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smart energy future



## Challenges & Opportunities Related to DER Deployment – The View from Hydro Ottawa

EB-2018-0287 & EB-2018-0288 Stakeholder Meeting

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September 17-19, 2019



# AGENDA

1. Overview of Hydro Ottawa
2. Hydro Ottawa's Experience with DERs
3. Key Considerations
4. Recommendations
5. Nexus with Utility Remuneration
6. Questions

# 1 | OVERVIEW OF HYDRO OTTAWA

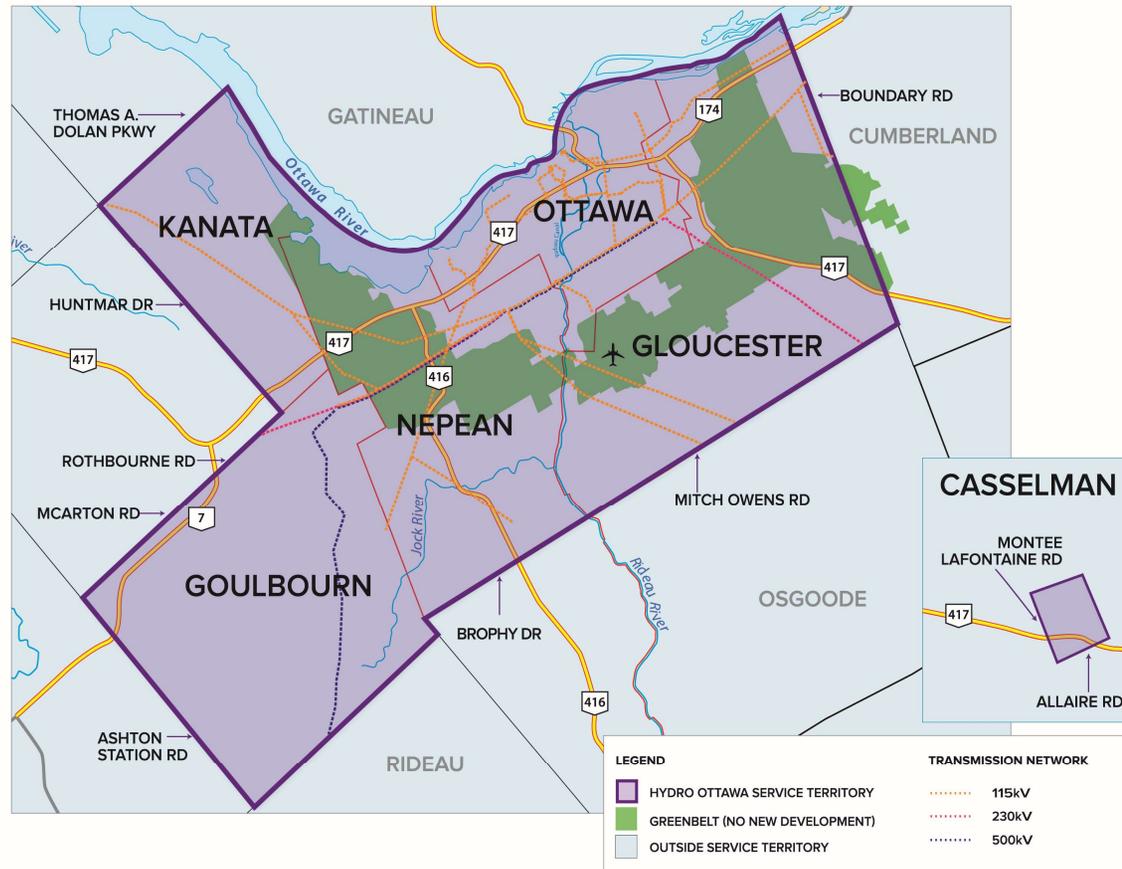
- Hydro Ottawa Holding Inc. – parent company; 100% owned by City of Ottawa; registered and incorporated under *Business Corporations Act*
- Hydro Ottawa Limited – regulated LDC, serving ~335,000 customers in the City of Ottawa and Village of Casselman
- Portage Power – Ontario’s largest municipally-owned green power producer; 128 MW of installed capacity
- Envari – provider of commercial energy services (energy management, streetlighting, underground cable testing)

# 1 | OVERVIEW OF HYDRO OTTAWA

- Hydro Ottawa is a public utility company, 100% owned by the City of Ottawa, and is regulated under the Ontario Energy Board's (OEB) Electricity Act.
- **Hydro Ottawa Limited – regulated LDC, serving ~335,000 customers in the City of Ottawa and Village of Casselman**
- Portage Power – Ontario's largest municipally-owned green power producer; 128 MW of installed capacity
- Envari – provider of commercial energy services (energy management, streetlighting, underground cable testing)
- ***Focus of today's presentation***

# HYDRO OTTAWA LIMITED – KEY DETAILS

- ~335,000 customers
  - ~4,000-5,000 new connections per year; City of Ottawa continues to experience steady growth
- 1,116 km<sup>2</sup> service territory; 60% rural, 40% urban

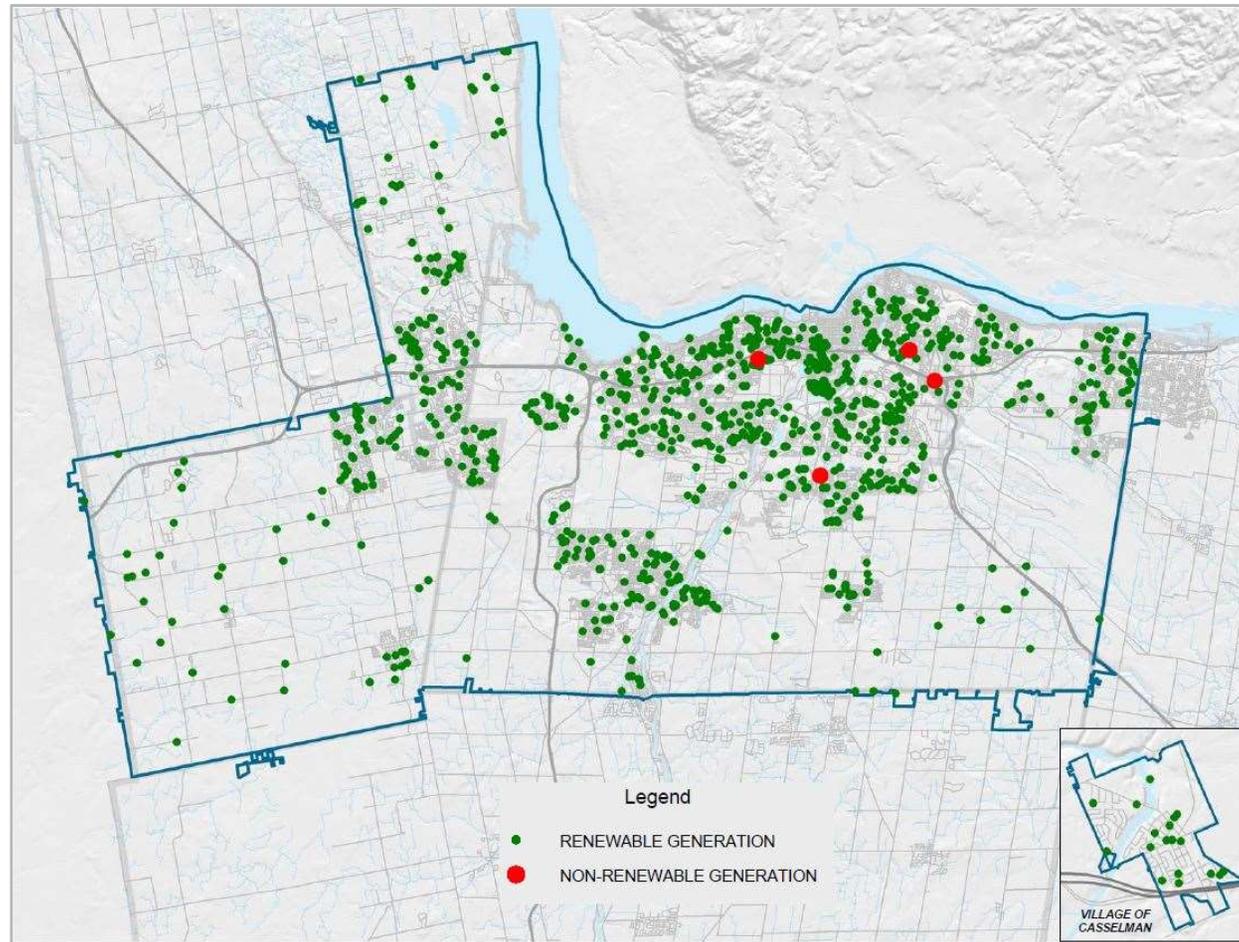


# HYDRO OTTAWA LIMITED – KEY DETAILS

- -
- 
- In recent years, avg. system summer peak = ~1.4 GW
- Currently in Year 4 of five-year Custom IR rate term (2016-2020)
  - Average annual capital investments over this period = ~\$120M
- New Integrated Regional Resource Plan (IRRP) is expected to be finalized in Fall 2019

## 2 | HYDRO OTTAWA'S EXPERIENCE WITH DERs

Energy Resource Facilities in HOL's Service Territory (as of Dec. 31, 2018)



## Energy Resource Facility Connections in HOL's Service Territory (as of Dec. 31, 2018)

Program / DSC Category	Large	Medium	Small	Micro	Total
	kW (qty)	kW (qty)	kW (qty)	kW (qty)	kW (qty)
<b>Non-Renewable</b>					
Battery-IESO		4,000 (1)			4,000 (1)
HOEP					
Standby		999 (1)			999 (1)
Load Displacement		21,578 (8)	500 (1)		22,075 (9)
<b>Renewable</b>					
FIT			15,017 (107)		15,017 (107)
HCI		18,780 (5)	465 (1)		19,245 (6)
HESOP	29,352 (1)				29,352 (1)
Load Displacement			997 (6)	5.5 (1)	1003 (7)
HOEP			28 (1)		28 (1)
RES		8,378 (2)			8,378 (2)
RESOP		10,000 (1)			10,000 (1)
MicroFIT				7,348 (880)	7,348 (880)
Net-Meter				183 (27)	183 (27)
<b>Total</b>	29,352 (1)	63,735 (18)	17,007 (116)	7,536 (908)	<b>117,630 (1043)</b>

# Conservation & Energy Efficiency

## HOW TO MANAGE YOUR HOME

### ELECTRICITY USE AND SAVE MONEY

ELECTRICITY RATES IN ONTARIO ARE INCREASING. THE PROVINCE IS INVESTING \$80 BILLION TO RENEW THE AGING ELECTRICITY SYSTEM OVER THE NEXT 20 YEARS.

USE THESE TIPS TO BETTER **MONITOR, REDUCE, AND MANAGE YOUR OWN POWER CONSUMPTION.**

### 3 EASY WAYS TO BETTER MANAGE HOME ELECTRICITY USE

- #### 1 SHIFT HIGH-CONSUMPTION APPLIANCES TO OFF-PEAK HOURS

RUN WASHER-DRYERS, DISHWASHERS AND OTHER LARGE APPLIANCES BETWEEN 7 PM AND 7 AM WEEKDAYS, OR ANY TIME ON WEEKENDS.
- #### 2 REDUCE ELECTRICITY WASTE

  - AIR-DRY CLOTHES WHEN POSSIBLE
  - KEEP SUMMER SUN FROM HEATING THE HOUSE
  - AVOID PHANTOM POWER. USE A POWER BAR WITH TIMER TO TURN OFF ELECTRONICS WHEN NOT IN USE
- #### 3 USE ELECTRICITY MORE EFFICIENTLY

  - WHEN REPLACING APPLIANCES, BUY ENERGY STAR® QUALIFIED EFFICIENT PRODUCTS
  - INSTALL COMPACT FLUORESCENT (CFL) OR LED LIGHT BULBS, INSTEAD OF INCANDESCENT
  - USE A PROGRAMMABLE THERMOSTAT (JOIN PEAKSAVER PLUS® TO GET ONE FREE!)

REGISTER FOR MyHydroLink to MONITOR HOW AND WHEN YOU USE ELECTRICITY!

For more tips on managing your home energy use, visit [hydroottawa.com](http://hydroottawa.com).



### Decrease operating and maintenance costs

### Lower energy consumption and costs

### Reduce payback periods

The **RETROFIT PROGRAM** provides substantial financial incentives for replacing inefficient equipment with high efficiency equipment and for installing new control systems that will improve the efficiency of your operational procedures and processes.

**Incentives for:**

- Lighting and controls
- Unitary air conditioning
- Variable frequency drives
- Motors
- Pumps
- Fans
- Refrigeration
- And more ...

**What incentives are available?**

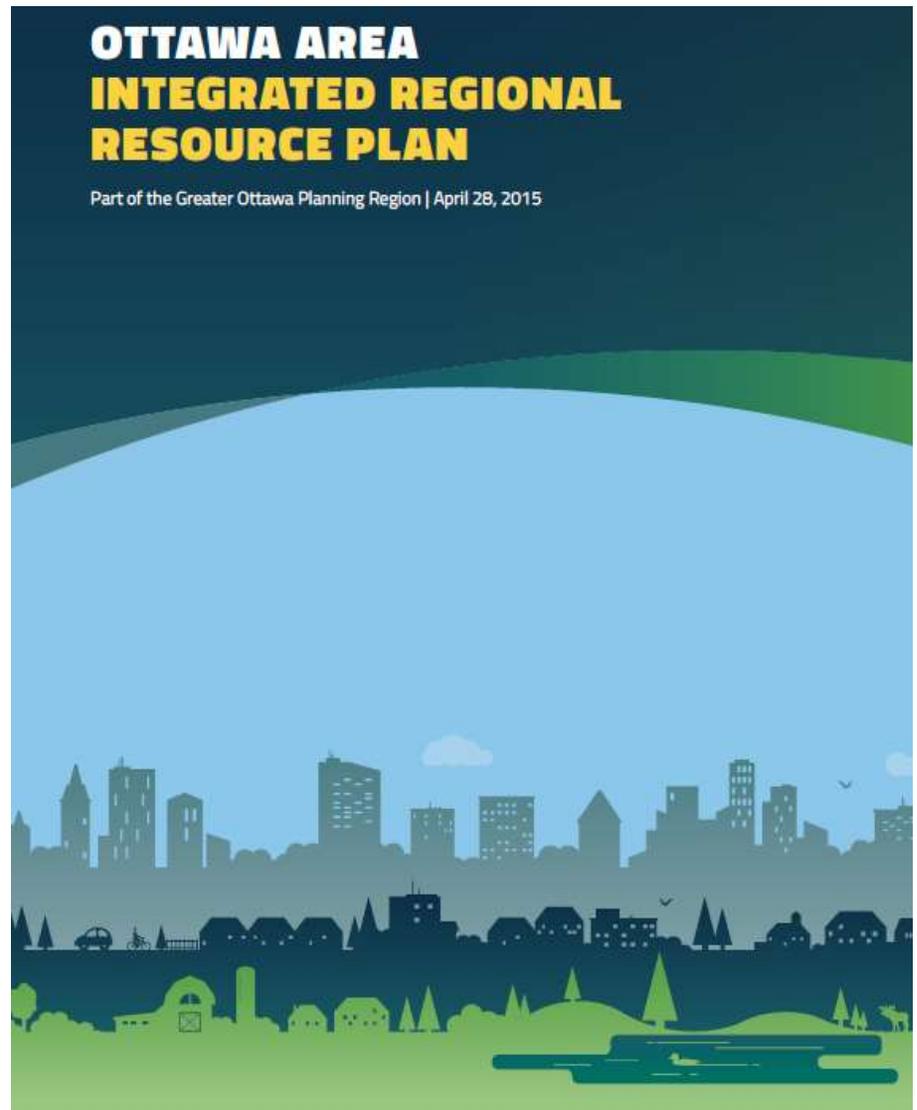
- \$400/kW for Lighting
- \$800/kW for Non-lighting

**Giant Plumbing and Hardware Distributors Ltd.** is working with Hydro Ottawa to deliver the **RETROFIT PROGRAM**. Contact **Giant Plumbing and Hardware Distributors Ltd.** for more information, to speak with a qualified lighting professional, or to apply.

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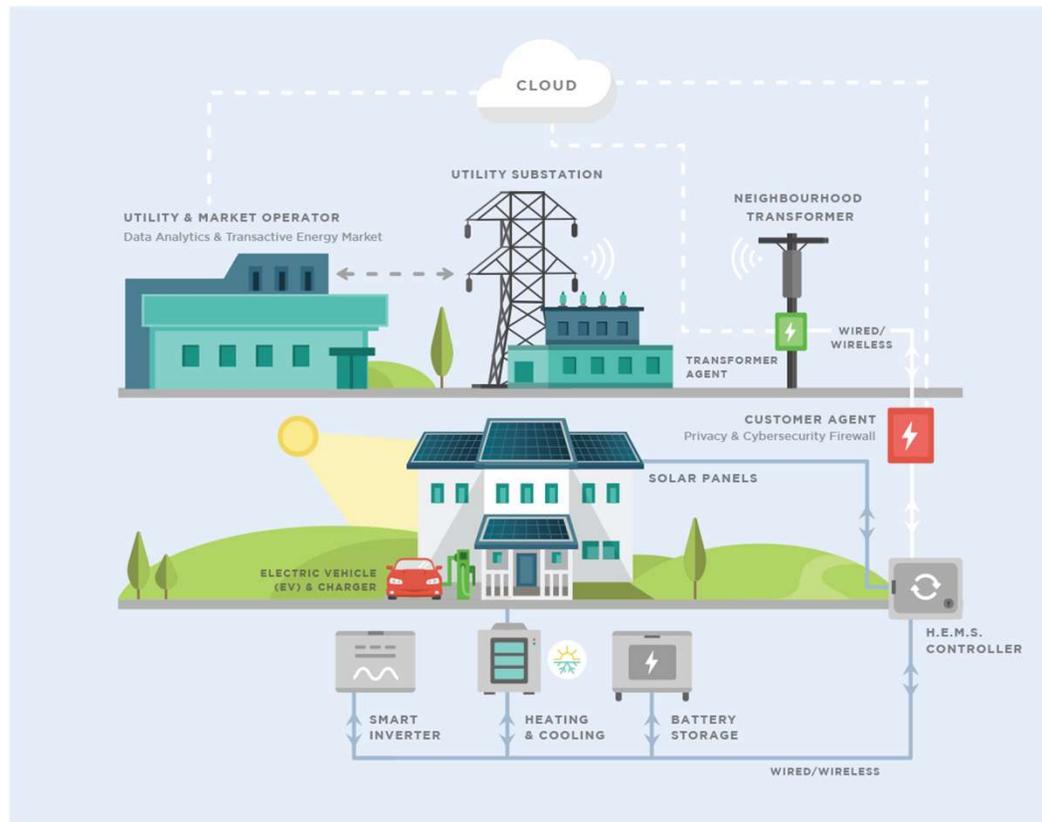
## Regional Planning

- Major recommendation from 2015 IRRP was implementation of distributed generation (DG)
- In IRRP planning, non-wires options continue to be investigated as part of the mix of solutions to address capacity needs in specific areas (e.g. Kanata North)



# MiGen Transactive Grid

- Represents the future energy marketplace – where customers generate more of their own electricity, store it, and send what is not used back to the grid
- For details: <https://hydroottawa.com/save-energy/innovation/migen>



## Other Projects



Hydro Ottawa and FLO to pilot residential charging stations in Ottawa

## KEY THEMES & TAKE-AWAYS

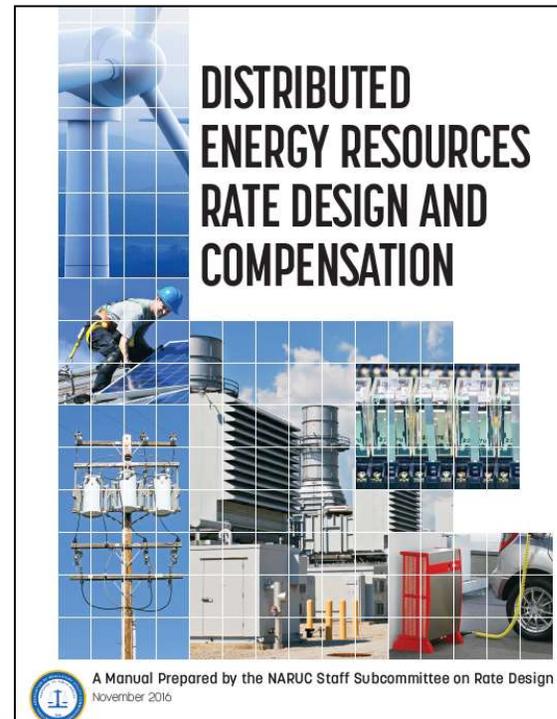
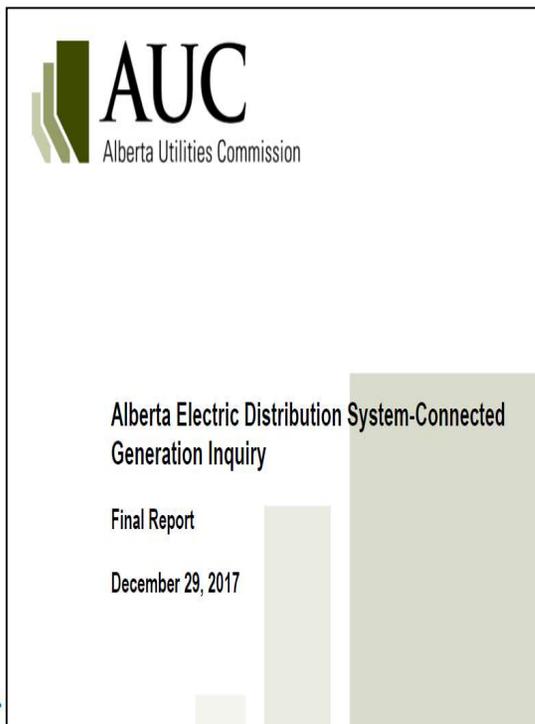
- Hydro Ottawa:
  - has extensive experience in connecting, integrating, and planning for various types of DERs
  - affirms the value and benefits associated with DERs
  - views DERs as a critical and inevitable component of Ontario's smart energy future
- DERs have featured prominently in regional and system planning considerations
- Different customer subsets are interested in different DERs
- Distribution utilities are uniquely positioned to leverage DERs for the overall benefit of the system and customers
- Distributors having greater visibility into DER resources, and being able to control and dispatch them, would yield benefits to the system (e.g. peak shaving)

### 3 | KEY CONSIDERATIONS

- Achieving appropriate balance between OEB's mandate to protect consumer interests and facilitate financially viable industry
- Customer – choice, experience, value
- Costs – recovery, shifting, allocation, causation, stranded
- Benefits – quantification, valuation, optimization
- Compensation
- Ownership and control

## 4 | RECOMMENDATIONS

- Consider best practices from other jurisdictions
  - Process – collaborative, transparent, extensive, coordinated
  - Policy – anchored in traditional regulatory principles and customized to unique circumstances of jurisdiction



## 4 | RECOMMENDATIONS (CONT'D)

- As a first step, clearly define “DERs”
  - across jurisdictions, “DER” is in the eye of the beholder
  - DG, storage, demand response, conservation/efficiency, EVs?
- Examine existing tools within regulatory toolkit:
  - DSC connection requirements
  - Rate design
  - CDM Guidelines (including Sec. 4.1 regarding rate funding in support of DER activities to defer distribution infrastructure)
- Consistency in rules and their application is essential

## 4 | RECOMMENDATIONS (CONT'D)

- Facilitate robust dialogue on the tough questions, so that a fulsome public record can support any decisions or actions that are ultimately taken:
  - prospect of distributor ownership and operation of DERs
  - appropriate valuation, compensation, and pricing for DER energy and/or capacity (i.e. province-wide vs. localized)
  - standby rates, back-up charges
  - safeguarding customer data and privacy
  - what happens post-expiration of FIT and microFIT contracts

## 4 | RECOMMENDATIONS (CONT'D)

- Connect the dots between this consultation and other relevant initiatives, whether internal or external to OEB
  - OEB – Commercial & Industrial Rate Design, RPP Roadmap & Pilot Projects
  - IESO – Market Renewal, Innovation Roadmap, Grid-LDC Interoperability, Regional Planning Review, Updated Planning Outlook, Energy Efficiency Capacity Pilot
  - Government – potential policy action on industrial electricity pricing, net metering (e.g. virtual net metering, TOU pricing for net metering)

## CAUTIONS

- To date, deployment of many DER types in Ontario has relied heavily on provincial programs
- Accordingly, both markets and regulation may need time to test alternative costing and business models
- Experiences from other jurisdictions can be instructive and insightful – but in some instances, only to a degree
- Significant ratepayer funds have been invested in existing infrastructure and assets; these assets should be optimized amidst any movement to greater use of DERs



## 5 | NEXUS WITH UTILITY REMUNERATION

- Any far-reaching, consequential changes to the existing paradigm must be justified by robust evidence; it's not at all clear whether such a case has yet been made
- However, Hydro Ottawa acknowledges that the matter of remuneration is engaged by certain issues related to DERs
- For example:
  - Utilities may need to assume the function of a platform provider or orchestrator for DERs
  - Earnings from market-facing platform activities may need to be considered (similar to the utility revenue stream authorized under New York's "Reforming the Energy Vision")
- Further discussion is therefore welcome in this regard

## 6 | QUESTIONS?

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