

# TLDSB Energy Conservation and Demand Management Plan (Phase II- 2014)

## Education Sector Background

### **Funding and Energy Management Planning**

All Boards receive 100% of their funding from the Ministry of Education.

The Ministry announces each Board's funding allocation in March for the next Fiscal Year which runs from September 1<sup>st</sup> to August 31<sup>st</sup>. The Ministry does not provide Boards with multi-year funding allocations.

As a result, while a Board may have a five-year energy management strategy, the Board's ability to implement their strategy is dependent on the funding that they receive in each of the five years covered by their energy management plan.

### **Asset Portfolios and Energy Management Planning**

Energy consumption at a site can be impacted by a number of variables. The following lists provide education sector examples that may impact changes in consumption at a site from one year to the next. These examples will play a significant role in the Board's assessment of energy management priorities.

#### ***Facility Variables***

- Year of Construction
- Building Area
  - Major additions
  - Sites sold
  - Portables
    - installed
    - removed
- Site Use
  - Elementary school
  - Secondary school
  - Administrative buildings
- Maintenance/Operations facilities
- Shared Use Sites (e.g. one building, board partnered with a municipality)
- Equipment/Systems
  - Age
  - Type of technology
  - Lifecycle
  - % air conditioned building area

**Other Variables**

- Programs
  - Day care
  - Before/After School Programs
  - Summer School
  - Community Use
- Occupancy
  - Significant Increase or decrease in number of students
  - New programs being added to a site

**About the Board**

The following statistics apply to the Board’s Fiscal Year 2013-14

Total Number of Sites: (58)

Total Number of Students: (16,672)

**Background**

1. The Board has a qualitative energy conservation goal

Yes

No

2. To date the Board’s energy management strategy has included the following:

A recognition that opportunity continues to exist within the board’s facilities to save on energy consumption by:

Reducing or eliminating devices or services no longer required.

Renewing and right sizing (through good Engineering and Design principles) the required devices or services that remain.

Reviewing operational times.

Understand that the reduction in our consumption of Electricity and Fossil Fuels, reduces our Carbon Footprint and our Greenhouse Gas Emissions.

Understand that both physical as well as cognitive changes in our Facilities operations can have a positive effect on our goal of reducing energy consumption.

3. The Board has an energy management position.

- In-house
  - Full time
  - Part time
  - Shared job function
- Contracted third party
- None

**Energy Consumption Data for the Board**

The values below are “metered” data for the Board.

| <b>Utility</b>                                 | <b>Fiscal Year 2011-12<br/>(Baseline)</b> | <b>Fiscal Year 2012-13<br/>(Current)</b> |
|--|---|--|
| Total Electricity (kWh)                        | 19,513,223.47                             | 20,559,281.34                            |
| Total Natural Gas (m3)                         | 1,723,607.91                              | 1,851,312.98                             |
| Total Heating Fuel (Type 1 and 2) (litres - L) | 445,187.00                                | 495,027.70                               |
| Total Heating Fuel (Type 3 and 4) (litres - L) | 0   | 0  |
| Total Propane (litres - L)                     | 568,873.14                                | 679,182.10                               |
| Total Wood (metric tonnes - MT)                | 0   | 0  |
| Total District Heat (GJ)                       | 0   | 0  |
| Total District Cool (GJ)                       | 0   | 0  |

The values below are raw data.

|                              | <b>Fiscal Year 2011-12<br/>(Baseline)</b> | <b>Fiscal Year 2012-13<br/>(Current reporting year)</b> |
|------------------------------|---|---|
| Total Energy Consumed (ekWh) | 38,561,691.46                             | 39,664,824.30   |
| Energy Intensity (ekWh/m2)   | 116.565                                   | 124.58  |

**Energy Conservation Goal**

The Board has set out the following energy conservation goals for the next five fiscal years

| <b>Fiscal Year</b>                      | <b>2013-14<br/>(ekWh/m2)</b> | <b>2014-15<br/>(ekWh/m2)</b> | <b>2015-16<br/>(ekWh/m2)</b> | <b>2016-17<br/>(ekWh/m2)</b> | <b>2017-18<br/>(ekWh/m2)</b> |
|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| <b>Conservation<br/>Goal</b> (REVISED*) | 2.49                         | 2.68                         | 2.70                         | 2.70                         | 2.71                         |

\* NOTE TO USERS: these values can be calculated by totalling the values for each fiscal year from the charts entitled “Design, Construction and Retrofit Strategies”, “Operations and Maintenance Strategies” and “Occupant Behaviour Strategies”.

|  |  |
|--|--|
|  | <b>FY 2013-14 to 2017-18<br/>(ekWh/m2)</b> |
| <b>Cumulative Conservation Goal</b> (REVISED*) | <i>39.39</i>                               |

## **Renewable Energy**

For a list of the Board’s renewable energy projects, please see Appendix A.

## **Energy Management Strategies**

Energy management strategies fall into three key categories:

1. Design/construction/retrofit
2. Operations and maintenance
3. Occupant Behaviour

### **1. Design/Construction/Retrofit**

#### **Definition**

Design/construction/retrofit encompasses the original and ongoing intent of how a building and its systems are to perform as a whole through the integration of disciplines such as, architecture and engineering.

For the Board’s relevant projects over the next five years, please refer to Appendix B.

### **2. Operations and Maintenance**

#### **Definition**

Operations and maintenance includes the strategies the Board uses to ensure that the existing buildings and equipment perform at peak efficiency. For the Board’s relevant projects over the next five years, please refer to Appendix C.

### **3. Occupant Behaviour**

#### **Definition**

Strategies that the Board uses to educate occupants, including staff, students and community users, with an emphasis in changing specific behaviours to reduce energy consumption. For the Board’s relevant projects over the next five years, please refer to Appendix D.

**Environmental Programs**

1. In 2013-14 schools within the Board that participated in environmental programs.

- EcoSchools  
30 schools participate
- Earthcare Schools  
0 schools participate
- Other-Name of Program: \_\_\_\_\_  
0 schools participate

**Energy Efficient Incentives**

1. The Board applies to incentive programs to support the implementation of energy efficient projects on a regular basis.

- Yes      No

If yes,

Between Fiscal Year 2009-10 and 2012-13, the Board has received \$ 0.00 in incentive funding from various agencies to support the implementation of energy efficient projects.

2. The Board uses the services of the sector’s Incentive Program Advisor.

- Yes    No

**Energy Procurement**

1. The Board participates in a consortia arrangement to purchase electricity.

- Yes    No

If yes,

- CSBSA Electricity Consortia
- Other

Provide Name of Consortia: \_\_\_\_\_

2. The Board participates in a consortia arrangement to purchase natural gas.

- Yes      No

If yes,

- CSBSA Natural Gas Consortia
- Other

Provide Name of Consortia: \_\_\_\_\_

## **Demand Management**

1. The Board monitors electrical Demand.

Yes  No

If yes,  Daily  
 Monthly  
 Quarterly  
 Annually

2. The Board uses the following method to monitor electrical Demand:

Invoices  
 Real-time data  
 Online data from the Local Distribution Company (LDC)  
 Other \_\_\_\_\_

3. The Board uses the following methodologies to reduce electrical Demand:

Equipment scheduling  
 Phased/staged use of equipment  
 Demand-limit equipment  
 Deferred start-up of large equipment (e.g.: chiller start-up in spring)  
 Other Capacitor Installation

4. The Local Distribution Companies for the Board explicitly state the Power Factor on each bill.

Yes

The Board monitors Power Factor.

Yes  No

If yes,

Monthly  
 Quarterly  
 Annually

No

Some LDCs provide Power Factor, some don't

## **Senior Management Approval of this Energy Conservation and Demand Management Plan**

I confirm that The Trillium Lakelands District School Board's senior management has reviewed and approved this Energy Conservation and Demand Management Plan.

D.W. (Dan) Whalen D. Arch. CEM, CMVP, CSDP, BEP

June 26, 2014

Construction and Energy Supervisor

(\*Revised June 2017, to correct for math errors related to Appendix B, which derived errors in Appendix E)