



## **Ontario Regulation 397/11 – Energy Conservation and Demand Management Plans The Northwest 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 Northwest Catholic District School Board 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 1<sup>st</sup>, 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 Northwest Catholic District School Board's energy consumption for September 2011 to August 2012. The table is broken down by facility for The Northwest Catholic District School Board and is further subdivided by type of operational use (schools and board office). The table outlines the electricity, natural gas and fuel oil 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 <sup>3</sup> ) | Number of Portables | Average Hours per Week |
|-----------------------------------|---|-----------------------|---------------|-------------|------------------------------------|---------------------|------------------------|
| <b>Fort Frances Board Office</b>  | Administrative Offices and Related Facilities | 555 Flinders Ave      | Fort Frances  | P9A 3L2     | 167                                | 1                   | 40                     |
| <b>Dryden Board Office</b>        | Administrative Offices and Related Facilities | 75 Van Horne Avenue   | Dryden        | P8N 2B2     | 241                                | 0                   | 40                     |
| <b>Our Lady of the Way School</b> | School  | 17 Boucherville Road  | Stratton      | P0W 1N0     | 1219                               | 0                   | 40                     |
| <b>St. Michael's School</b>       | School  | 820 Fifth Street East | Fort Frances  | P9A 1V4     | 2360                               | 0                   | 40                     |
| <b>St. Patrick's School</b>       | School  | 160 Hemlock Avenue    | Atikokan      | P0T 1C0     | 2622                               | 0                   | 40                     |
| <b>St. Francis</b>                | School  | 675 Flinders Avenue   | Fort Frances  | P9A 3L2     | 2720                               | 1                   | 40                     |
| <b>Sacred Heart School</b>        | School  | 41 Eighth Avenue      | Sioux Lookout | P8T 1B7     | 3429                               | 3                   | 40                     |
| <b>St. Joseph's School</b>        | School  | 185 Parkdale Road     | Dryden        | P8N 1S5     | 3815                               | 7                   | 40                     |



**Table 2: Energy Consumption Summary**

| Site                       | Total Electricity Consumption (kWh) | Total Natural Gas Consumption (m <sup>3</sup> ) | Fuel Oil (L)     | GHG Emissions (kg) | Energy Intensity (GJ/m <sup>2</sup> ) |
|----------------------------|-------------------------------------|---|------------------|--------------------|---------------------------------------|
| Fort Frances Board Office  | 59,402.00                           | 0.00  |                  | 4,752.16           | 33.04                                 |
| Dryden Board Office        | 36,770.00                           | 1,928.00  |                  | 6,586.73           | 22.07                                 |
| Our Lady of the Way School | 124,526.00                          | 10,102.00                                       |                  | 29,061.19          | 17.67                                 |
| St. Michael's School       | 170,150.00                          | 22,334.00                                       |                  | 55,837.26          | 16.04                                 |
| St. Patrick's School       | 254,271.00                          | 22,451.00                                       |                  | 62,788.15          | 17.46                                 |
| St. Francis School         | 180,516.00                          | 48,399.00                                       |                  | 105,945.74         | 23.73                                 |
| Sacred Heart School        | 250,741.00                          | 0.00  | 55,727.20        | 172,049.98         | 23.07                                 |
| St. Joseph's School        | 307,242.00                          | 45,172.00                                       |                  | 109,982.76         | 19.17                                 |
|                            |                                     |   |                  |                    |                                       |
|                            |                                     |   |                  |                    | <b>Average Intensity</b>              |
| <b>Total</b>               | <b>1,383,618.00</b>                 | <b>150,386.00</b>                               | <b>55,727.20</b> | <b>547,003.97</b>  | <b>21.53</b>                          |

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

Figures 1 and 2 below illustrate the breakdown of electricity, natural gas and fuel oil consumption by facility and operation. From these graphs it can be seen that St. Joseph's, Sacred Heart and St. Patrick's schools account for the largest portion of all electricity consumption. For natural gas the largest consumers are St. Joseph's and St. Patrick's schools. Fort Frances Board offices' electricity is high relative to its floor area because this site does not use natural gas for heating. It should be noted that Sacred Heart School is the only site that uses fuel oil as opposed to natural gas.

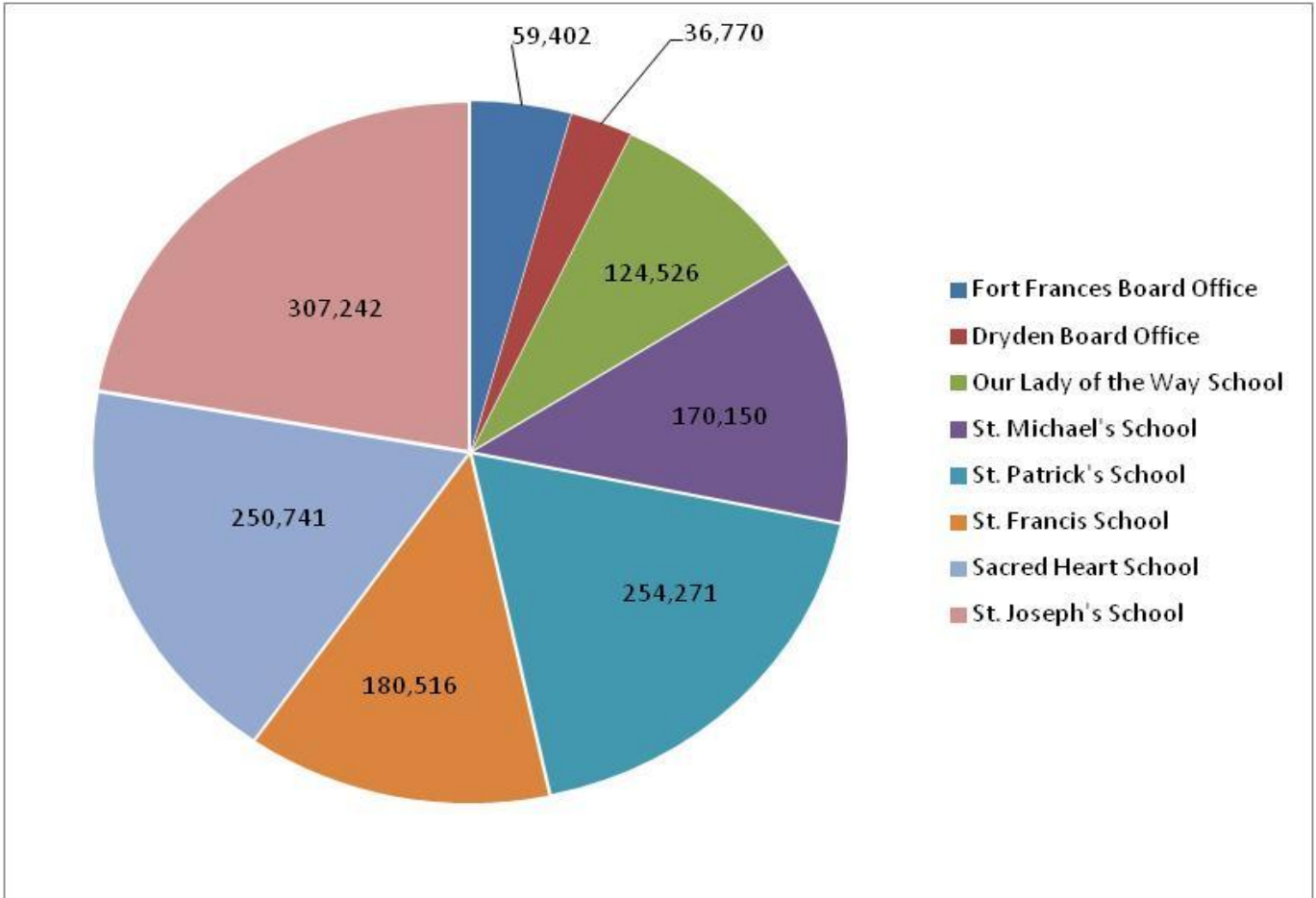
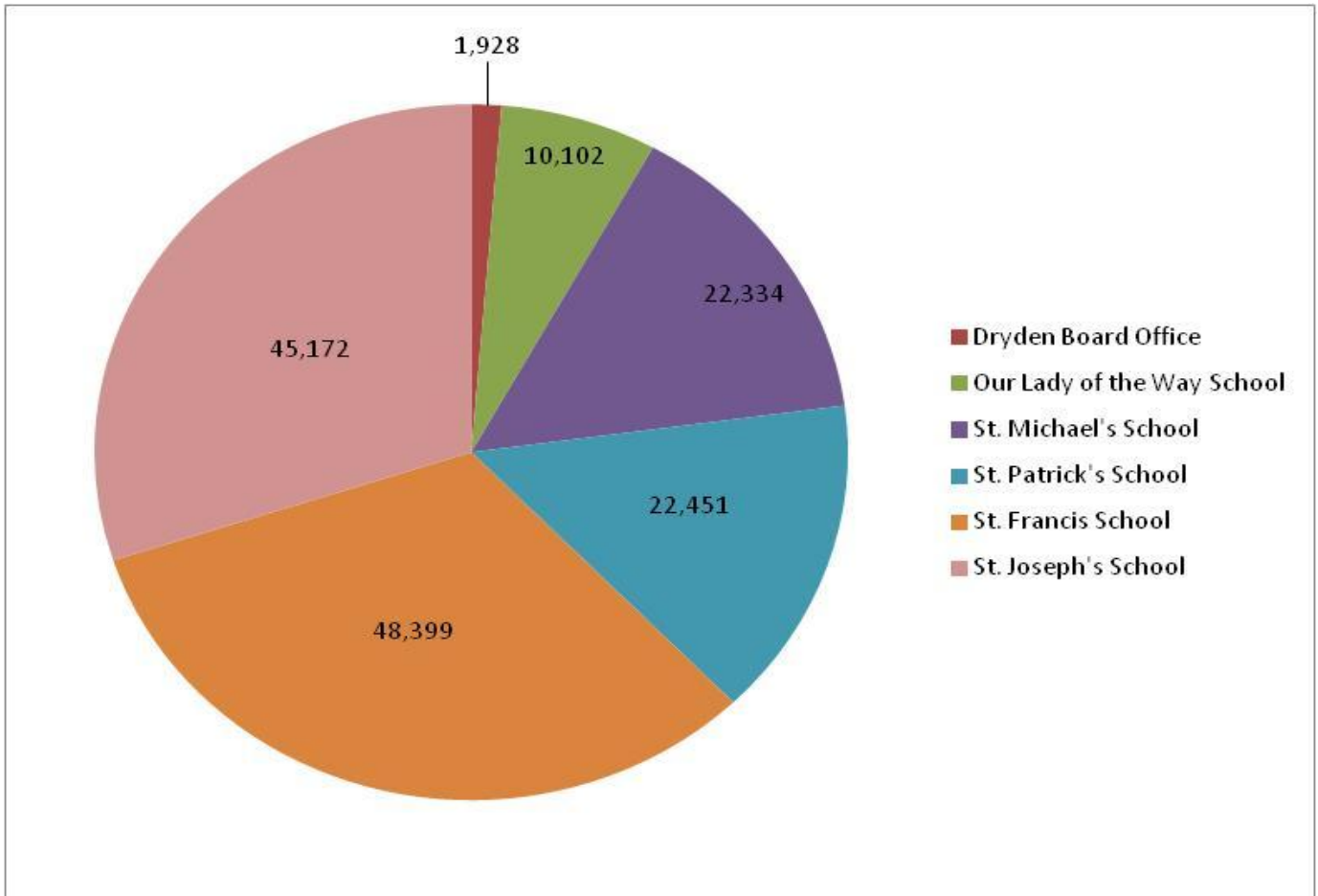
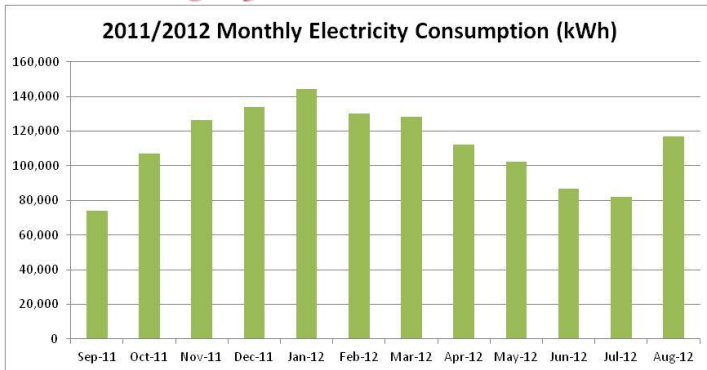


Figure 1: 2011/2012 Electricity Consumption (kWh)

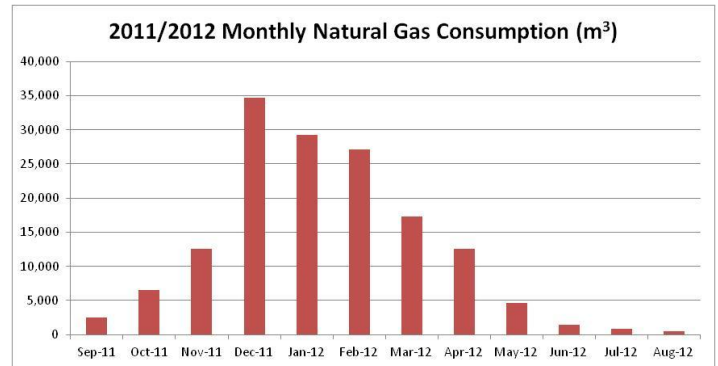


**Figure 2: 2011/2012 Natural Gas Consumption (m<sup>3</sup>)**

Figures 3 and 4 below illustrate the 2011/2012 aggregate consumption for all sites for electricity and natural gas. Electricity use shows peaks in January as well as August. For natural gas the seasonal trend is seen for the winter months but consumption is lower in the summer due to schools not being operational.



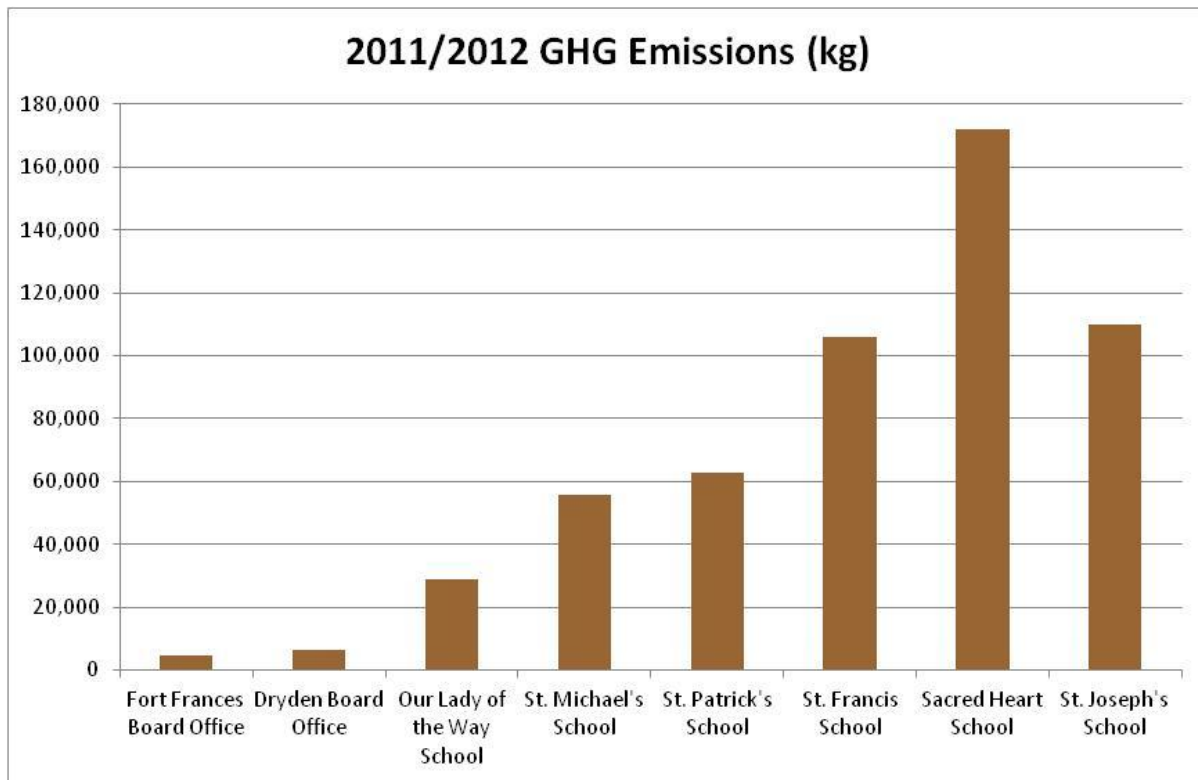
**Figure 3: 2011/2012 Electricity Usage by Month**



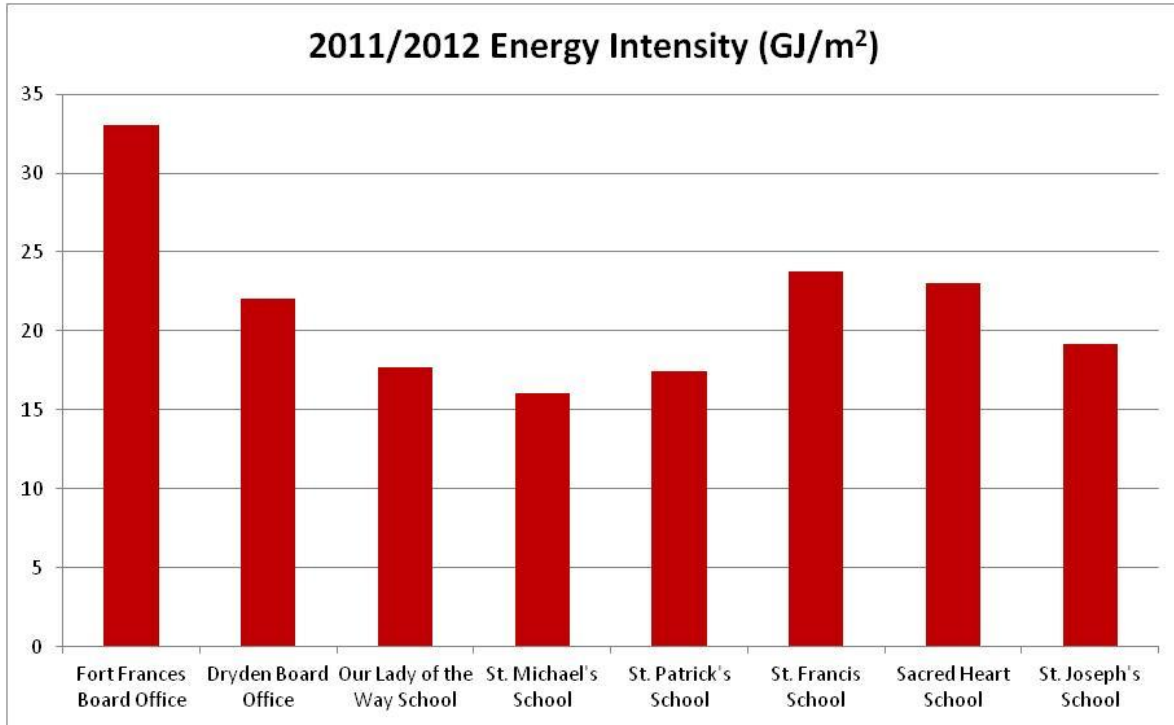
**Figure 4: 2011/2012 Natural Gas Usage by Month**

Figure 6 below illustrates the GHG emissions for all sites and identifies Sacred Heart School as the largest producer of GHG emissions, likely due to the larger square footage of the site as well as the use of fuel oil.

Figure 7 below illustrates that all school have relatively similar energy intensities with the exception of the Fort Frances Board Office being the highest. Energy intensity is less a function of the size of the building and more a function of the efficiency of energy consumption.



**Figure 5: 2011/2012 GHG Emissions**



**Figure 6: 2011/2012 Energy Intensity**

## Summary

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