

MICHIGANS ALTERNATIVE ENERGY PLAN



STATE OF MICHIGAN
OFFICE OF THE GOVERNOR
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

JOHN D. CHERRY, JR.
LT. GOVERNOR

EXECUTIVE DIRECTIVE
No. 2006 - 2

21ST CENTURY ENERGY PLAN

WHEREAS, Section 1 of Article V of the Michigan Constitution of 1963 vests the executive power of the State of Michigan in the Governor;

WHEREAS, under Section 8 of Article V of the Michigan Constitution of 1963 each principal department of state government is under the supervision of the Governor unless otherwise provided by the Constitution;

WHEREAS, it is critical to the public health, safety, and economic welfare of the State of Michigan to have reliable, safe, clean, and affordable supplies of energy;

WHEREAS, recent price shocks in the international and domestic energy markets have resulted in rising energy costs that have placed increased strain on Michigan businesses and citizens, especially low-income residents struggling to pay utility bills;

WHEREAS, Michigan has the intellectual, agricultural, and industrial capabilities to become America's alternative energy development epicenter, which offers a tremendous opportunity to diversify our economy and provide high-tech, high-wage, 21st century jobs to our residents;

WHEREAS, the Michigan Public Service Commission prepared and issued the Capacity Need Forum Report on January 3, 2006, after consultation with stakeholders representing all segments interested in the electric energy market including representatives from customer groups, business groups, utilities, independent transmission companies, environmental groups, energy efficiency advocates, independent power developers, and alternative and renewable energy providers, and this report makes clear that Michigan will need additional electric supply to meet its needs beginning in the year 2009;

WHEREAS, the Capacity Need Forum Report reflects a concern that institutional factors, including existing state laws and regulatory constraints, may impede the development of reliable, safe, clean and affordable electric energy supplies to meet the needs of our citizens and businesses;

WHEREAS, knowledge of the nature, location, and reliability of energy supplies, including the availability of alternative energy supplies, is critical to effective long term planning for this state and local units of government, including law enforcement, infrastructure development, transportation and land use planning, as well as for businesses seeking to locate or expand in Michigan;

WHEREAS, Michigan's unique geography increases the challenges for transporting energy and increases the need for a focus on the unique needs of both the Lower and Upper Peninsulas;

WHEREAS, a comprehensive energy plan can provide a framework for the state's future energy needs and stimulate economic growth by planning for a reliable, safe, clean, and affordable supply of energy for Michigan's future;

NOW, THEREFORE, I, JENNIFER M. GRANHOLM, Governor of the State of Michigan, by virtue of the power and authority vested in the Governor by the Michigan Constitution of 1963 and Michigan law, direct the following:

A. Not later than December 31, 2006, the Chairman of the Michigan Public Service Commission shall prepare a proposed Energy Plan for the State of Michigan. The plan shall address the following:

1. The state's short-term and long-term electric needs for residential, industrial, commercial, and governmental customers shall be met in an optimum manner that assures a reliable, safe, clean, and affordable supply.
2. The future development of Michigan's electric infrastructure shall further the state's competitive business climate, grow jobs, and provide affordable rates for all customers.
3. The appropriate use and application of energy efficiency, alternative energy technology, and renewable energy technologies shall be consistent with the goal of assuring reliable, safe, clean and affordable energy.
4. This state's natural resources and the environment shall be protected from pollution, physical or visual impairment, or destruction, and future risks associated with fossil fuels shall be mitigated.
5. A renewable portfolio standard shall be created that establishes targets for the share of this state's energy consumption derived from renewable energy sources.

6. New technology options to generate, transmit, or distribute energy more cleanly or more efficiently shall be identified.

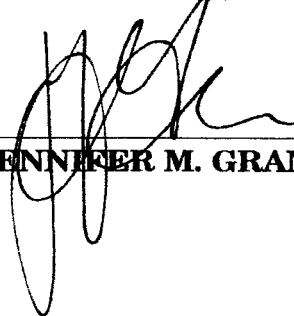
7. The state's economic interest in ensuring development of the intellectual capital, financing, infrastructure, and other resources necessary for continued growth of alternative and renewable energy technologies within the state shall be fostered.

8. The plan shall identify any legislative or regulatory changes necessary to its implementation, together with any financial, funding, or incentive mechanisms needed to best position the state to meet the energy challenges of the future.

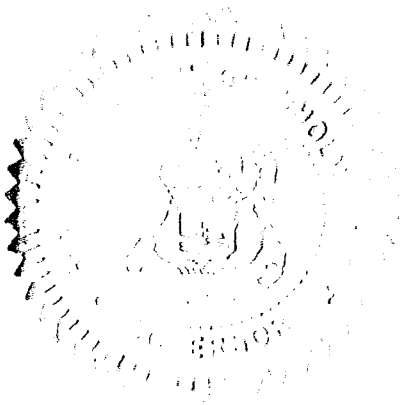
B. The Chairman of the Public Service Commission shall consult with the directors of state departments and agencies as he or she deems necessary or advisable, and shall consult with appropriate stakeholder representatives. All departments, agencies, committees, commissioners, or officers of this state shall give to the Chairman of the Public Service Commission any necessary assistance to fulfill this Directive. Free access also shall be given to any books, records, or documents in its, his, or her custody, relating to matters within the scope of inquiry, study, or investigation of the Chairman of the Public Service Commission under this Directive.

This Directive is effective upon filing.

Given under my hand this sixth day of April in the year of our Lord, two thousand and six.



JENNIFER M. GRANHOLM





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GOVERNOR

Executive Directive
21st Century Energy Plan

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.



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JOB CREATION AND ECONOMIC STIMULUS

Governor Granholm's Continuing Effort to Diversify Our Economy

Michigan has felt the impact of the world's changing economy more than any other state. That's why Governor Granholm is focused relentlessly on four critical priorities for our state – a job for every worker, an education and training for every child and worker, health care for every family, and safe places to live, work, and play for ALL of us. Focusing on these key issues will make Michigan the best place to live, learn, and earn.

To ensure a job for every worker, the governor has made a commitment to go anywhere and do anything to bring jobs to Michigan. Since taking office, her five trips overseas have attracted 35 businesses and more than 7,000 new jobs. To make the state's business climate more business-friendly, she enacted the most sweeping reform of business taxes in 30 years and has reduced permitting time for some permits from more than six months to less than 90 days. And the No Worker Left Behind program she introduced last year is ensuring that displaced workers have the training they need for jobs that are open today and that will be open tomorrow.

IMMEDIATE ECONOMIC STIMULUS

- **Road Project Stimulus Package** – The governor will propose \$150 million in building projects for necessary roads and buildings. The package also will create 2,100 additional construction jobs over the next two building seasons – with better roads as the result of our investment. The package is made possible by refinancing existing debt and bonding to take advantage of lower interest rates.
- **Investment in Michigan Infrastructure** – Between proposals for Fiscal Years 08 and 09, the Governor proposes investing more than \$800 million in bricks and mortar construction projects for Michigan's higher education institutions, state parks, airports, military armories, and transportation facilities, and includes requirements for "green" construction.
- **One-year Moratorium on Department of Environmental Quality Fee Increases** – The governor is proposing an increase in the Department of Environmental Quality general fund budget that would prevent any proposed fee increases for businesses during this economically challenging year. The moratorium is made possible through a one-time refinancing of some state bonds.

NEW TOOLS FOR ATTRACTING NEW JOBS

- **Invest Michigan!** – An innovative new investment fund that will make capital available to businesses that agree to grow new jobs in Michigan. The governor is pledging \$300 million over the next three years to open the fund and is seeking commitments from other institutional investors to increase it. Invest Michigan! will invest less than one percent of the state's pension fund through a professional investment manager making prudent investments that provide a competitive return. A business advisory board will offer mentoring to businesses that benefit from the fund.
- **The Michigan Job Creation Incentive** – A substantial Michigan Business Tax cut for any high-growth-sector business that chooses to create new jobs in Michigan. New businesses in the top 50 growing sectors will pay no taxes in the first year of the tax cut; existing top 50 growth-sector businesses will get a triple tax credit on their Michigan Business Tax. The state will take advantage of lower interest rates to refinance some state bonds to fund the tax cut.
- **Expand Business Marketing and Tourism Promotion** – Michigan will invest \$50 million in promoting Michigan to job-growing business leaders and economy-boosting tourists from across the country and around the globe. The investment is the largest promotion in Michigan's history, allowing outreach to more than 600,000 CEOs and making Michigan one of the ten most aggressive states in tourism promotion.

- **Make MEGA Credits More Flexible** – The governor will ask the legislature to make changes to the existing Michigan Economic Growth Authority law that will make the state’s MEGA job creation credits more flexible and competitive. In addition, the governor will add tourism as an eligible business to attract capital investment to the state.
- **Film Incentives** –The governor will work with the legislature to soon offer the most aggressive incentives for film companies in the nation. The state will offer a 40 percent tax rebate to film companies that bring their productions – and the associated jobs – to Michigan. In addition, the state will significantly enhance the Michigan Film Office and authorize state and local governments to provide free use of facilities for film and digital media production.

A MORE BUSINESS-FRIENDLY ENVIRONMENT

- **Fiscally Responsible Budget** – The budget Governor Granholm will present to the legislature next month for Fiscal Year 2009 will contain no new programs without a way to pay for them and no new taxes or fees, along with \$200 million in additional cuts and reforms.
- **Bolstering Michigan’s Savings Account** – The governor also will announce a \$100 million deposit into the state’s Rainy Day Fund – further ensuring Michigan’s fiscal stability in the short term.
- **One-Stop Shop** – This year, Michigan will create a one-stop, web-based portal for Michigan businesses to make working with government as easy as possible – creating less red tape for permitting, tax information, and support services. By the end of the year, any business will be able to visit one web site and make one call to one office to obtain all the information needed – and begin all the paperwork necessary – to open or grow a business. The Governor has enlisted the private sector to work with her on continuing to streamline and shorten permitting times.

NEW TOOLS FOR GROWING THE ALTERNATIVE ENERGY INDUSTRY

- **An Aggressive Renewable Portfolio Standard** – Governor Granholm’s goal is that 25 percent of all Michigan’s electrical energy will be generated from renewable sources by the year 2025. The new standard will push Michigan to the forefront of wind energy production. The Legislature has shown great leadership on this issue, and the governor asked them to move quickly to pass an interim goal of 10 percent by 2015.
- **Centers of Excellence** – Duplicating international successes, four alternative energy companies in Michigan will partner with universities to co-locate to conduct research and create new jobs. The centers will link a job-creating alternative energy company with a university. The company gets an incentive from the state, the university gets a partner to bring its alternative energy research to market, and the state gets jobs. Funding for these centers will be set aside in the 21st Century Jobs Fund.
- **Anchor Zones & MEGA** – The governor will ask the legislature for the ability to create new “Anchor Zones.” This incentive makes “anchor companies” Michigan’s partners in business attraction by giving these companies tax credits based on their ability to attract or expand their own supplier base in Michigan. In an Anchor MEGA, the anchor company would receive a refundable tax credit based on the value of the personal income taxes captured from new jobs created within the anchor company’s supply chain or customer base.
- **Tax Credits For Wind Power Generators** – Michigan will create incentives for wind developers to locate wind farms in the state by reducing the property tax on wind towers by 50 percent.