

OSGE

ORLEN SYNTHOS GREEN ENERGY

**OSGE & BWRX-300
MOST ADVANCED
SMR PROJECT
IN THE EU**

About OSGE

Synthos Green Energy and ORLEN have established the JV – **ORLEN Synthos Green Energy** to deploy the BWRX-300 SMRs designed by GE Hitachi Nuclear Energy - a leading US nuclear company.

VISION: GREEN ENERGY WALL

Powering the development of sustainable energy generation using innovative nuclear technologies to ensure steady economic growth and a clean environment for our communities and the next generations.

MISSION: NET ZERO NUCLEAR

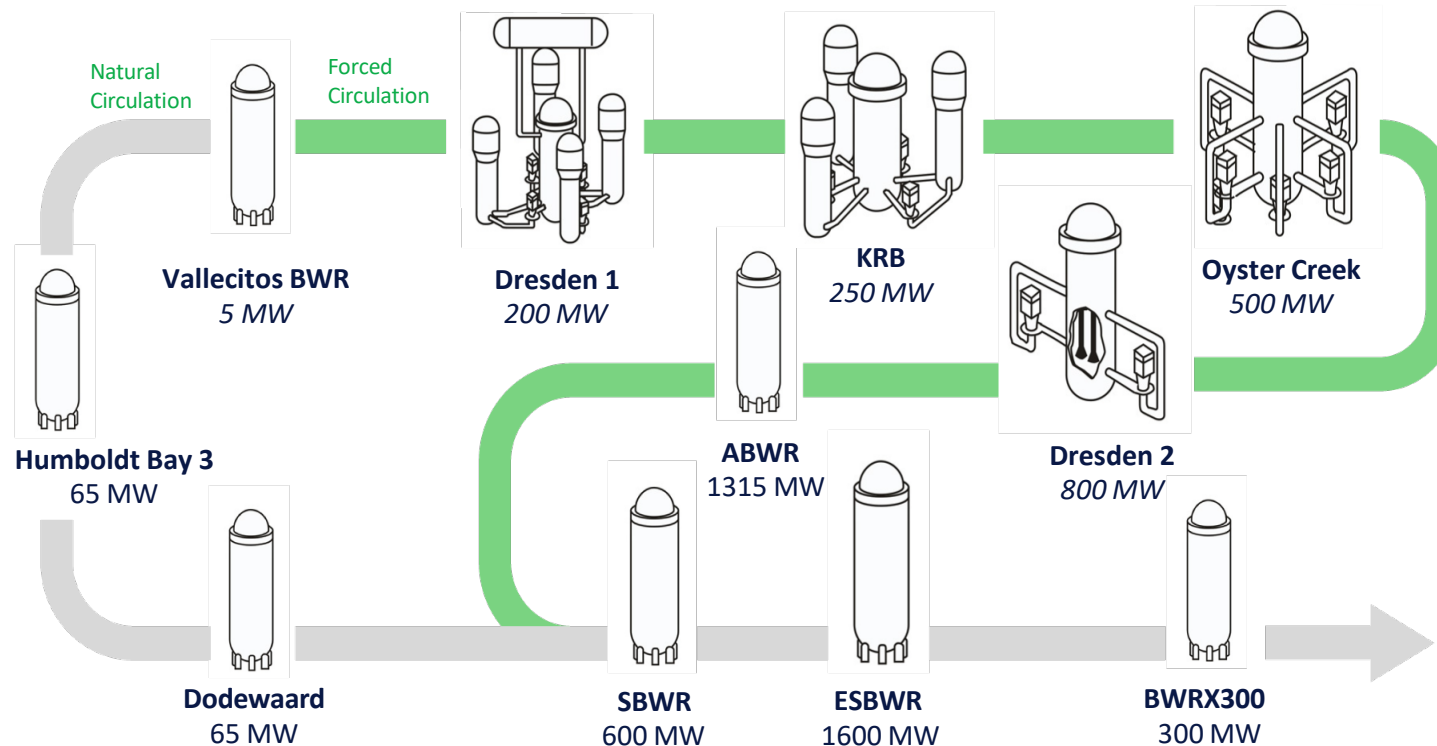
A leading role in deploying a fleet of Small Modular Reactors as an essential component of the efficient transition of energy generation towards Net Zero by 2050.



TECHNOLOGY

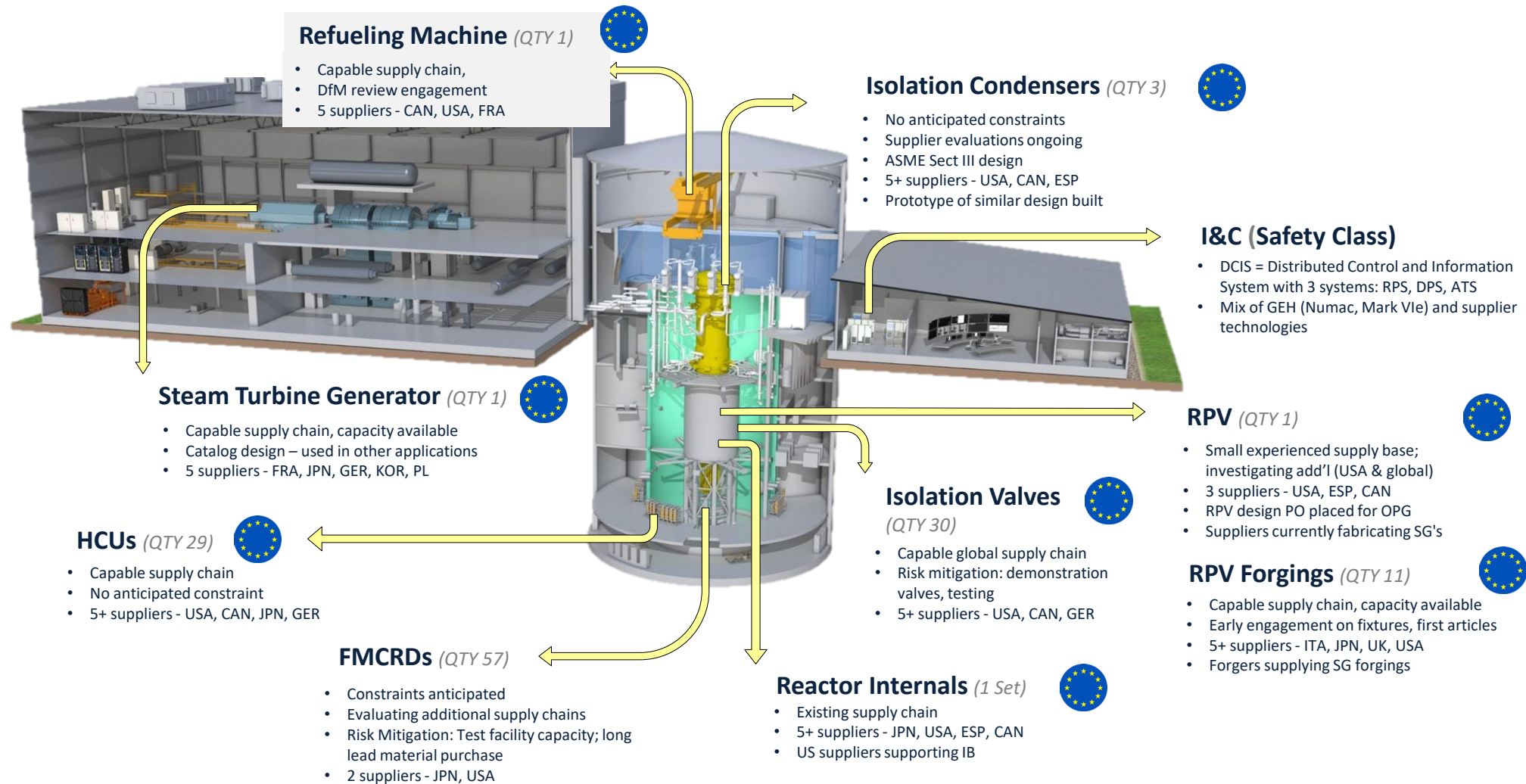


GE: 70+ years of evolutionary development of the BWR technology



- 10th generation Boiling Water Reactor (GE - 67 licensed reactors in 10 countries)
- World class safety
- Leverages U.S. NRC licensed ESBWR
- Design-to-cost approach
- Significant capital cost reduction per MW
- Capable of load following
- Ideal for electricity generation and industrial applications, including hydrogen production
- Constructability integrated into design

U.S. Technology - Robust EU Supply Chain



BWRX-300. Licensing processes around the world



1. **CANADA.** 15th March 2023 - Canadian Nuclear Safety Commission (CNSC) presented its final report regarding the BWRX-300, as part of its Vendor Design Review (VDR) process. The BWRX-300 is the first SMR in the world that received a positive VDR. CNSC is proceeding with the 'license to construct' application submitted by Ontario Power Generation (OPG) in the fourth quarter of 2022. The decision is expected by the end of April, 2025.
2. **USA.** GE-Hitachi has provided to Nuclear Regulatory Commission (NRC) 7 License Topical Reports (LTRs) that describe differences between BWRX-300 and ESBWR (already licensed reactor) in order to hasten the licensing process.
3. **UK.** In January 2024, UK regulator initiated a two-step GDA for GEH's BWRX-300 design following a readiness review of GEH's application to the Department of Energy Security and Net Zero. The GDA helps ensure that a proposed reactor design can be constructed, operated, and decommissioned according to safety, security, and environmental protection standards required in the United Kingdom. GEH's UK-based team is backed by OSGE, an investor and developer specializing in SMRs.

Joint Assessment: licensing of the BWRX-300 technology is a subject of cooperation that has been established by regulators from the USA, Canada and the UK. It is aimed at improving the BWRX-300 licencing process. The Polish nuclear regulator is also interested in this collaboration.



BWRX-300 – a design that is tailor-made for CEE

BWRX300

TECHNOLOGY PROVIDER

- US company with **70 years of experience** in nuclear power, 67 reactors operating in 10 countries. It is 10th generation boiling water reactor (BWR)
- History of delivering reactors projects on-time and on-budget
- Leverages existing supply chain and off-of-the-shelf components
- GE and HITACHI – large foreign investors in Poland, a basis for building a supply chain in Poland, local content

DESIGN

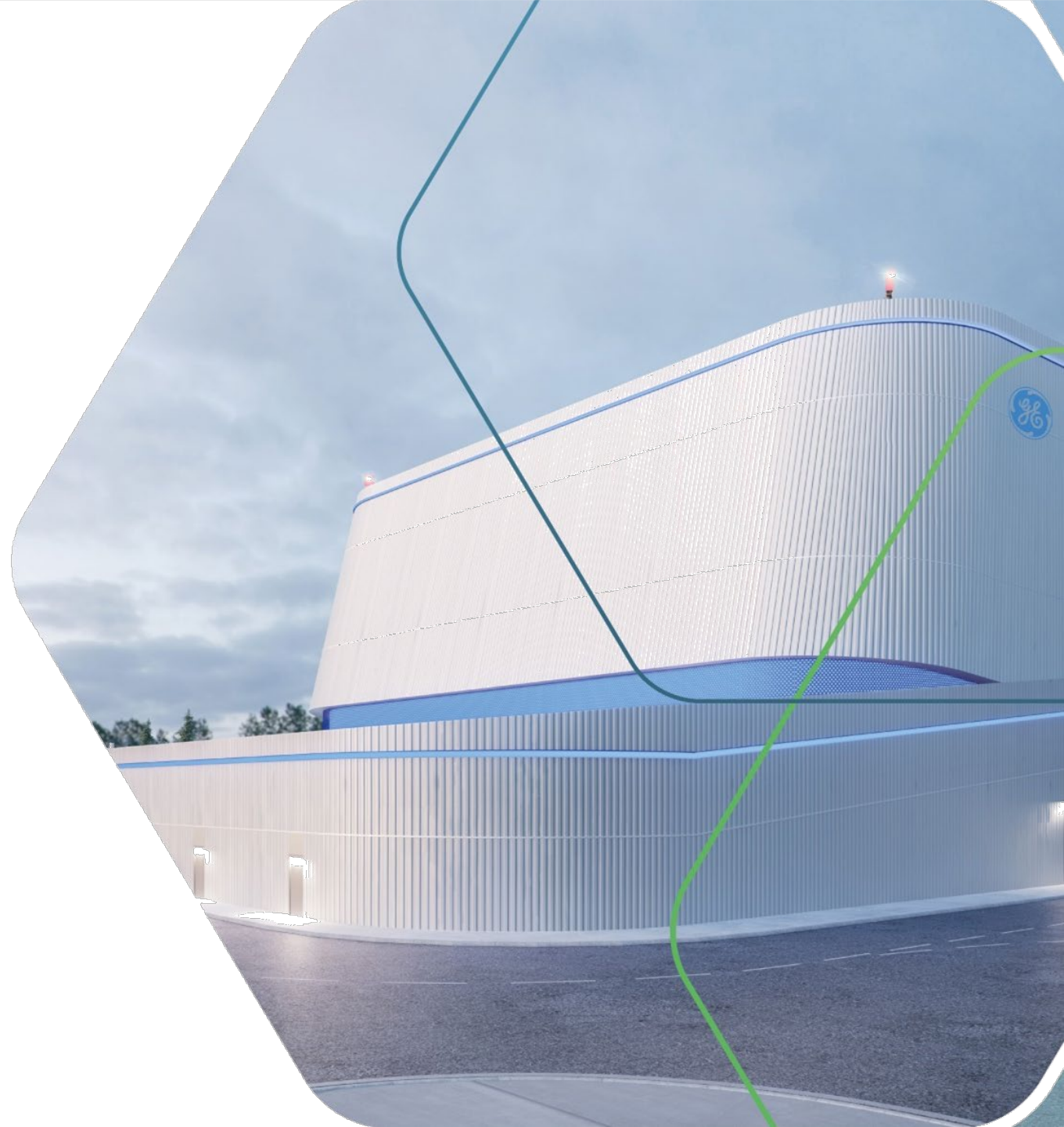
- BWRX-300 – **III+ generation reactor** based on proven technologies, including solutions licensed by the NRC (ESBWR)
- **Licensed GNF2 fuel** – no risk related to licensing process, security of supply, manufacturing in the US and Europe (Spain)
- Easier to license and deploy (both from perspective of local regulator and investor) than IV generation technology

PROJECT MATURITY

- **The world's first BWRX-300 under deployment** in Canada (FOAK; Licence to Construct – April 2025)
- The first BWRX-300 in the EU will be deployed in Poland (NOAK). It will draw on the Canadian experience, allowing more efficient implementation of the investment
- In many aspects, **BWRX-300 bases on currently available solutions** which do not need to be designed from scratch and certified

**Ideal for electricity generation and industrial applications,
including hydrogen production, desalination and district heating**

ON THE ROAD TO A FLEET OF BWRX-300s IN POLAND



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**Decisions in principle issued
by the Ministry of Climate
and Environment**

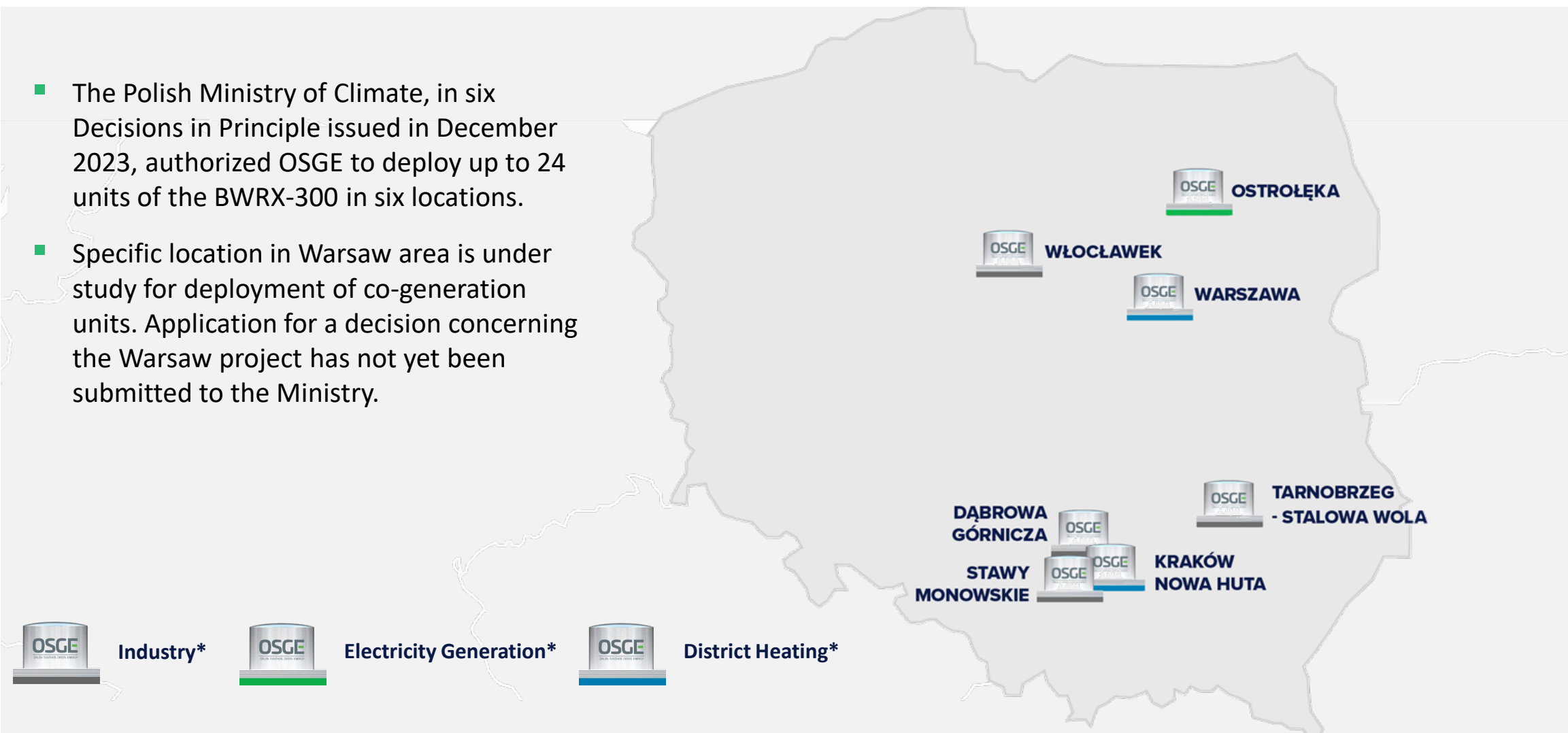
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**Decisions specifying the scope of the
environmental report have been
issued by the General Director of
Environmental Protection**

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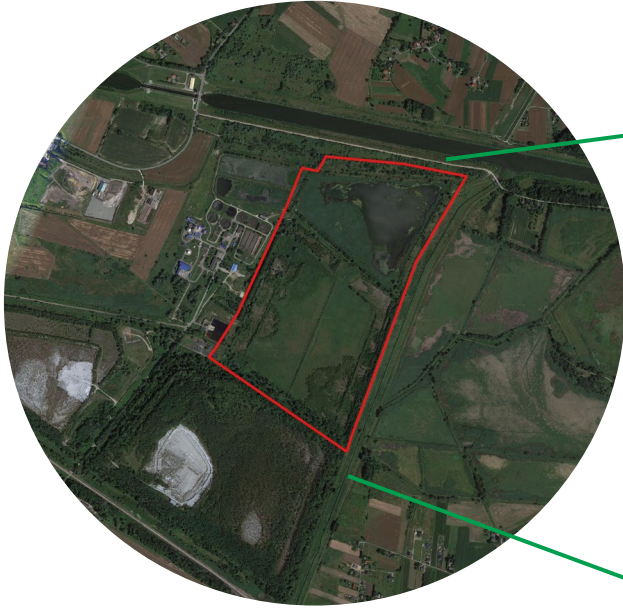
**General opinion achieved
from the President of
the National Atomic
Energy Agency**

- The Polish Ministry of Climate, in six Decisions in Principle issued in December 2023, authorized OSGE to deploy up to 24 units of the BWRX-300 in six locations.
- Specific location in Warsaw area is under study for deployment of co-generation units. Application for a decision concerning the Warsaw project has not yet been submitted to the Ministry.



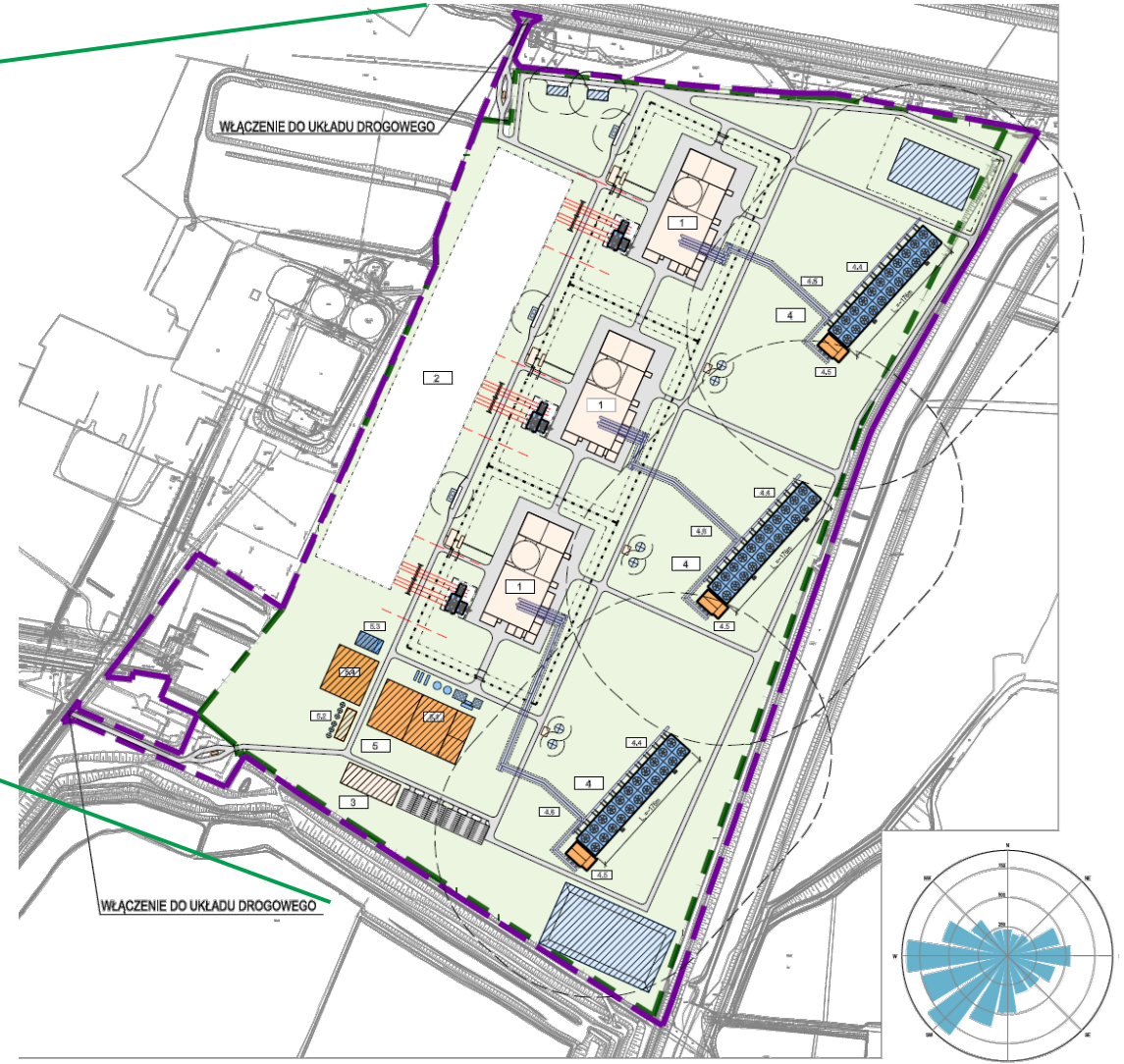
* Main application

Most advanced projects: Stawy Monowskie

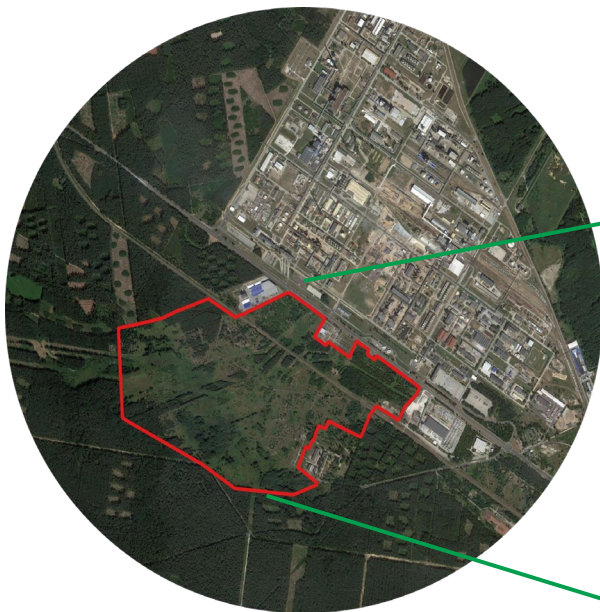


STAWY MONOWSKIE

- Area: 70 ha
- Decision in principle for up to four units (max. 1300 MWe)
- Close to Synthos chemical plant - large demand for electricity and process heat
- Potential for district heating application
- Possibility of replacing existing coal-fired power station (owned by Synthos)



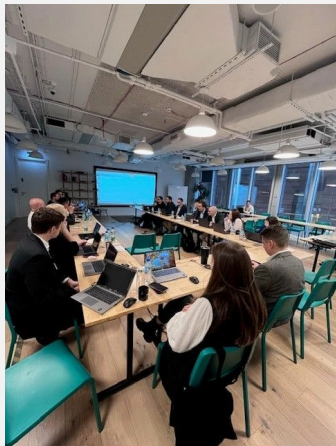
Most advanced projects: Włocławek



WŁOCŁAWEK

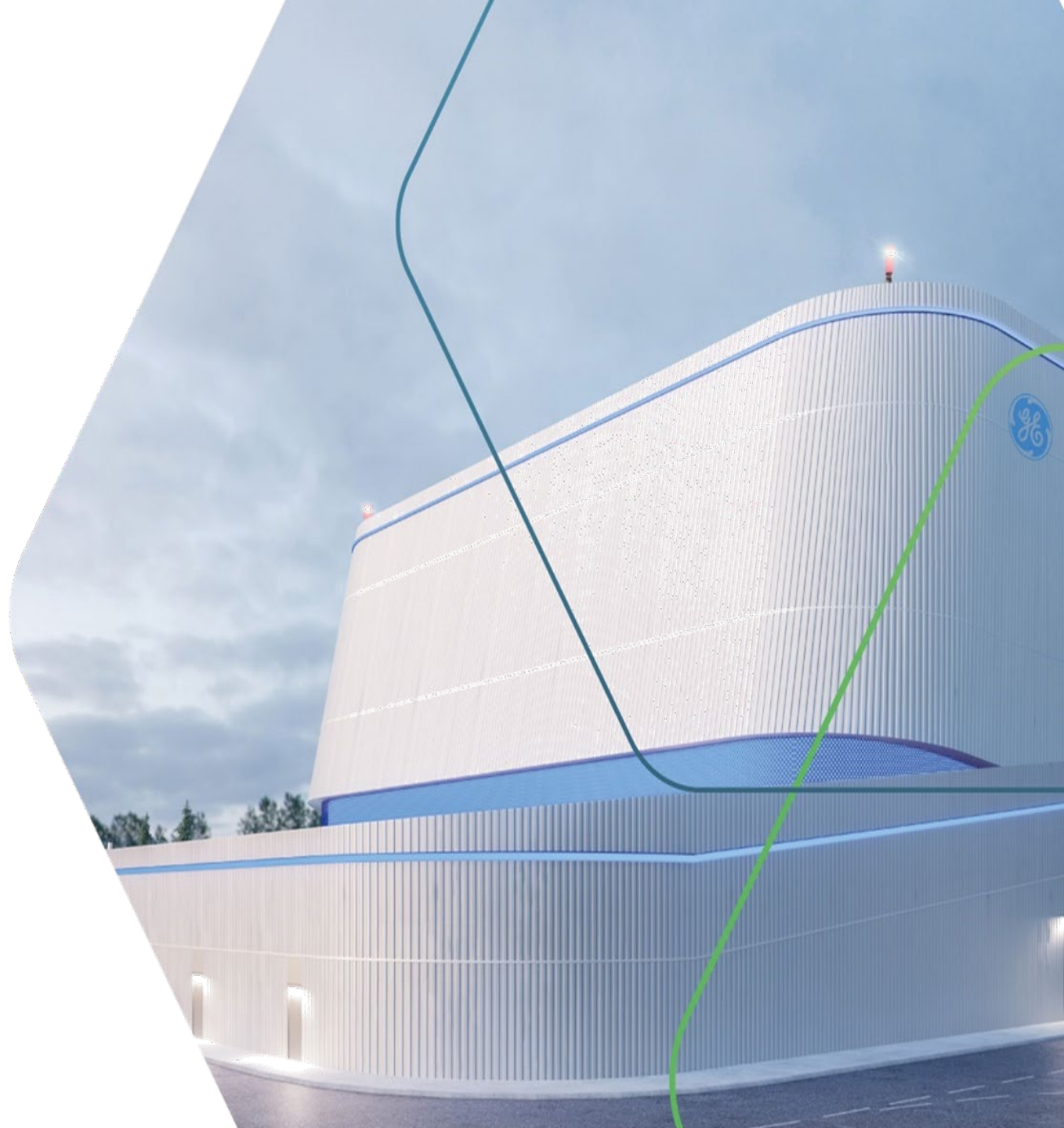
- Area: 135 ha
- Decision in principle for up to four units (max. 1300 MWe), environmental conditions – potential up to six units
- Close to Anwil energy-intensive chemical plant (ORLEN Group) - large demand for electricity and process heat
- Potential for district heating application

Preliminary Safety Analysis Report: work in progress



- **November, 2024.** OSGE announced an agreement with Canadian Laurentis Energy Partners and GE Hitachi Nuclear to support the preparation of a Preliminary Safety Analysis Report to enable the development and deployment of the first small modular nuclear reactors in Poland.
- The agreement was signed in Warsaw and the ceremony was attended by Hon. Stephen Lecce, Ontario Minister of Energy and Electrification.
- A few days later, during the week-long workshop in Warsaw, a team of experts from Laurentis, GE Hitachi, and OSGE was established. Work on the first PSAR report for SMR in the EU has been launched.
- The PSAR will be ready by mid-2026. By the end of 2026, OSGE plans to submit the application to the National Atomic Energy Agency (PAA) for a license to construct.
- The PSAR is a comprehensive analysis required by the PAA as part of the investor's application for a Construction Permit. The report aims to demonstrate the safety of the planned construction of GEH's BWRX-300 reactors in Poland.

BUILDING PARTNERSHIPS & ALLIANCES



Technology Collaboration Agreement



March, 2023, Washington D.C. OSGE's shareholder - Synthos Green Energy signed an agreement with TVA, OPG and GEH for the design of a BWRX-300. The company, together with its partners, will invest \$400 million in the development of the GEH BWRX-300 technology.

Through a technology collaboration agreement that was announced today in Washington, D.C., OPG, TVA and SGE will invest in the development of the BWRX-300 standard design and detailed design for key components, including reactor pressure vessel and internals.

For the first time ever, a Polish company has become party to an agreement for a design for nuclear power plant, while being given an opportunity to actively participate in the design process.

The collaboration and additional funding will ensure that the standard design is deployable in different parts of the world and in multiple jurisdictions.

GEH leads the project.

Project PHOENIX



- OSGE has been selected to the Project Phoenix – program launched by **the U.S. Department of State**.
- The U.S. Department of State program is aimed at supporting the energy transition process in Central Europe, specifically the construction of small modular reactors in place of coal-fired power plants.
- The selection of the beneficiaries was announced this September at the Three Seas Initiative (3SI) in Bucharest by John Kerry, the U.S. Special Presidential Envoy for Climate. Today, the official launch of the program is taking place in the Slovak capital. Alongside OSGE, support will be provided to entities from Slovakia and Romania: Slovenske Elektrarne and Nuclearelectrica.



EXCEL
SERVICES CORPORATION



JENSEN HUGHES

- In case of OSGE, the project will include preparation of feasibility studies and other supporting activities aimed at the selection of location with coal-fired power plant is currently located.
- OSGE's partners in the project are American companies selected by the Department of State: **Excel Services** and **Jensen Hughes**.



- **June, 2024.** Signing of cooperation agreements with Aecon and AtkinsRéalis, the companies delivering the world's first BWRX-300 unit in Canada, and a four-party agreement with GE Hitachi, Aecon and AtkinsRéalis.
- Agreements have been signed in Warsaw, witnessed by the Honourable **Mary Ng** - Minister of Export Promotion, International Trade and Economic Development of Canada and H.E. **Catherine Godin** - Ambassador of Canada to the Republic of Poland.
- The concluded agreements and cooperation will provide OSGE with the engineering expertise and construction know-how necessary to develop and build a target model of cooperation with the prospective contractors.
- The results of the work will be used by OSGE for the preparation of such studies as:
 - i) application for a construction license (CLA),
 - ii) preliminary safety report (PSAR),
 - iii) environmental impact report,
 - iv) site plan.

OSGE: one of the key entities in the European Industrial Alliance on SMRs



- **February, 2024.** The European Commission published a declaration of support for small modular reactors, recognizing SMRs as support for the EU's decarbonization efforts.
- The European Industrial Alliance on SMRs has been established to facilitate the deployment of the first reactors by the early 2030s.
- **OSGE has representatives in almost all Technical Working Groups (TWG),** with the exception of two that are dedicated to technology suppliers, where the company's partner, GE-Hitachi, is represented.
- An OSGE representative holds the Vice-Chair position in one of the key TWGs, TWG5: Public Engagement.
- **OSGE's proposal to establish a PWG focused on the BWRX-300 technology has been approved by the EC. OSGE leads this PWG,** which includes 17 other entities from 10 EU member states and Norway, with additional organizations currently applying.



BWRX-300 Project Working Group members

OSGE (Poland)	GE-Hitachi Nuclear Energy International branch in Poland (Poland)
(the remaining companies in alphabetical order)	
AIC S.A. (Poland)	Blue Bird Energy (Bulgaria)
Bouygues Travaux Publics (France)	CNPSA** (Romania)
Fermi Energia (Estonia)	Equipos Nucleares S.A. (ENSA) (Spain)
HELEN (Finland),	GENUSA* (Spain)
Kärnfull Next (Sweden)	Hitachi Europe branch in Poland (Poland)
Orange Hills Energy* (The Netherlands)	Norsk Kjekrnekraft (Norway)
Synthos Green Energy (Poland)	ORLEN (Poland)
Vattenfall AB (Sweden)	ÚJV Řež (Czech Republic)

Tech Giants to Support Nuclear Renaissance & SMRs

CERAWeek[®]
by S&P Global



OSGE
ORLEN SYNTHOS GREEN ENERGY

WORLD NUCLEAR
ASSOCIATION

Meta

amazon

Google

OXY

DOW

Allseas

- **March 2024. Large Energy Users Pledge.** Tech giants and other major energy users, including Amazon, Google, Meta, Dow, Occidental, Allseas, and OSGE, have signed a pledge supporting the goal of at least tripling global nuclear capacity by 2050.
- The announcement backed by the World Nuclear Association (WNA) was made at CERAWeek 2025 in Houston, USA, and follows earlier pledges by 31 countries, by 140 Nuclear industry companies and 14 major global banks and financial institutions to support the tripling goal.
- Tech giants see the development of new Nuclear capacities, including SMRs, as necessary to provide clean and stable energy for data centres and secure a giant increase in demand from the growing AI segment.
- Most IT giants collaborate with SMR developers to secure energy for their own purposes.

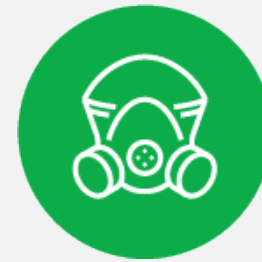
17 percent of the electricity generated in the U.S. in 2030 will be used by data centres and AI. That is more energy than electric vehicles.

KPMG analysis indicates significant environmental benefits resulting from BWRX-300

A single BWRX-300 over 60 years avoids:



175 mln
tons of CO₂¹⁾ emissions



0,32 mln / 0,28 mln / 0,75 mln
tons of SO_x / NO_x / PM¹⁾ emissions



65 mln
tons of coal



1,7 mln km
rail transport of coal

¹⁾ Source: UNECE Carbon Neutrality in the UNECE Region, 2022

