



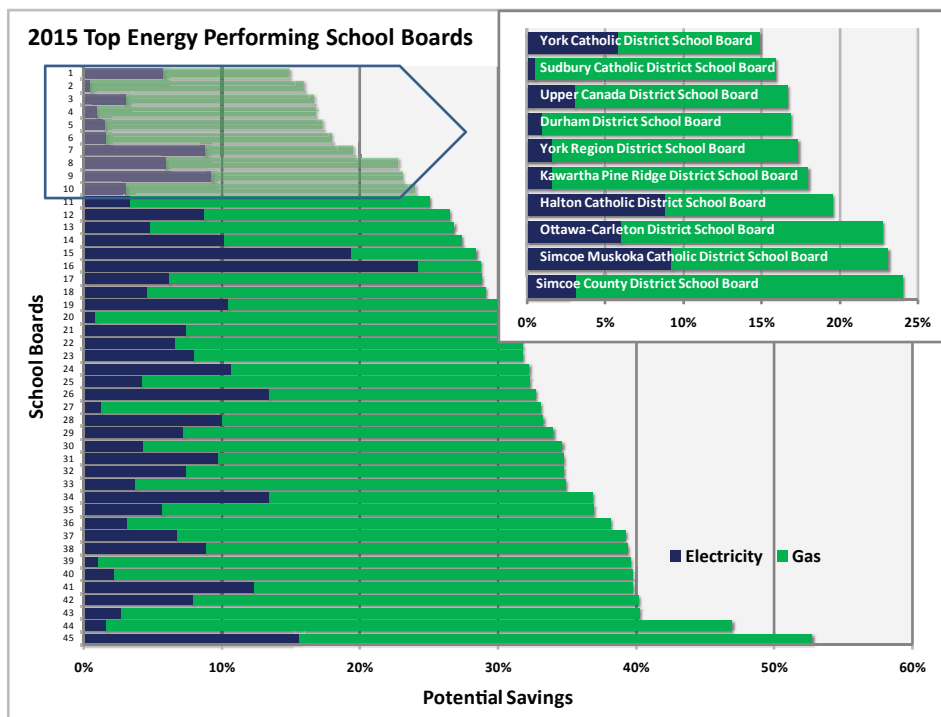
SUSTAINABLE SCHOOLS

saving our energy for education

2015 Top Energy Performing School Boards Report

July 2015

Toronto & Region Conservation Authority is pleased to announce the 2015 top ten most energy efficient school boards in Ontario. In this report, we recognize the school boards whose overall energy efficiency is closest to the target energy use for all of their schools – that is, those with the lowest savings potential. Our assessment is based on energy use reported by 45 school boards for the September 2012 to August 2013 period. Please see the Sustainable Schools website for top ten board profiles, including interviews with each board, at www.sustainableschools.ca

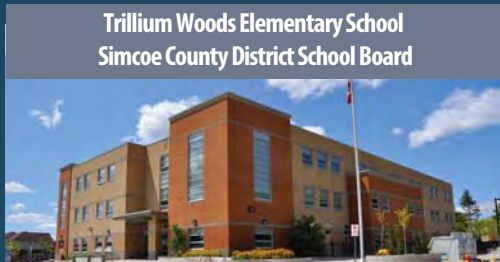


	School Board	Number of Buildings	Total Area (sf)	Electricity Potential Savings (%)	Electricity Potential Savings (kWh/year)	Gas Potential Savings (%)	Gas Potential Savings (m ³ /year)	Total Energy Potential Savings (%)	Total Cost Potential Savings (\$/year)	GHG Emissions Reduction (tonnes)
1	York Catholic District School Board	104	7,326,283	11.3	6,187,183	18.9	938,085	14.9	805,026	851
2	Sudbury Catholic District School Board	23	1,073,352	1.3	71,934	23.3	234,260	15.9	74,365	52
3	Upper Canada District School Board	98	4,924,022	6.8	2,079,042	24.6	896,661	16.6	429,723	396
4	Durham District School Board	135	8,758,303	2.5	1,035,560	24.9	1,688,649	16.8	441,286	420
5	York Region District School Board	213	15,100,811	3.9	3,338,993	25.7	3,235,230	17.3	965,737	955
6	Kawartha Pine Ridge District School Board	93	4,680,265	4.1	1,008,002	26.7	1,003,250	18.0	335,292	302
7	Halton Catholic District School Board	52	3,440,573	16.6	4,734,442	22.7	558,698	19.5	590,745	630
8	Ottawa-Carleton District School Board	150	11,095,515	13.9	10,252,533	29.3	2,787,981	22.7	1,713,550	1,659
9	Simcoe Muskoka Catholic District School Board	53	2,715,373	18.4	4,272,410	28.1	617,523	23.1	565,368	569
10	Simcoe County District School Board	128	6,542,903	7.8	3,224,687	34.4	2,125,633	24.0	798,004	596
	TOTAL	1,049	61,139,665	8.7	36,204,784	25.9	14,085,970	18.9	\$ 6,719,096	6,430

About Sustainable Schools

The Sustainable Schools program assists school boards in evaluating their energy performance, monitoring progress, and providing the tools required to make substantial and lasting improvements. Since 2007, Sustainable Schools has been reporting on the top performing schools across Canada, establishing the magnitude of energy savings potential and directing them to where these savings can be found. It is a program of The Living City delivered across Canada by Toronto and Region Conservation with technical direction by Enerlife Consulting Inc. Please visit us at www.sustainableschools.ca


Trillium Woods Elementary School
Simcoe County District School Board



Actual Energy Intensity, 2012-2013 School Year	
Electricity	4.5 ekWh/sf
Gas	4.5 ekWh/sf
Total Energy Intensity	9.0 ekWh/sf

Weather-normalized to Toronto Pearson Int'l Airport

St. Thomas Aquinas Catholic Secondary School
Halton Catholic District School Board



Actual Energy Intensity, 2012-2013 School Year	
Electricity	7.1 ekWh/sf
Gas	7.9 ekWh/sf
Total Energy Intensity	15.0 ekWh/sf

Weather-normalized to Toronto Pearson Int'l Airport

Achievable Targets

Across all 45 school boards, there are 371 elementary schools (out of 2,971) already meeting the 12 equivalent kilowatt-hours per square foot (41kBtu/sf) total energy intensity target (weather-normalized to the board's location), and 137 secondary schools (out of 601) are at or under the 15 ekWh/sf (51 kBtu/sf) total energy intensity target. Simcoe County DSB's Trillium Woods Elementary School and Halton Catholic DSB's St. Thomas Aquinas Catholic Secondary School are examples of schools meeting their respective intensity targets.

School boards	45
Number of buildings	3,670
Total Energy Potential Savings	30.9%
Electricity Potential Savings	15.0%
	197,485 MWh per year
Gas Potential Savings	40.6%
	103.7 million m3 per year
Total Energy Cost Savings	\$41 million per year
GHG Emissions Reduction	40 thousand tonnes CO2e/year

The 45 School Boards

Together, the 45 school boards reported on 3,670 buildings covering over 200 million square feet. Reported median total energy use (electricity and heating fuel) is 17.5 equivalent kilowatt-hours per square foot (60 kBtu/sf). Average conservation potential is estimated at 15.0% for electricity and 40.6% for natural gas, for an overall total energy savings potential of 30.9%. Realization of this potential could generate over \$41 million per year in utility cost savings, and will lower provincial greenhouse gas emissions by more than 40 thousand tonnes of CO2e per year. A total of 1,245 buildings have energy conservation potential of more than \$10,000 per year, 189 of which are within the top ten boards. For a list of all school boards that were analysed for this project, please refer to the white paper published on the Sustainable Schools website.

Methodology

For this project we analyzed data posted by 45 school boards (which represent almost two-thirds of all schools in Ontario) as a requirement of Ontario's Green Energy Act, as of December 1, 2014. The assessment of energy savings potential is based on rational electricity and natural gas targets established for individual elementary and secondary schools and administration buildings. The targets were derived from top-quartile benchmarks from the Sustainable Schools database, normalized to Toronto, Ontario weather, and adjusted for building-specific variables including heating source, swimming pools and portable classrooms. The savings potential for individual buildings was then determined as the difference between actual, weather-normalized energy use and the target, and was rolled up for each board to arrive at our ranking of the boards. For more information on the methodology, please refer to the white paper published on the Sustainable Schools website.

Tips from our Top Ten Performing Boards

(On the biggest factor impacting energy performance)

The willingness of our staff to be innovative and participate in the decision-making that yields results...

The culture here embraces conservation.

- Kawartha Pine Ridge DSB

(On the biggest factor impacting energy performance)

Extensive use of our Building Automation System to control time of day schedules for mechanical equipment, followed by ongoing commissioning and real-time energy monitoring to ensure all equipment is operating as per design and schedule.

- Halton Catholic DSB

While a lot of work has been done and the board has benefited from taking advantage of the low-hanging fruit, technology keeps changing and new opportunities are creating a new growth of low-hanging fruit. Projects that were traditionally cost-prohibitive now have a good ROI. Building Analytics, LED Lighting, BAS software improvements, new monitoring technology (real-time or other), cheaper/better sensors and controllers are but a few examples.

- York Catholic DSB

We benchmark our schools regularly to identify the top performers from which to draw design cues, performance changes to quantify upgrade initiatives, and the poor performers to help prioritize our re-commissioning efforts.

- Ottawa-Carleton DSB

(On training) Plant Services provides building automation system (BAS), energy management and energy conversation training for our Plant Caretakers (building operators) on a yearly basis, and also attends staff and student workshops when invited.

- York Region DSB

What makes the difference?

Many school boards have a few energy efficient schools which generally result from thoughtful design, good maintenance and conscientious operation and control. What sets the most energy efficient boards apart is consistency across the majority of their buildings, which is attributed more to strong management practices than to building design. Common themes emerging from interviews with the top 10 boards are:

- Board-wide **support** for energy efficiency initiatives
- Operator **training** on energy conservation – extensive training being provided and continuously improved
- **Benchmarking** of schools – reporting and comparing energy use among own schools
- Focus on **operational improvements** with recognition that retrofits alone do not lead to sustained savings
- **Student and staff engagement** initiatives, building on collective energy and environmental awareness

Looking Forward to 2016

School boards, utility companies, governments and other stakeholders across North America are invited to provide feedback and engage with us to refine the methodology and build the knowledge and practice of effective conservation action in schools. The 2016 Top Energy Performing Boards report will examine more school boards, and will also report on the boards that have made significant energy savings.

For more information on the Sustainable Schools program, please contact:
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