

WE STORE ENERGY FOR YOUR SAFETY



FOREWORD

Roman Maliutin
Acting Director
General of Ukrtransgaz



Dear friends!

Ukrtransgaz as part of the Naftogaz Group remains a reliable partner and a source of strategic prospects for both Europe and the world. It is strengthening its cooperation with Ukrainian and international energy market participants for the sake of common security and new opportunities.

While the issues of energy security and independence are particularly acute for continents and countries, Ukrainian underground gas storages (hereinafter - UGS), uniting representatives of gas production, transportation and distribution, are a guarantor of uninterrupted gas supply regardless of circumstances and geopolitical conditions.

Ukrtransgaz has been already cooperating with more than 1,100 companies on 3 continents. And we invite other gas market participants to engage in dialogue and cooperation. We are open to new partnerships and offer up to 10 bcm or 160 TWh of gas storage capacities. We also have a developed infrastructure close to the EU borders and some of the most favorable tariffs on the continent. All of this, combined with the professional team and decades of successful experience, modern technological equipment and a portfolio of services meeting all customers' needs, makes Ukrainian UGS an attractive

business solution for gas market participants.

Despite the military hostilities, Ukrtransgaz maintains the sustainability of its production processes and fulfills all obligations to its customers and business partners. Under any circumstances, our priority is the security of gas storage and supply to our customers. Therefore, we are working hard to protect our facilities and are ready to respond to any challenges that may arise. And we are grateful to our customers for the trust and support they show us every day. First and foremost, by injecting their gas into Ukrainian UGS.

Ukrtransgaz will continue to meet the highest standards of performance that our partners have been already accustomed to. We are the 2nd storage system operator in Europe to successfully pass the certification and prove its right to carry out gas storage activities in accordance with the updated regulations in the European Union. We are open to new projects and invite all market participants to cooperate - Ukrainian UGS have a lot to offer.





UKRTRANSGAZ TODAY

Ukrtransgaz operates the domestic UGS system. Capacity of all Ukrainian mainland UGS is 30.95 bcm and is the largest among European countries.

On January 1, 2020 the company started operating as an independent storage system operator after completion of one of the largest reforms in gas industry of Ukraine – separation of gas transmission activities.

Today, Ukrtransgaz is a full-fledged member of the world gas market and an essential component of energy systems of both Ukraine and Europe. Customers from Europe, Asia and North America store their gas in Ukraine, and a list of companies and countries that use gas storage services in Ukraine is constantly growing.

Ukrtransgaz has a developed and reliable gas storage infrastructure, which we are constantly improving. The Development Plan of Ukrainian Gas Storages for 2022-2031 envisages UAH 14.4 billion of investments in the modernization and improvement of functioning of the Ukrainian UGS. In addition, the company implements modern solutions, such as construction of geo-

logical and gas-hydrodynamic 3D-models of its UGS. All for the sake of stability, continuity and maximum scientific validity of production processes at our facilities.

Much attention is also paid to improving the customer service system. Ukrtransgaz regularly expands a list of services and products aimed at creating more flexible and attractive conditions for our customers to generate an additional income. And this approach gives the result: despite full-scale hostilities on the territory of Ukraine, non-resident customers continue to store gas in Ukrainian UGS.

The Western Ukrainian cluster, which accounts for more than 80% of Ukraine's UGS capacity, is located near the borders with Poland, Hungary, Slovakia and Moldova. Lviv and Ivano-Frankivsk regions, where storages are located, are the most remote from hostilities and neighbor EU countries. This year, Ukraine is offering its European partners capacities of more than 10 bcm for storing gas in a customs warehouse regime with a subsequent possibility of re-export or customs clearance in Ukraine.

Ukrainian occupy 1st place in Europe in terms of storage and are 3rd in the world.





CERTIFICATION OF UKRTRANGAZ

Ukrtransgaz is the 2nd storage system operator in Europe to successfully pass the certification and prove its right to carry out gas storage activities in accordance with the updated regulations in the European Union and the Energy Community.

Certification is another step towards strengthening the energy security of both Ukraine and the EU.

The mandatory certification procedure for storage system operators was introduced in the EU on July 1, 2022, to counteract Russia's use of UGS in Europe under its control to blackmail other countries and to prevent a recurrence of cases when the volume of gas in storages was insufficient to properly cover the autumn and winter period.

Ukrtransgaz certification gives a right to engage Ukrainian UGS for implementation of energy security measures in Europe, as provided for by the EU Gas Supply Security Regulation, including storage of non-resident customers' reserves, as well as reserves for the countries that do not have their own gas storages or gas volumes jointly purchased by countries for crisis situations.





KEY INDICATORS OF UKRTRANSGAZ

30,95
bcm

working volume

22
%

volume of UGS of Ukraine in total volume
of UGS of Europe

1st
place

by the capacity of UGS in Europe

28,3
bcm

a level of gas filling at the end of the 2020 injecting season
is the highest in 10 years

10
bcm

is the historical maximum of gas reserves created
by non-resident companies in 2020

PRODUCTIVITY OF UKRAINIAN UGS

Ukrainian gas storage are the largest in Europe in terms of gas storage capacities. Accordingly, they are also the leaders in terms of gas injection and withdrawal rates per day. UGS productivity directly depends on an operation mode (pressures) of the GTS and the actual filling of individual UGS*

Rated productivity of gas storage facilities

Full	Withdrawal mcm/day	Injection mcm/day
100%	230	188
50%	170	203
30%	122	222
10%	60	241

The productivity of Ukrainian UGS allows us to fully supply gas to domestic consumers as well as to fulfill orders of non-residents – even during a peak winter demand.

A procedure for providing services is determined by the Gas Storage Code. Customers who book a year in advance have the first priority, followed by those who book a month in advance, and finally go those who book a day in advance. In the latter category, a sequence of fulfillment is determined by the time of nomination.

* The maximum possible (rated) loading is 230 million cubic meters per day for withdrawals and 188 million cubic meters for injections.





GAS QUALITY CONTROL

Ukrtransgaz thoroughly controls the quality of gas supplied from GTS to UGS as well as withdrawn from UGS to GTS.

During gas withdrawals from UGS natural gas is comprehensively treated, including purification, removal of mechanical impurities and dehumidification to achieve the required humidity levels.

All gas quality control activities are carried out by our own chemical and analytical laboratories using the latest control systems. Ukrtransgaz laboratories have passed the conformity assessment according to DSTU ISO 10012:2005. Currently, the company is actively implementing flow chromatographs and moisture meters that allow for continuous gas quality control and recording in both metric and energy units. Such systems have already been installed at 4 UGS of Ukrtransgaz, installation is underway at 3, and another 4 are planned for next year.

Requirements for the quality of natural gas injected into and withdrawn from UGS are set forth in the Gas Storage Code of Ukraine.

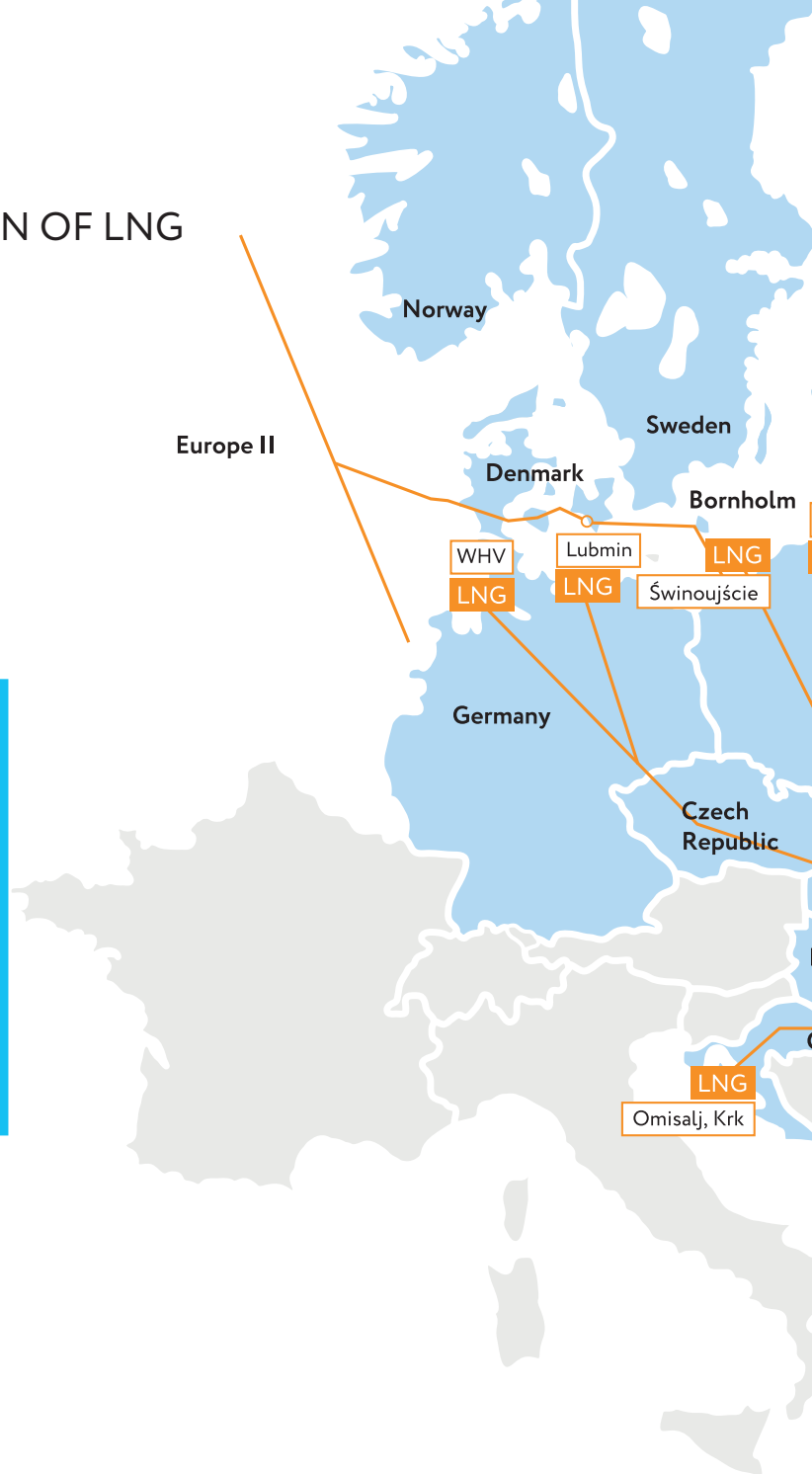
Standard physical and chemical parameters characterizing the quality of natural gas in Ukrainian UGS:

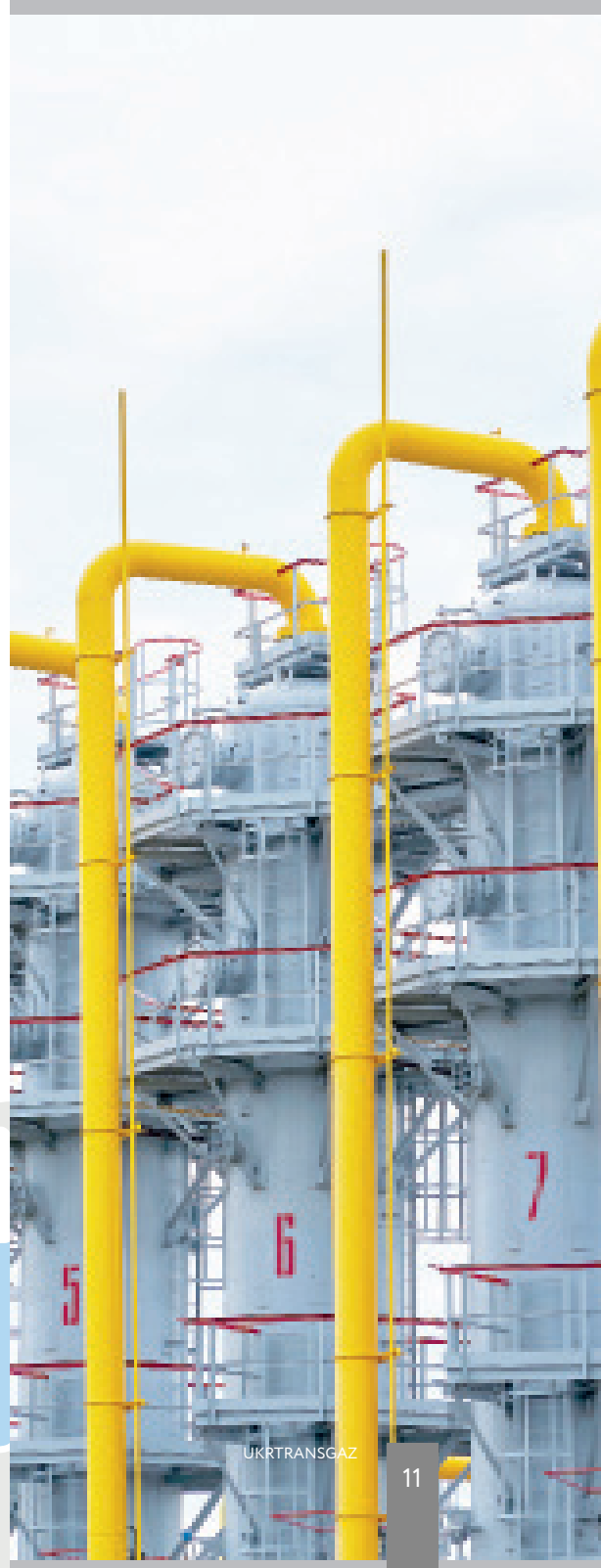
calorific value (higher)	10.06...10.64 kWh/m ³
methane content	not less than 90%
nitrogen content	not more than 5%
carbon dioxide content	not more than 2% of the total volume
moisture dew point temperature	not higher than minus 8°C (when reduced to a pressure of 3.92 MPa)
hydrocarbon dew point temperature	not higher than 0°C at operating pressure

ROUTES FOR TRANSPORTATION OF LNG FOR STORAGE IN UKRAINE

Close proximity to EU borders is a strategic advantage of Ukrainian UGS.

It lets store LNG which was brought to Europe and through the GTS.





UGS SYSTEM ON THE MAP OF UKRAINE

Ukrtransgaz operates 12 UGS with total active gas capacity up to 30.95 bcm.

Most of UGS are created on depleted gas fields. 2 of them – Chervonopartyzanske and Olyshivske (the oldest in Ukraine, founded in 1964) – are based on aqueous layers.

Bilche-Volytsko – Uherske UGS is the largest not only in Ukraine, but in the whole Europe and can hold more than 17 bcm.

80% of the UGS are concentrated on the western border of Ukraine. Proximity of to Europe and convenience of logistics make underground gas storage advantageous for both foreign traders and Ukrainian companies working with cross-border natural gas transmission and storage.

BILCHE-VOLYTSKO –
UHERSKE

17 050

UHERSKE

1 900

OPARSKE

1 920

DASHAVSKE

2 150

BOHORODCHANSKE

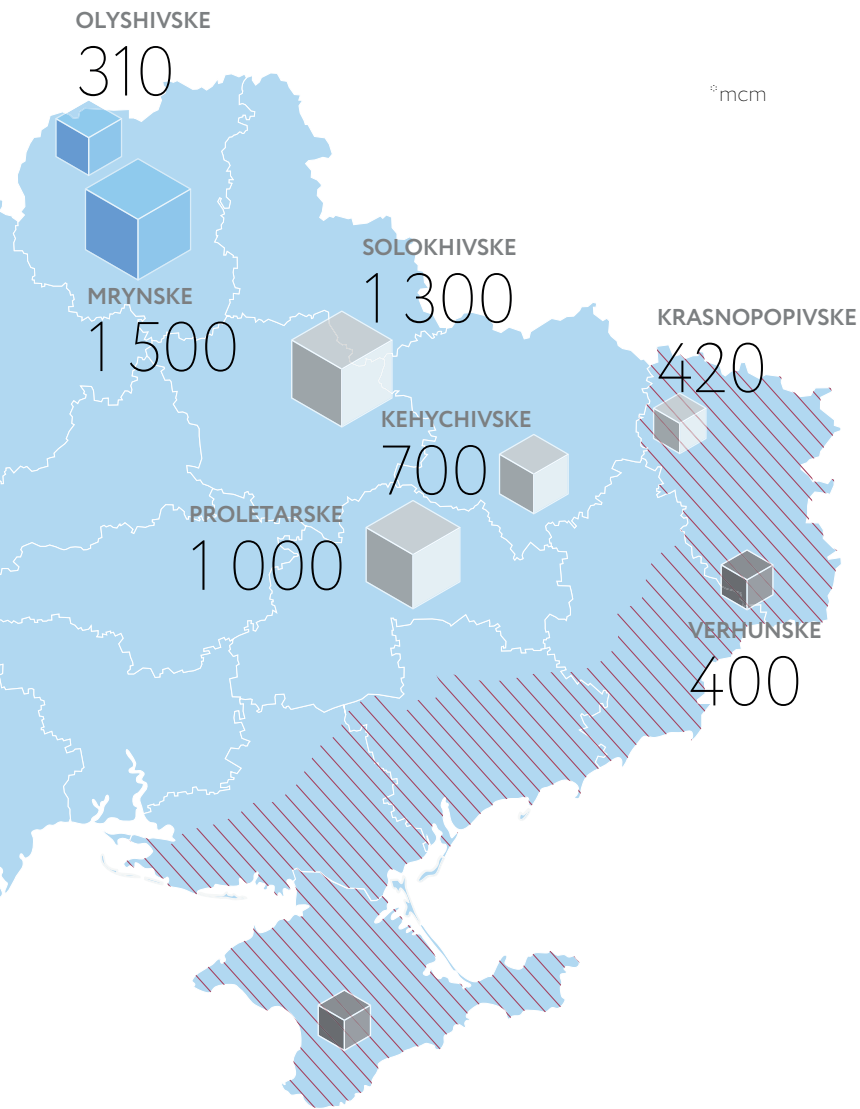
2 300

Two Ukrainian UGS facilities were created in aquifer structures, the other ten ones were established on the basis of depleted gas fields.

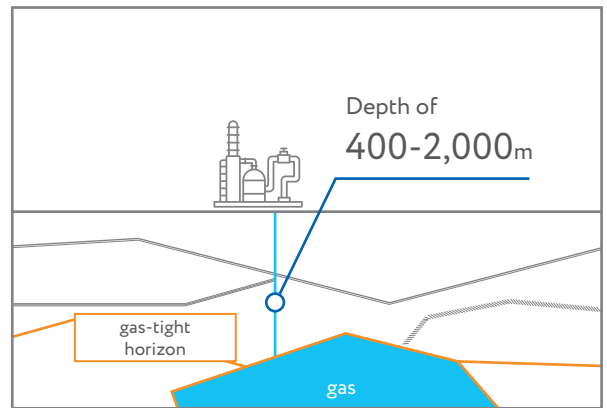
* including Verhunske UGS in the temporarily occupied territory of Ukraine



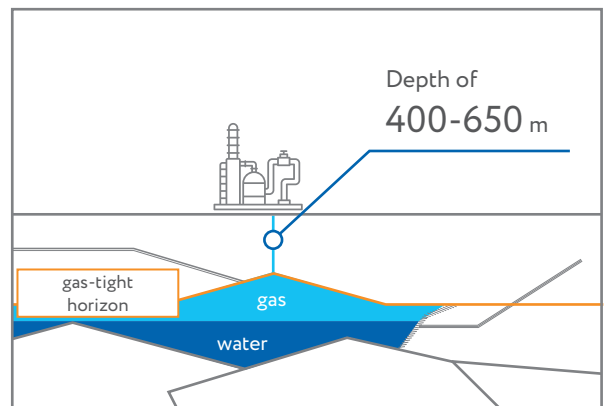
temporarily occupied territory of Ukraine
as of February 01, 2023



UGS CREATED ON DEPLETED GAS FIELDS



UGS CREATED IN AQUIFERS



UGS 3D MODELS

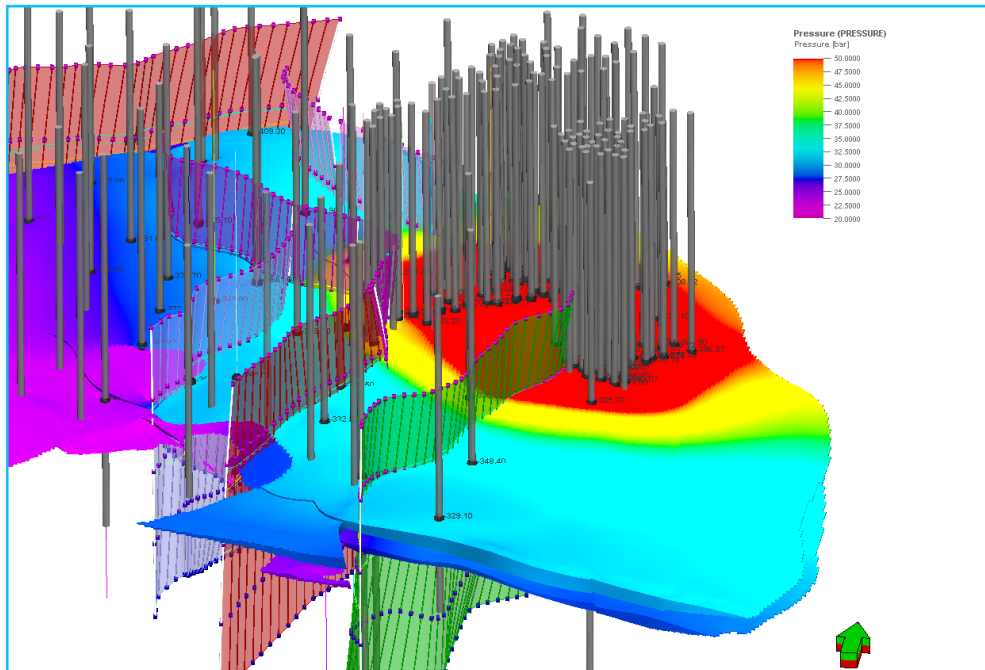
Ukrtransgaz uses the most advanced engineering approaches and methods in its work. These include the development of geological and gas hydrodynamic UGS 3D models.

UGS 3D models of underground gas storage facilities give our specialists a better understanding of a UGS geological structure and its visualization. Thus, we plan our work, choose the best solutions and strategies based on sound geological data on the location of gas in stor-

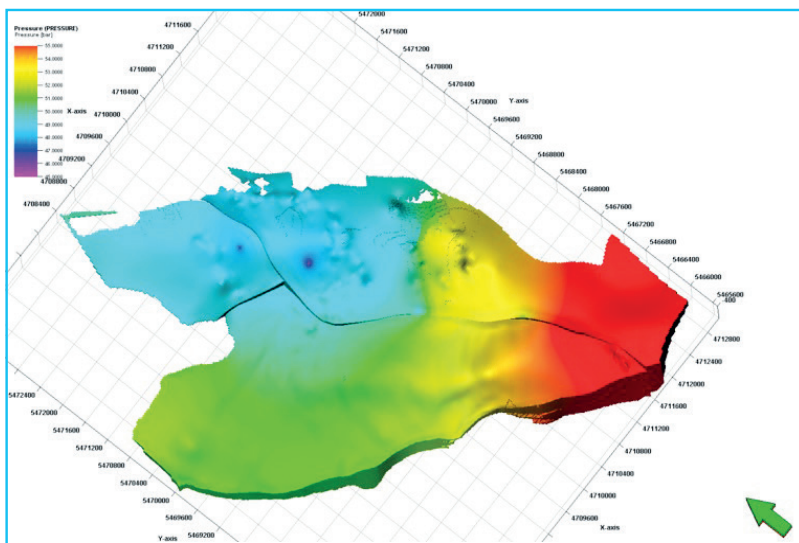
age layers. We receive such data promptly, systematically, and with the necessary detail, which makes the withdrawal and injection processes faster and more efficient, and the management of a UGS network more flexible and effective.

Currently, Ukrtransgaz has already developed 3D structural models of 4 UGS and hydrodynamic models of 2. Work is underway to create analogous 3D visualizations for 3.

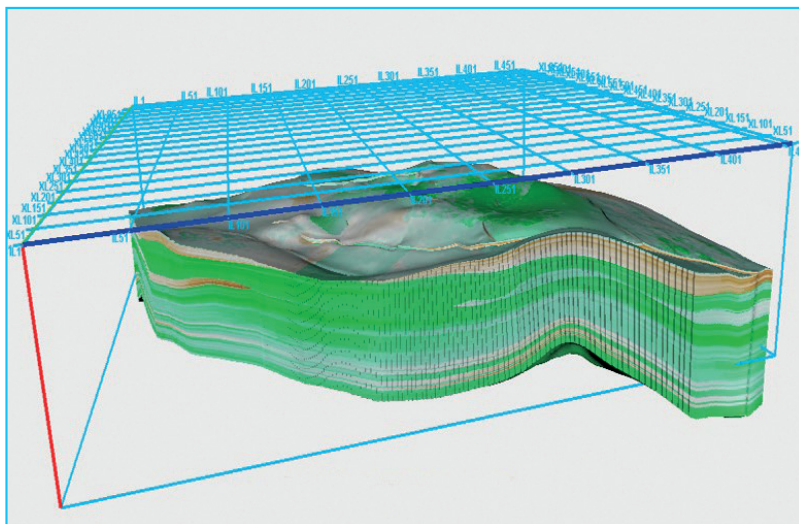
ELEMENTS OF THE INTEGRATED MODEL



HYDRODYNAMIC MODEL

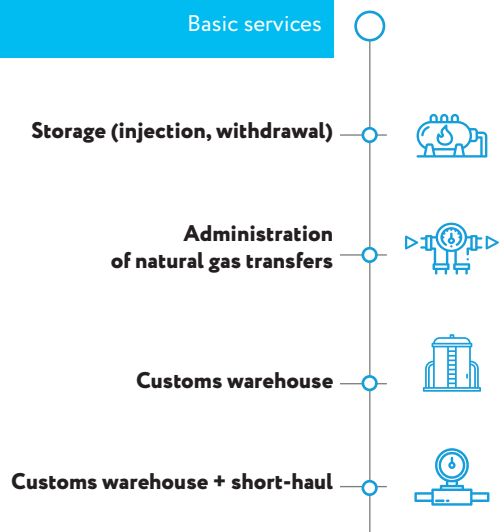


GEOLOGICAL MODEL

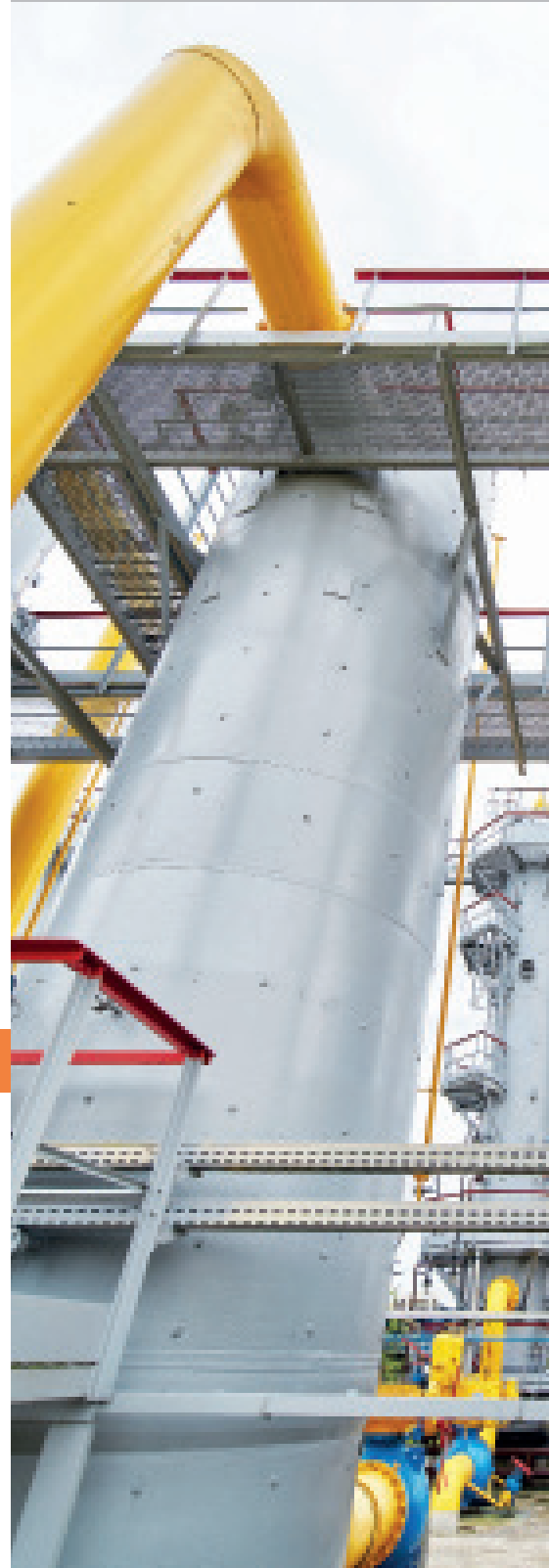
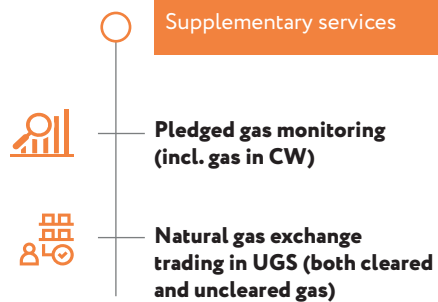


SERVICES OF UKRTRANSGAZ

Basic services



Supplementary services



STORAGE (INJECTION, WITHDRAWAL)

Service packages of Ukrtransgaz:

Annual capacity

Annual capacity is a package service rendered for a period of 1 year, which provides the customer with a guaranteed access to the injection capacity (during a basic injection season) and withdrawal capacity (during a basic withdrawal season), the most advantageous tariffs and opportunity to use working volume on the firm basis during the whole booking period.

Individual monthly services

Individual services on a monthly basis provide the customers with an access to the individual working volume on the firm basis and injection and withdrawal capacities on the intermittent basis during 1 gas month (regardless of the basic season).

Individual day-ahead services

Individual day-ahead services are available only for customers, to whom annual capacity and/or individual working volume for month have been allocated. In this format of cooperation, the customers receive individual injection and withdrawal capacities on an intermittent basis.



For more information on service packages of the Storage System Operator please visit our website

NATURAL GAS TRANSFERS ADMINISTRATION (TRADE NOTIFICATIONS)

Free service, which provides customer companies with an access to the virtual gas transmission point in UGS, includes confirmation of trade notifications and accounting of the transfers of natural gas stored in the UGS.

The service applies, among others, to gas stored in the customs warehouse, and allows for trade notifications for both resident and non-resident companies.

Trade notifications are submitted through the Information Platform (I-platform) and confirmed by the Operator within two hours.

Information Platform

Web application that provides interaction between Ukrtransgaz and service customers. Through the I-Platform, customers can track their UGS portfolio, submit nomination/renomination, customs declarations, monitor the status of payments for services etc.

Access to the I-Platform is granted to each company that enters into a storage agreement with of Ukrtransgaz. The web application is available 24/7 in Ukrainian and English after registration.





For more details on services please visit our website

CUSTOMS WAREHOUSE

Ukrainian and foreign owners of gas can store it in Ukrainian UGS for 1,095 days without taxes and customs duties with a trading option on the domestic market or reexport it to the EU countries.

Ukrtransgaz, as a customs warehouse holder, provides customs clearance services for the placement and withdrawal of natural gas volumes to/from Ukrainian UGS. Ukrtransgaz specialists provide professional support for customs clearance procedures, including filing declarations, as well as consultations on operations in the customs warehouse regime.

CUSTOMS WAREHOUSE + SHORT-HAUL

Short-haul is a service introduced by the TSO of Ukraine from January 1, 2020 opened the customers of Ukrtransgaz access to UGS at lower tariffs for transportation between the defined points of entry or exit at the cross-border connections.

The service is available in combination with the gas storage services in the customs warehouse regime and is defined as restricted capacities.

Short-haul tariffs are on average much cheaper than standard ones in case of booking capacities for a day-ahead.

PLEGGED GAS MONITORING

Owners of gas stored in the UGS can use it as a pledge when obtaining a loan from a bank, and the bank representatives can monitor all transactions with pledged gas. This functionality is available online 24/7 for banking institutions on the I-Platform.

Advantages of the service for customers:

- Wider range of potential lenders
- Greater opportunities for borrowers
- Advantageous loan terms
- Guaranteed security of the pledge



For more details on SSO services please visit our website





NATURAL GAS EXCHANGE TRADING IN UGS

Ukrtransgaz grants access to standardized products on exchange for trade in natural gas stored in Ukraine's UGS. Gas trading is available to resident and non-resident companies through the electronic platform on the Ukrainian Energy Exchange.

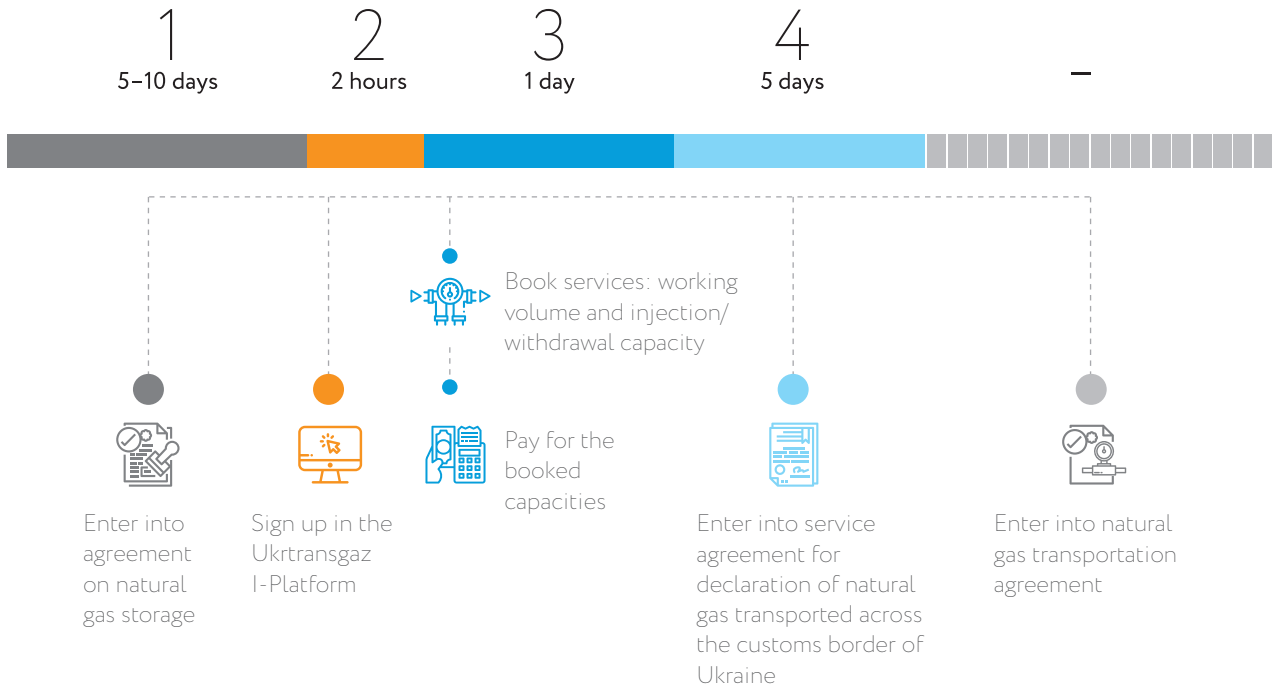
Advantages of the service for customers:

- Speed up the purchase / sale procedure up to 30 minutes
- Increase the liquidity of stocks
- Greater transparency and reliability of trade operations

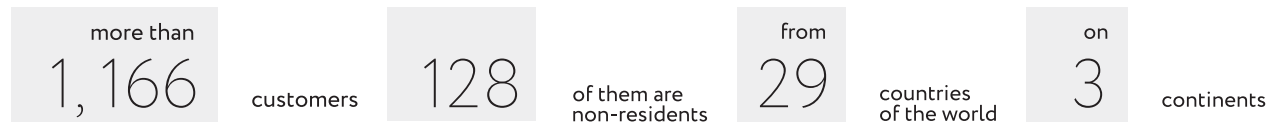


Website of Ukrainian Energy Exchange

HOW TO BECOME OUR CUSTOMER



Today the services of Ukrtransgaz are used by*



*as of June 1, 2023

TARIFFS

Tariffs for storage in Ukrainian UGS of the gas, even transported from abroad, are more advantageous than ones in UGS of Europe.

Currently, they are formed on the cost plus basis and approved by the Regulator – NEURC.

Tariffs w/o VAT*





Service	UAH per 1,000 m3 per day
Storage	0,40
Injection	243,52
Withdrawal	253,03

* According to the Tax Code of Ukraine, additional 20% VAT is charged for each service

Coefficients

Period	Coefficient
per month	1,1
day-ahead	1,2

Short-haul transportation tariff and storage tariff in the customs warehouse**

Direction	EUR/MWh		
	Annual	Monthly	Day-ahead
 Ukraine – Poland Poland – Ukraine	5.11	5.29	5.44
 Ukraine – Hungary Hungary – Ukraine	3.83	4.02	4.17
 Ukraine – Slovakia Slovakia – Ukraine	5.12	5.31	5.45
 Ukraine – Romania Romania – Ukraine	3.07	3.25	3.40

**as of June 01, 2023

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If you have any questions about cooperation, please contact
the team of Ukrtransgaz.

Data in the booklet are presented as of June 2023



www.utg.ua

