

SolarEdge Wins at Wisconsin City Hall

Cost-Effective Rooftop PV to Reduce Emissions by ~50%

” “Being able to optimize energy production was essential in making this project financially viable. There are a lot of trees and buildings surrounding the City Hall complex. With a traditional string inverter system, even if just one or two modules are shaded, the performance of the entire string is reduced. With SolarEdge, even if sections of the array are impaired, the rest of the modules continue to generate power at full capacity.”

J. D. Smith, Head of Business Development, Arch Solar

Background

A Commitment to Sustainability

In 2010, the municipality of Wauwatosa, Wisconsin made a commitment to cut emissions in half by 2030 and achieve carbon neutrality by 2050⁽¹⁾. A government-supervised mission, projects would need to be funded with taxpayers' money, be cost-effective, and remain 100% transparent. Taking budgetary risks was not an option.

The Challenge

Installing Financial Confidence



After over a decade of working towards a cleaner grid, the Wauwatosa Common Council was ready for a larger project that could take its energy savings to the next level and set an example for other communities.

They landed on Wauwatosa's City Hall complex as the proposed site of install, which includes the local Civic Center and public library. With a flat roof area of just under an acre, it is ideal for solar modules – giving Wisconsin-based installer, Arch Solar C&I, an opportunity to present their innovative solar PV concept.

To win the project, Arch would need to convince the council that the proposed solar system would:

- (a) Provide the right amount of clean energy to help Wauwatosa meet its green goals on time
- (b) Offset upfront costs through fast ROI

The Solution

Higher Efficiency + Higher Uptime = Faster Payback

The winning solution, a 389 kW SolarEdge DC-optimized PV system, with SolarEdge 2:1 P860 Power Optimizers. The Maximum Power Point Tracking (MPPT) mechanism ensures that should one or more modules underperform, due to shading or debris, the other modules on the same string will not be affected.

As a result, the system continuously delivers maximum clean energy and faster ROI. Further, the design flexibility that comes with SolarEdge enabled the placement of the modules in different irradiance, orientations, and uneven strings lengths, allowing more efficient roof coverage to maximize the system size that could be fitted on the city hall roof.

Customer Benefits

An Array of Rewards

The City Hall project received a \$40,000 Wisconsin Focus on Energy Grant and came in under the Common Council budget. In the first nine months of operation, the 1036-module array generated 458,011 kWh of clean energy – equivalent to 55% of the site's total usage in this period – and reduced carbon emissions by 358 tons.

This has put Wauwatosa firmly on track to cut carbon emissions by 50% by 2030. To share its achievement with the local community as well as other stakeholders, the Council has launched a live dashboard where anyone can see how much electricity is being generated.

Installer Insight

SolarEdge has the Right Angle

Because of Wisconsin's latitude, Arch Solar needs to mount its rooftop modules at a greater angle than the industry standard 10 degrees. Thanks to the flexibility of SolarEdge design, the Wauwatosa City Hall modules could be mounted at 20 degrees. This shift helps the system accommodate lower sun angles and reduce snow accumulation, contributing to greater energy production.

SolarEdge's Monitoring Platform was another key factor in Arch's win. This provides system users with real-time performance data down to the module level. Any drop in energy production, due to shading or fault, is instantly pinpointed and reported to the maintenance team, including remote troubleshooting options, enabling fast remediation, and increasing system uptime.



Finally, SolarEdge keeps projects safe by complying with the latest NEC 2017 and 2020 requirements for Arc Fault Circuit Protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS). The entire system comes with a built-in SafeDC™ feature which is designed to automatically reduce voltage to a safe level when required, providing protection to the installation crew and maintenance personnel. This also helps enable quick and safe inspection and maintenance while limiting system disruption. SolarEdge's strength in exceeding NEC and additional grid requirements gives Arch Electric the confidence to standardize on SolarEdge solutions for years to come.

Bottom Line

Wauwatosa Is Just the Beginning

According to the USA Today network, about 45 of the 100 largest U.S. cities have adopted a serious climate pledge to reduce their emissions to net zero. With cities now being seen as key leaders in U.S. climate change efforts, such goals will be imperative for driving down carbon emissions.

The Wauwatosa project in Wisconsin is setting a cost-effective standard for more cities to follow in integrating solar into their buildings. Through highly efficient and flexible designs, C&I systems like SolarEdge can help asset owners receive fast ROI, stay confident through visibility and safety, and meet local energy goals to help communities live cleaner and healthier lives.



Installation at a Glance

- // Wauwatosa, Wisconsin
- // 389 kW PV system
- // 3 x SE100K Three Phase Inverters with Synergy Technology
- // 518 x P860 SolarEdge Power Optimizers
- // 1036 x 375W Canadian solar modules
- // Estimated Energy Production: 388,300 kWh/Year

Environmental Savings:

This PV system produces energy equivalent to:



60 cars driven
for 1 year



54 homes energy
use for 1 year



33 million
smartphones
charged



304,463 pounds
of coal burned

About SolarEdge:

SolarEdge is a global leader in smart energy, delivering innovative commercial and residential solutions that power our lives and drive future progress. Leveraging world-class engineering and worldwide experience, SolarEdge developed a ground-breaking intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. As a result of this and other innovations, today SolarEdge is the world's #1 solar inverter company in revenue with millions of systems installed in 133 countries. SolarEdge addresses a broad range of smart energy market segments through its PV, storage, EV charging, battery, UPS, and grid service solutions. Visit www.solaredge.com



⁽¹⁾ <https://www.wauwatosa.net/discover-tosa/sustainability>