Phillipston - \$12,000**
King Phillip Restaurant and Hotel in Phillipston received \$12,000 for a solar thermal project.
- **Paradise Hill Farm, Westport - \$3,000**
Paradise Hill Farm in Westport received \$3,000 for a wind project.

Award(s): 4 totaling \$5.1 million from DOE / Treasury, Clean Energy Manufacturing Tax Credit (48C)
Location: Statewide

- **Premium Power, North Reading - \$3 million**
Premium Power in North Reading received \$3 million to establish a manufacturing facility that produces its proprietary Zinc-Flow advanced renewable energy storage systems. The technology delivers high energy storage density, long product life and deep discharge capability for use in the Smart Grid.
- **CertainTeed Corporation, Norwood - \$1 million**
CertainTeed Corporation in Norwood received \$1 million to manufacture residential cool shingles that meet or exceed ENERGY STAR criteria and are LEED certified. The high-solar reflecting shingles reduce the electricity required for cooling, GHG and smog formation while maintaining aesthetically pleasing colors.
- **Airxchange, Inc., Rockland - \$921,000**
Airxchange, Inc., in Rockland received \$921,000 to expand a facility to produce Enthalpy / Energy Recovery Wheels (ERWs) that recycle up to 80 percent of previously expended energy in building exhaust air. The products allow the preconditioning of incoming air five to seven times more efficiently than conventional heating and air-conditioning systems. This reduces design heating, cooling, humidification and dehumidification loads and conserves energy in summer and winter.

- **GreenRay, Inc., Westford - \$180,000**

GreenRay, Inc., in Westford received \$180,000 to manufacture a simplified "plug and play" AC solar electricity system for residential rooftops.

Award(s): 2 totaling \$3.8 million from DOE, Enhanced Geothermal Systems (EGS) Technology R&D

Location: North Dighton, Cambridge

- **Draka Cableteq USA, Inc., North Dighton - \$3.2 million**

Draka Cableteq USA, Inc., in North Dighton received \$3.2 million to develop a high-tech cable that accurately measures temperature and pressure in extreme environments.

- **Massachusetts Institute of Technology, Cambridge - \$549,000**

Massachusetts Institute of Technology in Cambridge received \$549,000 to develop a decision analysis tool for EGS.

Award(s): \$911,000, Geothermal Demonstrations

Location: Cambridge

Oasys Water in Cambridge received \$911,000 to develop a new method for utilizing low temperature geothermal fluids to produce power.

Award(s): \$1.3 million, High-Penetration Solar Deployment

Location: Boston

The City of Boston received \$1.3 million to integrate solar into Boston's emergency response infrastructure. Slated aspects of this project include installing backup PV systems at Boston's main emergency-vehicle fueling station, solar-powered traffic control and monitoring equipment, lighting and emergency radio repeaters.

Award(s): \$24.8 million, Large Wind Turbine Blade Testing Facility

Location: Boston, Charlestown

Clean Energy Technology Center in Boston and Charlestown received \$24.8 million to test commercial-sized wind turbine blades. This research has the potential to reduce cost, improve technical advancements and speed deployment of the next generation of wind turbine blades into the marketplace.

Award(s): 4 totaling \$3.4 million, Photovoltaic (PV) Systems Development

Location: Statewide

- **Varian Semiconductor Equipment Associates, Inc., Gloucester - \$3 million**

Varian Semiconductor Equipment Associates, Inc., in Gloucester received \$3 million to develop a manufacturing tool that produces sheets of single-crystal film silicon in a continuous mode. This method has significantly higher throughput and lower material costs than conventional manufacturing processes.

- **Photonic Glass Corporation, Sharon - \$149,000**

Photonic Glass Corporation in Sharon received \$149,000 to reduce glass surface reflectance by ion beam surface modification to create a graded index of refraction.

- **Alenas Imaging, Inc., Conway - \$148,000**
Alenas Imaging, Inc., in Conway received \$148,000 to develop an inspection tool that detects micro-cracks in PV cells using thermo-reflectance. This is achieved at one-tenth the equipment cost of the best current methods.
- **SiOnyx, Inc., Beverly - \$128,000**
SiOnyx, Inc., in Beverly received \$128,000 to develop a silicon surface treatment with femtosecond laser processing technology. This surface treatment enables increased light absorption and significantly larger spectral bandwidth for film silicon PV.

Award(s): \$500,000, Wind Energy Technology R&D and Testing

Location: Lowell

The University of Massachusetts in Lowell received \$500,000 to research the effect of manufacturing-induced defects on reliability of composite wind turbine blades.

MODERNIZING THE ELECTRIC GRID – 13 projects totaling \$79.6 million

Harnessing clean energy sources and integrating them onto a modernized electric grid, while giving consumers better choices and more control over their energy use. For more information, visit <http://www.energy.gov/recovery/smartgrid.htm>.

Award(s): 2 totaling \$1.1 million, Enhancing State and Local Governments' Energy Assurance

Location: Boston

This project focuses on building regional energy assurance capability by enhancing inter- and intra-state coordination and cooperation during energy emergencies. The project funds states to update or develop State Energy Assurance Plans incorporating new energy portfolios such as wind, renewables and biofuels. The project also funds cities to update or develop Local Energy Assurance Plans. The two sets of funding are used to hire or retrain staff to build in-house expertise in dealing with Smart Grid technologies, critical energy infrastructure interdependencies and cyber-security.

- **Commonwealth of Massachusetts, Boston - \$796,000**
The Commonwealth of Massachusetts received \$796,000 for State Energy Assurance Planning.
- **City of Boston - \$300,000**
The City of Boston received \$300,000 for the Local Energy Assurance Planning (LEAP) Initiative.

Award(s): 5 totaling \$44.3 million, Smart Grid Regional and Energy Storage Demonstration Project (EISA 1304)

Location: Statewide

- **Beacon Power Corporation - \$24.1 million**
Beacon Power Corporation received \$24.1 million to demonstrate to grid operators the technical, cost and environmental advantages of fast response flywheel-based frequency regulation. Educating operators about this technology lowers the cost of building a twenty MW flywheel

energy storage plant. It also speeds deployment of this technology to other grid operator regions and stimulates international market demand for flywheel energy storage.

- **American Superconductor Corporation - \$7.8 million**
American Superconductor Corporation received \$7.8 million to develop the key components required to commercially deploy second-generation, high-temperature superconductor cables that will increase the reliability and efficiency of power delivery cables. The company is also using Recovery Act funding to demonstrate a prototype cable in the Long Island Power Authority power grid.
- **NSTAR Electric and Gas Corporation, Westwood - \$5.3 million**
NSTAR Electric and Gas Corporation in Westwood received \$5.3 million to demonstrate the use of sensors and monitoring instrumentation on low voltage (secondary) networks in downtown Boston in order to safely work with distributed resource integration. The results will greatly improve the understanding of grid status and behavior and allow for proactive maintenance that will improve safety and increase grid reliability. In addition, the results offer increased capability for integration of solar, plug-in hybrids, and battery storage.
- **American Superconductor Corporation, Westborough - \$4.8 million**
American Superconductor Corporation in Westborough received \$4.8 million to develop and demonstrate advanced technology for a fault current limiter. This limiter restricts power surges through equipment in fault conditions, such as a short circuiting, maintaining power quality and grid stability.
- **NSTAR Electric and Gas Corporation, Westwood - \$2.4 million**
NSTAR Electric and Gas Corporation in Westwood received \$2.4 million to demonstrate residential dynamic pricing (time-of-use and critical peak rates / rebates) and two-way direct load control using existing automated meter reading (AMR) equipment. The pilot demonstrates the viability of leveraging existing AMR deployments to provide much of the Smart Grid functionality of advanced metering infrastructure (AMI) without the full investment stranded costs that typically result from premature replacement of existing assets.

Award(s): 5 totaling \$32.1 million, Smart Grid Investment Grant Program (EISA 1306)

Location: Statewide

- **Honeywell DMC Services, LLC - \$11.4 million**
Honeywell DMC Services, LLC, received \$11.4 million for the deployment of Auto CPP solutions to approximately 681 commercial and industrial customers in Southern California.
- **NSTAR Gas and Electric Company - \$10.1 million**
NSTAR Gas and Electric Company received \$10.1 million to reduce grid outage impacts by fully automating the isolation of faulted circuits by sectionalizing switches and restoring power to the remaining portions of the circuits.
- **Town of Danvers - \$8.5 million**
The Town of Danvers received \$8.5 million for the deployment of AMI and MDMS fully integrated with the customer information system, upgrade to SCADA, DMS and OMS, energy management

software, and the full integration of data between CIS / GIS / SCADA / DMS / OMS / Engineering Analysis.

- **Town of Marblehead - \$1.3 million**

The Town of Marblehead received \$1.3 million for the installation of a fully integrated AMI system and a pilot program to assess effectiveness of real-time pricing and automated load management.

- **The Vineyard Energy Project, Inc., West Tisbury - \$787,000**

The Vineyard Energy Project, Inc., in West Tisbury received \$787,000 for the deployment and evaluation of a demand response program, interface for Plug-in Hybrid Electric Vehicles, installation of commercial solar arrays and smaller scale wind turbines and deployment and testing of various user-feedback systems.

Award(s): \$2.2 million, Smart Grid Workforce Training

Location: Waltham

National Grid USA Service Company in Waltham received \$2.2 million to develop and deliver materials needed to train the National Grid utility workforce in Smart Grid technology deployment and operations. This project broadly disseminates the best Smart Grid practices to community colleges, universities and energy industry associations. Advanced training in Smart Grid technologies is being provided to between 2,600 and 4,900 utility workers.

TRANSPORTATION – 1 project totaling \$4.4 million

Investing in a new generation of advanced fuels and vehicles to reduce our dependence on foreign oil and revitalize domestic manufacturing. For more information, visit <http://www.energy.gov/recovery/vehicles.htm>.

Award(s): \$4.4 million, Transportation Electrification

Location: Quincy

The National Fire Prevention Association in Quincy received \$4.4 million for electric drive vehicle education.

CARBON CAPTURE & STORAGE – 3 projects totaling \$1.2 million

Developing clean coal technologies so we can utilize America's coal resources sustainably. For more information, visit <http://www.energy.gov/recovery/ccs.htm>.

Award(s): 2 totaling \$599,000, Geologic Sequestration Training and Research Grant Program

Location: Cambridge

- **Massachusetts Institute of Technology, Cambridge - \$300,000**

Massachusetts Institute of Technology in Cambridge received \$300,000 to characterize the growth requirements and optima of a biofilm-producing supercritical carbon dioxide (scCO₂)-tolerant microbial consortium. This project is evaluating the ability of this consortium to grow and reduce permeability in sandstone cores under simulated reservoir conditions associated with scCO₂ injection, as well as isolating and characterizing individual microbial strains from this consortium. Researchers will investigate the mechanisms of scCO₂ tolerance in isolated strains

and the consortium through genome-enabled and metagenomic studies, respectively, and perform field work to analyze the microbial diversity and enrich for scCO₂ tolerant microbes at a planned carbon capture and sequestration site. This project is supporting at least two graduate students during the research effort.

- **Massachusetts Institute of Technology, Cambridge - \$299,000**

Massachusetts Institute of Technology in Cambridge received \$299,000 to develop tools for better understanding, modeling and risk assessment of carbon dioxide permanence in geologic formations at the geologic basin scale. This project works to develop mathematical models of capacity and injectivity at the basin scale, apply quantitative risk assessment methodologies that will inform on carbon dioxide permanence, and apply the models to geologic basins across the continental United States. This project is supporting one graduate and undergraduate student during the research effort.

Award(s): \$573,000, Industrial Carbon Capture and Storage Applications

Location: Lowell

The University of Massachusetts in Lowell received \$573,000 to develop carbon dioxide-water emulsions for enhanced oil recovery and permanent sequestration of carbon dioxide.

SCIENCE AND INNOVATION – 42 projects totaling \$85 million

Renewing our commitment to science and innovation to ensure global competitiveness in the future. For more information, visit <http://www.energy.gov/recovery/innovation.htm>.

Award(s): 6 totaling \$33.3 million, Advanced Research Projects Agency - Energy (ARPA-E)

Location: Statewide

- **FloDesign Wind Turbine Corporation, Wibraham - \$8.3 million**

FloDesign Wind Turbine Corporation in Wibraham received \$8.3 million to develop a new shrouded, axial-flow wind turbine known as the Mixer Ejector Wind Turbine (MEWT).

- **Massachusetts Institute of Technology , Cambridge - \$6.9 million**

Massachusetts Institute of Technology in Cambridge received \$6.9 million to develop a paradigm-shifting new "all liquid metal" grid scale battery for low cost, large scale storage of electrical energy.

- **Fastcap Systems Corporation, Cambridge - \$5.3 million**

Fastcap Systems Corporation, in collaboration with the Massachusetts Institute of Technology, both in Cambridge, received \$5.3 million to develop a groundbreaking nanotube-enhanced ultracapacitor with potential for a six times improvement in energy density and cost over the current industry state-of-the art.

- **Agrivida, Inc., Medford - \$4.6 million**

Agrivida, Inc., in Medford received \$4.6 million to develop masked cell wall degrading enzymes in plants that can be activated after harvest, dramatically reducing the cost of cellulosic biofuels and chemicals.

- **Sun Catalytix Corporation, Cambridge - \$4.1 million**
Sun Catalytix Corporation in Cambridge received \$4.1 million to develop a process that splits water molecules into hydrogen and oxygen under benign conditions. This process enables storage of intermittent renewable solar and wind energy for around-the-clock use.
- **1366 Technologies, Inc., Lexington - \$4 million**
1366 Technologies, Inc., in Lexington, in collaboration with the Massachusetts Institute of Technology in Cambridge, received \$4 million to develop new "Direct Wafer" technology to form high-efficiency, monocrystalline-equivalent solar silicon wafers directly from the silicon melt at 1/5t.

Award(s): \$5 million, Alcator C-Mod Facility Upgrades (MIT)

Location: Cambridge

Massachusetts Institute of Technology in Cambridge received \$5 million to support a one-time infrastructure upgrade and modernization program for the Alcator C-Mod Fusion Facility. This facility is to be located on site at MIT. The project is upgrading the auxiliary heating systems, power systems, and core and edge diagnostics of the facility. The additional research capabilities enabled by this project will accelerate the advancement of understanding in plasma science, fusion science and fusion technology.

Award(s): \$300,000, Computational Partnerships (SciDAC-e)

Location: Cambridge

Massachusetts Institute of Technology in Boston received \$300,000 to develop new computational tools for the analysis and reduction of complex multiscale networks.

Award(s): 2 totaling \$35 million, Energy Frontier Research Centers

Location: Cambridge and Amherst

- **Massachusetts Institute of Technology, Cambridge - \$19 million**
The Massachusetts Institute of Technology in Cambridge received \$19 million for research on and the transport of charge carriers in synthetic disordered systems, which hold promise as new materials for conversion of solar energy to electricity and electrical energy storage.
- **University of Massachusetts, Amherst - \$16 million**
The University of Massachusetts in Amherst received \$16 million to use novel, self-assembled polymer materials in systems for the conversion of sunlight into electricity.

Award(s): 6 totaling \$4.5 million, Energy Sciences Fellowships and Early Career Research Program

Location: Statewide

- **Massachusetts Institute of Technology, Cambridge - \$798,000**
Massachusetts Institute of Technology in Cambridge received \$798,000 to research predictive modeling of complex physical systems, including new tools for uncertainty quantification, statistical inference and experimental design.

- **Brandeis University, Waltham - \$750,000**
Brandeis University in Waltham received \$750,000 to research early-late heterobimetallic complexes linked by phosphinoamide ligands, tuning redox potentials and small molecule activation.
- **Harvard University, Cambridge - \$750,000**
Harvard University in Cambridge received \$750,000 to research jets at the large hadron collider.
- **Massachusetts Institute of Technology, Cambridge - \$750,000**
Massachusetts Institute of Technology in Cambridge received \$750,000 to research methods for decision under technological change uncertainty and risk assessment for integrated assessment of climate change.
- **Massachusetts Institute of Technology, Cambridge - \$750,000**
Massachusetts Institute of Technology in Cambridge received \$750,000 to research non-equilibrium physics and phase-field modeling of multiphase flow in porous media.
- **Tufts University, Medford - \$750,000**
Tufts University in Medford received \$750,000 to research superconducting technology for magnet systems in fusion machines.

Award(s): \$935,000, Enhanced Operation of Major Fusion Facilities

Location: Cambridge

Massachusetts Institute of Technology in Cambridge received \$935,000 for one-time augmentations of research and facility operations at fusion energy sciences facilities. This project will accelerate the advancement of understanding in plasma science, fusion science and fusion technology.

Award(s): \$2.2 million, Plasma Science Centers

Location: Cambridge

Massachusetts Institute of Technology in Cambridge received \$2.2 million to fund research cooperative agreements for Plasma Science Centers and accelerate the advancement of understanding in plasma science.

Award(s): 24 totaling \$3.7 million, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1

Location: Statewide

- **Physical Sciences, Inc., Andover \$250,000**
Physical Sciences, Inc., in Andover received \$250,000.
- **Kazak Composites, Inc., Woburn - \$150,000**
Kazak Composites, Inc., in Woburn received \$150,000 to research the automated production of fire resistant insulating roof panels that incorporate phase change materials for thermal load shifting.

- **Kse, Inc., Sunderland - \$150,000**
Kse, Inc., in Sunderland received \$150,000 to research energy efficient reactive dehydration of acetic acid by hybrid reactive distillation and membrane separation.
- **Kse, Inc., Sunderland - \$150,000**
Kse, Inc., in Sunderland received \$150,000 to research the manufacture of poly vinyl butyral by reactive distillation.
- **Nemometrics Corporation, Boston - \$150,000**
Nemometrics Corporation in Boston received \$150,000 to research a nonintrusive utility monitor.
- **Porogen Corporation, Woburn - \$150,000**
Porogen Corporation in Woburn received \$150,000 to research compact polymeric heat exchanger.
- **Resolute Marine Energy, Inc., Boston - \$150,000**
Resolute Marine Energy, Inc., in Boston received \$150,000 to research a variable-geometry oscillating wave surge converter paddle for maximum power output and survivability.
- **Telaztec, LLC, Burlington - \$150,000**
Telaztec, LLC, in Burlington received \$150,000 to research large-scale, low-cost, nano-structure fabrication for high efficiency solid state lighting.
- **Physical Sciences, Inc., Andover - \$150,000**
Physical Sciences, Inc., in Andover received \$150,000 to research advanced laser machining techniques for cooling holes in gas turbines.
- **Triton Systems, Inc., Chelmsford - \$150,000**
Triton Systems, Inc., in Chelmsford received \$150,000 to develop nano-crystalline fiber aluminum composite for ground vehicle wear components.
- **Spectral Sciences, Inc., Burlington - \$150,000**
Spectral Sciences, Inc., in Burlington received \$150,000 to research real-time remote detection of hr-voc content in flares.
- **Nanotrons Corporation, Woburn - \$150,000**
Nanotrons Corporation in Woburn received \$150,000 to research carbon nanotubes.
- **Coincident, Inc., Lakeville - \$150,000**
Coincident, Inc., in Lakeville received \$150,000 to research multi-protocol energy management gateway for home-area networks.
- **Nanotrons Corporation, Woburn - \$150,000**
Nanotrons Corporation in Woburn received \$150,000 to research self-assembled tio2 UV protection layer for cool roof pigment application.

- **Covalent Solar, Inc., Cambridge - \$150,000**
Covalent Solar, Inc., in Cambridge received \$150,000 to research organic solar concentrators for low-cost solar power generation.
- **Tiax, LLC, Cambridge - \$150,000**
Tiax, LLC, in Cambridge received \$150,000 to research innovative phase change materials.
- **Machflow Energy, Inc., Worcester - \$150,000**
Machflow Energy, Inc., in Worcester received \$150,000 to develop a novel air conditioning and refrigeration system based on the Bernoulli effect, with zero direct greenhouse impact.
- **Giner Electrochemical Systems, LLC, Newton - \$150,000**
Giner Electrochemical Systems, LLC, in Newton received \$150,000 to research advanced membrane technology for the hybrid sulfur process electrolyzer.
- **Wilson Turbopower, Inc., Woburn - \$150,000**
Wilson Turbopower, Inc., in Woburn received \$150,000 to research large silicon nitride blisks for high-efficiency gas turbines.
- **Physical Sciences, Inc., Andover - \$149,000**
Physical Sciences, Inc., in Andover received \$149,000 to research solarflex, surface plasmon energy trapping on organic solar cell.
- **Aerodyne Research, Inc., Billerica - \$147,000**
Aerodyne Research, Inc., in Billerica received \$147,000 to research vaporization cooling for igcc turbines.
- **Aspen Systems, Inc., Marlborough - \$146,000**
Aspen Systems, Inc., in Marlborough received \$146,000 to research nano-structured dispersion strengthened aluminum alloy.
- **Nano-c, Inc., Westwood - \$146,000**
Nano-c, Inc., in Westwood received \$146,000 to research nanocomposite structures for OPV devices.
- **Nanolab, Inc., Newton - \$135,000**
Nanolab, Inc., in Newton received \$135,000 to research the in-situ growth process for energy storage applications.

ENERGYEMPOWERS.GOV

Recovery Act Success Stories

Energy Empowers is a U.S. Department of Energy clean energy information service. Our team produces stories featuring the people and businesses that are fueling the energy transformation and economic recovery in America.

For more stories from your state, go to energyempowers.gov/Massachusetts



BOSTON

Massachusetts wind turbine center creates 300 jobs

When Patrick Cloney — executive director of the Massachusetts Clean Energy Center — had his first child in 2004, he was concerned about what the world would look like for the next generation.

“I thought we’d look so different environmentally if we don’t start employing renewable energy technologies,” he says. “I started looking at the industry and exploring opportunities.”

Massachusetts created the CEC in 2008. Not long after, the U.S. Department of Energy awarded Massachusetts \$25 million in Recovery Act funding to accelerate development of a Wind Technology Testing Center in Charlestown that will create as many as 300 construction, 30 design team and eight administrative jobs. The project may not have survived without stimulus money.

“When the numbers started coming in on what this project was going to cost, we ended up with options of dialing back the scope or finding a way to bridge the gap we had in funding,” Cloney says. “If

“Life is about leadership. I’m glad there were people willing to put their name on the dotted line and say this is important for the environment, job creation, the energy industry and future generations. I’m ecstatic.” - Patrick Cloney, executive director of the Massachusetts Clean Energy Center

its kind in the world.

“We believe if we create this environment where ideas can be validated, it just increases the speed at which commercialization can happen,” Cloney says. “It’s like a gigantic flywheel — when stationary, it takes a lot of energy to get started, but once it’s up to speed, it’s impossible to stop it. That’s the feeling we have around here.”

Now Cloney is more confident about the country’s ability to decrease its dependence on foreign oil.

“Life is about leadership,” he says. “I’m glad there were people willing to put their name on the dotted line and say this is important for the environment, job creation, the energy industry and future generations. I’m ecstatic.”

BILLERICA

Recovery Act helps fuel cell company stay on course

An innovative company in Billerica, Mass., is taking steps to equip a major supermarket chain in the Southwest with high-performance, clean-energy fuel cells for its hundreds-strong forklift fleet. In a recently-started pilot program helped along by money from the Recovery Act, Nuvera Fuel Cells Inc. upgraded 14 forklifts at the South Texas distribution center of H-E-B to test the performance of fuel cells. If H-E-B likes the results, it could deploy additional fuel cells in its forklifts and Nuvera could start hiring new workers into more than 100 green jobs beginning as soon as January 2010.

But first, the technology must prove itself on the warehouse floor.

“They have a certain expectation, and so do we,” says Roberto Cordaro, CEO of Nuvera, about the pilot program.

Cordaro knows his customers want not only a clean-energy product, but also something that will help them increase productivity.

“It needs to make sense from an operational standpoint,” Cordaro says. “It needs to make their fleet operate more effectively than it does today.”

Fuel cells will lower the grocery distributor’s costs by decreasing maintenance times – the batteries in use today take longer to swap out than the time it takes to refuel the cells – cutting materials and labor costs. Just how much cost savings will be realized will be measured in this first deployment. Fuel cells will also reduce the company’s carbon footprint, he adds.

Forklifts powered by fuel cells should not experience any voltage drops over the duration of a shift, offering a performance increase over batteries that could reap big rewards for H-E-B. The demonstration effort has been aided by a \$1.1 million award to Nuvera from the U.S. Department of Energy.

When Cordaro took the helm of Nuvera in 2002, he set the company on a course that would push the envelope of fuel cell technology and build an economical, clean-energy power source for use in industrial equipment. After spending 21 years in the automotive industry at Cummins Inc., a major diesel engine manufacturer, Cordaro brought the know-how and drive the company would need to build an ultra-clean power source.

“The challenge and opportunity of building a business around clean-energy power plants were very important factors in my decision to engage with Nuvera,” Cordaro says.

San Antonio-based H-E-B is a privately held grocery store chain with more than 300 stores and 57,000 employees in Texas and northern Mexico. In April, the U.S. Department of Energy awarded Nuvera with up to \$1.1 million under the Recovery Act, which helped it maintain its fuel cell demonstration efforts.

NORTH ANDOVER

Iraq vet’s company installing solar across state

Dan Leary, an Iraq war veteran, is president of Nexamp Inc., a clean energy company that specializes in solar installation. Dan founded the company in 2006 and has witnessed its impressive growth from six employees to 45 and counting.

The small company recently reached a significant milestone — it was awarded one of the largest solar contracts in Massachusetts.

Dan served in the military for seven years, reaching the rank of captain in the Army. He says his idea for a clean energy company came in 2005 when he was pursuing his M.B.A while serving in Iraq.

“For my final project, I wrote a business plan for a clean energy company, and when I came back to Massachusetts I immediately started to build a business here,” he says. “Once we started, we continued to grow.”

Dan and a small team of employees, many his fellow veterans, began working towards a common goal, “One of the most important topics of our generations is national security — all the energy we can produce here is less energy we can import from elsewhere.”

Nexamp, along with partner Florence Electric, has been awarded \$20 million in Recovery Act funds for a statewide solar installation project. Massachusetts Governor Deval Patrick recently announced that the companies will install 4.1 MW of solar energy at 12 municipal

and regional public water and wastewater treatment facilities.

“It will require Nexamp’s design, engineering, and project management services, along with services from numerous partners,” Dan says. The project is expected to be completed by July 2011.

“Over the past three years, we have built a vibrant solar industry in Massachusetts – quadrupling the number of companies and more than doubling the number of jobs in the solar energy sector,” Gov. Patrick says. “These projects continue that success — putting federal stimulus dollars to work installing solar panels that will produce clean, renewable power for municipalities.”

The 12 water facilities ensure locals have a continual supply of clean drinking water that meets Massachusetts quality standards. Massachusetts Secretary of Energy and Environmental Affairs Ian Bowles explains the significance, “Wastewater and drinking water facilities are vitally important to Massachusetts but they are also large energy hogs; more energy efficient facilities are very important from a green house gas perspective.”

“It will directly create green jobs, not only jobs for the installation of solar panels but also by purchasing solar panels from local companies. There are multiple benefits,” adds Bowles.

The project will save Massachusetts \$650,000 in energy costs per year.

Massachusetts achieving weatherization goals

As the state of Massachusetts advances toward its goal of weatherizing approximately 17,000 homes over three years, thousands of residents across the Bay State have already felt the impact of its expanded program.

Massachusetts has hired 35 energy auditors, roughly 140 weatherization workers and about 30 administrators to keep up with the surge in weatherization work made possible by an \$86 million slice of the state’s Recovery Act money. Twenty-eight additional contracting companies have been added to the 55 the state already used to weatherize homes.

“Every week, we’re trying to bring in a new contractor. The more we can get, the more work we can do,” says Ken Rausedo, manager of the state’s energy conservation unit. “There are still so many people on the waiting list.”

In addition to hiring contractors and purchasing equipment including blower doors, infrared scanners and combustion test equipment used to optimize homes for energy efficiency, the state has also set aside about \$1 million in stimulus money for its new weatherization training center where contractors get trained and certified to do this important and money-saving work.

“It’s a steep learning curve,” Ken says. “It takes time to get a contractor up to the level where we think it can meet our high standards for this program.” After completing classroom and hands-on training, the contractors have to pass a rigorous test before they receive any money. “We have a tight quality control system to ensure against fraud, waste and abuse.”

Massachusetts’s weatherization program has been tightening up homes since 1979. In 2008, it retrofitted more than 2,600 of them with funding from the Department of Energy and state utility programs. In 2010 that figure is set to double.

With so much weatherization work yet to be done, Ken says the state plans to hire about 50 more companies, creating roughly 200 more jobs.

ALLSTON

Business on track with focus on energy efficiency

With general contractors in a slump during the recession, the Recovery Act has thrown a lifeline to businesses such as Boston Green Building, a Massachusetts-based residential construction company. Launched in 2007 by Brian Butler, BGB specializes in zero-energy homes, weatherization and renewable energy projects. Brian got into the field seven years ago, and since then, he's seen a dramatic increase in work for specific energy-efficient improvements, such as insulating homes.

"Our bread and butter jobs are kitchens and baths. But our weatherization work has gone from 10 percent up to about 35 percent of our business now," Brian says. "The green building movement is starting to gain incredible momentum, and I've been so deeply involved in it every day — I'm more focused on it than the average guy."

Not only has business increased this year, but BGB has also been able to convert an intern into a full-time architectural designer. The former intern, Sayo Okada, moved to the U.S. 10 years ago for college, and worked for three years at a Boston architecture firm designing childcare facilities. Sayo went back to her home in Japan for a year when her mother was sick and returned in August 2008 only to discover all her friends and coworkers had been laid off. Sayo spent a year as a server at a restaurant, searching the classifieds for architectural design openings in the Boston area, eager for a job in her field.

"I finally discovered a posting for an unpaid internship looking for someone to help out with the design of a zero energy development," she says. "It was unpaid, but I just wanted to do something."

Sayo was surprised that green buildings weren't on the American agenda when she arrived to the U.S. more than a decade ago, she says. Already in Japan, oil and utility costs had increased enough to put pressure on families to build more-efficient homes. She believes the Recovery Act is "extremely important" to the economy and hopes that the provisions within the bill promote awareness about green building and residential energy efficiency.

"The incentives established by the Recovery Act have made energy efficiency and green renovations more affordable for our clients," Sayo says. "It's really helping a lot of small businesses like ours."

The company has also been able to keep its subcontractors much busier this year, and some Boston-area homeowners see the results of the stimulus in their energy costs.

"The incentives are attractive to homeowners in our region where the cold winters dramatically increase heating bills," BGB owner Brian Butler says. "They're looking at getting back about \$3,500 from federal tax credits and state rebates for efficiency measures on their homes. Of course, over time, we expect they'll recoup the remaining cost of the work, and then some."

Before the Recovery Act introduced these incentives last winter, BGB had experienced a sharp decline in business. The new leads had stopped, current projects slowed and the company was forced to lay off three of its full-time employees. Beginning about halfway through this past summer, BGB began to see an increase in business again and Brian predicts a 20-percent growth in revenue, which he attributes to the company's business model lining up with the stimulus bill.

"Efficiency measures are in high demand right now, and many of our clients approach us halfway through a renovation or addition project to ask us to help decrease their home's energy consumption," Brian says. "These types of efficiency projects are an easier sell with the current federal and state incentives."

American taxpayers can benefit from the Residential Energy Property Credit (Section 1121) that increases the energy tax credit for homeowners' energy-efficiency improvements to their existing homes. The new law under the Recovery Act increases the tax credit to 30 percent of the cost of qualifying improvements, up to \$1,500. The credit runs through 2010.

NORTH ADAMS

Solar project to spark students' studies, school's savings

A solar installation on the roof of Drury High School in North Adams, Mass., and an integrated curriculum for students will be the result of \$300,000 in Energy Efficiency and Conservation Block Grants, funded by the Recovery Act. North Adams and neighboring Clarksburg, which also sends students to the high school, pooled their \$150,000 grants to contribute to the project.

"One of the beauties about that building is we have a rough idea of what it would take to completely power it through renewable energy, so we're looking at this first installation of solar as something we can evolve down the road to let the school eventually create all of its own energy," Mayor Richard Alcombright says.

City officials applied for the grants to install the 38-kW solar energy system last fall, shortly after taking advantage of a state-sponsored energy audit on the city's buildings that determined the school as a good location for implementing renewable energy.

Ideally, the panels will be installed this summer. The roof has already been inspected to ensure it will properly support the panels and provide enough space to add on to the system in the future. The mayor says the city is also investigating its ability to install solar arrays at a nearby landfill that would contribute to the school's available energy.

The city's administrative officer, Jay Green, says North Adams is being as aggressive as possible with its energy initiatives. "We see this project as one step in the direction of becoming a truly green community," he says.

Once installed, the school plans to include a page on its Web site dedicated to showcasing how much energy the panels are generating at any given time. Even this small group of initial panels is expected to reduce carbon emissions by 39,631 pounds annually and cut the school's energy costs by a few percentage points.

"From my perspective, the solar energy derived from this is secondary to the educational experience it will provide at the high school," Richard says. "This will be strongly built into the curriculum, and the science department is going to help students get hands-on experience with this technology."

"We see this project as one step in the direction of becoming a truly green community."

— Richard Alcombright, mayor of North Adams, Mass.
