OSGE
ORLEN SYNTHOS GREEN ENERGY

Benefits for Ukraine and Poland from constructing an extra-high voltage transmission power line

15th November, 2023

About ORLEN Synthos Green Energy

ORLEN is the largest multi-energy concern in Central Europe. The Group owns refineries located in Poland, Lithuania and the Czech Republic 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 30 portfolio companies.
The company focuses on the transformation of the energy generation and has established the Strategic Partnership with GE-Hitachi Nuclear Energy.

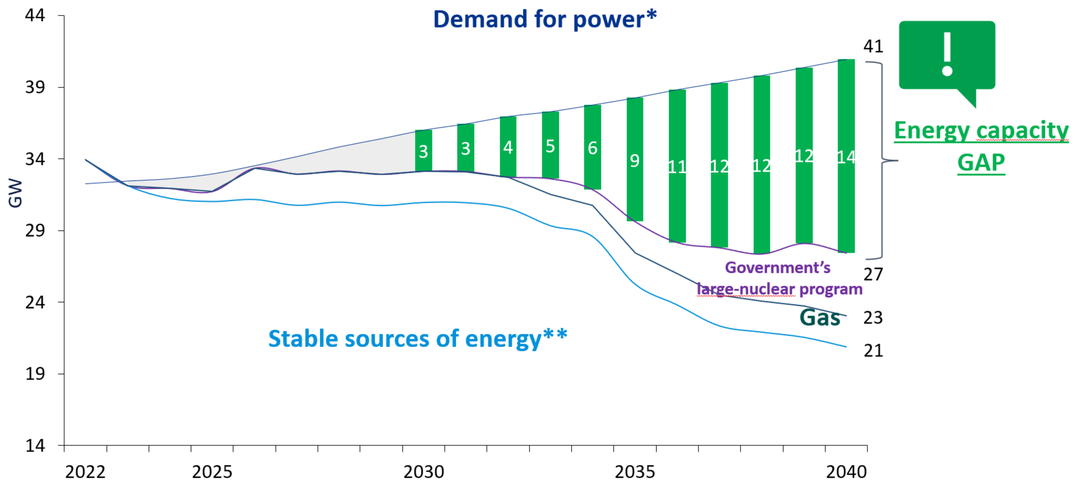
Poland's first power plant with the BWRX-300 reactor will generate the first power to the grid by the end of this decade.

OSGE headquarters in Warsaw

Synthos Green Energy and ORLEN have established the JV – **ORLEN Synthos Green Energy** to deploy the GEH BWRX-300 SMRs. OSGE is also involved in other projects related to zero emission solutions.

Demands of Polish and Ukrainian energy market

Poland



The Polish electricity generation mix will fundamentally change as legacy coal and lignite assets are reaching decommissioning age, run out of economically feasible fuel and do not satisfy emission limits.

Ukraine

Ukrainian energy market has unique challenges to face:

1. Sudden loss of power due to shelling of power generating and distributing infrastructure,
2. Increased electricity demand during the process of rebuilding Ukraine,
3. The growing share of renewable energy sources and therefore the need to balance them with stable power sources.

Source: PKN ORLEN & SGE analysis on the base of PEP 2040.

**Demand from district heating not included. ** Power capacity of coal sources of energy generation.*

Project overview

Project goal: Construction of extra-high voltage transmission power line connecting Ukraine and Poland

Transmission line: 2-circuit AC 400 kV, 0-2 GW

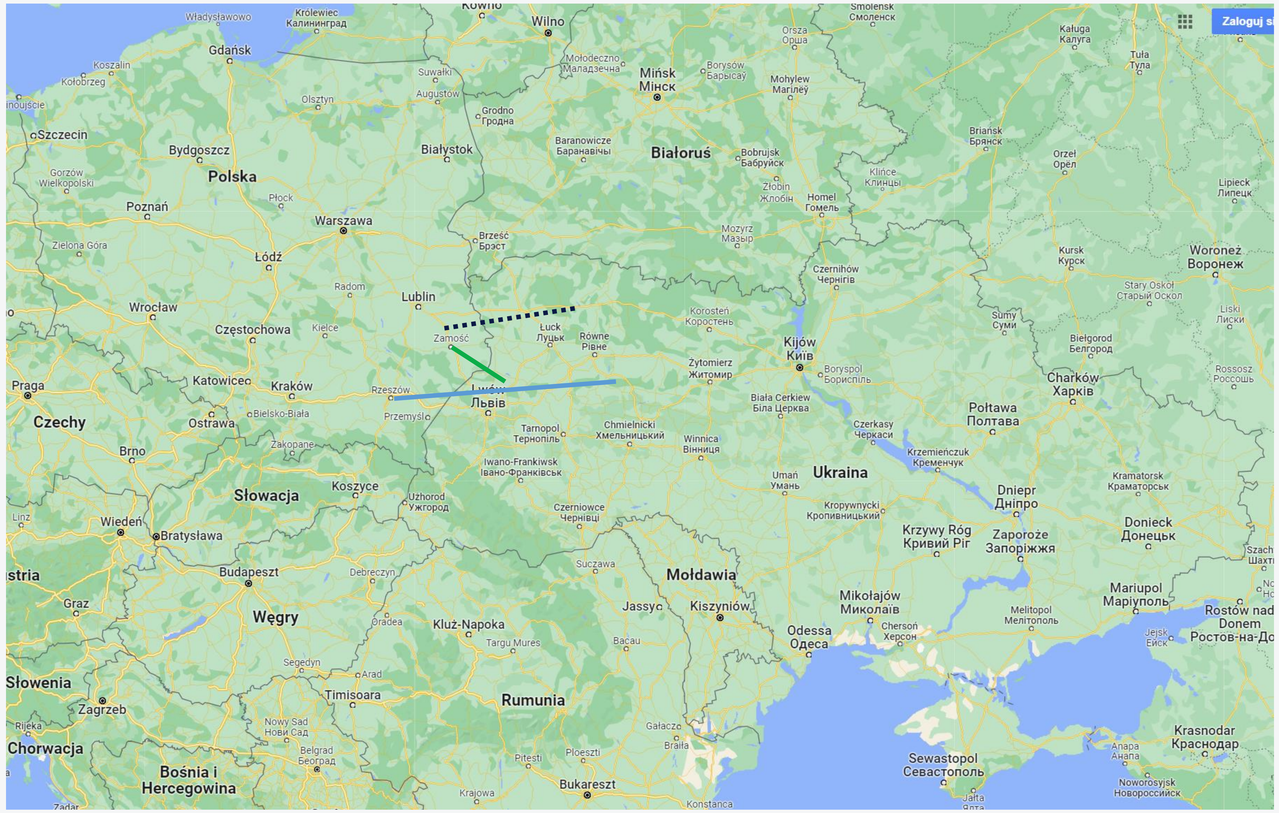
From substation: Varash - Rovno NPP (Ukraine) - Ukrenergo
To substation: Chełm (Poland) - Polskie Sieci Elektroenergetyczne S.A.

Total route length: ~175 km
Length on Polish territory: ~23 km
Length on Ukrainian territory: ~ 152 km

Expected commissioning: 2026/2027

Estimated CAPEX: 297,38 M€

OSGE's role: Initiator, developer, and potential commercial user



OSGE's project – 0-2 GW

Rzeszów – Chmielnicka transmission line – 2 GW

Zamość – Dobrotwór transmission line – 0,25 GW

Benefits

More capacity to stabilize Ukrainian energy system in case of disruption of the energy infrastructure

Possibility to transfer more energy for rebuilding Ukraine

Possibility of deeper integration of the Ukrainian energy system with the European Union system

Possibility to transfer more energy surplus from Ukraine to Poland

Support for the transformation/decarbonization process of the Polish energy system in the transition period and the resulting financial benefits
(*assuming the transmission of zero-emission electricity the project reduces 2 mln tonnes/year of CO2 and EU ETS cost by 170 mln EUR/year*)

Obtaining status of „Project of Mutual Interest”

1. At the end of last year, **OSGE submitted an application to the European Commission to include the Project on the list of PMI** projects (Project of Mutual Interest).
2. **Ukrainian represenatives assessed the Project as mutually beneficial** at the time of submitting the application.
3. At the time of evaluation, **the Project met all formal requirements** of the European Commission and **has been ranked at the 3rd place among the projects that applied for entry on the PMI list**.
4. Entry on the PMI list, apart from **recognizing its importance from the point of view of the development of transmission connections in Europe**, also **enables obtaining financial support** of approximately 50% of the assumed expenditure.

NSI East – PCI and PMI candidates assessment

			Monetised	Non-monetised					
Project ID	Project name	Corridor	Benefits/ Costs max 20 points	B8 stability max 2 points	B4 Reduction of non CO2 max 2 points	Inter-connection max 3 points	Physical isolation max 3 points	Total score	RANK
187	St. Peter (AT) - Pleinting (DE)	NSI East	18	0	0.2	2		20.2	1
1054	Westtirol (AT) - Zell/Ziller (AT)	NSI East	20	0	0.1	0		20.1	2
1132	Construction of extra high voltage transmission power line connecting Ukraine and Poland	NSI East-PMI	20	0	0.0	0		20.0	3
375	Lienz (AT) - Veneto region (IT) 220 kV	NSI East	15	1.6	0.1	3		19.7	4
259	HU-RO	NSI East	16	1.6	0.1	2		19.7	5
219	EuroAsia Interconnector	NSI East	13	0	0.0	3	3	19.0	6
130	HVDC SuedOstLink Wolmirstedt to area Isar	NSI East	16	2	0.6	0		18.6	7
313	Isar/Altheim/Ottenhofen (DE) - St.Peter (AT)	NSI East	15	0	0.3	2		17.3	8
210	Würmlach (AT) - Somplago (IT) interconnection	NSI East	11	1.6	0.1	3		15.7	9
312	St. Peter (AT) - Tauern (AT)	NSI East	14	0	0.3	0		14.3	10
200	CZ Northwest-South corridor	NSI East	14	0	0.1	0		14.1	11
330	4th 400kV CZ-SK interconnector	NSI East	11	0	0.1	1		12.1	12
35	CZ Southwest-east corridor	NSI East	11	0	0.1	0		11.1	13
1041	GREGY Green Energy Interconnector	NSI East-PMI	9	0	0.3	0		9.3	14
1100	Reinforcement of the existing CZ-DE interconnector (Hradec - Röhrsdorf) on the CZ side	NSI East	1	1.6	0.3	2		4.3	15
1052	Lienz (AT) - Obersielach (AT)	NSI East	2	0	0.3	0		1.7	16
1138	New 400 KV OHL Suceava (RO) – Balti (MD)	NSI East-PMI	1	0	0.0	0		1.0	17

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