

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.



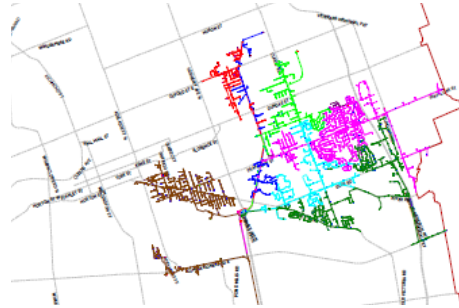
Ontario's 21 Planning Regions

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

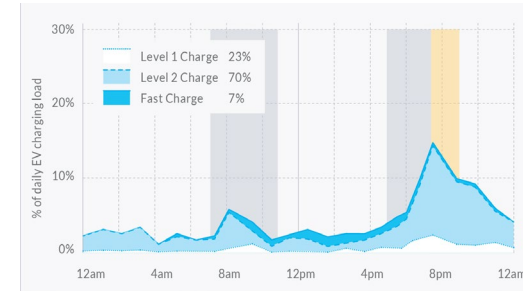
See the IRRP: <https://www.ieso.ca/en/Get-Involved/Regional-Planning/Southwest-Ontario/London-Area>

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



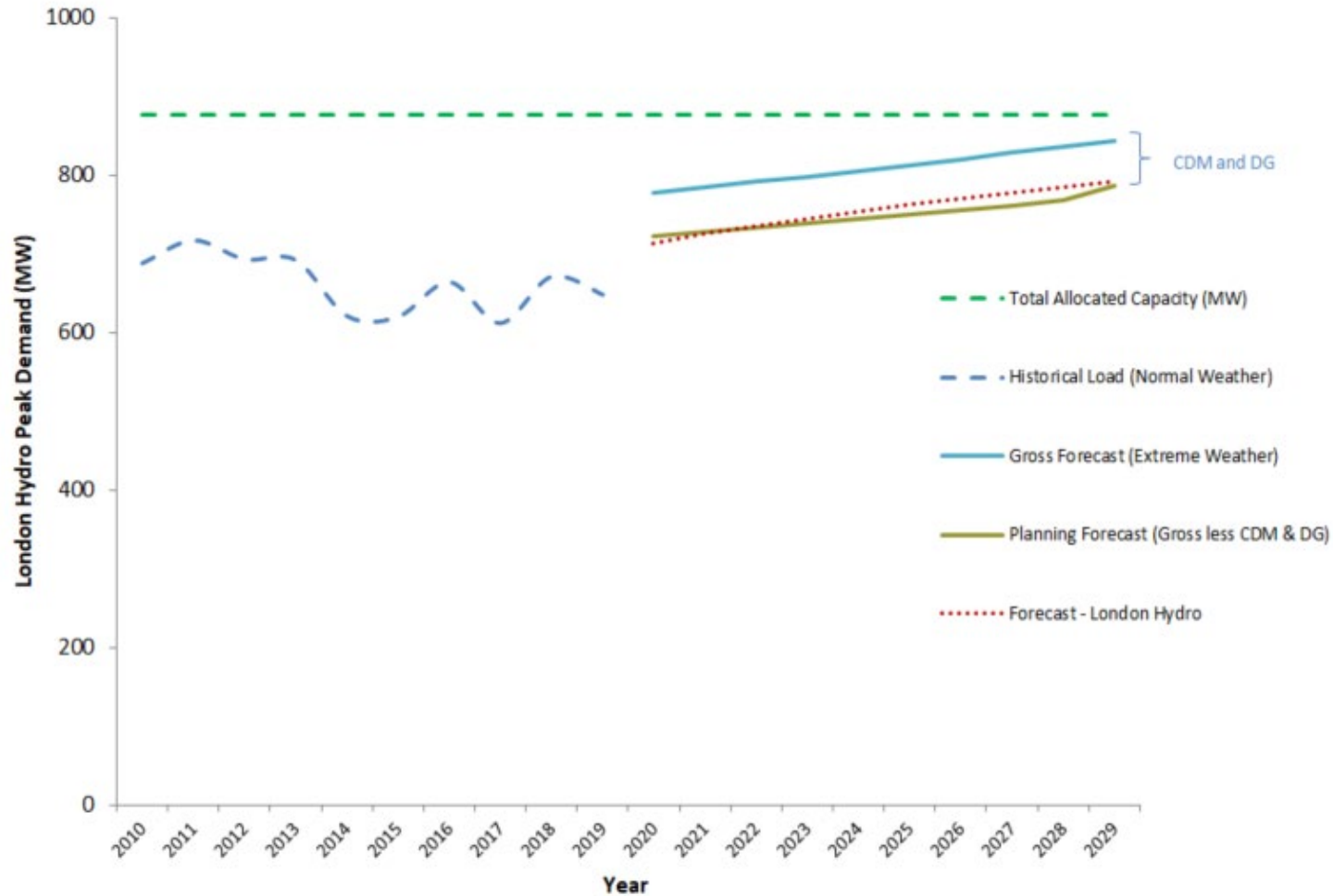
- ▶ Engaged with LTC regarding electrification of the transit system



Capacity Planning



London Hydro

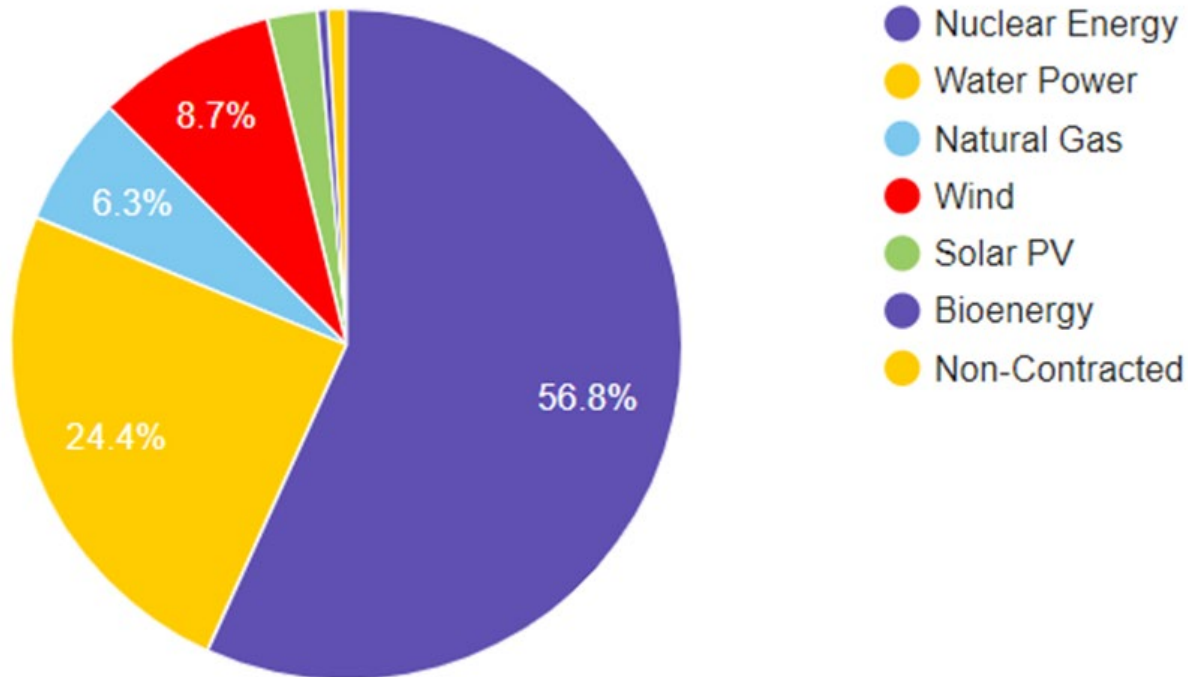


- ▶ Sufficient capacity for at least 10 years
- ▶ Margin for unexpected load growth due to EVs, fuel switching, new customers

Ontario's Electricity Supply

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

Ontario System-Wide Electricity Supply Mix: 2020 Data



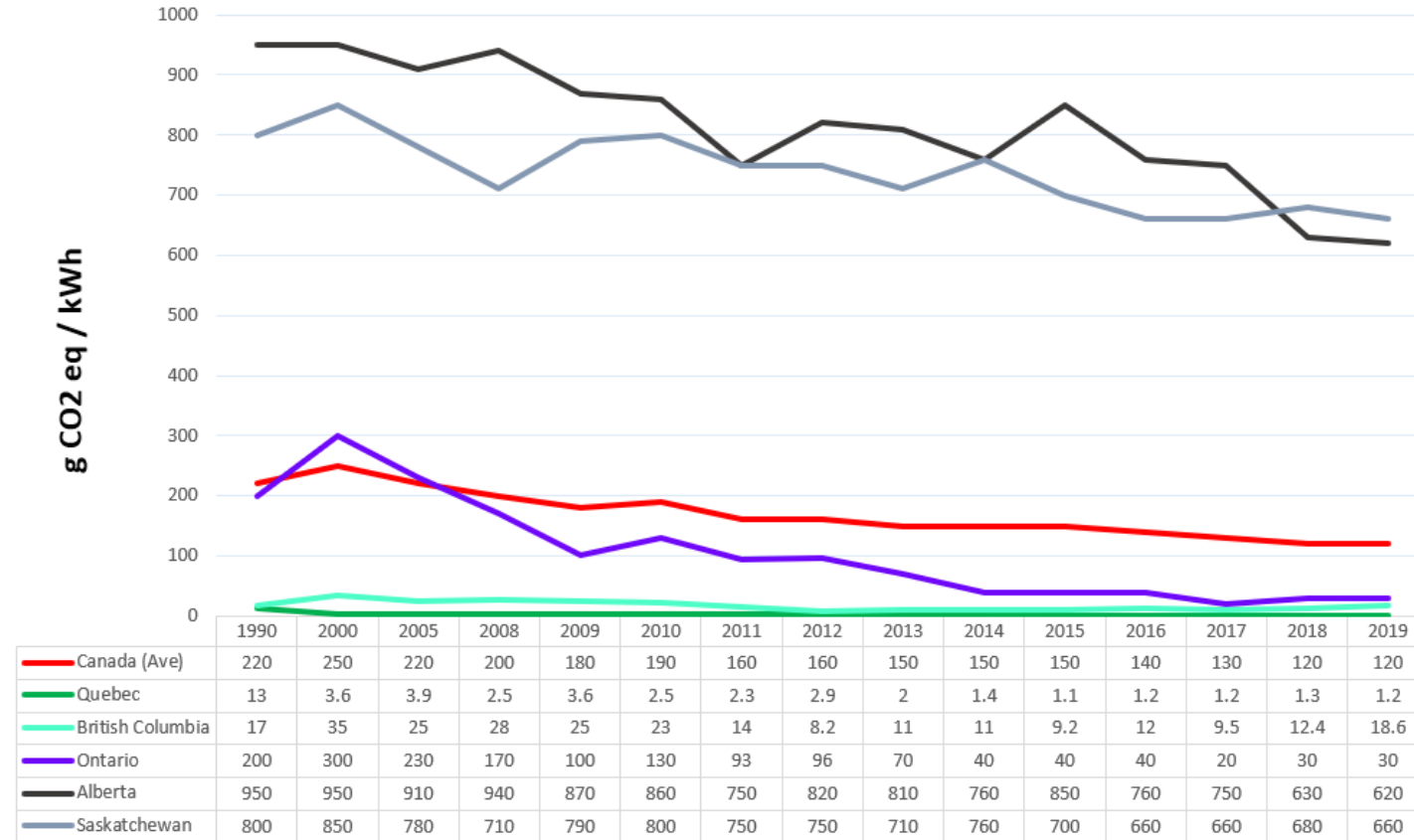
Electricity sources*	%
Nuclear Energy	56.8
Water Power	24.4
Natural Gas*	6.3
Wind	8.7
Solar	2.4
Bioenergy**	0.5
Non-Contracted***	0.9

- * 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

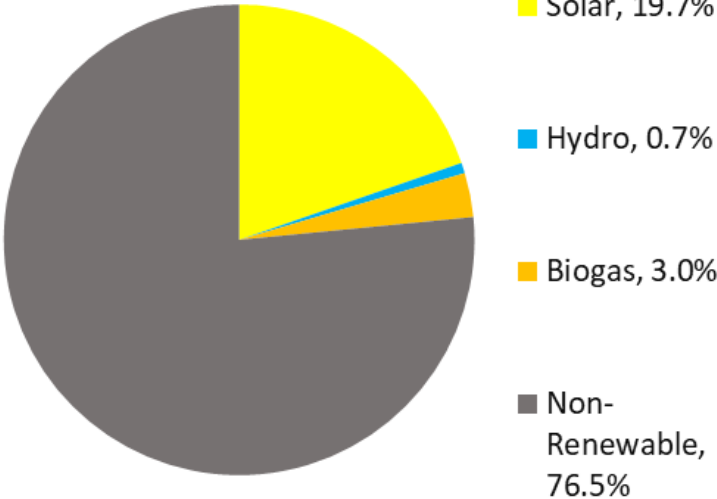
Customer's Generation Connections

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

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

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[™] OM

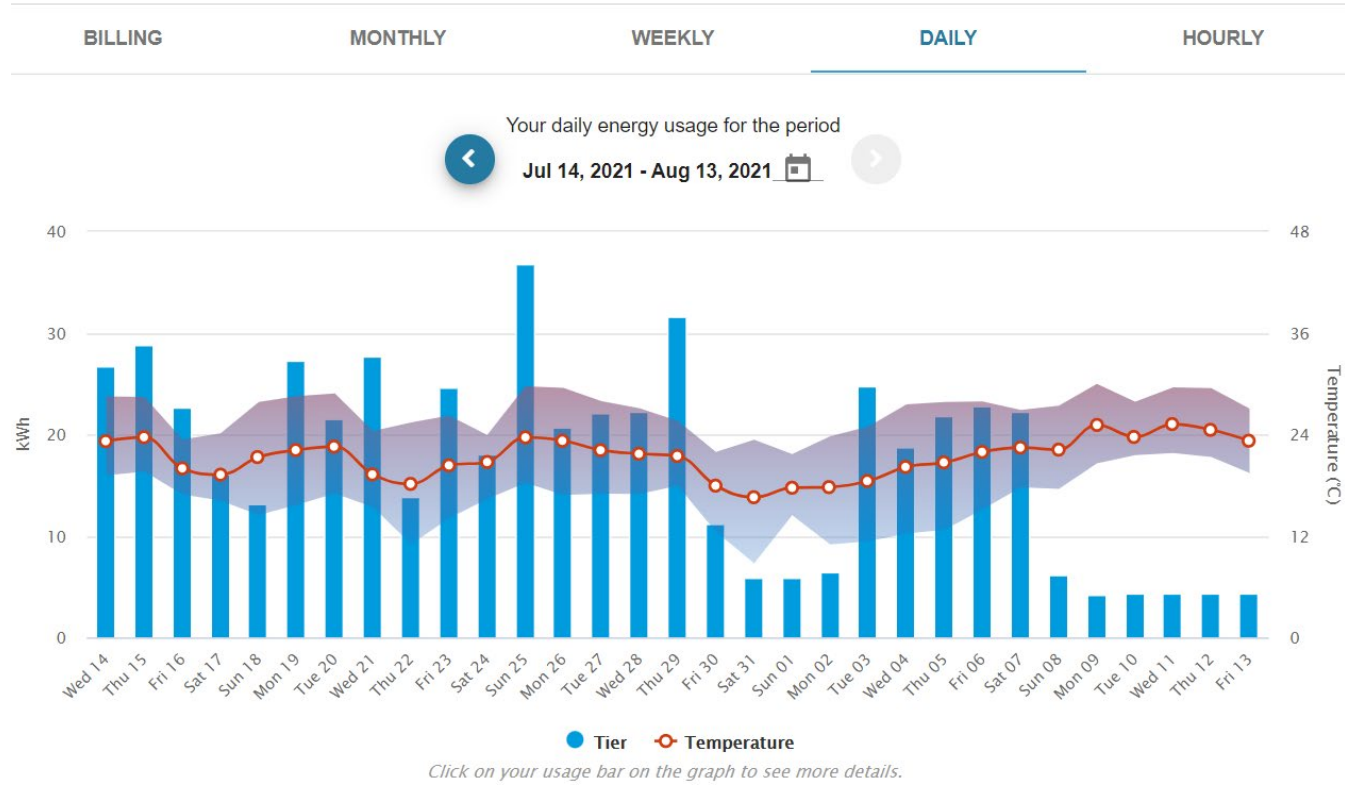


Customer Engagement Solutions

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 ⓘ 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 ⓘ 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 ⓘ 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

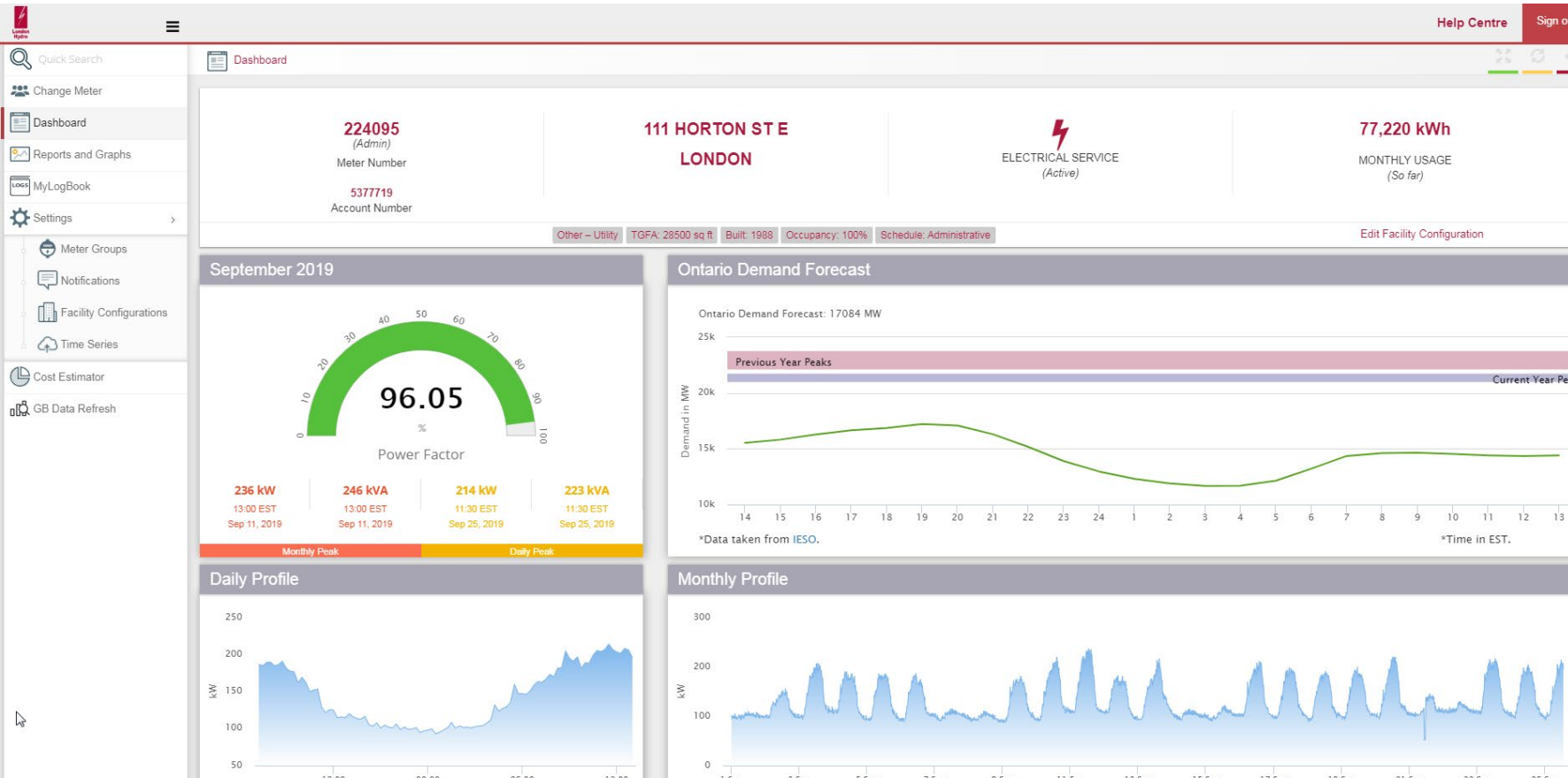
- ▶ Includes tools to assist Property Managers and their Delegates
- ▶ Supports Energy and Water Reporting and Benchmarking (EWRB)
 - ▶ 50,000 sq. Ft or larger commercial, industrial, multi-unit residential and other building types are required to annually report energy and water consumption to the Minister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



 Upload Image	111 HORTON ST E LONDON ON N6B 3N9 Property Name: Add/Edit  Property Classification: Commercial  	8 Units + Show EWRB Download Usage Data	 
 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 EWRB Download Usage Data	 
 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

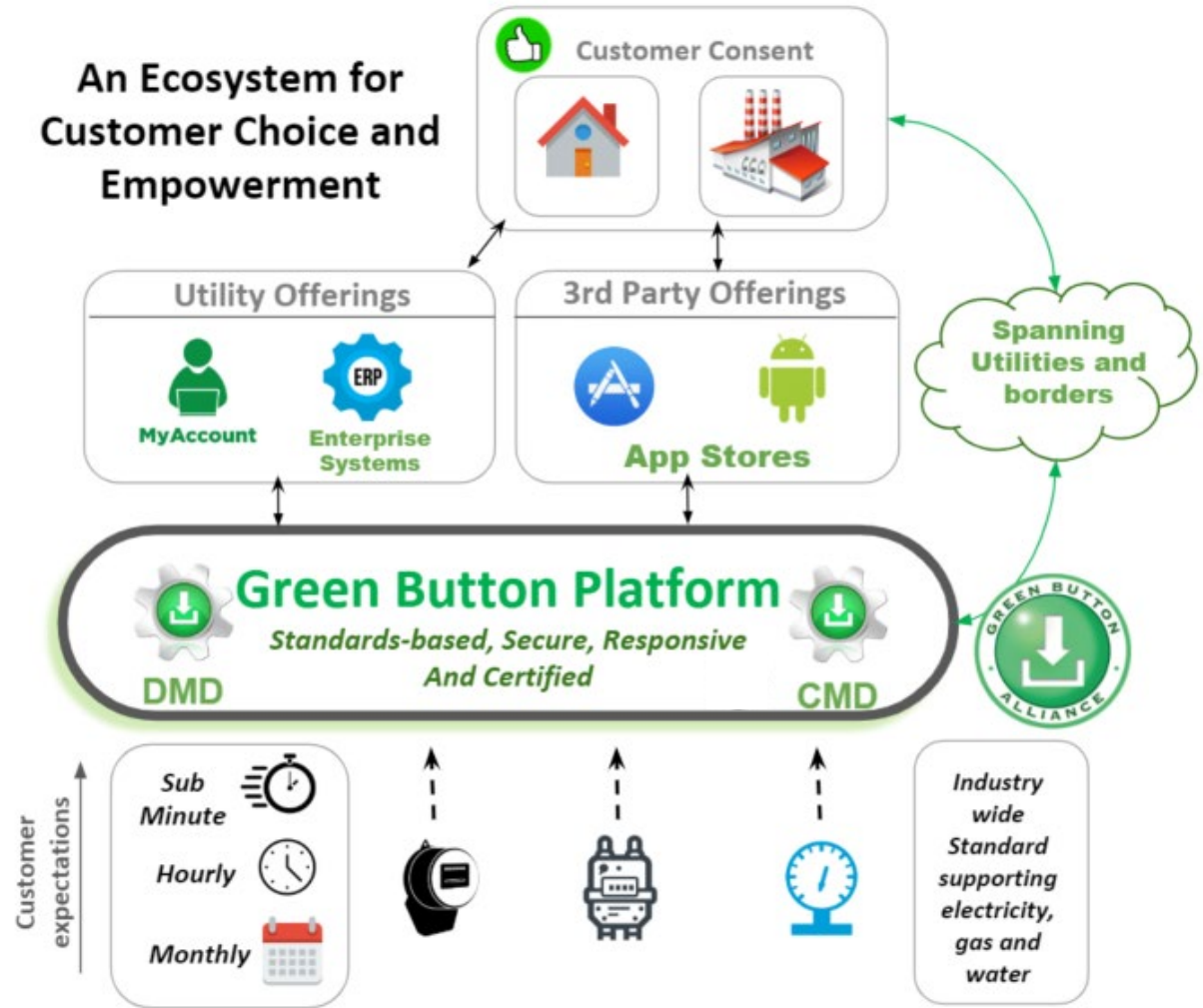


For more information, please contact idsupport@londonhydro.com

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

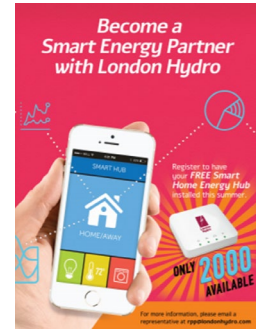


Sustainable Energy Pilots

Empowering Sustainable Energy Actions

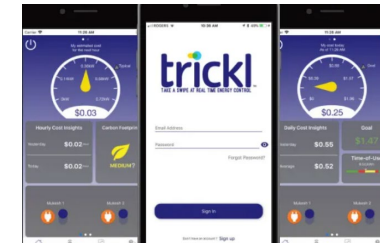
Piloted Innovative Electricity Price Plans

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



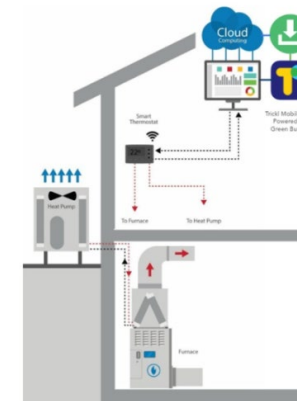
Plus Pilot energy conservation project

- ▶ 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



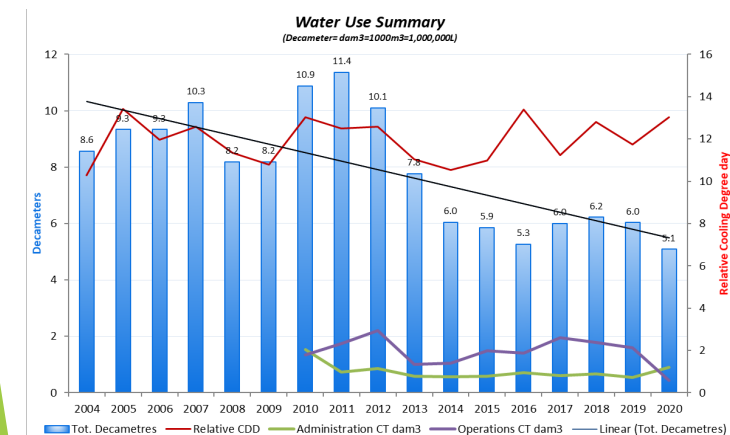
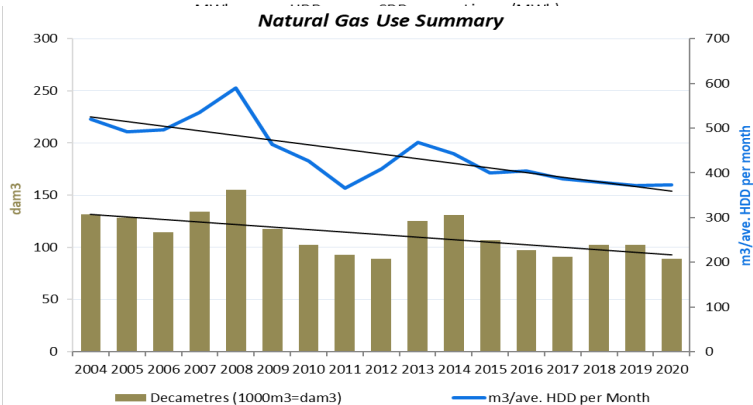
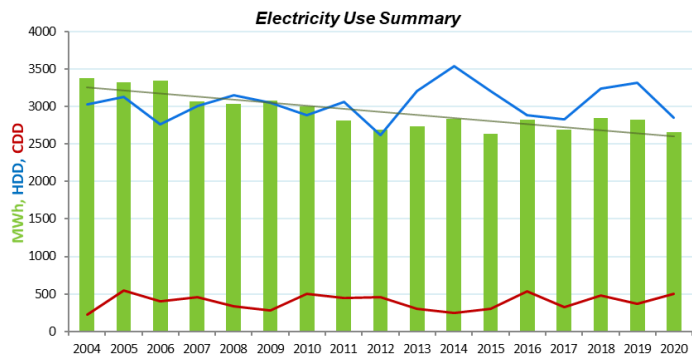


**London
Hydro**

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

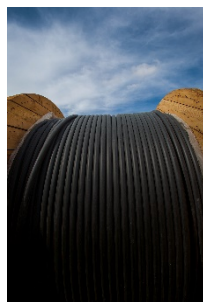
Reduce



- ▶ 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

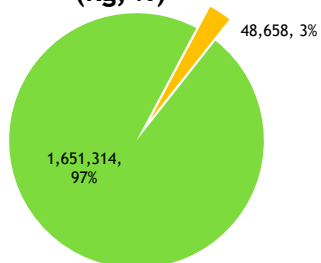
Reuse



- ▶ 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



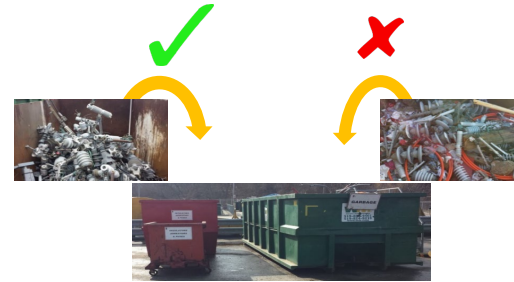
The Way We Green

Our commitment to the Environment

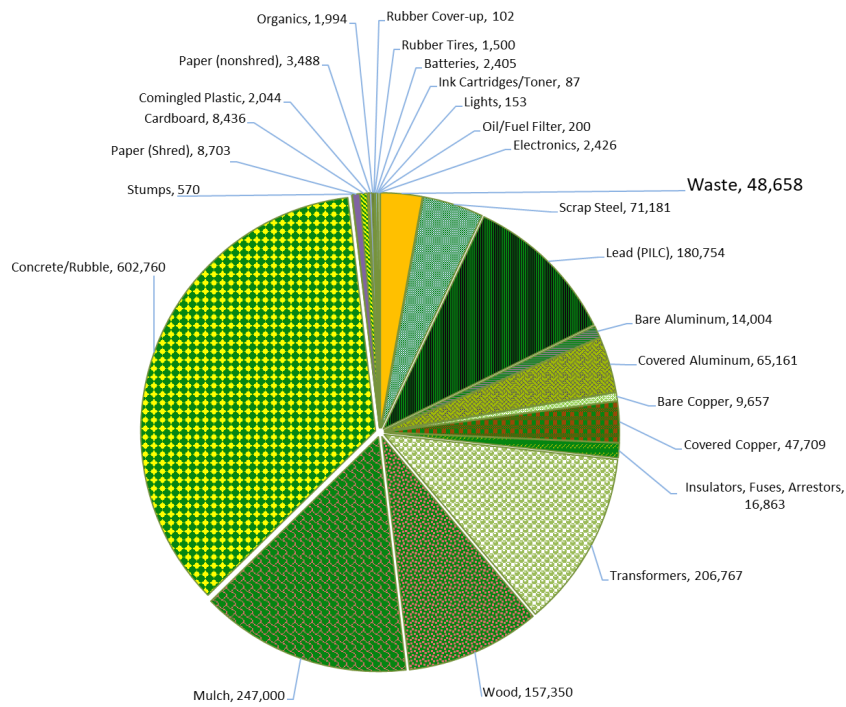
Landfill Waste

Recycling to Reduce Waste to landfill

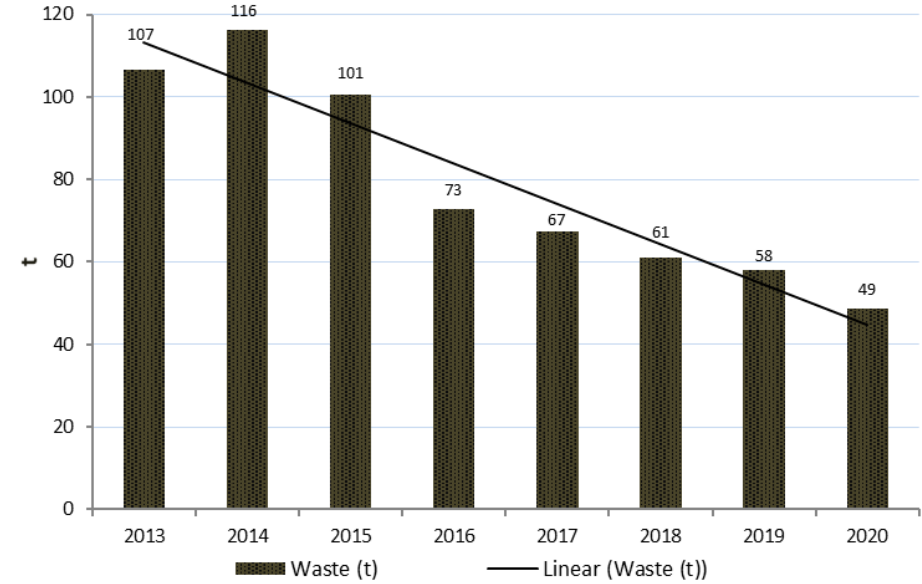
- 54% landfill waste reduction since 2013
- Insulator Diversion Program
 - ▶ 111.2 tonnes YTD since 2016



2020 Waste & Recycling Profile (kg)



Landfill Waste (t)



The Way We Green *Our commitment to the Environment*

Community Engagement and Communications

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



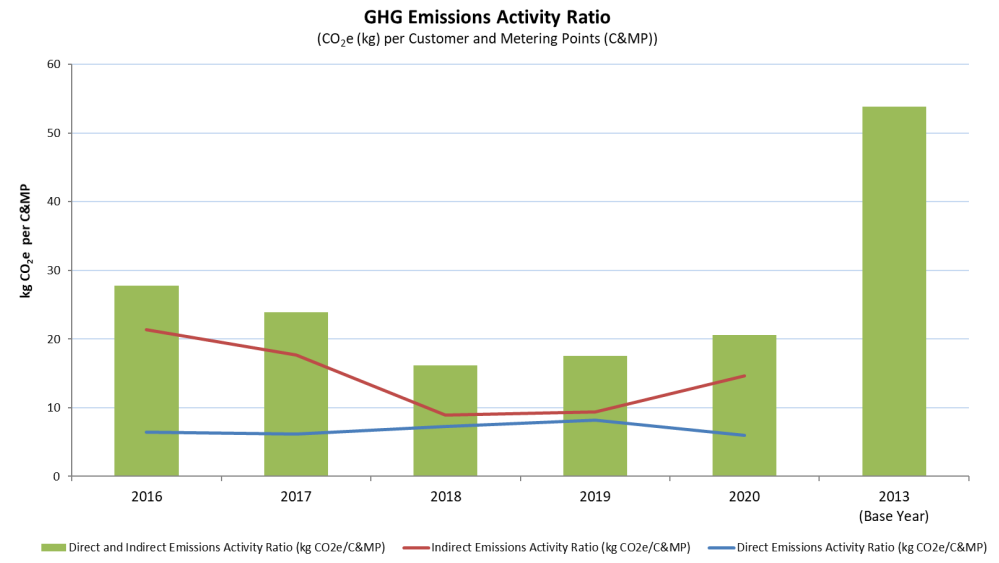
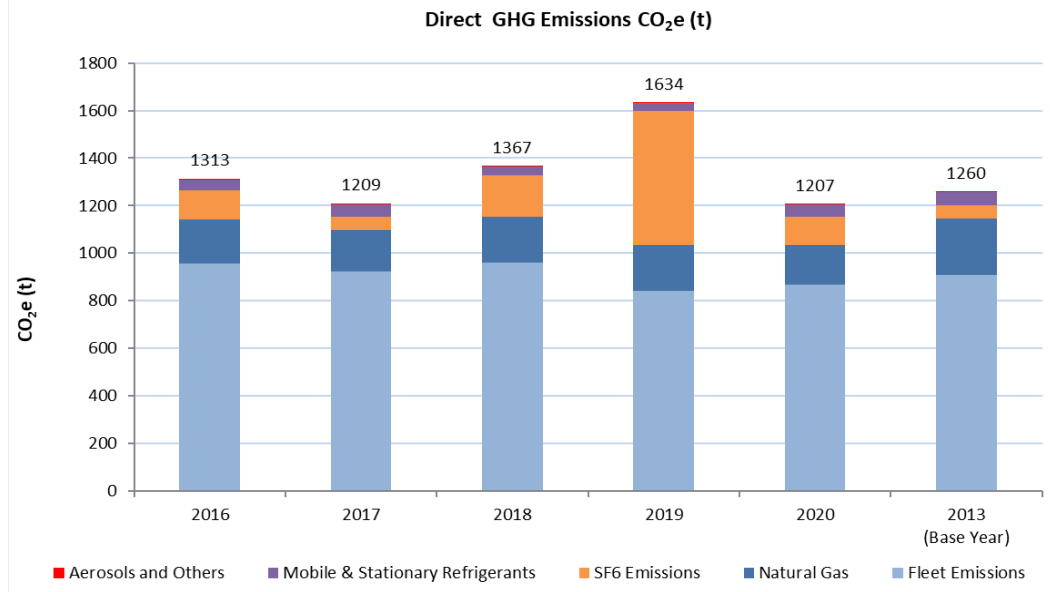
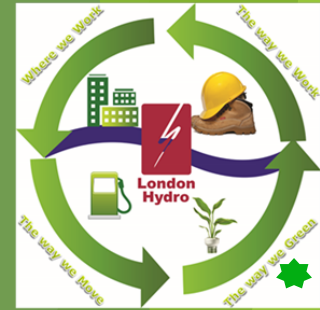
ENVIRONMENTAL SUSTAINABILITY REPORT



2020

The Way We Green *Our commitment to the Environment*

London Hydro's GHG Emissions





QUESTIONS

London Hydro

