

The Michigan Solar Advantage: Positioning the Great Lakes Bay Region as a Global Leader In the Solar Technology Industry

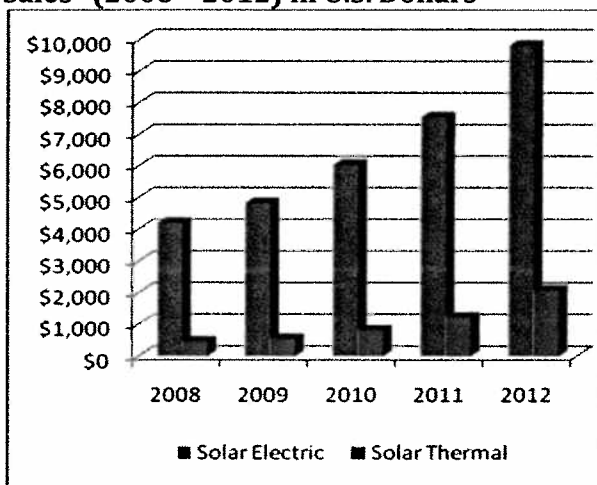
- ❖ The global solar energy market is growing rapidly, and is projected to nearly triple in the next 4 years.
- ❖ The Great Lakes Bay Region is very well positioned to become a leading solar developer and manufacturer
- ❖ Michigan policy-makers can take action now to address some of the key market barriers to attracting new solar industries to our state.

The photovoltaic (PV) market includes two primary technologies: crystalline and thin film. Crystalline currently leads the global market with roughly 90% market share.¹ Japanese and German companies dominate the crystalline market. Thin film has gained the most market share in the U.S., where it is roughly 30% of the market.

The Growing Solar Energy Market

In 2007, North America was the world's fastest growing solar market, and according to the Solar Energy Industries Association (SEIA) has among the best solar resources in the world.

U.S. Solar Market: Projected Total Dollar Sales (2008 - 2012) in U.S. Dollars



Source: *The U.S. Solar Energy Market in a World Perspective* SBI. March 2008

The Michigan Solar Advantage

In order to meet growing demands, the global PV industry is rapidly expanding its research and manufacturing capabilities.

PV Value Chain <i>(each step in the PV value chain has unique community and property requirements)</i>
Research & Development
Raw Materials
Cell/Film production
PV Modules/Products
Distribution/Installation

With focused public and private efforts, Michigan can emerge as a primary center for the solar industry. The Great Lakes Bay Region is particularly well poised to capitalize on, and accelerate these opportunities. The region is home to major corporations, small incubator companies, leading R&D institutions, and suppliers specializing in research, product development, and manufacturing of chemical,

¹ "The U.S. Solar Energy Market in a World Perspective" SBI. March 2008

silicon, advanced materials, and nanotechnologies.

These companies have been investing in efforts to create a unique regional capacity for solar technology research, testing, manufacturing, and deployment.

In addition, communities in the region have been actively investing in R&D and workforce development efforts to support this growing industry. The region boasts a dozen prominent academic institutions that provide critical R&D partnerships and workforce training.

Delta College, for example, offers a Chemical Process Technology Associate degree and a short-term, 480 hour accelerated

Sampling of Solar Industry Capacity & Investment in the Saginaw Bay Region:

- ❖ ***Dow Corning:*** construction of a 27,000 square foot Solar Solutions Application Center which enables collaboration for the development, evaluation, piloting, and manufacturing of solar solutions.
- ❖ ***Evergreen Solar:*** \$50 million for a new manufacturing facility to produce components for the company's STRING RIBBON™ wafer solar cells.
- ❖ ***Dow Chemical Corporation:*** \$50 million investment in "building-integrated PV" systems
- ❖ ***Hemlock Semiconductor:*** The world's leading producer of polycrystalline silicon for the solar industry has announced plans for another \$1 billion expansion - creating more than 300 new jobs

Pre-Chemical Process Operator "Fast Start" program. This program, which is getting national media attention, is geared toward helping chemical companies like Dow Chemical, Dow Corning, and Hemlock Semiconductor to meet their needs for approximately 500 new chemical process technologists to be hired over the next 5 years.

Other university efforts include the launch of a Solar Energy Industry Association (SEIA) chapter at Saginaw Valley State University.

Key Needs

Growing solar industry firms are making decisions now about where to site R&D and manufacturing facilities. The Great Lakes Bay Region is aggressively moving to position itself as a major hub of that activity.

In order to be competitive in attracting solar industry companies to the region, we must be able to quickly provide:

- Unique financial incentives to attract and secure solar industry companies.
- Tax and other financial incentives for land acquisition and infrastructure.
- Opportunities to demonstrate Michigan made solar technologies through deployment of solar products in public and private spaces.
- Workforce training in solar technology, manufacturing, and installation in order to accommodate industry needs for a highly qualified technical workforce.
- Access to significant local R&D expertise and capacity

To address these issues, we are asking for immediate support from Michigan policy-makers. In particular, we are requesting:

- Support for our funding request to the Governor through the American Recovery and Reinvestment Act (ARRA) for 3 key projects to advance technologies, train our workforce, and create local markets for solar products.
- Legislative changes that will enable Michigan communities to provide financial incentives for attracting solar industry companies to Michigan.

ARRA Funding Support

Saginaw Future has requested funding through the ARRA, and is seeking support for the following projects to advance the Great Lakes Bay Region solar industry:

- ❖ An independent solar energy testing laboratory at Saginaw Valley State University which will help companies validate new solar technology, product and process innovations.
- ❖ A certified public managers training on *Greening the Local Community* at SVSU which will enable our community to train the necessary workforce to support the growing solar industry
- ❖ An urban solar demonstration project in Saginaw's Downtown Renaissance Zone through the redevelopment of a major public parking facility with locally-produced solar panels to provide the structure's electricity needs

Legislative Support

In addition, we are seeking support for legislative amendments which would enhance Michigan's ability to attract new solar industry firms to the state, including:

- ❖ Reauthorization and appropriation of the Centers of Energy Excellence legislation to help leverage funds for a \$60 million (total) COEE through Dow Corning's proposed American Solar Power Innovation and Research Enterprise (ASPIRE) program. ASPIRE will be a center for academic and industrial collaboration to accelerate the pace of solar innovation
- ❖ Amendment of PA281 1986 Local Development Financing Act to expand tax increment financing eligibility for large Certified Alternative Energy Sites allowing for TIF-financed purchase and development of shovel ready sites for alternative energy companies.
- ❖ Amendment of PA270 Strategic Fund legislation to include the following Michigan Business Tax incentives for the solar energy industry -
 - refundable tax credit to solar energy companies which invest \$250 million dollars and commit to a minimum of 500 jobs created
 - extension of the deadline to 12/31/11
 - \$150 million total funding, with a \$25 million cap per project

These efforts are critical for building on the substantial work and infrastructure that has already been dedicated to growing the solar industry in the Great Lakes Bay Region. The synergy that will be gained by creating a hub of research, development, and production capabilities will rapidly accelerate this region's, and Michigan's role in supplying the growing solar energy industry.

Other Policy Incentives

As part of its plan to meet the State's 10% Renewable Energy Portfolio standard by 2015, Consumers Energy, the local energy supplier, has filed an Experimental Advanced Renewable

Energy Program with the Michigan Public Service Commission (MSPC) for approval. To participate in the program, the individual or entity must use equipment constructed using a Michigan workforce, or using equipment made in the State of Michigan. The pilot program is limited to a total of 2 MW and will be available to customers on a first-come, first served basis if it is approved by the MPSC.

Energy Infrastructure

Reliable, affordable, and clean base-load energy is required to support the solar industry, which is very energy intensive. As part of its Balanced Energy Initiative, the local energy supplier, Consumers Energy, has proposed construction of an 800 MW advanced supercritical pulverized coal plant at its Karn/Weadock generating complex in Hampton Township near Bay City. The plant will be one of the cleanest in the world by running at higher temperatures and efficiency levels resulting in lower emissions including greenhouse gas and mercury. The proposed clean coal facility is expected to be operating in 2017. In addition, Consumers is planning to implement other programs as part of its balanced approach to meeting customer energy needs including energy efficiency, demand management, and construction of 900 MW of renewable energy capacity, principally wind, by 2017.

In addition, Mid-Michigan Energy Station, a development of the independent power producer LS Power, is a clean coal base load power plant under development in Midland. The proposed 750 MW plant will also utilize advanced supercritical pulverized coal technology along with the best available emission controls in a cogeneration design to ensure energy efficiency and emission control.

