



Energy Conservation and Demand Management Plan 2019-2024

Presented by: Mitchell Niles, P.Eng.
Date: September 16th, 2019

Agenda

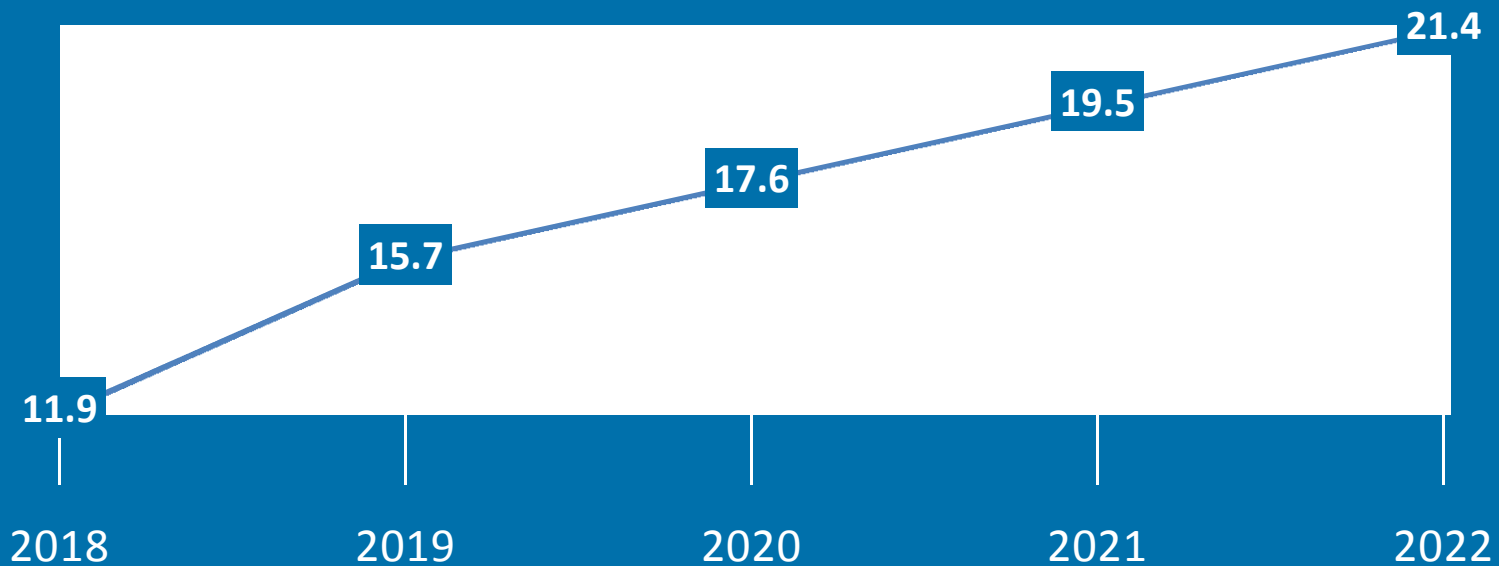
Review Highlights of Plan

1. Ontario's Energy Picture
2. Baseline Energy Use and Benchmarks
3. Completed Conservation and Renewable Energy Measures
4. Energy Consumption & Emissions 2014-2018
5. Current State of Energy Management
6. Energy Management Policy
7. Identified Energy Initiatives
8. Expect Impact & Plan for Review

Summary & Questions

Ontario's Energy Picture

EFFECT OF CARBON TAX ON NATURAL GAS PRICE



- 80% increase in natural gas costs by 2022 due to Federal Carbon Tax
- Possible 20% increase in electricity costs over next 4 years (Ontario's Long Term Energy Plan 2017)

Baseline Energy Use and Benchmarks

Energy Use Intensity – A metric used to normalize annual energy consumption against a common characteristic (such as floor area or flow) in order to compare against similar facilities.

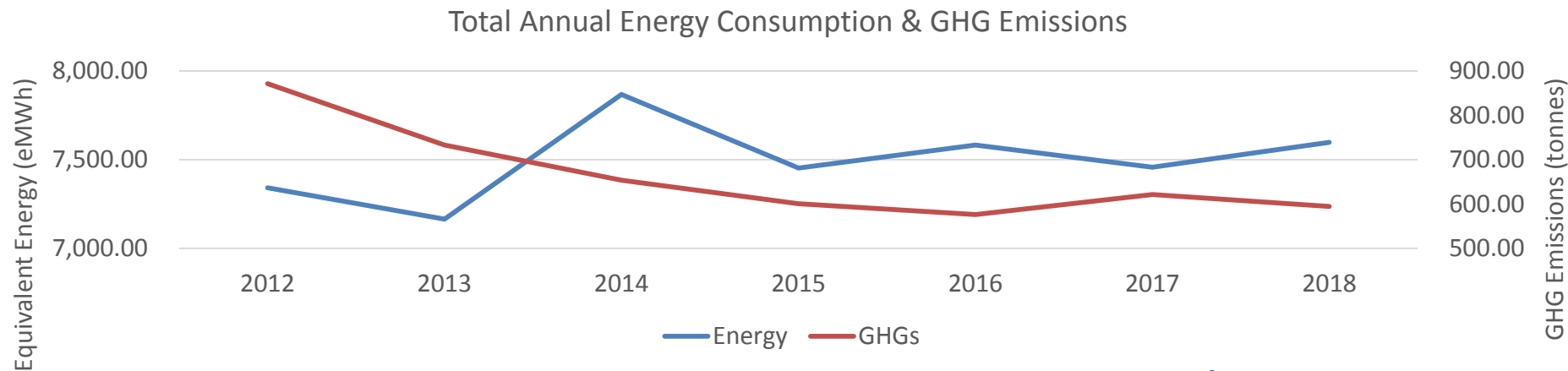
$$EUI = \frac{\textit{Total Annual Energy Consumption}}{\textit{Floor Area or Flow}}$$

Area	Benchmark	Description
Facilities	216 ekWh/m ²	2012 gross EUI for all buildings except those associated with water or wastewater.
Plants	1,084 ekWh/ML	2012 gross EUI buildings associated with treatment or pumping of water or waste water.
Street Lighting	999 kWh/light	2012 street lighting energy use ratio

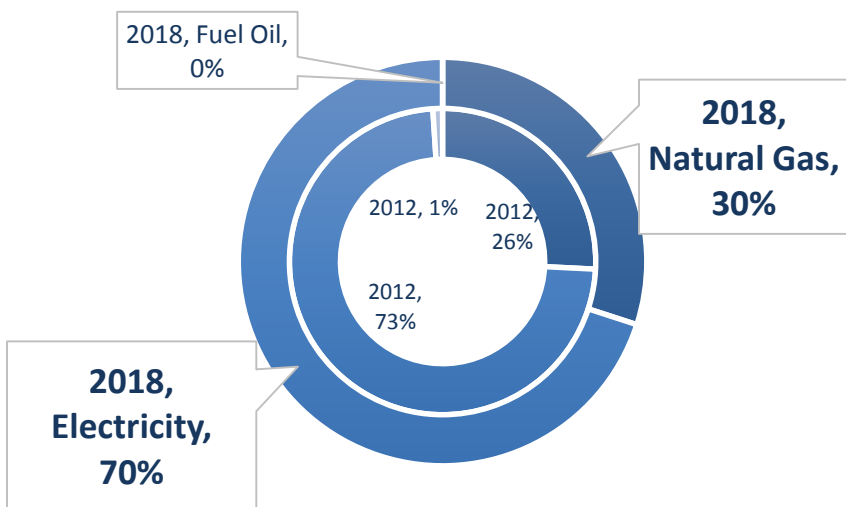
Completed Conservation and Renewable Energy Measures

- 2015
 - ✓ Museum converted from heating oil to natural gas
- 2017
 - ✓ Clarence Creek Arena lighting replace with LEDs
 - ✓ Street Lighting Policy mandates LED lighting going forward
- 2018
 - ✓ LED lighting retrofits at 6 facilities
- 2019
 - ✓ Ronald Lalonde Community Centre some incandescent lighting replace with LEDs

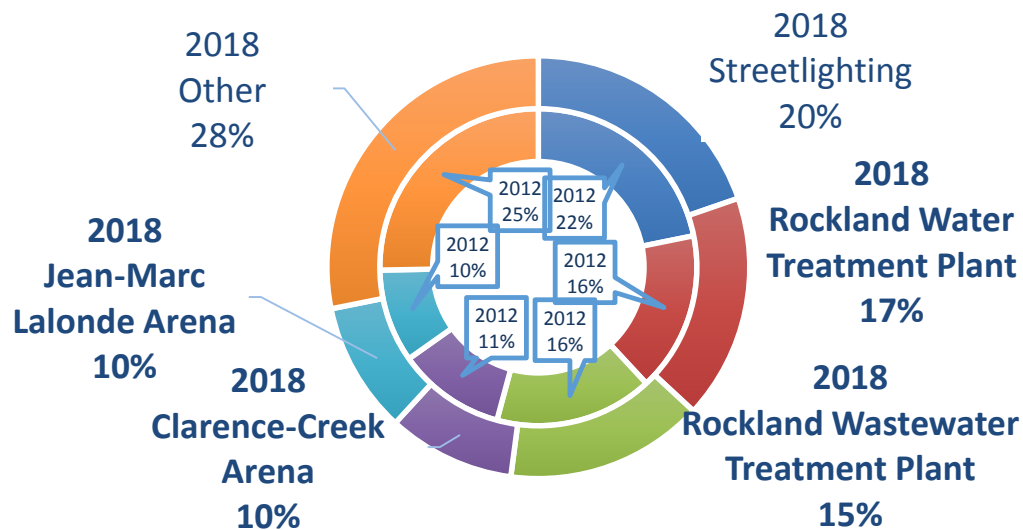
Energy Consumption & Emissions 2014-2018



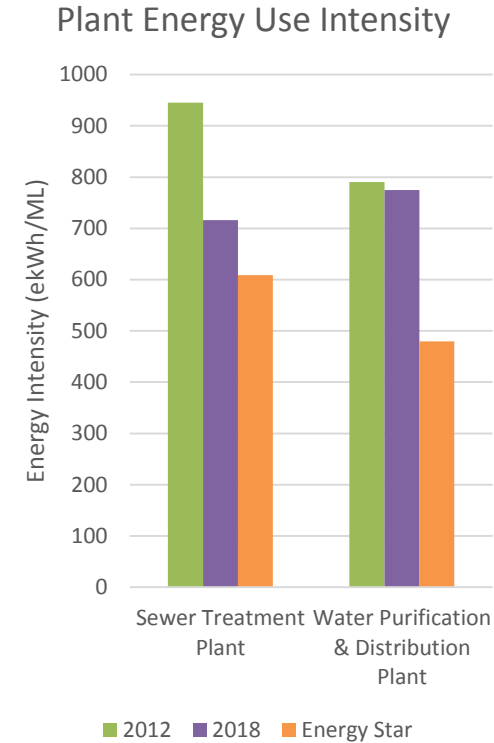
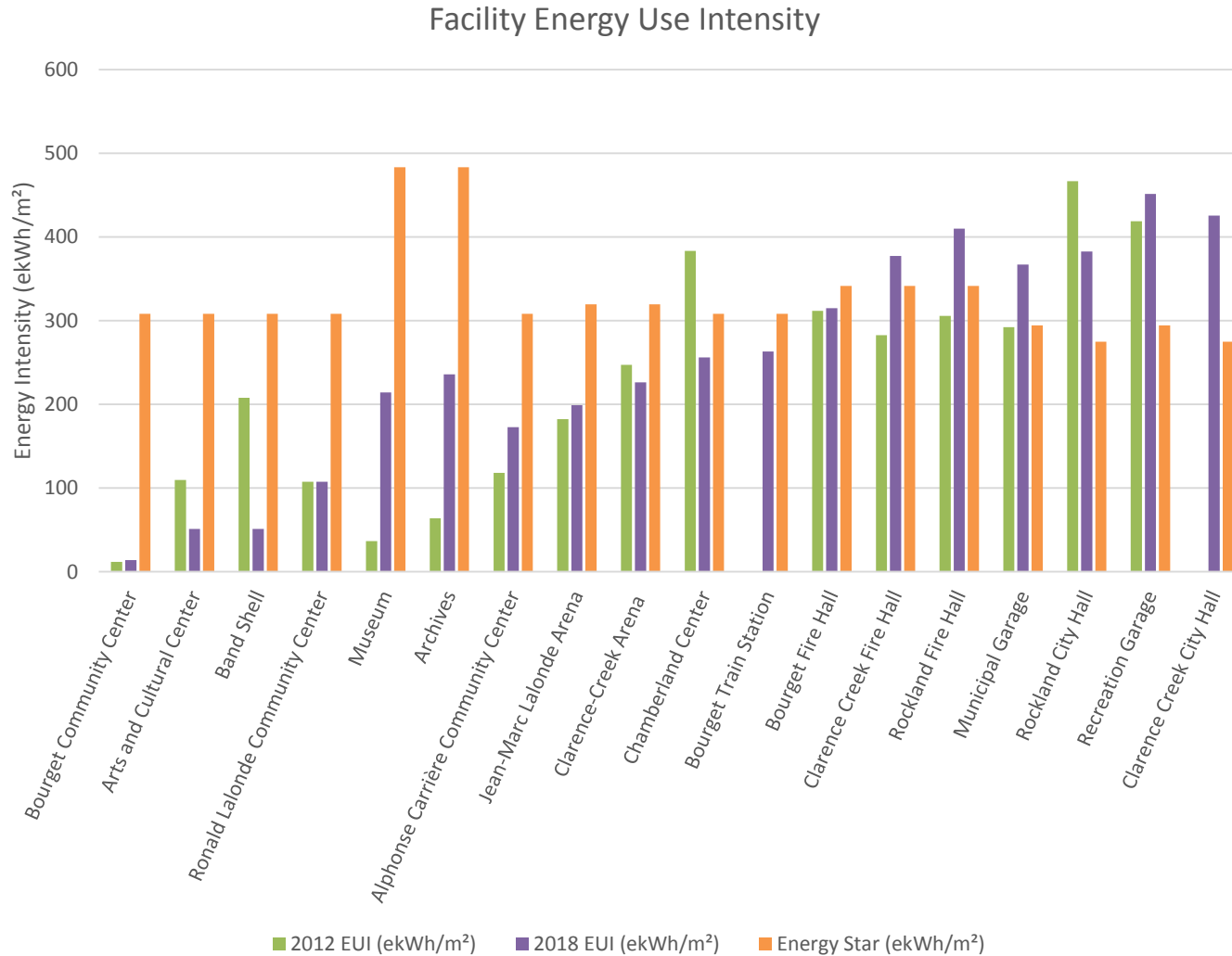
Energy Use by Source



Large Energy Using Accounts



Energy Consumption & Emissions 2014-2018



Current State of Energy Management



Energy Management Policy

Vision

The City of Clarence-Rockland will approach energy management proactively. We will pursue energy solutions that will lead to environmental, societal and economic benefits.

Objectives

- *Projects – Level 3*
- *Communication – Level 2*
- *Training – Level 2*

Targets

Expressed as a reduction in EUI from benchmark year (2012)

Target	Facilities	Plants	Streetlights
2024	0%	20%	0%
2029	4%	25%	0%

Identified Energy Initiatives

- **7 Energy Efficiency Initiatives identified**

- Annual Savings:
 - 1142 eMWh of Energy Saved
 - \$136,000 in bill savings
 - 56 tonnes of GHG reduced
- 1 to 8 year payback

- **General Energy Initiatives**

- Energy Audits of Major Accounts
- Energy Monitoring
- Revolving Green Fund
- Energy Manager
- Solar Photovoltaic Assessment Study

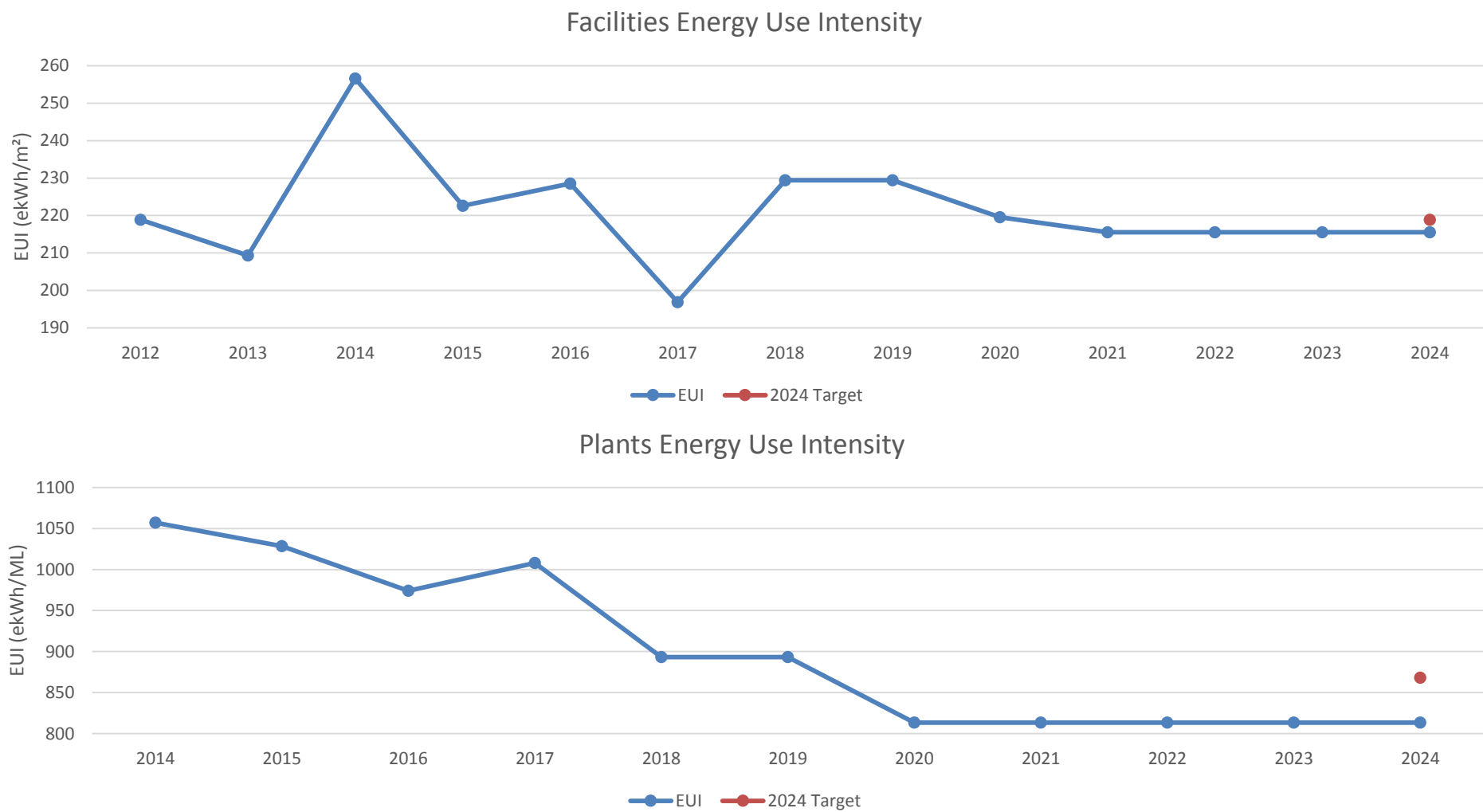
Multiple Funding Programs Available

- FCM's Green Municipal Fund
- IESO's Save On Energy
- Enbridge's Smart Savings
- CoEnergy Third-Party Financing



Clarence-Creek & Jean-Marc Lalonde Arena have great potential for rooftop solar systems.

Expect Impact & Plan for Review



Key Conclusions

- **2024 Targets are based on previous plan and are achievable**
 - But action is required!
- **Plan to improve Energy Management Practices in**
 - Projects
 - Communication
 - Training
- **4 Largest Accounts (Arenas and Treatment Plants):**
 - make up 52% of all energy consumption
 - Plants have Higher Energy Use (EUI) than National Median
 - Investigations (energy audits) are highly recommended
- **Payback calculation are based on 2019 energy costs**
 - Escalating electricity and natural gas pricing are likely
 - Savings from projects may be higher (shorter payback)

Parting Thoughts

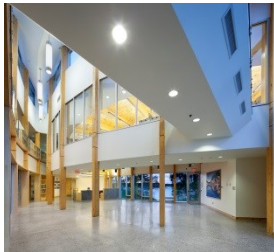
The City of Clarence-Rockland staff provided great support and were respectful of our team's effort in updating of this plan.

J.L. Richards & Associates' Energy Team will be pleased to discuss a comprehensive energy conservation project strategy with council and staff.



Questions?

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Thank you!

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