

Department of EnergyRecovery Act State Memos

Indiana





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.

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American Recovery and Reinvestment Act



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

Funding for selected DOE projects: \$797.1 million

DOE Recovery Act projects in Indiana: 65

Clean energy tax credits and grants: 13

For total Recovery Act jobs numbers in Indiana 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 Indiana are supporting a broad range of energy projects from advanced batterv manufacturing and alternative fuels and vehicles to energy efficiency and the smart grid. Through these investments, Indiana's businesses, universities, nonprofits, and local governments are creating quality jobs today and positioning Indiana to play an important role in the new energy economy of the future.

EXAMPLES OF INDIANA FORMULA GRANTS

Program

State Energy Program

Weatherization Assistance Program

Energy Efficiency Conservation Block Grants

Energy Efficiency Appliance Rebate Program

Award (in millions)

\$68.6

priorities.

\$131.8

Governor's Office has received \$68.6 million to invest in state-level energy efficiency and renewable energy

The Indiana Lieutenant The State of Indiana has received \$131.8 million to scaleup existing weatherization efforts in the state, creating jobs, reducing carbon emissions, and saving money for Indiana's low-income families. Over the course of the Recovery Act, Indiana expects to weatherize more than 19,700 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce.

\$42.4

Thirty-four communities in Indiana have received a total of \$42.4 million to develop, promote, implement, and manage local energy efficiency programs.

\$6.1

The Indiana Lieutenant Governor's Office has received \$6.1 million to offer 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 INDIANA COMPETITIVE GRANTS AND TAX CREDITS

Award

EnerDel, Inc. in Indianapolis has been awarded \$118.5 million to support the production of lithium-ion cells and packs for hybrid and electric vehicles.

\$118.5 million \$182.8 million

Indiana received six 1603 payments for renewable energy generation totaling \$182.8 million, which include solar, wind, and geothermal projects. For example, **Meadow Lake Wind** Farm LLC received \$113.2 million for a wind energy project.

\$89.3 million

Delphi Automotive in Kokomo has been awarded \$89.3 million to expand manufacturing capacity for existing electric drive power electronics components for both passenger and commercial vehicles.

\$62.8 million

Allison Transmission in Indianapolis has been awarded \$62.8 million to manufacture hybrid systems for the commercial truck market.

\$31.6 million

ArcelorMittal USA, Inc., in East Chicago received \$31.6 million to install an energy efficient boiler at a steel mill.

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
	Weatherization Assistance Program (F)	1	\$131.8
	State Energy Program (F)	1	\$68.6
	Energy Efficiency and Conservation Block Grant (F)	34	\$42.4
Energy Efficiency	Energy Efficient Appliance Rebate (F)	1	\$6.1
	Industrial Energy Efficiency (CM)	1	\$31.6
	Additional Programs (CM & C)	2	\$6.4
	TOTAL Energy Efficiency	40	\$286.9
	Smart Grid Investment and Demonstrations Project (CM) ³	3	\$39.3
Electric Grid	State and Local Energy Assurance and Regulatory Assistance (F)	4	\$2.0
Licotile Gila	Smart Grid Workforce Training (CM)	1	\$4.7
	TOTAL Electric Grid	8	\$46.0
	Advanced Battery Manufacturing (CM)	4	\$330.8
	Transportation Electrification (CM)	2	\$45.3
Transportation	Clean Cities Alternative Fuel and Vehicles Program (CM)	1	\$10.1
	Additional Programs (CM)	1	\$38.8
	TOTAL Transportation	8	\$425.0
Carbon Capture and Storage	Research and Training (CM)	1	\$0.3
Carbon Capture and Storage	TOTAL Carbon Capture and Storage	1	\$0.3
	Advanced Research Projects Agency - Energy (ARPA-E) (CM)	1	\$6.7
	Energy Frontier Research Centers (CM)	2	\$30.4
Science and Innovation	Small Business Research (SBIR/STTR) (CM)	3	\$0.4
	Additional Programs	2	\$1.4
	TOTAL Science and Innovation	8	\$38.9
TOTAL - DOE Programs⁴			\$797.1
	Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)	6	\$182.8
Tax Credits/ Payments⁵	Clean Energy Manufacturing Tax Credits (48C)	7	\$47.0
	TOTAL Tax Incentives	13	\$229.8
TOTAL - DOE/Treasury + DOE			\$1,026.9
¹ F=Formula Grant, CM=Competitive Gra	ant, C=Contract		
2"Selected" indicates DOE has selected necessarily indicate that a final agreement	a potential funding recipient, which begins the process of negotiatinent has been reached.	ng an agreeme	nt. This does not
³ Projects may cross state boundaries, s	ignifies HQ location.		
⁴ Total does not include administrative fu	unds.		
⁵ Jointly administered by DOE and the U	.S. Department of Treasury.		

ENERGY EFFICIENCY – 40 projects totaling \$286.9 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): \$131.8 million, Weatherization Assistance Program (WAP) Location: Statewide

Indiana received \$131.8 million to increase existing weatherization efforts in the state, create jobs, reduce carbon emissions and save money for Indiana's low-income families. Over the course of the Recovery Act, Indiana aims to weatherize more than 19,700 homes. The program also includes workforce training and education as part of the state's efforts to develop a green workforce. The Weatherization Assistance Program (WAP) provides comprehensive weatherization services to low-income households. Activities include, but are not limited to: furnace and water heater health and safety evaluation, repair and / or replacement; insulation of the attic, sidewalls, or other un-insulated areas; and measured and cost effective air sealing of the structure. Services are designed to reduce energy consumption and utility costs for heating low-income homes.

Award(s): \$68.6 million, State Energy Program (SEP) Location: Statewide

The Indiana Lieutenant Governor's Office received \$68.6 million for investment in state-level energy efficiency and renewable energy priorities. The program includes a competitive loan program to promote energy efficiency in the commercial, industrial and manufacturing sectors in the State which will provide financial assistance for the implementation of energy efficient technologies such as lighting, controls and sensors, insulation, and appliances. Recovery Act funds are also being used to support training programs, public energy outreach and educational campaigns providing information to consumers on the importance of energy conservation, as well as tips on how to reduce their personal energy consumption.

Award(s): 34 totaling \$42.4 million, Energy Efficiency and Conservation Block Grant Program (EECBG)

Location: Statewide

Recipients: Allen, Anderson, Bloomington, Carmel, Evansville, Indianapolis, Portage Redevelopment Commission, Clark, Columbus, Tippecanoe, City Elkhart, County of Elkhart, Fishers, Fort Wayne, Gary, Greenwood, Hamilton, Hammond, Hendricks, Kokomo City Hall Building Corporation, La Porte, Lafayette, Lake, Lawrence, Indiana Lieutenant Governor's Office, Mishawaka, Muncie, New Albany, Noblesville, Porter County Redevelopment Commission, Richmond, South Bend, St. Joseph, Terre Haute

Thirty-four communities in Indiana received a total of \$42.4 million to develop, promote, implement and manage local energy efficiency programs.

The funding is part of the new Energy Efficiency and Conservation Block Grant Program (EECBG) established by the Department of Energy and funded through the American Recovery and Reinvestment Act. This project assists states, U.S. territories, Indian tribes, counties and cities to develop, promote, implement and manage localized energy efficiency programs through individual program grants. The project funds programs which reduce fossil fuel emissions in a manner that is environmentally sustainable, maximizes cost savings, reduces the total energy use of eligible entities

and improves energy efficiency in the transportation, building and other appropriate sectors. Examples of EECBGs include:

City of Carmel - \$633,000

The City of Carmel received \$633,000 in EECBG funds to replace half of their existing street lights with LEDs. Funds are also being used to deploy windmills to power the city's sewer treatment plant. In addition to creating 30 jobs and the anticipated energy savings, hundreds of thousands of dollars will be leveraged.

• Elkhart County - \$630,000

Elkhart County received \$630,000 to perform energy efficiency retrofits resulting in an increase in energy efficiency and a stimulus to the local economy in the short term. Creating a sustainable clean energy economy is the long-term goal of Eldhard County.

• Elkhart City - \$557,000

The City of Elkhart received \$557,000 to write a Strategic Energy Strategy. The focus is on improving the energy efficiency of municipal owned buildings and operations. The funds are being used to upgrade the lights, windows and HVAC system of the Elkhart Municipal Building.

Hendricks County - \$547,000

Hendricks County received \$547,000 to complete an energy efficiency evaluation which recommends improvements for county buildings, including the courthouse and the government center.

• City of Noblesville - \$170,000

City of Noblesville received \$170,000 for the installation of new LED lighting and equipment designed to save energy and maintenance costs in the downtown Noblesville business areas and on a section of Indiana State Road 37. The city is replacing 175-watt metal hilide and high pressure sodium lights with retrofit LED lighting. The city is focusing on street and parking lot lighting around the downtown courthouse square, as well as stoplights in downtown and street lighting on State Road 37. The removed lighting and ballasts are being taken to a local, approved recycling facility.

Award: \$6.1 million, Energy Efficient Appliance Rebate Programs Location: Statewide

The Indiana Lieutenant Governor's Office received \$6.1 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances. These energy efficient appliances reduce energy use and save money for families, while supporting the local economy.

Indiana is implementing a mail-in rebate program to help residents replace old, inefficient heating, ventilation and air conditioning (HVAC) equipment with new ENERGY STAR qualified units. Eligible products include furnaces, boilers, central air conditioners, air source heat pumps and geothermal heat pumps.

Award(s): \$31.6 million, Combined Heat and Power (CHP), District Energy Systems, Waste Heat Recovery Implementation and Deployment of Efficient Industrial Equipment Location: East Chicago

ArcelorMittal USA, Inc., in East Chicago received \$31.6 million to install an efficient recovery boiler to use the waste blast furnace gas (BFG) generated during iron-making operations to produce electricity and steam on-site at ArcelorMittal's East Chicago steel mill. The plant currently wastes 46 billion cubic feet annually of BFG that must be flared. The project saves an estimated 3.66 trillion Btu annually from the waste gas.

Award(s): 2 totaling \$6.3 million, Ground Source Heat Pumps Location: Muncie, Fort Wayne

Ball State University, Muncie - \$5 million

Ball State University in Muncie received \$5 million to replace a coal-fired boiler system with Ground Source Heat Pump (GHP) systems across the campus.

• Indiana Institute of Technology, Fort Wayne - \$1.3 million

The Indiana Institute of Technology in Fort Wayne received \$1.3 million to install a Ground Source Heat Pump (GHP) system that will use carbon dioxide as the cooling medium rather than typical ozone-depleting refrigerants. This project demonstrates a variety of new technologies and shows the viability of carbon dioxide as a cooling medium.

RENEWABLE ENERGY – 13 projects totaling \$229.8 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): 6 payments totaling \$182.8 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

Meadow Lake Wind Farm, LLC, Chalmers - \$113.2 million Meadow Lake Wind Farm, LLC, in Chalmers received \$113.2 million for a wind project.

Hoosier Wind Project, LLC, Goodland - \$69.6million Hoosier Wind Project, LLC, in Goodland received \$69.6 million for a wind project.

• Bart Villa, LLC, Bloomington - \$34,000

Bart Villa, LLC, in Bloomington received \$34,000 for a solar thermal project.

Stetson Senior Apartments, Indianapolis (2) - \$23,000

The Stetson Senior Apartments in Indianapolis received \$23,000 for solar electricity and geothermal heat pump projects.

Deer Park Manor, LLC, Bloomington - \$12,000

Deer Park Manor, LLC, in Bloomington received \$12,000 for a solar electricity project.

Award(s): 7 totaling \$47 million from DOE / Treasury, Clean Energy Manufacturing Tax Credit (48C) Location: Statewide

• Think North America, Inc., Bristol - \$17 million

Think North America, Inc., in Bristol received \$17 million to establish a U.S. manufacturing, operations / facility for the "Think City" light-weight EV-dedicated vehicle.

• Brevini Wind USA, Inc., Yorktown - \$12.8 million

Brevini Wind USA, Inc., in Yorktown received \$12.8 million to establish a new manufacturing facility which produces Main Drive Gear Boxes for wind turbine manufacturers. The product allows servicing of the gear box without the use of heavy lifting equipment to remove the entire gearbox from the wind turbine.

• Vela Gear Systems, Inc., Indianapolis - \$11.6 million

Vela Gear Systems, Inc. in Indianapolis received \$11.6 million to build a plant producing advanced wind turbine parts with improved technology. The facility produces large precision gear sets designed specifically for the wind industry.

• Guardian Automotive, Auburn (3) - \$5.1 million

Guardian Automotive in Auburn received \$5.1 million to re-equip an existing manufacturing facility to produce bent solar mirrors. This project doubles production capabilities to create one million bent solar mirrors annually, thus supporting the concentrating solar power industry. The company uses new equipment to add the reflective coating to flat glass prior to bending in order to achieve the optimal reflective performance demanded by solar field developers. Guardian is also extending its technological capabilities from advanced radical bent windshields to the solar industry.

Acuity Brands, Inc., Crawfordsville - \$547,000

Acuity Brands, Inc., in Crawfordsville received \$547,000 to manufacture three energy-efficient LED luminaire outdoor products in its production facility. Lighting fixtures including light-emitting diode (LED) technologies dramatically reduce energy consumption due to longer product life, while simultaneously reducing maintenance costs associated with the luminaire.

Award(s): \$400 million from DOE / Treasury, Loan Guarantee Program Location: Statewide

Abound Solar Manufacturing was offered a \$400 million conditional commitment to manufacture state-of-the-art thin-film solar panels. This will be the first time this new manufacturing technology for Cadmium-Telluride panels is deployed commercially anywhere in the world. This project includes two facilities, one in Longmont, Colorado and the other in Tipton, Indiana.

MODERNIZING THE ELECTRIC GRID – 8 projects totaling \$46 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): 3 totaling \$1 million, Enhancing State and Local Governments' Energy Assurance Location: Statewide

This project focuses on building regional energy assurance capability by enhancing inter- and intrastate 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.

• Indiana Lieutenant Governor's Office - \$785,000

The Indiana Lieutenant Governor's Office received \$785,000 for State Energy Assurance Planning.

City of Fort Wayne, Fort Wayne - \$196,000

The City of Fort Wayne received \$196,000 for the Local Energy Assurance Planning (LEAP) Initiative.

• Speedway Redevelopment Authority, Speedway - \$60,000

Speedway Redevelopment Authority in Speedway received \$60,000 for the Local Energy Assurance Planning (LEAP) Initiative.

Award(s): 3 totaling \$39.4 million, Smart Grid Investment Grant Program (EISA 1306) Location: Indianapolis, Carmel, Auburn

• Indianapolis Power and Light, Indianapolis - \$20 million

Indianapolis Power and Light in Indianapolis received \$20 million for the installation of more than 28,000 meters to commercial, industrial and residential customers. These meters provide energy use information to customers, improve service restoration and efficiency, and enable two-way communications and control capabilities for the grid.

• Midwest Independent Transmission System Operator, Carmel - \$17.3 million

The Midwest Independent Transmission System Operator in Carmel received \$17.3 million to assist with the installation, testing, integration and monitoring of 150 phasor measurement units in strategic locations across the Midwest. All of these units will be on independent transmissions system operators, which will improve the energy dispatching, system reliability and planning capabilities. The project will also benefit customers in Iowa, Illinois, Michigan, Minnesota, Missouri, Montana, North Dakota, Ohio, Pennsylvania, South Dakota and Wisconsin.

• City of Auburn - \$2.1 million

The City of Auburn received \$2.1 million to integrate and modernize multiple components within the electrical system, including the installation of a smart meter network. This smart meter

network enhances quick and reliable communication capabilities, upgrades cyber-security technologies, expands grid monitoring and improves responses to power outages.

Award(s): \$4.7 million, Smart Grid Workforce Training Location: Indianapolis

The Crossroads Smart Grid Training Program in Indianapolis received \$4.7 million to train operators, technicians, engineers and research scientists, all of whom are necessary to achieve Indiana's renewable power and energy objectives. 1,500 student-seats for new Smart Grid training are being offered.

Award(s): \$913,000, State Assistance on Electricity Policies Location: Statewide

The Indiana Utility Regulatory Commission received \$913,000 to address its Recovery Act electricity workload. The Commission is hiring new staff and retraining existing employees to ensure they have the capacity to quickly and effectively review proposed electricity projects. The funds are helping the Commission accelerate reviews of the large number of electric utility requests which are being received. The Commission is reviewing electric utility investments in projects such as energy efficiency, renewable energy, carbon capture and storage, transmission lines, energy storage, Smart Grid, demand response equipment and electric and hybrid-electric vehicles.

TRANSPORTATION – 8 projects totaling \$425 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 totaling \$330.8 million, Advanced Battery Manufacturing Location: Indianapolis, Kokomo, Pendleton

• EnerDel, Inc., Indianapolis - \$118.5 million

EnerDel, Inc., in Indianapolis received \$118.5 million to support production of lithium-ion cells and packs for hybrid and electric vehicles.

• Delphi Automotive, Kokomo - \$89.3 million

Delphi Automotive in Kokomo received \$89.3 million for Advanced Battery Manufacturing. Funds will be used to expand manufacturing for existing electric drive power electronics components for both passenger and commercial vehicles.

• Allison Transmission, Indianapolis - \$62.8 million

Allison Transmission in Indianapolis received \$62.8 million to increase the nation's capacity to manufacture hybrid systems for the commercial truck market.

• Remy, Inc., Pendleton - \$60.2 million

Remy, Inc., in Pendleton received \$60.2 million for the establishment of a standardized platform of hybrid electric motors and controls.

Award(s): \$10.1 million, Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program Location: Statewide

The Indiana Lieutenant Governor's Office received \$10.1 million to support the Central Indiana Clean Cities Alliance Comprehensive Alternative Fuels Implementation Plan. The project implements propane, compressed natural gas and hybrid vehicles from light- to heavy-duty. The fleets involved include the state's municipality fleets, Sysco Distribution and others. This project incorporates more than 900 alternative fuel vehicles and thirteen fueling sites. DOE estimates the initiative displaces one million gallons of petroleum annually.

Award(s): \$38.8 million, Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D

Location: Columbus

Cummins, Inc., in Columbus received \$38.8 million to develop and demonstrate a highly efficient and clean diesel engine, an advanced waste heat recovery system, an aerodynamic Peterbilt tractor and trailer combination, and a fuel cell auxiliary power unit aimed at reducing engine idling.

Award(s): 2 totaling \$45.3 million, Transportation Electrification Location: Union City, Lafayette

Workhorse Sales Corporation, Union City - \$39.2 million

The Workhorse Sales Corporation in Union City received \$39.2 million to manufacture and distribute zero tailpipe-emission light-duty commercial electric vehicles (EVs) within the United States. Navistar is developing and demonstrating at least 950 commercial medium-duty EVs (Class 2c / 3 trucks) in the US market.

Purdue University, West Lafayette - \$6.1 million

Purdue University in West Lafayette received \$6.1 million to provide transportation electrification educational programs for graduate, undergraduate, secondary students, teachers, technicians and the general public. Purdue is partnering with the University of Notre Dame, Indiana University, Purdue University at Indianapolis (IUPUI), Purdue University, Calumet, Indiana University, Northwest and Ivy Tech Community College.

CARBON CAPTURE & STORAGE - 1 project totaling \$300,000

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): \$300,000 from DOE, Geologic Sequestration Training and Research Grant Program Location: West Lafayette

Purdue University in West Lafayette received \$300,000 to provide support for multiple graduate students to become experts in quantifying pertinent depositional and diagenetic characteristics of reservoirs and seals which are being developed in ongoing carbon dioxide sequestration projects. Also, this project explores methods for predicting changes in mineralogy and texture which occur when these rocks are exposed to carbon dioxide-saturated brines.

SCIENCE AND INNOVATION – 8 projects totaling \$38.9 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): \$6.7 million from DOE, Advanced Research Projects Agency – Energy (ARPA-E) Location: South Bend

The University of Notre Dame in South Bend received \$6.7 million to research solid compounds which turn into an ionic liquid when reacting with carbon dioxide and then turn back into a solid when the carbon dioxide is removed. These materials require less energy than today's approaches to capturing carbon dioxide.

Award(s): 2 totaling \$30.4 million, Energy Frontier Research Centers Location: South Bend, West Lafayette

• University of Notre Dame, South Bend - \$15.3 million

The University of Notre Dame in South Bend received \$15.3 million for research leading to a better fundamental understanding, as well as control of, chemical and physical processes that occur in the extreme environments within the nuclear fuel cycle.

Purdue University, West Lafayette - \$15.1 million

Purdue University in West Lafayette received \$15.1 million to combine expertise in biology, chemistry and engineering to increase knowledge of catalysis pertaining to plant cell wall chemistry. The Energy Frontier Research Center includes planned collaborations with scientists at the University of Tennessee for development of "hybrid" catalysts and catalytic conversion of renewable materials.

Award(s): \$1.5 million, Energy Sciences Fellowships and Early Career Research Program Location: West Lafayette

• Purdue University, West Lafayette - \$787,000

Purdue University in West Lafayette received \$787,000 for research on viscosity and equation of the state of hot and dense QCD matter.

• Purdue University, West Lafayette \$750,000

Purdue University in West Lafayette received \$750,000 for research on harnessing nanotechnology for fusion plasma-material interface research in an in-situ particle-surface interaction facility.

Award(s): 3 totaling \$447,000, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1 Location: Highland, Goshen, Greenfield

• Innovative Energy Solutions, Highland - \$150,000

Innovative Energy Solutions in Highland received \$150,000 to improve a technology used to recover free hydrogen from the toxic waste gas hydrogen sulfide, found in oil and natural gas processing. Using the hydrogen for combined electricity and steam generation reduces the

carbon emissions as well as increases energy efficiency and competitiveness of refineries and gas plants while also creating jobs.

• Lucid Energy Technologies, LLP, Goshen - \$150,000

Lucid Energy Technologies, LLP, in Goshen received \$150,000 to research "power pipe," a renewable energy system generating electricity by extracting energy from the excess head pressure in water transmission pipelines. This innovative technology has the capacity to generate millions of kilowatt-hours from an abundant source of energy which, to date, has been wasted.

• Candent Technologies, Inc., Greenfield - \$147,000

Candent Technologies, Inc., in Greenfield received \$147,000 to develop an advanced, low cost, high efficiency, multi-fuel, small gas turbine engine, suitable for power generation and propulsion (marine, aviation) applications thus reducing fossil fuel consumption as well as greenhouse gas emissions.

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/Indiana

MUNCIE

Ball State to build massive geothermal system

Ball State University is building America's largest ground source district geothermal heating and cooling system. The new operation will save the school millions of dollars, slash greenhouse gases and create jobs.

The project will also "expand how America will define the use of geothermal technology on a district-wide scale," and provide health benefits such as reducing asthma rates for Indiana residents, says Philip Sachtleben, Ball State's associate vice president of governmental relations.

The system will cool and heat nearly 50 buildings on Ball State's Muncie, Ind., campus, replace four coal-burning boilers and span more than 600 acres. The switch to geothermal will save the university \$2.2 million in fuel costs and cut its carbon footprint in half.

University officials hope the project's success will convince colleges and businesses owning district heating and cooling systems throughout the country to use geothermal technology and show leaders the monetary and environmental benefits of renewable energy. "The idea of getting energy from the soil beneath us is an innate solution," Sachtleben says. "We think this can be applied in many places."

Ball State's transition to geothermal energy makes economic sense. The university's aging boilers burn through 36,000 tons of coal per year, costing \$3.2 million. "When this is done, we will not have to buy any more coal," Sachtleben says. Although Ball State will spend additional money to power the system's equipment, the school still expects to save \$2.2 million a year on energy. The savings will enable Ball State to spend more on the university's needs and "reduce energy costs for educating students," Sachtleben says.

The geothermal system will be emission-free, fulfilling a pledge by Ball State President Jo Ann Gora to dramatically reduce the campus carbon footprint. "The greenhouse benefits are in spades," Sachtleben says. Tons of nitrous oxide, particulate and sulfur dioxide emissions will be eliminated, providing health benefits to Indiana residents. "Asthma rates should be reduced," Sachtleben says.

Engineers expect Ball State's energy efficiency to skyrocket due to the project. An indicator called the coefficient of performance (COP) will jump from .62 to 7.77, meaning "for each unit of energy we put in, we get 7.7 back," Sachtleben says.

Ball State's system will use the stable temperature just under the Earth's surface to heat or cool buildings. "We will dump off the heat in the summer and pick up the heat in the winter," Sachtleben says. The system will function similar to standard geothermal heat pumps. "This is not experimental technology," he says. "We are taking existing



Workers drill boreholes for a geothermal heating and cooling system at Ball State University's campus in Muncie, Ind. | Photo courtesy of Ball State University

technology and applying it on a massive scale for the first time."

Thousands of boreholes will contain a series of closed pipes that circulate fresh water. Energy stations will transfer heat pulled from or sunk into the ground to hot and cold water loops. The loops will pass through heat exchangers and fans will cool or warm the buildings based on thermostat settings.

Construction began in July 2009 and more than 1,000 of the system's 4,100 boreholes have been dug. Sachtleben says drilling is on schedule and the university aims to complete the first phase of the project by next summer. The project is "100 percent American," he says, and has helped well drillers learn new skills for the clean energy economy. "We are setting up a program that results in the creation of green jobs."

The Department of Energy awarded Ball State \$5 million in Recovery Act money for phase one of the project. The State of Indiana and other funding sources provided another \$40 million for the first phase.

Ball State's effort to build the country's largest geothermal energy system "hits on all cylinders," Sachtleben says. The system will cut costs, eliminate pollution and help American workers. "This is the right thing to do."

GARY

Indiana college provides training for green jobs

At a community college with locations across Indiana, a free weatherization training course gives students of diverse backgrounds a chance to hone their skills and jump into careers in the clean-energy economy. With the help of mentors and hands-on learning activities, students leave the course ready to compete for green jobs.

"I think when you introduce them to some of the theories and practices that we're promoting, it's an awakening," instructor David Blais says.

While the overarching goal of the program is to prepare contractors to be able to work on Recovery Act-funded homes and teach them the expectations of the weatherization program, students also learn to understand how to interact and cooperate with people in different roles from their own.

This multidisciplinary approach helps workers who just work in insulation, for example, understand what other weatherization installers that put in windows or heating and air conditioning systems are doing in homes.

"As they begin to break things down, they are surprised because I introduce them to more than just their small piece of the pie, showing them that what they do affects other parts of the equation," David says.

Ivy Tech Community College trained about 1,557 students in their weatherization courses across the state this summer using Recovery Act funds allotted to training.

Roughly \$1.5 million will go through the Indiana Housing and Community Development Authority (IHCDA) to train citizens for the weatherization work being done by community action agencies around the state.

David says that the country's renewed focus on weatherization and green-jobs training brought on by the stimulus puts a spotlight on energy awareness in the eyes of the American people.

"It brings to light that energy is limited, and we have to be mindful of how we spend and conserve it," he says.

"I think our program and others like it are good because it raises that awareness and shows people how their actions and choices affect the entire economy."

Even experienced workers such as Dennis Wilson, a lead weatherization installer for a contractor in Indiana, can gain something from the state-of-the-art program.

"Sure, a portion of it was a review, but I did pick up a couple things from them, like new ways they stop air infiltration," the 18-year insulation veteran says.

Wilson says hearing about the new ideas in the industry keeps him up-to-speed on what new equipment is available for energyefficiency testing purposes, among other things.

"It's all much more updated now than when I started, and it's good to keep in sync with that," he says. "It's a coordinated effort to make sure things are getting done as needed, and it helps energy auditors and installers get a better overall focus on what we're all trying to accomplish."

Bainbridge

24/7 fire stations in small-town Indiana receive energy efficiency upgrades

"The fire station is a building that is in use 24 hours a day, 7 days a week, so naturally it consumes a significant amount of energy," says Molly Whitehead, grants specialist for the Indiana Office of Energy Development.

Given constant use and the importance of fire stations to surrounding communities, the Indiana Office of Energy Development awarded funds from the Energy Efficiency and Conservation Block Grant to improve energy efficiency at some local fire stations.

In Coal Creek Township, Coal Creek Fire and Rescue received \$27,000 from EECBG funding to install a new furnace and air

The Indiana
Office of Energy
Development
received \$14.1
million in EECBG
grants from
the American
Recovery and
Reinvestment Act.

conditioner at their New Richmond, Ind. fire station. The grant will also pay to better insulate the department.

The town of Bainbridge will use \$3,800 of its \$54,000 EECBG to replace all T-12 fluorescent lighting fixtures in the Bainbridge Volunteer Fire Department building with more efficient T-8 fixtures.

For both fire stations, the modifications will save energy and money.

For the public good

Coal Creek Fire and Rescue, a non-profit volunteer fire department, will replace two five-ton heating and cooling units that sit outside the New Richmond station with attic-installed high efficiency furnaces and

condenser units. Because the existing furnaces are configured to a "Y" duct system that was designed for a single heating and cooling unit, the two units typically "fight" each other when used at the same time -- thus losing efficiency.

"The system we have in place now has never been fully efficient," says Dale Jones, President of the Board of Directors for Coal Creek Fire and Rescue. "When we turned on the heat for one furnace, part of the heated air was returned by the ducting to the furnace that wasn't in use."

According to Whitehead, the new installations, along with modifications to the existing ductwork in the building, are expected to save the fire department \$2,300 per year and 2700 kWh per year. The project will begin in August with the energy efficient modifications to be completed by the winter.

Jones says the new furnace and air conditioner will allow firefighters at the fire station to better serve the public. While the fire station is only six years old, finding money to pay all the costs is often difficult.

"The grant has a big impact because it helps us free up resources for safety, equipment and gear at the station," says Jones.

"We are a public service, so something like this goes right back to the people."

In Bainbridge, the fire station was originally constructed ten years ago, when there were no energy efficient lighting options available.

"This will be the first upgrade for the building," says Hartman. "We expect the upgrades to begin in the next few weeks and be completed by the end of summer."

Town clerk and treasurer Jason Hartman says the new T-8 lighting fixtures in the volunteer fire department are predicted to save \$300 annually on electricity bills. The town expects a 13 to 15 year "return on investment" after conducting a recent energy audit, indicating \$3,900 to \$4,500 in possible long-term savings.

"The \$300 annual savings may not seem like a lot to most people, but to a small rural fire department that operates solely with volunteers and relies on donations, this amount does make a difference in its ability to continue operations," says Hartman.