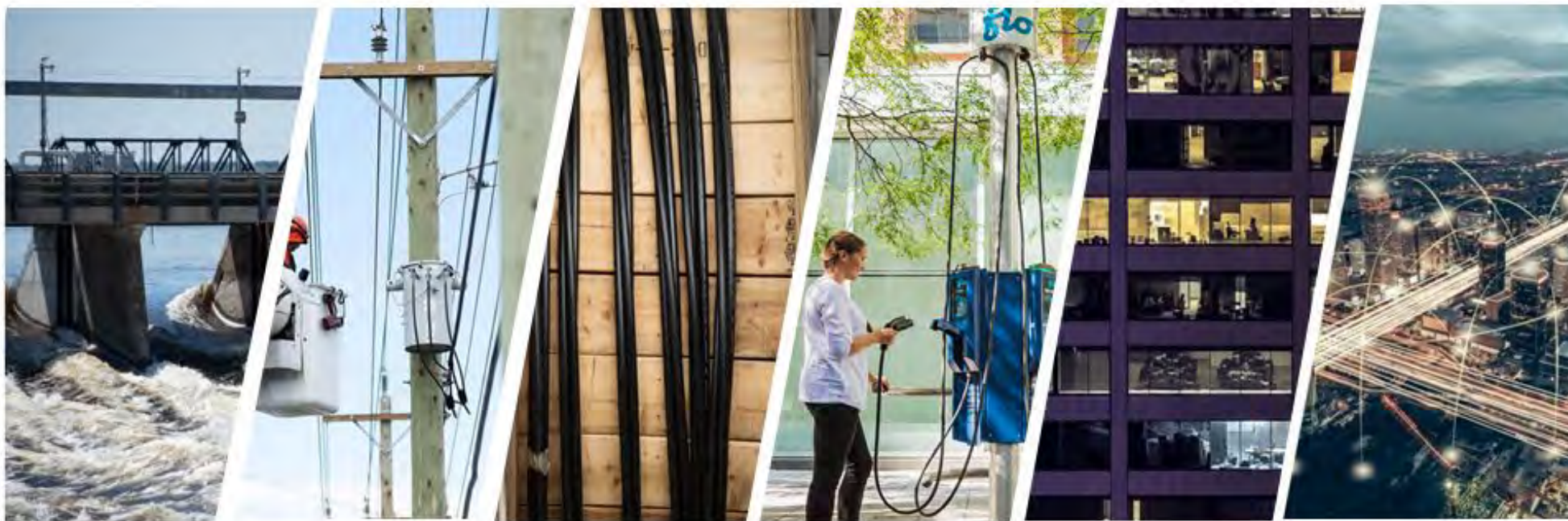


Efficacité Énergétique et Gestion de la Demande chez Hydro Ottawa



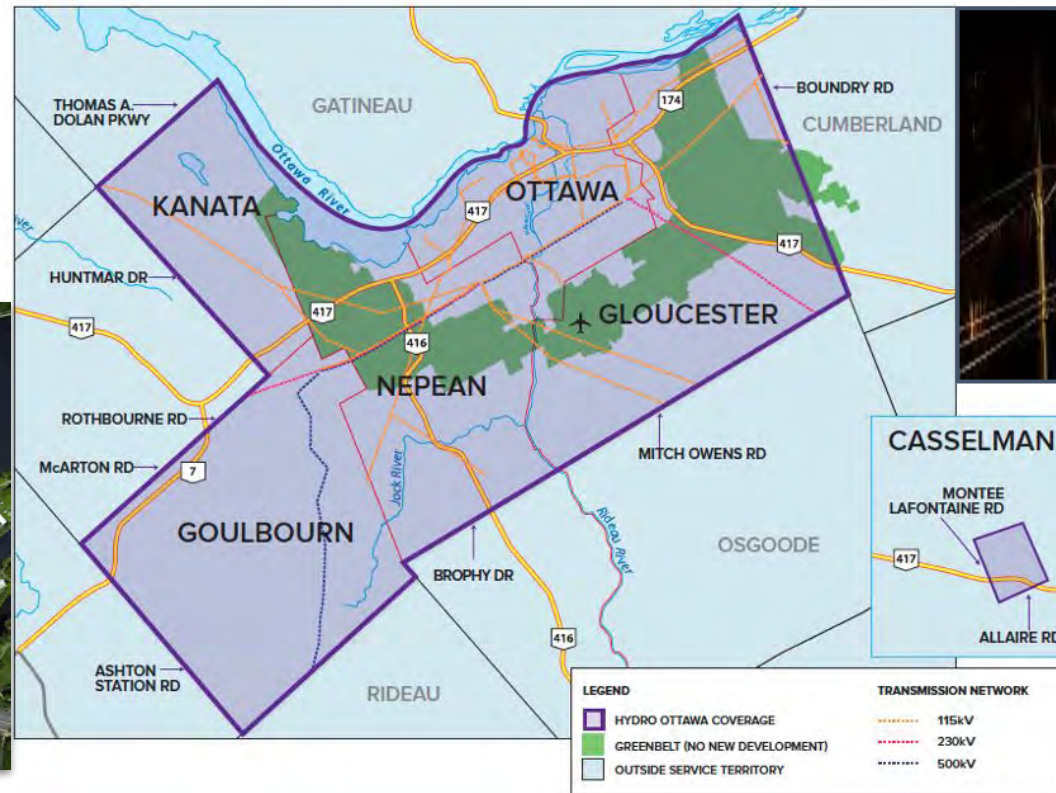
3 Novembre, 2021

Who We Are

About Hydro Ottawa Holding Inc.

Hydro Ottawa Holding Inc. is a private company wholly-owned by the City of Ottawa

- Hydro Ottawa Holding Inc owns and operates \$1.9 billion of high quality capital assets generating \$258 million in net revenue and \$34 million in net income for 2020



Who We Are

About Hydro Ottawa Holding Inc.

Hydro Ottawa operates and is growing in various market segments within the energy sector.



Hydro Ottawa Holding Inc. has **3** subsidiary companies:



Hydro Ottawa Limited is the third largest local distribution company in the province, **delivering electricity to 346,000 homes and businesses** in Ottawa and the village of Casselman.

- Ranks in the top quarter of electricity distribution companies for lowest costs per customer.



Portage Power is Ontario's **largest municipally-owned producer of green power**, with hydroelectric, solar and landfill gas-to-energy generation facilities.

- The Chaudière Falls expansion project, the largest capital project in Hydro Ottawa's history, increased Portage Power's total renewable capacity to 128MW—equivalent to powering 107,000 homes.



Envari offers a wide range of energy solutions to help large commercial, industrial, municipal and utility clients **manage and reduce their energy consumption**.

- Envari's streetlight conversion project with the city of Ottawa has surpassed 50,000 installations and is on track to be completed in 2020; saving the city \$5M a year and 60 per cent off its streetlighting costs.

Energy Conservation in Ontario

The Past



LDC's led conservation program delivery for almost a decade with electricity use declining in ON during that period

- Declines due in large part to Ontario's extensive efforts to encourage people to use electricity more efficiently
- SaveONEnergy Brand/Programs contributed to a culture of conservation in the Province
- From 2011-2019, electricity distributors were required, as a condition of their licence, to deliver conservation programs, in accordance with assigned targets.
- The 2015-2020 Conservation First Framework delivered by LDCs with centralized funding from the Independent Electricity System Operator, was the most cost-effective CDM framework in recent history.
- Business programs were delivered at an amortized system cost of under 1.5¢/kWh, making it the most cost-effective energy resource.
- LDCs outperformed expectations from 2011-2019, and became trusted energy advisors to Ontario's businesses and families



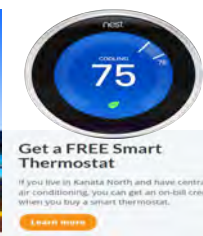
Energy Conservation in Ontario

The Past



In 2019, Conservation in Ontario shifted from LDC delivered to private sector-delivered, but in both cases, centrally administered by the IESO

- LDCs license conditions were amended
- 2015 to 2020 Conservation First Framework was discontinued but LDCs continue to support the wind down of legacy customer projects initiated under that framework.
- A new 2019-2020 Interim Framework (IF) was established
- Some CFF programs cancelled, 8 remained
- New IF Provincial Targets and Budgets established
- IESO Interim Framework Results: \$353M invested in EE projects, 1.5 TWh total electricity savings, 186.4 MW total demand savings across Ontario
- Hydro Ottawa delivered a Poolsaver program and 2 local CDM programs under the Interim Framework that targeted areas of our grid experiencing extensive growth (Kanata North)



Energy Conservation in Ontario

What's Ahead

In 2021, IESO established the 2021-2024 Framework

- Remains centrally administered by the IESO, with program delivery competitively procured.
- 5 commercial programs and an income-based residential program
- Framework also includes IESO's Local Initiatives Program (LIP) and some Provincial programs that are/will be delivered by 3rd parties
- The LIP will procure CDM in targeted regions of need, with Hydro Ottawa being one of those regions.
- Hydro Ottawa intends to work collaboratively with the IESO on the Local Initiatives Program in Ottawa, to address system needs with CDM.
- 2021-2024 CDM Framework Target and Budget:
- 440 MW Peak Demand, 2.7 TWh of electricity savings
- Up to \$692 M

2022 and Beyond: Hydro Ottawa's CDM Strategy

What's Ahead

Since late 2021, HOL is also leading its own CDM Strategy

- In 2020, Hydro Ottawa was successful in our rate application request to build a small CDM team. Why?
- Leverage LDC Trusted Energy Advisor Status
- Augmented Customer Experience / Increased Customer Value
- Guiding customers through our changing energy landscape and energy efficiency journey
- Further explore energy efficiency as Non-Wire Alternatives
- Support the City of Ottawa's Climate Change Strategy



CVR and Non-Wire Alternatives

Ex: Deployment of Varentec Devices

Primary Objectives:

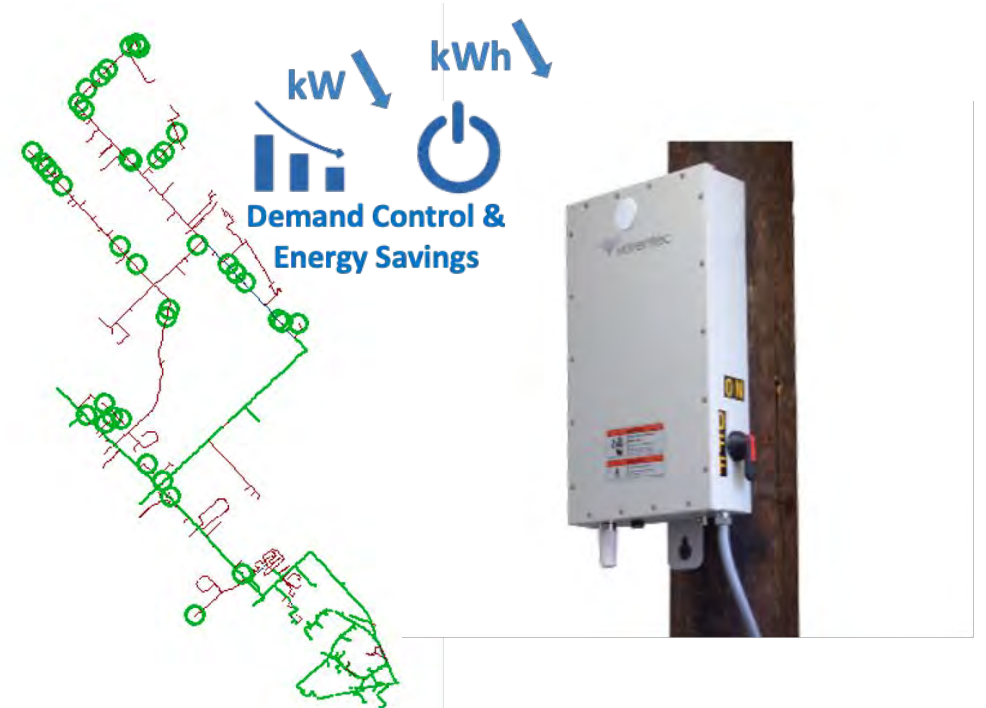
- Increased Visibility in the Field
- Voltage Support (4.57% Voltage Boost)
- Peak Demand Reduction (2,120 kW @ 66.55 MW Peak)

Secondary Objectives:

- Energy Savings (12,962 MWh)
- Technical Loss Reduction
- Environmental Benefits

Opportunity:

- Voltage Fluctuation: Dynamic VAR Controllers (DVCs) at the point of load ensure tight regulation of voltage during heavy loading condition or sags caused by abnormal situations.
- Conservation Voltage Reduction: CVR can be used to achieve significant reduction in peak demand and energy usage without directly impacting the end-users.
- Non-Wires Alternative: Defer capital expenditure (CAPEX) on equipment upgrades or load reduction through new substation construction, load shedding etc.



The Results:

Annual Estimates Based on 2019-20 Kanata MTS Data:

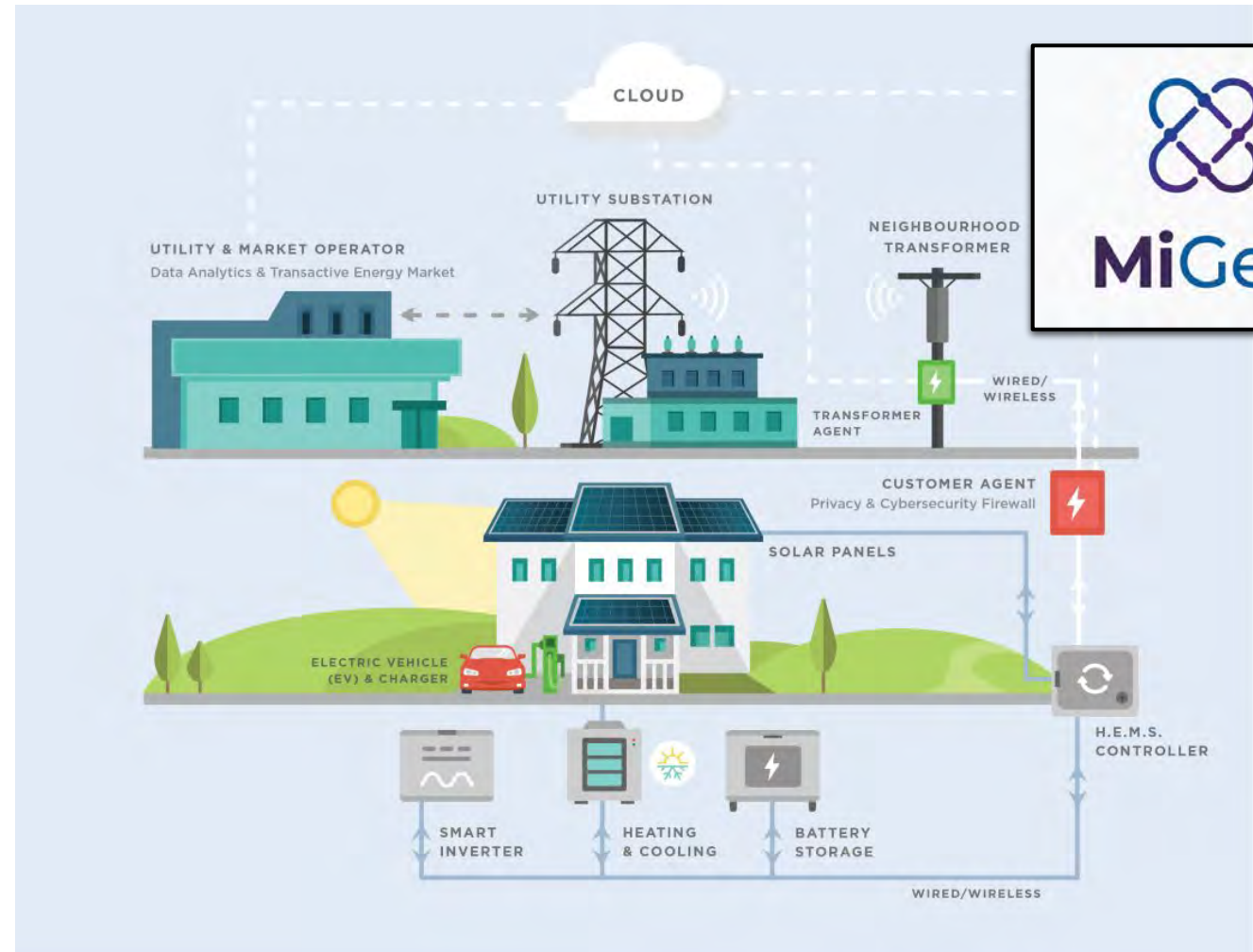
- Energy Savings:
 - **~ 10,500 MWh saved or 3.77% of annual energy consumption**
- Peak Demand Reduction
 - **~ 1.63 MW shaved or 3.06% of annual peak load**

Ensuring Effective Coordination of Energy Resources

MiGen Program

A Transactive Grid

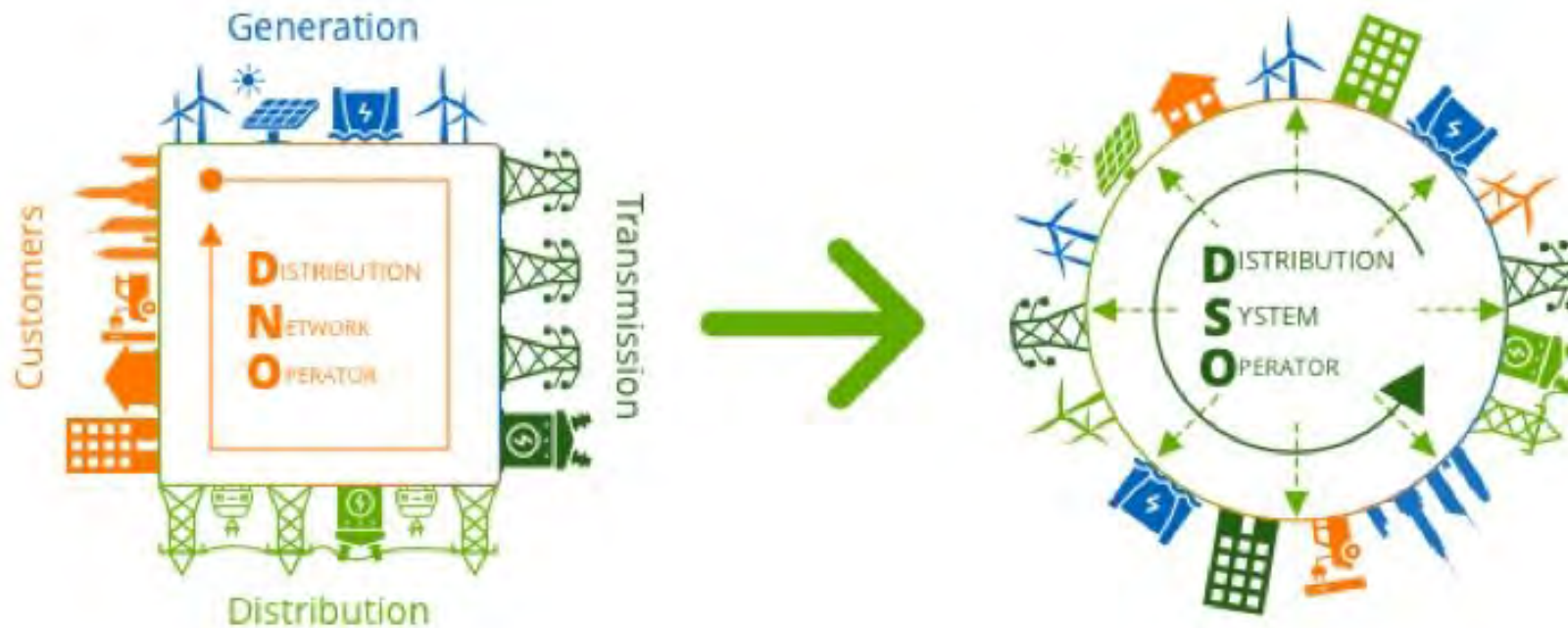
- Pilot Project initiated to assess how customers can be engaged to deliver outcomes that serve their needs while also providing useful flexibility to the distribution system.
- Leverages resources such as PV Systems, Battery Storage, Air-Source Heat Pumps, and Smart in-home Devices
- Not well-aligned with current regulatory construct.
- Infrastructure and partner ecosystem will continue to be leveraged as we evolve the utilization of the distribution system and as we see further proliferation of new loads and embedded resources.



Distribution System Operators (DSOs)

Optimizing Energy Flows

- Deploying a set of software tools with functionality to support more active real-time management of the distribution system and of available embedded resources.
- Vision to progressively becoming capable of functioning as a Distribution System Operator, with the ability of optimizing the use of energy resources at the level of communities and neighborhoods.



<https://www.iberdrola.com/innovation/distribution-system-operation>

Merci!