

Loblaws

# LOBLAW COMPANIES LIMITED

Future Innovation in Energy Planning

26<sup>th</sup> September, 2013



# Agenda

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- **Loblaw Companies Overview**
- **Electricity Data**
  - Consumption
  - Electricity Tracking
  - Electricity Reduction
- **Energy Conservation**
  - Conservation Demand Management
  - Demand Response
  - Renewable
- **Future Opportunities**

# Loblaw Companies Limited - Overview

- Canada's largest food distributor (Cdn\$31 billion in 2012 sales)
- Plus, leading provider of:
  - Drugstore
  - General merchandise
  - Financial products & services
- One of Canada's largest private sector employers
- Named to list of Canada's Top 100 Employers
- Ranked Canada's top Company for Corporate Social Responsibility (Globe and Mail 2010)
- Canada's leading new Graduate Program (hiring 1000 graduated students)
- Top Consumer Brands



# Electricity Data – Consumption

- Canada

- National Annual Electricity Consumption - 3.1 TWH

- Corporate – 1.8 TWH
- Franchises – 1.0 TWH
- Warehouse & Offices – 0.3 TWH

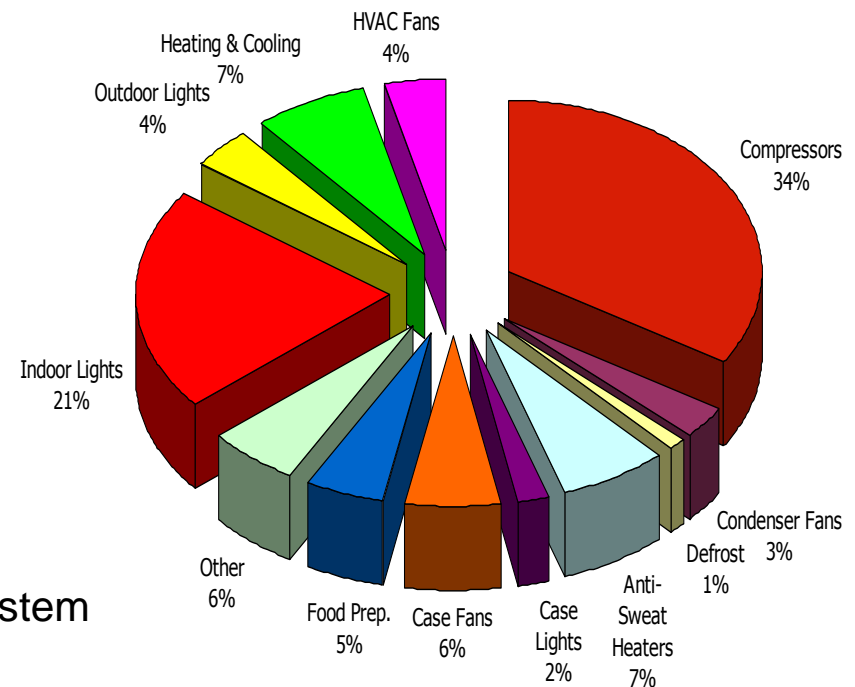
- Maximum Demand

- 600MW

- Electricity Consumption Characteristics

- Good load profile relative to net system Load shape

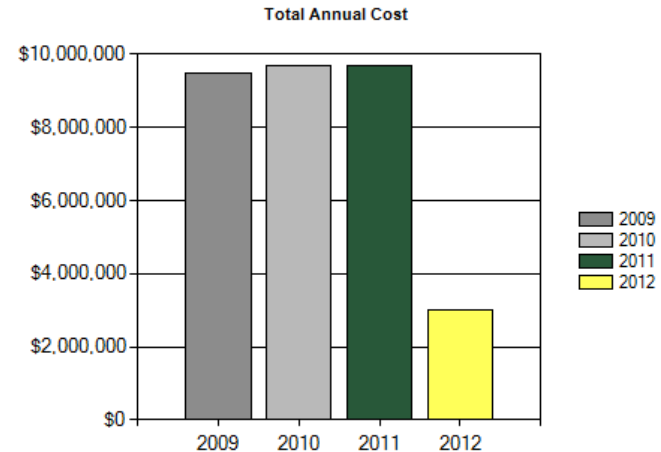
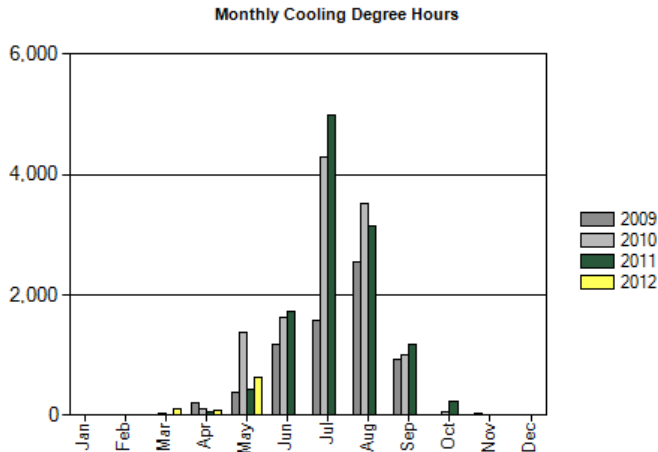
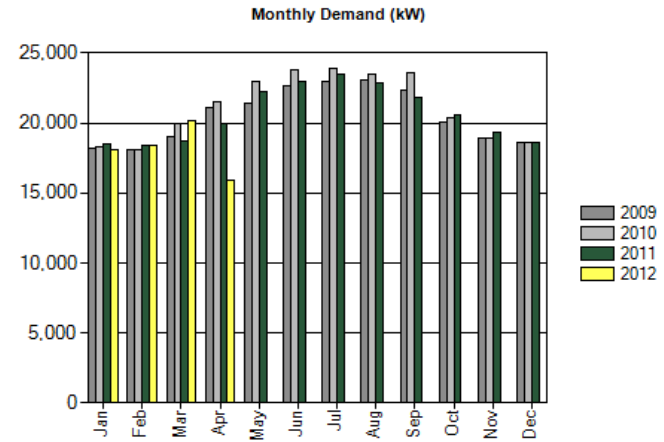
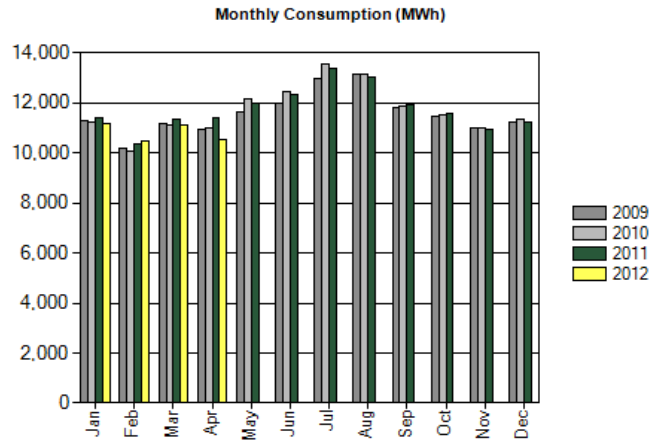
- Accounts embedded into every LDC in Ontario



# Electricity Data – Electricity Tracking

## Year-over-Year Comparisons

### Historical Analysis - Electricity Summary



# Electricity Data – Electricity Tracking

## Site Consumption Patterns and Trends

Options

Show Current Model  By Sqft

Secondary Plot

Temperature

From

Apr 26, 2012

To

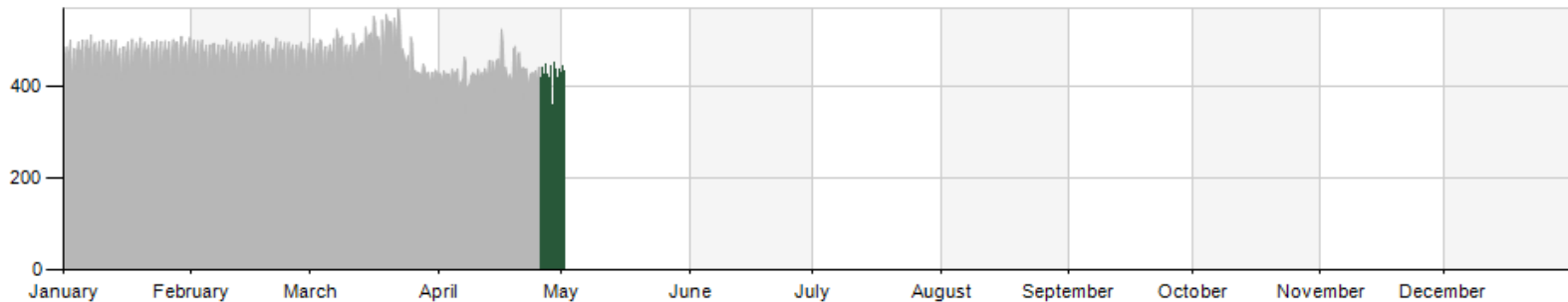
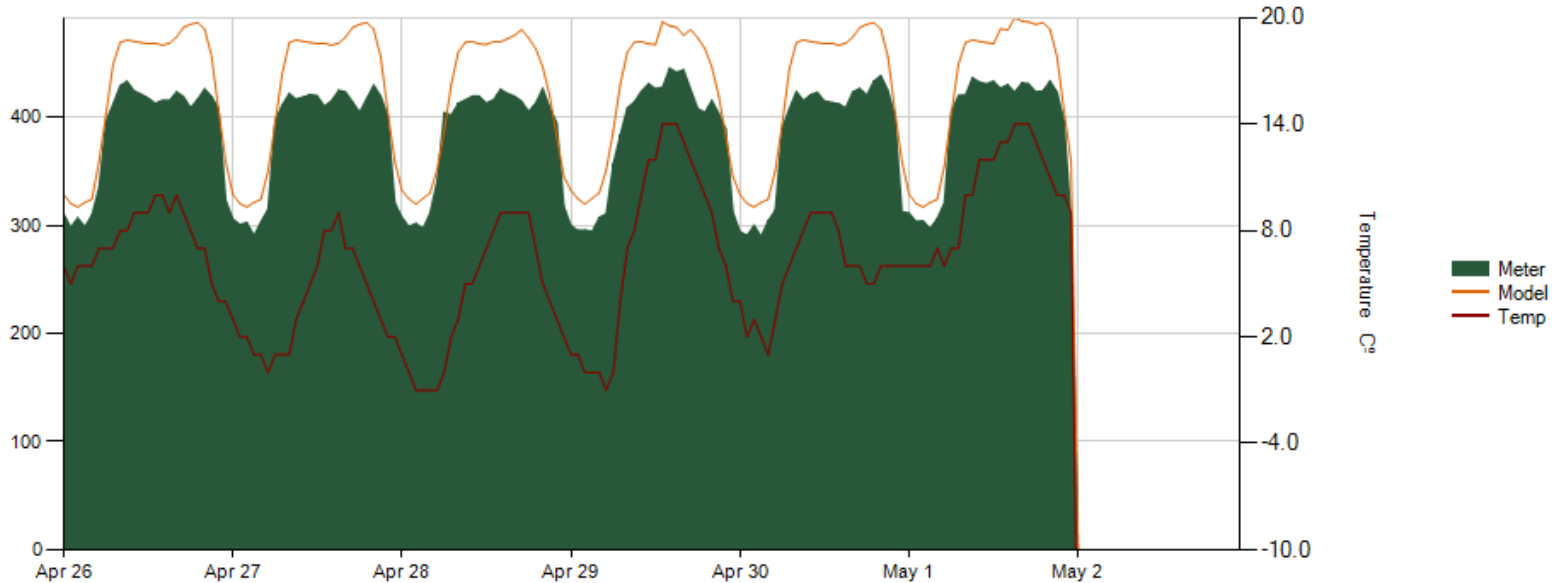
May 2, 2012

Go

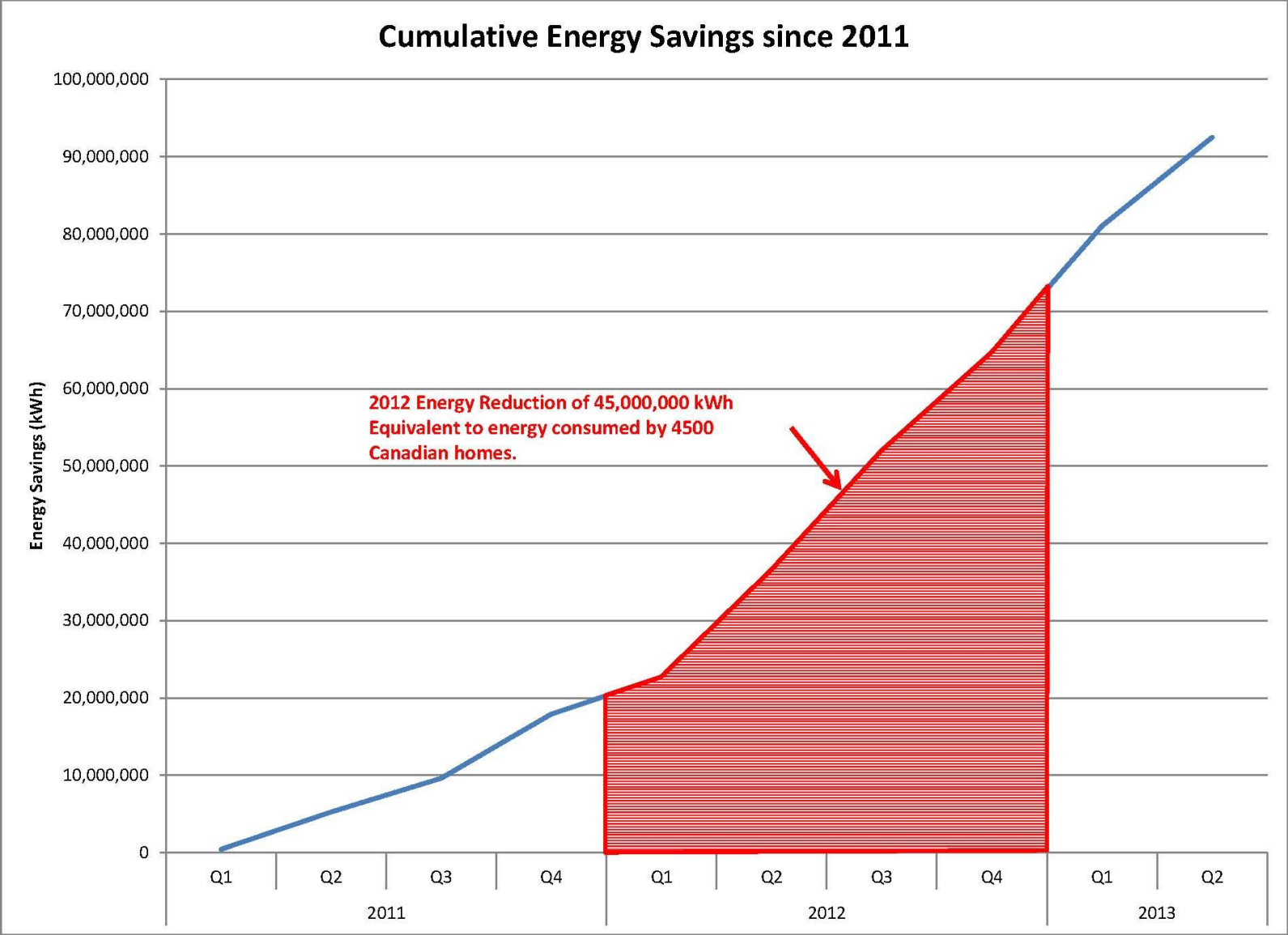


Load Profile (kW)

Total Consumption: 55,447 kWh Model: 60,925 kWh

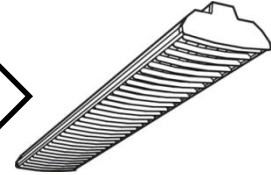
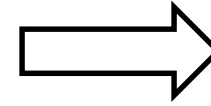


# Electricity Data – Electricity Reductions



# Energy Conservation - CDM

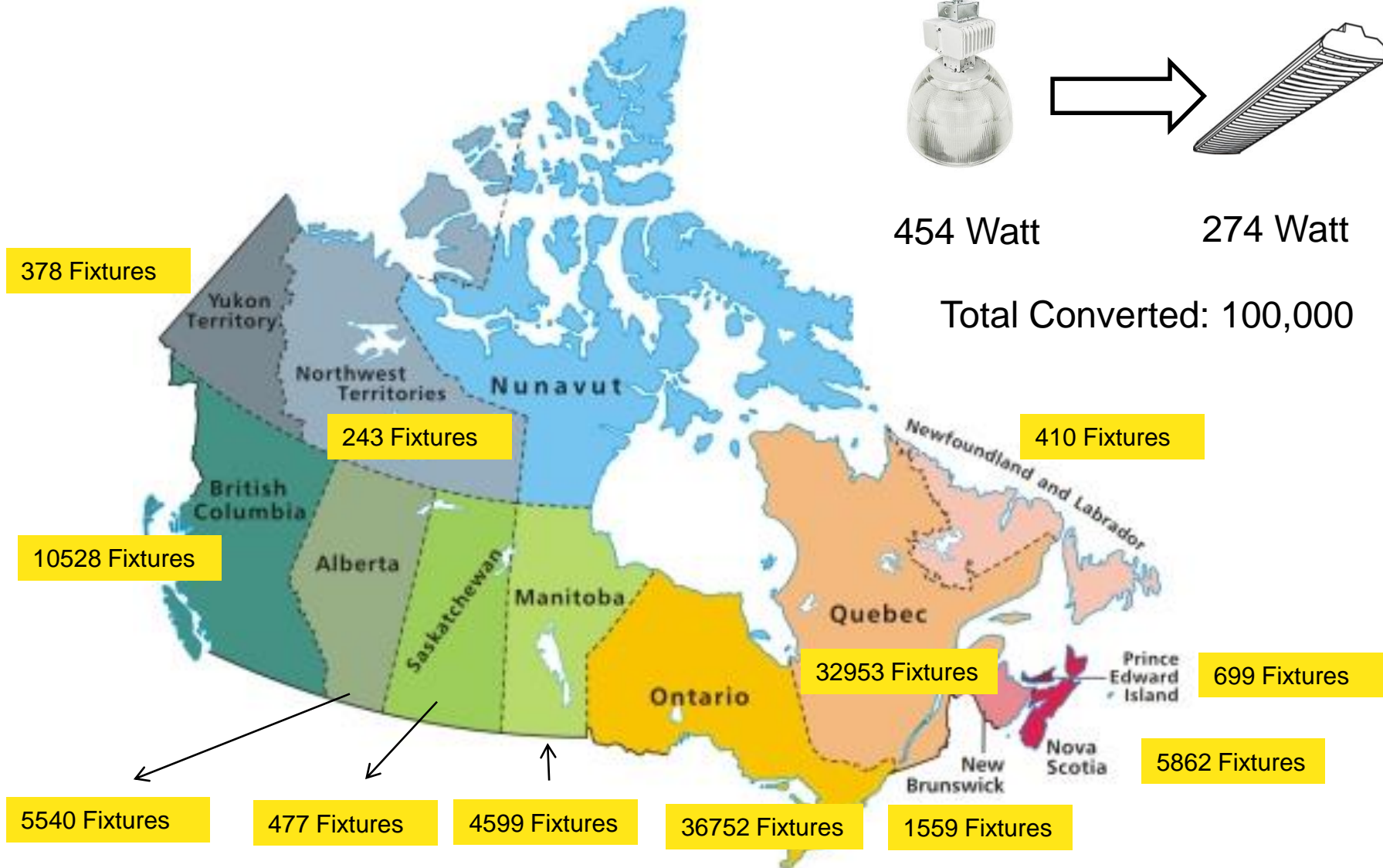
## Lighting Retrofit



454 Watt

274 Watt

Total Converted: 100,000





# Energy Conservation - CDM

## LED Lighting

- Excited about the advancement of Solid State Lighting
- Benefits:
  - Efficiency
  - Lamp life
  - Performance in cold temperatures
  - Control
- Moving forward strategically
- Frozen Food Door Retrofit (15,000 Converted)
- Task Lighting with Low Mounting Height
- Lumen intensity issues relative to our current task lighting  
(CDM100 ceramic metal halide)



# Energy Conservation - CDM Refrigeration

- Converting to doors cases
  - Low Temp – Almost complete
  - Med Temp – Sales impact analysis underway
- Digital floating head pressure
- Digital floating suction low temperature
- Ambient sub cooling
- Anti-sweat heater control
- Humidity control
- Sequential mechanical defrosts



# Energy Conservation - CDM

## Building Energy Management Systems

Priority	Date/Time	Event Source	Event Description	Acknowledged by	At Date/Time	Subsystem
High	10/01/2006 23:42:01	68a SERVICE FISH Temp, Fish Ca	Temperature too high			Refrigeration
High	10/01/2006 23:41:29	17 GROCERY FREEZER Temp, W	Temperature too high			Refrigeration
High	10/01/2006 20:49:51	17 GROCERY FREEZER Temp, W	Temperature too high	Mamell Yabut	10/01/2006 22:41:28	Refrigeration
High	10/01/2006 15:23:10	21 SEAFOOD FREEZER Temp, F	Temperature too high	Mamell Yabut	10/01/2006 22:41:40	Refrigeration
High	10/01/2006 00:02:34	68a SERVICE FISH Temp, Fish Ca	Temperature too high	Mamell Yabut	10/01/2006 22:42:01	Refrigeration

2  Acknowledge...  
Find  Information

Refrigeration Overview Main

Refrigeration Management

Schedules...

Normal Mark Northey (LPL) Mon Oct 02, 2006 12:53:52

### Sensor Information - Sys 41B FRESH MEAT

Details Alarm Settings Graph & Log

Status ● Normal Value 26.2 °F

Pos:

Graph

Date 11/21/2007  
Time 00:00 [hr:mm]  
Value N/A °F  
Daily Graph

Max 47.8 °F  
Avg 29.8 °F  
Min 26.3 °F  
Delta 21.5 °F

Auto Vertical Scale 24 Hours Undo Zoom

Date/Time	User Name	Description
09/08/2007 06:21:49		Acknowledge received
09/08/2007 06:21:19	Tom Sterne	Alarm acknowledge request
09/08/2007 03:17:49		Alarm received: Temperature too high
09/08/2007 02:16:37		Acknowledge received

Log

Options Print Log...

OK Cancel Delete

# Energy Conservation - CDM Supermarket Controls

MT Alliance - RCSS Georgetown

File Access Subsystem Mode View Events Reports Options Tools Configure Network Support Help

Priority	Date/Time	Event Source	Event Description	Acknowledged by	At Date/Time	Subsystem
Medium	11/21/2007 01:38:57	Sys 44D SERVICE COIL, Fresh Me	Temperature too high	Mark Northey - (LPL)	11/21/2007 10:09:48	Refrigeration
Medium	11/21/2007 01:38:10	Sys 44B SERVICE MEAT COIL, Fre	Temperature too high	Mark Northey - (LPL)	11/21/2007 10:10:03	Refrigeration
Medium	11/21/2007 01:23:09	Sys 44A SERVICE MEAT OVERRID	On	Mark Northey - (LPL)	11/21/2007 10:10:11	Refrigeration
Medium	11/21/2007 01:16:30	Sys 44A SERVICE MEAT PAN, Fre	Temperature too high	Mark Northey - (LPL)	11/21/2007 10:10:21	Refrigeration
Medium	11/21/2007 01:16:15	Sys 44C SERVICE MEAT PAN, Fre	Temperature too high	Mark Northey - (LPL)	11/21/2007 10:10:33	Refrigeration

Configuration Main

Normal Mark Northey - (LPL) Wed Nov 21, 2007 10:16:27

MT Alliance - RCSS Georgetown

File Access Subsystem Mode View Events Reports Options Tools Configure Network Support Help

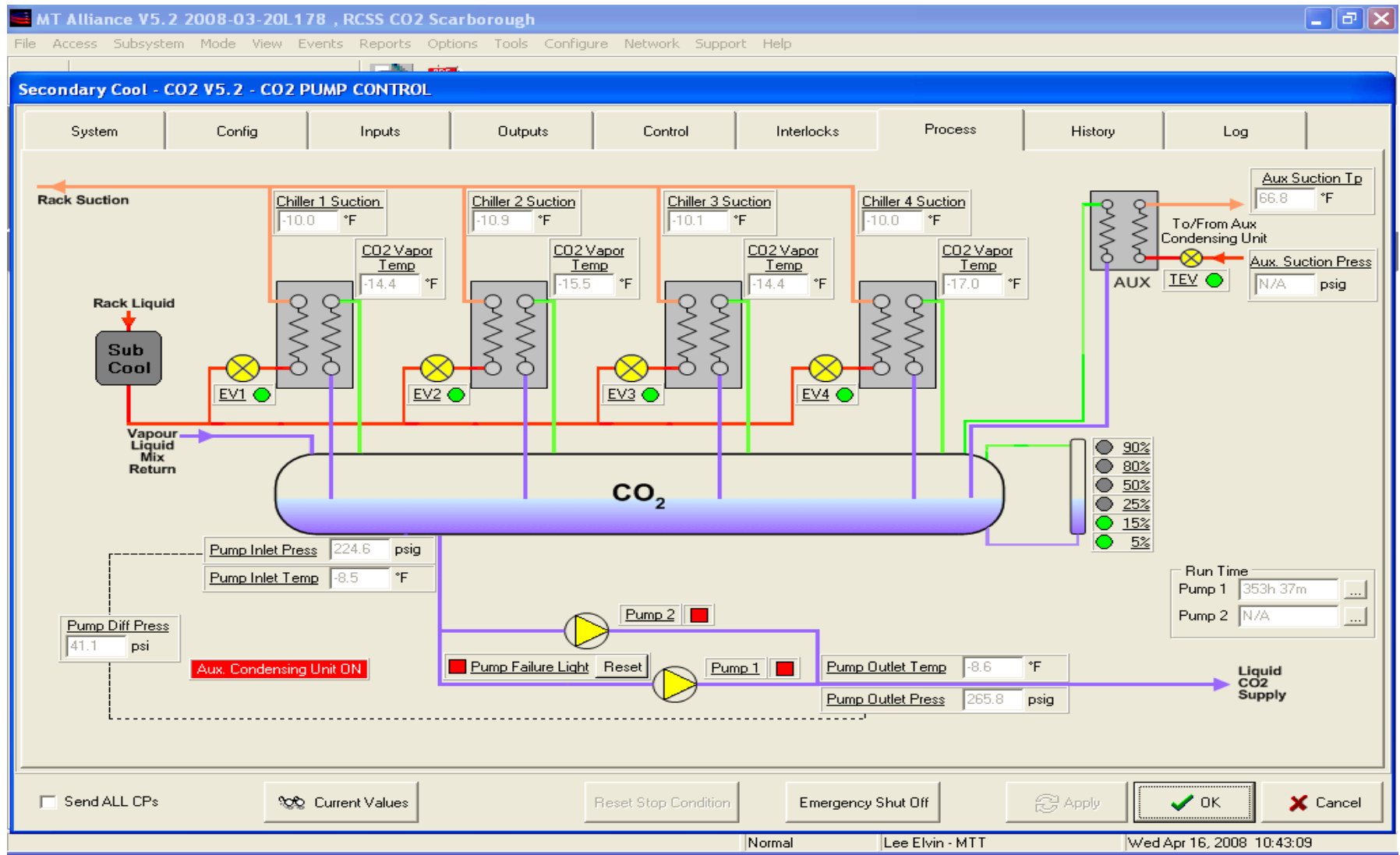
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Configuration Dual Path

Normal Mark Northey - (LPL) Wed Nov 21, 2007 10:16:59

# Energy Conservation - CDM

## Supermarket Controls



# Energy Conservation - CDM

## Building Energy Management Systems

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- Recognize discipline competency gap
- Refrigeration mechanic embracing digital control systems
- Multi discipline knowledge required, interworking relationships between HVAC & Refrigeration.
- Loblaw expanded internal forces

# Energy Conservation - CDM

## CDM Program - Feedback

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- Easy opportunities have been completed
- Move to a custom program
- Establish targeted program for different consumer classes
- Align agency support
- Rate based incentive programs

# Energy Conservation

## Demand Response

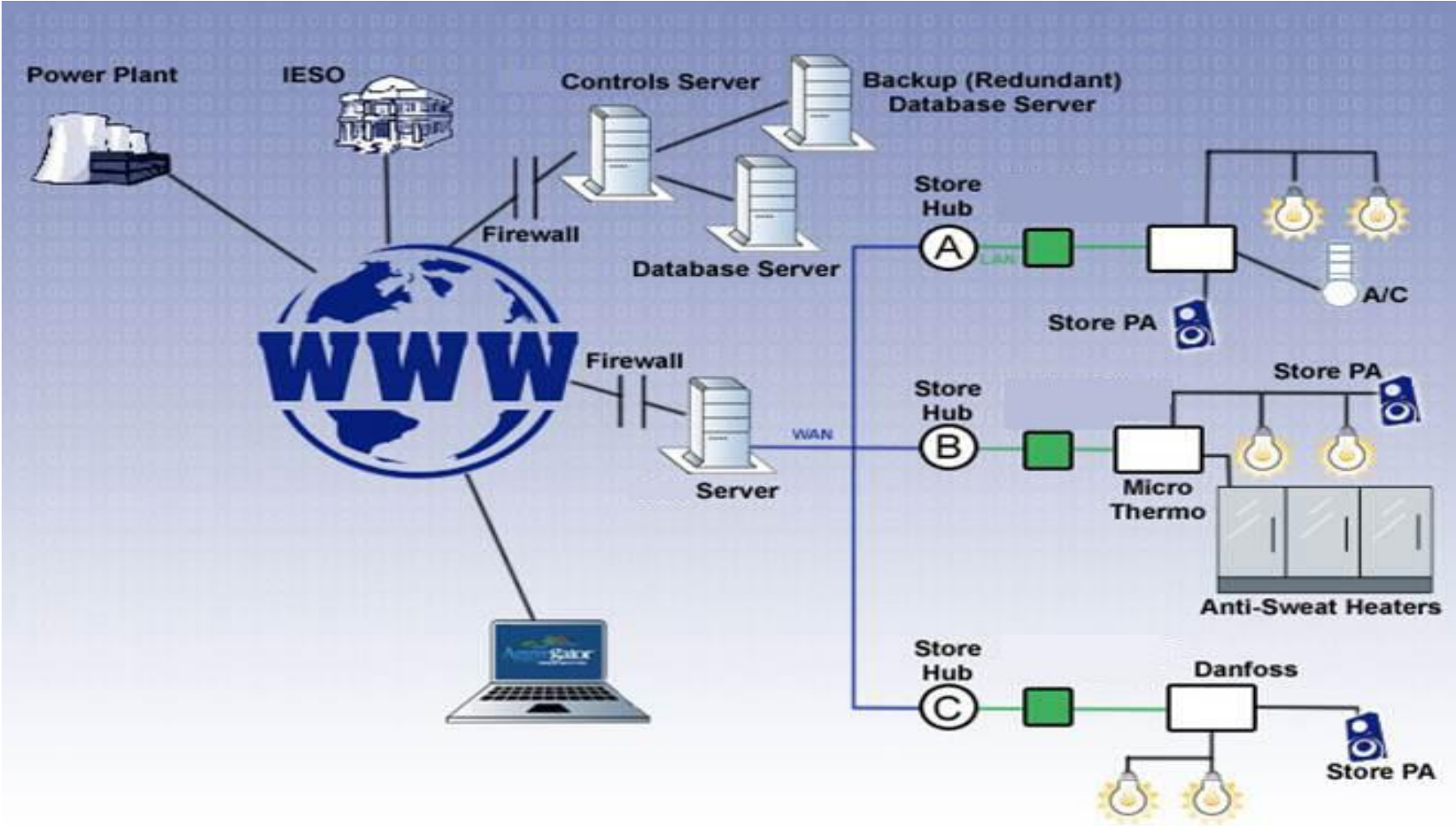
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- Background
  - Pilot with IESO on Transitional Demand Pilot Program 2003
  - Year of the blackout/summer smog → in store lighting reductions
- Submitted a successful bid with the Ontario Government 2500MW RFP (2004)
  - 10MW commitment
  - 5 year contract
  - Resources were called only during “Operating Directives”
  - Flexibility for voluntary load reduction



# Energy Conservation Demand Response

## OPA/LCL Automated Demand Response Project



# Energy Conservation

## Demand Response Feedback

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- Develop clearly defined programs for specific objectives
- Establish program durations to ensure investments returns can be forecasted
- Current DR calls could be confusing to public
- Leverage resources to contracted hours
- Leverage additional behind the meter resources (backup generators)

# Energy Conservation – Renewable Energy

## Photo Voltaic

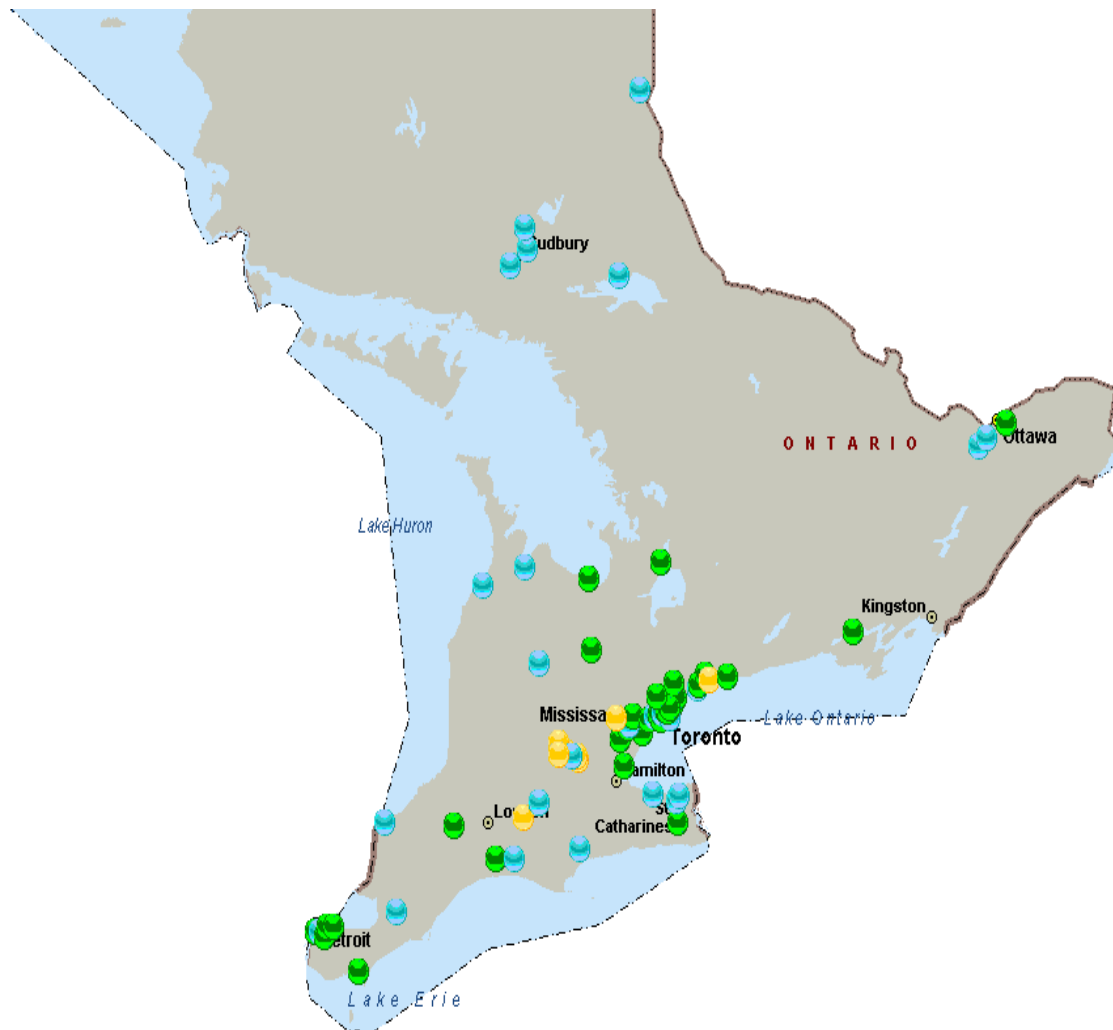
- Loblaw Companies Limited, Choice Properties REIT
  - Owns approximately 30M sqft.
  - Lease additional 20M sqft
- Retail space is generally single storey which translate to roof space
- Historically we have viewed our roof space as non-productive
  - Maintain and replace



# Energy Conservation – Renewable Energy

## Photo Voltaic

- 29 solar systems operational in Ontario, total capacity of 7.4 mw
- 11 solar systems currently under construction in Ontario, providing full-time employment for 75+ construction workers
- 25 additional solar systems scheduled to be complete by mid 2014



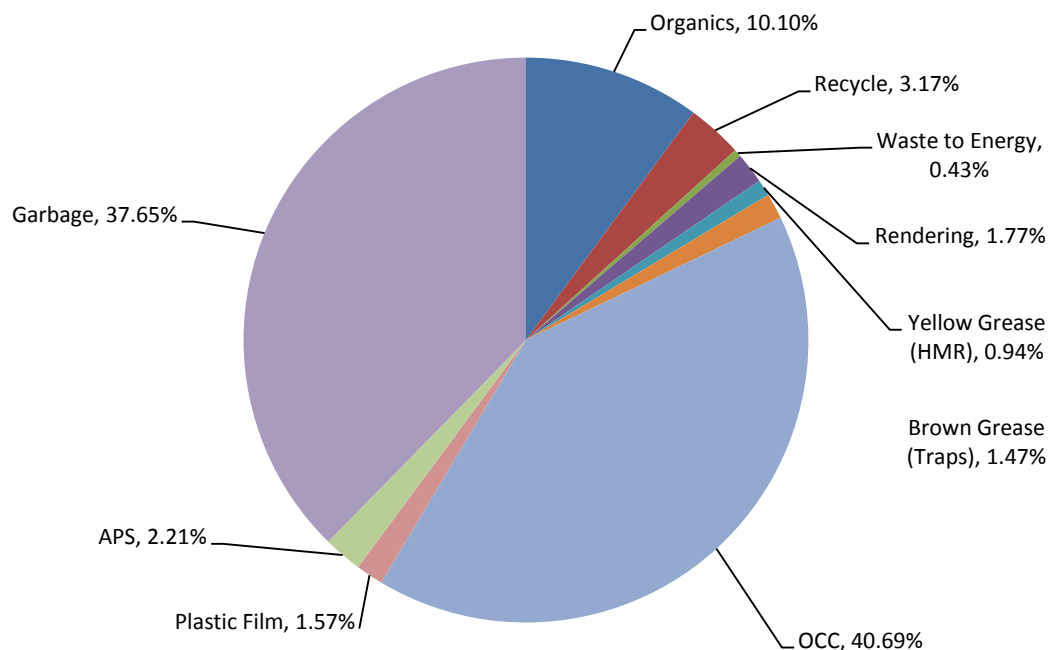
**By 2014, Loblaw will have 65 rooftop solar systems operational with a total generation capacity over 15 MW**

# Energy Conservation – Renewable Energy

## Waste to Energy

- Loblaw has implemented an in store organic diversion program
  - Food residuals from certain Loblaw stores and grease traps is processed into feedstock for Anaerobic Digestion

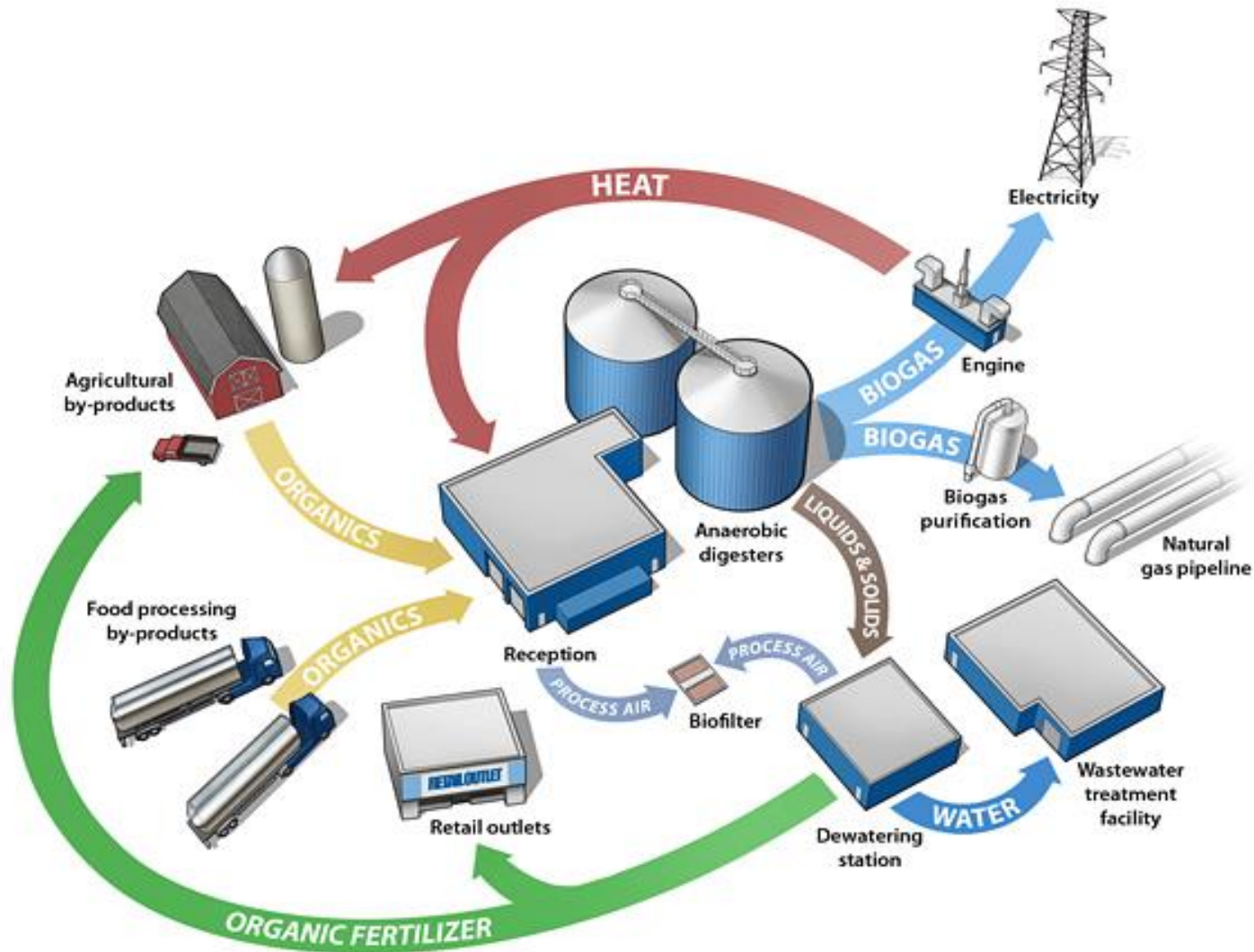
### ■ National Waste Totals



**Total Waste generated  
300,000 Tonnes**

# Energy Conservation – Renewable Energy

## Biogas - Commercial



# Energy Conservation – Renewable Energy

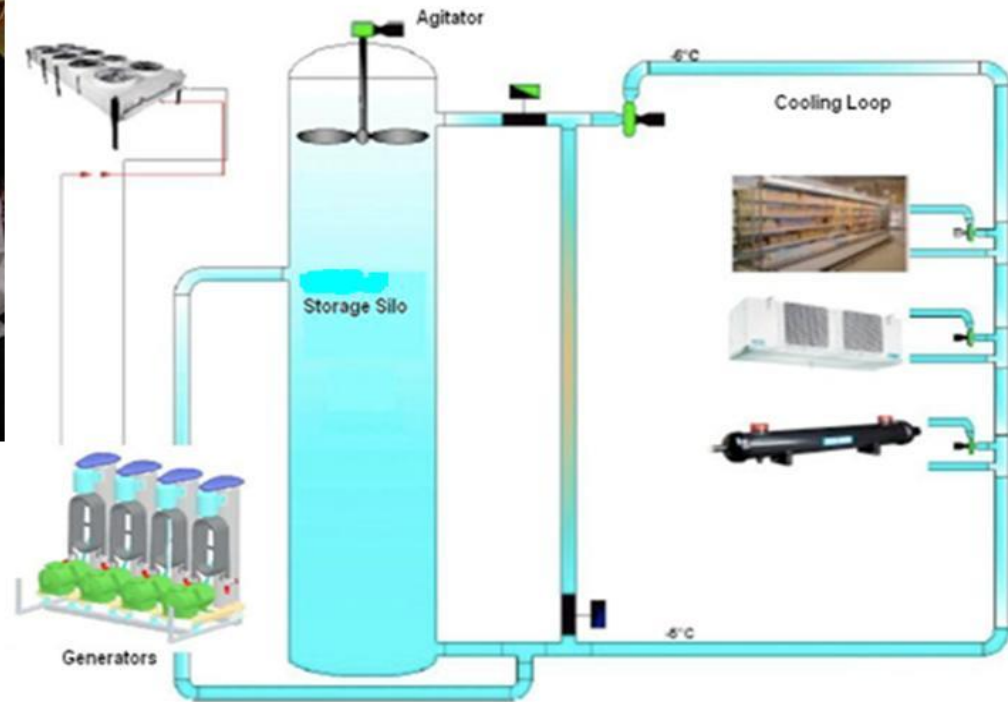
## Feedback

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- Gov. of Ontario has invested in setting the foundation for renewable energy projects
- Significant improvements in the cost model
- Further reduction potential in streamlining regulatory process.
- Fit 2.0 program
  - Priority points currently based on organizational affiliations
  - Award priority points for projects in congested regions
- Commercial and Industrial sector has vast rooftop capacity
- Supermarkets are electrically intensive
  - Store use all solar power produced
  - Connection Impact Analysis reject review

# Future Opportunities

## Refrigeration Energy Battery



**Off-peak energy-intensive slurry ice generation displaces as much as all of the store's on-peak refrigeration load**



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# THANK YOU