

AVON MAITLAND DISTRICT SCHOOL BOARD

- **We Will: *Create Positive, Inclusive Learning Environments***
- **We Will: *Maximize Student Outcomes***
- **By Valuing: *Our students, Our Staff, Our Families, Our Communities***
- **Using Principles of: *Character, Equity, Sustainability***

DIRECTOR'S INFORMATION REPORT

TO: ○ C/W, Open Session ○ C/W, Closed Session ● Board

TUESDAY, JUNE 22, 2015

AGENDA ITEM 5.3 b)

SUBJECT: **Green Energy Act Reporting**

1.0 **Background**

- 1.1 Under the *Green Energy Act*, Ontario Regulation 397/11, Energy Conservation and Demand Management Plans, defines the requirements for all Broader Public Sector (BPS) organizations, including hospitals, municipalities, universities, colleges, school boards and municipal service boards (for water and sewage treatment and pumping operations), to:
 - 1.1.1 Report on annual energy use and greenhouse gas (GHG) emissions in designated facilities by July 1st each year starting in 2013.
 - 1.1.2 Develop and implement 5-year Energy Conservation and Demand Management Plan (CDM) by July 1, 2014. (Completed and reported to the board June 24th, 2014)
- 1.2 The regulation also requires that the content of the submission, uploaded to the Ministry of Energy, be made public and easily available on the Board web site as well as internally.
- 1.3 The reports calculates energy use per square foot and is reported in equivalent kilowatt-hours per square foot (ekWh/ft²) which is a standard measure when comparing total energy intensity of a building including both heating source energy and all electrical consumption. Green House Gas (GHG) emissions are also reported.
- 1.4 The data used to populate this report is dependent on Local Distribution Companies (LDCs) reporting meter data accurately and having all adjustments to 'actual' made within the reporting period. This is not coordinated well at this time and, in some cases, current building data may reflect energy and GHG's slightly lower or higher than actual due to estimated reads. Propane is another heating fuel used at 5 sites. Propane is delivered in bulk and not metered over a specific billing period in the same fashion as electrical and natural gas utilities. As such, the propane volume used to calculate GHG's and energy intensities is based on bulk deliveries billed in the fiscal period.

2.0 Energy Consumption and Green House Gas (GHG) Emissions Reporting

- 2.1 Appendix A represents the report, organized alphabetically by school, to be uploaded to the Ministry of Energy web site. This appendix includes the consumption by energy source used to calculate GHG emissions and energy intensity based on Ministry of Energy assumptions regarding the ratio of GHG's and ekWh per unit of energy consumed. That is, the Ministry of Energy assumes that each energy type produces a certain amount of GHG's per ekWh consumed.
- 2.2 Appendix B1 through B3 represent the GHG and energy intensity data submitted for the current period as well as the previous two reporting periods. The data in B1 is organized alphabetically by site to facilitate a year over year comparison. Appendix B2 is organized from the lowest to the highest energy intensity from the baseline year 2012-13 by period and Appendix B3 is organized from lowest to highest GHG emissions by period.
- 2.3 The raw data in Appendix B2 indicates that Hamlet, Shakespeare, Bedford, and North Woods appear in the top 5 best energy performing sites with Anne Hathaway and Elma also appearing in the top 5 in the three reporting periods. As speculated in the previous report, Hamlet, Shakespeare, and Anne Hathaway are relatively small two story buildings which tend to be more efficient to heat due to the ratio of roof area to floor area. The reasoning for Elma and Bedford's continued positive performance is not as obvious but it may be related to better control of air exchanges and insulation levels from previous retrofits.
- 2.4 Sites with the highest energy intensity include Mornington, LDSS, Downie, SERC, and Goderich PS. Mornington and Downie are relatively small sites with two portable classrooms each. Portables are generally less efficient than permanent buildings. In this case the portables have considerable impact on the relatively small permanent buildings. LDSS was noted in the previous report as being under construction and having to deal with abnormal amounts of fresh air. It was also noted that LDSS intensity levels should begin migration closer to average in the 2014-15 period as it was still under construction during the most recent 2013-14 reporting period.
- 2.5 As noted in 2.3 above, B2 is raw data and not corrected for heating degree days (HDD) or cooling degree days (CDD). To understand the effect of heating degree days it is helpful to look at both total electricity and natural gas consumption during each reporting period, comparing it to the total building inventory area as well as the heating degree days. Table 1 below captures this information.

Line	Measure	2011-12 Period Reported in 2013	2012-13 Period Reported in 2014	2013-14 Period Reported in 2015
1	Electricity (kWh)	15,277,577.00	15,910,812.77	14,898,549.68
2	% Change Electricity	n/a	4.14%	-6.36%
4	Natural Gas (ekWh)	26,443,774.45	30,903,555.30	32,555,040.20
6	NG Corrected for HDD	31,821,654.28	29,876,606.39	26,609,764.91
7	% Change Nat. Gas	n/a	-6.11%	-10.93%
9	Propane (ekWh)	1,951,529.25	2,226,516.00	2,568,368.63
11	NG Corrected for HDD	2,348,412.45	2,152,527.16	2,099,327.32
12	% Change Nat. Gas	n/a	-8.34%	-2.47%
13	*Total Floor Area (ft ²)	2,356,010.42	2,360,814.07	2,310,958.90
14	% Change Floor Area	n/a	0.20%	-2.11%
15	**Heating Degree Days	2,611	3,250	3,844
16	% Change HDD	n/a	24.47%	18.28%
17	Ave Energy Intensity (GEA Report)	19.26	21.50	22.46
18	% Change in Intensity	n/a	11.63%	4.47%
19	Ave Energy Intensity (Corrected)	20.99	20.31	18.87
20	% Change in Intensity	n/a	-3.25%	-7.07%
*Floor Area reflects sites reported only. Sites divested during a reporting period are not included because energy intensity results would be skewed due to incomplete utility data.				
**Heating Degree Day data sourced from weather station YGBX.				

Table 1 - Utility Consumption & HDD

- 2.6 Note the total floor area over the three reporting periods has remained relatively stable with a slight reduction in the most recent reporting period due to divestment of 4 sites including Victoria, Holmesville, Turnberry, and Wingham Public Schools offset by the addition of Maitland River and other small additions like Clinton and Goderich Child Care Centres.
- 2.7 The HDD trends significantly up over the three year period; just under 25% between 2011/2012 and 2012/2013 and just over 18% between 2012/2013 and 2013/2014. This lends some rationale to the increase in natural gas and propane consumption year over year, as there is a direct correlation between HDD and heating requirements.
- 2.8 Electricity consumption does not correlate to HDD days as only a small portion of consumption is related to heating with the exception of the two electrically heated schools, North Woods and Central Perth. Electricity trended slightly up in the previous reporting period between 2011/2012 and 2012/2013 and then down by a little over 6% between 2012/2013 and 2013/2014.
- 2.9 Lowest energy intensity does not necessarily translate to lowest emissions. As noted in 2.1, the Ministry of Energy assumes that each energy type produces a certain amount of GHG's per ekWh consumed. Generally, electrically heated buildings have lower GHG emissions than Natural Gas heated facilities because electrical power produces the fewest GHG's. This accounts for North Woods and Central Perth being in the lowest 2 sites for GHG emissions as they are electrically heated.

3.0 Energy Consumption and Demand Management Plan (CDM)

- 3.1 Board staff participated in a working group through OASBO's Operations Maintenance Construction (OMC) Subcommittee on Energy to develop a template for an Energy and Demand Management Plan to meet the requirements of the Green Energy Act Phase 2 reporting. Avon Maitland's plan was presented to the board in June of 2014.
- 3.2 The plan set out the reduction targets for five years, with 2012/2013 being the base year and Year 1 of the plan being 2013/2014.
- 3.3 The primary focus of the strategies in 2013/2014 was related to construction and retrofit activities that had energy related benefits. Avon Maitland set an aggressive target of an 8% reduction in energy intensity based on these activities.
- 3.4 The result in Table 1 indicates an increase in energy intensity of 4.47% (Line 18) over the base year as reported on the Ministry of Energy template. However the report does not correct for the 18.8% increase in the HDD for the 2013-14 reporting period over the base period. This must be taken into account when comparing actual results to the plan.
- 3.5 Looking at Table 1, the natural gas consumption has been converted to ekWh and corrected for heating degree days (Line 6) based on 16 degC and the average HDD days for the area over the last 5 years being 3142 (Toronto Pearson International Airport). A similar correction is also performed for propane in line 11. This is a somewhat simplified way of making the correction but is appropriate for the purpose of this comparison. It is clear that the corrected values yield a reduction in energy consumed for heating for both Natural Gas and Propane.
- 3.6 Taking the adjusted natural gas consumption and the adjusted propane consumption and adding in the electricity consumption and dividing the total by the total floor areas in the given reporting periods produces an energy intensity value that is corrected for the HDD (Line 19). The over-all result (Line 20) is a reduction of just over 7% in energy intensity measured against a target of 8%. The result is very close to target considering all of the variables that went into producing the target as well as the measurement and verification explained in the previous point.
- 3.7 The reduction target for the next 4 years of the CDM plan is 4% year over year and will involve activities including occupant behavior, custodial training, and other construction and retrofit activities.

Janet Baird-Jackson
Superintendent of Business
and Treasurer

Ted Doherty
Director of Education and
Secretary of the Board

Appendix A - Alphabetical by Site

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2013																	
Sept/2013 - Aug/2014																	
School Board																	
School Board																	
Avon Maitland District School Board																	
Please fill in the mandatory fields indicated in red, in addition to submitting data on your energy usage.																	
Operation Type	Address	City	Postal Code	Total Floor Area	Unit	Avg hrs/wk	Swimming Pool (Yes/No)	Number of Portables	Energy Type and Amount Purchased and Consumed in Natural Units						Total (calculated in webform)		Comments
									Electricity		Natural Gas		Propane		GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	
									Quantity	Unit	Quantity	Unit	Quantity	Unit			
School	77 Bruce St	Stratford	N5A 4A2	51,946.63 Square feet		60	No			516,401.80078 kWh		27,083.19355 Cubic Meter			90,456.95065	15.48196	
School	31 Huntingdon Ave	Stratford	N5A 6N7	30,903.19 Square feet		60	No			272,604.76270 kWh		44,849.93935 Cubic Meter			105,515.73950	24.24539	
School	59 Bedford Dr	Stratford	N5A 5J7	36,984.80 Square feet		60	No			294,785.87793 kWh		33,699.48220 Cubic Meter			86,120.41509	17.65418	
School	85 York Street	Hensall	N0M 1X0	24,164.97 Square feet		60	No			95,835.96057 kWh		36,681.15325 Cubic Meter			76,635.06176	20.09831	
School	36937 Belgrave Rd (Asf	Lucknow	NOG 2H0	28,341.13 Square feet		60	No			121,448.95801 kWh			79,078.95032 Litre		131,090.97538	23.90228	
Administrative offices and related facilities	165 Princess St E	Clinton	N0M 1L0	157,820.46 Square feet		80	No			898,726.62195 kWh		273,794.33558 Cubic Meter			585,956.97129	24.13218	
School	4663 Road 135 (Ellic-PE	Sebringville	N0K 1X0	29,999.02 Square feet		60	No			599,658.93835 kWh					45,581.27522	19.98929	
School	27 Percival St	Clinton	N0M 1L0	42,872.66 Square feet		60	No			287,261.25000 kWh		67,077.17055 Cubic Meter			148,653.21185	23.32821	
School	4384 Line 20 (Down-PS St.	Pauls	N0K 1V0	21,671.51 Square feet		60	No	2		172,199.17676 kWh		39,483.29254 Cubic Meter			87,737.38274	27.30860	
School	5972 Line 72 (Elma-NP)	Atwood	NOG 1B0	36,780.28 Square feet		60	No			226,265.74481 kWh		47,281.18225 Cubic Meter			106,589.99155	19.81387	
School	93 Victoria St	Exeter	N0M 1S1	39,826.47 Square feet		60	No			203,423.24084 kWh		54,623.82644 Cubic Meter			118,735.88849	19.68422	
School	231 Madill Drive	Wingham	NOG 2W0	189,186.48 Square feet		80	No			955,184.82422 kWh		311,257.58847 Cubic Meter			661,077.50957	22.53417	
School	260 South St	Goderich	N7A 3M5	115,948.84 Square feet		80	No			715,350.37575 kWh		173,577.22780 Cubic Meter			382,545.00622	22.07948	
School	125 Blake St W	Goderich	N7A 1Z1	45,703.56 Square feet		60	No			294,431.24182 kWh		81,806.17948 Cubic Meter			177,045.27924	25.46517	
School	315 West Gore St	Stratford	N5A 7N4	30,924.24 Square feet		60	No			151,880.55118 kWh		24,589.86176 Cubic Meter			58,035.00103	13.36221	
School	45010 Harriston Rd (Hc	Gorrie	NOG 1X0	32,894.51 Square feet		60	No			170,643.96480 kWh			80,549.09068 Litre		137,095.84901	22.40340	
School	269 King St.	Londesboro	N0M 2H0	23,888.88 Square feet		60	No	1		155,760.53137 kWh		39,726.88972 Cubic Meter			86,948.39985	24.19406	
School	RR 1 39978 Centennial	Brucefield	N0M 1J0	37,505.23 Square feet		60	No			211,707.51851 kWh		56,800.13855 Cubic Meter			123,480.18744	21.74008	
School	305 Binning St	Listowel	N4W 1G4	36,220.56 Square feet		60	No			253,743.27245 kWh		47,893.18693 Cubic Meter			109,835.68595	21.05824	
School	155 Maitland Ave S	Listowel	N4W 2M4	149,908.98 Square feet		80	No	6		916,315.40460 kWh		300,302.29654 Cubic Meter			637,410.59654	27.40237	
School	365 Nichol Ave S	Listowel	N4W 2M3	25,564.29 Square feet		60	No			146,886.24268 kWh		35,845.32395 Cubic Meter			78,935.25437	20.64765	
School	25 Lindsay Atkinson Dri	St. Marys	N4X 1B6	41,434.06 Square feet		60	No	2		362,234.57397 kWh		63,152.53794 Cubic Meter			146,932.06779	24.94097	
School	250 John St. East	Wingham	NOG 2W0	46,338.63 Square feet		40	No			417,600.00000 kWh		60,083.37374 Cubic Meter			145,337.85984	22.79206	
School	68 Mill Street E., Box 4	Milverton	N0K 1M0	34,164.65 Square feet		60	No			207,150.60498 kWh			92,224.60687 Litre		157,862.57537	25.04169	
School	95 Frances St	Mitchell	N0K 1N0	87,503.59 Square feet		80	No	2		307,866.66293 kWh		144,036.19266 Cubic Meter			295,720.27561	21.01229	
School	7241 Road 131 (Morn-I	Newton	N0K 1R0	13,634.64 Square feet		60	No	2		106,449.01902 kWh			43,828.76719 Litre		75,630.83181	30.40709	
School	4672 Road 108 (NEH-PI	Stratford	N5A 6S2	23,282.34 Square feet		60	No			213,495.94402 kWh			46,767.73230 Litre		88,296.58089	23.29229	
School	84295 Ethel Line	Ethel	NOG 1T0	21,883.03 Square feet		60	No			386,768.85513 kWh					29,399.07422	17.67437	
School	49 Rebecca St	Stratford	N5A 3P2	20,731.29 Square feet		60	No			137,713.50000 kWh		29,053.51778 Cubic Meter			65,397.24373	21.53690	
School	58 Chalk St N	Seaforth	N0K 1W0	76,499.10 Square feet		80	No			558,808.89453 kWh		103,998.82972 Cubic Meter			239,099.17713	21.75300	
Administrative offices and related facilities	220 Oakdale Ave	Stratford	N5A	19,192.72 Square feet		80	No			225,602.71192 kWh		26,844.38098 Cubic Meter			67,901.22482	26.61941	
School	35 Mowat St	Stratford	N5A 2B8	25,155.26 Square feet		60	No			263,257.14404 kWh		8,285.94651 Cubic Meter			35,676.33623	13.96600	
School	92 Gidley St E	Exeter	N0M 1S6	127,864.50 Square feet		80	No			607,644.27309 kWh		222,150.55627 Cubic Meter			466,192.09624	23.21685	
School	1866 Road 163 (Blan-P	St. Marys	N4X 1C4	25,951.79 Square feet		60	No			117,416.53650 kWh		46,356.83067 Cubic Meter			96,568.54147	23.50846	
School	59 Fraser Street	Shakespeare	N0B 2P0	18,890.00 Square feet		60	No	2		64,774.73735 kWh		32,637.67695 Cubic Meter			66,629.33060	21.79146	
School	338 Elizabeth St. Box 9	St. Marys	N4X 1B6	101,751.24 Square feet		80	No			585,529.01911 kWh		161,928.76506 Cubic Meter			350,654.12710	22.66775	
School	70042 Goshen Line (St	Crediton	N0M 1M0	22,410.46 Square feet		60	No			109,548.96899 kWh		39,800.58374 Cubic Meter			83,575.09446	23.76304	
School	60 St. Andrew St.	Stratford	N5A 1A3	136,856.05 Square feet		80	No	1		763,925.40430 kWh		178,620.28081 Cubic Meter			395,771.82348	19.45301	
School	428 Forman Ave.	Stratford	N5A 6R7	184,479.28 Square feet		80	No	4		1,014,392.32031 kWh		312,111.57730 Cubic Meter			667,192.56412	23.47930	
School	165 Frances St. RR#5	Mitchell	N0K 1N0	67,873.98 Square feet		80	No	2		594,647.04773 kWh		85,566.52876 Cubic Meter			206,974.70096	22.15914	
School	8727 Road 164 (Wall-N	Gowanstow	NOG 1Y0	26,005.60 Square feet		60	No			189,207.20459 kWh		44,504.17649 Cubic Meter			98,522.81573	25.46327	

Appendix B1 - Alphabetical by Site

Site	2011-12 Period Reported in 2013		2012-13 Period Reported in 2014			2013-14 Period Reported in 2015		
	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity Trend from Previous Year	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity Trend from Previous Year
Anne Hathaway Public School	107,215.37	16.71	117,489.99	17.64	↑	90,456.95	15.48	↓
Avon PS	68,787.63	15.90	83,630.52	18.72	↑	105,515.74	24.25	↑
Bedford PS	70,608.50	14.23	79,067.31	15.58	↑	86,120.42	17.65	↑
Bluewater Coast ES	62,085.12	16.33	69,238.56	17.96	↑	76,635.06	20.10	↑
Brookside PS	111,628.50	20.55	113,073.26	20.59	↑	131,090.98	23.90	↑
Central Huron SS & Clinton Administration	538,787.80	22.06	575,008.05	23.23	↑	585,956.97	24.13	↑
Central Perth E S	46,697.28	15.88	56,824.92	19.72	↑	45,581.28	19.99	↑
Clinton PS	103,013.77	18.30	152,241.97	23.23	↑	148,653.21	23.33	↑
Downie Central PS	76,572.66	23.08	81,336.27	24.70	↑	87,737.38	27.31	↑
Elma Township	73,914.10	13.99	91,794.52	17.16	↑	106,589.99	19.81	↑
Exeter PS	102,852.05	16.96	118,679.77	19.21	↑	118,735.89	19.68	↑
F E Madill SS & ES	576,030.77	19.44	623,617.80	21.29	↑	661,077.51	22.53	↑
Goderich District CI & Goderich District CI Elementary	328,708.52	18.49	368,624.59	20.77	↑	382,545.01	22.08	↑
Goderich Public School	136,786.91	19.59	151,068.16	21.37	↑	177,045.28	25.47	↑
Hamlet PS	42,395.26	10.04	52,771.90	12.85	↑	58,035.00	13.36	↑
Howick Central S	110,234.19	18.21	124,196.19	22.11	↑	137,095.85	22.40	↑
Hullett Central PS	62,310.10	18.18	75,611.18	21.75	↑	86,948.40	24.19	↑
Huron Centennial S	127,734.51	21.96	134,058.40	23.68	↑	123,480.19	21.74	↓
Listowel Central PS	92,447.61	17.69	100,822.32	18.23	↑	109,835.69	21.06	↑
Listowel DSS	485,080.40	20.09	700,478.32	28.62	↑	637,410.60	27.40	↓
Listowel Eastdale PS	83,851.03	23.36	77,678.34	21.35	↓	78,935.25	20.65	↓
Little Falls PS	103,712.64	17.96	117,295.22	19.69	↑	146,932.07	24.94	↑
Maitland River ES	n/a	n/a	n/a	n/a		145,337.86	22.79	
Milverton PS	136,762.28	21.99	161,692.08	25.33	↑	157,862.58	25.04	↓
Mitchell DHS	310,781.22	22.21	312,351.25	21.66	↓	295,720.28	21.01	↓
Mornington Central PS	51,020.25	20.95	62,876.32	25.32	↑	75,630.83	30.41	↑
North Easthope PS	78,037.33	19.31	78,486.72	18.67	↓	88,296.58	23.29	↑
North Woods ES	30,684.97	14.30	39,417.54	18.76	↑	29,399.07	17.67	↓
Romeo PS	62,093.76	20.02	67,367.06	21.38	↑	65,397.24	21.54	↑
Seaforth PS & Administration & Maintenance	203,512.35	18.50	240,110.80	21.11	↑	239,099.18	21.75	↑
SERC Library & Day Care	62,134.03	23.96	63,309.06	24.08	↑	67,901.22	26.62	↑
Shakespeare PS	35,004.84	12.18	36,011.33	12.65	↑	35,676.34	13.97	↑
South Huron DHS & DES	410,072.09	20.25	471,084.09	23.42	↑	466,192.10	23.22	↓
South Perth Centennial PS	81,854.88	21.11	79,034.08	18.98	↓	96,568.54	23.51	↑
Sprucedale PS	56,040.24	18.02	63,320.83	20.43	↑	66,629.33	21.79	↑
St Marys DC & VI & Elementary	338,889.21	21.45	336,571.45	21.24	↓	350,654.13	22.67	↑
Stephen Central PS	72,521.79	20.36	79,167.74	22.17	↑	83,575.09	23.76	↑
Stratford Central	318,080.96	15.66	339,173.01	16.53	↑	395,771.82	19.45	↑
Stratford Northwestern	557,853.55	21.52	648,217.61	24.62	↑	667,192.56	23.48	↓
Upper Thames E S	191,616.75	20.40	223,966.84	24.00	↑	206,974.70	22.16	↓
Wallace PS	71,512.80	17.73	89,653.04	22.53	↑	98,522.82	25.46	

Appendix B2 - Energy Intensity Ranking by Reporting Period

2011-12 Period Reported in 2013			2012-13 Period Reported in 2014			2013-14 Period Reported in 2015		
Site	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Site	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Site	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)
Hamlet PS	42,395.26	10.04	Shakespeare PS	36,011.33	12.65	Hamlet PS	58,035.00	13.36
Shakespeare PS	35,004.84	12.18	Hamlet PS	52,771.90	12.85	Shakespeare PS	35,676.34	13.97
Elma Township	73,914.10	13.99	Bedford PS	79,067.31	15.58	Anne Hathaway Public School	90,456.95	15.48
Bedford PS	70,608.50	14.23	Stratford Central	339,173.01	16.53	Bedford PS	86,120.42	17.65
North Woods ES	30,684.97	14.30	Elma Township	91,794.52	17.16	North Woods ES	29,399.07	17.67
Stratford Central	318,080.96	15.66	Anne Hathaway Public School	117,489.99	17.64	Stratford Central	395,771.82	19.45
Central Perth E S	46,697.28	15.88	Bluewater Coast ES	69,238.56	17.96	Exeter PS	118,735.89	19.68
Avon PS	68,787.63	15.90	Listowel Central PS	100,822.32	18.23	Elma Township	106,589.99	19.81
Bluewater Coast ES	62,085.12	16.33	North Easthope PS	78,486.72	18.67	Central Perth E S	45,581.28	19.99
Anne Hathaway Public School	107,215.37	16.71	Avon PS	83,630.52	18.72	Bluewater Coast ES	76,635.06	20.10
Exeter PS	102,852.05	16.96	North Woods ES	39,417.54	18.76	Listowel Eastdale PS	78,935.25	20.65
Listowel Central PS	92,447.61	17.69	South Perth Centennial PS	79,034.08	18.98	Mitchell DHS	295,720.28	21.01
Wallace PS	71,512.80	17.73	Exeter PS	118,679.77	19.21	Listowel Central PS	109,835.69	21.06
Little Falls PS	103,712.64	17.96	Little Falls PS	117,295.22	19.69	Romeo PS	65,397.24	21.54
Sprucedale PS	56,040.24	18.02	Central Perth E S	56,824.92	19.72	Huron Centennial S	123,480.19	21.74
Hullett Central PS	62,310.10	18.18	Sprucedale PS	63,320.83	20.43	Seaforth PS & Administration & Maintenance	239,099.18	21.75
Howick Central S	110,234.19	18.21	Brookside PS	113,073.26	20.59	Sprucedale PS	66,629.33	21.79
Clinton PS	103,013.77	18.30	Goderich District CI & Goderich District CI Elementary	368,624.59	20.77	Goderich District CI & Goderich District CI Elementary	382,545.01	22.08
Goderich District CI & Goderich District CI Elementary	328,708.52	18.49	Seaforth PS & Administration & Maintenance	240,110.80	21.11	Upper Thames E S	206,974.70	22.16
Seaforth PS & Administration & Maintenance	203,512.35	18.50	St Marys DC & VI & Elementary	336,571.45	21.24	Howick Central S	137,095.85	22.40
North Easthope PS	78,037.33	19.31	F E Madill SS & ES	623,617.80	21.29	F E Madill SS & ES	661,077.51	22.53
F E Madill SS & ES	576,030.77	19.44	Listowel Eastdale PS	77,678.34	21.35	St Marys DC & VI & Elementary	350,654.13	22.67
Goderich Public School	136,786.91	19.59	Goderich Public School	151,068.16	21.37	Maitland River ES	145,337.86	22.79
Romeo PS	62,093.76	20.02	Romeo PS	67,367.06	21.38	South Huron DHS & DES	466,192.10	23.22
Listowel DSS	485,080.40	20.09	Mitchell DHS	312,351.25	21.66	North Easthope PS	88,296.58	23.29
South Huron DHS & DES	410,072.09	20.25	Hullett Central PS	75,611.18	21.75	Clinton PS	148,653.21	23.33
Stephen Central PS	72,521.79	20.36	Howick Central S	124,196.19	22.11	Stratford Northwestern	667,192.56	23.48
Upper Thames E S	191,616.75	20.40	Stephen Central PS	79,167.74	22.17	South Perth Centennial PS	96,568.54	23.51
Brookside PS	111,628.50	20.55	Wallace PS	89,653.04	22.53	Stephen Central PS	83,575.09	23.76
Mornington Central PS	51,020.25	20.95	Central Huron SS & Clinton Administration	575,008.05	23.23	Brookside PS	131,090.98	23.90
South Perth Centennial PS	81,854.88	21.11	Clinton PS	152,241.97	23.23	Central Huron SS & Clinton Administration	585,956.97	24.13
St Marys DC & VI & Elementary	338,889.21	21.45	South Huron DHS & DES	471,084.09	23.42	Hullett Central PS	86,948.40	24.19
Stratford Northwestern	557,853.55	21.52	Huron Centennial S	134,058.40	23.68	Avon PS	105,515.74	24.25
Huron Centennial S	127,734.51	21.96	Upper Thames E S	223,966.84	24.00	Little Falls PS	146,932.07	24.94
Milverton PS	136,762.28	21.99	SERC Library & Day Care	63,309.06	24.08	Milverton PS	157,862.58	25.04
Central Huron SS & Clinton Administration	538,787.80	22.06	Stratford Northwestern	648,217.61	24.62	Wallace PS	98,522.82	25.46
Mitchell DHS	310,781.22	22.21	Downie Central PS	81,336.27	24.70	Goderich Public School	177,045.28	25.47
Downie Central PS	76,572.66	23.08	Mornington Central PS	62,876.32	25.32	SERC Library & Day Care	67,901.22	26.62
Listowel Eastdale PS	83,851.03	23.36	Milverton PS	161,692.08	25.33	Downie Central PS	87,737.38	27.31
SERC Library & Day Care	62,134.03	23.96	Listowel DSS	700,478.32	28.62	Listowel DSS	637,410.60	27.40
Maitland River ES	n/a	n/a	Maitland River ES	n/a	n/a	Mornington Central PS	75,630.83	30.41

Appendix B3 - GHG Emissions Ranking by Reporting Period

2011-12 Period Reported in 2013			2012-13 Period Reported in 2014			2013-14 Period Reported in 2015		
Site	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Site	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Site	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)
North Woods ES	30,684.97	14.30	Shakespeare PS	36,011.33	12.65	North Woods ES	29,399.07	17.67
Shakespeare PS	35,004.84	12.18	North Woods ES	39,417.54	18.76	Shakespeare PS	35,676.34	13.97
Hamlet PS	42,395.26	10.04	Hamlet PS	52,771.90	12.85	Central Perth E S	45,581.28	19.99
Central Perth E S	46,697.28	15.88	Central Perth E S	56,824.92	19.72	Hamlet PS	58,035.00	13.36
Mornington Central PS	51,020.25	20.95	Mornington Central PS	62,876.32	25.32	Romeo PS	65,397.24	21.54
Sprucedale PS	56,040.24	18.02	SERC Library & Day Care	63,309.06	24.08	Sprucedale PS	66,629.33	21.79
Bluewater Coast ES	62,085.12	16.33	Sprucedale PS	63,320.83	20.43	SERC Library & Day Care	67,901.22	26.62
Romeo PS	62,093.76	20.02	Romeo PS	67,367.06	21.38	Mornington Central PS	75,630.83	30.41
SERC Library & Day Care	62,134.03	23.96	Bluewater Coast ES	69,238.56	17.96	Bluewater Coast ES	76,635.06	20.10
Hullett Central PS	62,310.10	18.18	Hullett Central PS	75,611.18	21.75	Listowel Eastdale PS	78,935.25	20.65
Avon PS	68,787.63	15.90	Listowel Eastdale PS	77,678.34	21.35	Stephen Central PS	83,575.09	23.76
Bedford PS	70,608.50	14.23	North Easthope PS	78,486.72	18.67	Bedford PS	86,120.42	17.65
Wallace PS	71,512.80	17.73	South Perth Centennial PS	79,034.08	18.98	Hullett Central PS	86,948.40	24.19
Stephen Central PS	72,521.79	20.36	Bedford PS	79,067.31	15.58	Downie Central PS	87,737.38	27.31
Elma Township	73,914.10	13.99	Stephen Central PS	79,167.74	22.17	North Easthope PS	88,296.58	23.29
Downie Central PS	76,572.66	23.08	Downie Central PS	81,336.27	24.70	Anne Hathaway Public School	90,456.95	15.48
North Easthope PS	78,037.33	19.31	Avon PS	83,630.52	18.72	South Perth Centennial PS	96,568.54	23.51
South Perth Centennial PS	81,854.88	21.11	Wallace PS	89,653.04	22.53	Wallace PS	98,522.82	25.46
Listowel Eastdale PS	83,851.03	23.36	Elma Township	91,794.52	17.16	Avon PS	105,515.74	24.25
Listowel Central PS	92,447.61	17.69	Listowel Central PS	100,822.32	18.23	Elma Township	106,589.99	19.81
Exeter PS	102,852.05	16.96	Brookside PS	113,073.26	20.59	Listowel Central PS	109,835.69	21.06
Clinton PS	103,013.77	18.30	Little Falls PS	117,295.22	19.69	Exeter PS	118,735.89	19.68
Little Falls PS	103,712.64	17.96	Anne Hathaway Public School	117,489.99	17.64	Huron Centennial S	123,480.19	21.74
Anne Hathaway Public School	107,215.37	16.71	Exeter PS	118,679.77	19.21	Brookside PS	131,090.98	23.90
Howick Central S	110,234.19	18.21	Howick Central S	124,196.19	22.11	Howick Central S	137,095.85	22.40
Brookside PS	111,628.50	20.55	Huron Centennial S	134,058.40	23.68	Maitland River ES	145,337.86	22.79
Huron Centennial S	127,734.51	21.96	Goderich Public School	151,068.16	21.37	Little Falls PS	146,932.07	24.94
Milverton PS	136,762.28	21.99	Clinton PS	152,241.97	23.23	Clinton PS	148,653.21	23.33
Goderich Public School	136,786.91	19.59	Milverton PS	161,692.08	25.33	Milverton PS	157,862.58	25.04
Upper Thames E S	191,616.75	20.40	Upper Thames E S	223,966.84	24.00	Goderich Public School	177,045.28	25.47
Seaforth PS & Administration & Maintenance	203,512.35	18.50	Seaforth PS & Administration & Maintenance	240,110.80	21.11	Upper Thames E S	206,974.70	22.16
Mitchell DHS	310,781.22	22.21	Mitchell DHS	312,351.25	21.66	Seaforth PS & Administration & Maintenance	239,099.18	21.75
Stratford Central	318,080.96	15.66	St Marys DC & VI & Elementary	336,571.45	21.24	Mitchell DHS	295,720.28	21.01
Goderich District CI & Goderich District CI Elementary	328,708.52	18.49	Stratford Central	339,173.01	16.53	St Marys DC & VI & Elementary	350,654.13	22.67
St Marys DC & VI & Elementary	338,889.21	21.45	Goderich District CI & Goderich District CI Elementary	368,624.59	20.77	Goderich District CI & Goderich District CI Elementary	382,545.01	22.08
South Huron DHS & DES	410,072.09	20.25	South Huron DHS & DES	471,084.09	23.42	Stratford Central	395,771.82	19.45
Listowel DSS	485,080.40	20.09	Central Huron SS & Clinton Administration	575,008.05	23.23	South Huron DHS & DES	466,192.10	23.22
Central Huron SS & Clinton Administration	538,787.80	22.06	F E Madill SS & ES	623,617.80	21.29	Central Huron SS & Clinton Administration	585,956.97	24.13
Stratford Northwestern	557,853.55	21.52	Stratford Northwestern	648,217.61	24.62	Listowel DSS	637,410.60	27.40
F E Madill SS & ES	576,030.77	19.44	Listowel DSS	700,478.32	28.62	F E Madill SS & ES	661,077.51	22.53
Maitland River ES	n/a	n/a	Maitland River ES	n/a	n/a	Stratford Northwestern	667,192.56	23.48