

OSGE

ORLEN SYNTHOS GREEN ENERGY

A joint venture company of



synthos
green energy



SMRs: an Effective Way for a Rapid Decarbonisation of the Polish Energy System

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on behalf of
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PKN ORLEN is the largest multi-energy concern in Central Europe. The Group owns refineries located in Poland, Lithuania and the Czech Rep. as well as the largest network of petrol stations in the region. The Group provides energy and fuel to over 100 million Europeans, and its products are available in nearly 90 countries on 6 continents.

Synthos Green Energy (SGE) a key element of the large private owned fund covering over 20 portfolio companies.

The company focuses on the transformation of the energy generation and has the Strategic Partnership with GE-Hitachi Nuclear Energy.



Synthos Green Energy and PKN ORLEN has established the JV – **ORLEN Synthos Green Energy** to deploy the BWRX-300 SMRs.

The BWRX-300 was designed by GE-Hitachi Nuclear Energy – leading American nuclear company.



Poland's first power plant with the BWRX-300 reactor will deliver power to the grid in 2029.

PKN ORLEN: overview of the company

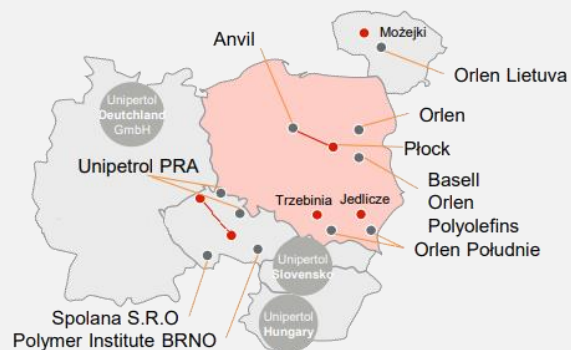
- **PKN ORLEN** combined with ENERGA, LOTOS and PGNIG (in the context of the last entity, the M&A process is in progress, expected to end by the end of 2022) **will have total capitalization of approx. USD 18 billion**, serving over **one hundred million customers in Central Europe**.
- It is assumed that after the acquisitions, the **Group will generate revenues of approx. USD 45 billion per year**. With such results, the Concern would be in **the ranking of the largest companies in the world, "Fortune 500", around 65th place**.



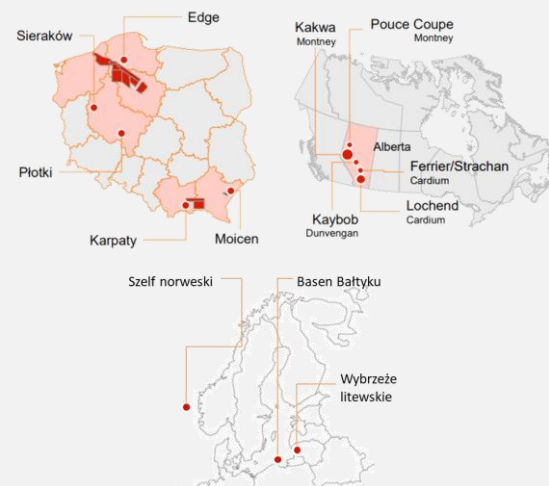
7 refineries in 3 different countries



Petrochemical assets and pipelines in 6 different countries



Production in Europe and North America (Canada)



2 650 petrol stations in 5 different countries



SGE as a key element of the large multinational Private Equity fund

- SGE is a key element of the large private owned fund – MS Galleon, using synergies within the Group to carry out the energy transformation.
- The fund has over **20 companies in its portfolio** (below are the key facts for selected portfolio companies) **in 6 segments** - the companies in the portfolio conduct **sales activities in 90+ countries**.

synthos



N°1 European EPS (expandable polystyrene) producer

N°1 European synthetic rubber producer

17 of the top 20 global producers of tires supplied:

cersanit



N°3 largest European producer of ceramic tiles

N°3 largest European producer of sanitary ware and bathroom equipment

10 production plants & storage facilities in 5 European countries

Barlinek



N°1 global manufact. of natural, 3-layer wooden floors

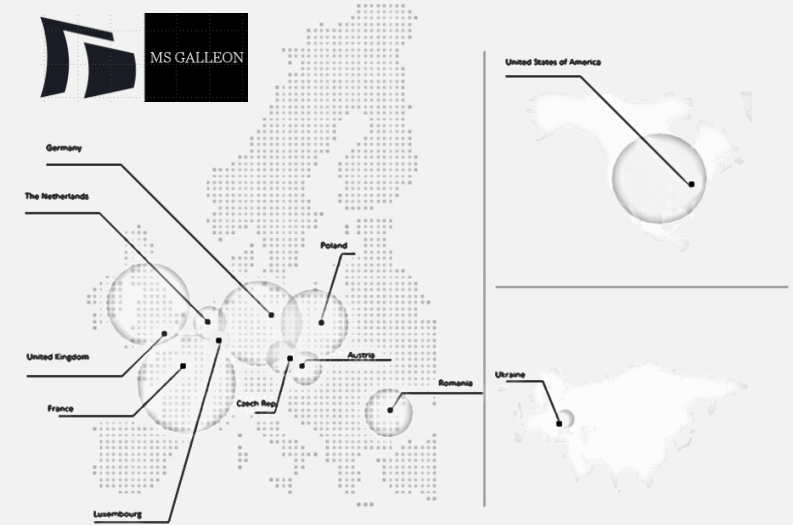
3 Production facilities in Europe

@rab



N°1 producer and distributor of photovoltaics in CEE

20 countries are supplied from 2 main bases in Poland



INDUSTRIALS	<p>synthos</p> <p>cersanit</p> <p>Barlinek</p>	GREENTECH	<p>synthos green energy</p> <p>IWP SYSTEMS</p> <p>HYDROGEN TECH</p> <p>@rab</p>
	<p>3DGENCE</p> <p>NEM</p> <p>TIXROW</p> <p>GeniCore</p>		<p>exploRNA</p> <p>syventis</p> <p>LIFE FLOW</p> <p>OncoArendi Therapeutics</p>
DITECH®		SCITECH®	
RETAIL	<p>KOMFORT</p> <p>Homla</p> <p>OUTLET NEXTERIO</p> <p>MEGASTORE.PL</p> <p>Topps Tiles</p>	FOOD & BEV	<p>NORTH FOOD</p> <p>JOHN BURG</p> <p>north fish</p> <p>fish • seafood • vege</p> <p>YAMLY</p>

On the road to SMR fleet in Poland.. GAME CHANGER

October 2019 – Synthos owned by Michał Sołowow, as first on the world, started cooperation with GEH regarding BWRX-300.



Michał Sołowow, Jon Ball – Executive Vice President of GEH, and representatives of DoE, who took part in signing Synthos-GEH agreement in Brussels

2019 - 2021 - 2022

December 2021 – Company signed MoU with BWXT Canada for the production of **10 reactor pressure vessels (RPV)** for BWRX-300 units in CEE



July 2022 - On July 8, the company applied for a general opinion by the President of the National Atomic Energy Agency. At the same time, the company started an introduction to the location analysis in selected places.

Cooperation with Canada - an important partnership in the BWRX-300 technology deployment in Poland

1

September 2021 – Company **signed MoU with Cameco, GE Hitachi Nuclear Energy and GEH SMR Technologies Canada** to evaluate the potential **establishment of a uranium fuel supply chain in Canada** capable of **servicing a potential fleet of BWRX-300 in Poland**



2

October 2021 – Company signed agreement with **BWXT Canada** for the production of **10 reactor pressure vessels (RPV)** for BWRX-300 units in CEE



3

December 2021 – Company has signed an agreement with **OPG on close cooperation in the implementation of the BWRX-300 technology in Canada** and on the possibility of **using the experience in the implementation of investments in Poland**



4

2022 – Company expands partnership with OPG by starting cooperation **with Laurentis Energy Partners, an OPG subsidiary**



THE PERSPECTIVE OF THE POLISH ENERGY MARKET



Poland plans to transform its electricity generation along three main principles



Decarbonization

Poland plans to decarbonize its electricity generation in line with European Union ambition to achieve zero net emissions by 2050.

- Need to phase-out coal-based generation

Fundamental transformation of electricity Generation – **BWRX 300**

Supply security at lowest cost

Ensure safe power supply to the country with no disruption with the lowest possible cost on the longer term too

- Preference for stable, low-cost generation sources



Energy independence

Poland wants to keep its low reliance on volatile foreign fuel supply in power generation

- Limits gas-based generation



By 2040, large-scale power shutdowns in domestic coal-fired power plants should be expected

1,2 GW - 2022-2025

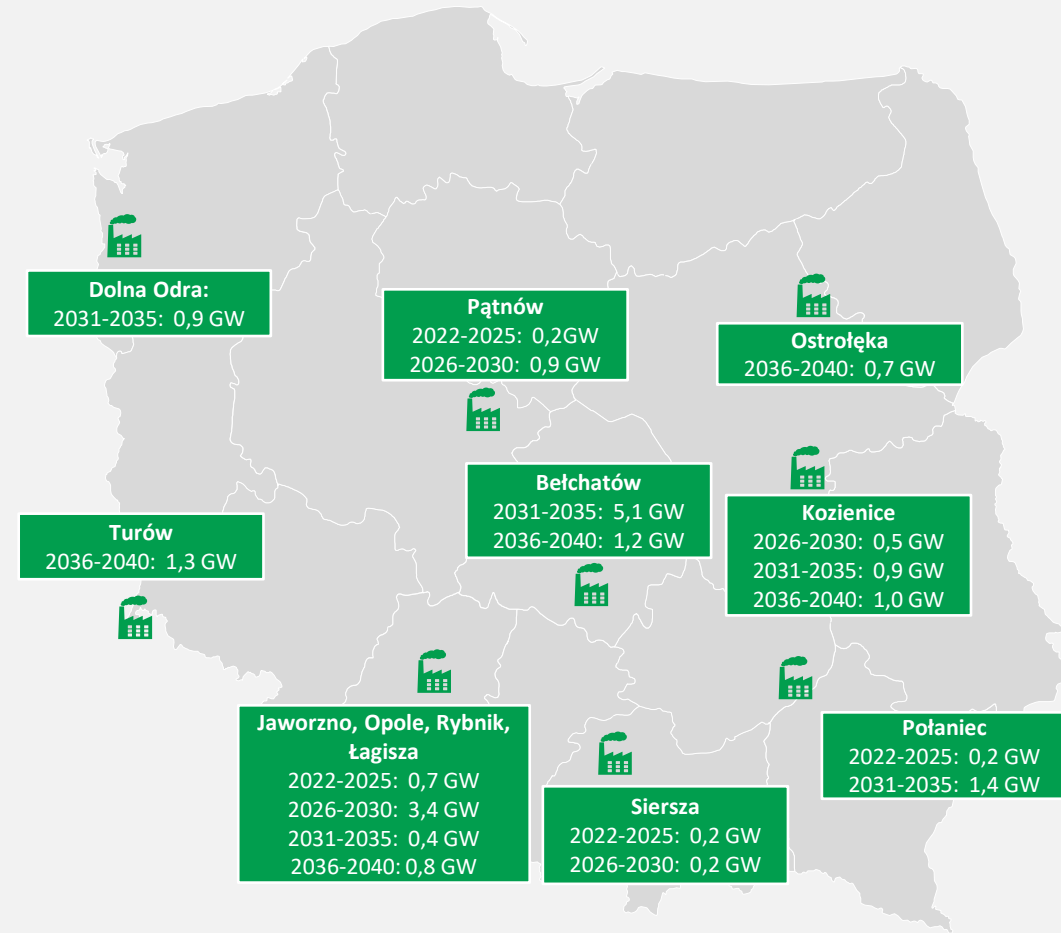
4,8 GW - 2026-2030

8,8 GW - 2031-2035

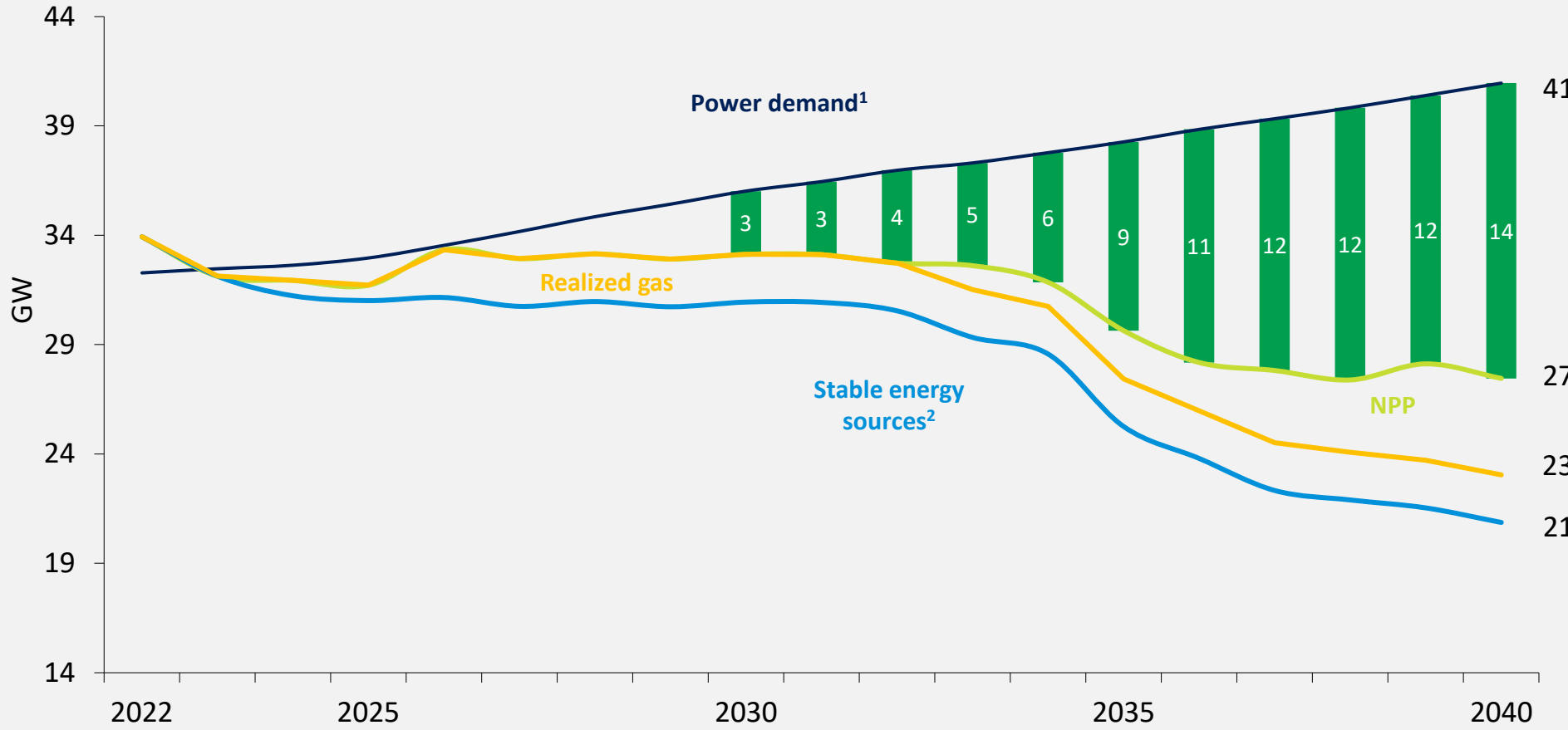
5,0 GW - 2036-2040

In total, 19,8 GW* of installed capacity in coal-fired power plants will be shut down by 2040

*Source: PEP 2040



An investment boom in new capacities is needed to close a 14 GW electricity demand-supply gap by 2040

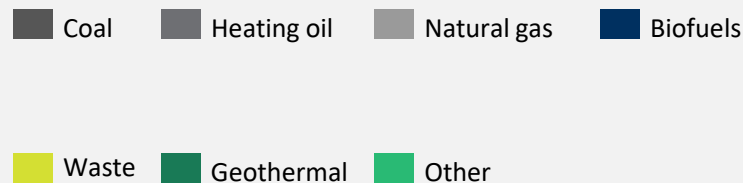
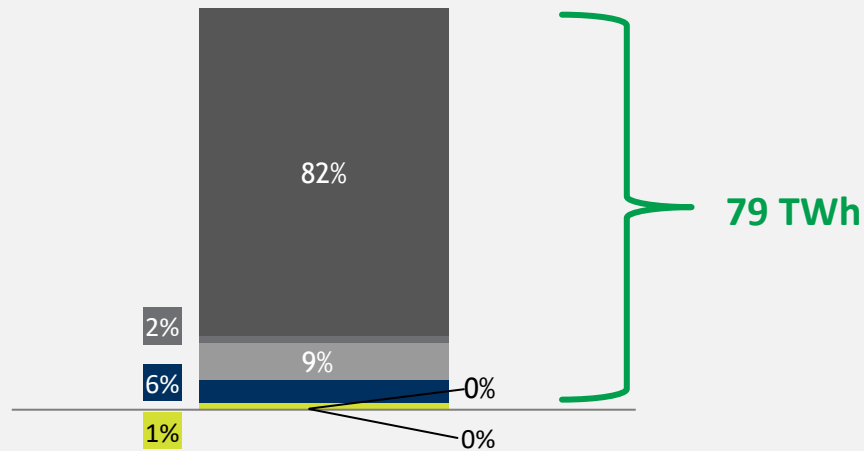


14 GW gap
BWRX-300 construction program in Poland

*1 It does not take into account the heat energy demand from district heating
2 The installed capacity of coal sources takes into account possible modernizations*

The BWRX-300 technology enables support for the decarbonization of many industrial sectors in Poland (2/2)

Heat production by sources in 2019 [TWh]



District heating is a much more cost-effective solution than distributed heat sources. Currently, however, the type of generation sources producing heat is of key importance for various reasons.



The heating sector is dominated by coal, but its share is slowly decreasing due to aging generation units. **In the coming years, the sector will require a deep transformation due to the EU climate policy.**



Large nuclear power plants are not adequate to meet the heat demand. Also, renewable energy, due to the lack of stability and temperature parameters of the network, are not the best source of generation for zero-emission heat.

NO SINGLE WATT WASTED - NS2W!

The BWRX-300 technology is a solution that allows for the supply of affordable, stable and decarbonised energy

Energy independence

BWRX-300 can secure energy independence and provide country/company with zero emission, stable electricity

Cost-effectiveness

Thanks to its low investment per MWh of electricity produced and long lifetime, BWRX-300 offers the best long-term value for money to build electricity generation capacity

BWRX-300 capacity

The BWRX-300 can generate 2,4 TWh annually. At the same time, the unit is flexible - design basis includes 50% power change over 2-hour period twice daily



Possibility to build a common supply chain

Deployment of fleet of the BWRX-300 in parallel, in Poland and other countries, creates a unique opportunity in licensing cooperation and building supply chain

Benefits for environment

By deploying a 300MW plant SMR instead of CCGT, in the lifetime of CCGT, it could be saved **22.5 million tons of CO₂ emissions, ca. EUR 2.5 bn**

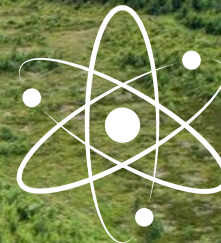
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THANK YOU

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