Follow Up Question from DBRS

Request: Please provide additional information on IESO and OPG strategies to manage the technological changes with respect to maintaining an acceptable scale of ratepayers over the repayment period and how these risks are incorporated into the repayment (demand) forecast in the financial modeling. And the impact on the LDC's.

Response:

The declining cost of solar photovoltaics and battery storage systems have led to significant speculation on the impact to the electricity system. Forecast electricity demand used in the financial modeling of clean energy adjustment repayments is in the range of 140 TWh. This represents a continuation of current demand. Specified consumers represent about half of this total demand, and this proportion is expected to continue.

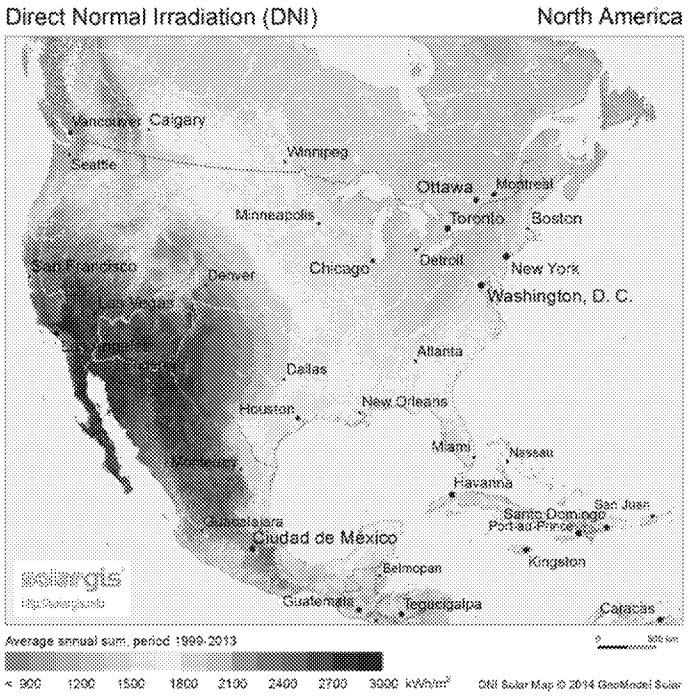
Potential Impact of Solar Self-generation on the Fair Hydro Plan

Grid Defection vs. Less Reliance on the Grid

- Residential customers who decide to self-generate can either completely sever their connection to the electricity grid (grid defection) or lower their reliance on the grid with self-generation.
- Grid defection would allow customers to avoid paying Clean Energy Adjustments (CEA) and other fixed electricity charges, but is extremely difficult to achieve.
- Decreasing reliance on the grid is more feasible, but customers would still have to pay CEAs for any electricity they consume. The structure of the Fair Hydro Plan (FHP) ensures that all CEAs will be recovered even if electricity demand decreases as a result of self-generation.

Challenge of Grid Defection in Ontario

- OPG recently assessed the risk of urban residential grid defection and concluded that solar along with battery storage cannot meet typical urban residential requirements.
- There is insufficient rooftop space on most residences to install solar panels that could generate enough electricity to fully power a home.
- In addition, a significant amount of residential growth in Ontario is coming in the multi-family residential segment – condominiums. These residences do not have the opportunity to self-generate.
- As a result, there is potential that some consumers will decrease their reliance on the grid using self-generation, but mass defection from the grid is extremely unlikely.
- Solar insolation, which is a measure of solar radiation energy received on a given surface area, is much lower in Ontario than jurisdictions which are seeing significant solar penetration (California, Nevada).
- Solar performs poorly in the winter in Ontario where the days are very short and there is significant cloud cover. As a result, significant solar and storage overbuild would be required to ensure an adequate supply of electricity, further reducing the economics of grid defection.



Strategies to Manage Grid Defection

- OPG does not control electricity policy in Ontario, but is aware of policies that have been put in place that would mitigate risks related to grid defection.
- All local distribution companies (i.e., Toronto Hydro) are in the process of moving from billing on a partial volumetric basis (cents/kWh) to a fully fixed charge ($/Month) for their portion of the delivery charge on bills. As a result, LDC revenues will not be impacted by residential consumers reducing their grid electricity demand via self-generation.
- Key electricity end users will drive up residential demand, making it harder to be self-sufficient. For example, OPG forecasts significant growth in electricity demand from electric vehicles.
- The IESO has opportunities to remove costs from the electricity system if demand is lower than expected. For example, the Bruce nuclear refurbishment contract contains off-ramp provisions which would cancel future refurbishments at the IESO's discretion.

IESO

In the Globe and Mail article titled, "In Ontario, hydro's future gets murkier as costs of leaving the grid decline", Leonard Kula COO of the IESO noted the challenges expected by the system operator because the future is likely to be more complicated than in the past. The IESO informed OPG that Mr. Kula was opining on the complexity of integrating new and emerging market entrants with different needs and flexibility than we have known in the past. He did not address the impact or likelihood for ratepayer demand loss due to rapid technological changes.