

Ontario Regulation 397/11 – Energy Conservation and Demand Management Plans Peterborough Victoria Northumberland and Clarington Catholic District School Board

Overview

This report provides a brief background and summary of the requirements relating to the Ontario Regulation 397/11 – Energy Conservation and Demand Management Plans. Results from the completion of the Ministry of Energy’s (MOE) 2013 Energy Consumption and GHG Emissions template (for the period of 2011), as well as other relevant energy information for all of the facilities operated by the Peterborough Victoria Northumberland and Clarington Catholic District School Board (PVNCCDSB) are included.

Background

On January 1st, 2012 the Energy Conservation and Demand Management Plans Regulation (O.Reg. 397/11) came into effect. In 2013, public agencies are required to prepare and publish a summary of their 2011 energy consumption and greenhouse gas emissions. The regulation requires public agencies to report their energy usage and Greenhouse Gas (GHG) emissions on an annual basis and to also develop a Five Year Energy Conservation and Demand Management (CDM) Plan by July 1, 2014. The requirements include:

By July 1, 2013 public agencies are required to submit:

- Energy Consumption and GHG Emissions template using 2011 data

By July 1, 2014 public agencies are required to submit:

- Updated energy consumption and GHG Emissions template using 2012 data
- A Five Year Energy Conservation and Demand Management (CDM) Plan
- Detail costs and estimated savings for all proposed Energy Conservation Measures
- Benchmark facilities
- Updated building characteristics
- Option to report on previous energy conservation initiatives

In summary, an updated version of the Energy Consumption and GHG Emissions template must be submitted every year, on or before July 1st, starting 2014. Completed CDM Plans are due July 1, 2014 and every five years thereafter.

Discussion

A first step in developing a CDM Plan is to establish baselines. As required by regulation 397/11, the initial baseline consists of 2011 energy consumption and GHG emissions information. Table 1 below provides a Corporate Description of the facilities that are included in the Energy Consumption and GHG Emissions template that was completed for the Ministry of Energy. Table 2 below contains a summary of PVNCCDSB’s energy consumption for September 2011 to August 2012. The table is broken down by

facility for PVNCCDSB and is further subdivided by type of operational use (schools and board office). The table outlines the electricity as well as natural gas consumption for each site and the total consumption for the organization. It also breaks down the GHG emissions for each site as well as the energy intensity with the average intensity across all sites. Using energy intensity as a variable will assist in the identification of opportunities for future energy efficiency and conservation initiatives.

Table 1: Corporate Sites

Building Name	Operation Type	Address	City	Postal Code	Total Floor Area (m ³)	Number of Portables	Average Hours per Week
Good Shepherd Catholic Elementary School	School	20 Farmington Drive	Courtice	L1E 3B9	6,020.0	1	47.5
Peterborough VNCCDSB Board Offices	Administrative facilities	1355 Lansdowne Street West	Peterborough	K9J 7M3	1,843.4	6	40.0
Holy Cross	School	1355 Lansdowne Street West	Peterborough	K9J 7M3	8,397.6	6	47.5
Holy Family Catholic Elementary School	School	125 Aspen Springs Drive	Bowmanville	L1C 0C6	6,921.0	0	47.5
Holy Trinity Catholic Secondary School	School	2260 Courtice Road South	Courtice	L1E 2M8	10,269.0	23	67.5
Immaculate Conception School	School	76 Robinson Street	Peterborough	K9H 1E8	3,131.0	0	47.5
Monsignor Leo Cleary School	School	3820 Courtice Road North	Courtice	L1E 2L5	2,074.0	0	47.5
Monsignor O'Donoghue	School	2400 Marsdale Drive	Peterborough	K9L 4H7	3,707.0	1	47.5
Mother Teresa School	School	78 Glenabbey Drive	Courtice	L1E 2B5	4,514.0	0	47.5
Notre Dame	School	760 Burnham Street	Cobourg	K9A 2X6	1,839.0	6	47.5
Pope John Paul II School	School	130 Orchard Park Road	Lindsay	K9V 5K1	1,976.0	4	47.5
St. Alphonsus School	School	875 St. Mary's Street	Peterborough	K9J 4H7	3,582.0	0	47.5
St. Anne's School	School	240 Bellevue Street	Peterborough	K9H 5E5	3,261.0	6	47.5
St. Anthony's School	School	74 Toronto Road	Port Hope	L1A 3R9	4,149.0	0	47.5
St. Catherine School	School	1575 Glenforest Blvd	Peterborough	K9K 2J6	5,433.0	8	47.5
St. Dominic School	School	320 Mary Street West	Lindsay	K9V 5X5	4,518.0	0	47.5
St. Elizabeth Catholic ES	School	610 Longworth Avenue	Bowmanville	L1C 5B8	3,773.0	6	47.5
St. Francis E.S. (Replacement)	School	1771 Rudell Road	Newcastle	L1B 1E2	4,963.0	0	47.5
St. John's Catholic Elementary School	School	746 Park Street South	Peterborough	K9J 3T4	3,525.0	0	47.5
St. John's School, Kirkfield	School	1047 Portage Road	Kirkfield	K0M 2B0	787.0	2	47.5
St. Joseph's School, Bowmanville	School	90 Parkway Crescent	Bowmanville	L1C 1C3	3,240.0	2	47.5
St. Joseph's School, Cobourg	School	919 D'arcy Street North	Cobourg	K9A 4B4	2,726.0	1	47.5
St. Joseph's School, Douro	School	RR1	Douro	K0L 1S0	1,810.0	0	47.5
St. Luke's School	School	335 St. Luke's Road	Lindsay	K9V 4R5	2,060.0	3	47.5
St. Martin's School	School	531 Ennis Road	Ennismore	K0L 1T0	2,160.0	2	47.5
St. Mary's School, Campbellford	School	PO Box 1120	Campbellford	K0L 1L0	2,268.0	0	47.5
St. Mary's School, Grafton	School	PO Box 40	Grafton	K0K 2G0	1,691.0	3	47.5
St. Mary's School, Lindsay	School	16 St. Lawrence Street	Lindsay	K9V 2J8	2,322.0	0	47.5
St. Mary's School, Port Hope - closed	School	10 Pine Street	Port Hope	L1A 3E7	1,237.0	0	0.0
St. Mary's Secondary School, Cobourg	School	1050 Birchwood Trail	Cobourg	K9A 5S9	12,088.0	12	67.5
St. Michael's School	School	23 University Avenue West	Cobourg	K9A 2G6	2,004.0	1	47.5
St. Patrick's School	School	300 Otonabee Drive	Peterborough	K9J 8L9	3,103.0	1	47.5
St. Paul's School, Lakefield	School	PO Box 370	Lakefield	K0L 2H0	2,191.0	2	47.5
St. Paul's School, Norwood	School	PO Box 310	Norwood	K0L 2V0	862.0	8	47.5
St. Paul's School, Peterborough	School	1101 Hilliard Street	Peterborough	K9H 5S3	3,018.0	0	47.5
St. Peter's Secondary School	School	730 Medical Drive	Peterborough	K9J 8M4	16,310.0	0	67.5
St. Stephen's Secondary School	School	300 Scugog Street	Bowmanville	L1C 3K2	25,878.0	9	67.5
St. Teresa's School	School	1525 Fairmount Blvd	Peterborough	K9J 6S9	2,562.0	3	47.5
St. Thomas Aquinas Catholic/Technical Building	School	269 Angeline Street South	Lindsay	K9V 4R2	8,380.0	13	47.5

Table 2: Energy Consumption Summary

Site	Total Electricity Consumption (kWh)	Total Natural Gas Consumption (m ³)	Fuel Oil (L)	GHG Emissions (kg)	Energy Intensity (GJ/m ²)
Good Shepherd Catholic Elementary School	475,006.00	19,215.00		74,328.88	10.48
Peterborough VNCCDSB Board Offices	368,004.78	22,923.90		72,780.93	30.82
Holy Cross	1,676,466.22	104,431.10		331,557.55	30.82
Holy Family Catholic Elementary School	583,903.00	20,924.00		86,271.72	10.82
Holy Trinity Catholic Secondary School	1,122,323.00	48,173.00		180,863.01	14.78
Immaculate Conception School	151,038.00	30,573.00		69,885.18	14.12
Monsignor Leo Cleary School	113,472.00	16,055.00		39,431.78	12.73
Monsignor O`Donoghue	333,159.00	25,151.00		74,203.88	15.05
Mother Teresa School	287,897.00	32,834.00		85,108.61	13.11
Notre Dame	321,198.00	0.00		25,695.84	16.23
Pope John Paul II School	128,696.00	12,206.00		33,372.67	12.15
St. Alphonsus School	150,065.00	30,735.00		70,113.62	12.36
St. Anne's School	255,753.00	37,980.00		92,266.25	18.79
St. Anthony's School	201,089.00	26,030.00		65,300.14	10.70
St. Catherine School	512,819.00	39,232.00		115,198.60	15.90
St. Dominic School	332,326.00	36,940.00		96,425.84	14.91
St. Elizabeth Catholic ES	440,981.00	15,292.00		64,189.95	14.86
St. Francis E.S. (Replacement)	337,999.00	10,016.00		45,976.44	8.32
St. John's Catholic Elementary School	172,866.00	29,873.00		70,307.98	12.92
St. John's School, Kirkfield	38,599.00	0.00	13,424.40	39,701.71	21.64
St. Joseph's School, Bowmanville	187,794.00	22,325.00		57,231.77	12.19
St. Joseph's School, Cobourg	158,106.00	24,535.00		59,035.01	14.27
St. Joseph's School, Douro	77,633.00	0.00	15,398.40	48,208.33	12.50
St. Luke's School	116,239.00	0.00	18,495.30	59,743.31	14.23
St. Martin's School	229,821.00	29,252.00		73,690.30	23.26
St. Mary's School, Campbellford	83,516.00	23,338.00		50,804.73	13.58
St. Mary's School, Grafton	113,818.00	15,281.00		37,996.11	15.18
St. Mary's School, Lindsay	139,395.00	27,951.00		63,996.52	17.46
St. Mary's School, Port Hope - closed	150,923.00	0.00		12,073.84	11.33
St. Mary's Secondary School, Cobourg	1,050,677.00	89,892.00		254,006.40	15.42
St. Michael's School	74,153.00	21,166.00		45,949.25	13.87
St. Patrick's School	250,909.00	24,417.00		66,236.16	15.28
St. Paul's School, Lakefield	154,731.00	30,682.00		70,386.70	20.39
St. Paul's School, Norwood	85,802.00	9,878.00		25,539.77	20.56
St. Paul's School, Peterborough	217,063.00	38,400.00		89,965.12	19.24
St. Peter's Secondary School	1,842,075.00	42,594.00		227,895.37	13.07
St. Stephen's Secondary School	1,013,403.00	66,392.00		206,594.75	6.17
St. Teresa's School	167,149.00	34,086.00		77,815.83	19.20
St. Thomas Aquinas Catholic & Technical Building	820,835.00	42,061.00		145,188.46	14.06
					Average Intensity
Total	14,937,702.00	1,100,834.00	47,318.10	3,405,338.31	15.46

Energy Intensity Definition - a measure of energy efficiency measured by the amount of energy consumed in GJ per square metre of floor space.

Table 2 above illustrates the breakdown of electricity and natural gas consumption by facility and operation. From these graphs it can be seen that a relatively small number of schools account for a large portion of all electricity and natural gas consumption. These sites are Holy Cross, Holy Trinity Secondary, St. Mary’s Secondary (Cobourg), St. Peter’s Secondary and St. Stephen’s Secondary Schools. It is likely that these sites have higher consumption due to their larger floor area as seen in Table 1.

GHG emissions for all sites are shown and the same schools mentioned above that have higher consumption also had high GHG emissions. This can be expected due to the larger floor area for these sites.

Table 2 also illustrates that all schools have relatively similar energy intensities with a few exceptions. The Board Office and Holy Cross School have intensities noticeably higher than other sites, while St. Stephen’s Secondary has a low energy intensity in relation to the large floor size. This is likely due to the fact that energy intensity is less a function of the size of the building and more a function of the efficiency of energy consumption.

Figures 1, 2 and 3 below illustrate the 2011/2012 aggregate consumption for all sites for electricity, natural gas and fuel oil respectively. Electricity use shows a slight peak in the winter months; however usage in the summer months is slightly less because school is not in session. For natural gas, the seasonal trend is seen for the winter months but, as with electricity, consumption decreases in the summer due to schools not being operational. Only three sites for the Board use fuel oil as a source of energy and it is exclusively used primarily in the winter months for heating.



Figure 1: 2011/2012 Electricity Usage by Month

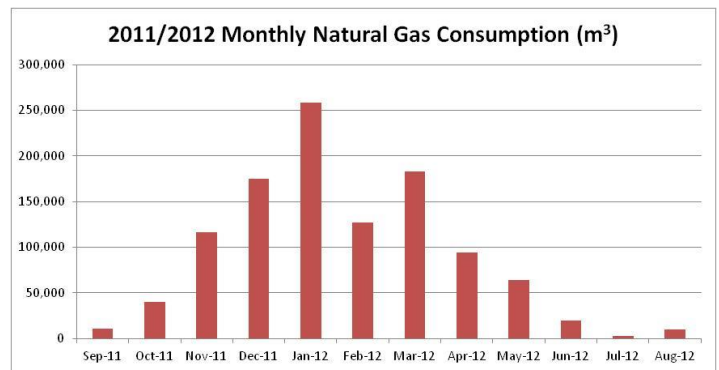


Figure 2: 2011/2012 Natural Gas Usage by Month

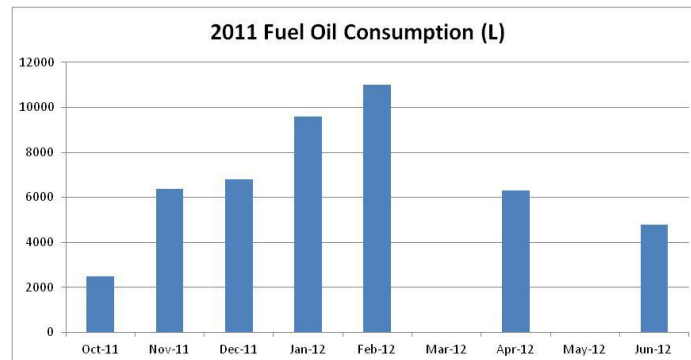


Figure 3: 2011/2012 Fuel Oil Consumption by Month

Summary

All of the completed work outlined above and the subsequent submission of PVNCCDSB's 2013 Energy Consumption and GHG Emissions template ensures PVNCCDSB is in compliance with Regulation 397/11 and also helps position our organization to complete the 2014 CDM plan. The CDM plan will be a fundamental component of PVNCCDSB's overall energy management strategy moving forward.