



STATUS OF PROJECTS AND HYDROGEN ECONOMY IN POLAND



WHO – AN ENGINEERING AND CONSULTING OFFICE;

WHAT – SUPPORTING INVESTMENTS AND R&D ACTIVITIES,

WHERE – THE ENERGY, INDUSTRY, AND ENVIRONMENTAL PROTECTION SECTORS;

MOST - ENERGY TRANSFORMATION, INCLUDING HYDROGEN SOLUTIONS, ENERGY STORAGE, AND HEAT RECOVERY.

Management Board



Łukasz Lelek, PhD

Business Development
Investment Development
Implementation Projects



Dominika Bandota

R&D
Systems Analysis
Mathematical Modeling

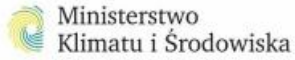


Tomasz Cieszewski

Technological analysis
Equipment selection
Heat recovery



REGULATORY



Załącznik do uchwały nr 149 Rady Ministrów
z dnia 2 listopada 2021 r. (poz. 1138)

POLSKA STRATEGIA WODOROWA DO ROKU 2030 Z PERSPEKTYWĄ DO ROKU 2040

Warszawa, październik 2021 r.

2026-2027

updating... please wait,



Ministerstwo Klimatu i Środowiska

Poland's hydrogen strategy was presented in 2021 by the Ministry of Climate and Environment.

Objective 1 – implementation of hydrogen technologies in the electricity and heating sectors;

Objective 2 – use of hydrogen as an alternative fuel in transportation;

Objective 3 – supporting the decarbonization of industry;

Objective 4 – hydrogen production in new facilities;

Objective 5 – efficient and safe transmission, distribution, and storage of hydrogen;

Objective 6 – creating a stable regulatory environment.

The **2030** goals include milestones for **2025**:

- **50 MW of installed** capacity for low-emission hydrogen production **by 2025 and 2 GW do 2030**,
- Between **100 and 250** hydrogen-powered buses by 2025 , **800 to 1000** by 2030,
- **At least 32** hydrogen refueling stations by 2025 and **57** by 2030,

Act of 21 November 2024 amending the Energy Law (Journal of Laws 2024, item 1881) — **part of the “Hydrogen Constitution” package, implementing EU Directive 2024/1788**



New definitions

Renewable and low-carbon hydrogen; hydrogen transmission, distribution, and geographically-limited networks (Art. 3 of the Energy Law)



New network operators

Hydrogen TSO, DSOs, and storage operator — a single hydrogen (or combined gas-hydrogen) transmission operator for all of Poland



Unbundling

Operators of hydrogen infrastructure must be independent from hydrogen production and trading



Third-Party Access (TPA)

Equal, non-discriminatory access to hydrogen infrastructure for all market participants



Hydrogen valleys

Regional ecosystems built on local renewable-based production, short-distance transport, and local demand



Procedural simplifications

Reduced administrative burden for investors developing hydrogen infrastructure

Implementing act to the Energy Law (Art. 9c(9) of the Energy Law) — draft by the Ministry of Energy, *public consultation stage (August 2026)*



Gas grid connection

Application submitted to the hydrogen TSO/DSO; **45 days** to issue connection terms from a complete application



Hydrogen quality

Baseline purity threshold $\geq 99.5\%$; operator instructions may allow lower purity, not below 95%



Settlement

Reference calorific value adopted for settlement purposes: **12.75 MJ/m³**



Capacity management

Operator may reclaim unused capacity if usage stays **below 80% for 6 consecutive months**



Supplier switching

Hydrogen supplier-switching procedure modeled on solutions already used in the gas market



Outages & operation

24/7 obligation to respond to failures; planned works must be announced at least 7 days in advance



DEMAND

THE POTENTIAL OF THE HYDROGEN MARKET



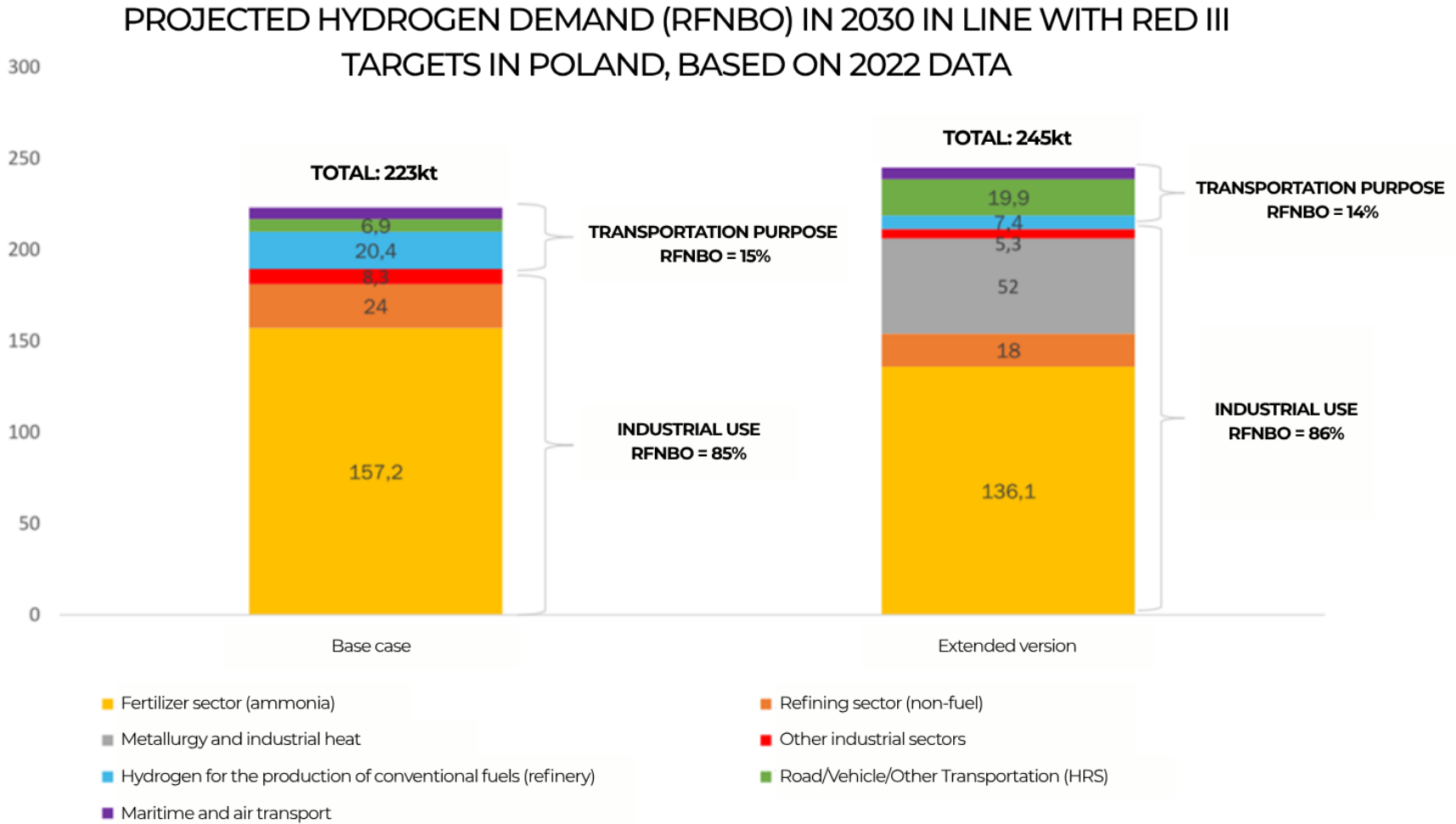
MARITIME
TRANSPORT



PRIVATE
TRANSPORTATION



PUBLIC
TRANSPORTATION



AGRICULTURE



INDUSTRY

Source: Tchorek, G., Targowski, F., Mikusek, P., Grzybowski, M., Matraszek, M., Kupecki, J., Jóźwiak, P. — "Prognoza zapotrzebowania na wodór odnawialny RFNBO w Polsce do 2030 r." (Forecast of Demand for Renewable Hydrogen (RFNBO) in Poland by 2030)
Instytut Energetyki – Państwowy Instytut Badawczy (Institute of Power Engineering – National Research Institute), 16 listopada 2023 r.



TRANSPORT

NFOŚiGW PROGRAM - “GREEN PUBLIC TRANSPORT”



		1ST CALL FOR APPLICATIONS		2ND CALL FOR APPLICATIONS		3RD CALL FOR APPLICATIONS	
		Level of co-financing		Level of co-financing		Level of co-financing	
	ELECTRIC BUS	80%		70%		60%	
	HYDROGEN BUS			90%			
	TROLLEYBUS	80%		70%		60%	
	HRS INFRASTRUCTURE	UP TO 50% OF ELIGIBLE COSTS but not more than PLN 3,000,000 for the modernization/construction of a hydrogen refuelling station					
	LOAN	UP TO 100% OF THE PROJECT'S ELIGIBLE COSTS but not more than the difference between the eligible costs and the amount of the grant awarded for the project					

2022–2024 FIRST CALL FOR APPLICATIONS
2024–2026 SECOND CALL FOR APPLICATIONS
2026–2028 THIRD CALL FOR APPLICATIONS

} 117 HYDROGEN BUSES

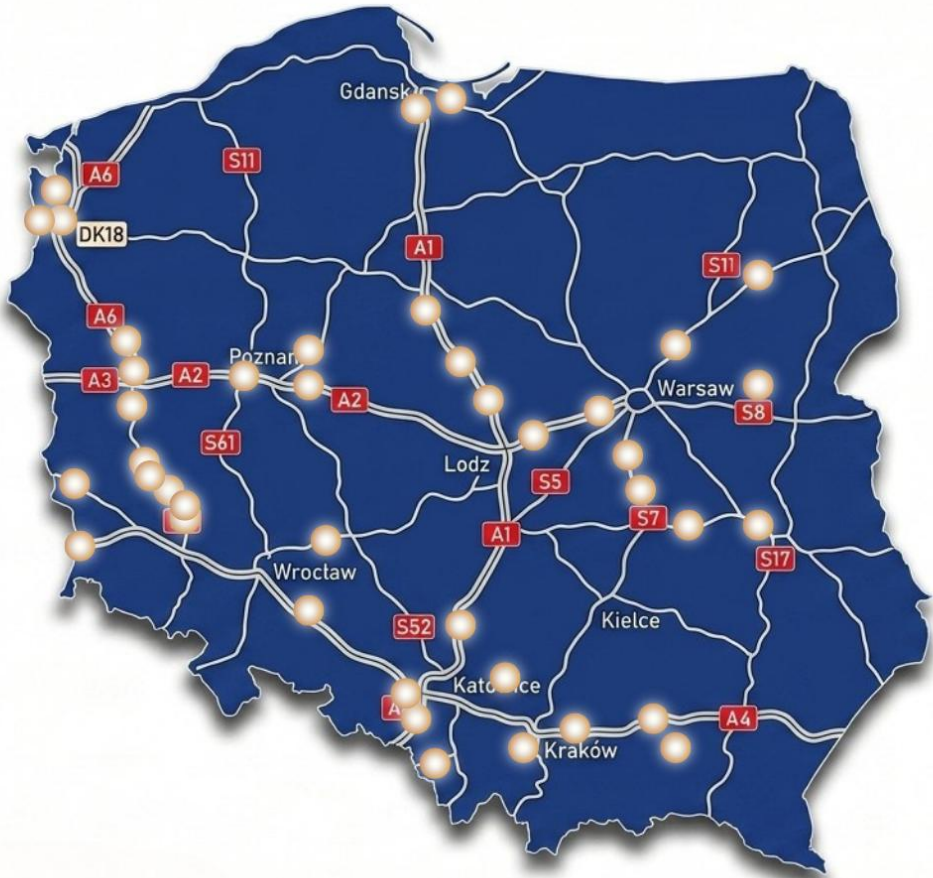


Source: National Fund for Environmental Protection and Water Management (NFOŚiGW)

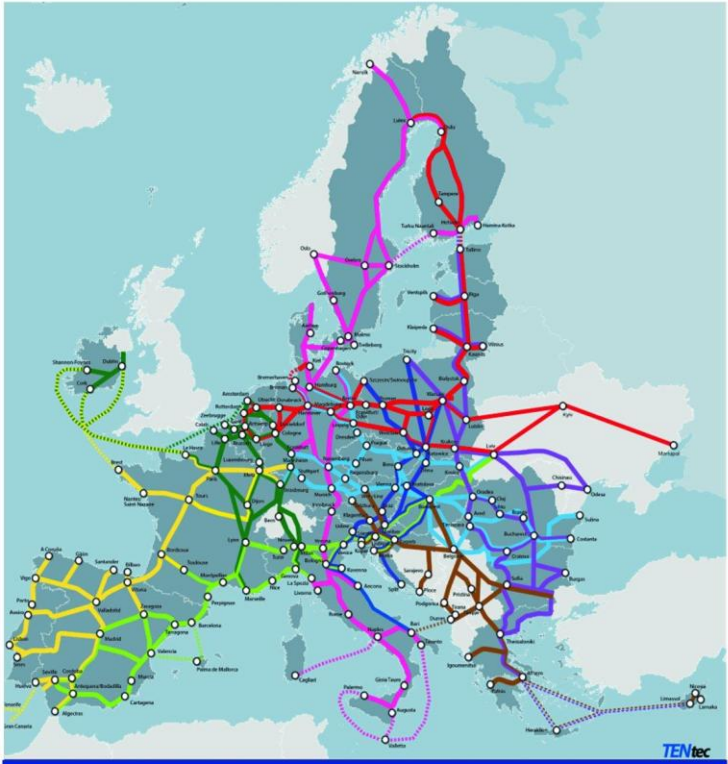
THE POTENTIAL OF THE HYDROGEN MARKET – THE TEN-T NETWORK

As part of the European **TEN-T road network**, hydrogen refueling stations are planned at intervals of no more than **200 kilometers**. This requirement stems directly from the **EU's AFIR** (Alternative Fuels Infrastructure Regulation).

A1	8
A2	10
A4	10
A6	1
DK18	1
S1	1
S11	1
S17	2
S3	10
S5	6
S52	2
S61	1
S7	8
S8	5



Skorowidz map europejskich korytarzy transportowych



- ATLANTYCKI
- MORZE PÓŁNOCNE – REN – MORZE ŚRÓDZIEMNE
- MORZE PÓŁNOCNE – MORZE BAŁTYCKIE
- SKANDYNAWIA – MORZE ŚRÓDZIEMNE
- MORZE BAŁTYCKIE – MORZE ADRIATYCKIE
- REN – DUNAJ
- ŚRÓDZIEMNOMORSKI
- BAŁKANY ZACHODNIE – WSCHODNIA CZĘŚĆ MORZA ŚRÓDZIEMNEGO
- MORZE BAŁTYCKIE – MORZE CZARNE – MORZE EGEEJSKIE

Części mapy ilustrujące przebieg korytarzy w państwach trzecich mają charakter orientacyjny.

Source: <https://www.gov.pl/web/infrastruktura/transeuropejska-siec-transportowa-ten-t>

Źródło: <https://www.gov.pl/web/gddkia/vi-plan-lokalizacji-ogolnodostepnych-stacji-ladowania-stacji-gazu-ziemnego-oraz-punktow-tankowania-wodoru>

HYDROGEN REFUELING STATIONS IN POLAND



1. **Warszawa** ul. Tango 4
2. **Gdynia** ul. Starochwaszczyńska 40
3. **Gdańsk** ul. Jabłoniowa 29
4. **Rybnik** ul. Budowlanych 6
5. **Wrocław** ul. Obornicka 187 / 193
6. **Lublin** ul. Antoniny Grygowej 56



7. **Poznań** ul. Warszawska 246
8. **Katowice** ul. Murckowska 22
9. **Wałbrzych** ul. Piotra Wysockiego 43
10. **Wrocław** ul. Toruńska 282
11. **Piła** ul. Powstańców Wielkopolskich 104
12. **Płock** ul. Ignacego Łukasiewicza 15
13. **Gdynia** ul. Wielkopolska 239



14. **Solec Kujawski** ul. Toruńska 71

ORLEN GROUP'S PLANNED HYDROGEN REFUELING STATIONS IN POLAND THROUGH 2030

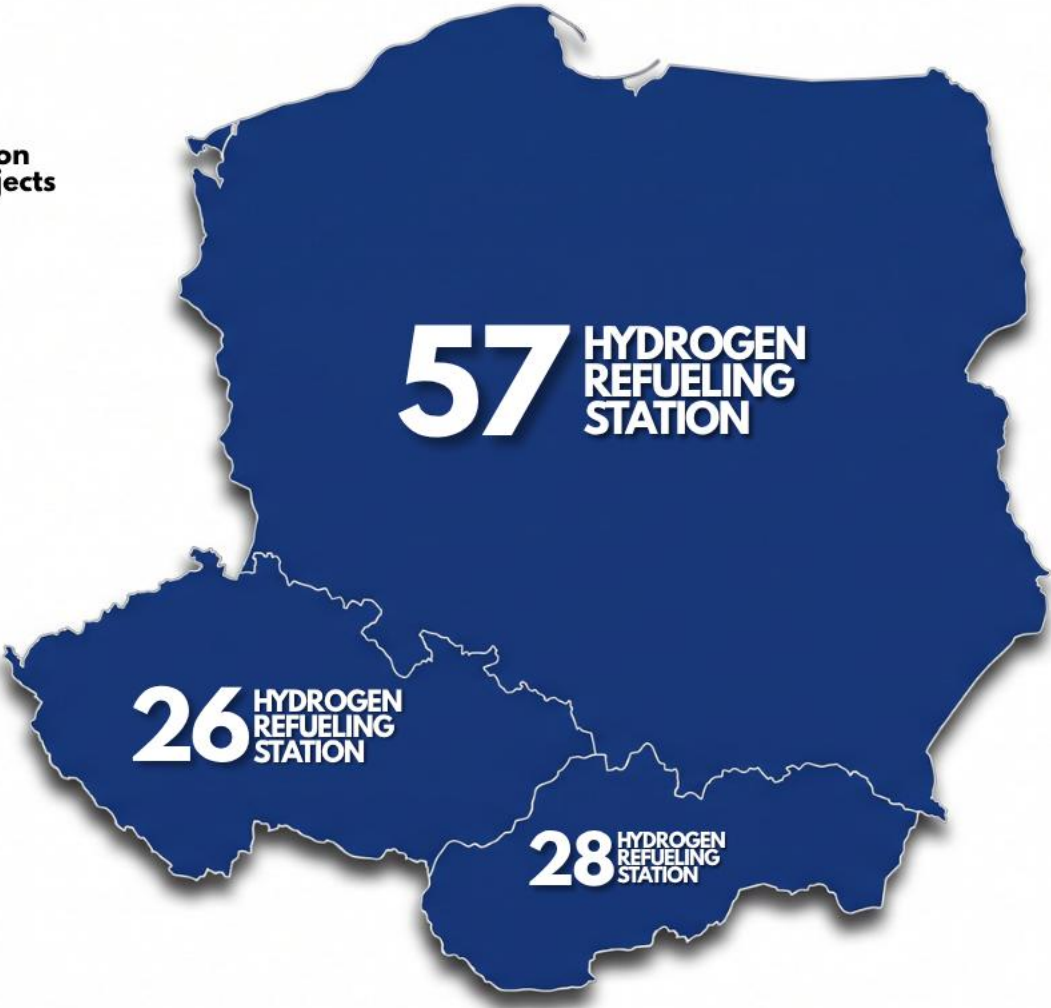
2022 The Development of Orlen's Hydrogen Strategy **2026** **2030** Completion of all projects



7/57 | Number of hydrogen refueling stations



19/50 | Number of planned hydrogen refueling stations in Poland





PRODUCTION

1. Promet-Plast (Gaj Oławski) – ELX 5MW

- 90 kg of hydrogen per hour

2. Zepak (Konin) – ELX 2,5MW

- 42 kg of hydrogen per hour

3. Orlen (Wrocław) – 10 MW brine electrolysis

- 170 kg of purified hydrogen per hour

4. Orlen (Trzebinia) – SMR

- 350 ton annual automotive quality.
- purchasing certificates of origin for biomethane.

5. Solbet (Solec Kujawski) – ELX 150kW

- 3.33 kg of hydrogen per hour

6. PGE Eko (Garbce) – ELX 36kW

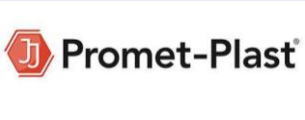
- 0,7 kg of hydrogen per hour



HYDROGEN PROJECTS IN POLAND - LARGE SCALE – 343 MW



The projects received funding from BGK and as part of the RRP (Poland's recovery and resilience plan)

LOCATION	GAJ OŁAWSKI	HUB NORTH (WOŁAWEK),SOUTH (JEDNLICZE), COMBO (PŁOCK), OFFSHORE (GDYNIA)		GOŚWINOWICE	JAWORZNO
TYPE OF INVESTMENT	GREEN HYDROGEN PRODUCTION	Hydrogen Eagle Strategy	Lotos Green H2 HYDROGEN PRODUCTION PLANT	HYDROGEN PRODUCTION PLANT	GREEN HYDROGEN PRODUCTION
HYDROGEN PRODUCTION	1,7 mln t annual production of hydrogen	RFNBO Hydrogen and Low-Emission Hydrogen HUB Północ, COMBO, Offshore, Południe		1,7 mln t annual production of hydrogen	1,7 mln t annual production of hydrogen
SYSTEM POWER	20MW	210MW ELECTROLYZER 73 MWeq WASTE TO HYDROGEN		20MW	20MW
COMPANY					
EPC		not selected		not selected	not selected

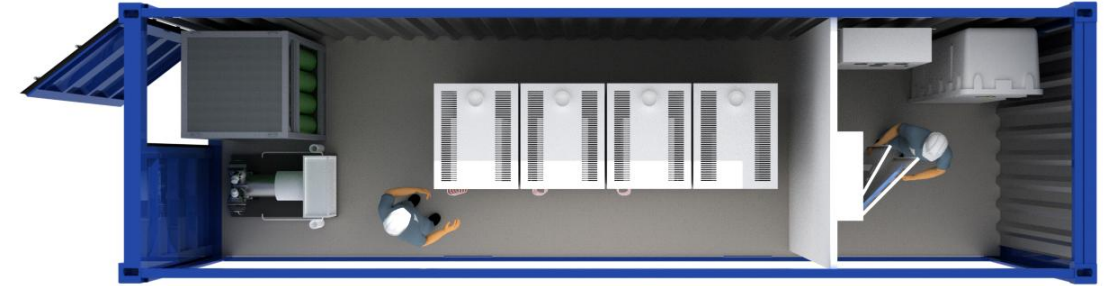
HYDROGEN PROJECTS IN POLAND - MEDIUM SCALE

LOCATION	GDAŃSK REFINERY	SZCZECIN HUB	STALOWA WOLA
TYPE OF INVESTMENT	GREEN HYDROGEN PRODUCTION	GREEN HYDROGEN PRODUCTION	GREEN HYDROGEN PRODUCTION
HYDROGEN PRODUCTION	90 kg of hydrogen per hour with a purity of at least 99.995%	90 kg of hydrogen per hour, resulting in a daily production of 2,160 kg	Hydrogen production capacity of approximately 600 t H2/a
SYSTEM POWER	5MW ELECTROLYZER	5MW ELECTROLYZER	5-10MW ELECTROLYZER
COMPANY	 		
EPC			not selected

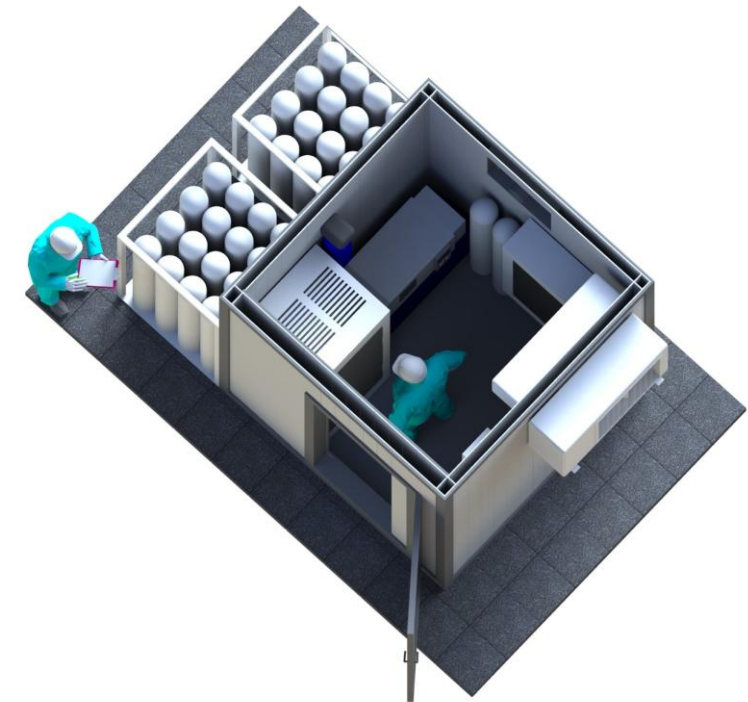
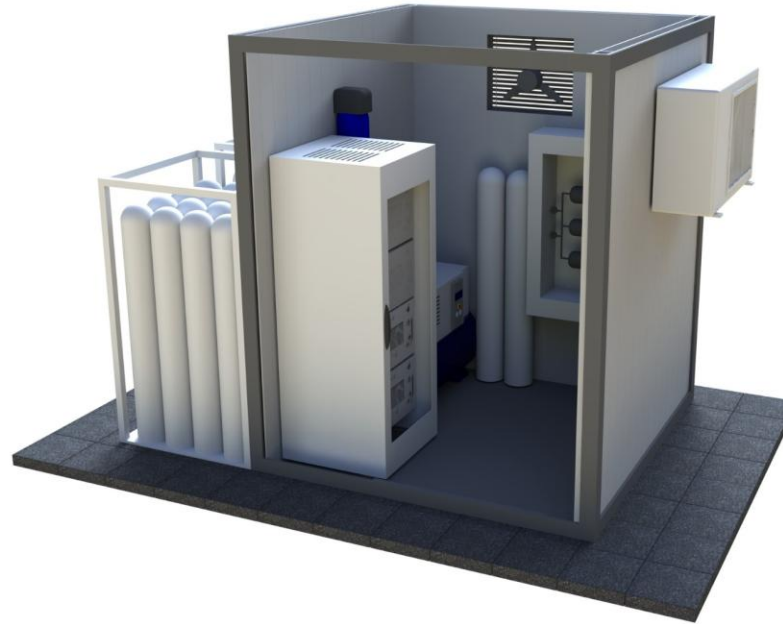
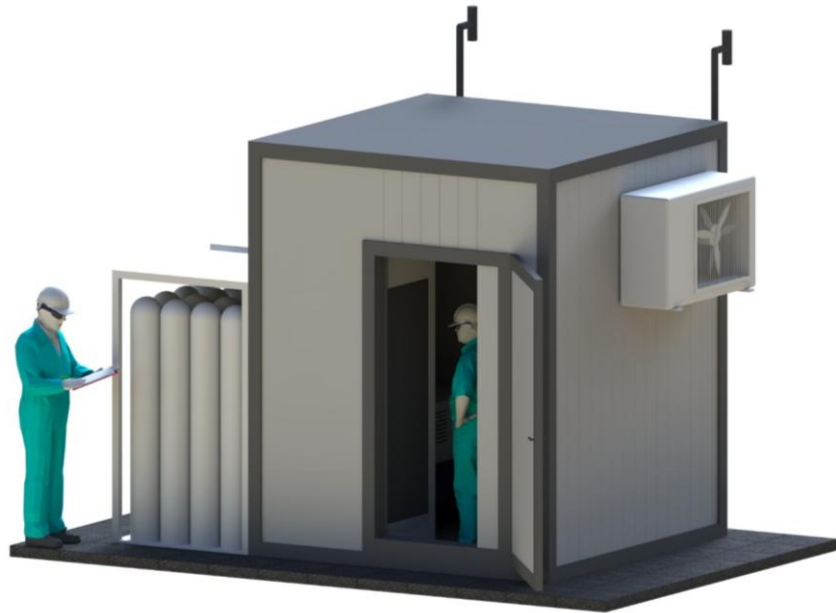
HYDROGEN PROJECTS IN POLAND - SMALL SCALE – ENERGY CLUSTER - RRP

TENDER	CONTRACTING AUTHORITY	LOCATION	EQUIPMENT CAPACITY
Hydrogen energy storage – Ryki County Energy Cluster	Ryki Municipality (lead)	Ryki, Nowodwór, Kłoczew Lublin Province	PEM electrolyser min. 5 kW H ₂ storage and fuel cell – per design brief (PFU)
Construction of a 3 MWh Hydrogen Energy Storage Facility	Odolanów Town and Municipality	Odolanów, Przygodzice, Sulmierzyce Greater Poland Province	Hydrogen storage 3 MWh PEM electrolyser and fuel cell – per design brief (PFU)
Nadwiślański Energy Cluster – Lot II “Hydrogen Installation”	Drwinia Municipality (lead authority)	Nadwiślański Energy Cluster Lesser Poland Province	PEM electrolyser min. 5 kW Mobile H ₂ production and storage module
Pogórze Dynowskie – Lot 3 “Hydrogen Installation”	Jawornik Polski Town and Municipality	Hadle Szklarskie, Jawornik Polski Mun. Subcarpathian Province	PEM/AEM electrolyser, H ₂ pressure ≥ 35–40 bar High-pressure tanks, PEMFC fuel cell
Brama Podhala Energy Cluster – hydrogen storage demonstrator	Rabka-Zdrój Municipality	Rabka-Zdrój Lesser Poland Province	PEM electrolyser min. 20 kW Mobile H ₂ installation with PV array

INTEGRATION AND DELIVERY



INTEGRATION AND DELIVERY



Kontenerowe rozwiązania dla produkcji oraz magazynowania energii w wodorze



GAS NETWORK



The State Research Institute has confirmed that the **Jelenia Góra-Piechowice** gas pipeline can transport a mixture of natural gas and hydrogen up to **20 percent by volume**.

As part of an investment worth over **11 million PLN**, a medium-pressure gas pipeline approximately **7 kilometers long** was constructed. The contractor for the project was the company “GAZ,” based in Błonie.



Gaz System has been granted the status of a hydrogen transmission system operator by law.

Poland’s National Hydrogen Network Plan calls for the construction of five hydrogen pipelines: Międzyrzecz–Tarnów (approximately 580 km long), Gdańsk–Gustorzyn (200 km long), Lwówek–Gustorzyn (215 km long), Płoty–Wiczlino (275 km), and Rembelszczyzna–Puławy (approximately 180 km).

A key pillar of the planned regional transmission network is the Nordic-Baltic Hydrogen Corridor (NBHC). The pipeline, with a total length of approximately 2,500 km—of which nearly 820 km will be located in Poland.

ABANDONED PROJECTS

Polenergia

Nowa Sarzyna - Polenergia, a company based in Nowa Sarzyna, received 20 million PLN in funding under an agreement with the National Fund for Environmental Protection and Water Management (NFOŚiGW). As part of this investment, a hydrogen hub was to be built to ensure hydrogen supplies for public transportation in Rzeszów.

HUB Silesia - Polenergia received approval from the European Commission in 2024 for funding for the HUB Silesia project, up to a maximum of 142.77 million euros. As part of the project, a 105-MW hydrogen plant was to be built, with an annual production capacity of 13,000 metric tons of H₂. Bank Gospodarstwa Krajowego decided not to sign the agreement with Polenergia H₂Silesia sp. z o.o.



Hydro Sanok was established to decarbonize the district heating system in Sanok. The project involved the construction of a solar farm, energy storage facilities, and the installation of modern heating equipment. In addition, the project was to include a 15 MW green hydrogen production facility, which was intended to generate waste heat to be used for heating the city during periods of lower demand. Currently, the project has been blocked by the Sanok City Council.

HYDROGEN PROJECTS UNDER IMPLEMENTATION WITH MEITILL SOLUTIONS



H₂ production technology:

- electrolysis (PEM, AEL, AEM), gasification.

System power supply:

- renewable energy sources, PPA

Suppliers:

- Europe/West, China

Status:

- concept, feasibility study, environmental permissions, building permissions, investment supervision

Investor:

- Private, public authorities

Hydrogen utilisation:

- sale/distribution, own needs – energy (CHP/FC),

OUR PARTNERSHIPS



**Śląsko-Małopolska
Dolina Wodorowa**



KLASZTER
TECHNOLOGII WODOROWYCH





WE PROVIDE A FRESH PERSPECTIVE!



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