



# Department of Energy Recovery Act State Memos

## Michigan



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 .....4**

**ELECTRIC GRID.....7**

**TRANSPORTATION .....8**

**CARBON CAPTURE & STORAGE.....12**

**SCIENCE AND INNOVATION .....12**

**RECOVERY ACT SUCCESS STORIES – ENERGY EMPOWERS**

- *Battery jobs coming to Michigan ... .. 13*
- *Boat manufacturer expands into wind turbine blades ... .. 13*
- *Tank parts manufacturer makes push into renewable ... .. 14*
- *Michigan roofing company expands into solar shingles ... .. 15*
- *Michigan town committed to sustainable future ... .. 15*
- *Astraeus Wind modifies manufacturing in Michigan ... .. 16*
- *President Obama plugs in clean energy incentives ... .. 16*
- *Mich. wind firm teams with college on training ... .. 17*
- *Ex auto worker gauges efficiency of American homes ... .. 18*





# American Recovery and Reinvestment Act



## U.S. DEPARTMENT OF ENERGY • MICHIGAN RECOVERY ACT SNAPSHOT

Funding for selected DOE projects: \$1.7 billion

DOE Recovery Act projects in Michigan: 119

Clean energy tax credits and grants: 14

For total Recovery Act jobs numbers in Michigan go to [www.recovery.gov](http://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 Michigan are supporting a broad range of clean energy projects from battery manufacturing to energy efficiency and the smart grid, renewable energy, and carbon capture and storage. Through these investments, Michigan's businesses, universities, non-profits, and local governments are creating quality jobs today and positioning Michigan to play an important role in the new energy economy of the future.

### EXAMPLES OF MICHIGAN FORMULA GRANTS

Program	State Energy Program	Weatherization Assistance Program	Energy Efficiency Conservation Block Grants	Energy Efficiency Appliance Rebate Program
Award (in millions)	<b>\$82</b>	<b>\$243.4</b>	<b>\$78</b>	<b>\$9.6</b>
	The Michigan Department of Energy, Labor, and Economic Growth has received \$82 million to invest in state-level energy efficiency and renewable energy priorities.	The State of Michigan has received \$243.4 million to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for Michigan's low-income families. Over the course of the Recovery Act, Michigan expects to weatherize more than 33,400 homes.	Seventy communities in Michigan have received a total of \$78 million to develop, promote, implement, and manage local energy efficiency programs.	The Michigan Department of Energy, Labor, and Economic Growth has received \$9.6 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances, which reduce energy use and save money for families, while helping the environment and supporting the local economy.

### EXAMPLES OF MICHIGAN COMPETITIVE GRANTS, TAX CREDITS AND LOANS

Award	<b>\$5.9 billion</b>	<b>\$299.2 million</b>	<b>\$83.8 million</b>	<b>\$20.7 million</b>	<b>\$19.5 million</b>
	<b>Ford Motor Company</b> closed a <b>\$5.9 billion loan arrangement</b> under the Department of Energy's <b>Advanced Technology Vehicles Manufacturing</b> program to transform factories across Illinois, Kentucky, Michigan, Missouri, and Ohio to produce 13 more fuel efficient models. The company estimates the project will transform nearly 35,000 employees to green engineering and manufacturing jobs.	Michigan is home to a number of major advanced battery manufacturing grants that will help to establish a domestic manufacturing base for electric vehicle batteries. These grants include <b>Johnson Controls, Inc.</b> in Holland that has been awarded <b>\$299.2 million</b> to build domestic manufacturing capacity for advanced batteries for hybrid and electric vehicles.	<b>Detroit Edison Company</b> in Detroit received an <b>\$83.8 million Smart Grid Investment Grant</b> to install a large-scale smart meter network.	Michigan received <b>five 1603 payments for renewable energy generation</b> totaling <b>\$20.7 million</b> , which include solar, wind, and biomass projects. For example, <b>L'Anse Warden Electric Company</b> received <b>\$11.7 million</b> for a biomass project.	<b>The University of Michigan</b> in Ann Arbor received <b>\$19.5 million</b> for an <b>Energy Frontier Research Center</b> to research complex material structures for their potential use as materials to convert solar energy and heat to electricity.

## 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 <sup>1</sup>	Number of Selections	Selected Amount (in millions) <sup>2</sup>
Energy Efficiency	Weatherization Assistance Program (F)	1	\$243.4
	State Energy Program (F)	1	\$82.0
	Energy Efficiency and Conservation Block Grant (F)	70	\$78.0
	Energy Efficient Appliance Rebate (F)	1	\$9.6
	Industrial Energy Efficiency (CM)	1	\$0.1
	Additional Programs (CM & C)	1	\$2.7
	<b>TOTAL Energy Efficiency</b>	<b>75</b>	<b>\$415.8</b>
Renewable Energy	Solar (CM)	1	\$0.1
	Wind (CM)	3	\$1.8
	<b>TOTAL Renewable Energy</b>	<b>4</b>	<b>\$1.9</b>
Electric Grid	Smart Grid Investment and Demonstrations Project (CM) <sup>3</sup>	3	\$108.2
	State and Local Energy Assurance and Regulatory Assistance (F)	4	\$2.4
	Smart Grid Workforce Training (CM)	2	\$5.1
	<b>TOTAL Electric Grid</b>	<b>9</b>	<b>\$115.7</b>
Transportation	Advanced Battery Manufacturing (CM)	6	\$1,029.0
	Transportation Electrification (CM)	5	\$89.0
	Clean Cities Alternative Fuel and Vehicles Program (CM)	1	\$15.0
	Advanced Fuels (CM)	6	\$20.7
	Additional Programs (CM)	3	\$24.6
	<b>TOTAL Transportation</b>	<b>21</b>	<b>\$1,178.3</b>
Carbon Capture and Storage	CCS Projects (CM)	1	\$2.7
	<b>TOTAL Carbon Capture and Storage</b>	<b>1</b>	<b>\$2.7</b>
Science and Innovation	Advanced Research Projects Agency - Energy (ARPA-E) (CM)	2	\$5.2
	Energy Frontier Research Centers (CM)	1	\$19.5
	Small Business Research (SBIR/STTR) (CM)	3	\$0.4
	National Laboratory Facilities (C)	1	\$0.3
	Additional Programs	2	\$1.5
	<b>TOTAL Science and Innovation</b>	<b>9</b>	<b>\$26.9</b>
<b>TOTAL - DOE Programs<sup>4</sup></b>		<b>119</b>	<b>\$1,741.3</b>
Tax Credits/ Payments <sup>5</sup>	Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)	5	\$20.7
	Clean Energy Manufacturing Tax Credits (48C)	9	\$224.5
	<b>TOTAL Tax Incentives</b>	<b>14</b>	<b>\$245.2</b>
<b>TOTAL - DOE/Treasury + DOE</b>		<b>133</b>	<b>\$1,986.5</b>
<sup>1</sup> F=Formula Grant, CM=Competitive Grant, C=Contract			
<sup>2</sup> "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.			
<sup>3</sup> Projects may cross state boundaries, signifies HQ location.			
<sup>4</sup> Total does not include administrative funds.			
<sup>5</sup> Jointly administered by DOE and the U.S. Department of Treasury.			

## **ENERGY EFFICIENCY – 75 projects totaling \$415.8**

---

*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): \$243.4 million, Weatherization Assistance Program (WAP)**

#### **Location: Statewide**

Michigan received \$243.4 million to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for Michigan's low-income families. Over the course of the Recovery Act, Michigan expects to weatherize more than 33,400 homes. Michigan's weatherization program, administered by the Department of Human Services, provides home energy audits and weatherization activities that will lower energy consumption and utility bills in low-income homes across the state. Each home will receive a unique audit to determine which activities are the most cost effective. Some of the most common weatherization procedures include the repair, insulation and sealing of ducts as well as the installation of insulation in walls and attics.

Weatherization funds can also be used to install energy efficient compact fluorescent light bulbs and replace energy consuming refrigerators and water heaters.

### **Award(s): \$82 million, State Energy Program (SEP)**

#### **Location: Statewide**

The Michigan Department of Energy, Labor and Economic Growth received \$82 million to invest in state-level energy efficiency and renewable energy priorities. The state of Michigan elected to invest \$57 million to reduce energy consumption in state-owned government buildings and facilities, \$24 million to facilitate energy efficiency in the private sector and drive supply chain diversification into renewable energy sectors and \$1 million to create opportunities for wind energy in Michigan. These investments are necessary to relieve stresses on the state budget, create jobs and improve Michigan businesses competitiveness in the marketplace.

### **Award: 70 totaling \$78 million, Energy Efficiency and Conservation Block Grant Program (EECBG)**

#### **Location: Statewide**

**Recipients:** Ann Arbor, Battle Creek, Bay Mills Indian Community, Bloomfield Township, Canton Township, Clinton Township, Commerce Township, Ypsilanti Township, Chesterfield Township, Dearborn Economic & Community Development, Saginaw, Jackson County, Dearborn Heights, Detroit, East Lansing, Michigan Department of Energy, Labor and Economic Growth, Farmington Hills, Flint, Genesee County, Georgetown Township, Grand Blanc Township, Grand Rapids, Grand Traverse Band of Ottawa & Chippewa Indians, Hannahville Indian Community, Huron Potawatomi, Kalamazoo, Kent County, Kentwood, Keweenaw Bay Indian Community, Lac Vieux Desert Band of Lake Superior Chippewa Indians, Lansing, Lincoln Park, Little River Band of Ottawa Indians, Little Traverse Bay Bands of Odawa Indians, Livingston County, Livonia, Macomb Township, Macomb County, Match-E-Be-Nash-She-Wish Band Of Pottawatomi Indians, Meridian Township, Midland, Muskegon, Novi, Oakland County, Ottawa County, Pokagon Band Of Potawatomi, Pontiac, Portage, Redford Township, Rochester Hills, Roseville, Royal Oak, Saginaw Chippewa Indian Tribal Government, Saginaw, Sault Sainte Marie Tribe Of Chippewa Indians, Shelby, Southfield, St Clair Shores, St Clair County, Sterling Heights, Taylor, Troy, Wampanoag Tribe Of Gay Head (Aquinnah), Warren, Washtenaw County, Waterford, Wayne County, West Bloomfield Township, Westland, Wyoming

Seventy communities in Michigan received a total of \$78 million to develop, promote, implement, and manage local energy efficiency programs.

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.

**Award(s): \$9.6 million, Energy Efficient Appliance Rebate Programs**

**Location: Statewide**

The Michigan Department of Energy, Labor and Economic Growth received \$9.6 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances, which reduce energy use and save money for families, while helping the environment and supporting the local economy. This funding assists state-level rebate programs by paying up to 50 percent of the administrative costs of establishing and executing these types of programs. Though states and territories determine the appliances which apply, typically those include clothes washers, dishwashers, refrigerators, freezers, air conditioners and water heaters.

**Award(s): \$2.7 million, Ground Source Heat Pumps**

**Location: Rochester**

Oakland University in Rochester received \$2.7 million for Ground Source Heat Pumps. Funding is being used to install a geothermal heat pump system at the new Human Health Sciences Building. The proposed design makes use of variable refrigerant flow heat pumps, solar-thermally activated desiccant outdoor air supply and multiple methods of waste heat recovery. The university is providing \$7 million of the cost.

**Award(s): \$115,000, Industrial Assessment Centers and Plant Best Practices**

**Location: Ann Arbor**

The University of Michigan in Ann Arbor received \$115,000 for Industrial Assessment Centers and Plant Best Practices. The goal of this project is to provide eligible small and medium-sized manufacturers with no-cost energy assessments and serve as a training ground for the next generation of energy-savvy engineers.

**RENEWABLE ENERGY – 18 projects totaling \$247.1 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): 5 payments totaling \$20.7 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>

Michigan received five 1603 payments for renewable energy generation totaling \$20.7 million, which include solar, wind and biomass projects. For example, L'Anse Warden Electric Company received \$11.7 million for a biomass project.



- **L'Anse Warden Electric Company, LLC, L'Anse - \$11.7 million**  
L'Anse Warden Electric Company, LLC, in L'Anse received \$11.7 million for a biomass project.
- **Heritage Stoney Corners Wind Farm I, LLC, McBain - \$9 million**  
Heritage Stoney Corners Wind Farm I, LLC, in McBain received \$9 million for a wind project.
- **Collins & Company of Michigan, Thompsonville - \$21,000**  
Collins & Company of Michigan in Thompsonville received \$21,000 for a small wind project.
- **Wellspring Land Company, Ann Arbor - \$9,000**  
Wellspring Land Company in Ann Arbor received \$9,000 for a solar electricity project.
- **Accent Building Corp., Bay City - \$5,000**  
Accent Building Corp. in Bay City received \$5,000 for a small wind project.

**Award(s): 9 totaling \$224.5 million from DOE / Treasury, Clean Energy Manufacturing Tax Credit (48C)**

**Location: Statewide**

- **Hemlock Semiconductor Corp., Hemlock - \$141.9 million**  
Hemlock Semiconductor Corp. in Hemlock received \$141.9 million to expand a manufacturing plant that produces polycrystalline-silicon used in the production of solar panels. The plant, when fully operational, will produce 19,200 metric tons per year.
- **Dow Corning – Solar Silane, Hemlock - \$27.3 million**  
Dow Corning – Solar Silane in Hemlock received \$27.3 million to build a new monosilane facility with 60 percent of production dedicated to the solar PV market. Monosilane is a key component in the production of amorphous thin-film solar panels.
- **Merrill Technologies Group, Saginaw - \$22 million**  
Merrill Technologies Group in Saginaw received \$22 million to invest in advanced manufacturing equipment to support the production of nacelles for Northern Power's new 2.2 MW utility-scale wind turbine. The project will progress through prototype and pilot phases into serial production.
- **The Dow Chemical Company, Midland - \$17.8 million**  
Dow Chemical Company in Midland received \$17.8 million to produce photovoltaic cells built into residential and commercial roofing and siding products. Dow's technology imbeds solar cells into shingles, sidings and other materials, enabling lower production and installation costs.
- **Stirling Energy Systems, Inc., Livonia - \$9.8 million**  
Stirling Energy Systems, Inc., in Livonia, received \$9.8 million to produce Azimuth drives used to track the sun for the SunCatcher, a 25 kW solar dish. The resulting technologies will aid solar industry domestically.
- **Guardian Industries Corp., Carleton - \$2.7 million**

Guardian Industries Corp. in Carleton received \$2.7 million to expand an existing facility to produce unique low iron pattern glass used in solar applications. Once completed, this facility will be the only U.S.-owned manufacturer of solar low iron pattern glass in North America and will enable the production of more than 600MW of crystalline silicon modules.

- **Ilumisys, Inc., Troy - \$1.3 million**

Ilumisys, Inc., in Troy received \$1.3 million to automate the manufacture of LED replacements for fluorescent lighting.

- **Great Lakes Industry, Inc., Jackson - \$1.3 million**

Great Lakes Industry, Inc., in Jackson received \$1.3 million to manufacture component precision gears for multi-megawatt wind turbine gearboxes. Nearly all multi-megawatt wind turbines use highly efficient gearboxes to drive electrical generator(s) inside the turbine nacelle.

- **Rogers Foam Automotive Corporation, Flint - \$300,000**

Rogers Foam Automotive Corporation in Flint received \$300,000 to manufacture a component to be used in the thermal management system of lithium ion battery assemblies for electrical vehicles. This sub-component consists of an outer gasket, which locates the component in the assembly, a multi-layer pressure conformable membrane, which provides the constant pressure and a bonding agent, which attaches the outer gasket and membrane. The resulting product will aid domestic battery manufacturing for electric vehicles.

**Award(s): \$150,000, Photovoltaic (PV) Systems Development**

**Location: Plymouth**

Fraunhofer USA, Inc., in Plymouth received \$150,000 for Photovoltaic (PV) Systems Development. Funding is being used to develop a laser process to increase light absorption on solar cell surface with the goal of providing superior optical surfaces, improved device performance and reduced use of hazardous chemicals.

**Award(s): 3 totaling \$1.8 million, Wind Energy Technology R&D and Testing**

**Location: Midland, Ann Arbor**

- **Dow Corning Corporation, Midland - \$745,000**

Dow Corning Corporation in Midland received \$745,000 for Wind Energy Technology R&D and Testing. Funding is being used to research lifetime lubricating fluid for gearboxes to increase efficiency and durability of wind turbine drive trains.

- **Michigan Aerospace Corporation, Ann Arbor - \$636,000**

Michigan Aerospace Corporation in Ann Arbor received \$636,000 for Wind Energy Technology R&D and Testing. Funds are being used to research turbine reliability and operability optimization through the use of direct detection LIDAR.

- **Regents of the University of Michigan, Ann Arbor - \$414,000**

University of Michigan in Ann Arbor received \$414,000 for Wind Energy Technology R&D and Testing. Funding is being used to research strategies for voltage control and transient stability assessment.

## **MODERNIZING THE ELECTRIC GRID – 9 projects totaling \$115.7**

---

*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 \$1.4 million, Enhancing State and Local Governments' Energy Assurance**  
**Location: Lansing, Flint, Mayville**

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.

- **Michigan Department of Energy, Labor and Economic Growth, Lansing - \$1.1 million**  
The Michigan Department of Energy, Labor and Economic Growth in Lansing received \$1.1 million for State Energy Assurance Planning.
- **City of Flint - \$200,000**  
The City of Flint received \$199,814 for State Energy Assurance Planning.
- **Village of Mayville - \$60,000**  
The Village of Mayville received \$60,000 for the Local Energy Assurance Planning (LEAP) Initiative.

**Award(s): 2 totaling \$103.2 million, Smart Grid Investment Grant Program (EISA 1306)**  
**Location: Detroit, Benton Harbor**

- **Detroit Edison Company, Detroit - \$83.8 million**  
Detroit Edison Company in Detroit received \$83.8 million for a 'SmartCurrents' program to perform the installation of a large-scale network of 660,000 smart meters. The program is also implementing the Smart Home program to provide customer benefits such as dynamic pricing to 5,000 customers and provide smart appliances to 300 customers.
- **Whirlpool, Benton Harbor - \$19.3 million**  
Whirlpool in Benton Harbor received \$19.3 million for the Smart Grid Investment Grant Program to support the manufacturing of smart appliances. This support will accelerate the commercialization of residential appliances capable of communicating over a home network with one another. These smart appliances allow consumers to defer or schedule their energy use, which can lower consumer costs and reduce peak electricity demand.

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

The Detroit Edison Company in Detroit received \$5 million for a Smart Grid Regional and Energy Storage Demonstration Project (EISA 1304). The objective of this project is to demonstrate the use and benefits of Community Energy Storage (CES) systems in a utility territory and also to test the

ability to integrate secondary-use electric vehicle (EV) batteries into the CES demonstration effort. This project installs twenty CES units into a system that includes a one MW storage device integrated into a solar system.

**Award: 2 totaling \$5.1 million, Smart Grid Workforce Training**

**Location: Lansing, Marquette**

- **Michigan Department of Energy, Labor & Economic Growth, Lansing - \$4.4 million**  
The Michigan Department of Energy, Labor, & Economic Growth in Lansing received \$4.4 million for Smart Grid Workforce Training. The Michigan Electric Power Workforce Training Strategy creates career pathways for Michigan workers in skilled trades and other in-demand jobs in the electric power workforce sector. This project serves 588 individuals through training for employment in the electric power sector.
- **Northern Michigan University, Marquette - \$673,000**  
Northern Michigan University in Marquette received \$673,000 for Smart Grid Workforce Training. Northern Michigan University's Electrical Power Technician Workforce Training Program further develops and enhances the newly established Electric Power Technician workforce training program, providing quality training for entry level technicians in the electrical power industry.

**Award(s): \$1 million, State Assistance on Electricity Policies**

**Location: Lansing**

The Michigan Department of Energy, Labor, and Economic Growth received \$1 million for State Assistance on Electricity Policies to address the Recovery Act electricity workload. This project funds states and their Public Utility Commissions (PUCs) to hire staff trained to facilitate the review of time-sensitive requests approving electric utility expenditures undertaken as part of the Recovery Act.

## **TRANSPORTATION – 21 projects totaling \$1.2 billion**

---

*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): \$5.9 billion from DOE / Treasury, Advanced Technology Vehicles Manufacturing Program**

**Location: Statewide**

Ford Motor Company closed a \$5.9 billion loan arrangement under the Department of Energy's Advanced Technology Vehicles Manufacturing program to transform factories across Illinois, Kentucky, Michigan, Missouri and Ohio to produce thirteen more fuel efficient models. The company estimates the project will transform nearly 35,000 employees to green engineering and manufacturing jobs.

**Award(s): 6 totaling \$1 billion, Advanced Battery Manufacturing**

**Location: Statewide**

Michigan received six major Advanced Battery Manufacturing awards to help establish a domestic manufacturing base for electric vehicle batteries.

- **Johnson Controls, Inc., Holland - \$299.2 million**

Johnson Controls, Inc., in Holland received \$299.2 million for Advanced Battery Manufacturing to build domestic manufacturing capacity for advanced batteries for hybrid and electric vehicles.

- **A123 Systems, Inc., Romulus - \$249.1 million**  
A123 Systems, Inc., in Romulus received \$249.1 million to expand the company's global final cell assembly capacity to over 360 MW hours.
- **KD ABG MI, LLC (Dow Kokam), Midland – \$161 million**  
KD ABG MI, LLC (Dow Kokam), in Midland received \$161 million to establish manufacturing operations and to produce affordable advanced superior lithium polymer battery (SLPB) technology for the hybrid and electric vehicle markets.
- **Compact Power, Inc. (on behalf of LG Chem, Ltd.), St. Claire - \$151.4 million**  
Compact Power, Inc., in St. Claire received \$151.4 million for Advanced Battery Manufacturing. This project involves the production of lithium-ion polymer battery cells for the GM Volt using a manganese-based cathode material and a proprietary separator. Compact Power, Inc. (CPI), was chosen by General Motors (GM) to provide complete lithium-ion battery packs for a Buick plug-in hybrid SUV that will debut in 2011. The battery packs will be made at CPI's R&D and manufacturing facility in Troy.
- **General Motors, Brownstown - \$105.7 million**  
General Motors in Brownstown received \$105.7 million for Advanced Battery Manufacturing. The Battery Pack Assembly Plant will become the first high-volume advanced battery manufacturing facility of its kind in the nation, supporting a strategy to position Michigan as the global hub of this new economic sector.
- **Ford Motor Company, Dearborn - \$62.7 million**  
Ford Motor Company in Dearborn received \$62.7 million for Advanced Battery Manufacturing to support their manufacturing facility for integrated EDV transaxle.

**Award(s): \$15 million, Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program**

**Location: Statewide**

The Clean Energy Coalition received \$15 million for Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program. The Michigan Green Fleets Initiative increases the use of natural gas, electric, and hybrid electric vehicles in thirteen sites throughout Michigan. A total of 271 alternative fuel vehicles and nineteen alternative fueling sites is being added throughout the state. Fleets include transportation authorities, cities, school districts, the University of Michigan, FedEx and Meijer.

**Award(s): 2 totaling \$22.2 million, Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D**

**Location: Auburn Hills, Pontiac**

DOE announced Recovery Act-funded awards to demonstrate new fuel-saving technologies to Michigan automakers and suppliers. These investments in Michigan-based companies help to revitalize the nation's auto industry as well as create new jobs for local workers. Recovery Act funds received by Michigan companies support efforts to increase the fuel economy for passenger vehicle engines and power train systems. The goal is to develop engine technologies that will improve the fuel economy of passenger vehicles by 25 to 40 percent by 2015.

- **Chrysler Group, LLC, Auburn Hills - \$14.5 million**  
Chrysler Group, LLC, in Auburn Hills received \$14.5 million for Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D. Fundings is being used to develop a flexible combustion system for their minivan platform based on a downsized, turbocharged engine that uses direct gasoline injection, recirculation of exhaust gases and flexible intake air control to reduce emissions.
- **General Motors Co., Pontiac - \$7.7 million**  
General Motors in Pontiac received \$7.7 million for Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D. Funding is being used to develop an engine that uses lean combustion and active heat management, as well as a novel emissions control system, to improve the fuel economy of a 2010 Malibu demonstration vehicle by 25 percent.

**Award(s): \$2.4 million, Enabling Fuel Cell Market Transformation**

**Location: Troy**

Delphi Automotive in Troy received \$2.4 million for Enabling Fuel Cell Market Transformation to develop, test and demonstrate a 3- to 5-kW solid oxide fuel cell (SOFC) auxiliary power unit (APU) for heavy duty commercial trucks. The demonstration improves upon Delphi's current generation of SOFC technology by increasing net output power and fuel processing efficiency, decreasing heat loss and parasitic power loss and establishing diesel fuel compatibility.

**Award(s): 4 totaling \$2.7 million, Investigation of Intermediate Ethanol Blends, Optimization of E-85 Engines, and Development of Transportation Infrastructure**

**Location: Statewide**

- **General Motors Corporation, Pontiac - \$1.1 million**  
General Motors Corporation in Pontiac received \$1.1 million to integrate a novel cooled EGR combustion concept on a state-of-the-art turbocharged engine that includes the fuel economy concepts of downsizing, direction injection and cam phasing.
- **Robert Bosch, LLC, Farmington Hills - \$880,000**  
Robert Bosch, LLC, in Farmington Hills received \$880,000 to research and develop an optimally controlled flexible fuel powertrain system.
- **Delphi Corporation, Troy - \$525,000**  
Delphi Corporation in Troy received \$525,000 to research, develop and demonstrate a production feasible engine that increases efficiency by exploiting ethanol's higher octane and latent heat of evaporation compared to gasoline.
- **Clean Energy Coalition, Ypsilanti - \$200,000**  
Clean Energy Coalition in Ypsilanti received \$200,000 to financially assist and otherwise provide support to projects that increase E85 infrastructure in Michigan at retail fueling locations.

**Award(s): 2 totaling \$18 million, Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries**

**Location: Alpena, Midland**

- **American Process, Inc., Alpena - \$18 million**  
American Process, Inc., received \$18 million to accelerate biofuel production in Alpena and construct a new plant on a nearly 29 acre site adjacent to DPI's Alpena facility. The plant will use DPI's waste material to make cellulosic ethanol and sodium acetate, a commercial de-icer. These funds, in support of one of Michigan's Centers of Energy Excellence, are expected to bring 160 jobs to the Alpena area and strengthen Michigan's efforts to be a leader in the development of the next generation of advanced biofuels.
- **Lee Walko, Midland - \$25,000**  
Lee Walko of Midland received \$25,000 for the Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries

**Award(s): 5 totaling \$89 million, Transportation Electrification**

**Location: Statewide**

- **Chrysler, LLC, Auburn Hills - \$48 million**  
Chrysler, LLC, in Auburn Hills received \$48 million for Transportation Electrification. The proposed project demonstrates and evaluates 220 advanced PHEVs in both Truck and Minivan platforms across a range of geographic, climatic and operating environments with an eye to accelerating the production and market penetration of PHEVs.
- **General Motors, Warren - \$30.5 million**  
General Motors in Warren received \$30.5 million for Transportation Electrification to develop Extended Range Electric Vehicles (EREV) advanced propulsion technology. The funds are also being used to demonstrate a fleet of EREVs to gather data on vehicle performance and infrastructure to understand impacts on commercialization while creating or retaining domestic jobs.
- **Wayne State University, Detroit - \$5 million**  
Wayne State University in Detroit received \$5 million for Transportation Electrification for electric drive vehicle education.
- **Michigan Technological University, Houghton - \$3 million**  
Michigan Technological University in Houghton received \$3 million for Transportation Electrification for electric drive vehicle education.
- **University of Michigan, Ann Arbor - \$2.5 million**  
University of Michigan in Ann Arbor received \$2.5 million for Transportation Electrification. This funding is being used for undergraduate and graduate courses, high school curriculum and summer camps and public seminars. The curriculum, including ten university courses on topics like batteries, green power and hybrid electronics - as well as high school education offerings and public seminars - is expected to be rolled out over a three-year timeline.

## **CARBON CAPTURE & STORAGE – 1 project totaling \$2.7 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): \$2.7 million, Industrial Carbon Capture and Storage Applications**

**Location: Cadillac**

Wolverine Power Supply Cooperative in Cadillac received \$2.7 million for Industrial Carbon Capture and Storage Applications. This project demonstrates an advanced amine technology provided by Hitachi and Dow to capture 300,000 tons of carbon dioxide per year. Wolverine Power Supply Cooperative is building a 600-megawatt circulating fluidized bed power plant near Rogers City.

## **SCIENCE AND INNOVATION – 9 projects totaling \$26.9**

---

*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): 2 totaling \$5.2 million, Advanced Research Projects Agency - Energy (ARPA-E)**

**Location: Warren, East Lansing**

- **General Motors, Warren - \$2.7 million**  
General Motors Company in Warren received \$2.7 million for Advanced Research Projects Agency - Energy (ARPA-E). Funds are being used to develop a shape memory alloy (SMA) energy recovery device to convert waste heat from car engines to electricity. Such devices increase fuel efficiency by as much as 10 percent and provide devices with applications in other heat recovery applications.
- **Michigan State University, East Lansing- \$2.5 million**  
Michigan State University in East Lansing received \$2.5 million for Advanced Research Projects Agency - Energy (ARPA-E). Researchers at Michigan State University are developing a prototype of a new gas-fueled electricity generator that is five times more efficient than traditional auto engines in electricity production, 20 percent lighter, and 30 percent cheaper to manufacture. This novel ultrahigh efficiency engine could replace current backup generator technology of hybrid and plug-in hybrid electric vehicles.

**Award(s): \$19.5 million, Energy Frontier Research Centers**

**Location: Ann Arbor**

The University of Michigan in Ann Arbor received \$19.5 million to study complex material structures on the nanoscale level to identify key features for their potential use as materials to convert solar energy and heat to electricity.

**Award(s): 2 totaling \$1.5 million, Energy Sciences Fellowships and Early Career Research Program**

**Location: Ann Arbor**

- **University of Michigan, Ann Arbor - \$777,000**  
The University of Michigan in Ann Arbor received \$777,000 for the Energy Sciences Fellowships and Early Career Research Program to research multi-resolution climate modeling with adaptive cubed-sphere grids.



- **University of Michigan, Ann Arbor - \$750,000**

The University of Michigan in Ann Arbor received \$750,000 for the Energy Sciences Fellowships and Early Career Research Program to research deformation and failure mechanisms of shape memory alloys.

**Award(s): \$284,000, Research and Infrastructure Augmentation at Universities in the HEP Program  
Location: Ann Arbor**

The University of Michigan in Ann Arbor received \$284,000 for Research and Infrastructure Augmentation at Universities in the HEP Program. This project renews and improves HEP program infrastructure so universities can remain competitive by developing future detector and accelerator technologies and provide world-class training for the next generation of experimental scientists.

**Award(s): 3 totaling \$448,000, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1**

**Location: Okemos, Ann Arbor**

- **Technova Corporation, Okemos - \$150,000**

Technova Corporation in Okemos received \$150,000 for Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) to research imaging-based optical caliper for objects in hot manufacturing processes.

- **Og Technologies, Inc., Ann Arbor - \$150,000**

Og Technologies, Inc., in Ann Arbor received \$150,000 for Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) to research shape-stable and highly conductive nano-phase change materials.

- **Translume, Inc., Ann Arbor - \$148,000**

Translume, Inc., in Anne Arbor received \$148,000 for Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) to research inexpensive, robust, wireless, fourier-transform sensor to improve the energy efficiency of petroleum refineries.

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/Michigan](http://energyempowers.gov/Michigan)



Advanced batteries will enable electricity generated through renewable energy sources to be used in plug-in vehicles. | File photo

LIVONIA

## Battery jobs coming to Michigan

A123 Systems, of Watertown, Mass., was awarded a \$249 million Recovery Act grant from the U.S. Department of Energy in August that will help implement the company's strategy for the construction of lithium-ion battery manufacturing facilities in the U.S., with the first location being constructed in Livonia, Mich. This is the first step in the company's overarching goal of creating a complete battery manufacturing industry in the U.S., keeping every element of the process — from development to final assembly — in the country, meaning more green jobs for Americans.

The Livonia site is expected to be ready for production in the second half of 2010, and a second site in Romulus should be ready during the first half of 2011. There are also plans to build in a third, southeastern Michigan location.

A123 expects these projects could create more than 3,000 new jobs in the U.S. by 2012, with many of those being direct jobs at its factories in some of the areas that were hit hardest by the economic downturn. The company's lithium-ion batteries offer longer life, higher power density and better stability and safety than first-generation batteries of the same type, meaning A123 Systems' batteries can safely and efficiently be used in electric-drive vehicles — the future of both the automotive and battery markets.

"Electrification of transport is the best way to dramatically reduce our dependence on foreign oil," Andy Chu, a vice president at A123, says. "Renewable sources of energy like wind, solar and hydro can be used to power vehicles."

Though its facilities are still under construction, the company has already started hiring laid-off auto workers in Michigan to help meet its customers' needs. As companies such as A123 work to make America the world leader in the domestic advanced battery field, they also contribute to reaching the goal of less dependence on foreign oil as an energy source because advanced lithium-ion batteries can be used in the transportation, electric grid services and portable power markets.

A123 was born out of the research labs of the Massachusetts Institute of Technology and was funded initially with a \$100,000 grant from the DOE in 2001, when the company began with five employees. It now has more than 1,600 employees worldwide.

HOLLAND

## Boat manufacturer expands into wind turbine blades

Near the eastern shore of Lake Michigan, there's a shift taking place.

Tiara Yachts makes fiber composite structures for boats. Now the Holland, Mich.-based company is transforming part of its factory and using its 30 years of expertise in composites to establish a new company - Energetx Composites - that will produce commercial-sized wind turbine blades.

The effort to produce wind turbine blades at Energetx is funded in part by the U.S. Department of Energy's State Energy Program, which provided a \$3.5 million grant through the American Recovery and Reinvestment Act. Energetx provided a matching investment of \$3.5 million. The money is being used to retool portions of Tiara's existing plant to manufacture utility-scale wind turbine blades.

### Change in the wind

Vice President of New Product Development Kelly Slikkers says the birth of the new business is part of a vision the officials has had for a few years now.

"Our yachts business is just as viable today as it has always been, and we're still committed to the marine market," he says. "But we also have always tried to look at diversification as a way to provide

---

*"The U.S. needs a strong energy policy that drives sustainability, and I think we have the resources - the people - here who can play a major part in the clean energy economy." — Kelly Slikkers, vice president at Energetx*

---

more products that fit in with our expertise and that can put more Michigan people to work.”

Because yachts are considered luxury products, Slikkers says business goes away somewhat if the economy has a down year, which impacts the lives the company’s workers and their families. To address this issue, top executives met three years ago in a planning meeting to find ways to spark growth during those less-productive years.

“We found we can use our core competencies in composites skills in other industries too,” Slikkers says. “Because we have 50 years of experience in composites, we’re known for being very good at what we do, so when people were at wind conferences or supply chain events, they always came back and told us all they could think about was us - we investigated the industry and decided to run with it.”

The Recovery Act funding is helping Energetx with the upfront costs of retooling some of the company’s manufacturing capabilities for wind industry products. Specifically, the mold sets for large wind blades are very costly.

#### Hiring predicted

Energetx also needs more hands on deck to ramp up production of its new product. They’ve already begun hiring more employees and training them for wind blade manufacturing, and the company is also looking for professional personnel in fields such as quality control and engineering to support Energetx’s efforts. The company currently has 23 employees but expects to be about 160-strong by summer 2011.

The manufacturer has also partnered with Grand Rapids Community College to develop a composites technician program from which it can recruit new employees. The company hired nine graduates of the program’s first class.

Slikkers expects Energetx to release its first prototype blade, currently in the engineering phase, later in 2010. The blade will be constructed and sent to a laboratory for testing early next year, and then the company expects to see its first sets of blades installed during spring 2011, which will provide them with a functional model to show customers as Energetx goes to market with its blades - a market Slikkers believes Michigan has the foundation in place to contribute to for years to come.

“I believe there’s a good opportunity here,” he says.

“I believe the renewable energy market will be a strong one, and I think Michigan has huge potential in it. The U.S. needs a strong energy policy that drives sustainability, and I think we have the resources - the people - here who can play a major part in the clean energy economy.”

#### PLYMOUTH

### Tank parts manufacturer makes push into renewables

Tanks strike fear in enemies during battle, and for good reason — the 120-mm main gun of an M1 Abrams tank is both deafening and destructive. Now a company that has manufactured geared systems for those mobile weapons for more than 20 years is part of the forces working toward energy security and independence.

#### Weapons of mass production

In southern Michigan, Loc Performance Products is retooling space in its existing factory in Plymouth, where it builds gears and gearboxes — which provide rotating force from gears to move

The Recovery Act gave the U.S. Department of Energy \$3.1 billion in funding for grants to states under the State Energy Program. Michigan received \$82 million from that funding, which the state has directed toward:

- \$39.4 million to reduce energy consumption in state-owned buildings
- \$39.3 million to facilitate energy efficiency in the private sector and drive supply chain diversification into renewable energy sectors, which includes the award to Loc Performance Products
- \$3.3 million to create opportunities for wind energy in Michigan, including measuring potential locations for new wind farms

For more information on Michigan’s State Energy Program, visit the Michigan Department of Energy, Labor & Economic Growth.

vehicles — for the U.S. military. The retooling project, funded by \$1.5 million from the U.S. Department of Energy’s State Energy Program from the American Recovery and Reinvestment Act, will use the funds to buy heavy machinery to produce gearbox assemblies for utility scale wind turbines.

Loc has been the sole source provider to the U.S. government for final drive assemblies for the iconic M1 Abrams tank — in service since 1980 in conflicts such as the Gulf War and the Iraq War — and other tracked vehicles.

With the Recovery Act funding, this is the first time the company has entered the renewable energy materials realm.

“The market was taking off, and we started to educate ourselves on the guts of the turbine to see if anything made sense for us,” says Louis Burr, president.

“We found that there are typically five to eight gearbox systems per turbine, and these units are very similar to what we already make, so we’re designing our own.”

Loc plans to roll these gearbox systems off its production lines later in 2010. High-level production is targeted for the second or third quarter of the following year.

#### From automotive to wind jobs

New market demand means Loc also needs to hire more workers.

“At first, it’s going to be high-paid engineering types of jobs, but we will then need 90 more manufacturing employees to reach our target of capturing 5 percent of the global market,” Burr says. “If we go beyond that, we’ll obviously need even more people, and many of these folks are skilled machine operators, plenty of them coming from the automotives arena — being in Michigan means there is a huge workforce available for us to put to work.”

Burr says his company doesn’t have any plans on making its venture into renewables temporary. According to the company’s current five-year plan, manufacturing for wind turbines is slated to be about one-third of its business.

“We have a lot of resources dedicated specifically to this market and being successful in it,” Burr says. “It’s going to have a substantial impact in Michigan for us to hire 90 people directly here, and then our partners are going to have to hire people to support that activity — these numbers could all increase dramatically as we become more successful.”



The Allen brothers have installed their BIPV product on the roof of their Rochester Hills headquarters. | Photo courtesy LUMA Resources

its factory to ramp up production.

LUMA expects to begin selling its product to customers sometime in July 2010.

The demand and resulting increase in production of the new product has also led to the hiring of Michigan residents at LUMA. The Allens will hire at least 20 manufacturing employees in the first year of production. As demand increases, they expect to hire for more positions in manufacturing and in areas such as sales, marketing, production management and quality control.

“Our assembly line is labor-intensive, and we deliberately kept it very hands-on,” Allen says. “We could’ve made things more automated, but we decided that Michigan needs jobs and we can have a lot more control over the early manufacturing stages if we do things the old-fashioned way - by hand.”

Allen says he’s proud to have been recognized by his home state as the first solar company in the country to access clean energy manufacturing funding through the

### Michigan roofing company expands into solar shingles

It was 10 years ago when Robert and Gary Allen built the plant in Rochester Hills, Mich., where Allen Brothers Inc. currently manufactures roofing products. And for those 10 years, half the building stood unused.

#### Reinventing the family business

The two brothers in charge - President Robert Allen and CEO Gary Allen - always intended to lease out that other half of their building but never really needed to. Now, with \$500,000 in funding from the American Recovery and Reinvestment Act, that empty half has been retooled to manufacture an innovative new solar energy product - solar shingles. The project is expected to put about 20 people to work in the first year of production. The company’s all-in-one solar kit for a 2400 DC watt system uses patented, pre-engineered building integrated photovoltaic (BIPV) sloped roof design incorporating polycrystalline silicon solar cells.

The innovative siblings leading the 60-year-old family business created sister a company, LUMA Resources LLC, in 2007. The company’s solar shingle systems are actually the roof and a solar energy generator at the same time, eliminating the need for frames and racks that are typical to most solar roof systems. President Robert Allen says because the LUMA system was first tested as a roof, it doesn’t leak.

The brothers jumped at the opportunity to work with solar technologies as soon as it presented itself, Robert Allen says. The Recovery Act award from Michigan’s State Energy Program, funded by through the U.S. Department of Energy’s State Energy Program, made the move possible.

#### Creating products and jobs

Because the product was so unique, there were no existing standards by which to measure this type of BIPV. As a result, the testing phase product took longer than the brothers had hoped. But the Recovery Act award came to LUMA right when the company had finally wrapped up testing and was looking for a way to retrofit the unused area of

Recovery Act.

“We reinvented ourselves,” he says. “We went from working within a hurting construction market in Michigan and went forward into manufacturing a clean energy economy product within our own industry.”

#### CHARLEVOIX

### Michigan town committed to sustainable future

Charlevoix, Mich., sits on a stretch of land between Lake Michigan and Lake Charlevoix along the Pine River. It’s a scenic atmosphere that both summer vacationers and local residents have worked to protect, city manager Rob Straebel says.

“The community here has been proactive in creating a sustainable future,” he says.

Citizens are taking steps to become a more environmentally-conscious community, and a \$50,000 Energy Efficiency and Conservation Block Grant will help that cause. The funding will be used to launch projects aimed at energy efficiency and sustainability, such as retrofitting the city’s fire and emergency vehicles with new, energy-efficient lighting.

Motion detectors and light sensors will prevent wasted electricity in municipal buildings. These upgrades, along with energy-efficient heating and cooling systems, are expected to save the city about \$3,300 a year. The finished projects will also benefit residents and local businesses.

Known as “Charlevoix the Beautiful,” the town has about 3,000 residents in the winter and 30,000 in the summer months. Tourism is the big engine that drives Charlevoix’s economy, but new funds and the jobs it will create are always welcomed.

“The cost savings will impact the community,” Rob says. “The projects will certainly assist general contractors with more opportunities for work. Every little bit helps.”

Charlevoix County was awarded \$130,000 in block grant funds. “We then made a wish list, and prioritized items from the engineer’s



Charlevoix, Mich., is using Recovery Act funds for energy upgrades | Photo courtesy Charlevoix, Mich., city manager

suggestions,” says Frank Shaler, maintenance supervisor for seven of the county’s buildings. “With the block grant that we were awarded we are in the middle of our project and are going to be able to save both natural gas electricity with less emissions.”

The county is planning to replace low-efficiency boilers in the county building with high-efficiency condensing boilers.

The funds designated to Charlevoix come from the \$17.4 million awarded to the Michigan Department of Energy, Labor and Economic Growth from the Recovery Act.

The town was one of 125 communities in Michigan to receive funding. Rob says the grant projects are just the beginning of Charlevoix’s green efforts.

“These energy-efficient projects are one of many we’ll be spearheading,” he says. “Local government should be a leader in environmental issues, and we’re quite pleased we’re taking that role.”

#### LANSING

### Astraeus Wind modifies manufacturing in Michigan

When the assembly line was introduced to the automobile industry, everything changed. Cars were produced in less time with fewer errors, and each one was exactly the same as the last. As a result, the industry boomed.

Astraeus Wind LLC hopes to bring this type of success to wind turbine manufacturing by standardizing the blade manufacturing process. The company wants to experiment with new materials to strengthen the blades while creating an automated process to assemble them, creating identical blades in a fast, efficient manner.

CEO Jeff Metts says standardizing this process will help ensure each blade has the same measurements, lower the amount of time needed for production and alleviate the chance of human error. The company also plans to research carbon-fiber blades as an alternative to fiberglass.

Although it’s been around for centuries, Astraeus sees wind power in its infancy in terms of manufacturing.

For Jeff, it would be “amazing to do these things with such precision and take this blade technology to the next level. We’re just right at the beginning now.”

In addition to blade production, Astraeus is using money from the Recovery Act to modify the way that the hubs — the central part of the wind turbine that is responsible for rotating the blades — are manufactured by creating large machinery that would expedite the hub machining process significantly.

Currently, the average hub takes 20 to 25 hours to manufacture,

and Astraeus hopes to bring it down to four.

“We’re looking to take the bottle necks out of the supply chain,” says John Truscott, executive vice president at Astraeus. “Hubs are really important to the turbine building process, and we’ll be able to produce them at a very rapid rate with very high quality.”

The company, a new venture between Michigan’s MAG Industrial Automation Systems and Dowding Machining LLC, will be able to rely on its partners for space and equipment. For now, the company is based in Lansing, Mich., but will relocate to a nearby Dowding Industries plant when the machinery for the hubs is completed.

For Astraeus, a major part of the project is bringing wind technology to Michigan. Jeff hopes Astraeus will help create awareness and a lot of economic activity for the state. “To produce 3,000 blades a year will take a million square feet of manufacturing space,” Jeff explains. “There’s not many factories that have the space to employ hundreds of people, but this will have that capacity.”

In the next few years, John and Jeff estimate that Astraeus could create hundreds of jobs for the mid-Michigan region, and hope to open up to four plants in the future, creating thousands of jobs in the state.

“We’re all Michigan guys,” John says. “The state’s going through some tough times...this is a way to help a home state that’s been good to us.”

Jeff says manufacturing is helping lead the state out of the economic downturn, adding, “We take nothing and make it something — it’s a huge part of the economy.”

### President Obama plugs in clean energy incentives

President Obama wants to supercharge the clean energy economy. As part of the Recovery Act, he announced the award of \$2.3 billion in tax credits that will help manufacturers across the country create tens of thousands of skilled, green-collar jobs.

“Building a robust clean energy sector is how we will create the jobs of the future,” President Obama said. “The Recovery Act awards I am announcing today will help close the clean energy gap that has grown between America and other nations while creating good jobs, reducing our carbon emissions and increasing our energy security.”

The 30-percent tax credits will spark growth at 183 projects in 43 states, helping bolster the American manufacturing firms of the future. Clean-energy technology manufacturers in solar, wind, batteries, energy efficiency and energy management technologies will hire roughly 17,000 workers as a direct result of these Advanced Energy Manufacturing Tax Credits. The tax credits will leverage more than \$7 billion in total manufacturing investment.

The Department of Energy and the Internal Revenue Service worked together to process the applications and select the most promising to receive tax credits. The selection criteria they used to evaluate the applications included domestic job creation, potential for technological innovation and commercial deployment, ability to reduce greenhouse gas emissions and speed to project completion. Other policy factors including regional economic development and diversity of geography, technology and project size were also considered.

President Obama acknowledged that although the unemployment numbers for the last quarter of 2009 look much more hopeful than those in the first quarter, the nation must tackle the challenge of rebuilding a more prosperous economy.

“Competition is what fuels innovation. But I don’t want America

to lose that competition,” President Obama said. “I don’t want the industries that yield the jobs of tomorrow to be built overseas. I don’t want the technology that will transform the way we use energy to be invented abroad.”

TPI Composites, Inc. in Newton, Iowa, a major U.S. wind turbine maker, for one, will be able to expand its Newton facility, open a new blade manufacturing factory in Nebraska and hire more than 200 people.

Eleven companies in the hard-hit state of Michigan will receive the credit, breathing new life into its manufacturing sector. Rogers Foam Automotive Corp. of Flint, for example, will produce a component used to regulate the temperature of batteries in electric cars. Another Michigan-based company, Merrill Technologies Group, will build equipment used to manufacture gearbox housings for wind turbines.

Other qualifying technologies under the credits include fuel cells and microturbines, plug-in electric vehicles, equipment used to capture and store carbon dioxide, equipment to refine or blend renewable fuels, and lighting and smart grid technologies.

The initiative has been so popular and demand so high by qualified applicants that it was well oversubscribed. The strong interest by the private sector, the high level of diversity of the applications, and the huge increase in renewable energy production these manufacturers will make possible, all have contributed to the success of the program. In fact, the President has asked Congress to consider investing another \$5 billion in the program.

“We’ll take an important step toward meeting the goal I’ve set of doubling the amount of renewable power we use in the next three years with wind turbines and solar panels built right here in the U.S. of A,” he said. “Put simply, this initiative is good for middle-class families. It is good for our security. It’s good for our planet.”

### Mich. wind firm teams with college on training

Tom Bos has found a new profession. He was laid off after 20 years in a small company office environment. He spent 14 months looking for a job, before seeing an ad in the local paper about Grand Rapids Community College’s new composites training course. The course was developed through a partnership with Energetx Composites, a Holland, Mich.-based wind turbine blade manufacturer.

A friend who worked at Tiara Yachts — Energetx’s sister company — told Bos about how Energetx was hiring people with composites training for positions in wind turbine blade manufacturing.

Graduating from a four-week community college course is earning Michigan residents like Bos more than a piece of paper. Bos signed up and today works for Energetx as a composites technician.

#### Hands-on job training

Energetx Composites, which received a Recovery Act grant, expects to grow from 23 to about 160 employees by next summer. The company is meeting some of its hiring needs through the training partnership with Grand Rapids Community College. Already, the company has hired nine graduates from the first class — taught on-site at the Energetx plant — that ended April 1.

“I find working at Energetx really interesting,” says Bos. “The class was a good thing for me personally because if you walked into the factory without that knowledge and someone tried to tell you what to do, you couldn’t do it. These are big parts we’re working on, sometimes with five other people at once doing different pieces of a project. So I’m glad it was all part of the course.”

There are no guarantees that students will be hired at Energetx or any of the other composites manufacturers in Michigan, but the college has an average rate of almost 90 percent for job placement.

“Getting people who have cooperation and communication skills ahead of starting the job is very important,” Steve Busch, human resources director at Energetx, says. “When managers can’t be present to offer help, having people like Tom who take initiative and work with their team is a strong quality — we automatically have these employees coming in from this class who have given a certain level of commitment to the field, which is great.”

Each class of about 20 students is split into half classroom time and half hands-on. There are 80 hours of instruction that GRCC plans to run monthly for now. The composites class begins with an introduction to the industry and covers topics such as quality parts production and the metric system, but it also focuses heavily on communication skills and teamwork. The course culminates with an exam, administered by Paul Dickensheets, GRCC’s composites instructor.

“At the end, they take an exam where we give students molds and materials with a description of the product, and they have to figure out how to make that part successfully,” he says. “This, along with other criteria, decides if they pass course.”

#### Industry, education working together

Julie Parks, the director of workforce training at GRCC, says the top priority for the courses are to ensure students have entry-level proficiency in their respective industries. While about 60 percent of the students pay for the courses themselves, others use military benefits or the Michigan Works! program, where participants can get approved to have the entire cost of the training paid for through the state. The public-private partnerships with companies like Energetx that have been instrumental in offering some of the classes.

“The whole composites training project has been a great public-private partnership because Energetx helps the college with materials and technical assistance we’d never be able to afford otherwise, and they are so open to letting us see their processes and learn along the way,” she says. “To have that expertise here and to be able to know what’s happening right now in the industry is invaluable to an educational institution, and it’s something we couldn’t do alone.”

Busch feels the same way, saying it’d be tougher for his company to find the amount of workers it needs during this growth period without the community college’s help.

“It would be very difficult without them because it’s a skill set that doesn’t generally exist in the manufacturing base in western Michigan,” he says. “We’re known for strong manufacturing and engineering, but a lot of that traditionally comes out of metallurgy and not from composites.”

Parks says GRCC has more job training plans evolving with green companies such as Energetx all across Michigan.

“We go out and find what types of employees companies need and tailor training programs around those skills,” she says. “We have solar photovoltaic courses, wind safety technician programs — we’re very forward-thinking, and our president likes us to go find out what new industries are out there and to find ways to put people to work right here in Michigan.”

Now a couple of months into his work at Energetx, Bos is still enjoying his new career, “I’m excited because it’s a new company in a growing industry, and you get fired up when you hear things about wind turbines knowing it’s something you’re going to be working on.”

## HOLLAND

**Ex auto worker gauges efficiency of American homes**

Doing good deeds for others is what Pete Boogaart in Holland, Mich., is all about. Pete, who's a married empty-nester with four kids, lost his job in January after keeping Americans safe and comfortable by testing car parts for the last 15 years. But through volunteering for a local action agency, he retooled his old skills and scored a new job as a weatherization inspector.

His experience using gauges and other testing equipment made him a shoo-in. When he was in the car industry, he used gauges to test everything, down to the latch that holds the center console closed.

"There are certain mandatory tests in weatherization that you have to do like checking for gas leaks and testing the water heater," Pete says. "Is carbon monoxide drafting back into the room? We have gauges to determine if that's happening."

In 2008, as some American car manufacturers spun their wheels, many of the businesses that support them went into survival mode or went under. People like Pete felt the impact hit home.

The layoff gave Pete time for the volunteer work with community groups he'd always wanted to do, where he helped people save money while helping the environment. Yet, he spent more time doing work for free than he had hoped. He really loved volunteering so much of his time, he says, but his job-hunting efforts weren't going so well – and, unfortunately, volunteering doesn't pay the bills.

"I was on unemployment, and you post your resume and check

the Web everywhere," he says. "You talk to friends and network and try to let people know you're out there. It doesn't feel good, I can tell you that. It seems like a lot of doors aren't open, and Michigan was losing jobs."

All that effort he put into the job search didn't pay off at first, but the networking Pete did through his volunteer work eventually did. Luckily, he met a leader from Ottawa County Community Action Agency at a service event. There, Pete found out about a weatherization inspector job opening made possible by the Recovery Act, and he landed the job in June after about seven months of unemployment. The new job is a great fit for someone with his background, he says.

"I don't think there's any question how assessing auto products and using environmental chambers in my old job couples well with a lot of home-assessment techniques," Pete says. "That whole mental process to see how something is working or holding up coupled with the use of gauges – it's a very similar skill set being applied in a different arena."

Pete is very excited about everything from replacing faulty hardware to sealing up holes. Now he's doing what he loves: helping others, the environment, and supporting his family at the same time.

"I'm really enjoying the atmosphere here, and having a job where I can do what I was doing volunteering is great," Pete says. "I know now what I'm getting up for in the morning, where I'm going to go and what I'm going to do."