The Conference Board of Canada

Economic Impact of a Potential Nuclear Facility at the OPG Wesleyville Site

Briefing Note

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Ontario Power Generation

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Purpose

The Conference Board of Canada's proprietary Economic Impact Assessment (EIA) model was used to estimate the economic benefits of investments in a potential large nuclear facility at the Ontario Power Generation's Wesleyville site near Port Hope, Ontario. Our analysis includes the economic benefits of the facility's two phases of development—design and construction and operation and maintenance—occurring over the project's 95-year approximate life. The findings of this study highlight only the direct impacts and supply chain (indirect and induced) spending effects of constructing and operating the facility, and do not account for other downstream socio-economic impacts such as the benefits from potential agglomeration economies, a low carbon energy source, and greater energy security among others.

Background

Ontario Power Generation (OPG) is a commercial enterprise wholly owned by the Province of Ontario. It supplies about half of the electricity requirements in Ontario through a diverse energy generation portfolio comprising nuclear stations, hydroelectric stations, a solar facility, a biomass station, a dual-fuelled oil and gas station, and combined-cycle gas turbine plants.[1]

As part of OPG's commitment toward clean energy projects, The Conference Board of Canada (CBoC) was engaged to study the potential economic benefits of constructing a large nuclear generation project at the OPG Wesleyville site. Using CBoC's EIA model, we estimate the direct, indirect, and induced benefits for Canada, Ontario, and Port Hope, across four economic variables: gross domestic product (GDP), employment, labour income, and government tax revenues at the federal, provincial, and municipal levels.

The economic benefits are based on an 8,000-10,000 MW, technology-agnostic facility, pulling from other large nuclear projects as benchmarks. The estimates are illustrative and designed to provide a reasonable projection of economic benefits without endorsing a specific facility size or technology.

The impacts are calculated separately for the design and construction phase, projected at approximately 25 years, and the operation and maintenance phase, estimated at 70 years. Including refurbishment and decommissioning, the total project lifespan is around 95 years.

[1] Ontario Power Generation. "Integrated ESG and Annual Report." May 2024. https://www.opg.com/reporting/integrated-esg-and-annual-report/

Key Findings

The potential economic benefits of deploying a nuclear facility at the Wesleyville site propagate across the Canadian economy during both the design and construction, and operation and maintenance phases. The direct economic benefits are concentrated in Ontario, with indirect and induced effects transmitted across Canada through supply chains. The key potential benefits to Canada and Ontario over the project's life are as follows:[2]

- The project will contribute $263.9 billion to Canada's GDP over its 95-year approximate life, including $235.5 billion to Ontario's GDP.
- The project's deep integration with domestic supply chains amplifies its economic impact. For every dollar spent, GDP in Canada increases by $1.07, assuming no capacity constraints. During the design and construction phase, each dollar spent adds $0.89 to GDP, while the operation and maintenance phase adds $1.16 to GDP.
- Significant tax revenues would be generated across all levels of government over the project's life, including $38.6 billion in federal taxes; $23.1 billion in provincial taxes to Ontario, which will also flow back to the municipality of Port Hope in the form of various provincial programs; and $7.5 billion in municipal taxes across Ontario.
- Nearly 12,200 full-year equivalent jobs per year would be created or supported by the project nationally, of which 10,500 will be in Ontario. The estimated annual average employment is higher for the design and construction phase (14,900 nationally and 12,200 in Ontario) than for the operation and maintenance phase (10,300 nationally and 9,000 in Ontario).
- The jobs created would have an average annual salary of approximately $93,000 (labour income excluding employee benefits). Those directly employed would earn an average annual salary of $116,000, and those not directly employed would earn $79,000.

It is projected that a significant share of the activity occurring at the Wesleyville site will directly involve Port Hope residents and businesses, contributing to local economic gains, employment, and tax revenues. Conservatively, the key potential benefits to Port Hope over the project's life are as follows:

- From its inception through to its operations, the nuclear facility would boost GDP in Port Hope by $65.7 billion over the project's life.
- The project is expected to generate $10.5 million in municipal tax revenues annually for Port Hope.
- An annual average of 1,620 full-time equivalent jobs would be created or supported within Port Hope, resulting in an average 15 to 20 per cent boost to overall employment levels in the local area. By phase, roughly 1,700 jobs will be supported during the design and construction phase and 1,600 during the operation and maintenance phase.

[2] All dollar values are in 2024 Canadian dollars.

Appendix A: Data and Methodology

This economic impact assessment estimates the direct, indirect, and induced economic and fiscal impacts of the design, construction, operation, and maintenance of a nuclear facility in Wesleyville, Ontario. The impacts are disaggregated across three geographical levels: local (Port Hope), provincial (Ontario), and national. The local area GDP estimates are based on the degree to which local employment is supported or created.

Modelling approach

- The expected economic and fiscal impact analysis was conducted using The Conference Board of Canada's Economic Impact Assessment (EIA) model, which provides disaggregated economic effects at the industry and local area levels. Data from Statistics Canada is used to inform and construct the model.
- Cost estimates for the design and construction phase and operation and maintenance phase of the Wesleyville nuclear facility were based on benchmarks from other large nuclear projects.
- Two iterations of the EIA were run: one for the design and construction phase and one for the operation and maintenance phase of the project. All dollar values are in 2024 Canadian dollars. The 2024 constant dollars are values escalated from 2019 constant dollars using average cost escalation assumptions between 2019 and 2024 based on benchmarks from other large nuclear projects.
- Using a conservative impact estimation approach that the Conference Board typically applies to power generation facilities, this analysis does not include any projected return on equity (i.e., no direct profit or direct revenue) or capital consumption allowances (CCA) during the operation of the Wesleyville nuclear facility. Including profits would increase the estimated GDP and tax effects of the operation phase. In this analysis, we account for the full economic impact of capital expenditures upfront during the construction phase. Including CCA during the operation phase would result in double-counting.
- Labour income in our analysis includes wages and benefits paid to employees. On average, employee benefits account for roughly 35 per cent of wages.

Localization approach

- Determining the benefits accruing to the Port Hope local area involved two stages. The first was an initial estimation of the activity that would occur at the Wesleyville site itself. The second stage involved estimating the share of that activity that would utilize Port Hope businesses and local residents.
- For the direct effects, the shares were based on estimates of the potential supply of labour that would be available during both the design and construction phase as well as the operation and maintenance phase.
- For the indirect and induced effects, the EIA model used employment data by industry from the 2021 census for Port Hope to assess local capacity to meet supply-chain needs.

Appendix B: Glossary of Terms

Direct effects: These are the economic effects directly associated with the additional spending required for the project. For example, during the design and construction phase, most of the direct effects would occur in the construction industry, while during the operation and maintenance phase, much of the effects would be in the electric utilities sector.

Indirect effects: The indirect, or supply-chain, effects measure the economic impact associated with the use of intermediate inputs and other support services linked to direct spending. For example, construction activity would require inputs such as engineering services and construction materials.

Induced effects: The induced effects occur when the wages that employees earn from the direct and indirect effects are spent. As such, the economic impacts associated with induced effects generally occur in consumer-oriented industries, such as retail.

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