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OFFICE OF THE GOVERNOR
LANSING

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Alternative Energy Development

Michigan will be Nation's Leader in Alternative Energy Technology, Jobs

When Governor Granholm first unveiled her comprehensive economic plan, she identified four key areas for diversifying and growing the state's economy. One of those key areas is alternative energy.

Development of alternative energy technologies represents a transformational opportunity for Michigan to attract new global investment and create new jobs. We are witnessing the beginning of a green industrial revolution. Experts predict that renewable energy and energy efficiency alone will add \$4.5 trillion in value to the U.S. economy by 2030 and create millions of good-paying jobs.

Michigan is uniquely positioned to take advantage of the evolving green energy revolution – our untapped wind resources offer us an almost unlimited source of clean, zero-carbon electricity, our productive farm and forest land can be put to use to grow the fuels of the future, our universities and corporate research centers are becoming world leaders in alternative energy science, and our manufacturing know-how can build the components of the green energy economy.

Governor Granholm's goal is bold but attainable – to create tens of thousands of new jobs in Michigan by ensuring that renewable electric energy and bio-fuels provide 25 percent of our energy needs by the year 2025. In addition, we will reduce our demand for electricity and heating fuels by one percent per year through 2020 with a series of inexpensive, common-sense steps that will make our energy consumption more efficient.

Michigan is the state that put the world on wheels, and we can be the state that revolutionizes the way we fuel our cars and power our homes. And Michigan has a plan to get us there.

The Michigan Plan

Michigan has developed a detailed strategic plan to attract alternative energy business investment in four key areas:

- Wind energy
- Bio-fuels and bio-materials
- Solar and energy storage
- Energy efficiency

Wind Energy

The governor will ask the Legislature to pass legislation setting an ambitious alternative energy goal for Michigan – to produce a minimum of 10 percent of our electricity from renewable energy sources by 2015. This "renewable portfolio standard," or "RPS," is an essential market-based tool to attract investment by requiring that Michigan's energy portfolio be diversified to include clean, pollution-free, zero- or low-carbon energy generation. Once our "10 by 2015" standard is set, the governor will ask for a second goal to derive a full 25 percent of the state's electrical energy from renewable energy sources by 2025.

As soon as the Legislature adopts the governor's comprehensive energy policy – the state's two largest utilities – Consumers Energy and Detroit Edison – will begin to invest nearly \$6 billion to purchase wind turbines and create wind farms to produce electricity and to help businesses and homeowners install energy-saving technologies.

This will be the largest investment in renewable energy in the world and will create nearly 17,000 new jobs in the alternative energy and energy efficiency sectors right here in Michigan.

But because wind-power development involves the manufacturing of extremely large wind components – towers, blades, and turbine housings – transportation of this equipment and infrastructure is very costly. Here is another area of the “Michigan advantage.” Our unique placement in the heart of the Great Lakes region allows Michigan wind component manufacturers to ship their products economically and efficiently by water anywhere in the region.

With our more than 3,200 miles of Great Lakes coastline, Michigan’s magnificent natural resource heritage will enable a Michigan manufacturing renaissance, creating jobs that cannot be out-sourced.

Bio-Fuels and Bio-Energy

Michigan imports 100 percent of the coal we use for power generation, 96 percent of the oil needed for our transportation fuels, and 75 percent of our natural gas. As a state, we spend \$18 billion every year to pay for these imported conventional fossil fuels.

These are dollars lost to the Michigan economy. Governor Granholm’s plan is to keep more of these dollars circulating in Michigan’s economy by creating robust, dynamic, renewable energy sectors that will drive job creation, provide new opportunities, and launch a brighter future for Michigan.

To develop our bio-fuels sector, Michigan is implementing a plan to derive 25 percent of our transportation fuel needs from renewable sources by 2025. Michigan’s extraordinary resources again enable our state to create advanced bio-fuels from our abundant forestry resources and agricultural crops.

Michigan grows 2.7 times more wood fiber than it removes each year, putting it near the national leaders in available fiber surplus. Estimates indicate that Michigan forestry sources alone are enough to support, on a continuous basis, six commercial-scale, lingo-cellulosic ethanol refineries, each producing more than 50 million gallons of advanced transportation fuels per year.

Michigan also will use targeted recruitment tools to aggressively recruit high-growth alternative energy business globally by duplicating international successes right here in our great state. We will create four Centers of Excellence where bio-energy companies and university faculty will team to research, develop, and commercialize new products from biomass and waste materials. These new “bio-opportunities” include:

- Bio-chemical conversion of cellulosic biomass to bio-fuels.
- Gasification of woody biomass to bio-fuels.
- Converting municipal waste to bio-gas.
- Creating new value-added bio-products from corn ethanol plants.

Solar Energy and Energy Storage

Michigan is well on its way to becoming a world leader in solar energy development. The governor will continue to go anywhere and do anything to aid our in-state solar manufacturers, producers, developers, and installers, and to bring new companies to our state.

When Electrolux closed its refrigerator plant in Greenville and good jobs moved to Mexico, Governor Granholm immediately went to work to replace those jobs with new high-tech, alternative energy jobs.

She convinced United Solar Ovonic (Uni-Solar) – the world’s leading producer of thin film solar electric modules and laminates – to build their new manufacturing facilities in Greenville. Uni-Solar currently operates three

major manufacturing plants in Michigan, exporting Michigan-made solar film across the country and around the world. The company plans to double its Michigan production in the near future.

A Michigan company, Hemlock Semiconductor, is already the world's largest producer of hyper-pure polycrystalline silicon – the purest manufactured material on the planet and an essential component of most solar panels. Hemlock Semiconductor is in the process of a \$1 billion expansion, creating hundreds of new high-tech jobs in Saginaw County.

Over the course of this year, Governor Granholm will be recruiting solar manufacturers and developers to invest in plants near Hemlock Semiconductor, their most important supplier. With the right vision and some hard work, Michigan's Saginaw Valley can become a new Silicon Valley, producing the solar products that will power the world's energy future.

In the next few years, energy experts predict that we will not only see a transformation in the types of fuels that power our homes and our cars but also revolution in the ways we can store energy with advanced batteries and other technologies. Governor Granholm will do everything she can to make Michigan the epicenter for that transformation. She will help build bridges between the scientists in our universities and our corporations to work collaboratively on these technologies and will aggressively seek federal funding to make Michigan the world's advanced battery capital.

Energy Efficiency

While it's incredibly important to make sure that Michigan citizens use their energy dollars to support Michigan companies, we also need to make sure that we aren't spending more money on energy than we should be.

Investments in energy efficiency can give Michigan some of the best bang for our buck. Experts estimate that for every one dollar invested in energy efficiency efforts, almost three dollars in savings will be realized. Investing in energy efficiency measures will also produce thousands of new jobs for Michigan suppliers, retailers, and skilled laborers.

Michigan will reduce energy consumption by one percent every year through 2020 by:

- launching a statewide Michigan energy efficiency program for all customer classes;
- creating energy assistance programs to assist consumers in becoming more energy efficient;
- initiating a statewide consumer education campaign to encourage changing out incandescent light bulbs to compact fluorescent light bulbs (CFLs) and light emitting diodes (LEDs);
- “leading by example” – state of Michigan government facilities will attain a 10 percent reduction in energy use by December 31, 2008, and will reduce by 20 percent grid-based energy purchases by December 31, 2015 (when compared to energy use and energy purchases for the state fiscal year ending September 30, 2002);
- collaborating with Michigan's community colleges in workforce development to provide energy efficiency training.

Success Stories

Industry experts tell us that if we attract alternative energy manufacturers, researchers, and producers to Michigan and give them the tools they need to grow, our state can create as many as 70,000 new jobs.

And already, we know that the growth of this new industry in Michigan is rooted in reality – experts indicate that Michigan has more than 2,000 businesses with the capacity to produce renewable energy components to help meet this demand. Some examples of recent growth in this industry include:

- ***Dow Corning's Hemlock Semiconductor Corporation, Hemlock*** - Dow Corning's Hemlock Semiconductor Corporation (HSC), the world's leading producer of polycrystalline silicon for the solar and semiconductor industries, is in the midst of a \$1 billion expansion. This, the largest expansion in the industry's history, will nearly double the company's production capacity to 36,000 metric tons annually. A joint venture of Dow Corning, Shin Etsu Handotai, and Mitsubishi Materials Corp., HSC announced two expansions in Michigan in an 18-month period. Polycrystalline silicon is the base material used in microchips in computers and cell phones as well as solar cells that harvest renewable energy from light.
- ***United Solar Ovonic, LLC, Auburn Hills*** - With the first of the company's new manufacturing facilities in Greenville beginning production of photovoltaic solar panels and a second plant under construction, United Solar Ovonic has positioned Michigan to be the solar energy manufacturing capital of the United States. Its plans for four more manufacturing plants here are projected to create some 1,200 alternative energy manufacturing jobs in the state.
- ***Edgewater Automation LLC, St. Joseph*** - This six-year-old venture designs, engineers, and builds custom assembly and test equipment for the automotive, robotic, medical, stored power, and military sectors. Its facility has grown from 10,000 square feet to nearly 50,000 square feet after the addition of solar panels manufacturing to its production portfolio. The Michigan Economic Development Corporation (MEDC) assistance includes two high-tech MEGAs to enable the company's growth in Michigan.
- ***ilumisys, Inc., Troy*** - Formed in 2007 as a subsidiary of Altair Engineering, this five-employee company is just months away from production of energy-saving, next-generation, solid-state lighting technology. It is expected to revolutionize the commercial lighting market by reducing the energy consumption by 20 percent. Ilumisys expects increased sales from a few thousand units in 2008 to more than 6 million units in 2012, with a 10 percent market share representing more than 50 million units by 2017.
- ***Tellurex Corporation, Traverse City*** - Tellurex engineers and manufactures thermoelectric modules for thermal management and micropower generation applications. Its product applications span automotive, medical device, food service, and military markets. Best known today for their first-to-market heated and cooled beverage-holder, available in Chrysler vehicles, this 21st Century Jobs Fund commercialization competition awardee has attracted \$4 million in angel capital and \$1 million in federal research grants to develop the next generation of micropower application.
- ***Cascade Engineering, Grand Rapids*** – Cascade Engineering, a leader in engineered plastic systems and components, provides innovations, expertise, and intelligent solutions for the automotive, solid waste, and industrial markets. Recent innovations include development of new thermoplastic nanocomposites and a new hybrid acoustic insulator. Widely recognized for its sustainable business practices, Cascade has approximately 600 employees in the Grand Rapids area.
- ***Dowding Industries, Inc., Eaton Rapids*** – Once a small tool and die shop in Springport, Dowding today is poised to become a major player in alternative energy manufacturing. Its recently announced expansion will enhance its capacity to produce large-scale castings and housings used in gas, oil and alternative energy production. Dowding produces more than \$33 million in sales per year and has grown to 215 employees in the Eaton Rapids area.