



Energy Conservation and Demand Management Plan

June 2014

A. Background

The Peel District School Board's strategic plan "The Report Card for Student Success", articulated "Use Resources Effectively" as one of five key elements to guide the school board to inspire success, hope and confidence in every student. Although there are many sub-components to this direction, environmental stewardship is one of the most widespread among students, parents, teachers and staff.

Peel has been very active in embedding environmental responsibility and stewardship into all facets of the curriculum, into its engagement with parent and community volunteers, and as an integral part of its business affairs.

B. PDSB Facilities

The Peel District School Board currently has 242 Schools; **205** elementary schools and **37** secondary schools. In addition, the Board owns **13** specialty learning, service and administrative buildings. Altogether, the Board occupies 18,371,056 square feet of space.

Building Systems/HVAC

For the past 8 years, the Board has invested in lifecycle replacement of major building system components to more efficient components. Atmospheric boiler plants in over 30 schools have been replaced with more efficient condensing boilers, and 10 schools have had unit ventilators replaced. Over two thirds of our schools have had upgrades to their Building Automation and Control Systems, and many schools have seen the addition of Variable Speed Drives to better control supply and return air fans, resulting in energy savings. The upgrades to Building Automation Systems has also allowed for real-time data monitoring and remote trouble-shooting, detecting and resolving performance issues.

Lighting

From 2006 to 2008, the Board has converted lighting in our Secondary schools from T12 to the more efficient T8s, and starting in 2010 has converted the Board's elementary schools to T8 lighting. In 2013, work continued to convert the remaining administrative buildings to T8. Work has also continued to replace exterior lighting to LED lighting to improve energy efficiency, and integrating the exterior lighting to the buildings' security systems to coordinate time-of-use.

Windows, Roofing and Building Envelope

The Board has a regular program of inspection of roofs and windows, and devotes a significant sum of its facility renewal funds to replace and upgrade roofs, doors and windows that are approaching or have surpassed their end-of-life. In

addition, exterior doors and window seals are regularly inspected, and weather stripping and caulking replaced as part of routine maintenance.

Building Operations

In 2013, the Maintenance department established new criteria for the operations of its buildings for energy conservation reasons. With the cooperation of Principals and building occupants, heating set points were lowered, AC set points increased and the scheduled “occupied day” adjusted to optimize the time in setback mode. The Board has also embarked on a frequent and regular cleaning of radiators to improve overall performance.

In addition to regular plumbing maintenance and replacement of fixtures, custodians are regularly checking meter readings to promptly detect leaks, and unnecessary water consumption.

C. School-Based Conservation and EcoSchools Certification

Peel teachers have been active in promoting energy conservation, global citizenship and the 3Rs (Reduce, Re-use, Recycle) for some time. Many schools have had incredible involvement by students, staff and parent volunteers in “greening” of their schools, implementation of recycling programs and participating in programs in “saving our earth” in response to concerns over global warming and pollution.

However, it is only in the past several years that focused effort and a wide range of support resources have been made available to ALL schools and teachers, and the response has been overwhelming.

The PDSB, through the support of the Toronto and Region Conservation Authority (TRCA) was able to hire a part-time EcoSchools to promote and support efforts in our schools using the resources of Ontario’s EcoSchools program. Through these efforts, a vast array of resources dealing with waste minimization and energy conservation was made available to schools. This included printed materials, posters, stickers, teachers program and guides, and access to community contacts and resources. These included popular events such as the “Lights Off” campaigns, “Litterless Lunch”, Turn it Off campaign for energy efficient operations of computer equipment, e-wastes disposal drives, “greening of the school” and creation of outdoor classrooms.

To-date 90 schools have been certified under the EcoSchools program, and many more are approaching the requirements for certification.

D. Investment in Energy Savings Projects

The PDSB, like all Boards in Ontario, receives their funding for facility renewal from the Province of Ontario on a year-by-year basis. As such, although the Board may identify candidate projects for energy savings as part of a multi-year plan, the Board must prioritize their spending based on the allocations received from the Province. Therefore, the ability to implement any multi-year strategy is dependent on the funding that is received in each year.

Appendix A outlines the projects that were underway during the course of fiscal 2013-14 or are planned for the early part of fiscal 2014-15 that will result in savings in electricity or natural consumption.

Although overall expenditure levels have notionally been identified for certain types of renewal projects, a more specific list for future years will be in this coming year.

E. Alternative Energy

The PDSB has been active in pursuing opportunities for alternative energy. The Board has micro installation (10kW) installed in three schools - Heart Lake Secondary School, Ruth Thompson Middle School and Palgrave Public School. In 2011, the PDSB completed the installation of a 142 kW solar array on the roof of the Treeline Public School in Brampton, the Board's first large-scale alternative energy installation. Further opportunities for similar installations under a partnership arrangement are planned. In 2012, the PDSB completed the installation of its first school that uses geothermal energy for heating and cooling at SouthFields Village PS in Caledon. In both cases, digital displays were installed to provide students with real-time, visual display of energy usage, using their own school building as a learning tool about energy use and conservation.

F. Energy Monitoring and Reporting

The PDSB has a Utilities Data Analyst position assigned to monitor all utility billings, including electricity, natural gas, and water. This role and activity is critical in ensuring that the close to \$30 million annual expenditure in utilities is monitored, and that any problems are promptly identified and corrected. Both metering issues as well as billing issues have been identified in the past, and steps taken to correct these items, working with the local utility.

G. Future Direction – Energy Management and Sustainability

The PDSB is currently in the process of hiring a Manager – Energy and Sustainability to provide expertise and increased focus on energy conservation, energy purchasing, and championing of sustainability throughout the Board.

H. Energy Conservation Targets

Appendix A shows that the investments made in improvements to our school and support buildings is expected to result in a 1% savings in both electricity usage and natural gas usage. As an initial target, a 1% year-over-year improvement over the next 5 years in electricity and natural gas usage is reasonable. Additional projects and initiatives to achieve this target will be developed over the course of the next year, working with the new Manager – Energy and Sustainability, EcoSchools Coordinator and members of a revitalized Sustainability Committee.

Appendix A

PDSB ENERGY EFFICIENCY PROJECTS 2013 - 14

INITIATIVE	PROJECT COST (\$)	ANNUAL SAVINGS – 2014/15			
		kwh Electricity	m3 Natural Gas	\$ Electricity	\$ Natural Gas
CHILLER REPLACEMENT					
Turner Fenton North	\$ 383,000	87,750		\$ 9,652	
Central Peel	\$ 620,000	87,750		\$ 9,652	
Humberview	\$ 382,000	87,750		\$ 9,652	
BOILER PLANT REPLACEMENT					
Edenrose	\$ 188,000		27,146		\$ 4,615
Edenwood	\$ 182,000		22,023		\$ 3,744
Earnscliffe	\$ 265,000		37,546		\$ 6,383
H.F. Loughlin	\$ 182,000		23,513		\$ 3,997
Nahani Way	\$ 159,000		26,656		\$ 4,531
Forest Avenue	\$ 155,000		20,398		\$ 3,468
EXTERIOR LIGHTING CONTROLS					
31 School Sites	\$ 109,000	445,648		\$ 49,021	
BUILDING AUTOMATION SYSTEM UPGRADE					
Package 1 - 11 Schools	\$ 395,000	211,644	46,320	\$ 23,280	\$ 7,874
Package 2 - 12 Schools	\$ 413,000	228,929	55,334	\$ 25,182	\$ 4,280
EXTERIOR LIGHTING CONVERSION					
HJA Brown Education Centre	\$ 237,000	40,144		\$ 4,416	
*cost includes end-of-life pole replacement					
TOTAL	\$ 3,670,000	1,189,615	258,936	\$ 130,855	\$ 38,892
Total Board - Adjusted Baseline (not weather corrected)					
2014/15		126,499,738	25,275,715		
% Savings Projected – 2014/15		0.94%	1.02%		