

ENERGY AND UTILITIES MANAGEMENT PLAN

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Housing York Inc. Board Meeting
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BACKGROUND

BACKGROUND

2005
Energy
Management
Program

2006
Energy
Conservation
Pilot

2007
Energy
Management
Retrofit
Program

2008 to 2012
Construction of
the Energy
Retrofit
Program

Since 2013
Tenant
Engagement,
Heating
Management
System and
Lighting

2017
Effectiveness
of Previous
Energy
Retrofit
Programs
Report

METHODOLOGY & APPROACH

METHODOLOGY & APPROACH — GUIDING PRINCIPLES

Guiding Principle	Description
Reduction of GHG Emissions	Reduce GHG emissions to align with the Region's 2051 goal
Net Reduction of Operating Costs	Reduce HYL's net operating costs, with consideration of life cycle costs
Minimize Operating Complexity	Reduce the number of different building systems and equipment used to support operating efficiency
Integrate a Holistic Systems Perspective	Ensure new building systems integrate well with existing building systems/equipment
Resident Engagement and Staff Education	Consider resident impacts, encourage residents to reduce energy use, ensure staff are supported in implementing new technologies
Climate Change Adaptation	To consider future climate patterns in the process of developing energy conservation initiatives
Consider Conservation for all Capital Projects	To move beyond a "replace like-for-like" system replacement

APPROACH — BUILDING UTILITY PAYMENT CATEGORIES

APARTMENT - HYI pays all utilities

54%

(24 buildings
= 1458 units)



HYI

HEAT all

HYDRO all

WATER all

APARTMENT - HYI /resident mixed pay

21%

(5 buildings
= 573 units)



HYI

HEAT all

HYDRO common

WATER all



Resident

HYDRO in-suite



Blue Willow Terrace



Richmond Hill Hub

APPROACH — BUILDING UTILITY PAYMENT CATEGORIES

TOWNHOUSE - HYI pays all utilities

less than **1%**
(1 site
= 10 units)



HEAT	all
HYDRO	all
WATER	all

TOWNHOUSE - Resident pays all utilities

13%
(7 sites
= 342 units)



Resident

HEAT	all
HYDRO	all
WATER	all

TOWNHOUSE - HYI /resident mixed pay

8%
(3 sites
= 211 units)



HEAT	common
HYDRO	common
WATER	all



Resident

HYDRO/ HEAT	in-suite
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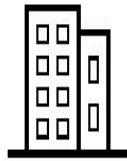
Trinity Square

APPROACH — BUILDING UTILITY PAYMENT CATEGORIES

EMERGENCY HOUSING - Service operator pays all utilities

4%

(4 buildings
= 115 units)



HYI

HEAT all

HYDRO all

WATER all



Leeder Place



EMERGENCY AND
TRANSITIONAL HOUSING

Belinda's Place



Sutton Youth Services

The Richmond Hill Youth Hub is included in Apartment Buildings
HYI/resident mixed pay

ANALYSIS

RECOMMENDED BUILDINGS

MAP #	BUILDINGS	MUNICIPALITY	PROJECT YEAR	UNITS
1	Richmond Hill Hub	City of Richmond Hill	2020	202
2	Blue Willow Terrace	City of Vaughan	2020/2021	60
3	Heritage East	Town of Newmarket	2021	121
4	Fairy Lake Gardens I	Town of Newmarket	2022	97
5	Kingview Court I and II	Township of King	2022	66
6	Keswick Gardens	Town of Georgina	2023	120
7	Mackenzie Green	City of Richmond Hill	2023	140
8	Rose Town	City of Richmond Hill	2024	125
9	Hadley Grange	Town of Aurora	2024	80
Total				1,011*

*The number of units recommended for energy conservation initiatives is 37% of the entire HYI portfolio.

Buildings selected for projects are the
largest utility consuming buildings

Summary of Projects



LIGHT-EMITTING DIODE (LED) LIGHTING

Existing interior and exterior lights will be replaced with LED lights to improve lighting quality, increase safety through better lighting levels and provide energy savings throughout the building.



CENTRAL HEATING MANAGEMENT SYSTEM

Currently, residents have full control of their unit's temperature. The new system will automatically regulate the heating of each unit to maintain comfort and decrease energy costs while minimizing overheating.



LOW-FLOW WATER FIXTURES

By installing three litre low-flow toilets, HYI will save 50% of water per flush. Low-flow showerheads and low-flow aerators will also be installed in bathrooms and kitchens.

Summary of Projects



CAPITAL PROJECT ENHANCEMENT - WINDOWS

The windows are at end of useful life. HYI will install triple-pane window system which is 50% more efficient than the existing system. This will result in higher utility savings and better indoor comfort.



DOMESTIC HOT WATER (DHW) MANAGEMENT SYSTEM

This system is designed to reduce the circulation of DHW in the apartment building when the hot water is not in use. The system tracks resident usage patterns and automatically turns off the pumps accordingly, saving utility use.

Summary of Projects



VARIABLE SPEED DRIVE (VFD)

VFDs are used to slow the pump/fan motors down from running at full speed. For example: in the summer when the hallways are extremely hot, this system can be used to slow the motor while still maintaining Ontario Building Code, resulting in a decrease in electricity use.



CAPITAL PROJECT ENHANCEMENT – REPLACE IN-SUITE HEATING SYSTEM

At end of each heating system's useful life, the units will be replaced with a more efficient heat pump to reduce energy demand.

ANNUAL COST & TARGETED UTILITY REDUCTIONS

12%↓



COST SAVINGS
\$422,000

14%↓



ELECTRICITY
2,445,000 kwh

Anticipated results after completing the five year EUMP (2020 to 2024)

TARGETED UTILITY REDUCTIONS

4%↓



WATER
9,600 m3

24%↓



GAS
456,000 m3

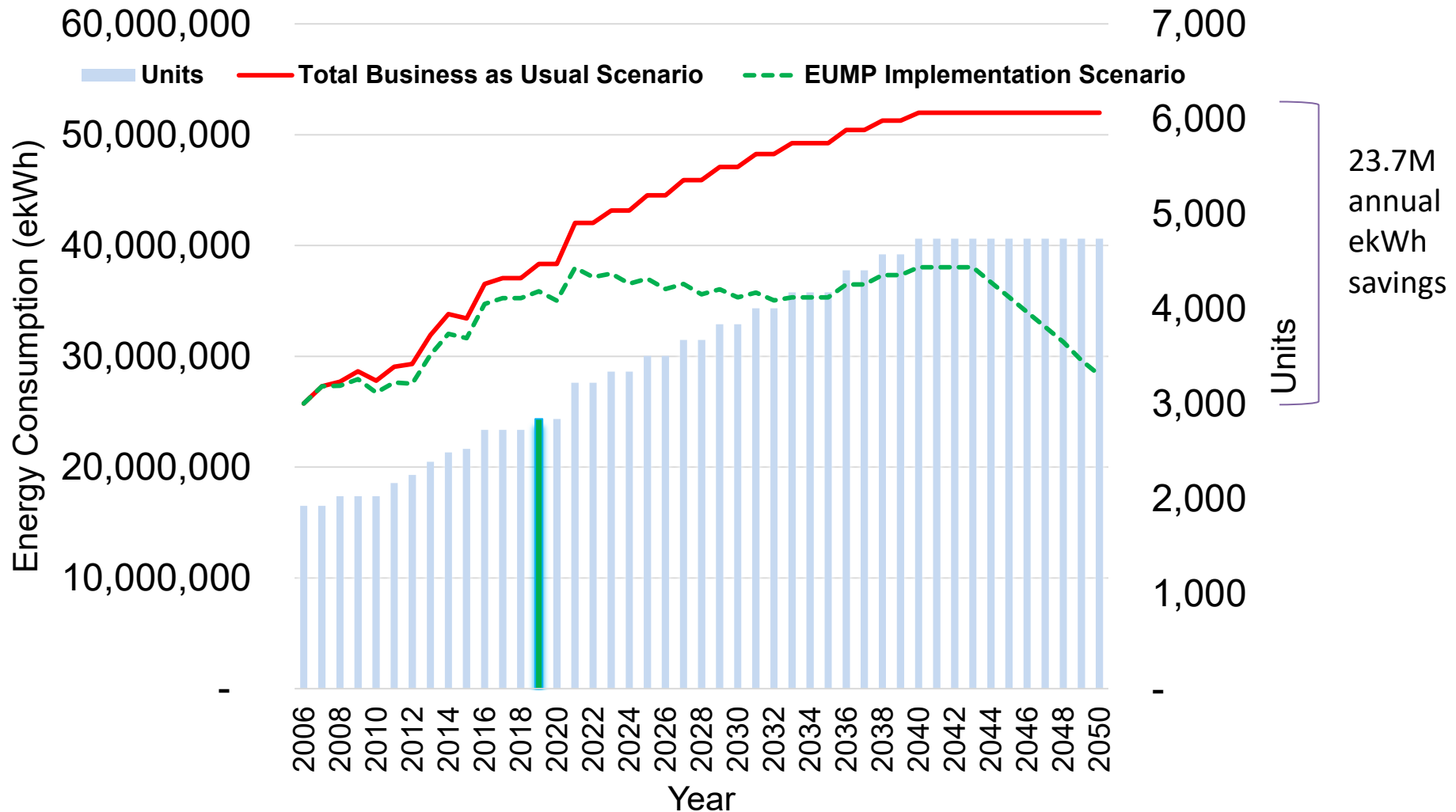
22%↓



GHG EMISSIONS
960 Tonnes of
CO₂e

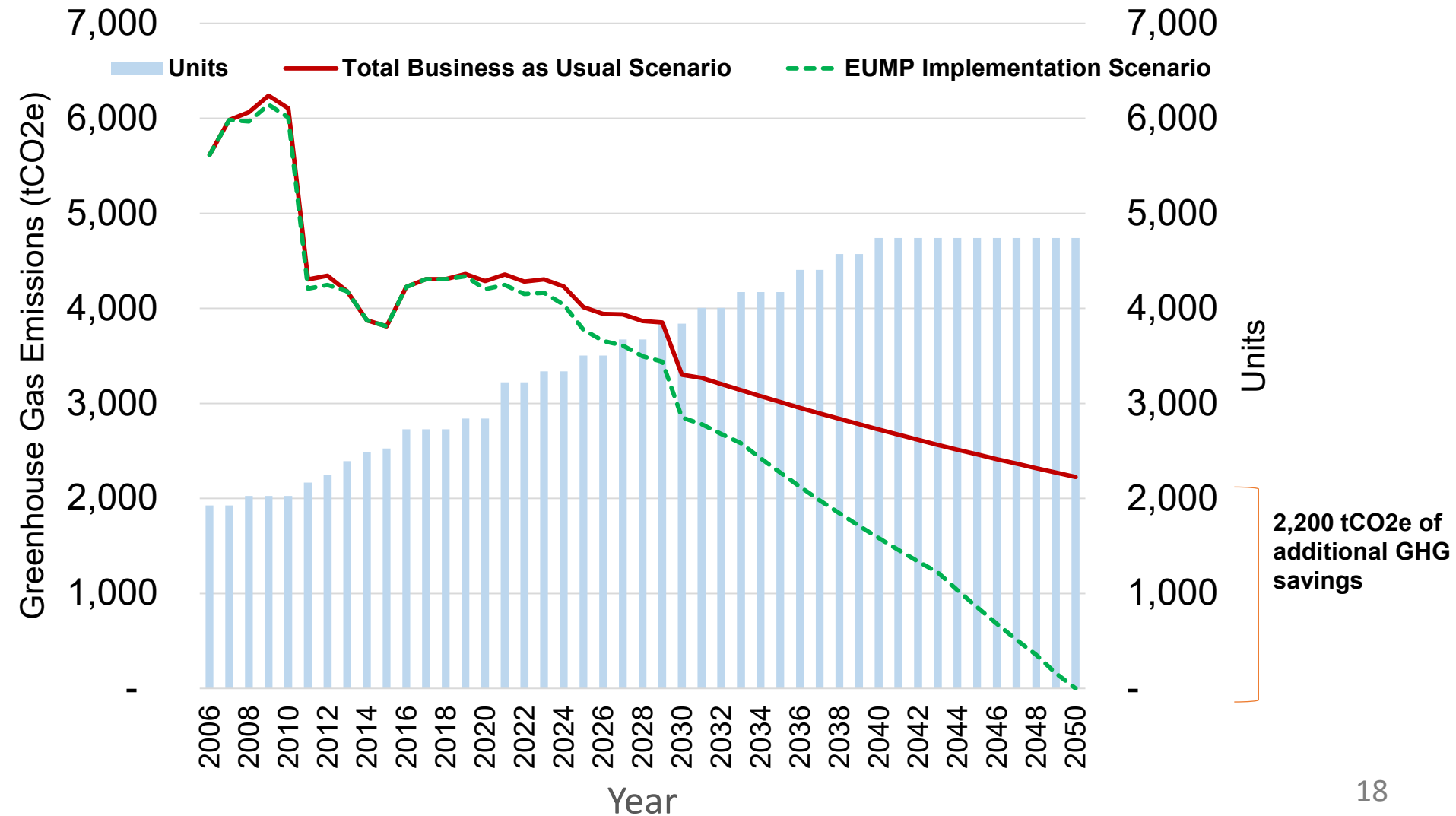
Anticipated results after completing the five year EUMP (2020 to 2024)

Forecasted Energy Consumption and Reductions



ANALYSIS

Forecasted Greenhouse Gas Emissions and Reductions



MOVING FORWARD >>>>

MOVING FORWARD

- The EUMP is projected to cost \$500,000 per year for a total of \$2.5 million over the next five years (2020 to 2024)
- The proposed funding source for 2020 and 2021 is HYI's Strategic Initiatives Reserve
- 2020 EUMP implementation of energy conservation projects will mitigate against raising utility costs and reduce GHG emissions
- Any operating savings will be used to fund other operating pressures or to increase the annual surplus
- All incentives paid by third party funders will be applied directly to the Strategic Initiatives Reserve



RECOMMENDATION

Housing York Inc. Board of Directors approve the Energy and Utilities Management Plan - 2020 to 2024 (Attachment 1) for implementation, with funding sources to be approved through future annual budget submissions

THANK YOU

