Understanding savings opportunities with On-site Energy Manager

Case Study

Company Name:
Munson Williams Proctor Arts Institute (MWPAI)

Industry:
Higher Education

Location:
Utica, New York

Annual Electric Savings:
745,000 kWh

Annual Fossil Fuel Savings:
5,200 mmBtu

Munson Williams Proctor Arts Institute (MWPAI) is a not-for-profit 501 arts organization with 25 buildings, covering more than 315,000 square feet. MWPAI presents a unique, tripart program that includes its College of Art and Design, a world class art museum, and performing arts venue. The entire campus is within a designated scenic and historic district.

MWPAI's unique combination of process requirements—driven by the need to protect precious works of art and coupled with its academic support requirements of dormitories, classrooms, library, and dining hall—pose unique opportunities and challenges to reducing energy costs.

Over the past eight years, three NYSERDA-sponsored FlexTech studies were performed, and many of the energy conservation measures identified were implemented across most of the buildings. As a testament to sound assessment, analysis, and diligent implementation, MWPAI was able to reduce its overall energy consumption over that period by 38% for electric and 28% for natural gas.

Acknowledging Progress While Acknowledging Needs

Significant progress had been made, but many of the facilities are old and require more attention. System configurations are predicated on old designs that are no longer considered adequate for modern museum environmental control or for current energy efficiency standards.

New portions of the Building Automation System (BAS) system were issuing alarms, many erroneous, so numerous and frequent that the alarm system was rendered unusable for operating staff. In addition, two new BAS migration contracts had no MWPAI staff to perform the Construction Management and Commissioning required to ensure the projects would perform as intended. MWPAI also recognized that the existing Computerized Maintenance Management System (CMMS) was underused. A means for augmenting staff expertise and capabilities was clearly required, and MWPAI applied for the Onsite Energy Manager (OsEM) Program at the end of 2020.

Planning the Work... and Working The Plan

Various measures were identified in the Energy Management Plan that focused not only on energy savings but on the reduction of recurring maintenance costs. Development of the Energy Management Plan was timely, as it identified a replacement for the museum's critical humidification system, which was completed just as the existing system permanently failed.

MWPAI's existing CMMS, was leveraged to incorporate a broader view of effective maintenance practices, including preventative maintenance and inspection, third-party contract resources and activities, and more detailed cataloging of assets.

The BAS had 5.5 million unacknowledged alarms, which left the engineering staff overwhelmed and unable to effectively use the system. The OsEM prepared and implemented more than sixty RCx measures from the remaining alarms, which will reduce energy consumption and increase operational effectiveness.

As MWPAI was hiring an engineering supervisor in the last few months of the engagement, the guidance provided by the OsEM was critical in assimilating the new supervisor into the Energy Management Team, understanding the Energy Management Plan, and reporting on operations and energy management issues.

Establishing Results

At the end of the one-year OsEM engagement, projects recommended by the OsEM would reduce the consumption of electricity and natural gas by 30% and 3%, respectively. Of those projects recommended, some have already been implemented at various stages during the engagement and represent a 10% decrease in the consumption of electricity.

Some projects identified by the OsEM were implemented early in the engagement, such as LED lighting conversions and certain industrial retroCommissioning (RCx) measures. These projects have already exhibited savings in the School of Art and the Library.

While it cannot be seen in utility consumption, the construction management and customer experience services provided by the OsEM for the two BAS and Controls project demonstrate avoided costs of properly functioning systems.

Moving Forward

Sustained commitment to improvements will include implementation of the remaining measures recommended by the OsEM, which address not only energy savings but also recurring maintenance and aging equipment costs.

MWPAI staff now has a better command of the BAS and BAS Alarms as well as of the CMMS, which will be leveraged more effectively going forward.

The NYSERDA On-site Energy Manager Program

Through the On-site Energy Manager (OsEM) Pilot Program, NYSERDA cost-shares up to 75% of the cost to hire an OsEM. OsEMs work with companies to develop and implement successful energy and productivity projects. Projects may include operation and maintenance improvements, behavioral changes, energy efficiency upgrades, process improvements, throughput and scrap reduction improvements, and cost management.

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