Ontario Power Generation: Management and Maintenance of Hydroelectric Generating Stations

I'd like to talk to you about our audit of **Ontario Power Generation** and its **Management and Maintenance of Hydroelectric Generating Stations**.

Hydroelectric power accounts for about 23% to 25% of Ontario's electricity supply.

Considered a renewable energy source, it reduces reliance on fossil fuels and carbon emissions.

Ontario Power Generation, also known as OPG, owns and operates 66 hydroelectric stations;

86% of them have been operating for over 50 years, others for over 100 years.

As of March 31, 2022, hydroelectric generation represents 51% or 7,500 MW of total generation capacity at OPG.

Over the last five years, from 2017 to 2021, while annual revenue from OPG's hydroelectric generation was about $1.8 to $1.9 billion dollars, costs for capital projects to replace aging equipment increased by 215%, from $208 million dollars to $656 million dollars.

Given the forecasted increase in electricity demand and predicted future supply reduction due to the expected closure of the Pickering Nuclear Station in 2024/25, combined with the challenges of building new hydroelectric stations, it is important that OPG adequately maintain and manage its existing stations to allow for cost-effective and efficient electricity production.

Our audit assessed whether OPG is managing its hydroelectric stations efficiently and cost-effectively, including maintenance projects, and dam and public safety programs.

Our audit found that OPG has been a reliable provider of hydroelectric power, but there is opportunity to improve the percentage of time a generating unit is unavailable, over a specific time frame, for outages within OPG's control.

We noted that opportunities for developing future supply of hydroelectric power have not been fully explored, and could be more effectively used to meet the province's future electricity needs.

We also noted that OPG has not been able to fully utilize its hydroelectric capacity.

Over the seven-year period from 2015 to 2021, OPG was only using between 48% to 51% of the stations' total installed capacity due to multiple factors.

These factors include insufficient water availability and water spillage in response to surplus power conditions.

Our audit found that in 2021 alone, OPG could have generated an additional 4.6 million MWh of electricity, enough to power over 540,000 Ontario households for a year.

OPG needs to manage future hydroelectric stations and capital projects cost-effectively and efficiently to fulfil its mandate of providing low-cost power in a reliable and sustainable manner.

For example, for the Niagara Tunnel Project, inadequate information about rock conditions and work required resulted in a 62% increase in cost – from $985 million to $1.6 billion – and a three-year delay in project completion.

As well, aging hydroelectric stations have led to a continuous backlog of work orders.

Our report contains 12 recommendations for OPG, including:

- developing a strategy to utilize unused capacity while also pursuing new hydroelectric opportunities;
- measuring and overseeing all work orders against due dates to identify whether work orders are being completed on a timely basis; and,
- overseeing and monitoring project work more closely and more regularly to identify and correct any potential delays as soon as reasonably possible.

To read this report, you can visit our website at www.auditor.on.ca