The Ottawa-Carleton District School Board is exceeding expectations with their 10-year Energy Management Plan that sees them benefiting from government initiatives such as FIT, microFIT, and Net Metering, in addition to implementing other innovative conservation measures.

Solar installations under FIT and microFIT programs generating $1.9 million to date

“As the largest school board in Eastern Ontario we have a responsibility to be an environmental leader within our community and teach through our actions the leaders of tomorrow.”

- Clem Laferriere, Supervisor of Maintenance & Energy Management

Building Automation Systems allow full control from a central location

133 Greenbank Road, Ottawa, ON, K2H 6L3
The Ottawa-Carleton District School Board is an institution that governs and operates all English speaking public schools in the city of Ottawa[2]. It was established in 1998 with the merger of the Carleton Board of Education and the Ottawa Board of Education[2].

It is the largest school board in Eastern Ontario, serving over 70,000 students. This includes 119 elementary schools, 26 high schools and 5 secondary alternative sites, employing a total of 9,000 teachers and staff members[3].

To meet the requirements of the 2009 Ontario Green Energy Act, the Ottawa-Carleton District School Board came up with a Multi-Year Energy Management Plan to develop strategies to reduce energy consumption and promote sustainability throughout their schools[3].

The plan highlights the Board’s energy conservation target to reduce their greenhouse gas (GHG) emissions by 10% by the year 2023, using 2013 as the baseline year[3]. However, due to early successes between 2013 and 2015, the Board decided to increase the target to 15% to demonstrate their commitment to real change[3].

This was done by introducing various initiatives that focus on construction and retrofits, operations and maintenance, as well as occupancy behaviour.

Another area of focus is on Building Automation Systems (BAS). Across the Board’s operations, various levels of BAS have been integrated onto a common platform, where they are managed and operated from a central location[3]. These systems enable users to adjust operating schedules effortlessly, allowing HVAC and electrical systems to operate at optimum efficiency.

The project also facilitated the replacement of pneumatic thermostats with Direct Digital Control (DDC) systems, which allow temperature programming: during the winter, most rooms are set to 21.5°C; in the summer, cooling is a sliding scale that varies according to outside temperature so that it is more accommodating to occupants wearing summer clothing without being too cold[4].

Moreover, the Board has enjoyed success with Feed In Tariff (FIT) programs since 2009[3]. They currently own and receive revenue from 13 MicroFIT systems, each having a capacity of 10 kW. Furthermore, the Board is also leasing the roof space of 28 schools for FIT systems ranging between 50 kW and 250 kW[3]. Combined, the solar installations have a total capacity of 2,620 kW[3]. Five net meter systems are currently being installed with a total capacity of nearly 800 kW.

The schools have also employed live monitoring systems that refresh at 2 minute intervals, where the students can actually look at the energy consumption of their school and contribute to turning off all the lights and computers and watch as the energy consumption drops on the monitor. This helps students and staff members understand the impact of reducing consumption[4].

Figure 1: Rooftop Solar Installation at Muchmore Public School[3]
3 RESULTS

Energy results: Since 2013, the Board has been successful in accumulating energy savings of 32,186,863 kWh resulting in a cost avoidance of $4,457,670[^3]. Revenues from solar installations are expected to reach a total of $1,948,242 by the end of 2018[^3].

GHG reduction: To date the Board’s energy conservation measures have helped prevent a total of 24,000 tonnes of carbon dioxide equivalent (tCO₂e) which is analogous to removing 5,100 passenger vehicles off the road.

4 CONCLUSIONS & REFLECTIONS

As one of the largest employers in Ottawa, the Ottawa Carleton District School Board has an important role to lead by example in the transition to a low carbon city. This role is exemplified in the Board’s overachieving Multi-year Energy Management Plan.

Over the years, the Ottawa-Carleton District School Board has been successful in identifying areas where energy conservation measures can be applied. Schools have the ability to directly influence the next generation of builders, politicians and sustainability advocates that will inherit most of our climate change problems. For this reason, school boards must set high standards in terms of energy conservation in order to cultivate environmental stewardship in the minds of today’s youth.

In an effort to continue to improve energy performance on an annual basis, the Board is constantly refining their strategies to incorporate new technologies and engineering concepts into their facilities.

REFERENCES

[^1]: [https://www.panoramio.com/photo/11894568#](https://www.panoramio.com/photo/11894568#)
[^4]: Meeting with Clement Laferrier (September 15, 2017)