

# SEDAC CASE STUDY



## Joliet Junior College: A long-term SEDAC partnership November 2017



Photo Credit: Joliet Junior College

### COMMITMENT TO SUSTAINABILITY

Joliet Junior College has made sustainability a priority. They work to make their campus as “environmentally healthy, economically sufficient, and socially inclusive” as possible. They were one of the first community colleges to establish a campus-wide sustainability committee back in 2008, and sustainability efforts have saved the college over \$1 million. The Association for the Advancement of Sustainability in Higher Education (AASHE) awarded Joliet Junior College a strong bronze rating in 2015.<sup>1</sup>

According to Patrick Van Duyne, director of Facilities at Joliet Junior College, “Facilities and Services tends to carry the torch of environmental and economic sustainability. We’ve doubled the size of the campus, but we have not doubled the energy budget. When we build, we build with efficiency in mind. When we renovate, we renovate with energy efficiency in mind.”

A long-term partnership with SEDAC has helped the college achieve significant energy savings. Since 2012, Joliet Junior College main campus has reduced annual electricity usage per square foot by 15%, and natural gas usage per square foot has dropped by 20%. “We wouldn’t be where we are today without SEDAC,” Mr. Van Duyne says.

Annual Energy Cost Intensity per Square Foot	
2012	\$1.85
2017	\$1.42

<sup>1</sup> “Sustainability at Joliet Junior College.” <http://www.jjc.edu/about/committees/sustainable-campus/Pages/default.aspx>

### THE IMPORTANCE OF NETWORKING

One reason Joliet Junior College is successful in their sustainability efforts is that Mr. Van Duyne likes to get out in the community and network. He takes advantage of workshops and networking events to learn how to save energy and money. In 2008, he was attending an energy efficiency seminar at Lakeland Community College where SEDAC was presenting.

After the presentation, Mr. Van Duyne asked SEDAC to review plans of a building the college would soon be constructing. Though the building would be LEED certified, Mr. Van Duyne wanted a second opinion: were the designs as efficient as they could be? SEDAC staff assured him that if they continued to design in this fashion, the college would be in good shape.

Nine years later, Mr. Van Duyne is still out in the community networking. He attended a recent SEDAC workshop and appreciated the opportunity to network with nearby institutions. “It’s sad that we all keep blazing our own trails when we could help each other be more efficient,” he says.

### LONG-TERM PARTNERSHIP WITH SEDAC

Mr. Van Duyne’s encounter with SEDAC in 2008 began a decade-long partnership between the college and SEDAC. Joliet Junior College likes to pursue a variety of energy efficiency strategies, from LED lighting to geothermal to passive solar, and Mr. Van Duyne relies on organizations like SEDAC to provide expert advice and guidance along the way.

All of the buildings on the main campus and several of the satellite locations have received SEDAC energy assessments. SEDAC completed retro-commissioning for several of the buildings and new construction design assistance and incentive support for a building that was recently constructed.

SEDAC’s detailed reports spell out the return on investment for each recommendation and help Joliet Junior College decide how to spend its energy efficiency budget. Years ago, the college established a line item in the budget for energy efficiency, separate from operations and maintenance. When the college gets incentive money from energy efficiency projects, that money goes directly into the fund to be used for future efficiency projects. The college prioritizes the recommendations that have the biggest bang for the buck. Where is the low hanging-fruit? Which recommendations have the greatest return on investment?

## IMPLEMENTATION

Over the years, Joliet Junior College has implemented many of SEDAC's energy savings recommendations, including:

- Lighting upgrades (LEDs, high performance T5 or T8 fluorescents)
- LED exit signs
- Occupancy controls for lighting
- Temperature setbacks
- Boiler fuel air adjustments
- HVAC scheduling to reflect occupancy
- Vending energy management, and
- Variable frequency drives on electric motors with variable loads.



Of the many projects SEDAC has completed, the retro-commissioning (RCx) project stands out to Mr. Van Duyne as one of the most useful. RCx works to ensure that equipment and systems function as intended and operate at optimal efficiency. By focusing on operational and maintenance improvements, which often require less capital investment, RCx offers significant energy cost savings at a relatively low cost. Because of this, Joliet Junior College was able to implement most of SEDAC's RCx recommendations.

Mr. Van Duyne also appreciated the incentive support SEDAC provided. SEDAC staff identified \$150,000 in incentives and helped fill out the paperwork to apply for the incentives.



Photo Credit: Joliet Junior College

## VERIFYING SAVINGS AND FUTURE PLANNING

After implementing energy savings measures from multiple SEDAC projects, Joliet Junior College wanted to verify that these measures were leading to actual savings, so Mr. Van Duyne asked SEDAC to perform additional energy assessments of the buildings on the main campus in 2017. Joliet Junior College plans to use the new assessment reports to create a long-term energy efficiency master plan.

SEDAC's 2017 assessment reports did indeed show significant savings—a 15% decrease in electricity usage per square foot and a 20% decrease in natural gas usage per square foot since 2012. Joliet Junior College looks forward to using the reports to identify future savings opportunities and to decide where to direct their efforts in the next 5 years.

SEDAC recommends that facilities get a new energy assessment every 5 years for several reasons:

- Normal wear and tear of energy systems and equipment may decrease efficiency and compromise performance.
- New technologies (such as LED lighting) may be significantly improved.
- Building use patterns may have changed.
- Utility incentive amounts and programs may have changed.
- Updated recommendations can be used to plan budgets and decide where to direct efforts.

### SEDAC: YOUR LONG-TERM ENERGY PARTNER

- **An Energy Assessment** is the first step towards greater energy efficiency. Renew every 5 years.
- **Retro-commissioning** identifies no- and low-cost savings opportunities by focusing on how equipment and systems operate and are maintained.
- **New Construction** design assistance can help make new buildings and renovations as efficient as possible.
- **Quick Advice** by phone and email answers technical questions, provides implementation assistance, and refers people to utility programs and incentives.
- **Workshops and Publications** provide information on the latest energy efficiency programs and strategies. [Sign up for our newsletter](#) to stay connected.

The Smart Energy Design Assistance Center assists buildings and communities in achieving energy efficiency, saving money, and becoming more sustainable. SEDAC is an applied research program at the University of Illinois at Urbana-Champaign working in collaboration with the 360 Energy Group. SEDAC public sector utility programs are funded by Ameren Illinois, ComEd, Nicor Gas, Peoples Gas and North Shore Gas customers in compliance with Illinois law.

