

Naftogaz vision in the development of biomethane market in Ukraine

2025



The role of the market operator will provide significant opportunities for value creation

Naftogaz as a
biomethane
market
operator



Feasibility studies and engineering services

Connection of biomethane plants to gas network



Turnkey connection of biomethane plants

Construction of gas systems and connection to gas networks



Maintenance and repair services

Equipment for transportation and connection to GTS/GDS



Transportation of biomethane

biomethane supplied to GDS network



Biomethane storage

biomethane supplied to the gas network



Off-take

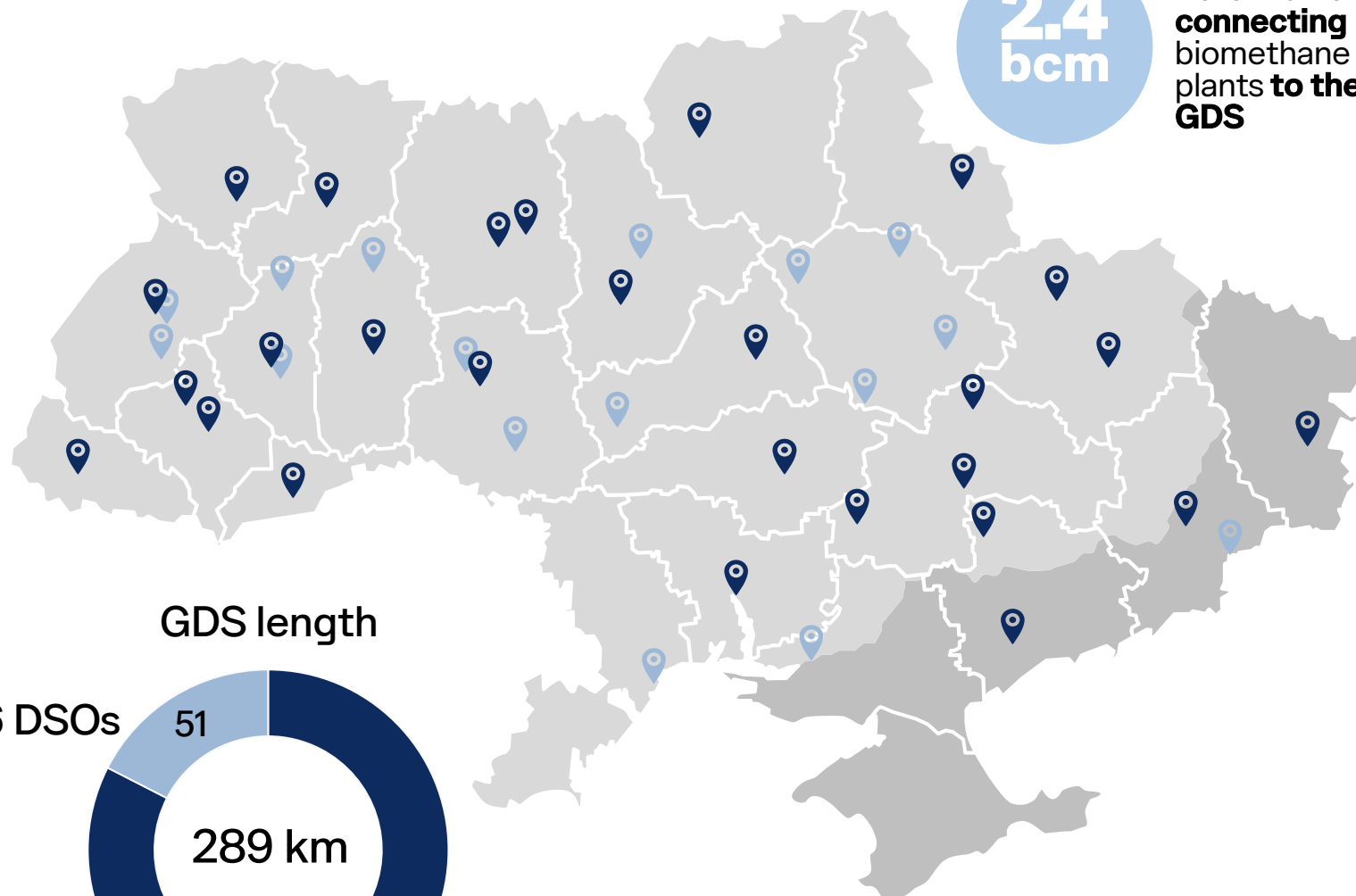
Biomethane for further export to the EU or trade on the domestic market



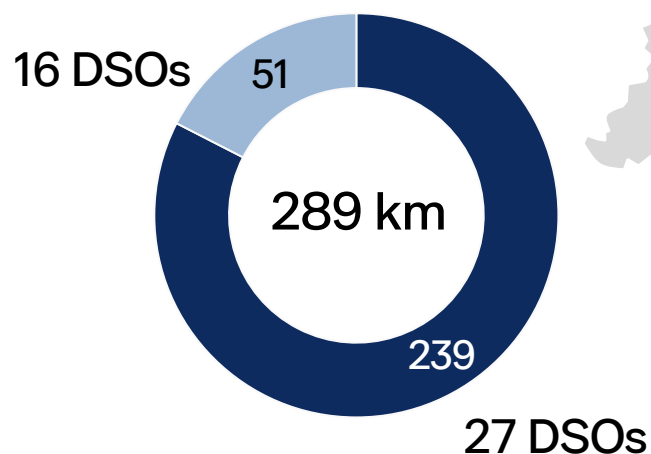
Connection: GDS potential

**2.4
bcm**

Potential for
connecting
biomethane
plants **to the**
GDS



GDS length



■ Naftogaz ■ Other DSOs

Sources: Naftogaz Group, open data

Biomethane plants can also be **connected to the gas distribution networks**

Key advantages:

- **Relatively low pressure** (3-12 atm)
- **Availability of a larger number of locations**

Disadvantages:

- **Restrictions (50-70%) on biomethane supply** in summer (the problem is the seasonality of natural gas consumption, while biomethane production is relatively stable)

Potential ways to increase biomethane intake capacity:

- **Redesign of the GDS network** (reconnection of consumers)
- **Choosing another connection point** with higher natural gas consumption
- Installation of reverse compressors for **pumping excess biomethane from GDS to GTS** (as confirmed by the EU experience)

Establishment of biomethane clusters in central and western Ukraine



Development of optimal schemes for the **optimization of gas transmission and distribution systems**, as well as gas pipeline looping schemes, aimed at **increasing their minimum throughput capacity** and removing constraints on the connection of new biomethane plants

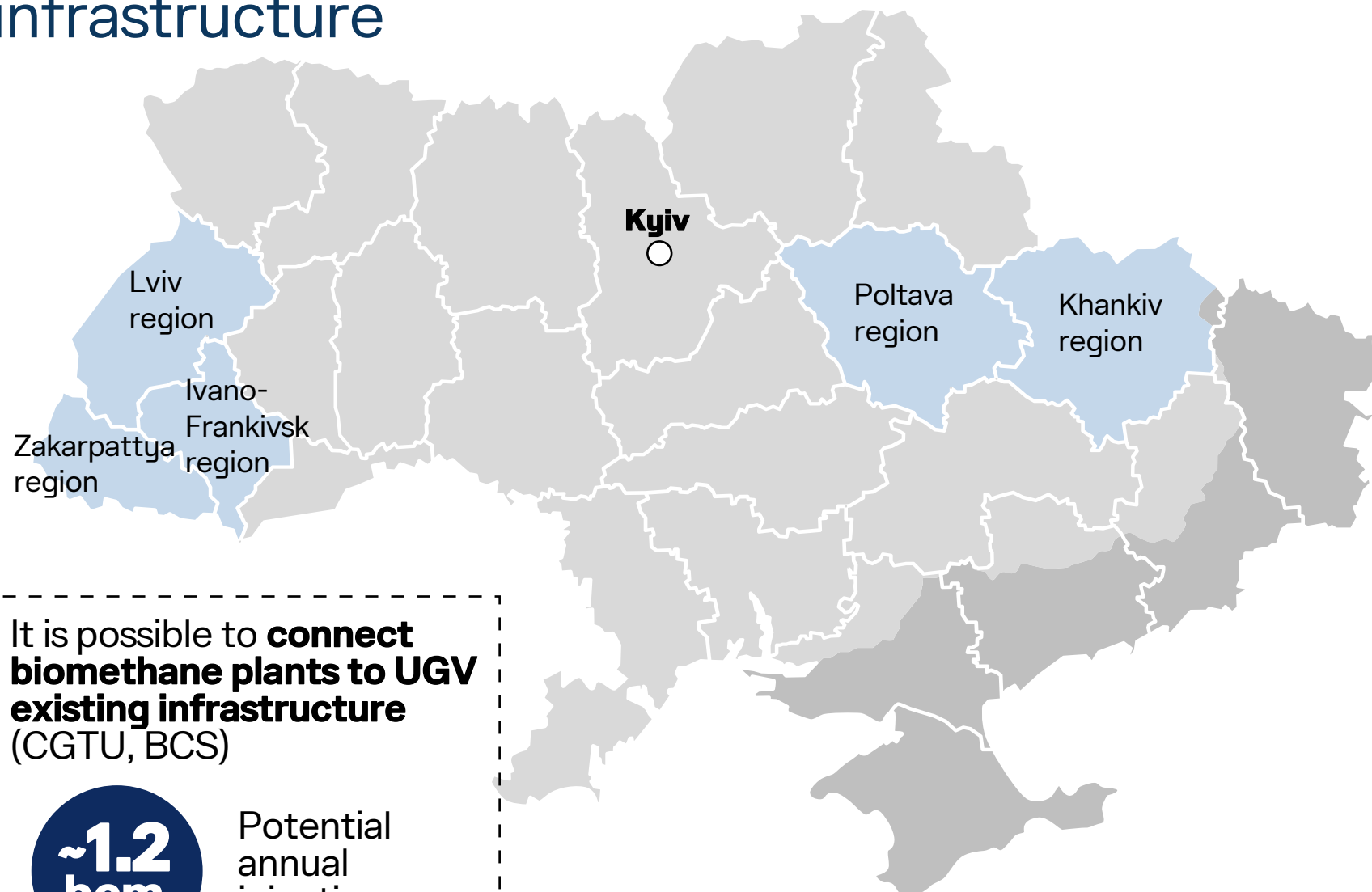
In September 2024, a biomethane plant with a **capacity of 423 m³/h** was launched in Khmelnytskyi region. This facility has the potential to replace approximately 3.7 million m³ of natural gas annually.

In the future, the connection of three additional biomethane plants is possible, with a combined annual **capacity of over 58 million m³**

Required equipment	Q-ty
Gas pipelines, km	137,27
GRP*	3,0
CRPS**	80 049
Telemetry	444,0
Gas metering units	16,0
Shut-off valves	34,0

*GRP – gas regulation point **CRPS - combined residential pressure regulator

Connection of biomethane plants to UGV infrastructure

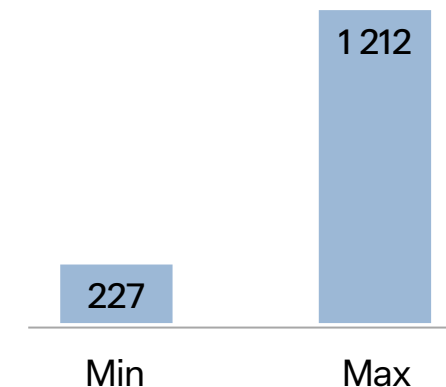


It is possible to **connect biomethane plants to UGV existing infrastructure** (CGTU, BCS)

**~1.2
bcm**

Potential
annual
injection

Total capacity of connection to UGV infrastructure, mmcm/year



Connection specifications:

Parameter	Value
CO ² , %	2.5-5.0
O ² , %	0.5-1.0
Pressure, atm.	3.0-18.0
Connection period	2023

Connections: creation of a service center on the basis of the Gazmerezhi



Core information base
on connection to the
networks



Operational efficiency
through synergy

**Biomethane
Service
Center**



One contact for
accepting applications
for connection



Digitalization of the
connection process



Consultation regarding
connection purposes

UKRTRANSGAZ involvement in the development of biomethane sector in Ukraine

JSC "UKRTRANSGAZ" has the expertise, highly qualified personal and can contribute to the development of the biomethane sector in Ukraine.



Feasibility study

In case of connection biomethane plants to gas network



Engineering services

Selecting the most efficient option of connection to gas network



Turnkey connection of biomethane plants

The complex of works from project development to commissioning of the gas system



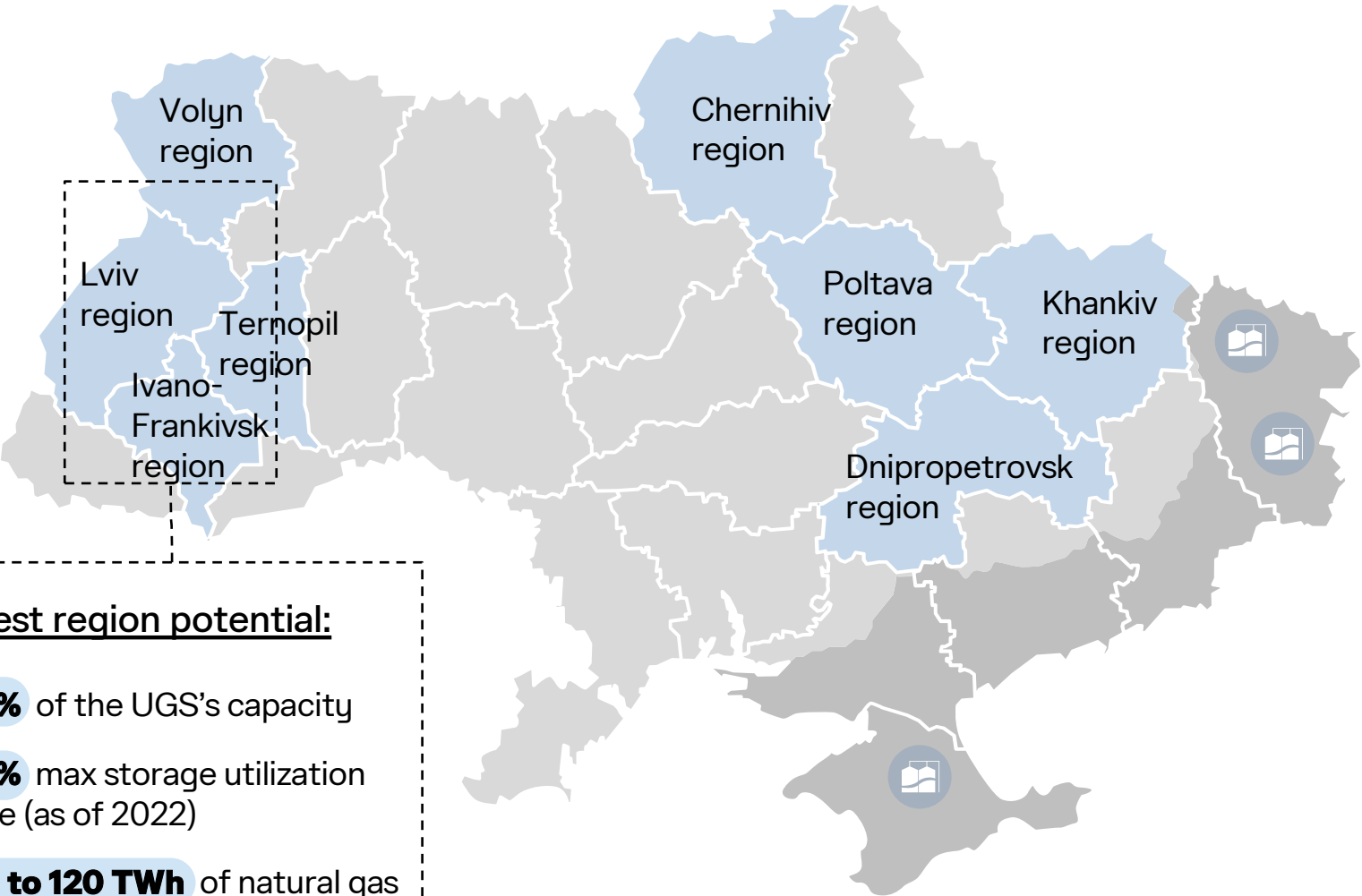
Maintenance and repair services

Performing maintenance and repair works of the gas system

The company can become an efficient contractor, which will stimulate the development of biomethane in Ukraine and ensure the quality and reliability of the gas system operation for biomethane producers



Biomethane storage



West region potential:

- 82%** of the UGS's capacity
- 53%** max storage utilization rate (as of 2022)
- Up to 120 TWh** of natural gas and biomethane can be stored in Ukrainian UGS

For biomethane injected into the gas transmission system, there is an option for **storage in UGS* facilities**

PJSC “Ukrtransgaz” is the national gas storage operation in Ukraine, managing 100% of the countries UGS facilities

Key figures:

13UGS

Number of UGS facilities (incl. 3 occupied)

328TWh

Total working volume

1st place

by the UGS working gas volume in Europe

1/3

Fraction of working gas volume of Ukraine's UGS in total volume of Europe's UGS

Storage operation capacity:

Filling	Withdrawal GWh/day	Injection GWh/day
100%	2.4	2.0
50%	1.8	2.1
30%	1.3	2.3
10%	0.6	2.2

*UGS – underground gas storage

Offtake: benefits of cooperation with Naftogaz



Supply guarantee

Naftogaz guarantees to purchase up to 100% of annual biomethane production for up to 10 years and place it on the market at competitive prices



Attracting finance

A long-term purchase agreement with a company such as Naftogaz will be an advantage when raising funds for the construction of the plant



Biomethane sales price

Opportunity to generate revenue with a clear pricing mechanism



Cost savings

No need to hire sales managers and qualified sales staff