

Milwaukee, Wisconsin



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Milwaukee

CASE STUDY

SOLAR
OUTREACH



PARTNERSHIP

Milwaukee, Wisconsin

In a Rust Belt city better known for cold beer and frozen custard than plentiful sunshine, what chance does solar energy have to play a leading role? As it turns out, a very good chance. Despite a cold-weather climate and an uncertain state regulatory environment, Milwaukee has not only found a place for solar energy, but has made it a core element in its present and future plans.

With a population just shy of 600,000, the City of Milwaukee is the largest city in Wisconsin. Located along the shore of Lake Michigan, the city has a geographic area of ninety-six square miles and is the center of a large metropolitan area of more than 1.5 million people. City government operates under a mayor-council model: the mayor oversees the administration of the 8,000-employee municipal government, and the council serves as the legislative body.

Thanks to its busy port, surrounding farmland, and strong industrial tradition, Milwaukee boomed for generations. In the 1960s, 70s and 80s, the city struggled with the challenges faced by much of the Rust Belt: economic recession and population decline. Milwaukee successfully responded by focusing on its manufacturing roots and by revitalizing its downtown, lakefront district, and historic neighborhoods.

Most recently, Milwaukee has developed a track record as a city that's serious about going green. Its sustainability push has been led by a popular, long-tenured mayor who has emphasized sustainability as a long-term priority, and it has been enthusiastically embraced by both the business community and the public at large.

Going Green

First elected in 2004, Mayor Tom Barrett enjoys broad support, and is the latest in a city tradition of sticking with mayors for lengthy tenures. Barrett championed sustainability from the very start of his term, quickly establishing appointing a community advisory group named the Milwaukee Green Team. The group consisted of more than eighty representatives from city government, nonprofit organizations, utilities, universi-

ties, and a wide variety of businesses.

Initially, Barrett asked the team to focus on three issues: stormwater management, energy policy, and green job creation. The Green Team's [2005 report](#) addressed Milwaukee's public and private sectors and included the following:

- Twenty-six recommendations related to the three objectives, including a number of "quick wins" that could be implemented quickly at little or no cost.
- Nine recommendations on cross-cutting strategies, ranging from the need for a sustainability plan to the consideration of business incentives and regulatory streamlining.
- Six recommendations addressing the development of a marketing campaign to support the initiative and "re-define Milwaukee as a clean, green city of economic opportunity that is diverse, sustainable and innovative."

Additionally, the report cited the need for "a strong driver" to implement policy recommendations and ensure that the green agenda remained "at the forefront of city priorities." With that in mind, the report featured a separate section recommending the creation of an office of sustainability within city government, which would leverage efforts throughout the community. In 2006, in keeping with the Green Team's recommendation, the mayor created the [Office of Environmental Sustainability](#), whose mission is to promote cost-effective sustainability practices that meet Milwaukee's environmental, economic, and social needs, while fostering long-term economic growth.

Between 2005 and 2012, the city implemented 87 percent of the Green Team's recommendations. In 2012, building on this record of success, the mayor appointed a new iteration of the Green Team, with the goal of creating a broader vision of sustainability for the city. A year and a half of intensive efforts followed, including exhaustive surveys, interviews, and public meetings, and in 2013, the city launched [ReFresh Milwaukee](#) as its first sustainability plan. The ten-year, citywide strategic plan relies on a holistic, triple-bottom-line approach to the community's environmental, economic, and



With an established reputation as a leader in sustainability, the City of Milwaukee made a commitment to solar adoption by encouraging a wide range of partnerships.

social future. In addition to serving as a strategic plan, ReFresh Milwaukee is intended to help replace the Rust Belt image of the city’s past with the “Fresh Coast” image of its future.

ReFresh Milwaukee focuses on connecting residents, businesses, and other groups working on sustainability issues. The role of the Office of Environmental Sustainability is to support the plan by managing and monitoring its implementation and tracking progress. Expanding the focus assigned to the original Green Team, the plan targets eight issue areas:

- Buildings
- Energy
- Food systems
- Human capital
- Land and urban ecosystems
- Mobility
- Resource recovery
- Water

Under the heading of energy, ReFresh Milwaukee identifies four goals, along with more specific, associated targets:

- Goal: Improve residential and commercial energy efficiency
 - Improve the energy efficiency of 2,000 homes in five years using Energy Star standards; using a combination of no- and low-cost measures, improve another 10,000 homes with no- and low-cost energy-efficiency measures.
 - Improve the energy efficiency of 1,000

commercial/industrial businesses in five years,; reduce energy use in city buildings by 20 percent by 2020.

- Goal: In city facilities, replace fossil fuel energy with cleaner, renewable energy sources.
 - Generate 25 percent of the city’s electricity from renewable resources by 2025.
- Goal: Grow Milwaukee’s cluster of energy efficient and clean tech companies to create local jobs and exports.
 - Create a formal “smart energy hub” and energy innovation center.
- Goal: Increase community resilience and customer choice by removing the regulatory and institutional barriers to distributed renewable energy projects.
 - Create a website to educate the public on clean-energy issues.
 - Intervene in contested cases before the Wisconsin Public Service Commission to support citizen and business interests in affordable and sustainable energy.

Milwaukee Shines

As sustainability took flight in Milwaukee, the future of solar energy faced significant hurdles, beginning with the myth that, as one of the coldest large cities in the country, Milwaukee didn’t see enough sun to succeed with solar. Regardless of the amount of sunshine, the industry has also been hindered by a lack of clarity regarding the potential for leasing or third-party arrangements, revealing the need to clarify state authority and laws.



Solar panels have become an increasingly common sight in Milwaukee, including this solar hot water installation.

An opening for solar arrived in 2008, when the city’s potential was recognized by the federal government. Milwaukee successfully competed to participate in Solar America Cities, a U.S. Department of Energy (DOE) initiative intended to promote solar adoption at the local level. Although the twenty-five selected cities had differing levels of experience with solar energy, they had to demonstrate a high level of commitment to solar power, including the involvement of local government officials, utilities, and private partners.



Milwaukee SHINES

FOR A SUSTAINABLE SOLAR FUTURE

Milwaukee responded to the Solar America designation by establishing a new program focused solely on solar energy, within the Office of Environmental Sustainability. The program, known as [Milwaukee Shines](#), is a partnership between public institutions, private businesses, and nonprofit agencies that supports solar implementation by:

- Increasing solar education for the general public and professionals in solar and related industries

- Providing connections to economic resources
- Improving solar installation processes and procedures

In just a few years, Milwaukee Shines already has an impressive list of successful initiatives.

Education

To educate the public about solar, the city—working in partnership with the [Midwest Renewable Energy Association \(MREA\)](#)—provides online resources and in-person seminars for businesses and homeowners. Through the Solar School Swap project, two of Milwaukee’s public high schools have developed a comprehensive solar curriculum, in conjunction with solar electric and solar thermal installations.

“Education is key,” said Amy Heart, program manager of Milwaukee Shines. “As people see how affordable it is, more and more are saying yes. They see that solar is viable, and they can see there are locally made products.”

Affordability

Milwaukee used a number of approaches to assist homeowners in financing the costs of solar installation. First, for a limited time, the city provided cash-back incentives for a limited time. Homeowners who completed an additional, qualified, energy-efficiency project through the Milwaukee Energy Efficiency program—a separate, federally funded partnership through the DOE—received \$2,000 cash back on a solar installation. Second, the city partnered with Summit Credit Union to create a low-interest loan program, under which homeowners are eligible for low-interest loans of up to \$20,000.

Third, in 2013, Milwaukee Shines initiated a pilot solar purchase program, or a “group buy,” in one neighborhood. The program involved both educational sessions—to familiarize potential participants with solar technology and help them decide where to start, what to budget, and whom to hire—and group buying arrangements. The bulk purchasing significantly reduced the cost of the solar electric panels. Through the program, seventeen homeowners in the Riverwest neighborhood installed more than 52 kilowatts of solar. Because of the success of this initiative, the city expanded the pilot program to three additional neighborhoods in 2014.

Process

As the number of solar installations increased, so did the need to resolve questions from residents, business owners, and solar suppliers. In 2012, to provide more certainty to all involved, the city passed a solar zoning ordinance that ensured consistency with state law and established relevant definitions and requirements.

The next step was the development of a new solar permitting process. Previously, solar applications necessitated a four- to six-week wait just to meet with staff. The new, expedited process assigns a single point of contact; combines the electrical and building permits for a flat fee of less than \$100; and, for the vast majority of projects that meet basic requirements, makes same-day approval possible.

Municipal Installations

The city also placed an emphasis on leading by example. Milwaukee now boasts eleven solar installations at municipal facilities, and continues to look for opportunities to add projects. Eight of the installations are solar hot water systems located at fire stations, supported by funding from the Solar America Initiative, a federal program intended to help make solar energy cost competitive, and by the contribution of equipment from Caleffi, a local business partner. Several of these installations also serve as training sites for local installers.

Most notably, as part of a massive green-roof project at the historic Central Library, several city agencies partnered to include a solar electric system. Thanks to savings from the electricity generation and from reductions in peak demand charges, the library’s solar system is expected to pay for itself in about fifteen years.

For Milwaukee, By Milwaukee

While other cities may have similar programs and initiatives to encourage solar adoption, Milwaukee stands

out for its emphasis on supporting the local business community and creating solar-related jobs—one of the key goals of Milwaukee Shines. For example, one of the benefits of the pilot group buy program undertaken in the Riverwest neighborhood was a stipulation that unemployed or underemployed Milwaukee residents would complete 40 percent of the labor hours on the installations.

To ensure the availability of a sizeable pool of installers and site assessors to support solar installations, Milwaukee Shines partnered with MREA on training initiatives. In 2014, the Solar Training Academy began offering weekend classes over a five-month period that will walk budding professionals through the solar design and installation processes.

Milwaukee Shines and MREA also teamed up to create the Milwaukee Power Pack, an innovative pilot program that benefits both businesses and homeowners by offering low-cost, locally sourced solar products installed by certified local professionals. With the tagline “Solar for Milwaukee. By Milwaukee,” the program was touted as the first of its kind in the United States.

The special pricing available through the Milwaukee Power Pack was made possible by a shorter, simpler supply chain that eliminated shipping and distribution costs. The program features products from area business partners, including solar panels from Helios Solar Works and solar inverters from Ingeteam. Power Pack customers went through a simple process: attending a “Solar Power Hour” educational session; getting bids from approved providers; and, if needed, applying for low-interest financing.

“This innovative partnership demonstrates my continued commitment to creating quality jobs while building an environmentally healthy community,” noted Mayor Barrett in announcing the program. “This is one example of how my vision for a sustainable Milwaukee becomes a [reality](#).”

In 2010, Milwaukee Shines partnered with the business community to initiate another unique program: the [Milwaukee Metro Solar Hot Water Business Council](#), a public-private partnership whose mission is to “support, attract and retain manufacturers and supply chain distributors in the solar hot water market and to provide an opportunity to collaborate among industry stakeholders in the Milwaukee seven-county region.”

Current members of the council include representatives from city government, higher education, nonprofits, manufacturers, and other businesses. Members have the opportunity to network with industry businesses, collaborate with partners and experts, and have a leading voice in solar technology and policy discussions.

The council is believed to be the first such group in the country organized specifically around the solar thermal industry. “When we started, we knew there were businesses out there who could connect with the solar industry,” said Amy Heart. “Companies are looking to get into the supply chain. We try to help make connections.”

Despite being loosely organized and meeting only once a quarter, the council has led to progress not only in Milwaukee but throughout the state. For example, in 2013, with support from the Wisconsin Economic Development Corporation, the council started the Wisconsin Solar Initiative, a partnership of businesses, organizations, and trade associations that works to raise national awareness of the state’s growing solar industry.

Finding a Way

Collectively, Milwaukee’s initiatives have succeeded in creating an environment that is encouraging solar adoption. The results have been dramatic: between 2004 and 2007, 17 solar projects were undertaken; between 2008—the year Milwaukee Shines was established—and 2013, 145 projects were undertaken. And the number of qualified installers in the area has increased accordingly: from seven in 2008 to thirty-nine by 2011.

Solar energy and the solar industry appear to have found a long-term home in Milwaukee. “With innovative programs like Milwaukee Shines,” said Mayor Barrett, “Milwaukee is demonstrating that investing in clean energy is not only essential for creating a sustainable city, but it is also good for the bottom line and puts our citizens back to work.”

Despite apparent obstacles, Milwaukee is a solar success story and has become a national solar leader. Amy Heart is optimistic that solar energy will continue to thrive in the city: “I often say ‘We’re doing it the hard way.’ We don’t have aggressive state incentives or third-party arrangements. We’re finding a way. Individuals and businesses believe in this.”

Lessons Learned

Milwaukee’s story is one of hurdles overcome. The city’s experiences offer four key lessons for other communities considering their paths toward solar adoption:

- *Leadership.* Solar would not have succeeded without Mayor Barrett’s clear and early emphasis on sustainability. Under Barrett’s leadership, the city leapt at the opportunity to lead by example, installing multiple solar projects at municipal facilities and engaging in an ongoing effort to identify additional projects.
- *Buy-in.* Milwaukee city government could not have achieved this level of success on its own:
 - Collaboration and inclusiveness were key elements from the start—from multiple iterations of the community-wide Green Team, to extensive community outreach, to the industry-focused Milwaukee Power Pack program and Solar Hot Water Business Council
 - To increase the visibility of its efforts, the city made a point of branding its initiatives (Green Team; ReFresh Milwaukee; Milwaukee Shines; Solar for Milwaukee, By Milwaukee)
 - The city recognized the strategic importance of demonstrating success. epitomized by the original Green Team’s decision to narrow its focus and identify potential quick wins
- *Structure and organization.* Leadership and buy-in can accomplish only so much: planning, structure, and organization were essential to achieving the city’s goals. In its sustainability efforts, Milwaukee defined clear and concise goals at every stage, which included establishing the Office of Environmental Sustainability to manage implementation of the city’s strategic plan. And when the opportunity arose to focus on solar, the city established the Milwaukee Shines program to educate the public about solar, provide links to economic resources, and improve solar installation processes and procedures.
- *Keeping it simple.* Local government can play an invaluable role simply by facilitating activity that benefits the community. Milwaukee accomplished this time after time, from providing education and incentives to simplify decisions for residents and businesses, to streamlining procedures through a new zoning ordinance and permitting processes, and organizing pilot programs to demonstrate what could be achieved.

Contact

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Endnotes

1. Unless otherwise noted, all quotations are from interviews with individuals listed under “Contacts.”
2. Solar America Initiative, “In Focus: The Building Industry”; <http://www.nrel.gov/docs/fy07osti/40936.pdf>.

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