

Agenda

Advisory Committee on the Environment

10th Meeting of the Advisory Committee on the Environment

December 1, 2021, 12:15 PM

Advisory Committee Virtual Meeting - during the COVID-19 Emergency

Please check the City website for current details of COVID-19 service impacts.

The City of London is committed to making every effort to provide alternate formats and communication supports for Council, Standing or Advisory Committee meetings and information, upon request. To make a request related to this meeting, please contact advisorycommittee@london.ca.

Pages

1. Call to Order

- 1.1. Disclosures of Pecuniary Interest

2. Scheduled Items

- 2.1. 12:15 PM - B. Lennie and C. Suter, Enbridge Gas Inc. - City of London and Enbridge Gas - Working Together on Low Carbon Solutions 2
- 2.2. 12:30 PM - M. Watt, TEC Canada - Renewable Natural Gas - Barriers and Opportunities for London

3. Consent

- 3.1. 9th Report of the Advisory Committee on the Environment 21

4. Sub-Committees and Working Groups

5. Items for Discussion

- 5.1. Hefty Energy Bag Pilot - Verbal Update - J. Stanford
- 5.2. Wharncliffe Road South Expansion and 100 Stanley Street Relocation - M. Bloxam 23
- 5.3. About London Hydro Presentation - RESUBMITTED 26
- 5.4. Advisory Committee on the Environment Budget

6. Adjournment

City of London and Enbridge Gas

Working together on low carbon solutions

Dec. 1, 2021

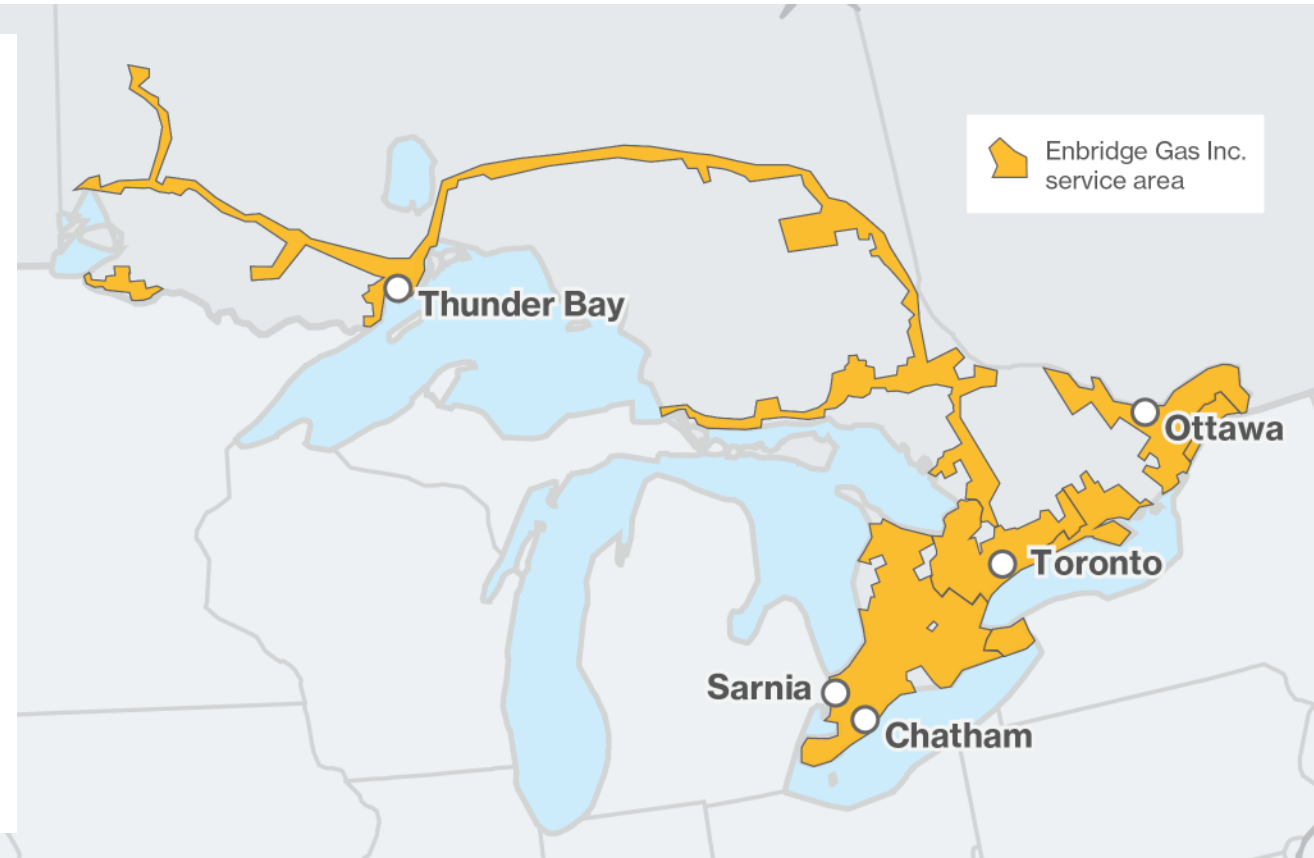
Enbridge Gas Inc.



North America's largest natural gas storage, transmission and distribution company

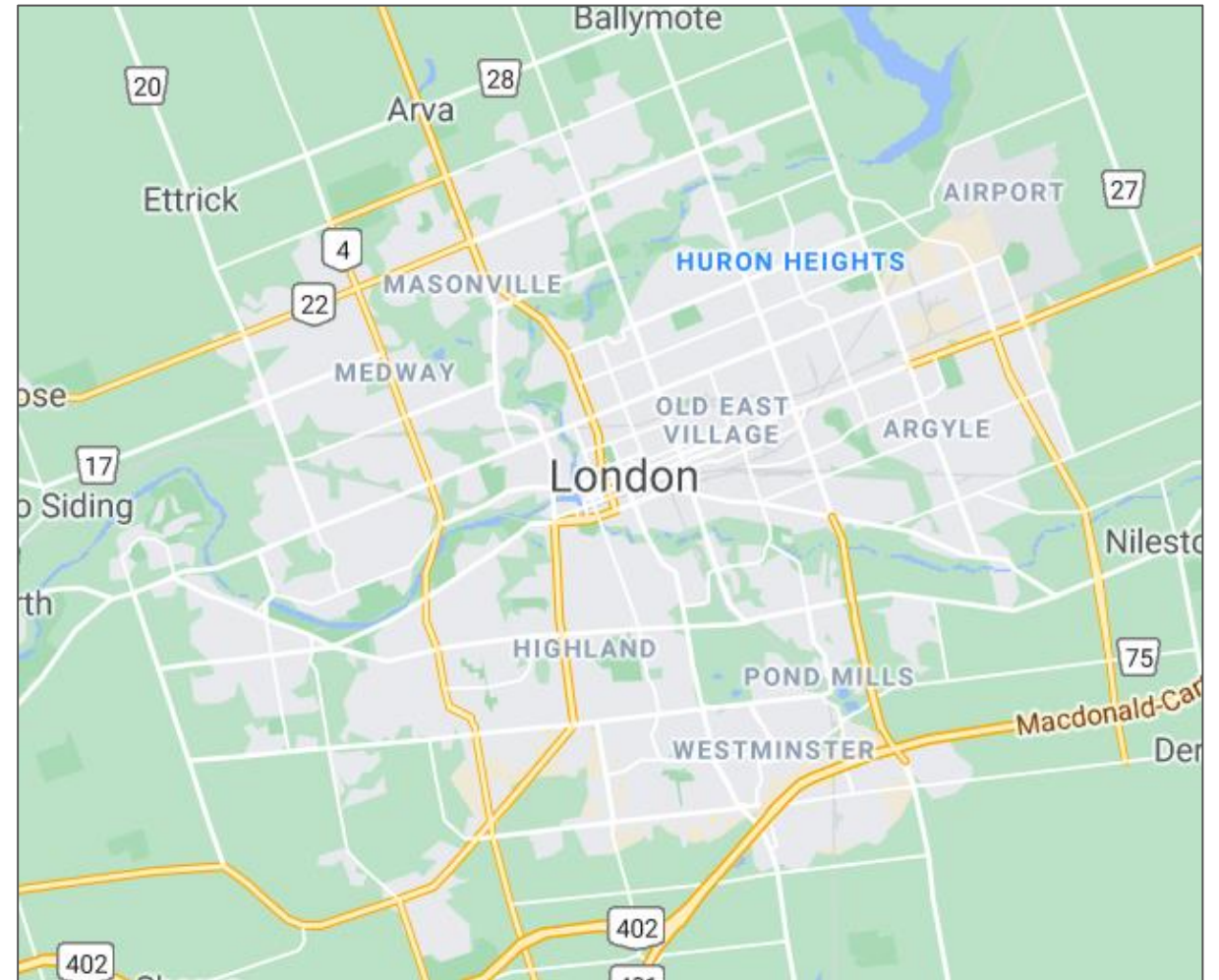
We deliver the energy that enhances people's quality of life.

- **Values**
Safety, Integrity, Respect, Inclusion.
- **Experience**
170+ years of experience in safe and reliable service.
- **Distribution Business**
3.8M customers, heating >75% of Ontario homes.
- **Dawn Storage Hub**
Canada's largest integrated underground storage facility and one of the top natural gas trading hubs in North America.
- **Advancing Innovative Low-Carbon Solutions**
Conservation, cleaner technologies for heat/transportation (CNG, geothermal), green fuels (RNG, hydrogen).



Our London operations (2020 statistics)

- 129,905 customers
 - Residential: 119,206
 - Commercial: 10,418
 - Seasonal agricultural: 1
 - Industrial: 280
- Employees: ~180



Recent announcements: what do they mean?



Enbridge Inc. has announced a goal of net-zero in our operations by 2050

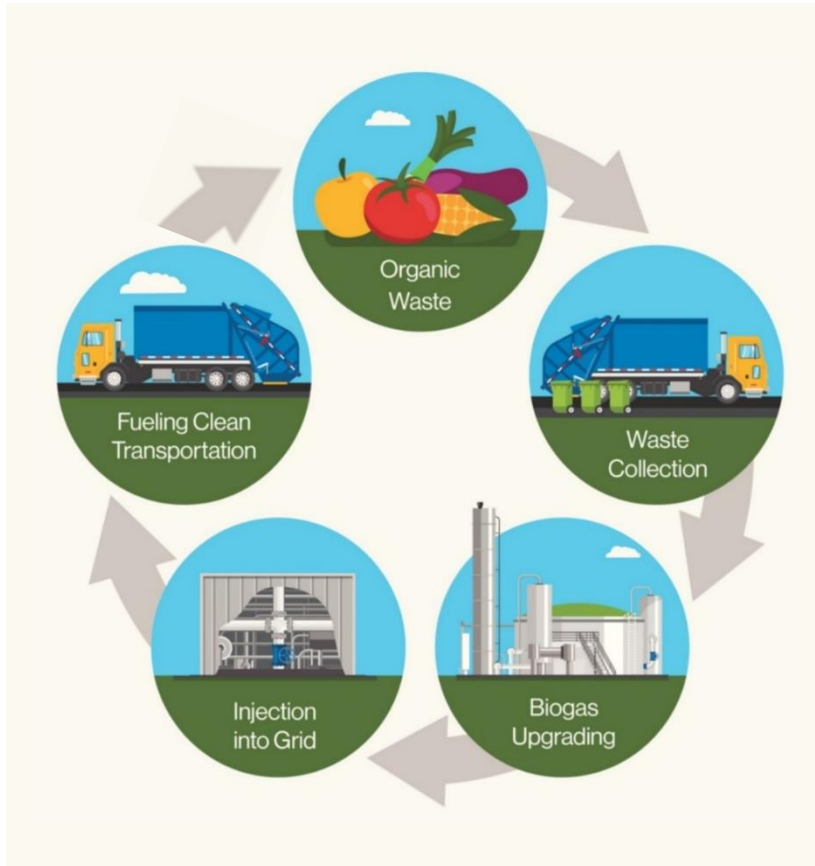
Enbridge Sets New Environmental, Social and Governance Goals for the Future

November 6, 2020

- Net zero target by 2050; 35% reduction in greenhouse gas emissions intensity by 2030
- Accelerated diversity representation in the workforce
- Incentive compensation linked to progress on ESG targets and goals

CALGARY, AB, Nov. 6, 2020 /CNW/ - Enbridge Inc. (TSX: ENB) (NYSE: ENB) (Enbridge or the Company) today announced expanded environmental, social and governance (ESG) goals and targets¹ related to greenhouse gas (GHG) emissions reduction and diversity and inclusion as well as increasing transparency and accountability of our ESG priorities and results. Setting goals in areas core to our business and stakeholders is just one of the ways Enbridge is further integrating ESG into strategy, operations and decision-making.

- Net zero target in our operations by 2050
- 35% reduction in greenhouse gas emissions intensity in our operations by 2030
- Incentive compensation linked to progress on ESG targets and goals
- What does that mean for Enbridge Gas?



Towards a low-carbon future

A sustainable pathway to emission reductions



Conservation



Cleaner technologies for heat



Cleaner technologies for transport



Green fuels




A greener future: conservation (DSM)

- Demand Side Management (DSM) refers to mechanisms such as incentives and education programs designed to modify consumer demand and incent the more efficient use of energy.
- Whether you're looking to cut costs, reduce emissions, purchase new heating equipment or create a more comfortable environment, Enbridge Gas offers a variety of programs, incentives and services to help you achieve your objectives.

Residential energy use increased

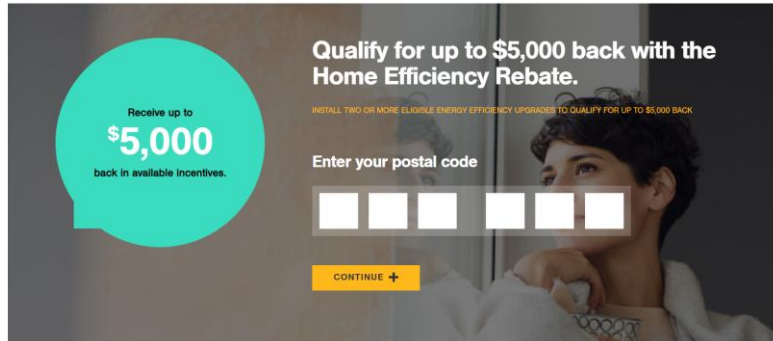


 **8.4%**
since 1990

But would have increased by
 **54%**
without energy efficiency improvements

Visit enbridgegas.com to learn more

A greener future: conservation



Receive up to **\$5,000** back in available incentives.

Qualify for up to \$5,000 back with the Home Efficiency Rebate.

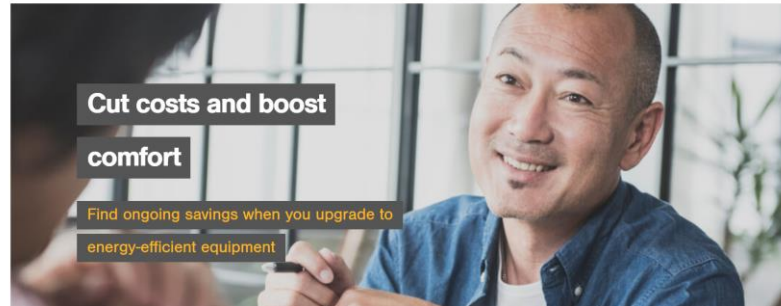
INSTALL TWO OR MORE ELIGIBLE ENERGY EFFICIENCY UPGRADES TO QUALIFY FOR UP TO \$5,000 BACK.

Enter your postal code

□ □ □ □ □ □

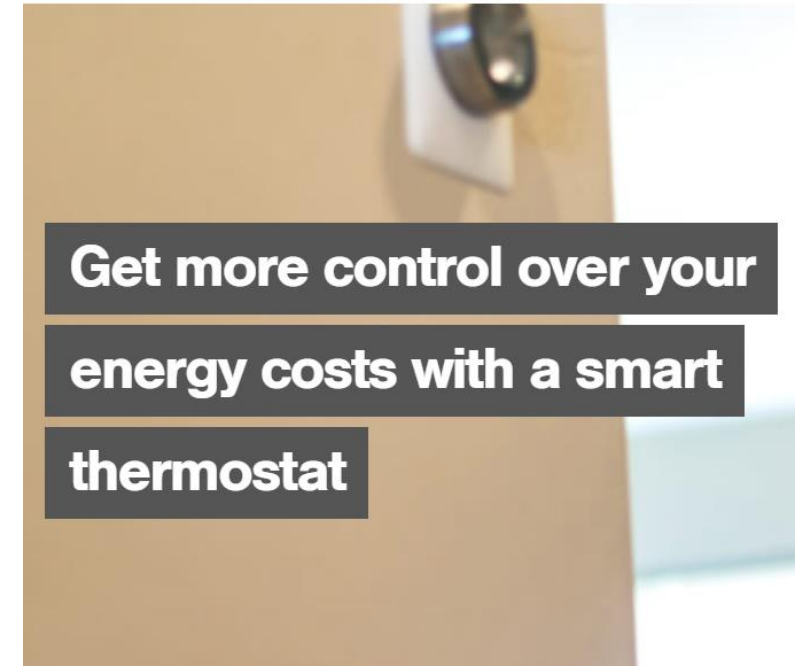
CONTINUE ➔

Affordable Multi-Family Housing Program



Cut costs and boost comfort

Find ongoing savings when you upgrade to energy-efficient equipment



Get more control over your energy costs with a smart thermostat



Stay warm with our **FREE** Home Winterproofing Program.



Sustainable solutions for your business

We'll help you save energy, cut operating costs, reduce carbon emissions and qualify for financial incentives.



Commercial & Multi-Residential Builders

➔



Residential Builders

➔



Affordable Housing

➔

Hybrid Heating Pilot Program

Pilot incentive program for homes in London

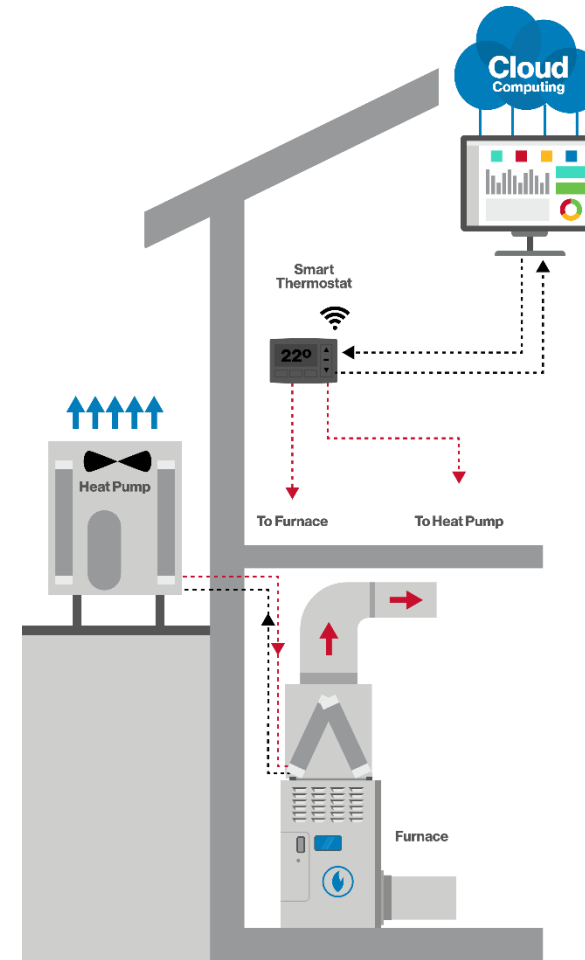
- Replacement of existing air conditioners to air source heat pumps integrated with smart controls creating a hybrid heating solution

Purpose

- Integration of smart controls with HVAC manufacturer equipment
- Develop contractor capacity with hybrid heating systems through training, selling, installing and servicing systems
- Create awareness with homeowners, HVAC contractors and manufacturers
- Assess homeowner and contractor acceptance

Status

- 5 HVAC manufacturers enrolled with equipment compatible with smart control platform
- 5 local HVAC contractors trained to sell hybrid heating systems
- Collaborating with HVAC manufacturers, City of London and London Hydro



Furnace provides assurance of thermal comfort on cold winter days



Heat pumps provide shoulder season heating using spare capacity on the electric grid



Smart controls respond to price signals to achieve GHG reductions without increasing energy costs



A dual-fuel system is a hedge to uncertain energy costs

Offer in field summer and fall 2021

Conservation in the City of London



- From 2015 – 2019, **7,445** homes in London participated in Enbridge Gas' Home Efficiency Rebate Program, **saving over 4.7 million cubic metres of natural gas.**
- From 2015 – 2019, **630** income-qualified single-family and multi-family homes participated in Enbridge Gas' Home Weatherization Program or other incentive programs at no cost, **saving over 1.5 million cubic metres of natural gas.**
- From 2015 – 2019, **over 2,000** custom conservation projects or prescriptive conservation measures were undertaken by London commercial businesses using Enbridge Gas programs, **saving over 14.2 million cubic metres of natural gas.**
- From 2015 – 2019, **59** custom conservation projects were undertaken by London industries using Enbridge Gas programs, **saving over 13 million cubic metres of natural gas.**

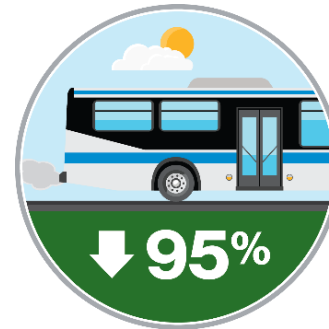
* 2019 is the last available audited year for statistics.

CNG: a market-ready solution to control costs and fight climate change

- Enbridge Gas can provide solutions to Municipalities and businesses to meet their Compressed Natural Gas (CNG) needs.
- CNG vehicles can reach net-zero or better when running RNG fuel.
- Some examples:
 - Hamilton: 137 City buses on CNG;
 - **London** and Toronto: Refuse trucks on CNG;
 - CNG fueling station for transports in **London** at the 401.



Up to **40%** lower fuel costs
Compared to diesel, CNG has a more predictable fuel price.



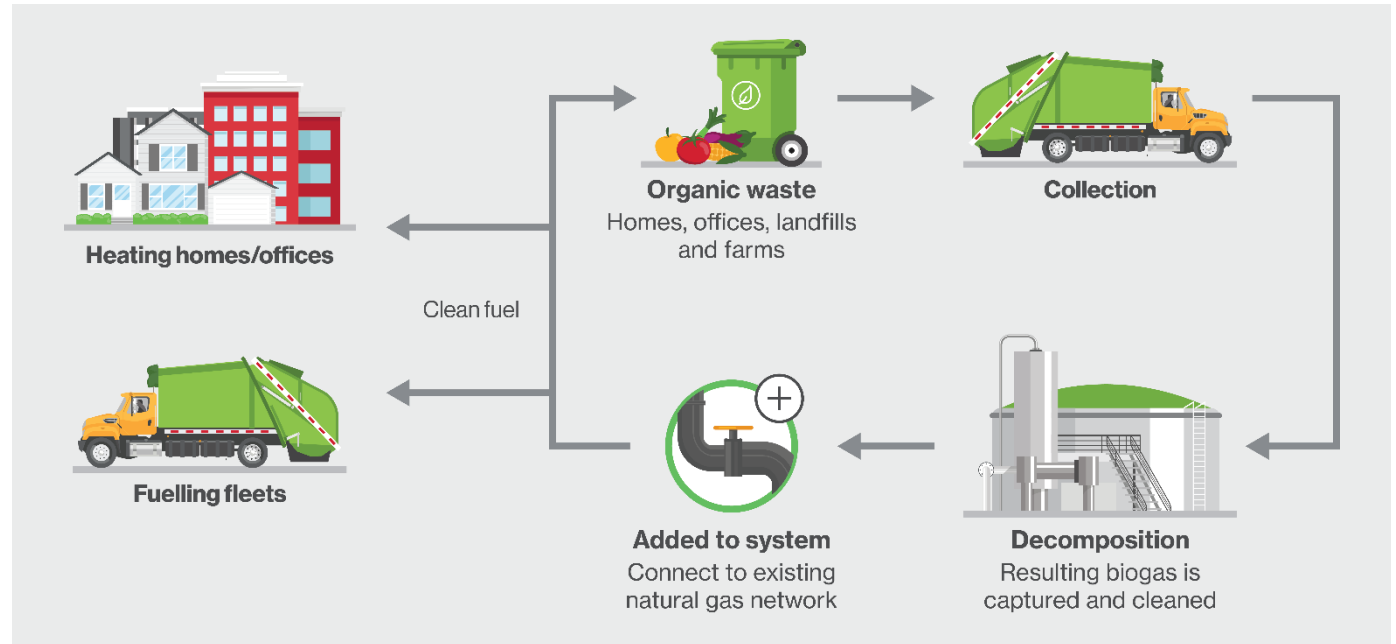
95%
fewer tailpipe emissions
Lower exhaust emissions can help improve air quality.



90%
quieter than diesel engines
CNG engines reduce noise pollution on city streets.

RNG: convert waste into carbon-neutral energy

- Renewable Natural Gas (RNG) is a carbon-neutral fuel that reduces harmful emissions and provides a renewable source of energy.
- Waste is converted to RNG and injected into the natural gas network to fuel transportation and heat homes and businesses. Known for its carbon-offsetting advantage, RNG can manage waste, generate revenue and reduce harmful emissions to fight climate change.
- Enbridge Gas recently announced the largest RNG facility in Ontario, located at the site of Walker Environmental's landfill in Niagara Falls. This will reduce GHGs by 48,000 tonnes per year.



Enbridge Gas and partners break ground on Ontario's largest RNG plant



RNG: OptUp

OptUp

Support a greener future for just \$2 a month

Wind and solar are popular forms of renewable energy, but did you know that food scraps, farm waste and sewage can also provide carbon-neutral renewable natural gas (RNG) that helps fight climate change? Once produced, RNG is added seamlessly to our natural gas system to be used for everyday convenience—from cosy home heating to cooking.

It's now easy and affordable to help green Ontario's natural gas supply. Sign up for OptUp. For just two dollars a month, you can contribute to making our natural gas system more sustainable with RNG; the more households that sign up, the greater the environmental impact.



- On April 6, Enbridge Gas announced the details of a new voluntary RNG program for its customers that will reduce overall emissions from Ontario's gas supply.
- Enbridge Gas' new OptUp Program will offer residential and small business customers who buy their gas from the utility the option to contribute \$2 a month as a cost-effective option to help offset the increased costs to acquire carbon-neutral RNG.
- The total RNG purchased and the emissions impact will be posted annually on the Enbridge website.
- Customers can sign up at enbridgegas.com

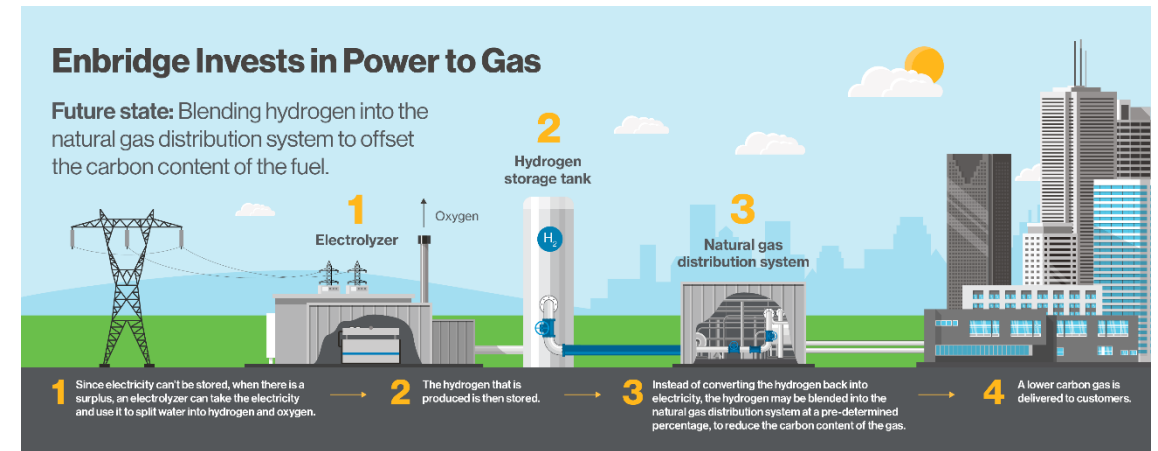
RNG: Ontario's first carbon-negative bus

- In March 2021, the City of Hamilton and Enbridge Gas announced the first RNG-fuelled bus in Ontario.
- Hamilton Street Railway (HSR) is now the first public transportation authority in Ontario to use RNG, to transport customers.
- In one year, the HSR RNG bus will use and divert 450 tonnes of organic waste from the landfill. That's equivalent to 38 garbage trucks, while also displacing CO2 emissions from 36,000 litres of diesel consumed in a year.
- **The RNG supply for the bus comes from the StormFisher facility in London.**

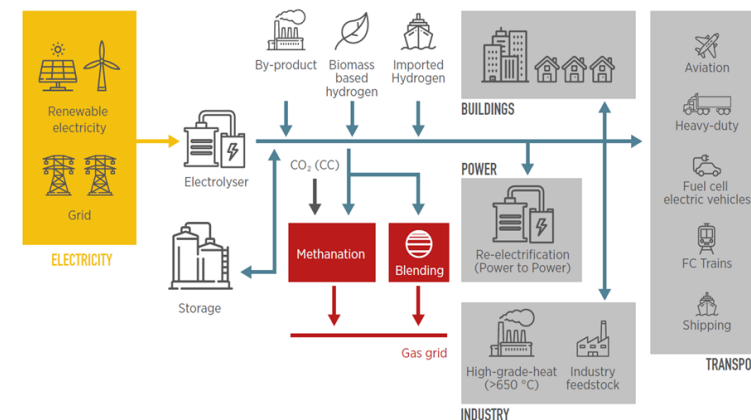


Hydrogen/Power to Gas: cut energy costs, improve sustainability and resiliency

- Sometimes Ontario makes more electricity than is used.
- Surplus electricity can be converted and stored as hydrogen gas.
- The stored hydrogen gas can be converted back into electricity when needed, or;
- Blended with natural gas as a less carbon-intensive energy source.
- Hydrogen is a viable sustainable solution for heavy industries, hard to abate sectors and heavy-duty transportation
- In February 2021, Enbridge subsidiary Gazifère announce one of Canada's largest green hydrogen projects for injection into a natural gas distribution network in Quebec.



The Huge Potential of Hydrogen



- **2020 – Onwards**
- Coming - Heavy Industry Decarbonization
- 2021 – First to Blend in North America
- **2019 – 2020**
- Blending into gas grid, hydrogen for transportation and power generation
- **2017 – 2018**
- First NA utility P2G plant constructed and in service, designed for future expansion
- **2014 – 2016**
- Contract with IESO

Wastewater energy transfer

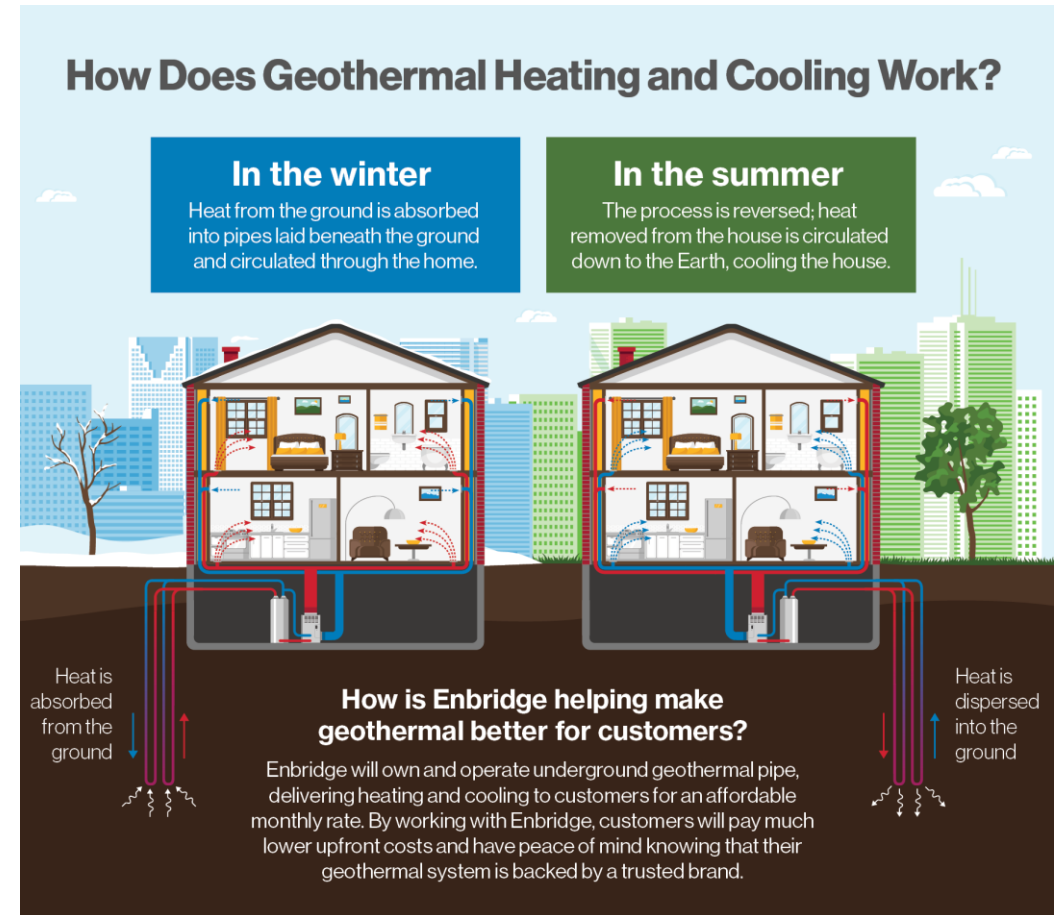
Innovative thermal thinking powers this project



- Enbridge Gas recently teamed up with Noventa to support what will be the world's largest raw wastewater energy transfer system.
- Enbridge Gas supported the development of the wastewater energy transfer system for Toronto Western Hospital, which will provide the hospital with low-carbon heating and cooling.
- Construction on the retrofit project is expected to begin in late fall 2021.
- It's estimated the project will provide the hospital with 1.7 million megawatt-hours of thermal energy, or roughly 90% of its heating and cooling requirements over the next 30 years. Better yet, the site will see a cumulative reduction in greenhouse gas emissions of more than 250,000 tonnes over the same period—the equivalent of taking 50,000 cars off the road.

Geothermal: a zero-carbon solution

- Enbridge Gas offers a geothermal program for homeowners and builders, providing affordable and quality access to a geothermal system.
- We work with geothermal experts to ensure pipes are installed properly plus we'll break down the full geothermal service into an affordable monthly fee.
- In most cases, geothermal loops are expensive and account for a large portion of the upfront installation cost. Through the Enbridge Gas Geothermal program we will:
 - Cover all associated material and installation costs for the geothermal loop (installed outside your home underground).
 - Provide our expertise and oversight of the installation including ongoing maintenance and repairs to the Geothermal loop.
 - Charge a monthly rental service fee for the Geothermal loops.



Enbridge Inc. Renewable Energy

- Together, Enbridge's portfolio of renewable energy projects in-operation and under-construction have the capacity to meet the electricity needs of about 945,000 homes (net of our partners' interest). The projects in Canada, the US, and Europe include:
 - 23 wind projects
 - 21 solar energy facilities
 - 5 waste heat recovery facilities
 - 1 geothermal project
 - 1 power transmission project
 - 1 hydroelectric facility
- Enbridge has an ongoing scholarship program with **Fanshawe College** for their renewables program and has hired summer students and permanent technicians out of the program.



Q&A

Enbridgegas.com

Advisory Committee on the Environment

Report

9th Meeting of the Advisory Committee on the Environment
November 3, 2021

Advisory Committee Virtual Meeting - during the COVID-19 Emergency

Attendance PRESENT: M.T. Ross (Chair), N. Beauregard, M. Bloxam, J. Howell, K. May, M.D. Ross, J. Santarelli, D. Szoller and B. Vogel and J. Bunn (Committee Clerk)

ABSENT: A. Tipping

ALSO PRESENT: T. Arnos, A. DiCicco, M. Fabro, J. Stanford and B. Westlake-Power

The meeting was called to order at 12:17 PM.

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that no pecuniary interests were disclosed.

2. Scheduled Items

2.1 Net-Zero Ready Building Codes

That it BE NOTED that the communication, as appended to the Agenda, from the Centre for Zero Energy Building Studies, with respect to Net-Zero Ready Building Codes, and a verbal delegation from A. Pape-Salmon, Commissioner, BC Utilities Commission, were received

3. Consent

3.1 7th and 8th Reports of the Advisory Committee on the Environment

That it BE NOTED that the 7th and 8th Reports of the Advisory Committee on the Environment, from the meetings held on September 1, 2021 and October 6, 2021, were received.

3.2 2020 Community Energy Use and Greenhouse Gas Emissions Inventory

That it BE NOTED that the staff report, dated August 31, 2021, from K. Scherr, Deputy City Manager, Environment and Infrastructure, with respect to the 2020 Community Energy Use and Greenhouse Gas Emissions Inventory, was received.

3.3 2020 Corporate Energy Consumption and Activities Report

That it BE NOTED that the staff report, dated August 31, 2021, from K. Scherr, Deputy City Manager, Environment and Infrastructure, with respect to the 2020 Corporate Energy Consumption and Activities Report, was received.

3.4 Notice of Study Initiation - Dingman Creek Subwatershed Stage 2 Lands - Municipal Class Environmental Assessment

That it BE NOTED that the Notice of Study Initiation, dated September 2, 2021, from A. Sones, City of London and F. Curi, KGS Group Inc., with respect to the Dingman Creek Subwatershed Stage 2 Lands Municipal Class Environmental Assessment, was received.

4. Items for Discussion

4.1 About London Hydro

That it BE NOTED that the presentation, dated October 6, 2021, from T. Arnos, London Hydro, with respect to information related to London Hydro and sustainability, was received; it being noted that it was requested that the above-noted presentation be resubmitted to the December Advisory Committee on the Environment (ACE) Agenda in order for the ACE to make formal comments.

5. Additional Business

5.1 (ADDED) Windermere Road Improvements - Municipal Class Environmental Assessment Study - Notice of Public Information Centre #2

That it BE NOTED that the Notice of Public Information Centre #2 document, dated October 28, 2021, from P. Yanchuk, City of London and K. Welker, Stantec Consulting Ltd., with respect to the Windermere Road Improvements Municipal Class Environmental Assessment Study, was received.

6. Adjournment

The meeting adjourned at 1:53 PM.

Advisory Committee on the Environment Wharncliffe Road South expansion & 100 Stanley Street relocation

To: Members of the Advisory Committee on the Environment (ACE)
From: Mike Bloxam, ACE member
Re: "Wharncliffe Road South Improvements"

From the City of London's page on the project, located at <https://london.ca/projects/wharncliffe-road-south-improvements>:

The City of London is planning improvements for Wharncliffe Road South from north of the Thames River to Springbank Drive. One northbound travel lane will be added on Wharncliffe Road South between Horton Street and Becher Street.

The City also will rehabilitate the Wharncliffe Road Bridge across the Thames River, including enhancements to pathway connections for active transportation with wider sidewalks. Although the corridor is not currently considered a bike route in the Cycling Master Plan, the bridge design has consideration for future cycling lanes.

The current road bottleneck at the CN Rail Bridge creates safety and operational concerns for all road users, and results in traffic in the surrounding neighbourhoods..

Members of the Advisory Committee on the Environment are encouraged to put forward a recommendation to City Council as follows, explaining why road expansions to accommodate more motor-vehicle traffic is not a sustainable option for the future of Wharncliffe Road South nor the city as a whole for the reasons that follow:

1. **Widening roads does not decrease traffic.** Widening to six lanes as proposed only allows for more vehicles to use the road, and thus encourages more single-occupancy vehicles (SOVs) to use the corridor. London needs to go on a "traffic diet" (i.e. decrease or mitigate the increase of SOVs) as part of the solution. To use the same analogy: when one finds themselves putting on weight, they usually change their diet instead of going out and buying larger pants to permit a wider waistline. Adding another northbound lane to the road is only allowing the status quo to continue and permit more SOVs on the road, leading to further congestion of both Wharncliffe Road and other arteries that connect to it. More personal vehicles will use Wharncliffe

Road if it were to be expanded and will not reduce the congestion as desired. More vehicles in the traffic system will only produce more air pollution and further the effects of climate change. There are also a number of issues surrounding the natural environment with widening, such as increasing difficulty for residents to cross the road, impacts on waterways such as the Thames River, and loss of trees along the route.

2. **Much of the congestion happens during rush hour.** Increasing traffic flows during rush hour, through efforts such as better synchronization of lights, building roundabouts where appropriate, enhancing public transit (e.g. having a bus route that runs from Byron Baseline Road to Springbank Drive to Horton Street to Hamilton Road with appropriate connecting routes to run north/south all along Wharncliffe Road), and better infrastructure for active transportation (pedestrian sidewalks and bicycle paths).
3. **Install cycling infrastructure now, not in the “future”.** While the improved pathway connections at the Wharncliffe Road Bridge is laudable, stating that “the bridge design has consideration for future cycling lanes” goes against the declaration of a climate emergency (as passed by City Council in April 2019), and instead cycling lanes must be added at this stage. Wharncliffe Road, for most of its urban stretch, is the perfect example of a “stroad”, which is defined as “dangerous, multi-laned thoroughfares you encounter in nearly every city, town, and suburb in [North] America”¹. Rehabilitation of Wharncliffe Road to be an effective thoroughfare must include proper bike infrastructure, pedestrian walkways, and access for the many residences and businesses that line the road. We can start with this stretch from Springbank Drive to the Thames River as a shining example of eliminating stroads and building our city for the future, not for 1960s car culture.
 1. <https://www.strongtowns.org/journal/2018/3/1/whats-a-stroad-and-why-does-it-matter>
4. **100 Stanley Street must not be demolished.** The saying goes that the greenest brick is the one already in the wall. Demolishing buildings is a backward practice that simply throws a building in the garbage dump. This house is sound, has been well-maintained, and would easily survive a short move across Wharncliffe Road to rest at Evergreen Avenue. It would retain housing – something desperately needed in the city – and allow the City to sell the property to recoup the costs. Taking into account the embedded energy of constructing a house in the first place, demolition has a huge negative impact from

an environmental (and financial) standpoint. In Brantford, an historic 144-year-old brick cottage was recently moved with great success (minus a flat tire on the trailer).² Perhaps City staff should speak with the folks in Brantford about the process and get some insight on how easy it really is to move a house.

2. <https://kitchener.ctvnews.ca/not-so-fast-144-year-old-crystal-cottage-in-brantford-hits-road-bump-in-relocation-1.5656095>

The recommendations for ACE to put forward to Planning & Environment Committee is suggested as follows:

The ACE recommends that the *Wharnccliffe Road South Improvements* project explores every possible avenue to avoid road widening to provide more traffic lanes for motor vehicles, whereas there are a number of alternative methods that provide better traffic flow, improved options outside of driving one's own personal vehicle (public transit, cycling, walking, etc.), and making this stretch the first of many projects to turn a stroad into proper transportation infrastructure.

The ACE also recommends that City staff be directed to revisit the issue of moving 100 Stanley Street and direct staff to find a way to move the house across the street.

The ACE encourages that the fact we are in a climate crisis and have declared a climate emergency ourselves means we must do everything possible to mitigate negative environmental impacts: demolishing homes and making room for more motor vehicles is the exact antitheses to this declaration.

Contact information for the project:

Michelle Morris
Transportation Design Engineer
mmorris@london.ca
Phone: 519-661-2489 Ext. 5806

London Hydro



Advisory Committee on the
Environment (ACE) Communication

October 6th, 2021

Overview

- ▶ About London Hydro
- ▶ System Planning
- ▶ Ontario's Electricity Supply & GHG Emissions
- ▶ Enabling Locally Generated Electricity
- ▶ Customer Engagement Solutions/Green Button
- ▶ Environmental Sustainability at London Hydro



About London Hydro



- ▶ London Hydro Inc. is a wholly-owned subsidiary of the Corporation of the City of London
- ▶ Owns and maintains the electrical distribution grid.
- ▶ 162,000 residential and commercial customers.
- ▶ Employs over 300 employees.
- ▶ Delivers highly reliable and safe electricity to its customers.
- ▶ Procures wholesale market services from the IESO and transmission services from Hydro One at regulated prices.

See: <https://www.londonhydro.com/about-us/about-london-hydro/strategic-plan>

London Hydro's License to Operate

ED-2002-0557



The OEB's Mandate

- ▶ Setting natural gas and electricity rates and prices
- ▶ Monitoring the financial and operating performance of electrical utilities
- ▶ Providing consumers with the information they need to better understand energy matters
- ▶ Protecting energy consumers' interests
- ▶ Developing regulatory policy to meet emerging energy trends and challenges

Governing Legislation

- ▶ Ontario Energy Board Act, 1998, the Electricity Act, 1998 and the Energy Consumer Protection Act, 2010

Source: https://www.oeb.ca/oeb/_Documents/Documents/Energy_Sector_Regulation-Overview.pdf

IESO Regional Planning Overview

- ▶ IESO Coordinates Regional Plans every 5 years, with local distribution companies, Hydro One, and communities.
- ▶ Plans are 20 year outlook, and include projections of Distributed Energy Resources (DERs), Conservation and Demand Management, and adoption of Electric Vehicles.
- ▶ London Hydro has sufficient capacity for additional load for at least the next 10 years.
- ▶ Capacity for additional DERs is declining as new resources are connected.



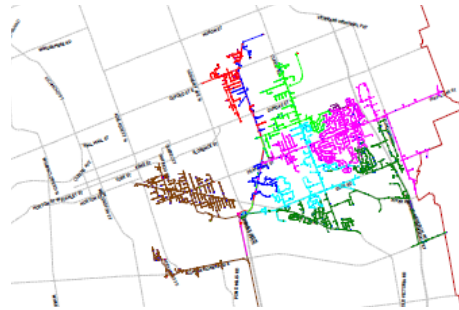
Ontario's 21 Planning Regions

Source: <https://www.ieso.ca/en/Get-Involved/Regional-Planning/Southwest-Ontario/London-Area>

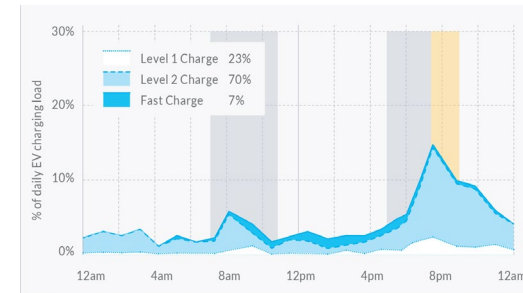
See the IRRP: <https://www.ieso.ca/en/Get-Involved/Regional-Planning/Southwest-Ontario/London-Area>

Capacity Planning

- ▶ Future Capacity by Area / Feeder - for new loads (residential, commercial, industrial) and load growth such as electrification of Heating and Transportation



- ▶ Monitoring Loads - using Smart Meter data, transformer loads are reviewed, EV charging locations tracked



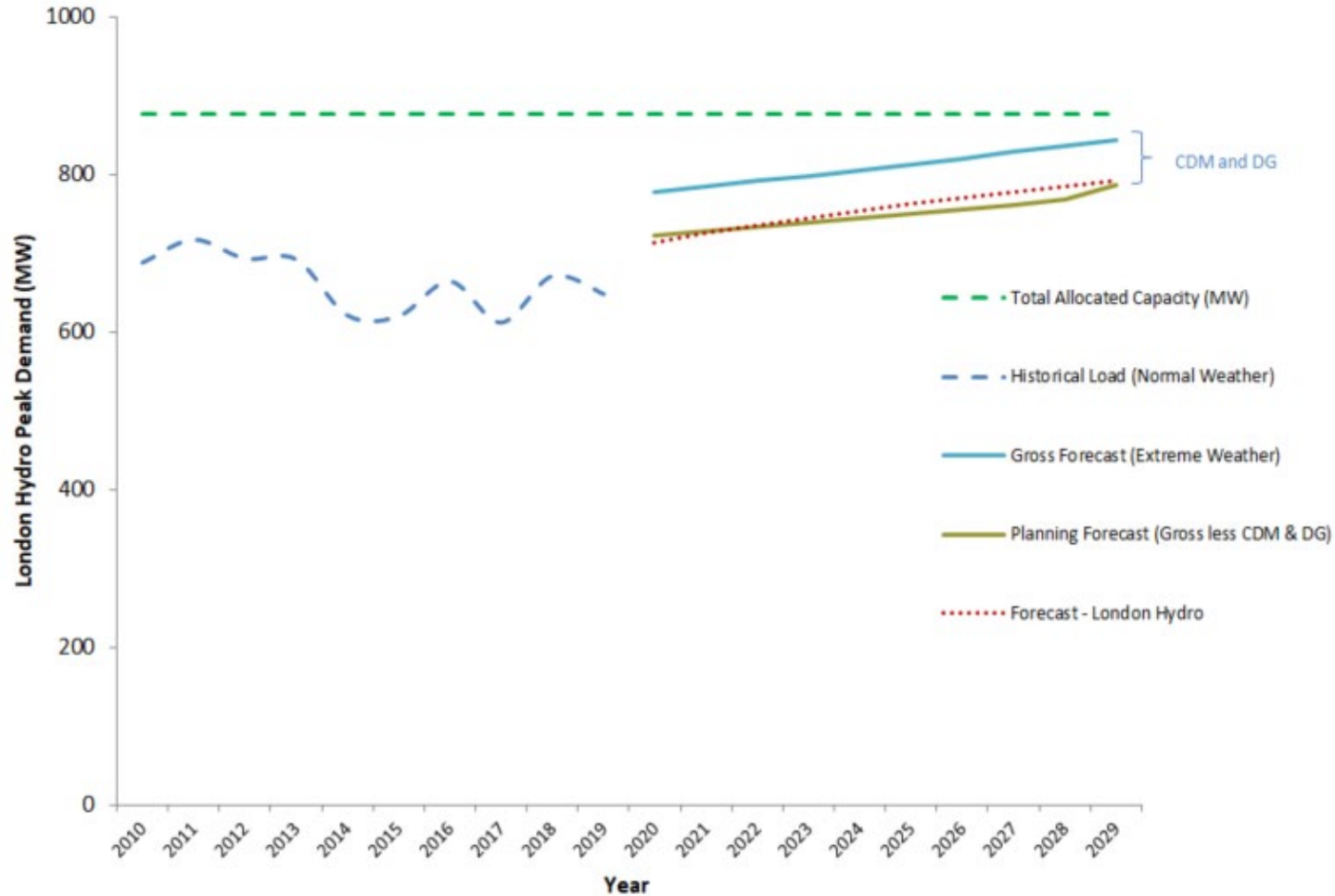
- ▶ Regular consultations with municipal planners, developers, large use customers



- ▶ Engaged with LTC regarding electrification of the transit system



Capacity Planning

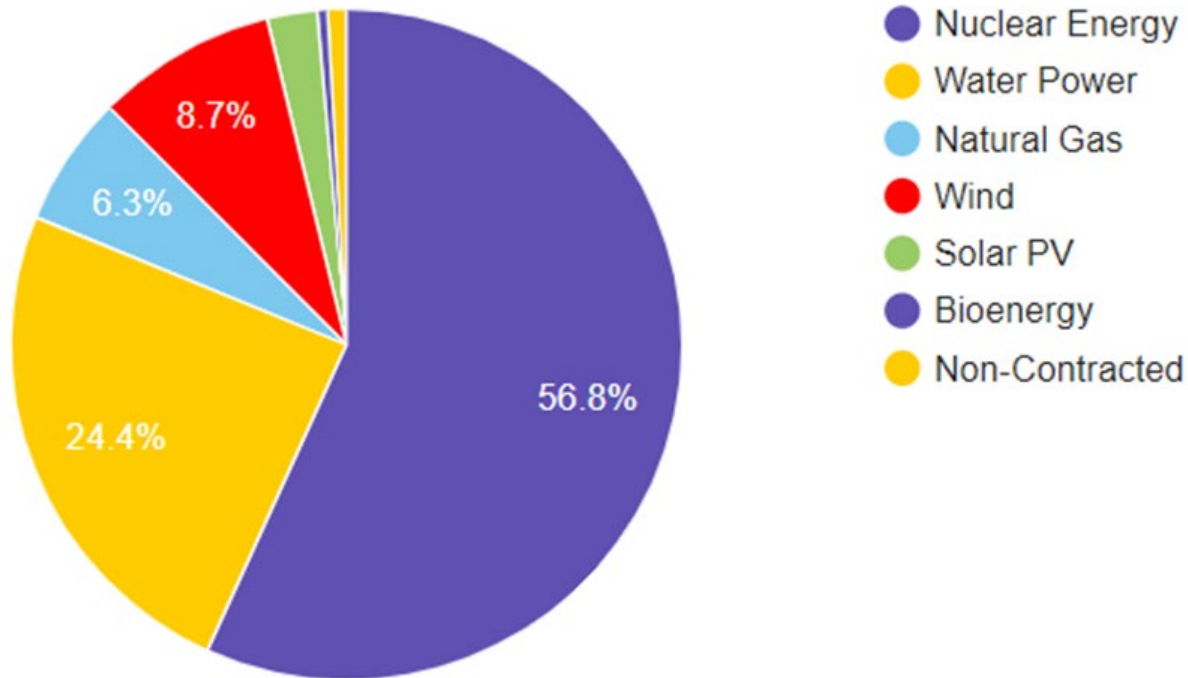


- ▶ Sufficient capacity for at least 10 years
- ▶ Margin for unexpected load growth due to EVs, fuel switching, new customers

Ontario's Electricity Supply

- ▶ 36.0% Renewable
- ▶ 92.8% non-emitting

Ontario System-Wide Electricity Supply Mix: 2020 Data



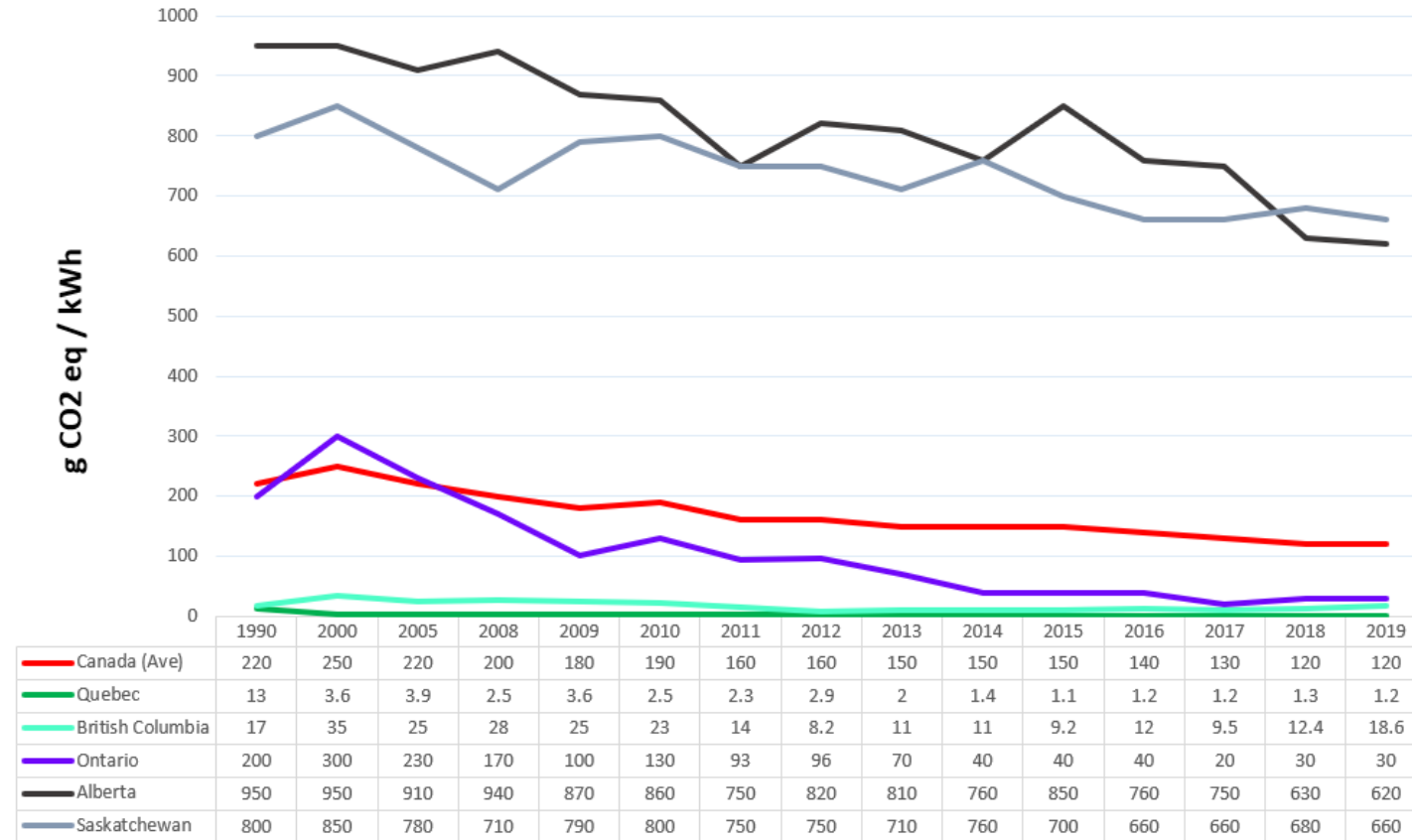
Electricity sources*	%
Nuclear Energy	56.8
Water Power	24.4
Natural Gas*	6.3
Wind	8.7
Solar	2.4
Bioenergy**	0.5
Non-Contracted***	0.9

* Includes Lennox and dual fuel (natural gas/bioenergy) consistent with IESO.
 ** IESO's embedded generation data set combines biomass and gas.
 *** Non-Contracted represents a variety of fuel types that the IESO is unable to categorize due to a lack of information from Local Distribution Companies (LDCs).

Ontario's Electricity Supply & GHG Emissions



Greenhouse Gas Generation Intensity



Source: Canada's Submission to the United Nations Framework Convention on Climate Change National Inventory Reports, 2014 and 2021
https://unfccc.int/documents?f%5B0%5D=country%3A867&f%5B1%5D=document_type%3A3517&f%5B2%5D=language%3AEnglish

Distribution Losses



- ▶ Electrical distribution system upgrades
- ▶ Voltage conversions
- ▶ Continuous improvement plans
- ▶ Losses reduced from $\approx 4\%$ to 3% over the last 7 years
 - ▶ saved 233,150 MWh
 - ▶ reduced GHG emissions by 7,766 t CO₂e

Locally Generated Electricity

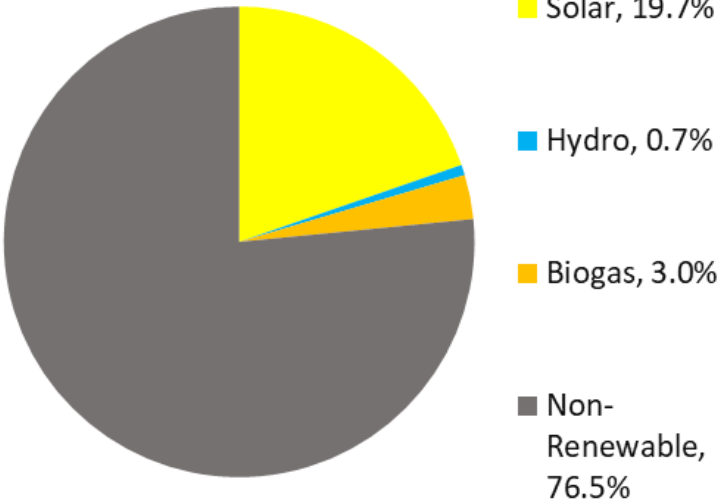
Customer's Generation Connections

by the end of 2020,

- ▶ LH enabled 423 customer generation connections
 - ▶ 89,710 kW of local power
 - ▶ 21,348 kW (23.5%) from renewable energy sources

City of London Generation Types

Local Generation - City of London



Locally Generated Electricity

Thinking of becoming a Renewable Energy Generator?



**Early
Consultation
is Key**

When planning a project, consult London Hydro as early as possible in the planning phase.

(Restricted Feeders)

This could save you major headaches and money down the road.

<https://www.londonhydro.com/accounts-services/generation>
generation@londonhydro.com

Locally Generated Electricity

Thinking of becoming a Renewable Energy Generator?



Generation Size Categories

< 10kW

- ▶ No Connection Impact Assessment (CIA) study required

10kW to 500kW

- ▶ London Hydro CIA study required

500kW to 10,000kW

- ▶ London Hydro and Hydro One Distribution CIA required

> 10,000kW

- ▶ London Hydro, Hydro One Dx, Hydro One TX and the IESO need to perform studies

Locally Generated Electricity

Thinking of becoming a Renewable Energy Generator?

Net Metering

- ▶ Must be renewable
- ▶ Can have batteries along with renewable
- ▶ Net Metering uses the LDC system as storage system
- ▶ Two-way flow

Load Displacement

- ▶ Behind the meter generation
- ▶ Can be any form of generation, however it is almost exclusively non-renewable
- ▶ Mainly natural gas
- ▶ Diesel backup
- ▶ Recently it has been BESS - ICI Program (IESO 5 peaks)
- ▶ Non-exporting

Locally Generated Electricity

Thinking of becoming a Renewable Energy Generator?



[ACCOUNTS & SERVICES](#) ▾ [OUTAGES](#) ▾ [PROJECTS & OPERATIONS](#) ▾ [ABOUT US](#) ▾ [SAFETY](#) [CAREERS](#) [Q](#)

ELECTRICITY RATES

GENERATION

CONSERVATION

WATER



Application to Connect

Fill out the application to connect a micro-generator to London Hydro.

[FILL OUT THE APPLICATION](#)

<https://www.londonhydro.com/accounts-services/generation>
generation@londonhydro.com

Conservation Demand Management (CDM)

Since 2013 London Hydro CDM programs

- ▶ reduced customers' electricity use by 231,046 MWh
- ▶ Reduced customers' GHG emissions by 8,044 t CO₂e

saveONenergy[™]

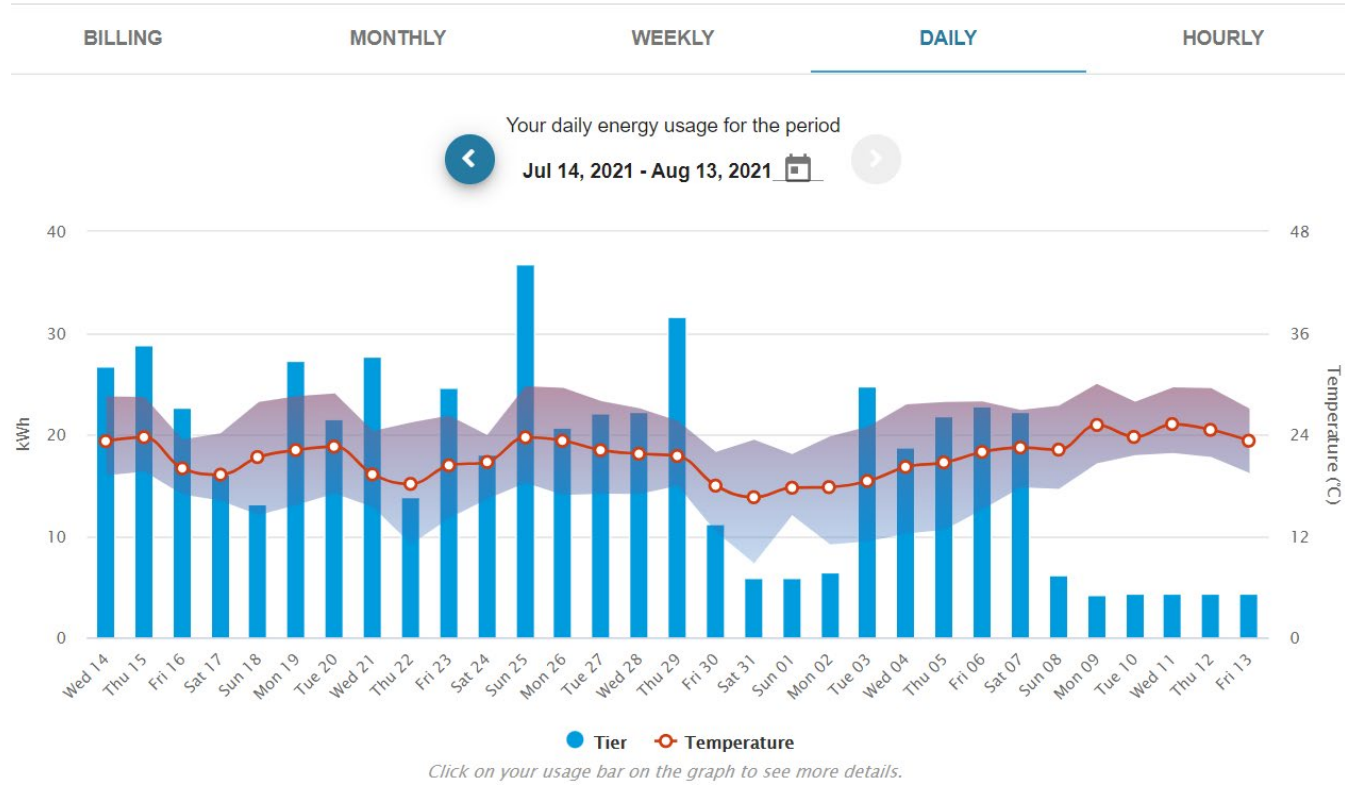


Customer Engagement Solutions

MyLondonHydro



- ▶ Utility account portal for electricity and water consumption, billing and notifications




























NOTIFICATION TYPE	EMAIL	SMS/TEXT	PHONE
Outage Where possible we will notify you if there is an outage affecting your electric service.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Outage Restoration Time Where possible, you will be notified of any changes in the expected time that power will be restored.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Overdue Payment Notifications When possible, you will be notified if \$100 or more is past due	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
High Electricity Usage Alert You will be notified if your weekly usage is more than your notification threshold. Click here to configure the notification threshold. (Your current alert threshold is 1 times your weekly average)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Continuous Water Flow ⁽ⁱ⁾ You will be notified if there is continuous flow of water. Click here to configure the notification threshold. (Your current alert threshold is 12 hours of continuous usage)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
High Water Consumption ⁽ⁱ⁾ You will be notified if your monthly usage is more than your notification threshold. Click here to configure the notification threshold. (Your current alert threshold is 13 m³)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Low Water Consumption ⁽ⁱ⁾ You will be notified if your monthly usage is less than your notification threshold. Click here to configure the notification threshold. (Your current alert threshold is 5 m³)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Property Management Portal

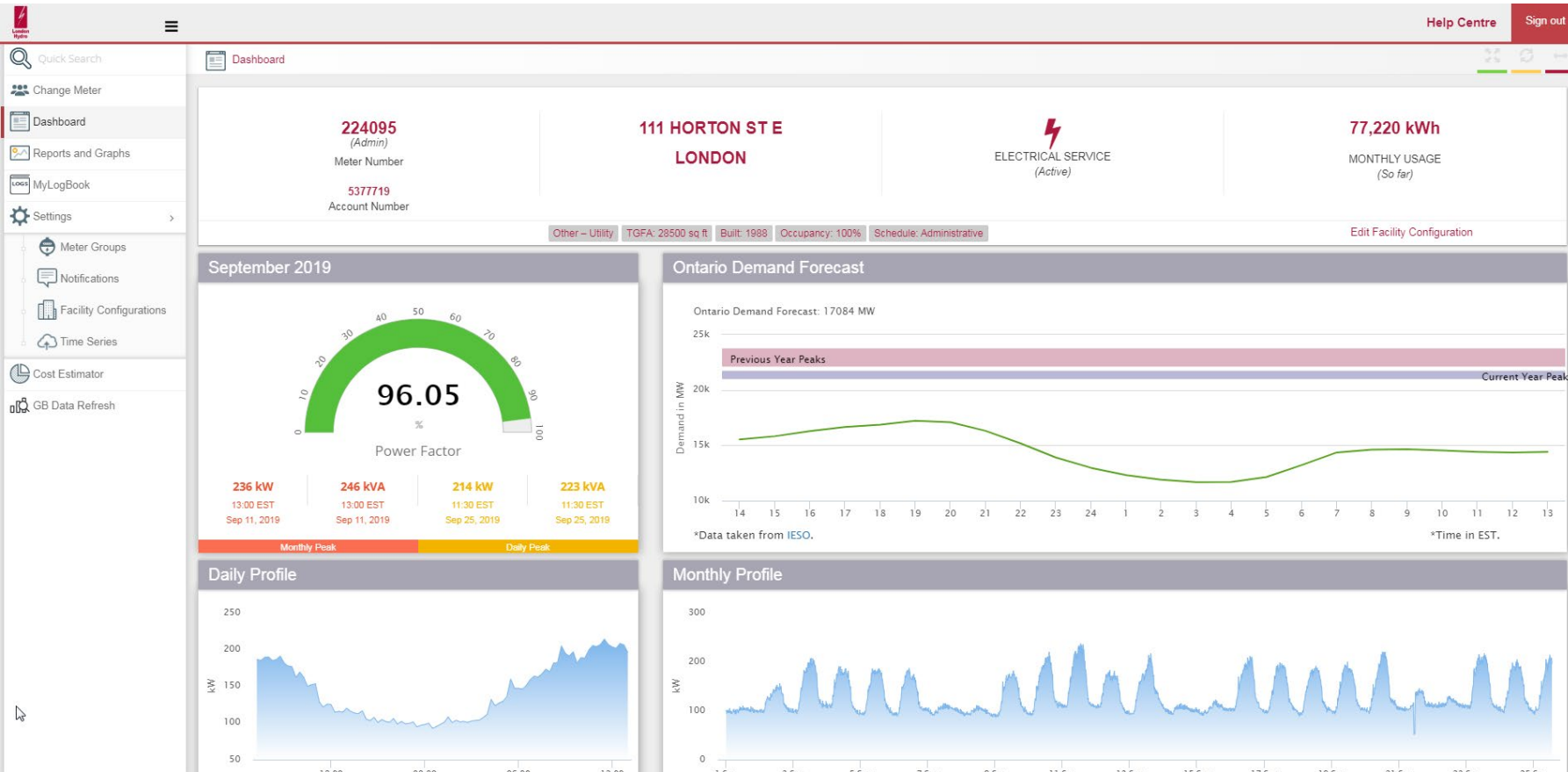
- ▶ Includes tools to assist Property Managers and their Delegates
- ▶ Supports Energy and Water Reporting and Benchmarking (EWRB)
 - ▶ 50,000 sq. Ft or larger commercial, industrial, multi-unit residential and other building types are required to annually report energy and water consumption to the Minister of Energy



 Upload Image	111 HORTON ST E LONDON ON N6B 3N9 Property Name: Add/Edit  Property Classification: Commercial  	8 Units + Show 	 
 Occupancy Tenant: 0 Owner: 8	 Service Status All connected	 CSA Enrolled  None	 Pending Moves No pending moves
 Upload Image	SOLAR - 3438 MANNING DR LONDON ON N6L 1K6 Property Name: Add/Edit  Property Classification: Commercial  	Consumption Details 	 
 Occupancy Owner occupied	 Service Status All connected  495005	 CSA Enrolled  None	 Pending Moves No pending moves

Interval Data Center / Commerce

- ▶ Commercial and Industrial Customers



INTERVAL DATA CENTRE

Learn more about your business' energy use and how to save with Interval Data Centre.



Granular Electricity Reporting
Uncover usage insights and inform collaboration



Cost Estimations
Perform "what if" calculations or prepare accurate estimates for accruals



Weather Data
Compare your usage to outside temperature or precipitation levels

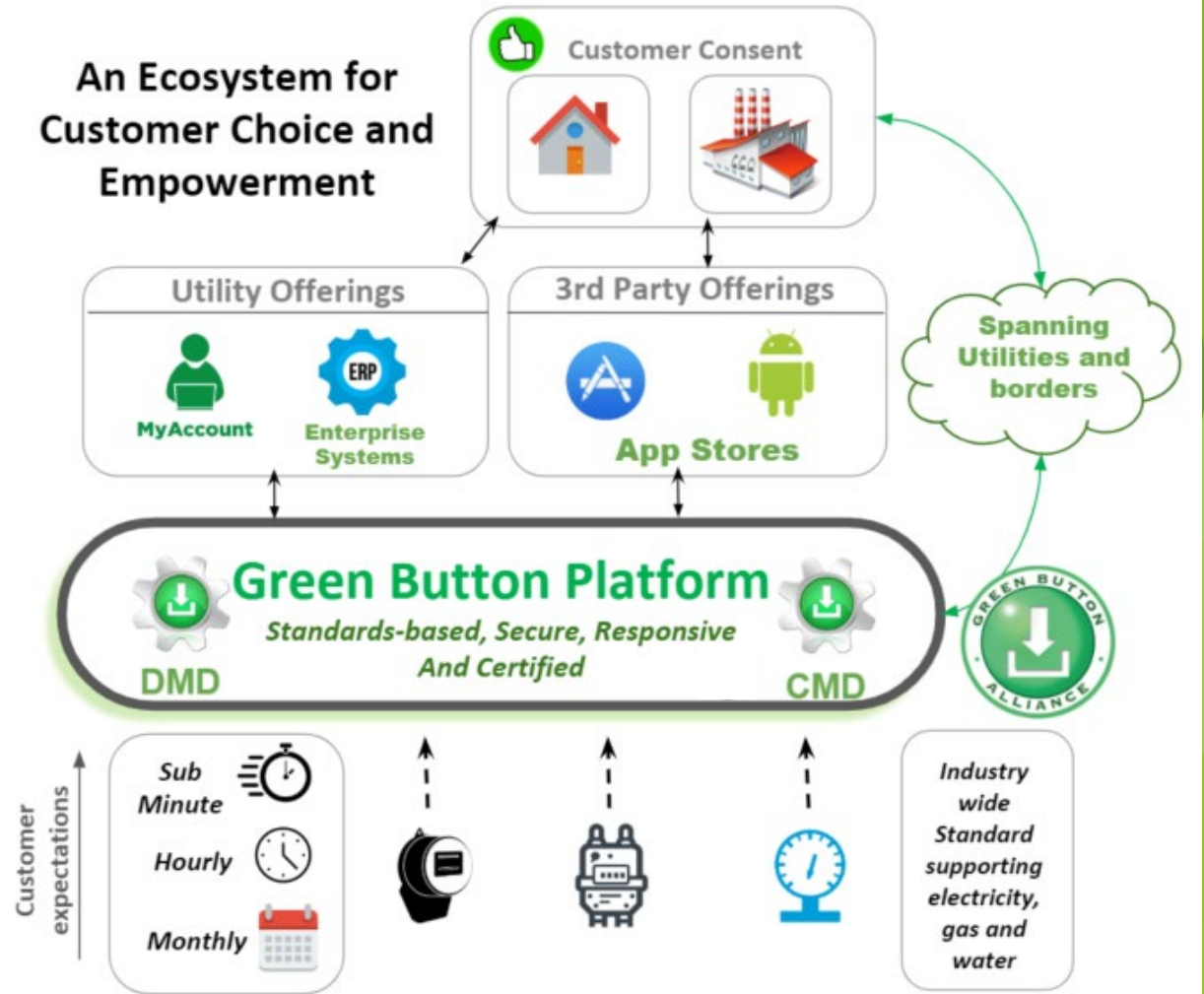


For more information, please contact idsupport@londonhydro.com

Green Button Required for Utilities by Nov 2023

The Green Button Initiative is an industry-led effort which:

- Enables **customer choice** of energy management software solutions, services and apps
- Enables **easy and secure access** to energy usage information in a consumer/computer friendly format
- Includes three types of data: **Electricity, Natural Gas, and Water Usage**
- Ensures customer **data privacy & secure transmission** of data
- Enables utility customers **better control** over energy usage, reduction of consumption, and lowering their costs



Sustainable Energy Pilots

Empowering Sustainable Energy Actions

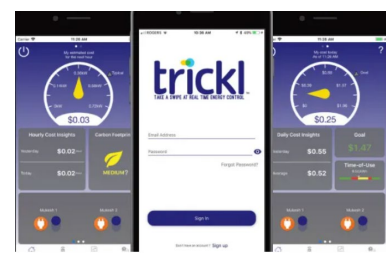
Piloted Innovative Electricity Price Plans

- ▶ real-time energy information program
- ▶ critical peak pricing program



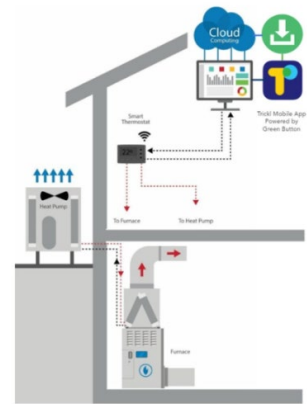
Plus Pilot energy conservation project

- ▶ smart home devices to test leading-edge energy management tools



London Hydro, Enbridge and City of London Pilot (2021)

- ▶ Advanced hybrid heating system
- ▶ high-efficiency gas furnaces and electric air-source heat pumps
- ▶ integrated smart controls integrates weather and fuel costs
- ▶ reduced energy costs and GHG emissions



Sustainable Transportation

EV charging pilot with Elocity informed customer actions

- ▶ real-time data for on/off control
- ▶ cost per charge & expected mileage per charge

London Transit Commission

- ▶ Engaged stakeholder
- ▶ Facilitating Electrification of Transit

EV Curbside Charging Stations

- ▶ Co funded, operate 6 downtown EV charging stations



Distributed Energy Resources

West 5 net-zero energy community - Utility Scale Smart Micro Grid

- ▶ Canada's first large-scale, fully integrated, net-zero energy community
- ▶ data management and communications
- ▶ electric vehicle infrastructure
- ▶ solar power generation
- ▶ battery storage



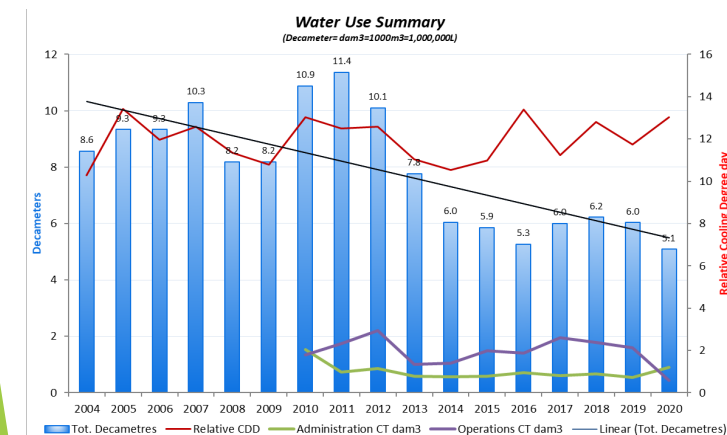
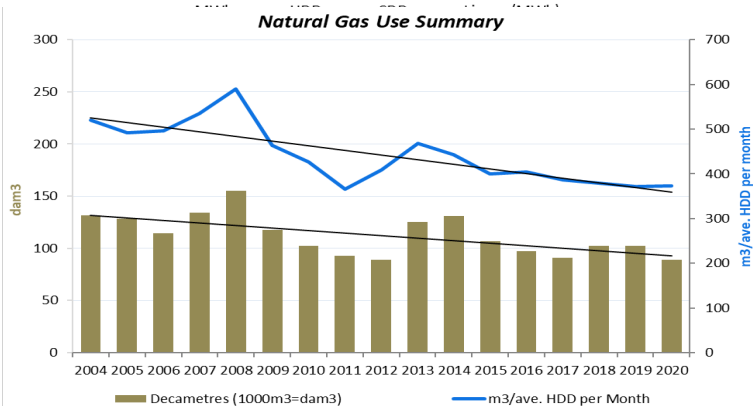
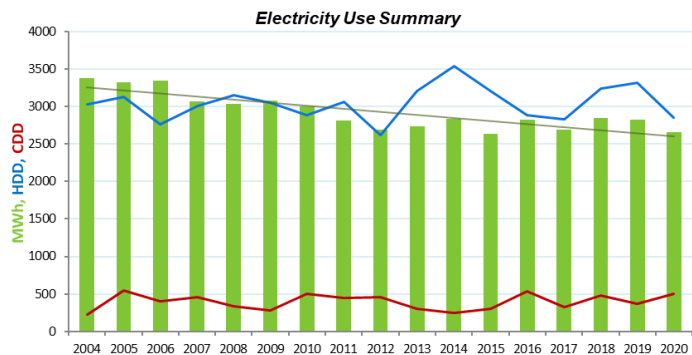


London
Hydro

Sustainability at London Hydro



Energy and Water Resources



Since 2004, London Hydro has reduced

- ▶ Electricity Use by 21.4%
- ▶ Natural Gas Use by 28.2%
- ▶ Water Use by 40.2%

In 2020, London Hydro owned solar installations

- ▶ Generated 465,399 kWh
- ▶ Representing 17.5% of 2020 electricity use



The Way We Move *Our Transportation and the Environment*

Fleet Management

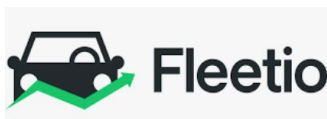
Idling and Fleet Management Systems

- ▶ Idling management systems saved 42,000 l (99 t CO₂e) in 2019 and 2020

Strategic Purchasing Plans

- ▶ 10 PHEVs, 17 Hybrids

Monthly Fuel Use Summary



The Way We Green *Our commitment to the Environment*

Raw Material Use

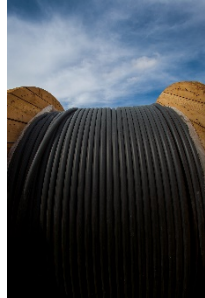
Reduce



- ▶ Think B4U Print
(215 trees since 2013)*
- ▶ Aeroplan® Paperless Billing (70,000 customers)
(≈ 1,500 trees since 2014)
- ▶ Σ 1,715 trees saved (both programs)

* source: conservatree.org
1 tree = 8,333 sheets
1 ton paper (907.2 kg) = 12 trees

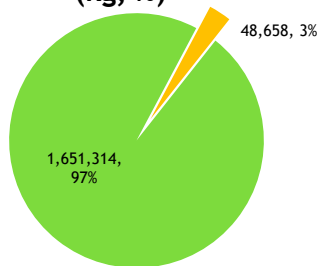
Reuse



- ▶ 270 refurbished transformers (TE) in 5 years
170 tonnes of raw materials
- ▶ 350 km of cable injected in last 10 years
548 tonnes of raw material
- ▶ Total 718 t of raw material (TE & Cable)

Recycle

2020 Waste vs Recycling
(kg, %)



- ▶ App. 1,651 tonnes recycled



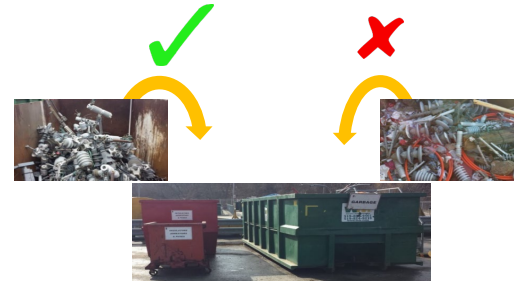
The Way We Green

Our commitment to the Environment

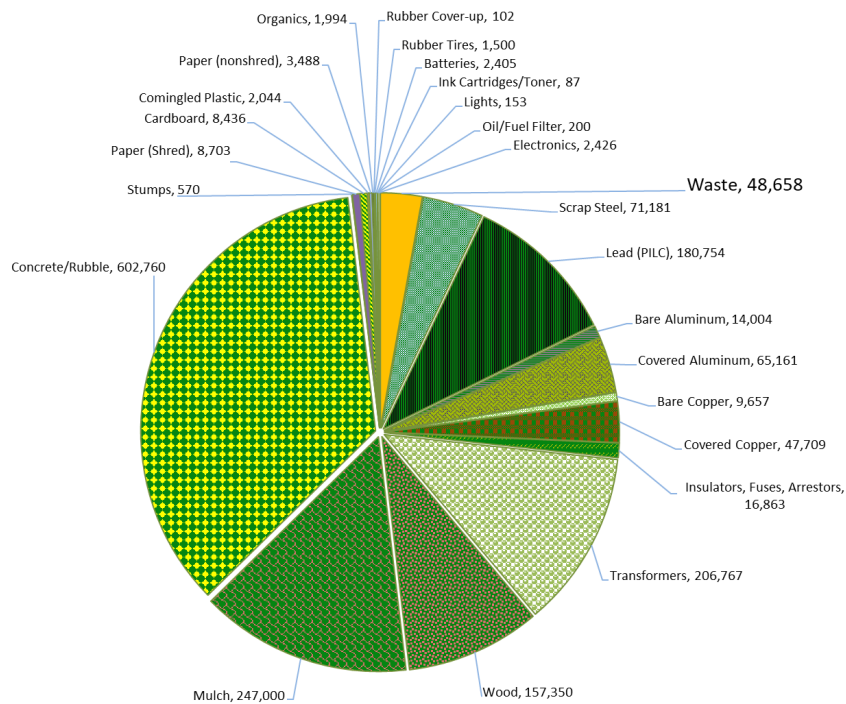
Landfill Waste

Recycling to Reduce Waste to landfill

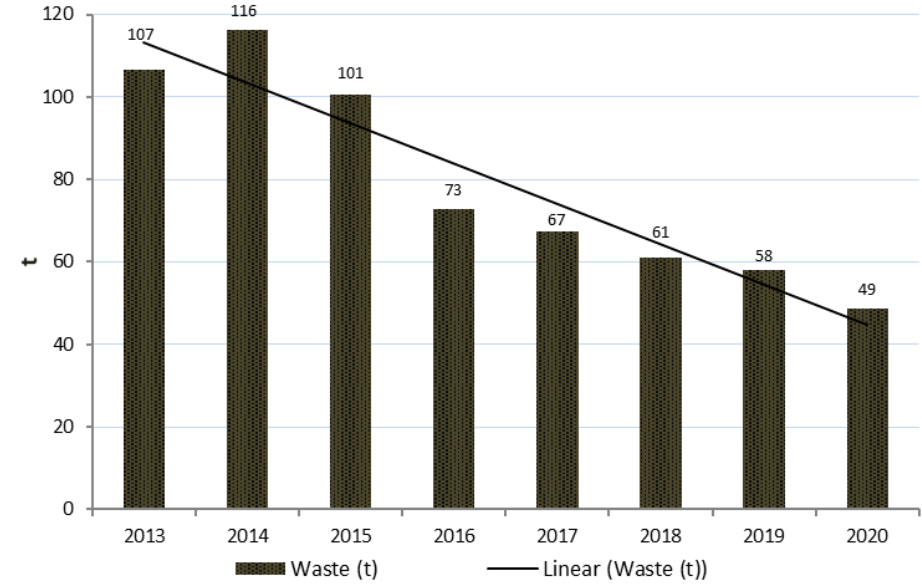
- 54% landfill waste reduction since 2013
- Insulator Diversion Program
 - ▶ 111.2 tonnes YTD since 2016



2020 Waste & Recycling Profile (kg)



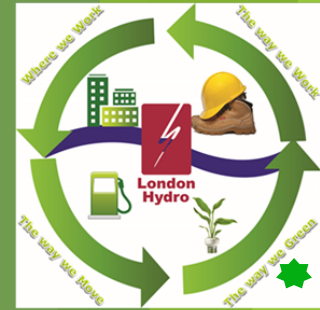
Landfill Waste (t)



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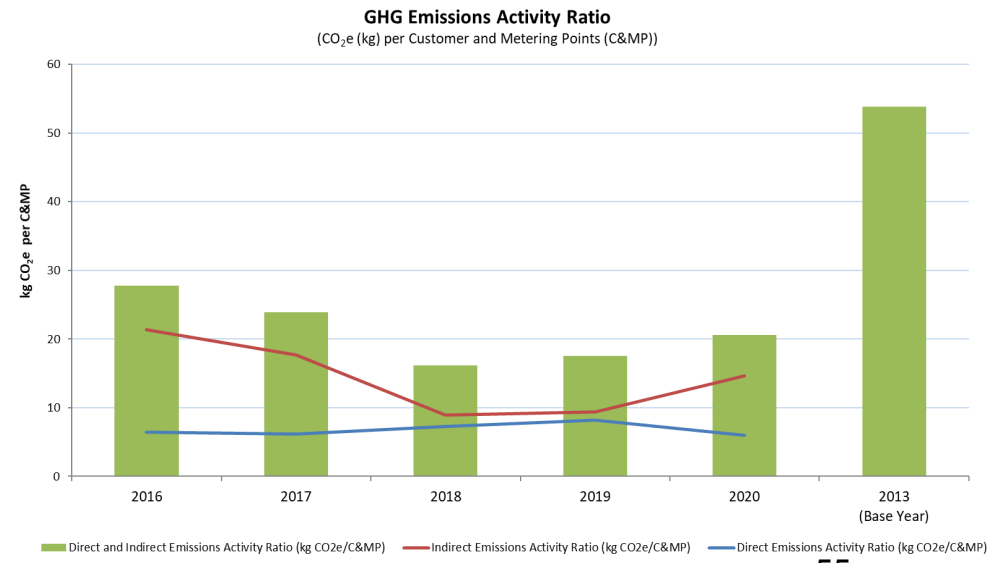
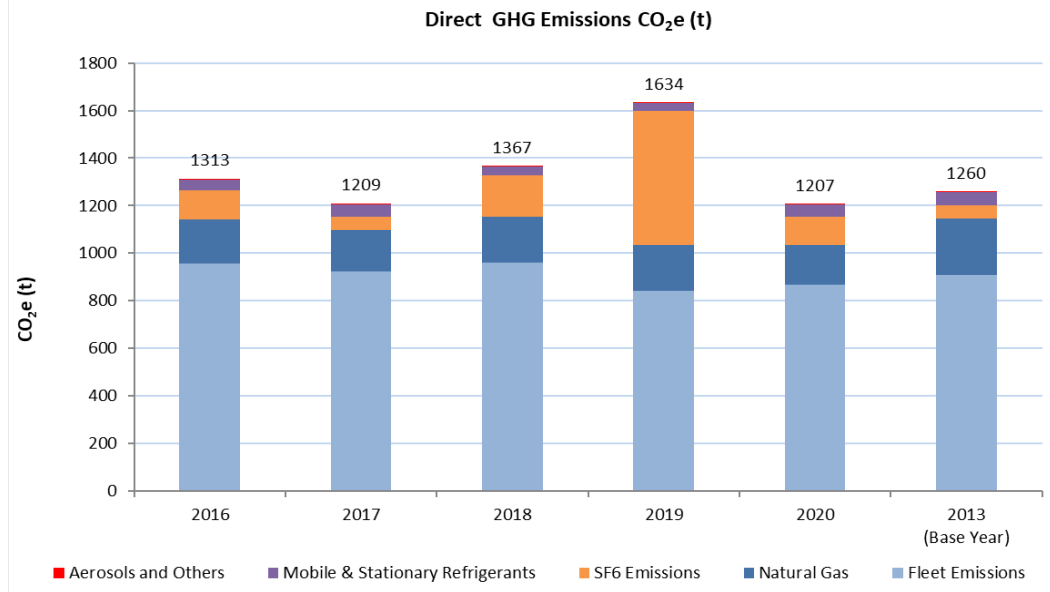
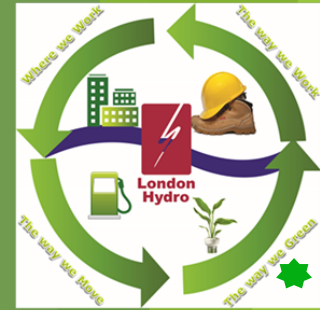
Community Engagement and Communications

- ▶ Annual Earth Day Cleanup Event
- ▶ Annual Environmental Sustainability Report
 - Annual Carbon Footprint



The Way We Green *Our commitment to the Environment*

London Hydro's GHG Emissions





QUESTIONS

London Hydro

