

2015 Star of Energy Efficient Awards Nomination; Sector: Power Generation and Supply

The Client: Algonquin College of Applied Arts in Technology is located in Ottawa, Ontario, Canada, and is the largest college in Eastern Ontario. Algonquin is a leader in the integration of technology into learning, with a goal of becoming a sustainable institution of the future.

“We were looking for people to go beyond the normal bounds of just a simple energy services contract,” said John Tattersall, Director of Physical Resources at Algonquin College. “We were seeking people who could go to the very heart and purpose of what our college is all about. We wanted a strategic partner to help us educate, operate, collaborate and innovate for a clean energy future.”

The Solution: Siemens proposed a 20-year energy savings performance contract that would address all of the college’s technical energy infrastructure requirements and more. The agreement was signed in January 2014.

Infrastructure Improvement Elements

Energy efficient measures are included in the college’s buildings, such as water efficiency improvements (ie, new fixtures), HVAC retrofitting, cooling tower replacement, chiller plant optimization, building automation control optimization, intelligent lighting controls, and modernized kitchen equipment.

Relevant savings include:

- To-date, water savings have reached 127% of what was forecast.
- After all energy efficiency measures are fully installed by year-end 2015, Algonquin is expected to see such benefits as:
 - annual operating cost savings of more than \$1.1 million;
 - a reduction in deferred maintenance (i.e. infrastructure renewal costs) of \$10 million; and,
 - carbon dioxide emissions being lowered by more than 1,200 tons each year.

Siemens is also working with the college to install a cogeneration plant that will use natural gas to simultaneously produce electricity and heat for Algonquin’s buildings. This will result in cleaner energy, greater energy efficiency, projected annual operating cost savings of approximately \$2.2 million per year, and emergency power. In the future, solar photovoltaic power might also be incorporated.

At the end of the 20-year payback period on the entire \$51 million project, the college is projected to benefit from \$3.7 million in annual operating cost savings.

Sustainability Curriculum Contributions

In addition to providing the technical energy infrastructure elements, Siemens is helping the college spread its sustainability message to students, professors, administrators, and other staff.

- At Algonquin’s request, the college serves as a showcase and “living lab” of Siemens’ near-market ready green technologies.
- Siemens serves as a trusted advisor in developing the college’s sustainability strategy.

Working together, Siemens and Algonquin have:

- Jointly created sustainability undergraduate courses and a graduate certificate program.
- Helped ensure that sustainability is integrated into curriculum of all undergraduate disciplines.
- Co-developed an internationally recognized applied research center and other sustainability research projects.
- Are developing an educational program on how to make demand response – which involves incenting and empowering electricity consumers to reduce their use – work in the real world.

Siemens has two resources dedicated to help the college with its sustainability efforts.

- A full-time onsite sustainability coordinator for five years.
- A service account engineer who not only checks the college’s HVAC systems but also teaches a systems course, using real-life input of what is actually occurring on campus.