



London Economics International LLC

Consultation on Utility Remuneration and Responding to Distributed Energy Resources

Prepared for:

**Ontario Energy Board Stakeholder Meeting on
COVID-19 and DER Impact Studies**

www.londoneconomics.com

February 3, 2021

1	Introduction
2	COVID-19 Impact Study
3	COVID-19 impact on DERs

This presentation summarizes relevant information from LEI reports prepared for the OEB and published in December 2020

► LEI was engaged by the OEB to assist in its:

1. 'Utility Remuneration' and 'Responding to Distributed Energy Resources' consultations (EB-2018-0287 and EB-2018-0288, respectively)
2. Consultation on the Deferral Account – Impacts Arising from the COVID-19 Emergency (EB-2020-0133)

► LEI prepared five separate reports as part of this process

- This presentation covers relevant information from two of these reports
- January 14th webinar covered four of these reports relevant to the DA consultation
- All reports were published in December 2020 (based on information gathered largely between October and November 2020)*

Reports produced by LEI

COVID-19
Impact Study

COVID-19
impact on
distributed
energy
resources

Regulatory
responses to
COVID-19 in
other
jurisdictions

OEB's cost of
capital
parameters
and the
impacts of
COVID-19

Gains and
losses from
differences
in load and
production

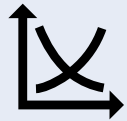
Covered in this presentation

* Reports can be found at the OEB's [Utility Remuneration consultation webpage](#)

1	Introduction
2	COVID-19 Impact Study
3	COVID-19 impact on DERs

The COVID-19 Impact Study reviewed a selection of impacts the pandemic has had on utility financial health and energy consumption

Scope of work



Demand impact

Assessment of the impact the COVID-19 pandemic has had on electricity and natural gas demand in Ontario, and the potential for longer-term demand pattern changes that may emerge from permanent behavioural and consumption changes due to the pandemic and associated economic crisis



Financial health

Evaluation of the observable financial impact the pandemic has had on utilities to date, including on revenues, costs, and overall financial integrity



Bad debt

Evaluation of the increasing instances of bad debt and indicative range of potential losses from non-payment by customers in the utility sector



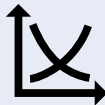
Stimulus programs

Examination of the role of stimulus programs

The pandemic and its wide-reaching impacts have resulted in high degrees of uncertainty with respect to future outlooks

Demand impact

- Electricity demand was particularly hard-hit as a result of lockdown restrictions
- Class-specific consumption also changed, including increases in residential load, and decreases in commercial and industrial loads
- Some of these changes (particularly relating to certain aspects of residential and commercial load) may exhibit some permanence



Financial health

- Distribution utilities in particular have seen negative cost and revenue impacts as a result of the pandemic, notably among distributors with higher proportions of commercial and industrial customers
- However, information reviewed suggests this has not translated into acute financial issues for utilities, and that the sector as a whole has maintained its financial integrity thus far



Bad debt

- Concerns around customer bad debt levels and/or arrearages may persist over the duration of the pandemic, and high bad debt levels could cause liquidity risk concerns among certain distribution utilities



Stimulus programs

- Substantial stimulus programs have been implemented in response to the economic impact of the pandemic, and likely played an important role in reducing the negative impact of the pandemic on consumption
- Stimulus programs may also directly influence the short- and long-term load trajectories and financial impacts of the pandemic on utilities



Agenda

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Introduction

2

COVID-19 Impact Study

3

COVID-19 impact on DERs

The 'COVID-19 impact on DERs' report focuses on the major drivers of DER adoption and how the pandemic may have impacted them

Scope of work



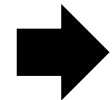
Assessment of the drivers of DER adoption and how COVID-19 has impacted them



The impact changes in income patterns will have on perceptions of the payback period required to invest in DERs



The impact of the pandemic and associated governmental actions on Industrial Conservation Initiative participants



The impact on and considerations for prioritizing, pacing, and sequencing OEB policy development initiatives related to utility remuneration ("UR"), innovation, and DERs arising from COVID-19 and institutional responses to it

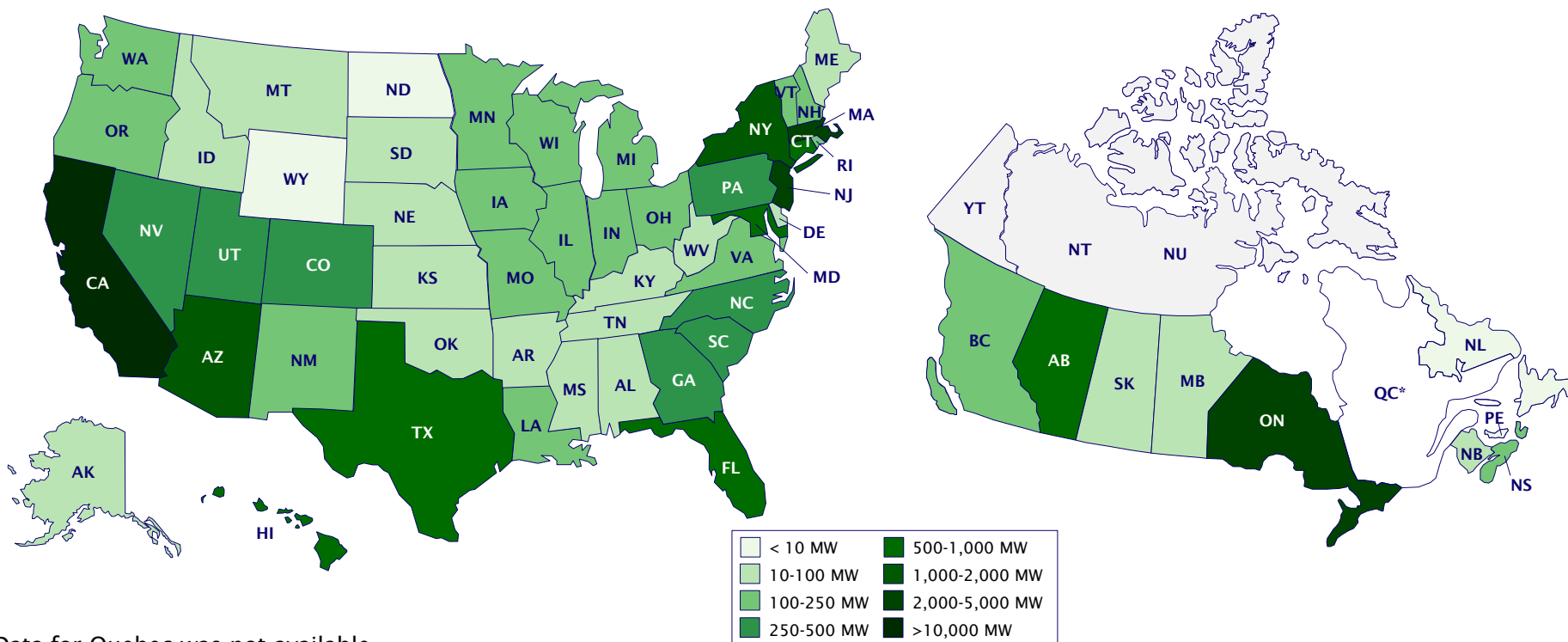


Ontario leads the rest of Canada in terms of DER adoption, while penetration levels in the US are highest in California and some Northeastern states

▶ DER capacity in North America reached over 30,000 MW in 2019






- California led the US in terms of installed DER capacity with over 10,000 MW (13% of total nameplate capacity)
- In Ontario, distribution-embedded resources totaled over 3,500 MW of contracted capacity as of Q2 2020 (8% of current installed capacity), 61% of which was solar

Illustrative heat map of DER installation levels (2019)



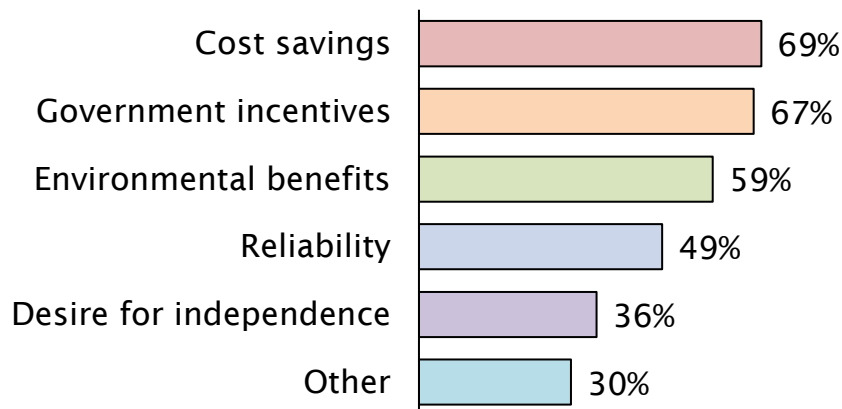
Households and businesses generally share common reasons for investing in DERs, but relative importance may differ among the two groups

Most common drivers of DER adoption

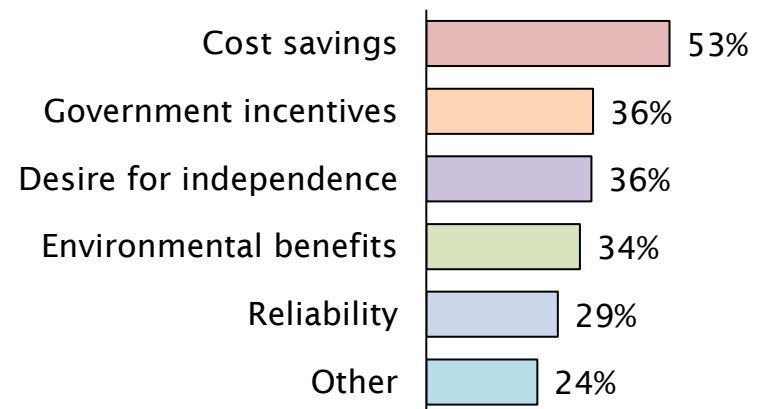
-  Desire for **cost savings** or a reduction in electricity bills
-  Ability to reap **environmental benefits** from installing renewables, or to meet environmental or sustainability goals
-  Achieve better supply **reliability** or resiliency and avoid supply interruptions
-  Desire for greater **independence** through self-supply
-  To take advantage of **government incentives** (such as tax incentives or rebates to encourage DER adoption)

Top reasons for DER adoption (based on review of surveys)

Among households



Among businesses



Note: Based on a review of 5 household surveys and 4 business surveys, with priority given to those including North American respondents. 'Other' category relates to reasons that were cited less often by respondents. See LEI's 'COVID-19 impact on DERs' report for further details

The pandemic may have increased desire for self-supply optionality, but is not expected to negatively impact longer-term desire for environmental attributes

Environmental attributes

- ▶ **“Willingness to pay” (“WTP”) for the environmental benefits offered by clean/renewable energy can be linked to income**
 - Households and businesses that have experienced financial strain as a result of the pandemic (i.e., declining income/revenues) may demonstrate a **decline in their WTP** for environmental benefits
 - Longer-term implications will ultimately depend on the pace of economic recovery, which will dictate how long households and businesses experience a decline in their income and hence a reduced WTP
- ▶ **Given Ontario’s largely emissions-free supply mix, pursuit of incremental environmental attributes in the province has a very high cost**
 - Environmental attributes may therefore be factored into the DER investment decision far **less in Ontario** than in other jurisdictions with higher electricity emissions intensity

Reliability and a desire for independence

- ▶ **The pandemic may have accelerated desire among customers to become more energy resilient**
 - For example, residential customers may desire having increased security and control through their own backup power supply, while businesses may seek solutions to counter threats to operational continuity
- ▶ **LEI expects the pandemic’s impact on intentions for greater reliability and independence to persist among both residential and C&I customers, as they seem to represent an attitude shift brought on by the pandemic**

Cost savings and government incentives are the most relevant drivers for DER adoption in Ontario, and have both been impacted by the pandemic

Cost savings and project economics

- ▶ **Declines in business and consumer confidence following the onset of the pandemic, as well as increasing precautionary savings, may have introduced financing risk for DER projects**
 - The pandemic resulted in all customer groups re-evaluating spending and savings patterns
 - Changes in demand patterns and policy interventions to cap electricity prices or provide relief also impacted business case
 - Combined, these factors may have also impacted payback period for DER investments
- ▶ **Going forward, as business and consumer confidence returns to normal, pent up savings may allow for additional investment, particularly if interest rate levels remain low**

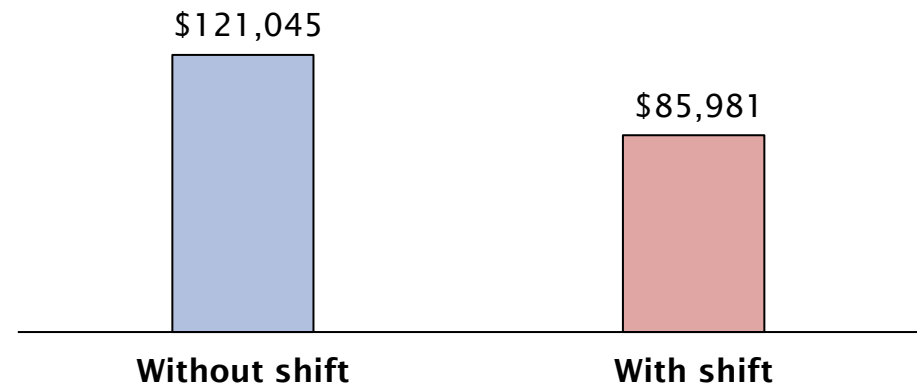
Government incentives

- ▶ **Historical DER penetration in Ontario was driven by procurement programs**
 - These included the Feed-In Tariff program and the microFIT program, which have ended, and therefore these avenues for DER growth are closed
- ▶ **The Industrial Conservation Initiative (“ICI”) also plays a role for certain large consumers**

Recent measures shifting a portion of GA costs to the tax base could in certain instances weaken the business case for investing in active curtailment

- Larger commercial and industrial customers may consider investments in DERs as a way to reduce their Global Adjustment (“GA”) charges
- Reductions in the GA base may impact ICI participant decisions around investments targeted at more actively curtailing load to minimize GA costs
 - Recent measures shift a portion of non-hydro renewable contract costs that were previously funded by the GA to the Province
 - Non-hydro renewable contracts represented around 28% of the total GA between October 2019 and September 2020 (around \$3.9 billion of \$13.8 billion)
 - As a direct result of this announced shift, both ICI participants and customers who pay volumetric GA rates will see a reduction in the GA portion of their bills
 - May impact business decisions on whether to invest in technologies aimed at actively curtailing load during periods of system peak

Illustrative cost of consumption at top-five hours for 2019-2020 billing period (\$/MWh)



Results from survey of DER suppliers indicates an impact to DER sales in the aftermath of the pandemic, with an expectation for recovery going forward

- **LEI conducted a voluntary phone survey to gain a better understanding of the implications of the pandemic on DER sales in 2020, and expectations going forward**
 - LEI reached out to 35 Ontario-based DER retailers, installers, equipment manufacturers, and suppliers across the solar, storage, EV, CHP, and microgrid markets, and received responses from 11
 - 7 respondents reported serving mostly commercial or industrial customers, 2 reported serving mostly residential customers, and 2 did not provide a customer breakdown

Question	Average	Median	Number
COVID-19 impact on 2020 sales, relative to expectations prior to pandemic	-33%	-50%	9
Expected COVID-19 impact on 2021 sales, relative to expectations prior to pandemic	-11%	0%	7
Expectations for 2022-2025 sales growth	66%	40%	3
Do you believe that recent Ontario government measures to moderate electricity bills will reduce demand for your product?	Yes		5
	No		4
Biggest barrier to adoption, other than COVID-19	Political risk		5
	Lack of customer knowledge		4
	Lack of financial support		2



The impact of COVID-19 on future DER adoption is uncertain, and is ultimately dependent on numerous factors

- ▶ **The pandemic has impacted the main drivers for DER adoption in 2020, and may continue to have impacts in the short term**
 - Pandemic-related lockdowns, physical distancing measures, economic uncertainty, changes to consumption patterns, and recent government actions may impact business case and decisions around DER investments
- ▶ **The longer-term impact of the pandemic on these drivers may subside, although the GA cost shift may have longer-term implications**

		Short-term COVID-19 impact (2021-2022)		Longer-term COVID-19 impact (2022-2025)	
		Residential	C&I	Residential	C&I
DER adoption drivers	Cost savings	↓	↓	=	=
	Environmental attributes	↓	↓	=	=
	Reliability	↑	↑	↑	↑
	Desire for independence	↑	↑	↑	↑
	Government incentives	=	↓	=	↓

↑ Upward pressure On DER deployment
 ↓ Downward pressure On DER deployment
 = No change to DER deployment