Guidance

For Natural Gas Market of Ukraine

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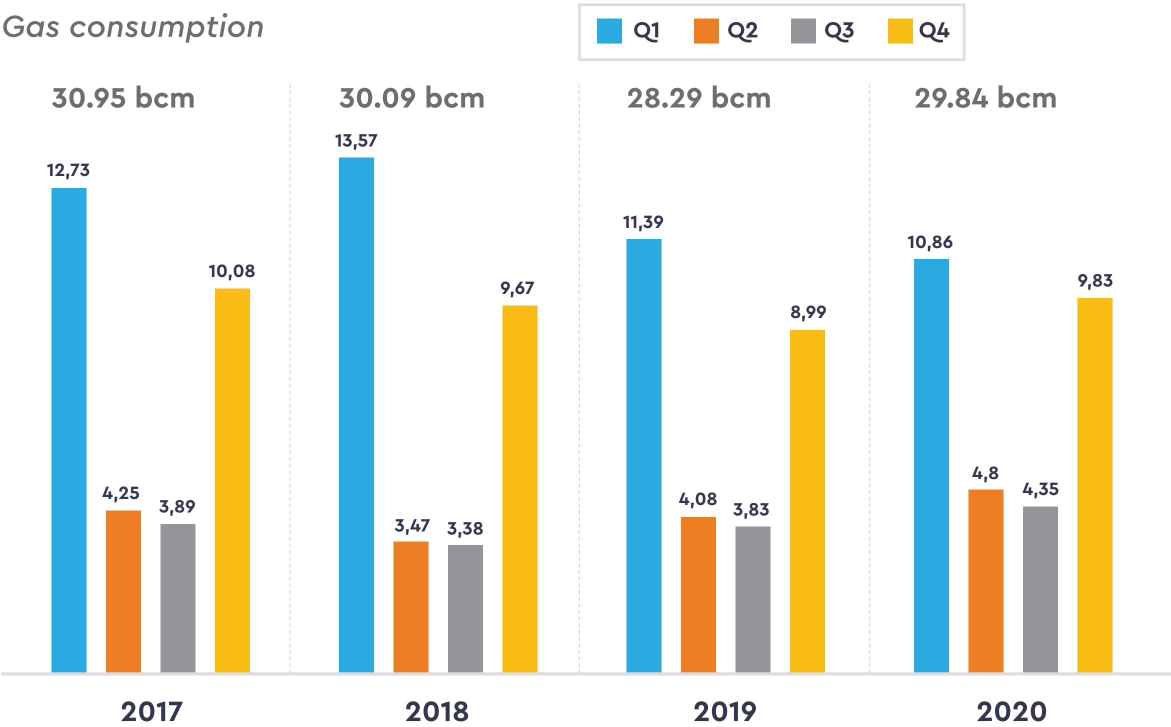
I. General Overview

Gas consumption

Pursuant to the monitoring of Ukrainian gas market and market participants by the National Energy and Utilities Regulatory Commission (the "NEURC"), the results of Ukrainian gas consumption are following:

Gas consumption



The natural gas consumption in Ukraine is different during the year due to seasonal fluctuations. The demand of **Q4 of 2020** was covered by:

- **Imported natural gas**;
- **Natural gas of own production**; and
- **Natural gas from the gas storage facilities.**

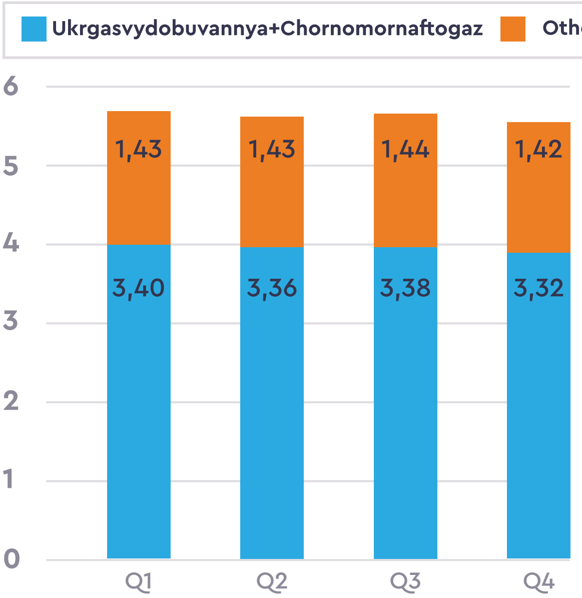
In **Q4 of 2020**, the imported natural gas and the natural gas of own production covered **81%** of Ukrainian gross consumption, while in **Q4 of 2019** gross consumption accounted for **77%** of produced and imported volumes of natural gas.

At the same time, the analysis of the last year depicts a general increase in gas consumption– despite a decrease in consumption by household, which was compensated by industrial consumption.

The main reasons for decrease of the household gas consumption is warm weather. However, increased consumption in the industrial sector, mostly by electricity and utility entities, is due to low gas prices in the **first half of 2020.**

Gas production

Production of natural gas in Ukraine in 2020, bcm



In **2020**, 19.73 bcm of commercial gas was produced. At the same time, the volume of natural gas production in **2020** covers **71.7%** of the volume of the final consumption (in **2019 – 78.9%**).

In **2020**, the downward trend in gas production by state-owned enterprises Ukrgasvydobuvannya and Chornomornaftogaz continued, their production decreased from **13.63 bcm** in **2019** to **13.46 bcm** in **2020**, or by **170 mln m³**, i.e. by **1.24%**. However, other producers increased their gas production from **5.46 bcm** in **2019** to **5.72 bcm** in **2020**.

https://www.nerc.gov.ua/data/filearch/monitoryng/gas/2020/monitoryng_gaz_IV-2020.pdf

Main gas producers in Ukraine are the following:

JOINT STOCK COMPANY "UKRGASVYDOBUVANNYA" (Ukrgasvydobuvannya)

Ukrgasvydobuvannya belongs to **Naftogaz Group** and includes the following gas production departments: Shebelynkagasvydobuvannya, Poltavagasvydobuvannya and Lvivgasvydobuvannya, the natural gas production of which in **2020** amounted to **7.552 bcm**, **5.923 bcm** and **758 mln m³** of gas respectively.
In **2020**, Naftogaz Group produced 13.45 bcm of commercial gas, which is **2%** more than the production plan and **1%** less than in **2019**.

JOINT STOCK COMPANY "NATIONAL JOINT STOCK COMPANY "CHORNOMORNAFTOGAZ" (Chornomornaftogaz)

In **2020**, Chornomornaftogaz produced 8 million m³ of gas, which is less than in **2019 (8.9 mln m³)** and **2018 (10.3 mln m³)**. The company is developing one field – Strelkove. The natural gas produced by Chornomornaftogaz is used for the needs of the city of Genichesk in the Kherson region.

UKRNAFTA PUBLIC JOINT STOCK COMPANY (Ukrnafta)

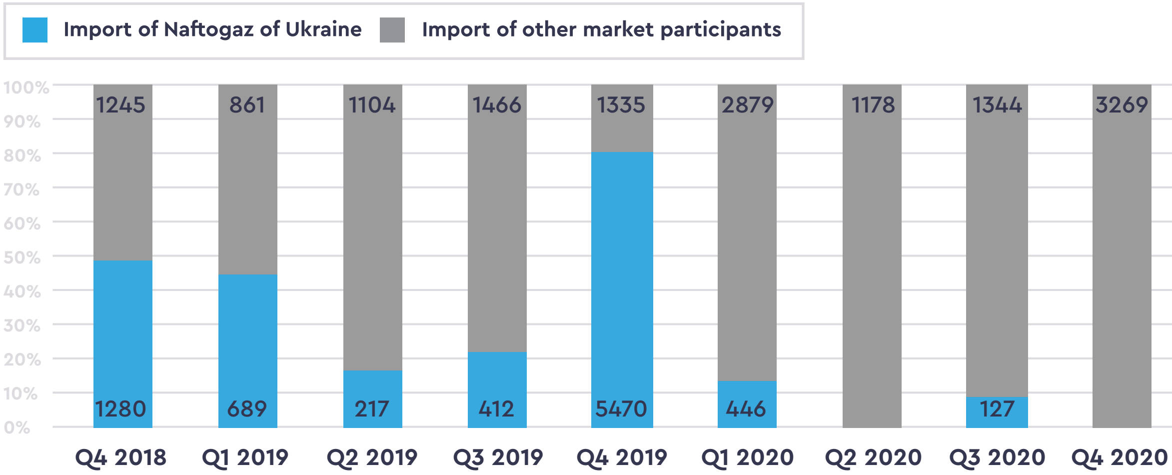
In **2020**, Ukrnafta decreased production by **3%** compared to **2019** – up to 1.13 bcm. Liquefied gas production in **2020** increased by **4.5%** to **117 thousand tonnes**.

PRIVATE COMPANIES

In **2020**, private producers increased production of gas by **7%**. However, most private producers are working on the new fields with the lower rates of natural decline.
According to the BP Statistical Review of World Energy 2020 (69th edition), Ukraine's total proved reserves at the end of **2019** are **1.1 trillion m³**, which is the second largest in Europe after Norway.
Ukraine regularly holds tenders to involve investors in the field of gas production under the terms of the Production Sharing Agreements, as well as the auctions for the sale of special permits for subsoil use (including gas extraction).

Gas import and export

Gas import, mln m^3



https://www.nerc.gov.ua/data/filearch/monitoryng/gas/2020/monitoryng_gaz_IV-2020.pdf

The gas import in Ukraine is carried out by Naftogas of Ukraine and other wholesale buyers and sellers.

Results of 2020 under the report on outcomes of NEURC activity:

- natural gas was not exported in **2020**;
- the volume of natural gas imports in **2020** amounted to **9.24 bcm**, which is **20%** less than in **2019**;
- **3.5 bcm** of natural gas stored in gas storage facilities under the customs regime of the customs warehouse was transferred to the customs regime of import;
- the total volume of purchased natural gas abroad in **2020** was about **15.8 bcm**, of which:
  - **36% – 5.64 bcm** is imported natural gas, and
  - **64% – 10.13 bcm** is natural gas that was pumped into underground gas storage facilities in the customs regime of the customs warehouse.

Thus, natural gas import in **2020** decreased by **20%** compared to **2019** and amounted to 9.24 bcm.

The number of importers in **Q1 2020** increased compared to the previous quarter and amounted to **51 entities**, which is the highest value since the beginning of **2017. In the following quarters of 2020** the number of importers did not exceed **33 entities.**

According to the operational data of LLC "GTS Operator of Ukraine":

Results of 2020:

- gas transportation from Europe to Ukraine at the request of LLC "GTS Operator of Ukraine" customers amounted to **15.9 bcm**, which is **12%** more than in **2019** and **27%** more than the average indicators of the corresponding periods in 2016–2018;
- main countries of gas import: **Slovakia** (10.2 bcm), **Hungary** (4.2 bcm), **Poland** (1.5 bcm);
- there were 473 customers for transportation services in the natural gas market (65 more than in the previous year).

Results of the first quarter of 2021:

- the volume of gas transportation from the EU to Ukraine amounted to **476 mln m^3**, which is 83% less than in the same period in **2020**;
- **410.4 mln m^3** were transported from **Hungary**, **65 mln m^3** – from **Slovakia**, **0.2 mln m^3** – from **Poland**. 86% of gas volumes were delivered by **backhaul**.*

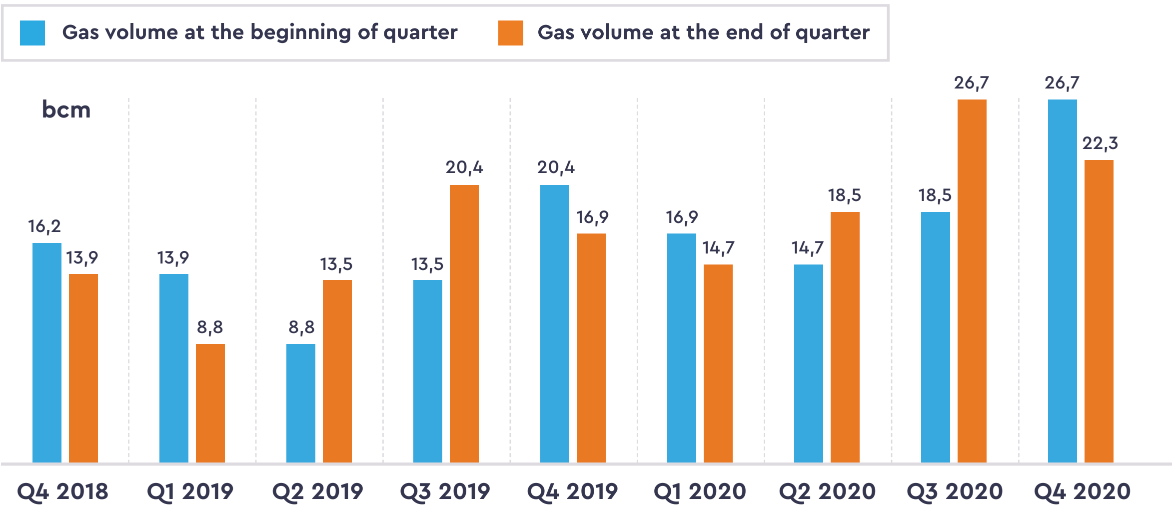
* backhaul – a mode which provides for the exchange of natural gas between gas transmission system operators, when gas does not physically move across the border and the parties are offsetting.

Gas storage

Ukraine has the most powerful network of underground gas storage facilities in Europe, which consists of 12 underground gas storage facilities with the **total capacity of 31 bcm**. The capacity of Ukrainian gas storages is equal to a quarter of EU storage capacity.

According to the Gas Storage Facilities Operator ((JSC "Ukrtransgaz" or "Ukrtransgaz"), during **2020** there were **457 customers** for storage services (practically on par with the previous year).

Gas storage



https://www.nerc.gov.ua/data/filearch/monitoryng/gas/2020/monitoryng_gaz_IV-2020.pdf

By the end of the storage year, which lasted from **1 April 2019** to **31 March 2020**, the filling level of Ukrainian gas storage facilities was **51%**, which is **23%** more than at the end of the previous year of storage. During the indicated storage year, the maximum filling level of gas storage facilities was **70%** in **October 2019**.

The filling level of underground gas storage facilities as of the end of **Q4 2020** amounted to **72%** of the design capacity, which is **14%** less than in the previous quarter (**86%**) and by **17%** more than at the end of the same period of the previous year (**55%**).

In **Q1 2020**, **53% of the total volume** of injected natural gas was pumped into the customs warehouse of gas storage facilities, in **Q2 2020** the respective volume was **58.7%**, in **Q3 2020** – **70%**, in **Q4** – **4.4%**.

Pursuant to Ukrtransgaz information, as of early **June 2021**, gas level in the Ukrainian underground gas storage facilities reached **15.5 bcm**. This is **22%** higher on average for this date over the past five years, however it is **13%** less than the last year's figures.

From **21 May 2020**, Ukraine has introduced the tools to use storage of natural gas in the "Customs Warehouse" mode*, which is transported under the short haul mode**.

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* The "Customs Warehouse" mode enables customers to store gas in the underground storage facilities in Ukraine for 1,095 days free from tax and customs duties.

** Short-haul mode from 1 January 2020 allows transportation of gas at the reduced rates as follows:
- between certain interstate entry and exit points of the GTS,
- between these points and the underground gas storage facility.

II. Wholesale Market

On 1 February 2011, Ukraine became a Contracting Party of the Energy Community, an international organisation founded by the EU and non-EU states for integration of energy markets. On the basis of the contractual obligations within the Energy Community, Ukraine adopted the following legislation for implementation on the gas market in accordance with the provisions of the Third Energy Package:

The Natural Gas Market Law, dated 9 April 2015 No. 329-VIII;

Law on the National Energy and Utilities Regulatory Commission, dated 22 September 2016, No. 1540-VIII;

Gas Transmission System Code, dated 30 September 2015, No. 2493;

Gas Distribution System Code, dated 30 September 2015, No. 2494;

Gas Storage Facilities Code, dated 30 September 2015, No. 2495.

The main purpose of the implementation of the Third Energy Package is integration of the Ukrainian gas transmission system operator to the European Network of Transmission System Operators for Gas (ENTSOG).

According to the Energy Community Annual Implementation Reports, dated 1 November 2019 and 1 November 2020, the **level of implementation of the Third Energy Package for the wholesale gas market of Ukraine decreased from 62% in 2019 to 40% in 2020**. The non-implementation of REMIT (Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency), due by **29 May 2020**, decreases the overall implementation status.

At the same time, EC Implementation Report 2020 notes, that the deregulated segment of the wholesale gas market in Ukraine increased significantly from **40%** to **80%** by releasing household customers from the Public Service Obligation (the "PSO") regime.

However, it is worth mentioning, that overall implementation ratio in the gas sphere of Ukraine exceeded **80%** in **2020**, namely due to the following indicators: unbundling, access to the system, retail market and interconnectivity.

What is the wholesale gas market of Ukraine?

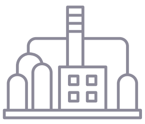
The natural gas market of Ukraine means the legal relations arising in the process of purchase and sale and supply of the natural gas, as well as provision of services for its transportation, distribution, storage (injection, withdrawal) and LNG installation services.

Natural gas is a commercial product in the meaning of the Natural Gas Market Law and is defined as:

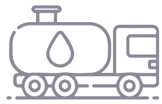
- a mixture of hydrocarbons and non-hydrocarbon components;
- these components are in a gaseous state under standard conditions (pressure: **760 millimeters** of mercury and temperature: **20 degrees Celsius**).

The definition of natural gas includes petroleum (associated) gas, coal gas (methane) and shale gas, dense rock reservoir gas, central-basin type gas.

On the basis of difference in rules and participants, the natural gas market of Ukraine is divided into:



wholesale gas market



retail gas market

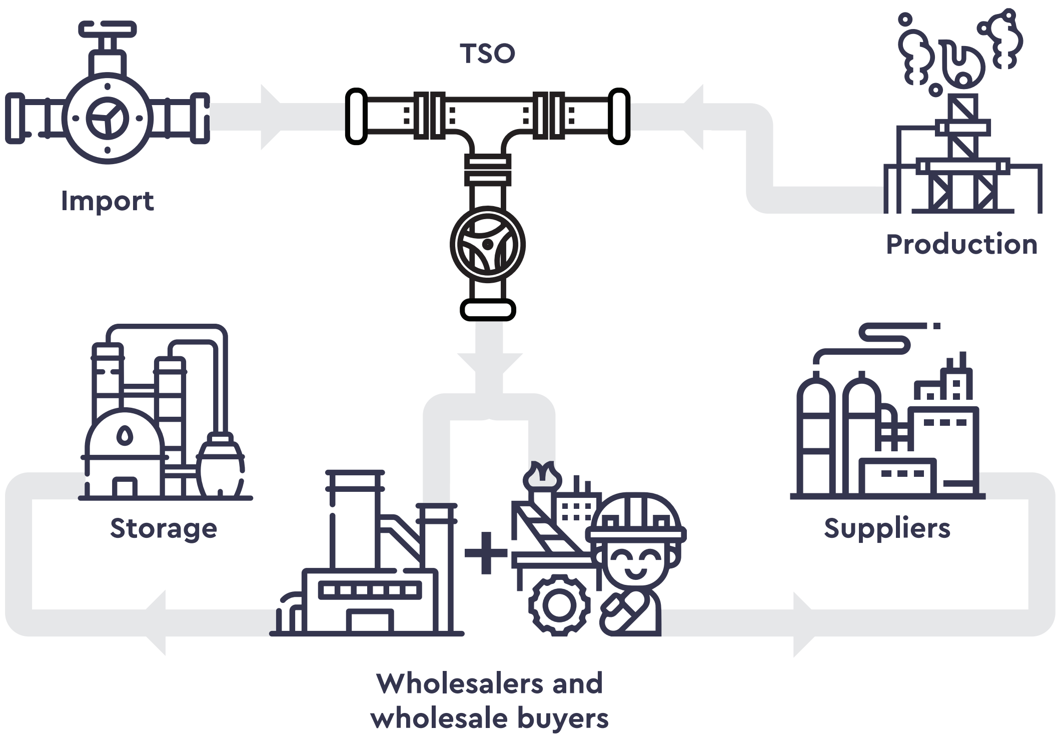
The **wholesale gas market** means purchase and sale of natural gas between wholesalers and wholesale buyers without requirements as to the licensing and does not account for gas sales to consumers.

Who are the main participants of the wholesale gas market?

The main wholesale gas market participants are:

- The gas transmission system operator ("TSO")
- The gas storage facilities operator
- wholesalers
- wholesale buyers
- suppliers

Wholesale gas market of Ukraine



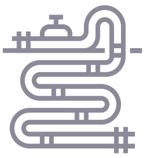
Purchase and sale of natural gas on the wholesale gas market is carried out by wholesale buyers and wholesalers. According to the Annual Report of the NEURC for 2020, the **number of wholesalers and buyers** operating on the natural gas market of Ukraine in **2020** was about **399 business entities**.

A **wholesale buyer** is a business entity that purchases natural gas on the basis of a purchase and sale agreement not for its own consumption.

A **wholesaler** is a business entity that sells natural gas to a wholesale buyer or supplier on the basis of a purchase and sale agreement. The wholesalers are traders and the natural gas producers in case of sale of gas on the wholesale gas market.

The activity of wholesalers and wholesale buyers on the wholesale gas market does not require licensing. Foreign entities can also be participants of the wholesale gas market under the rules of the customs warehouse regime.

Transportation of natural gas through the territory of Ukraine is carried out by the gas transmission system operator, **LLC Gas TSO of Ukraine, or TSO.** The TSO was incorporated in **2019** by JSC Mahistralni Gazoprovody Ukrainy (MGU) which is **100%** state-owned and subordinates to the Ministry of Energy of Ukraine. The TSO is a certified operator starting from **1 January 2020**. LLC Gas TSO of Ukraine has:



33,079 km of gas pipelines

11,000 employees and

a total budget contribution of almost **UAH 15 billion** and TSO entered the top 10 Ukrainian enterprises in term of budget contributions in 2020

Storage of natural gas in underground gas storage facilities is carried out by Ukrtransgaz as the **gas storage facilities operator**. Ukrtransgaz owns **12** underground storages with the capacity of **30.96 bcm**. In **2020**, the gas storage facilities operator had 457 customers of storage services that was practically at the same level with the previous year.

In order to sale natural gas on the retail gas market, the wholesaler can sell natural gas to the natural gas suppliers. **Natural gas supplier** or the **supplier** is a business entity that supplies natural gas to the consumers on the basis of a license. In **2020**, 286 suppliers actually worked on the natural gas market and supplied natural gas to the final consumers.

Is the wholesale gas market of Ukraine segmented?

Since the entry into force of the legislation on reforming Ukrainian gas market, the wholesale market operated on the principle of separation into a regulated and unregulated segment.

The Regulated segment was operating based on:

- **Article 11** of the Natural Gas Market Law that concerns special obligations to ensure the general public interest in the functioning of the natural gas market or the Public Service Obligations;

- Procedure on imposing special obligations on natural gas market entities to ensure general public interests in the process of functioning of the natural gas market, approved by the Resolution of the Cabinet of Ministers of Ukraine No. 867, dated 18 October 2018.

Starting from **1 August 2020**, the Public Services Obligations were terminated for the household customers, which became an impetus for the launch of a full-fledged retail gas market in Ukraine.

This means that from **1 August 2020** the household customers have to choose the supplier and purchase gas at the market prices.

Starting from **20 May 2021**, Public Service Obligations do not apply to district heating producers of all categories.

The Unregulated segment is based on:

- over the counter (the **"OTC"**) trading in bilateral contracts; and
- trading through commodity exchange – the Limited liability company Ukrainian Energy Exchange (LLC UEEX).

Trading in bilateral contract occurs on the virtual trading point (VTG) from 2016 according to the Gas Transmission System Code.

The wholesale trade of natural gas is also possible on LLC UEEX. The level of trade of natural gas on LLC UEEX significantly improved in **2020**. In total, 2.5 bcm of natural gas was sold through LLC UEEX in **2020**, which is six times more than a year earlier.

LLC UEEX expanded its coverage of markets in **2020**: the intraday market was launched in **September 2020**, and the day ahead market was launched in **December 2020**.

On **14 June 2021**, based on the results of the tender LLC UEEX was determined as the exchange (a trading platform) for the TSO's balancing actions by trading short-term standardised products.

What is necessary to trade in gas?

For the actual implementation of gas purchase and sale operations, the network user should enter into a gas transmission contract with the TSO in accordance with the Template Gas Transmission Contract approved by the NEURC Resolution No. 2497, dated 30.09.2015. The contract with the TSO covers provision of TSO services:

- for the capacity allocation at the points of entry and exit to the gas transmission system (depending on the period of provision, there may be annual, quarterly, monthly or for a day ahead capacity allocation),
- for transmission of gas through the gas transmission system of Ukraine, and
- for the settlement of daily imbalance in the volumes of gas supplied to and taken from the gas transmission system.

TSO provides natural gas transmission services to its clients on the information platform developed as the web application under requirements of the Gas Transmission System Code.

LLC UEEX requirements for gas traders are published on its website.

III. Retail Market

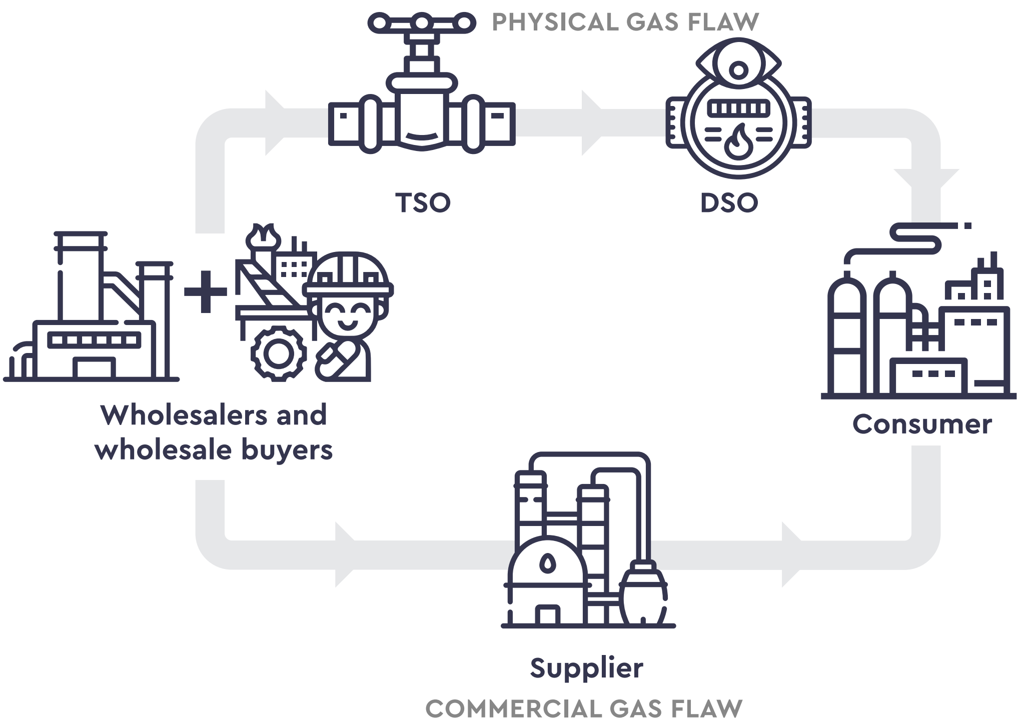
Historically, the gas retail market includes gas supply to the consumers who buy gas for their own consumption – household and non-household consumers. There are **12.57 mln** consumers in total on the Ukrainian gas retail market, whereas **12.46 mln** are household and **111,000** are non-household consumers.

Who are the main participants of the retail gas market?

The main retail gas market participants are:

- gas transmission system operator (TSO)
- gas distribution system operators (DSO)
- gas suppliers
- supplier of the "last resort"
- consumers (household and non-household)

Retail gas market



Although 286 licensed suppliers operated on the Ukrainian gas market in **2020**, only around 50 suppliers provided their price offers to the public segment.

A supplier buys gas on the wholesale market (from the producer, wholesaler, importer, etc.) and resells it to the consumer. As a rule, the networks of the the TSO and the distribution system operators (the **"DSO"**) are used for the physical gas flow.

Distribution system operator is a business entity engaged in activities on distribution of natural gas to the third parties (customers) through a gas distribution system on the basis of a license. **46 entities** are licensed as distribution system operators in Ukraine.

For gas consumption, a consumer must conclude contracts with the DSO and the supplier.

Consumer is an individual, entrepreneur or legal entity receiving natural gas based on the contract for supply of natural gas to use it for their own needs or use as raw materials but not for resale.

Consumers are divided into:

- **household**, i.e., an individual who purchases natural gas for his own household needs, including cooking, heating water and heating residential premises, excluding professional and commercial activities, and

- **non-household**, i.e., a legal entity or entrepreneur who receives natural gas on the basis of a contract for supply of the natural gas for his own use or use as raw material but not for resale.

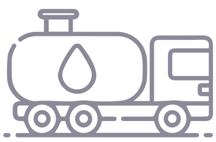
In order to protect the rights of the consumers, the Natural Gas Market Law establishes regulation for the supplier of the "last resort". Consumer can rely on the supplier of the "last resort" in case its primary supplier is liquidated, goes bankrupt or its license is revoked or suspended etc.

The supplier of the "last resort" is a supplier determined by the Cabinet of Ministers of Ukraine (the "CMU") with no right to refuse to conclude an agreement for the supply of natural gas for a limited period. Supply period may not exceed 60 days and in any case should not last longer than until the end of the calendar month following the month in which the actual supply of natural gas to the consumer by the supplier of the "last resort" has begun.

The Competition Commission selected the **LLC "Gas Supply Company "Naftogaz of Ukraine"** as the supplier of the "last resort" which was approved by the Cabinet of Ministers of Ukraine for a period of three years starting **from July 2020**.

How the gas retail market of Ukraine works?

In order to receive natural gas, consumer shall conclude:



the natural gas supply agreement with the supplier; and

the natural gas distribution agreement with the DSO or the natural gas transmission agreement with the TSO in case of connection of consumption units of non-household consumers to the gas transmission system.

On the basis of these agreements, the consumers on the gas retail market shall pay for:

- natural gas provided by the suppliers; and
- transportation of gas by the TSO and/or DSO.

Payments for the gas

With regard to the gas prices, the retail gas market is now operating mostly as **unregulated** market (free market pricing). The **unregulated** market with free market pricing was implemented together with the Natural Gas Market Law.

The **regulated** segment of gas market under the PSO mechanism, which established special preferential conditions for gas, had been terminated starting from **1 August 2020** for household consumers, religious organisations, etc., and starting from **20 May 2021** for thermal energy producers.

Operation of the supplier of the "last resort" can also be attributed to the regulated gas market segment.

The supplier of the "last resort" supplies natural gas to the consumers in the following cases:

- bankruptcy, liquidation of the previous supplier;
- suspension or revocation of the license for the supply of natural gas from the previous supplier;
- lack of a confirmed nomination from the current supplier to the point of exit to the gas distribution system to which the household consumer is connected;
- the absence of a household consumer (customer's commercial metering point) in the Register of consumers of any supplier on the information platform of the TSO.

The gas price of the supplier of the "last resort" is determined by a separate formula established by the Cabinet of Ministers of Ukraine and is tied to the prices at the German Gas Hub (NCG). This price also implies a mark-up of up to **20%** of the maximum price that has developed in the natural gas market for the previous month. However, in its tender bid for the selection of the supplier of the "last resort", the LLC "Gas Supply Company "Naftogaz of Ukraine" offered a markup of **0%**.

Payment for transportation

The cost of gas distribution is calculated individually for each consumer on a monthly basis. The amount of the monthly payment depends on:

- the volume of its consumption during the previous gas year – from **1 October** to **30 September**; and
- the distribution tariff approved by the NEURC for each DSO separately.

The payment for transportation is divided into regular monthly installments throughout the year, in order to reduce the financial burden on the consumers during the heating season.

Monthly payment = *annual volume of consumption/12 months*
x
distribution tariff

The payment for transportation is required for maintenance of the gas distribution networks the length of which is almost **350,000 km**.

How can a consumer change its supplier?

From the moment the Natural Gas Market Law came into force, the household consumers had the right to choose any gas supplier. However, this was pointless until **1 August 2020** since under the PSO mechanism, regional gas suppliers (former "oblgas" companies) provided gas at the lowest price to the consumers whose premises were located within the assigned territory of the supplier with the special obligations.

After termination of the PSO mechanism in **August 2020** for household consumers, religious organisations and State Enterprise of Ukraine "International Children's Center "Artek", and in **May 2021** for thermal power producers, significant segment of consumers had to start monitoring conditions offered by the suppliers who now work under the same rules. In this regard, the NEURC simplified the procedure for transition of a household consumer from one supplier to another.

Thus, presently a household consumer has to submit to the new supplier:

- an application for joining the supply agreement (it can be done online)
- passport
- tax identification code
- documents confirming the right of ownership or use of the object (premises)
- other documents if such are identified at the supplier's website

However, the new supplier has the right to refuse the consumer to join the supply contract. Moreover, if prior to the start of the changing procedure the previous supplier stopped or limited supply of gas to the household consumer due to their debts, the new supplier has the right to carry out supply only after the debt to the previous supplier has been fully paid off.

The new supplier shall notify the previous supplier about the consumer's intention to change. A supply agreement with the previous supplier terminates automatically.

Non-household consumers are deprived of such preferential conditions for changing suppliers. In order to make a change, they need to settle all financial issues with the current supplier, which includes terminating or suspending the supply contract.

What are the gas price cap and distribution tariffs for the quarantine period?

Temporarily regulated segment emerged in connection with the sharp increase in the gas prices during the heating season in quarantine in the first quarter of 2021. The Cabinet of Ministers of Ukraine in its Resolution No. 25, dated 18 January 2021, took the following steps:

- until the end of the quarantine, natural gas is classified as a commodity that has significant social importance, which means the suppliers have to declare an increase of gas retail price in the State Service of Ukraine on Food Safety and Consumer Protection Issues;

- the maximum gas price cap under the contracts between suppliers and households was set at **UAH 6.99 per 1 m³** (including VAT and TSO transportation fees) starting from **1 February 2021** till **31 March 2021**. The same temporary price cap applied to the supplier of the "last resort".

The above-mentioned price cap expired on **31 March 2021**, but most suppliers did not significantly change the gas price for households in **April 2021**.

Additionally, the NEURC has revised and in some cases reduced the tariffs of the DSO for gas distribution, which now generally do not exceed **UAH 1.79 per 1 m³.**

What measures have been taken to prevent negative impact of gas price volatility on consumers?

To ensure protection of household consumers' rights from price fluctuations in the natural gas market, NEURC adopted Resolution No. 572, dated 7 April 2021, according to which a **"basic annual offer"** is introduced on the market and household consumers are given the opportunity to consume natural gas throughout the year at a fixed price, which should be published by the supplier before 25 April of the current year. The annual offer should be valid from 1 May of the current year till 30 April of the next year (12 months).

It is forbidden for the supplier to raise gas price in its annual offer during the specified period. At the same time, consumer is provided an opportunity to change annual product to any other offered by the supplier or to change the supplier and use annual offer of a new supplier, which still would be valid until 30 April of the respective year regardless of the start date of gas supply.

According to Gazoteka – a resource for comparing current gas prices in Ukraine, annual price offers of the suppliers for the year 2021/2022 vary from **UAH 7.8 to 13.5 per m³**.

IV. Production

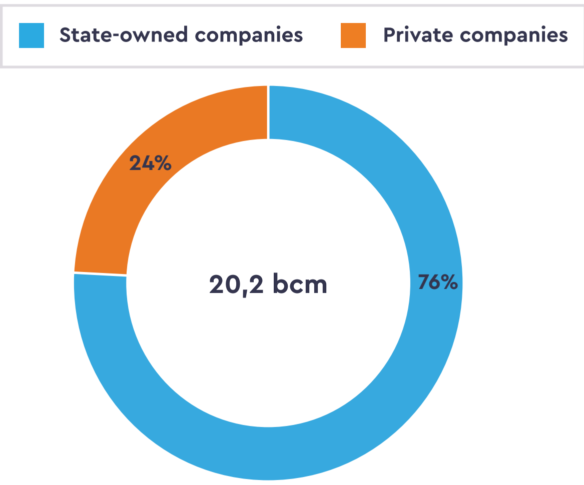
Natural gas is widely used both in industry (power generation, chemical, metallurgical, processing industries) and for the needs of the households (heating, cooking etc.).

The main source of natural gas production is its industrial ***extraction***.

The largest reserves of natural gas in Ukraine are concentrated in the Dnipro-Donetsk hollow, in Kharkiv and Poltava regions.

How much gas does Ukraine produce?

Structure of gas production in 2020



According to the expert studies, by the end of **2020**, Ukraine produced **20.2 bcm** of natural gas, which is **2%** (or **415 million m³**) less than in the previous year. Compared to 2018, the gas production in **2020** decreased by **3.3%** (or by **0.7 bcm**).

These studies show, that state-owned companies produced **15.3 bcm** in **2020** and the rest of the gas – **4.9 bcm** was produced by private companies.

NEURC declared the volume of extracted *commercial natural gas** in **2020** at the level of **19.73 billion m³**.

According to the gas market monitoring data for the 4th quarter of **2020** provided by the NEURC, commercial natural gas production in Q4 **2020** decreased by **83 million m³** (or **1.7%**) compared to the Q3 **2020** and by **118 million m³** (or **2.4%**) compared to the same period of **2019**.

The NEURC's monitoring results for the natural gas market for the Q4 **2019** also confirm a decline in gas production in Ukraine. As such, the volume of natural gas production in Q4 2019 decreased by **18 million m³** (or **0.38%**) compared to the same period of 2018.

Naftogaz Group produced **13.45 bcm** of commercial gas in **2020**, which is **1%** less than in **2019**.

Experts attribute the reduction in gas production to the natural deterioration of the main Naftogaz fields, which were discovered in the middle of the 20th century. Their depletion rate is approaching **90%**. The peak of the natural gas production in such fields was observed in 1960-1970, at the beginning of their development.

* Commercial natural gas means the volume of extracted gas excluding its losses and consumption by gas producers for production and technological purposes, and also for their own needs.

An increase in Ukrainian gas production is a guarantee of non-volatility of gas prices on one hand, and attracting investment in the Ukrainian economy, on the other. At the same time, the case of significant decrease in price trends of the first half of **2020** for energy resources, particularly, gas, are the basis for a deeper analysis of its production cost.

Natural gas production process can conditionally include the services of the LNG installation, which is a licensed business activity and consists of converting natural gas from a gaseous state to a liquid (liquefaction) or converting liquefied natural gas from liquid state to a gaseous (regasification) using LNG installations.

This technology allows use of the gas produced on another continent, without the need for pipelines for its transportation.

What are the possible ways for managing gas production in Ukraine?

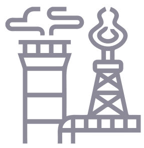
Ability to carry out business activities for the natural gas extraction arises from the application of several legal structures: based on a special permit for the use of subsoil or under a production sharing agreement (the **"PSA"**).

Special permit

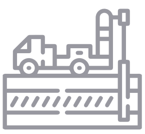
A special permit for the use of oil and gas subsoil (the **"special permit"**) is a document issued by State Geologic and Subsoil Survey of Ukraine (the **"UGS"**), which certifies the right to use oil and gas subsoil for a period of time, within a subsoil plot, under the conditions provided for in this document.

Types of special permits:

for geological study of oil and gas subsoil, including pilot industrial development of deposits



for oil and gas production (industrial development of deposits)



for the geological study of oil and gas subsoil, including pilot industrial development of fields with further oil and gas production (industrial development of deposits)

for the construction and operation of underground facilities not related to the extraction of minerals, including underground oil or gas storages and facilities for the disposal of waste products from the oil and gas industry and related waters

Issues of granting special permits within the territory of Ukraine, its continental shelf and the exclusive (marine) economic zone, as well as procedures for extending the validity period, renewal, suspension or cancellation of a special permit and amending it are regulated by the Procedure for granting special permits for subsoil use approved by the CMU Resolution dated 30 May 2011 No. 615 (the **"Procedure for granting special permits"**).

Permits are granted by the UGS to the winners of auctions or without an auction in cases provided for by the Procedure for granting special permits.

The procedure for holding auctions for the sale of special permits for the subsoil use is approved by the CMU Resolution No. 993, dated 23 September **2020** approved on the basis of the positive results of a pilot project for holding auctions by electronic bidding, effective from 24 October 2018 to 1 October **2020**. UGS reported that eight auctions were held in **2020** and 58 lots (special permits) out of 70 offered were sold for **UAH 826 million**.

Auctions are conducted using an electronic trading system for the sale of permits, which simplifies the auction procedure, increases its transparency and reduces the level of corruption risks.

UGS prepares proposals for determining the list of subsoil plots, permits for the use of which are put up for auction, taking into account statements and materials submitted by individuals – entrepreneurs and legal entities, which means that entrepreneurs received the right to independently initiate determination of subsoil plots for which they will compete at the auction.

Foreign legal entity that does not have a representative office in Ukraine may also participate in an auction. In case of winning the auction, such foreign entity is obliged to register a representative office in Ukraine within four months from the date of signing the agreement on sale and purchase of the permit.

Production sharing agreement

Natural gas production under a ***production sharing agreement*** has certain features, given that the PSA mechanism provides more opportunities for the free settlement of relations between the state and the investor.

Relations arising in the process of concluding, executing and terminating production sharing agreements, the main legal requirements for such agreements, as well as features of legal relations for the use of subsoil under production sharing conditions are regulated by the Law of Ukraine "On Production Sharing Agreements" (the **"PSA Law"**).

Thus, a production sharing agreement is an agreement between Ukraine and an investor on the search, exploration and mining of mineral resources at a certain subsoil plot(s) at the expense of investor, for which the investor receives the right to a part of profitable products.

According to the report of UGS in **2020**, seven agreements on sharing of hydrocarbon products have been signed: commitments exceed **$355 million** at the stage of geological exploration of an area **> 7,000 km^2** . The winners of competition are Ukrgasvydobuvannya (Buzivska, Balakliyska, Berestyanska and Ivanivska areas), DTEK Naftogaz (Zinkivska area), Geo Alliance Group (Sofiyivska area), Zakhidnadraservis (Ugnivska area).

The PSA Law establishes the requirements and essential terms of the PSA.

Comparison: special permit v. PSA

	Special permit	PSA
Subsoil plot(s) area	Is limited by law (max **500 km²**, for the Black Sea plots – max 1000 km²)	Is not limited, may be established by the CMU
Subsoil use period	For gas production on land max **20 years**, offshore production max **30 years**	max **50 years**
Agreement	Agreement on the subsoil use conditions between UGS and subsoil user is an integral part of the special permit. Sample agreements are approved by the UGS.	Concluded between the investor(s) and the state represented by the CMU. Requirements for the conclusion and essential conditions of the PSA are established by the PSA Law. It is concluded based on the results of the competition.
How to obtain a special permit for direct activity on subsoil use	Is obtained based on the results of the auction / without holding an auction in cases provided for by the Procedure for granting special permits	Is obtained on the basis of the PSA, must contain the conditions provided for by the PSA
Transfer of the subsoil use rights to the third parties	Is not permitted	Is permitted
Rental fee	natural gas extracted from new wells: deposits up to 5,000 m – **12%**, deposits more than 5,000 m – **6%**	**1.25%**
Land	Establishment of land easements without changing the purpose of land plots (*except for lands of nature reserve and water resources, health, recreation, historical and cultural purposes*).	Conditions for the provision of a land plots for the needs related to subsoil use and the subsoil plots are determined by the parties in the PSA
Termination of the subsoil use rights	Are terminated on the grounds and in the manner prescribed by the Subsoil Code of Ukraine, the Laws of Ukraine "On Oil and Gas" and "On the Permit System in the Field of Business Activity".	May be limited, temporarily prohibited (stopped) or terminated by the CMU in case of an immediate threat to life and health of people or the environment in the manner prescribed by the PSA.
Guarantees against changes in legislation	Are not provided	Applies to investor during PSA validity period, *except changes related to issues of defense, national security, ensuring public order and environmental protection.*

Draft Subsoil Code of Ukraine

Rational, comprehensive use of subsoil to meet the needs for mineral raw materials and other needs of social production, protection of subsoil, ensuring the safety of people, property and the environment during the use of subsoil is provided by the Subsoil Code of Ukraine dated **27 July 1994**.

On **17 February 2021**, the Ministry of Environmental Protection and Natural Resources of Ukraine published on the official website an updated draft Subsoil Code of Ukraine (the **"Draft Code"**) for public discussion.

According to the supporting documents the Draft Code is expected to solve the problems of necessity to submit documents/information to the supporting documents that is in public domain or duplicate each other, impossibility of assessing reserves according to international standards, an extensive system of normative acts in the field of subsoil use, outdated regulation, inconsistency of acts with framework laws, non-transparency of regulation, duplicate regulation and a number of more specific problems in the field of subsoil use, such as:

- **The problem of obtaining land for use within the deposits** is solved by introduction of the concept "Setting Up Land Plots". Subsoil will not be provided if it is impossible to obtain land for use within the deposit.

- **The problem of impossibility to alienate the right to use subsoil** is solved by allowing the subsoil user to sell; transfer to another person; transfer to the authorised capital of business entities created; contribute to joint activities; pledge and inherit the right to use the subsoil. The right to use subsoil can be alienated in whole or in part, to one or several persons. Subsoil user is only obliged to inform the UGS on alienation of the right to use subsoil, and the subsoil user who acquired it is obliged to reissue a permit for the use of subsoil.

- **The problem of "dormant licenses"** is solved by introducing payments for subsoil users that have not started production and are not paying rent. The period from which the subsoil user, which has not started production, begins to pay a fee for the use of subsoil depends on the type of subsoil use and on mineral resources.

- **The problem of mechanisms with corruption factors** associated with the extension of the terms of work stipulated by the agreement on subsoil use conditions is solved by canceling the need to conclude such agreement.

- **The problem of lack of conditions for increasing mineral resource base and creation of geological information.** The Draft Code proposes to create a State Fund for the Development of the Mineral Resource Base as part of a special fund of the state budget and replenish it at the expense of deductions from rent, fees for issuance of permits for subsoil use, funds from sale of permits at an auction; funds from provision of geological information for use and payment for subsoil use.

- **The problem of insufficient digitalisation.** In the Draft Code, the problem of digitalisation of administrative processes is solved by creating an electronic account of the subsoil user, through which subsoil user will be able to submit documents for obtaining a permit for subsoil use, extension of its validity period, as well as mandatory reporting. The Draft Code provides for the creation of (i) a catalogue of geological information, which is filled with primary and secondary geological information about the objects of geological exploration, owners/users of geological information and transfer of ownership/right to use geological information; (ii) an Interactive map of mineral resources, which will display information from the State Fund of Subsoil, the State Fund of Mineral Deposits and will be combined with the State Land Cadastre. A subsoil user will be able to find out the owner of the land within the mineral deposit.

- **The problem of the lack of state support for subsoil users** is solved by supporting certain areas of subsoil use, in particular, by providing incentives for payment of rent, income tax, land tax and customs payments. It is planned that state support will apply to those subsoil users who invest heavily in environmental friendliness of production and use modern technologies and equipment that reduce their impact on the environment. In addition, support will be received by subsoil users operating in difficult geological conditions, such as inaccessibility and great depth of occurrence of minerals.

- **The problem of classifying of almost all minerals as of national importance** is solved by expanding the list of minerals of local importance, which will increase the number of minerals, permits for the use of which are obtained in a more simplified procedure, without holding an auction.

- **The problem of lack of access to subsoil for the owners of integrated subsoil use object** is proposed to solve by granting those owners permits for subsoil use without an auction in accordance with the register of integrated subsoil use object and clear requirements for the integrated subsoil use object (distance to the field, availability of production facilities and qualified personnel, ability to provide completed mining/processing cycle).

- **The problem of lack of accounting for accompanying minerals.** The Draft Code proposes to oblige subsoil users, upon discovering accompanying minerals that are not specified in the permit for subsoil use, to apply for a recalculation of reserves and pay a fee if an accompanying mineral exceeds 5% of main mineral.

- **The problem of economic inexpediency of the existence of permits for the study of subsoil areas of minerals.** Currently four types of permits are provided: (i) for geological study of subsoil areas of minerals; (ii) for geological exploration, including pilot industrial development of mineral deposits; (iii) for extraction of minerals, and (iv) for geological exploration, including pilot industrial development of deposits, with subsequent extraction. The Draft Code eliminates the need to obtain a permit for geological study and subsoil users will immediately be provided with a permit for geological study in order to carry out a geological study of a subsoil plot, including pilot industrial development of mineral deposits. Granting permits for geological study with pilot industrial development of deposits, instead of permits for geological study, will allow subsoil users to extract minerals in small quantities and allow state to replenish the budget at the expense of rent payments.

V. Import and export

Ukraine produces gas, actively imports it and establishes practice of exporting gas. Export-import relations of Ukraine with the EU in the gas sector have been progressively strengthening since 2013. Several factors have contributed to this:

- Setting internal state goals for the development of energy security system, diversification of gas sources in order to reduce the level of external influence on the energy market of Ukraine as a whole;
- Fulfilment of obligations within the framework of membership in the Energy Community;
- Harmonisation of the legislation, standards and procedures of Ukraine and the EU in the framework of the implementation of the Association Agreement with the EU.

What are the main results of export-import relations of Ukraine with the EU?

In **2020–2021**, the factors associated with the COVID-19 pandemic and the global decline in gas prices gave an additional impetus to the development of business in the field of gas transmission and storage between Ukrainian and European partners.

In **2020**, the Storage System Facilities Operator of Ukraine (Ukrtransgaz) injected **28.3 bcm** in gas storages that was a record volume for the last 10 years. The record volumes of imported gas pumped into gas storage facilities in Ukraine in **2020**, although due to the factors that are unlikely to repeat in the future, nevertheless made it possible to Ukraine to demonstrate ability to introduce convenient and profitable instruments on the market. One of the key factors was understanding that the volumes of transit of Russian gas and profits from it will gradually decrease, which requires search for the new directions for using gas transmission system of Ukraine.

Opportunities of Ukrainian gas transmission and storage systems and directions of their development are analysed in more detail in the research by The Oxford Institute for Energy Studies, released in March 2021. High re-export tariff for foreign traders in the EU countries and a requirement to establish a legal entity in order to get VAT refunds were mentioned as the main barriers for integration of Ukraine to the EU gas market in this study.

What are the main options for foreign companies to participate in the Ukrainian gas market?

In **2020**, the volume of natural gas imported in Ukraine was **36.9%** from annual volume or **15.9 bcm**.

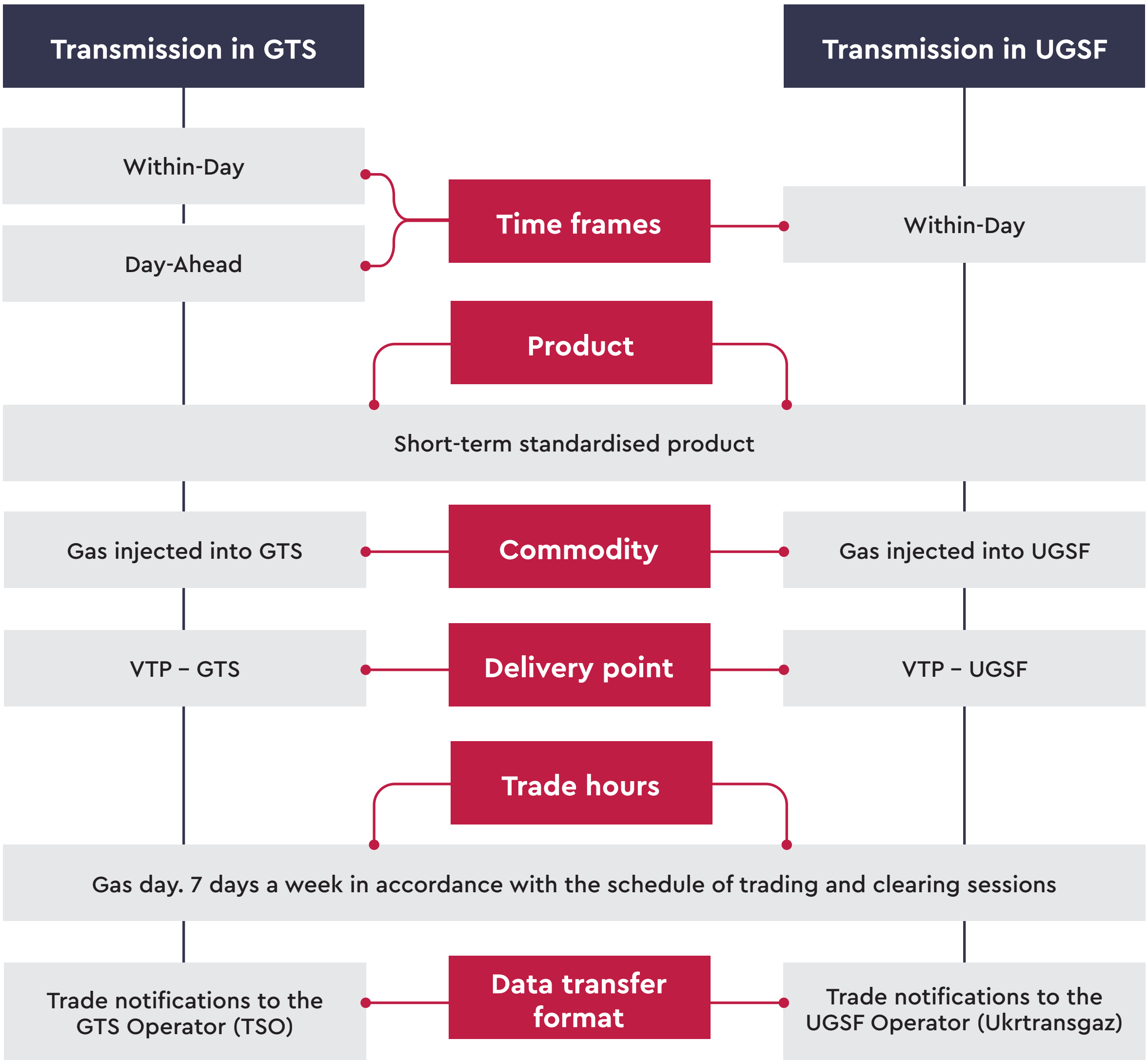
Growing interest of European companies in entering the Ukrainian gas market reveals certain features of doing business on the Ukrainian market, namely, in the corporate and tax areas. Thus, a foreign company can trade on the border with Ukraine or with gas injected into underground gas storage facilities in Ukraine.

At the same time, gas can be stored in gas storage facilities in the "customs warehouse" mode for up to 1095 days. During this period, gas can be (and after 1095 days must be) re-exported without paying taxes and duties or could be sold on the Ukrainian market (after customs clearance and payment of taxes and duties). In **2020**, 10.2 bcm of the natural gas were stored in the "customs warehouse" regime.

For a more effective participation in the Ukrainian gas market, foreign companies shall create a legal entity in Ukraine, which gives more opportunities to carry out transactions for the purchase and sale, supply of gas, including the ability to sell gas to a larger number of buyers/consumers, as well as the possibility of VAT refunds (including those paid during customs clearance).

In Ukraine, on the platform of the LLC UEEX, the exchange segment of trading in the short-term, medium-term and long-term gas markets is actively developing, including trade in the gas transmission system (the **"GTS"**) of Ukraine and in the underground gas storage facilities (the **"UGSF"**).

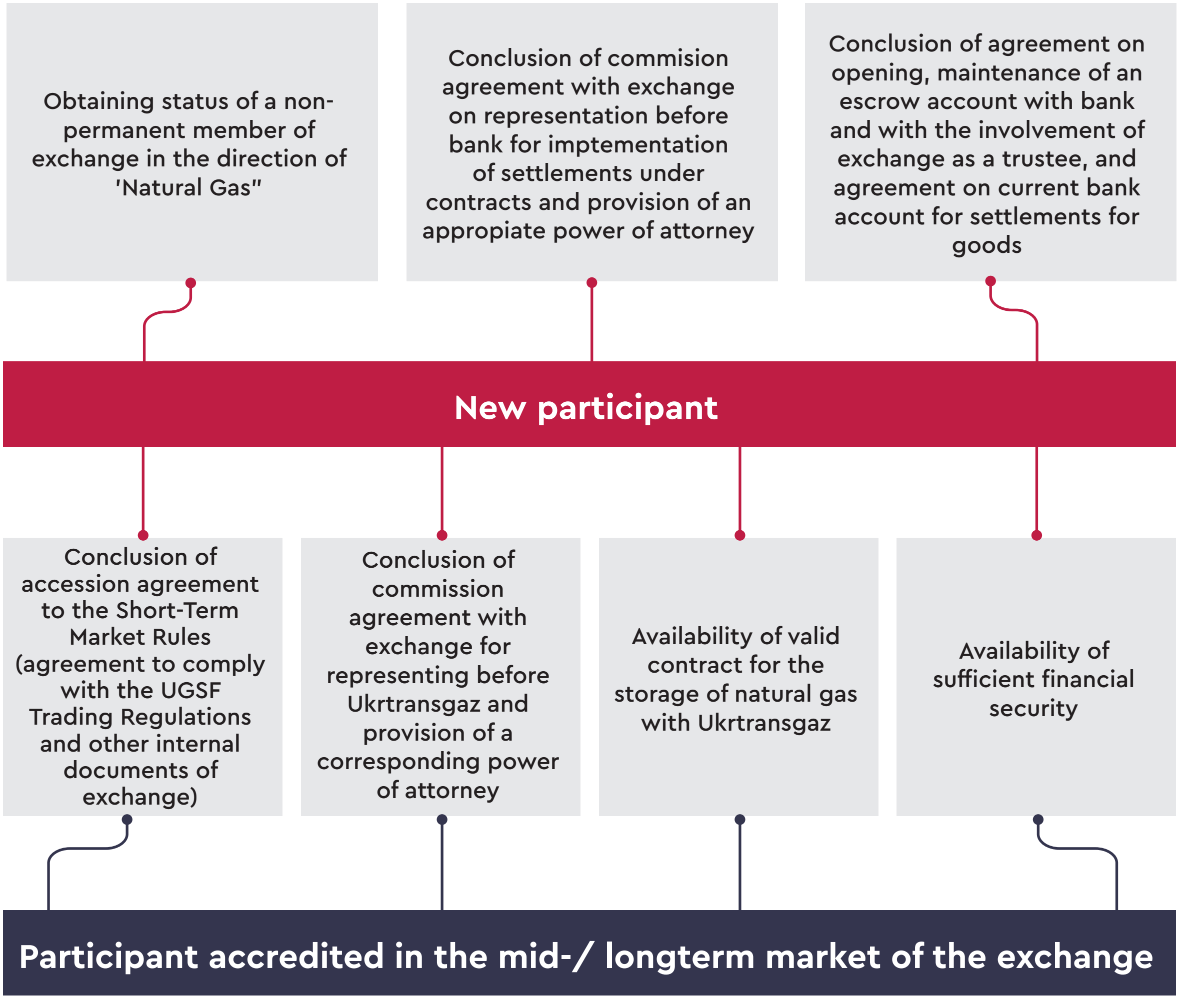
*Short-term market of LLC UEEX **



** based on the speech of I. Shcherbyna, Deputy Head of the UEEX Exchange Committee at the Energy Meeting Online https://iclub.energy/events/tpost/9my2ddoiu1-nna-scherbina-na-energy-meeting-online-1?fbclid=IwAR1hTT64ocvB53xeuQQko6iviFhsGCH2QMDREEr1gCfv2FDC3qw8-ubsfb0*

A clear mechanism has been established for how to gain access to the gas market on the LLC UEEX platform (for example, access to gas located in the UGSF):

*Access to the short -term market in the underground gas storage facilities**



Expansion of the functionality of the commodity exchange will allow attracting non-residents to the trading process on the exchange, including to trade gas in the "customs warehouse" mode and in the "customs warehouse + short haul" mode in the underground storage facilities, as well as launch a derivatives (futures) market, the regulation of which based on the new Law of Ukraine "On Capital Markets and Organised Commodity Markets" came into force in Ukraine from 1 July 2021 (this Law was developed on the basis of and taking into account European legislation, including MiFID II, MiFIR, EMIR and others).

** based on the speech of I. Shcherbyna, Deputy Head of the UEEX Exchange Committee at the Energy Meeting Online https://iclub.energy/events/tpost/9my2ddoiu1-nna-scherbina-na-energy-meeting-online-1?fbclid=IwAR1hTT64ocvB53xeuQQko6iviFhsGCH2QMDREEr1gCfv2FDC3qw8-ubsfb0*

What are the results of cooperation with ENTSOG and EFET

In addition, interaction between Ukraine and the EU is carried out at the level of the European Network of Transmission System Operators for Gas (ENTSOG), where Gas Transmission System Operator of Ukraine (TSO) has status of an observer member. **As noted in TSO**, ENTSOG gives access to the main European coordination centre in gas transmission sector, it is a platform for consultation and exchange of progressive ideas. It is also an opportunity for TSO's staff to participate in highly specialised training events and interact with colleagues from other countries. In addition, ENTSOG provides dispatch centres of GTS operators with tools for operational communication, monitoring and joint response in crisis and emergency situations.

Another area of cooperation is EFET (European Federation of Energy Traders). Within the framework of EFET active work is also underway to adapt the terms of standard contracts of this organisation to trade in gas with Ukrainian counterparties. The following EFET documents for Ukraine are already available at EFET website for use:

- **Ukrainian Customs Warehouse Storage Appendix (Version 1.0/May 2021);**
- **Ukrainian Border Appendix (Version 1.0/February 2020);**
- **Recommended Clauses for use with Ukrainian Counterparties (February 2020);**
- **Guidance Notes to Ukrainian Gas Trading Documentation (Version 3.0/May 2021).**

Due to the largest storage facilities and **special conditions for foreign traders**, Ukraine has a possibility to become a new gas hub in the Eastern Europe. At the same time, Ukraine needs to solve a lot of internal problems with functioning of the gas market and to overcome the internal and external barriers for the foreign traders.

Terms and Abbreviations

LLC UEEX	Limited liability company Ukrainian Energy Exchange
CMU	Cabinet of Ministers of Ukraine
DSO	Gas Distribution System Operator
EFET	European Federation of Energy Traders
ENTSOG	European Network of Transmission System Operators for Gas
Gas Distribution System Operator	Definition is specified in the Natural Gas Market Law. Gas Distribution System Operator is the legal entity responsible for distribution (transportation) of gas through the gas distribution system for the benefit of third parties (customers)
Gas Storage Facilities Operator	Definition is specified in the Natural Gas Market Law. Gas Storage Facilities Operator or JSC "Ukrtransgaz" is the legal entity responsible for storage (injection, withdrawal) of gas using one or more gas storage facilities for the benefit of third parties (customers)
Gas Transmission System Operator	Definition is specified in the Natural Gas Market Law. Gas Transmission System Operator or LLC "GTS Operator of Ukraine" is the legal entity responsible for transmission of gas through the gas transmission system for the benefit of third parties (customers). LLC "GTS Operator of Ukraine" was incorporated in 2019 by JSC Mahistralni Gazoprovody Ukrainy (MGU) which is 100% state-owned and subordinates to the Ministry of Energy of Ukraine. The LLC "GTS Operator of Ukraine" is a certified transmission system operator starting from 1 January 2020
NEURC	National Energy and Utilities Regulatory Commission
PSA	Production sharing agreement
PSO	Public Service Obligations
Public Service Obligations	A mechanism established by the CMU Resolution dated 19 October 2018 No. 867, according to which special obligations were imposed on certain gas market participants to ensure a regulated gas price for the population and some socially significant business entities (for example, thermal power plants)
Supplier	Definition is specified in the Natural Gas Market Law. Supplier is responsible for sales of natural gas directly to consumers on the basis of contracts concluded with them
TSO	Gas Transmission System Operator
UGS	Ukrainian Geological Survey (State Geologic and Subsoil Survey of Ukraine)

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Now Sayenko Kharenko is included into the Roster of preferred experts in Ukraine of the Energy Community Secretariat.

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