Building a Solar Destination

How Ypsilanti can harness the sun to power its future
Building a “Solar Destination”

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Executive Summary

Ypsilanti has an opportunity to embrace a vision for a cleaner, healthier future by laying the foundations for a homegrown solar energy economy.

- Michigan gets nearly 60 percent of its electricity from coal—all of it imported from out of state. Not only does coal cost billions to import and removes money from the local economy, it also contaminates our air and water and spews tons of global warming-causing carbon pollution into the atmosphere.

- Solar energy is a powerful solution to these environmental and economic challenges, and Michigan has great solar potential. The Great Lakes state gets more sunlight than Germany — the world’s leader in solar power.

- The solar industry is rapidly maturing. Technological improvements alongside innovative business and financing models have driven costs to all-time lows, but multiple barriers remain to full-scale implementation.

- Solar investment keeps energy jobs in the city – allowing residents to invest in their own infrastructure and stop exporting their energy dollars outside of the city.

Ypsilanti can become a “Solar Destination.” By collaborating with local businesses, institutions, and community groups, city leaders can foster a solar future that begins to replace the outdated energy sources of the past, while reducing pollution and building a thriving economy.

- Building off of the foundation SolarYpsi has created, solar power can become a central piece of Ypsilanti’s identity, as well as its economy.

- Ypsilanti can keep skilled workers in the local economy by growing investments in solar. Eastern Michigan University prepares students for clean energy jobs and can help shape Ypsilanti into a “Solar Destination” – a place where students come to learn about solar energy and stay to work.

- Putting solar on more roofs in Ypsilanti brings direct investment to the community and City by increasing home values and generating permit revenues.

To move toward a solar future, Ypsilanti should adopt a bold and achievable goal of installing 1,000 solar roofs by 2020.

- The city of Ypsilanti should lead by example in solar energy by increasing municipal projects and linking new and existing projects to education and outreach efforts.

- Ypsilanti has great solar potential, but that potential will not be realized unless financial barriers to solar installations for commercial and residential customers are overcome. Public-private partnerships and community projects can pave the way for easy access to solar financing.

- City officials, solar businesses, educational institutions, and community organizations should collaborate to promote public understanding and solar literacy through aggressive citizen outreach and education initiatives.

- Recognizing that more can be done with better solar incentives and policies in place, Ypsilanti should commit to supporting local, state and federal policies that promote the use of solar energy.
What could a Solar Ypsilanti look like?

Imagine this: the year is 2030. To get to work, you unplug your car from the electric outlet connected to the photovoltaic panels on your roof. On the commute, you pass by a local solar panel manufacturing plant and see workers arriving to start their day. Heading down Michigan Avenue or through Depot Town, you glance up to see solar shingles harnessing the power of the sun from the rooftops and awnings of homes and local businesses. You drop your kids off at an Ypsilanti Community School, which gets half of its power from a demonstration array. In your child’s science class, they just finished a unit learning about the solar system and studying how sunlight creates electricity.

Solar power attracts visitors, students, homeowners and businesses to Ypsilanti. Community-members feel a sense of pride and identity as a “Solar Destination”.

This vision is not as far from reality as you might think. In fact, the technology exists today to make this solar future a reality – and Ypsilanti is ready. Ranking only behind Detroit and Ann Arbor, Ypsilanti has one of the highest concentrations of solar projects in DTE’s service area. SolarYpsi has laid the groundwork by helping local businesses, government and schools win more than $100,000 in grants and donations to put solar panels on the Ypsilanti Food Co-Op, Corner Brewery, and Adams School, and residencies. SolarYpsi has already installed 13 major solar projects in Ypsilanti.

Along with the success of SolarYpsi, city leaders have been serious and proactive in pursuing a green and sustainable vision. Look no further than the solar panels on City Hall for evidence. Installed in 2008 and expanded in 2010, the 12 solar panels produce 2.5 kilowatts of electricity and serve as an example of saving taxpayer money while creating pollution-free energy. The Ypsilanti Historic District approved the City Hall project and created forward-thinking guidelines for how to incorporate solar projects on historic buildings. City Council has already demonstrated its ability to embrace the benefits of solar by attracting a proposed $4 million solar project by DTE.

To make Ypsilanti a “Solar Destination” and hasten the day when solar powers our buildings and our economy, Ypsilanti must set a bold solar goal and encourage programs that will put solar on thousands more homes, businesses and public buildings.
Solar Energy’s Vast Potential

We could meet all of the Michigan’s energy needs by capturing a small fraction of the heat and power of the sun that shines on our state. With solar providing less than one percent of our energy, we’ve barely scratched the surface on solar energy’s vast potential to power our homes, our businesses, and even our cars.

Solar is 21st Century Energy

Solar energy is safe, clean, proven and available everywhere. The sun is a ubiquitous and tremendously flexible source of energy. Solar energy can be converted directly into electricity, stored as heat for later conversion, or used in the forms—light and heat—in which it arrives. It can be captured centrally and then distributed to users, or collected right where it will be used.

Solar is taking off across the country – on the roofs of our homes and businesses, our neighborhood schools and government buildings. Solar panels are even powering some of the nation’s growing fleet of electric cars. Solar installations have grown nearly ten-fold since 2004 and they doubled last year compared to 2010. Most of that progress is due to policies adopted by thoughtful policy makers at the local and state level. A few years ago, the goal of getting at least 10% of our nation’s energy from the sun by 2030 seemed improbable to many people. Now, with the commitment to maintain momentum that goal could be within reach.

Michigan has great potential for solar energy. According to the National Renewable Energy Laboratory, Michigan’s solar resource potential is estimated at 3,500-gigawatts\(^5\). The Great Lakes State gets more sunlight than Germany — the world’s leader in solar power\(^6\). We are starting to take advantage of this bountiful and tremendously flexible source of power. From 2010 to 2011 in Michigan, solar installations increased more than three fold.\(^7\)

The case for “going solar” has never been stronger. Solar continues to get cheaper, with the cost of solar panels dropping by 75% since 2008 and with the federal tax credit knocking down the total project price by 30%. DTE has also reopened the SolarCurrents program, which awards a rebate of $0.20 per installed watt of solar and an ongoing incentive of $0.03 per kilowatt-hour generated for about 15 years\(^8\). Combined, this makes the return on investment about 8 to 10 years for a solar installation that will last at least 30 years.

Setting the Stage: Michigan Solar Policy

There are a handful of policies in place to encourage investment and development of solar power across the state. From guaranteeing interconnection for solar projects to promoting solar within the renewable portfolio standard, state policies are helping move Michigan forward and make it easier for local solar capacity to increase. The chief components of Michigan’s solar regulatory environment are as follows.\(^9\)

Michigan Incentive Renewable Energy Credits

Michigan incentive renewable energy credits provide one of the main state incentives for solar power installations. In 2008, Michigan passed PA 295 – also known as Michigan’s Clean, Renewable, and Efficient Energy Act – requiring Michigan’s utilities to provide at least 10 percent of their electricity from renewable sources by 2015. To meet their annual benchmarks for this renewable portfolio standard (RPS), utilities earn a single renewable energy credit (REC) for each megawatt-hour (MWh) of electricity to represent their generated renewable energy. Under PA 295, solar power receives two RECs for each MWh as a bonus credit, termed Michigan incentive renewable energy credits.

Property Assessed Clean Energy

Property Assessed Clean Energy (PACE) is a financing tool that allows property owners to borrow money to pay for energy improvements via a special assessment on the property itself paid over several years. PACE financing effectively acts like a second mortgage tied to the property itself instead of the owner. In 2010, Michigan passed legislation that allows municipalities to create PACE programs to ease the up-front cost of solar and provide loan financing for commercial and industrial property owners. Ingham County and the city of Ann Arbor are among the municipalities offering PACE to businesses.

Tax Exemptions & Low-interest Loans

Michigan’s state government offers a tax exemption and low-interest loan options for clean energy investments. In 2002, a property tax exemption was created to encourage manufacturing and research on renewable energy and is given for technologies or systems produced in Michigan. In addition, the state has the Revolving Loan Fund (RLF) to give low-interest loans for renewable energy including projects at public entities, clean energy manufacturing, and passive solar systems.

Interconnection Rules & Regulations

Michigan has also enacted rules and regulations to protect the rights of solar energy system owners. Interconnection standards allow solar power users to connect their systems into existing infrastructure while net metering ensures that solar system owners are compensated for the excess energy they return to the grid.
Building A “Solar Destination”

It has long been the vision of Dave Strenski, founder of SolarYpsi, to turn Ypsilanti into a “Solar Destination” and the place to come to learn about solar and see a community run on solar. Due in large part to Strenski’s determination, solar panels have sprung up all over town and the city has gained attention for the number of projects in the small city of 20,000 residents.

Through public outreach, SolarYpsi has built local support for solar and fostered a vision for solar in Ypsilanti that previously was non-existent. SolarYpsi has reached more than 3,000 people in face-to-face presentations about solar power, and well over a quarter of a million viewers from around the world with the video that Google made about SolarYpsi. The SolarYpsi website even had 1,000 online visitors in one day after the video was launched. By putting solar up in prominent locations such Adams School and Riverside Bakery, solar panels have become a point of pride for many community members.

SolarYpsi installed 10 solar panels on Adams STEM Academy in 2011. Source: SolarYpsi.org

Building off of the foundation SolarYpsi has created, solar power can become a central piece of Ypsilanti’s identity, as well as its economy. Michigan ranks 12th in the country for the size of its clean energy economy, employing an estimated 76,941 workers in jobs that, on average, pay higher than the statewide median wage.10 Focusing on solar, Michigan is in the top five states for solar manufacturing, ranking with Ohio, Pennsylvania, California, and Texas11. More than 120 companies provide good paying jobs to Michiganders manufacturing solar products.12 One of these companies is Applied Energy Technology in Clinton Township, Michigan that produces racking systems for solar panels. The company was founded in 2009 by two former autoworkers and has grown to nearly 50 workers in only three years, many of who were laid off from the auto industry during the recession.13 As solar manufacturing expands, skilled workers from the auto industry and closed plants such as Willow Run stand to benefit.

Solar and wind industry supply chain companies in Detroit and Ann Arbor. Source: Environmental Law and Policy Center14
Solar energy also requires trained solar energy installers. These jobs cannot be outsourced – they require electrical work on-site – and are mainly provided by small firms\(^{15}\). Eastern Michigan University (EMU) offers classes in electronic engineering, sustainable development and Leadership in Energy and Environmental Design construction that give students the skills needed to join the clean energy workforce.\(^{16}\) Ypsilanti can keep these skilled workers in the local economy by growing investments in solar. Investing in an educational solar installation on campus could further this preparedness and help shape Ypsilanti into a “Solar Destination” – a place where students come to learn about solar energy and stay to work.

When many homeowners and institutions in a community “go solar,” the benefits are often magnified. For example, as a vigorous market for solar energy develops in a community, the demand for trained solar energy installers increases and the amount of experience gained by those installers grows. Installation costs can represent a large share of the total cost of a solar energy system and reducing those costs is a key step in making solar energy cost competitive. Research suggests that, as solar installers gain experience and “learn by doing,” the cost of installations decline.\(^{17}\) Moreover, this effect is local, meaning that the development of a vigorous solar market in a community or state can help bring costs down, creating a virtuous circle that makes solar energy accessible to a greater number of homeowners and businesses.

While creating jobs and boosting the economy, putting solar on more roofs in Ypsilanti also brings investment to the community and City. Home values increase with solar panels due to the utility savings and the environmentally friendly appeal\(^{18}\). Currently, Ypsilanti has home values more than $40,000 below the national median value. Solar power also directly increases the Ypsilanti’s revenue stream because the resident or building owner is required to buy a permit from the city\(^{19}\).

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Dave Strenski, founder of SolarYpsi, with one of the SolarYpsi solar installations. Source: SolarYpsi.org
Identifying Key Policy Areas

Ypsilanti can become a “Solar Destination” and reap the benefits of solar by setting a strong goal of 1,000 solar roofs by 2020.

To meet a goal of 1,000 solar roofs by 2020, the city should work with citizens, community organizations, businesses, and utilities to facilitate access to solar and the deployment of more solar across town. By leading by example, getting the finances right and building local literacy about solar, Ypsilanti can realize its full potential.

Leading By Example

Ypsilanti can lead by example in a number of ways – by having visionary political leadership, identifying optimal installation locations, increasing visible public demonstration and educational installations, and developing partnerships to pursue solar energy projects. Ypsilanti can couple a bold goal with partnerships to attract projects and get more community groups involved with local solar. Continuing to integrate solar energy technologies into municipal facilities and properties, as well as pursue opportunities on local industrial sites, will be one key pathway to realizing a solar goal.

Best Practice in Action: Setting Bold Goals and Building Partnerships in Ann Arbor, Michigan

When Ann Arbor was named a Solar America City by the U.S. Department of Energy in 2007, it had a visible public installation at the Leslie Science Center, a total of 86 kilowatts of PV (photovoltaic panels) and 19 solar water heater installations, and a specific solar goal endorsed by the mayor to install 5,000 solar energy systems and obtain 20 percent of the city’s energy from renewable sources by 2015.

To achieve this vision under the Solar America Cities partnership, the city developed and accepted a formal Solar Plan; installed multiple systems in public locations with performance monitoring, including a 10 kW PV system at the Farmer’s Market; created a solar map to help consumers determine site feasibility; used city projects to train local installers; and built partnerships with local civic institutions to overcome barriers to solar. The partnerships that emerged from the Solar America Cities project in Ann Arbor are helping to carry the city forward towards its renewable energy goals. In particular, the University of Michigan was an invaluable resource to the city.

Ypsilanti has more solar installed now than when Ann Arbor set a bold solar goal. Many of the organizations collaborating in Ann Arbor are available to Ypsilanti including the State of Michigan Bureau of Energy Systems, Clean Energy Coalition, and Great Lakes Renewable Energy Association. Further resources are also available in Ypsilanti like SolarYpsi and Lean and Green Michigan.

Best Practice in Action: Leading the Way in Municipal Installations in Alameda County, CA

Alameda County in northern California has been leading the way in municipal installations since the early 2000s. County residents and leaders decided early that generating renewable energy from solar would meet its goals of reducing green house gas emissions and saving taxpayer dollars. To date, Alameda has installed 3.5 megawatts of capacity on municipal buildings – for a total of over 19,000 panels – making it the largest solar energy producing
county government in the country. Its Santa Rita Jail installation, completed in 2002, alone covers 3 acres and has 1.18 MW capacity. With its 11 large-scale solar installations, Alameda will prevent over 38,600 tons of carbon emissions over the next 30 years, generate enough daily electricity to power over 3,000 homes, and save county taxpayers $700,000 a year on county electric bills. Alameda has won numerous awards and accolades for being a pioneer in solar power and serves as a model for what community leadership can achieve in building local renewable energy economies.

State Policy Highlight – Virtual Net-Metering
This publication is focused on actions that the city of Ypsilanti can take to grow the local solar economy. But of course, state and federal policies play a major role in improving or impeding a community’s ability to take advantage of solar opportunities. One example is ‘virtual’ net-metering. Traditional net-metering allows utility customers to generate on-site electricity and sell excess production back to the grid in the form of net-metering credits. Because sunlight intensity varies throughout the day, net-metering allows power producers to still benefit from times where their energy production exceeds their use. In Michigan, net-metering credits are required to be used at the same site where they are produced – making some high-capacity but low-energy use sites undesirable for solar installations and vice versa. Virtual net-metering decouples the site where net-metering credits are produced from where they are used. For example, the city of Ypsilanti could install a solar array on an undeveloped landfill site and apply the accrued net-metering credits for a municipal building located elsewhere. A virtual net-metering policy in Michigan would allow the city of Ypsilanti to take advantage of additional sites for solar installations.

Getting the Finances Right
One of the primary barriers to increasing the volume of solar installations in Ypsilanti is the upfront cost. While the economics of solar systems are sound – systems pay themselves back over time through energy savings and participation in net-metering and other financial incentives – the high initial investment is often prohibitive. While the cost of solar has dropped significantly in recent years and prices are expected to decline even more in the future, the city of Ypsilanti can act now by collaborating with nonprofits, DTE, and solar companies to enable greater access to new financing options for solar projects.

Creative financing programs can help shrink the “soft costs” of solar projects – costs not associated with physical components, e.g. installation, planning, permitting, etc., – and there are many options that cities can offer their residents and local businesses. Another major cost barrier is customer knowledge of technologies and incentives. By developing programs linking the public to solar installers, the city and solar advocates can make sure that customers are maximizing their investment and reducing payback periods. Third-party financing tools like solar leases and power purchase agreements prove useful in expanding options for smaller residential and commercial projects.

Some financing tools are ready for use and proven to work for Ypsilanti. The Property Assessed Clean Energy (PACE) initiative that Lean & Green Michigan runs for cities in Michigan is a prime example of city-specific financing for solar. Lean & Green Michigan currently hosts a PACE program for Ingham County and the city of Southfield. The PACE program offered by Lean & Green is a public-private partnership that covers the upfront cost of solar projects for businesses with a low-interest loan that is paid back over seven to 20 years.

Solar Phoenix 2 is an ongoing partnership between the City of Phoenix, solar leasing company Paramount Solar, utilities Arizona Public Service (APS) and Salt River Project (SRP), and the National Bank of Arizona. Participating residents can install a solar energy system with zero up-front costs locking in current market electricity rates,
immediately saving participants between 10 and 20 percent on their energy bills. Funding for installations is provided by the National Bank of Arizona, which invested $25 million in the program. The city of Phoenix acts as facilitator between the bank, solar leasing company and homeowners, operating an easy-to-use website and toll free number for the program, arranging site inspections and assessments and then signing up qualifying applicants. Solar Phoenix 2 works because it is a simple, one-stop-shop program that overcomes financial barriers and actively reaches out to the public. The partnership is planning to enable 1000 new installations before the end of this year.

Building a Solar Community

The public is eager to embrace solar power, and believes that government can and should do more to promote a transition to clean renewable energy sources. Polling data collected by Greenberg Quinlan Rosener Research shows that 73 percent of Michigan voters support increasing renewable energy in Michigan like solar. This support is shared across demographic, partisan, and regional lines – 78% of Democrats, 76% of independents and 65% of Republicans agree. Not only do voters support expanding renewable energy like solar, they also overwhelmingly believe that renewable energy will create jobs and grow the economy, by a 60 to 24 percent margin.

Given this broad support, education and outreach efforts can help overcome hurdles for going solar. The public wants to go solar but individuals and businesses are often unsure about the financial practicality of going solar themselves and where to get started. Solar technologies are clean, proven and reliable, but financing mechanisms and available incentives can be difficult to navigate. Consolidating information and distributing it effectively to a broader swathe of the Ypsilanti community will help bridge the knowledge gap and deploy more solar without much cost to the city. Educated and informed citizens who understand the benefits, financing options, and installation procedures are empowered to make the decision to go solar.

Best Practice in Action: Community Engagement in Portland, Oregon – Solarize Portland

Portland, OR, ran a Solarize Portland campaign from 2009 through 2011, which revolutionized the local solar market by overcoming financial and logistical barriers to solar power by allowing homeowners to buy into neighborhood collective purchase programs. Solarize began as a grassroots effort that evolved into a partnership between the City of Portland Bureau of Planning and Sustainability, Solar Oregon and Energy Trust of Oregon. Solarize succeeded because it engaged residents eager for more solar power and simplified the process – empowering citizens to make the decision to go solar for themselves. Portland adopted a six-step process. First, a grassroots campaign advertised the program and generated local buzz and media attention. Second, a series of workshops and Q&A sessions were offered throughout the community to address concerns and educate the public. Third, a simple online enrollment process connected interested homeowners to program managers. Fourth, solar installation professionals conducted site assessments. Fifth, qualifying customers were invited to make a decision whether to participate or not after hearing the solar company’s offer. Sixth, contractors installed the system. As a result of Solarize Portland, the price of solar energy systems went down over 30 percent – through businesses learning by doing, ramping up scale, more easily finding customers and achieving efficiencies – and over 50 permanent jobs were created for assessors, project managers, engineers, electricians, and roofers. Over three years of campaigns, Portland added over 1.7 MW of distributed PV and established a strong local economy for solar installation. Solar Portland linked residents to solar providers in an easy to use and understand fashion. By partnering with grassroots efforts and acting as mediator and educator, the city of Portland was able to empower its citizens to go solar.
Policy Recommendations

To make Ypsilanti a “Solar Destination” -- and hasten the day when solar powers our buildings and our economy -- Ypsilanti should set a bold solar goal of 1,000 solar roofs by 2020 and encourage solar on thousands more homes, businesses and public buildings.

In order to achieve a goal of 1,000 solar roofs by 2020, the key policies areas identified below should be put in place to increase municipal solar installations, establish successful partnerships that support solar and give Ypsilanti residents and businesses the tools they need to go solar.

Ypsilanti has made great strides in leading by example with a city hall installation but it can do more. In particular:

- Identify priority sites for municipal projects or large-scale arrays that are visible to the public such as city buildings, landmarks, bus stops, fire stations, etc. and seek funding to realize them.
- Set up a solar fund to accept funding for city solar projects from individuals and partners.
- Facilitate more solar installations by setting up matching programs where the city leverages its solar commitments to encourage city institutions like Eastern Michigan University to go solar.
- Use city solar installations as training opportunities for local installers or Eastern Michigan University students.

The city can streamline information for residents and businesses on financing options and establish financing programs by taking basic steps to:

- Simplify explanations of financing tools by creating an informational website “one-stop-shop” solar webpage for the city website with readily accessible local case studies, lists of common obstacles and solutions and FAQs about solar.
- Establish a PACE program for Ypsilanti.
- Partner with local solar companies and financial institutions to provide power purchase agreements, leasing options, or community solar projects.

To build public awareness of solar and literacy of technology and financing options, the city of Ypsilanti can partner with nonprofits, universities, utilities and solar companies to:

- Develop a solar map that can be accessed online to determine potential for rooftops throughout the city. A similar tool has been designed by Ann Arbor to display solar potential under the city’s property information search.
- Provide a step-by-step guide to going solar on the solar webpage, listing each step in the process and where to find information. This gives the resident a clear starting point to what can appear to be a complicated process.
- Promote and hold public workshops in Ypsilanti about state and local solar financing options for interested residents, businesses, and solar professionals.

The city of Ypsilanti can show their commitment to this important clean energy solution by supporting local, state and federal policies that promote the use of solar energy, including:

- Incentives, such as grants, tax credits and feed-in tariffs that help to compensate homeowners and business owners for the benefits their investments in solar energy deliver to society and build the economies of scale needed to lower the price of solar energy.
- Solar carve-outs, which require that a share of the RES be met with solar energy, can ensure a diversified mix of renewable resources and encourage the development of distributed renewable resources.
- New financing tools to help individuals and businesses absorb the large upfront costs of solar installations and begin reaping benefits immediately.
Notes


3 Ibid.


http://www.dsireusa.org/incentives/index.cfm?re=0&ee=0&spv=0&st=0&srp=1&state=MI


