

The Economic Impact of a Westinghouse AP1000 Reactor Project in Canada



### Notice to Reader

This report has been prepared by PricewaterhouseCoopers LLP (PwC) for the use of **Westinghouse and its owners**, **Canadian-based companies – Brookfield and Cameco**, with the desire to bring state of the art nuclear technology to Canada.

This report provides an assessment of the economic and broader benefits of Westinghouse's potential investments in Canada in association with the deployment of **AP1000**<sup>®</sup> technology.

The analysis and observations presented in this document are based on information provided by Westinghouse, as well as primary and secondary research conducted by PwC.

All dollar values are in 2023 Canadian dollars,<sup>1</sup> unless otherwise specified.

Limitations on use of this report are found in Appendix A.

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<sup>1</sup> Exchange rate used was Bank of Canada's average annual USD/CAD rate for January-December 2023, equaling to 1.3497.

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# Results of Assessment

## This study assesses the economic footprint and broader impacts of Westinghouse's AP1000 Project in Canada

### Background

In order to meet its net-zero requirements, Canada would benefit from augmenting its electricity grid by developing additional carbon-free energy sources, helping Canada to meet its demand growth and sustainability goals. In that context, Westinghouse is seeking to install four AP1000 pressurized water reactor units (PWR) in Ontario ("the AP1000 Project").

- One AP1000 unit can power over 750,000 homes annually, and a four unit facility can power at least three million homes.
- The AP1000 Project would contribute to the economic footprint of Canada's nuclear sector through **capital investments and the ongoing operation of a new nuclear power project**.
- It will also help to support the strong nuclear industry supply chain across Canada and set the stage to support future investments in Westinghouse's advanced technologies such as the AP300 Small Modular Reactor and eVinci microreactor.
- The AP1000 Project, being a carbon-free source of energy, aligns with Canada's 2030 emission reduction plan.

### Scope of analysis

### Core areas assessed by PwC

Ecor foot	

The jobs, GDP, labour income, and tax revenue associated with Westinghouse's AP1000 Project arising from:

- Capital expenditures
- Ongoing operations

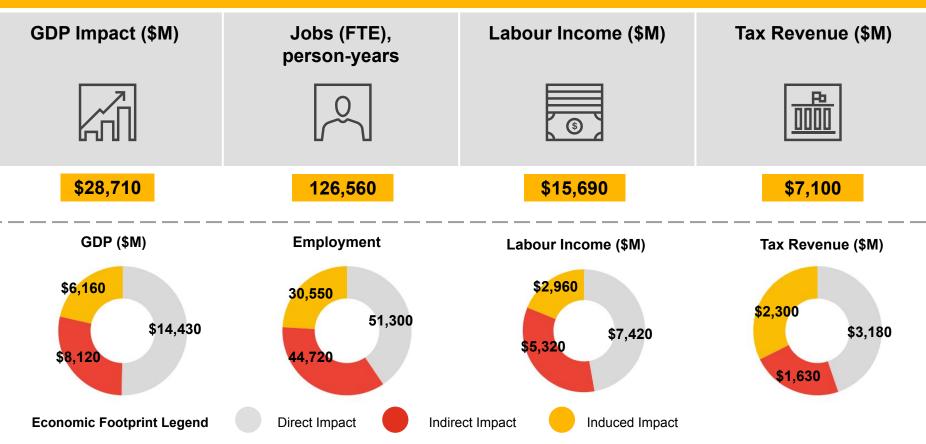
Broader impacts Broader impacts of developing Westinghouse's AP1000 Project, focusing on its impact on skills, training and development, support for local industry clusters, contribution to Canada's climate change efforts, and its adherence to high safety standards in power plant operations.

# The Westinghouse AP1000 Project could support \$28.7 billion in GDP and over 125,000 person-years of employment across Canada during the installation of approximately 4,800 MW of added nuclear capacity

Total economic footprint of AP1000 Project manufacturing, engineering and installation in Canada, cumulative impact 2025-2040 (undiscounted)

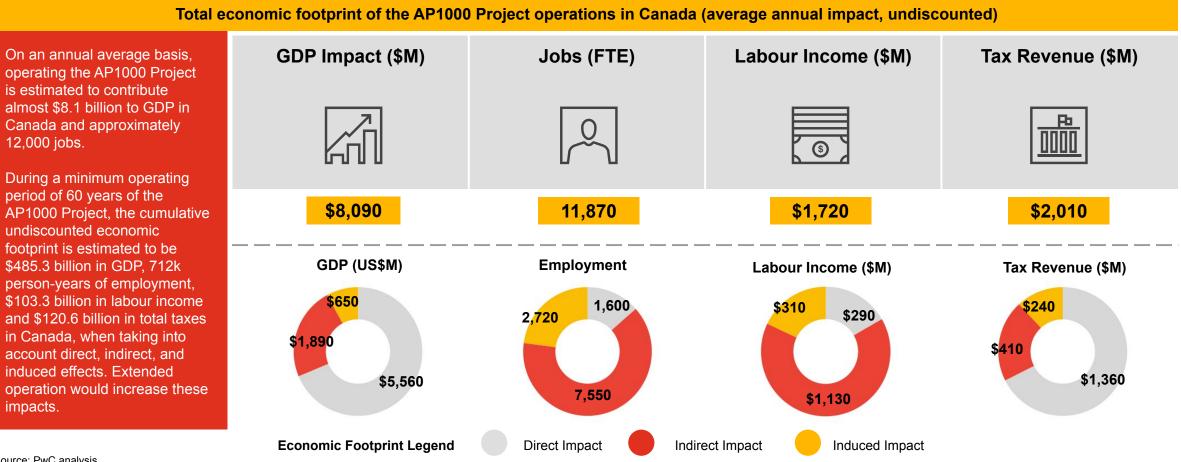
Westinghouse's AP1000 Project is estimated to support an economic footprint of \$28.7 billion over the 16 year manufacturing, engineering and installation phase.

The 126,560 person-years of employment over this period, on average equates to an annual workforce of 7,910 Full Time Equivalent (FTE) roles.



Source: PwC analysis Figures may not sum due to rounding

## Ongoing operations are estimated to provide almost \$8.1 billion in GDP per annum and 12,000 FTE jobs in Canada



Source: PwC analysis Figures may not sum due to rounding

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## The use of the Canadian supply chain to procure inputs for future AP1000 developments globally could support a further \$880 million of GDP impact in Canada for each unit installed

Spending on Canadian suppliers to build AP1000 units globally

- Investing in the AP1000 Project in Ontario will build up the Canadian supply chain for this reactor technology. This will bring future value to Canada as the supply chain will be called upon to support AP1000 developments around the world.
- Currently, there are five operating AP1000 reactors, ten under procurement, construction and commissioning and many more are likely to be developed around the world in the future.
- Using the Canadian supply chain to support installations around the world will open up further economic opportunity for Canada. We estimate that each unit installed globally can provide \$880 million in Canadian GDP due to the use of this supply chain.

Potential economic footprint of future AP1000 Project developments globally on the Canadian economy

\$880 million total GDP

3,900 person-years of employment

\$480 million total labour income

\$220 million total taxes

Source: PwC analysis

Broader benefits of Westinghouse's AP1000 Project include skill and cluster development, as well as climate, safety and community engagement



### Skills development

- Westinghouse's skills development activity supports **efficient and safe** operations and provides opportunities for employees in Canada.
- The AP1000 Project will **provide cutting-edge nuclear skills** with significant investment planned to enable training of a Canadian workforce.
- Westinghouse is building **partnerships with local educational institutions** such as awards to Fleming College and supporting female STEM students at Ontario Tech.
- High-skilled roles created with plans to aid in the training of over 1,600 local employees to work at the AP1000 Project once operational. Many of the roles created will be highly skilled, including engineers, chemists and nuclear technicians.



Nuclear cluster development

- Canada's **extensive nuclear cluster** and supply chain would be strengthened by new investment in the AP1000 Project.
- Canada's nuclear industry already has a significant footprint in the economy, supporting 76,000 jobs annually.
- Westinghouse is an important part of this cluster, with Westinghouse Canada headquartered in Peterborough, Ontario and over 250 employees in Canada.
- The AP1000 Project would further bolster this cluster with Westinghouse planning to make local procurement a key component of its investment plans, with the **majority of total capital expenditure** expected to be spent in Canada.



Climate, safety and community engagement

- Westinghouse is committed to safety with half of the world's nuclear power stations already safely using its technology.
- Westinghouse has committed to net-zero GHG emissions by 2050 and has reduced its Scope 1 emissions by 20% and Scope 2 emissions by 31% from its baseline year of 2019.
- The planned AP1000 Project in Canada would provide carbon-free energy to power over **three million homes**.
- The AP1000 Project can cut 28 million metric tonnes of CO<sub>2</sub> emissions relative to using fossil fuels, equivalent to removing six million cars from the road.
- Westinghouse is a proud member of the Canadian Council for Aboriginal Business' Progressive Aboriginal Relations (PAR) program.

## Introduction and Background

# This report assesses the potential economic and broader impacts of Westinghouse's AP1000 Project in Canada

### Background

Westinghouse is seeking to manufacture and install four AP1000 PWR units in Canada and have commissioned PricewaterhouseCoopers LLP (PwC) to perform an economic footprint analysis and broader impact assessment. Westinghouse is one of the world's leading nuclear energy companies, for example:

- Westinghouse has a longstanding legacy, having constructed the **first ever commercial PWR** in Shippingport, Pennsylvania, in 1957.
- The AP1000 is the **only Generation III+ reactor technology designed**, **built**, **and successfully deployed**. Currently, five units are in commercial operation and an additional ten units are in procurement, construction and commissioning.
- Westinghouse technology helps **power 430 nuclear reactors globally,** around 50% of operating nuclear plants are based on Westinghouse technology.
- Westinghouse employs over **9,500 people across 21 countries**, with 6,800 employees located in the Americas region.
- Westinghouse's current Canadian operations are headquartered in Peterborough, Ontario, employing more than **250 experts**. The recent acquisition of Westinghouse by Brookfield Renewable Partners and Cameco has ensured that the company continues to be 100% Canadian-owned.
- Westinghouse has been expanding its engineering base of operations in Canada in support of new nuclear projects (AP1000, AP300 and eVinci), including the opening in 2024 of a new engineering hub in Kitchener, Ontario. Canada is now the 3rd largest engineering center for the Westinghouse AP1000 reactor with expectations of employing 200-400 engineers at this hub to support domestic and international units.

### Impacts assessed by PwC

### Core areas assessed by PwC

Economic footprint

**Broader** 

impacts

The jobs, GDP, labour income, and tax revenue associated with Westinghouse's AP1000 Project arising from:

- Capital expenditures
- Ongoing operations

Broader impacts of developing Westinghouse's AP1000 Project, focusing on its impact on:

- Skills training and development
- Support for local industry clusters
- Contribution to Canada's climate change efforts
- Adherence to high safety standards in power plant operations

## The AP1000 is Westinghouse's innovative Pressurized Water Reactor model

Based on nearly 70 years of research and development, the AP1000 reactor builds and improves upon previously established technology used in Westinghouse-designed plants since the 1950s. The AP1000 technology offers **three distinct advantages** when compared to previous generations of nuclear reactors:

### **1** Economic competitiveness

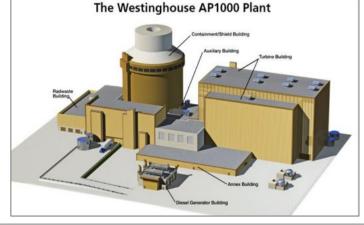
- The AP1000 reactor operates a global fleet and has achieved Nth-of-a-kind status.
- The technology has a strong licensing pedigree in the U.S., U.K., Europe, and China.
- The technology's primary goal is simplification, with fewer components and reduced building volume required, thereby saving capital and operational costs.
- Its modular design accelerates construction and reduces risks by enabling more factory-based work, which offers superior quality and cost control, with lower labour in on-site construction and development.

### 2 Enhanced Safety

- The AP1000 employs passive safety systems, which can operate even in the absence of operator actions or external power.
- The reactor is designed to exceed the U.S. Nuclear Regulatory Commission's safety and risk criteria by a significant margin.
- Simplified safety systems reduce surveillance needs and reduce the likelihood of forced shutdowns.

### **3 More efficient Operations and Maintenance**

- Superior operating performance availability and capacity factors are in excess of 92%.
- · Dramatically reduced start-up test programs from ten months to five months or less.
- Industry performance records set for first cycle refuelling outages (28 days) second cycle (19 days).
- · Plants used for both baseload and load-follow modes with ramp rates of one MW/second.
- Lower operating and maintenance requirements lead to smaller maintenance staff needs, saving costs.



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50%	35%	80%	80%	<b>45%</b>	70%
Fewer Valves *Safety grade. Compared with pre plants producing th			Fewer Heating, Ventilating & Cooling Units	Less Seismic Building Volume	Less Cables

Compared to generating electricity from the combustion of fossil fuels, a single AP1000 reactor unit is capable of reducing CO<sub>2</sub> emissions by seven million metric tons annually. The four unit AP1000 Project would result in a reduction of 28 million metric tons of CO<sub>2</sub> emissions, comparable to the environmental impact of removing seven million passenger vehicles from the road.

## Our approach to assessing the impact of Westinghouse's AP1000 Project involved a five step process

Understanding and assessment of the current situation in Canada	Conducted background research on the nuclear power landscape in Ontario, Canada.			
Collecting data from Westinghouse	Collected quantitative and qualitative data on expenditures related to the proposed investment and broader impacts of the AP1000 Project.			
Collecting data from secondary sources	Collected industry benchmarks and other relevant secondary data.			
Economic footprint analysis	Used PwC's Input-output model to estimate the impact of spending associated with the AP1000 Project on jobs, GDP, labour income, and tax revenue. <sup>1</sup>			
Assessment of broader economic impacts	Assessed and contextualized the broader impacts of Westinghouse's AP1000 Project in Canada.			

## Economic Footprint of Westinghouse Activity

## Our approach assesses the direct, indirect and induced economic footprint of manufacturing, engineering and installation and ongoing operations of the proposed AP1000 Project

The economic footprint of Westinghouse's AP1000 Project is assessed in two stages:

1. Manufacturing, engineering and installation

Expected to provide tens of billions of dollars of investment in Canada

Manufacturing, engineering and installation period expected to span 16 years

2. Ongoing AP1000 Project operations

Over 1,600 direct jobs sustained over the period

Carbon-free energy provided for over three million homes

Operational lifespan of the plant: minimum of 60 years

The planned spending on the AP1000 Project would generate economic impact through the following channels:

- Direct impacts result from companies' spending on suppliers and employees.
- Indirect impacts arise from the activities of the firms providing inputs to a company's suppliers (in other words, the suppliers of its suppliers).
- Induced impacts are the result of consumer spending by employees of the businesses stimulated by direct and indirect expenditures.
- The total economic impact is equal to the sum of the direct, indirect, and induced economic impacts.

These calculations were developed through PwC's economic modelling. These values represent gross calculations of the economic footprint of the AP1000 Project.

# The Westinghouse AP1000 Project could create a GDP impact of over \$28.7 billion in Canada through manufacturing, engineering and installation

Cumulative economic footprint of manufacturing, engineering and installation phase in Canada, 2025-2040, undiscounted, \$ millions

	Direct	Indirect	Induced	Total
GDP	\$14,430	\$8,120	\$6,160	\$28,710
Employment (FTE), person-years	51,300	44,720	30,550	126,560
Labour income	\$7,420	\$5,320	\$2,960	\$15,690
Federal taxes				\$3,480
Provincial taxes				\$2,780
Municipal taxes				\$850
Total taxes	\$3,180	\$1,630	\$2,300	\$7,100

Source: PwC analysis Due to rounding, total impact value may not equal the sum of direct, indirect and induced footprints

PwC | The Economic Impact of a Westinghouse AP1000 Reactor Project in Canada

The table presents cumulative economic footprint calculations over the 16 year manufacturing, engineering and installation period. **Cumulatively**, we estimate that the AP1000 Project would contribute \$28.7 billion to GDP, 126.6k person-years of employment, \$15.7 billion in labour income and \$7.1 billion in total taxes in Canada, when taking into account direct, indirect, and induced effects.

**Annually**, on average, this equates to \$1,790 million in GDP, 7,910 jobs, \$980 million in labour income and \$440 million in total taxes over the 16 year manufacturing and installation period. Average annual economic footprint of **AP1000 Project operations** in Canada, undiscounted, \$ millions

	Direct	Indirect	Induced	Total
GDP	\$5,560	\$1,890	\$650	\$8,090
Employment (FTE)	1,600	7,550	2,720	11,870
Labour income	\$290	\$1,130	\$310	\$1,720
Federal taxes				\$890
Provincial taxes				\$720
Municipal taxes				\$400
Total taxes	\$1,360	\$410	\$240	\$2,010

Source: PwC analysis Due to rounding, total impact value may not equal the sum of direct, indirect and induced footprints

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The table depicts the average annual impact of the AP1000 Project during its operational phase.

Annually, on average, the economic footprint is estimated to be \$8.1 billion in GDP, 11,900 jobs, \$1.7 billion in labour income and \$2.0 billion in total taxes in Canada, when taking into account direct, indirect, and induced effects.

**Cumulatively**, during 60 years of ongoing operations, the economic footprint is estimated to be \$490 billion in GDP, 710k person-years of employment, \$100 billion in labour income and \$120 billion in total taxes in Canada.

## Broader Impacts of Westinghouse Activity

## Westinghouse's AP1000 Project will have broader impacts in Ontario and across Canada

The impacts of the AP1000 technology deployment go beyond the economic footprint presented earlier in this report. The following slides highlight how deployment of this program could contribute to a broader range of impacts including:

- 1. Skill development: the nuclear industry and its supply chain create high-skilled, well-paid jobs in Canada. A critical part of Westinghouse's planned investment is in enabling Canadian training and human capital to make sure Canada has skilled employees who can safely and efficiently operate the reactor.
- 2. Nuclear cluster development: there is already an extensive pan-Canadian nuclear supply chain including uranium mining and refining in the Prairies, manufacturing of specialised equipment, research, power generation and waste management across a number of provinces. As the first grid-scale nuclear build in Canada for 40 years, the Westinghouse AP1000 Project would boost Canada's nuclear cluster and allow Canadian suppliers to benefit from the large number of AP1000 units that are expected to be deployed around the world.
- **3.** Climate, safety and community engagement: nuclear investments can make a major contribution to the communities where they are located and to Canada's net-zero commitments by providing additional capacity of carbon-free electricity. Westinghouse also brings a strong track record of safety and adheres to high technical and regulatory standards.



# Westinghouse's skills development activity supports efficient and safe operations and provides opportunities for Canadians

A core part of the strategy when developing the AP1000 Project is investing in local human capital to ensure the plant has the skilled personnel needed to operate it.

As shown in the preceding analysis, the AP1000 Project in Ontario is expected to create 1,600 direct jobs to operate the plants.

As the diagram shows, Westinghouse plans to take a proactive stance in helping to develop the local workforce needed to operate the plant through training support and partnerships with local higher education facilities. Skill development initiatives associated with AP1000 Project

### **Cutting-edge nuclear training**

- Westinghouse relies on a specialized and highly trained workforce for safe operations and continued innovation.
- Significant investment in workforce training is planned for the AP1000 Project.

### Partnerships with educational institutions

- Westinghouse supports initiatives aimed at assisting post-secondary students in their desired career paths.
- This includes providing awards to first-year students in Welding and Fabrication at Fleming College and supporting female STEM students at Ontario Tech, among other initiatives.

### **Technical training**

- Westinghouse supports the owner in the training of their staff to be able to properly operate and maintain the plant across all levels of the organization, resulting in upskilled talent, enhanced development capabilities, and improved safety.
- Around 1,600 local employees will be trained to work at the AP1000 Project once operational.

### Leadership training

- Westinghouse offers leadership training that includes a self-assessment tool, team-building exercises, skill enhancement for managers, and coaching for personal and team development.
- All employees must complete required Nuclear Safety Culture training, with additional training modules for leaders.

## Canada has an extensive nuclear cluster and supply chain



Sources: Westinghouse, NRCan, World Nuclear Association, Canadian Nuclear Association, MZConsulting Inc

- Canada's nuclear cluster already extends beyond the operation of reactors. As shown on the map, Canada has an extensive uranium industry. It is the second-largest uranium producer in the world (as of 2019), with 13% of the world's uranium mined and milled in northern Saskatchewan. As well as supplying domestic reactors, this industry is a major export success, with 75% of Canada's uranium exported, with the US being the largest customer.
- Canada also possesses research excellence. For 75 years, Canadian Nuclear Laboratories (CNL) has been at the forefront of innovation in nuclear medicine, radiopharmaceuticals, and low dose radiation research. CNL's largest facility is at Chalk River Laboratories, on the border of Ontario and Quebec, and it has approximately 50 other sites across Canada.
- The current cluster is estimated to support 76,000 jobs across Canada.
- Nuclear energy significantly benefits local communities. For instance, in the tri-county region encompassing Bruce, Grey, and Huron counties, the number of suppliers serving the nuclear energy sector rose from 13 in 2016 to 60 in 2022, spreading across 15 communities within the region.

# The AP1000 Project could open up new opportunities for Canadian suppliers

Westinghouse plans to make local procurement a key component of its investment strategy, with the majority of total capital spending on the AP1000 Project expected to be spent in Canada.

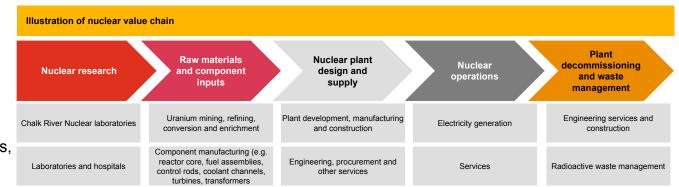
Key local suppliers will likely operate in:

- Construction, engineering and management companies.
- Component manufacturing including large structural fabrications, nuclear steam supply system (NSSS) equipment, mechanical modules, cranes, pumps, valves and electrical equipment.

The manufacturing and installation of the AP1000 Project in Ontario will build a strong network of Canadian suppliers for this technology, opening a range of new opportunities for Canada, for example:

- Using Canadian suppliers to support AP1000 installations around the world.
- Deploying other advanced reactors such as the AP300 SMR and the eVinci microreactor. The AP300 SMR in particular, has many identical components to the AP1000 technology and shares much of its supply chain.

AP1000 technology would support Ontario's position as a world leader in medical isotope research and production.



- Westinghouse already has a significant footprint in Canada, and its staff here would play a major role in deploying the AP1000 Project.
- Westinghouse Canada is an incorporated Canadian company headquartered in Peterborough, Ontario.
- Westinghouse has offices across Ontario (Peterborough, Toronto, Stratford, Port Elgin, Deep River, and Ottawa).
- There are over 250 nuclear employees in Canada supporting existing operations and developing new nuclear reactor technology.
- Westinghouse has been expanding its engineering basis of operations in Canada in support of new plant projects (AP1000 reactors, AP300 SMR and eVinci microreactor), including the opening in 2024 of a new engineering hub in Kitchener, Ontario. Canada is now the third largest engineering centre for the Westinghouse AP1000 technology, and they expect to employ 200-400 engineers at this hub to support domestic and international units.

# The use of the Canadian supply chain to procure inputs for AP1000 developments globally could support an \$880 million GDP impact in Canada for each AP1000 unit built around the world

Cumulative economic footprint in Canada of global AP1000 developments, undiscounted, \$ million

	Direct	Indirect	Induced	Total
GDP	\$440	\$250	\$190	\$880
Employment (FTE), person-years	1,570	1,370	940	3,900
Labour income	\$230	\$160	\$90	\$480
Total taxes	\$100	\$50	\$70	\$220

An AP1000 Project in Ontario will leverage and grow the existing supply chain and develop new suppliers.

Westinghouse has another ten AP1000 units under procurement, construction and commissioning, and many more are likely to be commissioned in the future around the world.

We have estimated that, through the use of these Canadian suppliers, each unit developed globally in the future could lead to \$880 million of GDP impacts in Canada.

Source: PwC analysis

Due to rounding, total impact value may not equal the sum of direct, indirect and induced footprints.

# Westinghouse's technology is safely deployed in half of the world's nuclear power stations

- Westinghouse brings extensive experience to delivering nuclear energy safely. It is a leading global supplier and pioneer of the commercial nuclear power industry, and as such is the original equipment manufacturer or service provider for approximately half of the world's nuclear plants.
- In terms of safety and security, Westinghouse voluntarily implements industry best practices and standards established by the Institute for Nuclear Power Operations (INPO) and the World Association of Nuclear Operators (WANO).
- Westinghouse's global site activities are licensed and supervised by nuclear safety regulators, ensuring adherence to strict regulations, advanced training, and comprehensive programs.
- Westinghouse already holds **full Canadian QA certifications**: CSA N285, N299 and ISO 9001.



## Nuclear energy can help to meet net-zero targets

- Nuclear energy is likely to play an important role in the global road to net-zero. For example, the International Energy Agency estimates that nuclear power capacity will need to double between 2020 and 2050 to achieve global net-zero GHG emissions by 2050.
- Nuclear electricity in Canada displaces **about 50 million tonnes of GHG** emissions annually, equivalent to removing 10.7 million passenger vehicles off the road.
- Electricity from exported Canadian uranium helps to offset more than **300** million tonnes of GHG emissions worldwide.
- In 2022, Westinghouse committed to achieving **net-zero GHG emissions by 2050**, in alignment with the Paris Agreement.
- Westinghouse is committed to enhancing its environmental stewardship through a multifaceted approach. This includes the implementation of comprehensive energy reduction strategies, the improvement of waste management practices, the advancement of water conservation policies, and the establishment of measures to protect ecosystems.
- Westinghouse has reduced its **Scope 1 emissions by 20%** and **Scope 2 emissions by 31%** from its baseline year of 2019.



Sources: Westinghouse, International Energy Agency, World Nuclear Association

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## Westinghouse recognizes the rights of Indigenous Peoples to maintain and develop their cultures, spiritual identities and societies while enjoying sustainable economic prosperity

Westinghouse respectfully acknowledges that its offices are located on land within the traditional and treaty territory of many Indigenous communities.

As part of its commitment, Westinghouse recognizes that Indigenous people play a significant role along the nuclear value chain, with the uranium mining industry being the **largest private employer of Indigenous people in Saskatchewan**.

Westinghouse's reconciliation journey is supported by its **Indigenous Relations Committee**, **Indigenous Relations policy**, and **Diversity**, **Equity and Inclusion initiatives**.

Westinghouse's Indigenous Relations initiatives:

- Focusing on recruitment diversity with annual workplace composition objectives.
- Organizing quarterly internal cultural awareness activities, training, guest speakers, and initiatives to promote knowledge building across the company.
- Building relationships with Indigenous communities locally in Ontario and in key business growth geographies, including Saskatchewan and Nunavut.
- Surveying the Canadian supply chain for Indigenous business partnerships with nuclear and non-nuclear vendors.
- Supporting local Indigenous initiatives through sponsorship and employee in-kind engagement.

### Progressive Aboriginal Relations Program

Westinghouse Canada is on a journey of reconciliation and is a committed member of the Canadian Council for Aboriginal Business' (CCAB) Progressive Aboriginal Relations (PAR) program.

The PAR program promotes four drivers for company-led Indigenous reconciliation and advancement including Leadership Actions, Employment, Business Development and Community Relations.

Sources: Westinghouse and Natural Resources Canada

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## Appendices

## Appendix A: Limitations

**Receipt of new data or facts**: PwC reserves the right at its discretion to withdraw or revise this report should we receive additional data or be made aware of facts existing at the date of the report that were not known to us when we prepared this report. The findings are as of February 2024 and PwC is under no obligation to advise any person of any change or matter brought to its attention after such a date that would affect the findings.

**Reliance on data from Westinghouse Electric Company**: PwC's analysis relies on information provided by Westinghouse Electric Company such as that relating to the construction and operation of the AP1000 Project. PwC has not audited or otherwise verified the information supplied to us.

**Input-output analysis**: Input-output analysis (a model used to estimate GDP and employment impact) does not address whether the inputs have been used in the most productive manner or whether the use of these inputs in this industry promotes economic growth by more than their use in another industry or economic activity. Nor does input-output analysis evaluate whether these inputs might be employed elsewhere in the economy if they were not employed in this industry at the time of the analysis. Input-output analysis estimates the direct, indirect and induced economic impacts that can reasonably be expected to affect the economy based on historical relationships within the economy.

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This report and related analysis must be considered as a whole: Selecting only portions of the analysis or the factors considered by us, without considering all factors and analysis together, could create a misleading view of the findings. The preparation of this analysis is a complex process and is not necessarily susceptible to partial analysis or summary description. Any attempt to do so could lead to undue emphasis on any particular factor or analysis. We note that significant deviations from the above listed major assumptions may result in a significant change to this analysis.

## Appendix B: Input-output methodology

### Input-output modelling: overview

The fundamental philosophy behind economic impact analysis is that spending on goods and services has attendant impacts throughout the economy. For instance, construction expenditures will generate demand for the inputs to this process (such as tools and labour) that in turn generates additional demand that extends beyond the initial spending. This analysis permits the estimation of this cascading effect by using an input-output model of the Canadian economy.

Inputs used for the economic footprint assessment are provided by the Westinghouse Electric Company's estimates of capital expenditures, operating expenditures and revenues associated with the manufacturing, engineering and installation and operations of the AP1000 Project in Ontario.

The input-output model used for the purpose of this report estimates the relationship between economic activity for a given good or service and the resulting impacts throughout the economy (including demand for other goods and services and tax revenues). For the purpose of this report, economic impacts were estimated for the following measures of economic activity:

- GDP the value added to the economy, or the output valued at basic prices less intermediate consumption valued at purchasers' prices.
- Employment the number of FTE jobs created or supported.
- **Labour income** the amount earned by the employment expected to be generated.
- **Government revenue** the amount of revenue collected by the provincial, local and federal government. It includes personal and corporate income taxes collected on a provincial and territorial level, as well as other direct and indirect taxes.

The economic footprint was estimated at the direct, indirect and induced levels:

- Direct impacts are those that result directly from the company's expenditures on labour and capital as well as gross operating profits.
- Indirect impacts arise from the activities of the firms providing inputs to the company's suppliers (in other words, the suppliers of its suppliers).
- Induced impacts are the result of consumer spending by employees of the businesses stimulated by direct and indirect expenditures.

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