

The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland



### Notice to Reader

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

This report provides an assessment of the economic and broader benefits of Westinghouse's potential investments in Poland 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 economic footprint values are in 2023 Polish zloty,<sup>1</sup> unless otherwise specified.

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

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<sup>&</sup>lt;sup>1</sup> Exchange rate used was National Bank of Poland's average annual USD/PLN rate for January-December 2023 of 4.2021.

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# Results of Assessment

### This study assesses the economic footprint and broader impacts of the **AP1000** Project in Poland

### Background

In light of its decarbonization efforts, Poland is assessing the potential to build its first nuclear power plant. In that context, Westinghouse is seeking to install six AP1000 pressurized water reactor (PWR) units in Poland ("the AP1000 Project").

- Based on the current household energy consumption in Poland, six-unit facility could power up at least 13 million households.
- The AP1000 Project would lay the foundation for and contribute to the economic footprint of Poland's nuclear sector through capital investments and the ongoing operation of a new nuclear power project.
- It will also help to create a stronger **nuclear industry supply** chain across Poland and set the stage to support future investments in Westinghouse's advanced technologies, such as the AP300 Small Modular Reactor and eVinci microreactor.
- The construction of Westinghouse reactors, being a carbon-free source of energy, aligns with the European Green Deal commitments and contributes to sustainable development of the country.

### Scope of analysis

#### Core areas assessed by PwC

The jobs, GDP, labor income and tax revenue associated with the AP1000 Project arising from:

- Economic Capital expenditures footprint
  - Ongoing operations

Broader impacts

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

Sources: Westinghouse and European Green Dea; household energy consumption is based on the data from Energy Regulatory Office PwC | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024

# The AP1000 Project could support PLN 118.3 billion in GDP and over 204,990 person-years of employment across Poland during the installation of approximately 7,200 MWe of added nuclear capacity

Total economic footprint of AP1000 Project manufacturing, engineering and installation in Poland, cumulative impact 2022-2041 (undiscounted)

The AP1000 Project is estimated to support an economic footprint of PLN 118.3 billion over the 20 year manufacturing, engineering and installation phase.

The 204,990 person-years of employment over this period, on average, equates to an annual workforce of 10,250 Full Time Equivalent (FTE) roles.



Source: PwC analysis Figures may not sum due to rounding

PwC | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024

## Ongoing operations are estimated to provide PLN 38 billion in GDP per annum and over 16,300 FTE jobs in Poland



Figures may not sum due to rounding

PwC | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024

### The use of the supply chain to procure inputs for future AP1000 developments in the region (outside of Poland) could support a further PLN 1.9 billion of GDP impact in Poland for each unit installed

Spending on Polish suppliers to build AP1000 units

 Investing in the AP1000 Project in Poland will build up the Polish supply chain for this reactor technology. This will bring future value to Poland as the supply chain will be called upon to support AP1000 developments elsewhere in the region.

- Currently, there are six 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 Polish supply chain to support installations around the world will open up further economic opportunity for Poland. We estimate that each unit installed in the region can provide PLN 1.9 billion in Polish GDP due to the use of this supply chain.

Potential economic footprint of future AP1000 Project developments on the Polish economy

#### PLN 1.9 billion total GDP

3,300 person-years of employment

#### PLN 0.8 billion total labor income

#### PLN 0.8 billion total taxes

Source: PwC analysis

## Broader benefits of the AP1000 Project include skill and cluster development, as well as climate benefits



### Skills development

- Westinghouse's skills development activity supports efficient and safe operations and provides opportunities for employees in Poland.
- The AP1000 Project will provide **cutting-edge nuclear skills** with significant investment planned enable training of a Polish workforce.
- Every year, Westinghouse is building **new partnerships with local educational institutions**. For example, its Central and Eastern European summer internship program took fifteen students from Poland to the United States in 2023, and will create more opportunities going forward.
- **High-skilled roles created** with plans to aid in the training of over 2,400 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

- The use of nuclear energy will enable the development of many industries and new specializations and technologies along the entire supply chain.
- The AP1000 Project would lay foundation to the development of this cluster in Poland, 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 Poland.



#### **Climate and safety**

- 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 AP1000 Project in Poland would provide carbon-free energy to power at least 13 million homes.
- The AP1000 Project can cut approximately 42 million metric tonnes of CO<sub>2</sub> emissions relative to using fossil fuels, equivalent to removing nine million cars from the road.

### Introduction and Background

## This report assesses the potential economic and broader impacts of the AP1000 Project in Poland

### Background

Westinghouse is seeking to manufacture and install six AP1000 PWR units in Poland 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.
- Today, there are more than 430 nuclear power reactors in operation worldwide. Westinghouse technology is the basis for approximately half of these reactors, giving Westinghouse the world's largest installed base of operating plants.
- Westinghouse employs over **9,500 people across 21 countries**, with 4,300 employees located in Europe.
- In 2023, Polskie Elektrownie Jądrowe (PEJ) and Westinghouse signed two Cooperation Agreements in the presence of the Polish Minister of Climate and Environment, launching joint activities with the purpose of preparing for Poland's first nuclear power plant project. These were:
  - The Bridge contract, signed in February 2023 between PEJ with Westinghouse.
  - The **Engineering Services Contract**, signed in September 2023 between PEJ and the Westinghouse-Bechtel consortium.

#### Impacts assessed by PwC

### Core areas assessed by PwC

Broader

impacts

Economic footprint The jobs, GDP, labor income, and tax revenue associated with the AP1000 Project arising from: • Capital expenditures

Ongoing operations

Broader impacts of developing the AP1000 Project, focusing on its impact on:

- Skills training and development
- Support for local industry clusters
- Contribution to Poland'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., the 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 labor 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 base load 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>	<b>70%</b>		
Fewer	Fewer	Less	Fewer	Less	Less		
Valves	Pumps	Pipe*	Heating,	Seismic	Cables		
			Ventilating &	Building			
* Safety Grade			Cooling Units	Volume			
Compared to a conventional, 2-loop MWe plant							

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. A six unit AP1000 Project would result in a reduction of approximately 42 million metric tons of CO<sub>2</sub> emissions, comparable to the environmental impact of removing nine million passenger vehicles from the road.

Source: Westinghouse

PwC | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024

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

Understanding and assessment of the current situation in Poland	Conducted background research on the nuclear power landscape in Poland and globally.				
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, labor income, and tax revenue. <sup>1</sup>				
Assessment of broader economic impacts	Assessed and contextualized the broader impacts of the AP1000 Project in Poland.				

<sup>&</sup>lt;sup>1</sup> The model employs the input-output tables from Eurostat for its calculations.

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### 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 the AP1000 Project is assessed in two stages:

1. Manufacturing, engineering and installation

Expected to provide tens of billions of zlotys in investment in Poland

Manufacturing, engineering and installation period expected to span 20 years

 ges:

 2. Ongoing AP1000 Project operations

 Over 2,400 direct jobs sustained over the period

 Carbon-free energy provided for at least 13 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 AP1000 Project could create a GDP impact of over PLN 118.3 billion in Poland through manufacturing, engineering and installation

Cumulative economic footprint of manufacturing, engineering and installation phase in Poland, 2022-2041, undiscounted, PLN billions

	Direct	Indirect	Induced	Total
GDP	PLN 73.7	PLN 25.9	PLN 18.7	PLN 118.3
Employment (FTE), person-years	120,230	47,500	37,270	204,990
Labor income	PLN 34.3	PLN 11.1	PLN 7.0	PLN 52.3
Total taxes	PLN 31.7	PLN 11.2	PLN 8.0	PLN 50.9

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 presents cumulative economic footprint calculations over the 20 year manufacturing, engineering and installation period. **Cumulatively**, over the 20 years, we estimate that the AP1000 Project would contribute PLN 118.3 billion to GDP, 205k person-years of employment, PLN 52.3 billion in labor income and PLN 50.8 billion in total taxes in Poland, when taking into account direct, indirect and induced effects. Annually, on average, this equates to PLN 5.9 billion in GDP, 10,250 jobs, PLN 2.6 billion in labor income and PLN 2.5 billion in total taxes.

Average annual economic footprint of AP1000 Project operations in Poland, undiscounted, PLN billions

	Direct	Indirect	Induced	Total
GDP	PLN 26.3	PLN 7.1	PLN 4.7	PLN 38.0
Employment (FTE)	2,400	8,360	5,500	16,310
Labor income	PLN 1.1	PLN 3.2	PLN 1.8	PLN 6.1
Total taxes	PLN 11.3	PLN 3.1	PLN 2.0	PLN 16.4

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 PLN 38.0 billion of GDP, 16,310 jobs, PLN 6.1 billion in labor income and PLN 16.4 billion in total taxes in Poland, when taking into account direct, indirect and induced effects.

**Cumulatively**, during 60 years of ongoing operations, the economic footprint is estimated to be PLN 2,282 billion of GDP, 978,000 person-years of employment, PLN 363 billion in labor income and PLN 981 billion in total taxes in Poland.

### Broader Impacts of Westinghouse Activity

### The AP1000 Project will have broader impacts across Poland

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 Poland. A critical part of Westinghouse's planned investment is in enabling Polish training and human capital to make sure Poland has skilled employees who can safely and efficiently operate the reactor.
- 2. Nuclear cluster development: developing the first nuclear power plant in Poland will be a major step towards diversification of energy sources, and the rapid development of a nuclear cluster and supply chain. This has already begun as in 2022, Westinghouse AP1000 technology was selected for Poland's new nuclear program. A year later, Westinghouse and Bechtel signed an agreement for the design of Poland's first nuclear power plant. This includes the main components of the power plant, i.e., the nuclear island, the turbine island and the accompanying installations and auxiliary equipment, as well as administrative buildings and infrastructure related to the facility's safety.
- **3.** Climate and safety: nuclear investments can make a major contribution to the communities where they are located and to Poland'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 Poland

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 Poland is expected to create 2,400 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.
- Westinghouse's Central and Eastern European summer internship program took fifteen students from Poland to the United States in 2023 and will create more opportunities going forward. The program offers an all-expenses-paid experience for these students that includes class-based and on-the-job training.

#### **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 2,400 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.

## Poland is planning to open its first nuclear power plant in the coming years

- Poland has set out a pathway to develop new nuclear power, with the aim of building six to nine GWe of nuclear capacity, using PWR reactor technology. According to latest Polish Nuclear Power Program timeline (published in 2020, and shown opposite in the top half of the timeline), construction is due to begin in 2026, with commissioning of the first unit targeted for 2033.
- The Polish Nuclear Power Program plan sets out a number of potential locations for the nuclear reactors in Poland; including coastal locations (such as Lubiatowo-Kopalino), as well as locations currently hosting conventional power plants (such as Bełchatów and Pątnów). In 2021, it was announced by the Polskie Elektrownie Jądrowe (PEJ) that Lubiatowo-Kopalino had been selected as the preferred site for the construction of Poland's first nuclear power plant.
- Westinghouse is already present in Poland, with offices in Warsaw and Krakow since 2021, employing over 300 staff members. It has been supporting the development of the new nuclear cluster for several years, including identifying over 300 Polish companies as potential partners for manufacturing, engineering and installation of the AP1000 reactors. In 2022, Westinghouse signed a memoranda of understanding with 22 Polish companies as part of its commitment to developing a local supply chain. In November 2022, the government adopted a resolution on building the first nuclear power plant in Poland based on Westinghouse technology.

#### Timeline of past and planned nuclear energy commitments in Poland

The top half of the timeline is based on the project implementation schedule presented in The Polish Nuclear Power Program (2020 version). Westinghouse is not the source of this information, and this schedule is subject to change

Polish Nu adoption The Polisi was first a Ministers i updated vi 2020).	clear Power Program h Nuclear Power Program dopted by the Council of n January 2014 (with an ersion published in October	Plant developm consi Construction of the firs nuclear power plant is due	ent and truction st Polish to begin in 2026.		Construction of subsequent plant The Polish government expects the construction of a second plant to start in 2032.	Commissioning of the first reactor Plant commissioning and issuance of operating permit by the Polska Agencja Atomistyki* are currently planned for 2033.
IGA signing Intergovernmental Agreement signed between Poland and the United States.	2020 2021 Expansion Westinghouse opened offices in two Polish cities - Warsaw and Krakow. Cooperation Agreement Agreement between the U.S. Trade and Development Agency, PEJ and Westinghouse-BECHTEL was signed. Front End Engineering Design and Concept Execution Report was started	2022 2 2023 Close partnerships - Cooperation Agreement between PEJ and Westinghouse was signed. - AP1000 technology was selected for the 1st Site based on PLG resolution. - Westinghouse signed memoranda of understanding with 22 Polish companies on the potential construction of AP1000 reactors in Poland.	Oper - PE, Bridg activi desig powe - Cor signe Cont - Env grant	rationalizatio J and Westing the Contract of tities on the ping of the first or plant. Insortium West and Engineerin ract. Vironmental d ted for Lubiat	2032 • 2033 on of cooperation ghouse signed a ommencing joint reparation and ot Polish nuclear stinghouse-Bechtel ng Services ecision was owo-Kopalino site.	•••••

Sources: Polish Nuclear Power Program (2020 update), Westinghouse and Polish Nuclear Power Plants **PwC** | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024 The bottom half of the timeline is based on publicly available information.

\* Polska Agencja Atomistyki (Eng. National Atomic Energy Agency).

### The AP1000 Project could open new opportunities for Polish suppliers

Lubiatowo-Kopalino in Choczewo

municipality has been identified as

nuclear power station in Poland by

Other potential locations include sites

currently used by baseload power plants.

such as e.g. Bełchatów and Patnów, which

were identified as recommended locations.

the preferred location for the first

Lubiatowo-Kopalino

**Other locations** 

PEJ.

#### Potential sites of nuclear power plants in Poland presented in The Polish Nuclear Power Program (2020 version)



### **Energy security**

Recent conflicts in Europe have highlighted the fragility of natural gas supply and the benefits of the secure energy supply nuclear power offers.

### **Climate and environment**

Decarbonization efforts of EU countries requires diversification and transition into carbon-free energy sources, driving an increase in investments in nuclear power.

#### **Economy**

With more stable generation costs than fossil fuel based energy, nuclear can help reduce inflationary volatility, as well as creating thousands of well-paid jobs.

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

The Project is expected to result in job creation and economic growth by localization of equipment manufacture and supply, construction, operation and maintenance.

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.

Selecting a single technology, like the AP1000 reactor, for Poland's nuclear projects, will inherently offer synergies and opportunities for cost efficiency in construction.

Furthermore, rollout of the six AP1000 units in Poland and subsequent supply chain development can lead to a much broader spectrum of nuclear opportunities to service other AP1000 units that are likely to be built in the region. Globally, there are already five AP1000 units in commercial operation and an additional ten units are in procurement, construction and commissioning.

Sources: Polish Nuclear Power Program (2020 update), Polish Energy Policy 2040 and Westinghouse PwC | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024

### The use of the supply chain to procure inputs for AP1000 developments in the region (outside of Poland) could support a PLN 1.9 billion GDP impact in Poland for each AP1000 unit

Cumulative economic footprint in Poland of regional AP1000 developments, undiscounted, PLN billion

	Direct	Indirect	Induced	Total
GDP	PLN 1.2	PLN 0.4	PLN 0.3	PLN 1.9
Employment (FTE), person-years	1,910	760	590	3,260
Labor income	PLN 0.5	PLN 0.2	PLN 0.1	PLN 0.8
Total taxes	PLN 0.5	PLN 0.2	PLN 0.1	PLN 0.8

An AP1000 Project in Poland 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 Polish suppliers, each unit developed in the region in the future could lead to PLN 1.9 billion of GDP impacts in Poland.

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 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.
- New nuclear power developments in Poland would meet the standards set by the International Atomic Energy Agency (IAEA), the European Union and EURATOM.



### 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.
- In 2022, Westinghouse committed to achieving **net-zero GHG emissions by 2050**, in alignment with the Paris Agreement.
- Westinghouse has reduced its Scope 1 emissions by 20% and Scope 2 emissions by 31% from its baseline year of 2019.
- According to the EU Climate Law objectives, the European Union plans to reach climate neutrality by 2050, as well as 2030 climate target of at least 55% reduction of net emissions of greenhouse gases as compared to 1990.
- According to The Polish Nuclear Power Program, in 2045 the share of nuclear energy in the generation mix in Poland should be approximately 27%.



Sources: Westinghouse, International Energy Agency, World Nuclear Association **PwC** | The Economic Impact of a Westinghouse AP1000 Reactor Project in Poland | March 2024



### 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 March 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 calculates the direct, indirect and induced economic impacts that can reasonably be expected to affect the economy based on historical relationships within the economy. This analysis does not take into account fundamental shifts in the relationships within the economy that may have taken place since the last estimation of the I/O tables by Eurostat, nor shifts that may take place in the future.

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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 labor) 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 Polish 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 Poland.

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.
- Labor income the amount earned by the employment expected to be generated.
- **Government revenue** the amount of revenue collected by the Government of Poland. It includes personal and corporate income taxes collected, 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 labor 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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