

## Weekly Alert

**Russian War Against  
Ukraine: Energy Dimension**

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**Russian War Against Ukraine: Energy Dimension**  
**DiXi Group weekly review**

(December 18 – 22)

**#StopRussianAggression**  
**#StandWithUkraine****Summary**

- On December 20, due to technical issues at the Ladyzhynska TPP, 110 kV substations were shut down, and over 200,000 consumers in the Vinnytsia region were disconnected for 2 hours.
- On December 21, the Russian military attacked 2 mines in the city of Toretsk with 4 air bombs. The attack killed three workers and injured five others.
- As of December 21, 467 settlements in Ukraine remained without electricity due to hostilities and technological disruptions – Ukrenergo.
- At the Zaporizhzhia NPP, the occupiers informed the IAEA experts of installing four mobile diesel boilers to generate additional steam needed to perform various nuclear safety functions. The IAEA team was again denied access to the north-western part of any of the six turbine halls.
- The government amended procedures on imposing public service obligations on natural gas market entities. Consumer categories which receive gas from companies of Naftogaz Group at discounted prices now include operators of gas turbine/piston installations (16,500 UAH/tcm) and religious organizations (16,390 UAH/tcm).

- The Ministry for Communities, Territories and Infrastructure Development presented the draft updated 2021-2027 Regional Development Strategy. Among its priorities - restoration and development of infrastructure based on the Build Back Better principle.
- The Supervisory Board of the Energy Efficiency Fund approved amendments to the VidnovyDIM programme: the maximum grant that a homeowners association (HOA) can receive for one project was increased from 7.2 million UAH to 7.9 million UAH.
- The Kyiv Regional Military Administration, in cooperation with the community of Bila Tserkva, is looking for over 300 million UAH to overhaul the CHP.
- The government of Ukraine has expanded the list of large-scale privatization with 65.001% in PJSC Kharkivenergozbut. Also, it approved the 2023 financial plan and investment program of Naftogaz.
- The Ministry of Finance and the EBRD reviewed the portfolio of joint projects for the first time in two years. There are 12 projects under implementation (2.56 billion EUR), disbursement reached 62.8% of the total amount borrowed. Particular attention was paid to the Special capital support project for Ukrenergo (150 million EUR).
- Energoatom has successfully started transporting spent nuclear fuel from operating NPP units to the Centralized Spent Nuclear Fuel Storage Facility (CSNFSF)
- Naftogaz announced the "integration" of 4 more DSOs into its structure, having completed the process of returning 27 such enterprises under state management.
- The Ukraine Energy Support Fund has received 88.5 million EUR in additional grants from the German Federal Government. The focus will be on basic repair materials and equipment, as well as RES projects.

## IMPACT OF THE WAR

### Attacks

[According to](#) Ukrenergo, as of December 21, 467 settlements in Ukraine remained without electricity due to hostilities and technological disruptions. Hostile attacks and, consequently, the interruption of electricity and gas supply took place:

**Donetsk region.** On [December 18](#), 36 settlements (24,100 metering points) were cut off from electricity supply, with a total of 140 settlements (154,000 metering points) disconnected as a result of hostilities. On [December 20](#), a thermal power plant was shelled several times, causing significant damage to equipment, which has prevented the resumption of operation at a power unit shut down earlier. Due to the damage to overhead lines, 6 mines lost power supply (363 workers were brought to the surface). On [December 21](#), the Russian military attacked 2 mines in the city of Toretsk with 4 air bombs. The attack killed three workers and injured five others; one of the mines was disconnected from the grid.

**Kharkiv region.** On [December 18](#), 16,400 consumers were offline due to hostilities. On [December 19](#), shelling damaged a gas supply system, resulting in disconnections. On [December 21](#), a gas pipeline was damaged; on [December 22](#), equipment on two gas pipelines was damaged, both incidents resulted in gas supply interruptions.

**Zaporizhzhia region.** On December 18, 10 settlements (1,100 consumers) lost power supply due to hostilities and technical reasons. In total, 63 settlements (about 26,000 customers) were left without electricity. On [December 22](#), 1,800 metering points were disconnected; a 35 kV overhead line was also disconnected without outage of consumers.

**Kherson region.** On [December 18](#), more than 12,000 consumers in the city of Kherson, and over 2,000 in the region were cut off from power supply. As of [December 19](#), about 14,000 consumers in Kherson and 45 settlements (about 26,000) in the region were without electricity. On [December](#)

[20](#), 7 settlements (6,500 consumers) were disconnected as a result of shelling; on [December 22](#) - 5,600 consumers. In total, 188 out of 228 settlements in the de-occupied territory have electricity supply restored, 30 cannot be reconnected due to shelling, and 10 settlements are currently without any residents. The situation is difficult near the [contact line](#), as the enemy conducts daily drone strikes on transformers.

**Mykolaiv region.** On [December 21](#), almost 500 consumers lost power supply. During an attack on [December 22](#), a drone hit an infrastructure facility in the region.

**Dnipropetrovsk region.** On [December 21](#), 5,900 consumers lost power supply, and a gas pipeline was damaged, resulting in a supply disruption. On [December 22](#), equipment on low-pressure gas pipelines was damaged in one of the districts, and consumers were disconnected.

**Sumy region.** As of [December 18](#), 67 settlements (3,900 consumers) were without electricity; on [December 19](#) - 57 (1,300); on [December 20](#) - 52 (2,800); on [December 22](#) - 55 (2,800).

**Chernihiv region.** As of [December 18](#), 14 settlements (1,800 metering points) were offline due to hostilities; on [December 21](#) - 14 (1,200).

**Poltava region.** On [December 21](#), a 35 kV overhead line supplying residential consumers was disconnected due to the impact of drone debris.

## Nuclear and Radiation Safety

[According to](#) the IAEA, five units of the occupied Zaporizhzhia NPP remain in 'cold shutdown' mode, while unit 4 is in 'hot shutdown' mode to generate steam and heat, including for the needs of the satellite city of Energodar. In addition, the occupiers informed the IAEA experts of installing four mobile diesel boilers to generate additional steam needed to perform various nuclear safety functions at the site, including waste processing.

The IAEA team also [gained access](#) to the reactor hall and electrical safety system rooms of unit 3, as well as the main control room of unit 5. At the same time, the occupiers did not provide access to the roofs of units 1, 5 and 6. The IAEA team was again denied access to the north-western part of the unit 5 turbine hall and the north-western part of any of the six turbine halls. The IAEA experts continued to hear explosions from outside the ZNPP site, including six powerful explosions in the evening of December 20.

## Countermeasures

On December 20, the Ministry for Communities, Territories and Infrastructure Development presented the draft updated 2021-2027 Regional Development Strategy. A [noted](#), the draft Strategy was developed in such a way as to align key points with the Ukraine Facility (a tool to support Ukraine by the European Union) and the RDNA framework (Rapid Damage and Needs Assessment, developed by the government of Ukraine together with the World Bank, the European Commission and the United Nations).

The priorities of the draft updated Strategy are as follows:

- creating security, social and economic conditions for the Ukrainians to return to the regions and communities;
- restoration and development of infrastructure based on the Build Back Better principle;
- development of human capital and strengthening the economy based on the territories' own potential;
- continuing the decentralization reform, developing the institutional and financial capacity of communities and regions, and building multi-level governance;
- preserving the balance of ecosystems and adaptation to climate change;

- creating a system for coordinating sectoral and state regional policies;
- increasing the efficiency and transparency of public investment, improving financial instruments to incentivize regional development;
- building partnerships, developing inter-municipal, inter-regional and cross-border cooperation;
- citizens engagement to decision-making at the national, regional and local levels.

On December 21, the Supervisory Board of the Energy Efficiency Fund [approved](#) amendments to the VidnovyDIM programme: the maximum grant amount that a homeowners association (HOA) can receive for one renovation project was increased from 7.2 million UAH to 7.9 million UAH. In addition, the Energy Efficiency Fund allowed re-application for a grant if the building was damaged again or if, after expanding the list of eligible measures, the HOA aims to implement measures that were not implemented in the previous project.

Head of the State Inspectorate for Energy Supervision Ruslan Slobodyan [said](#) that the government had approved the procedure for importing electricity for businesses ahead of the autumn-winter period. Companies that officially purchase imported electricity from suppliers - at least 50% of their needs - are guaranteed uninterrupted power supply in case of application of outage schedules. To remind, it is a reference to the Regulation on the Peculiarities of Electricity Imports under the Martial Law, [approved](#) by the Cabinet of Ministers Resolution No. 1127 of October 27, 2023.

## MARKETS PULSE

### Electricity Sector

#### *Power system operation*

According to [Ukrenergo](#) and [the Ministry of Energy](#), on December 18-22, electricity consumption was covered by domestic production, as well as by imports from Romania, Slovakia, and Moldova.

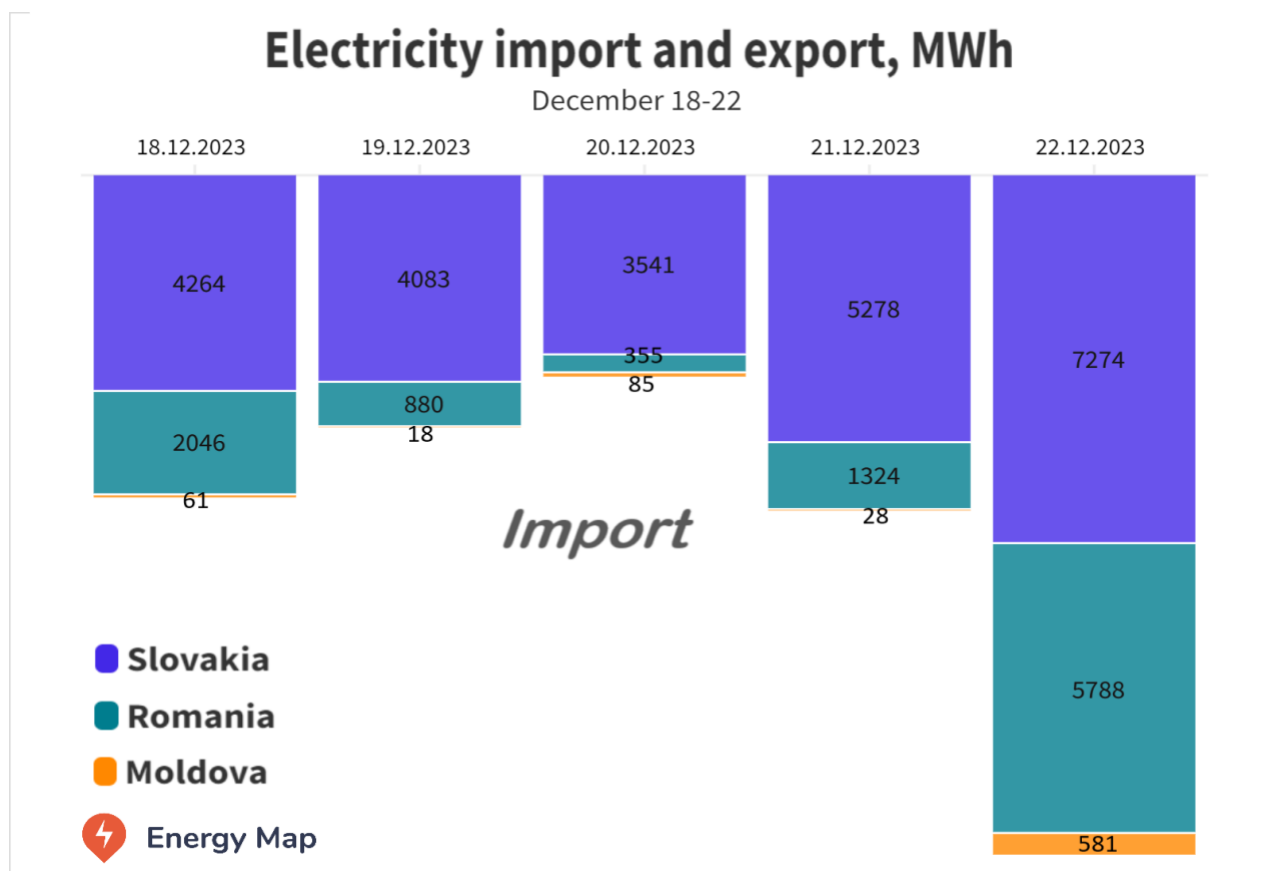
**Repairs continued** at the generation facilities. On December 18, a TPP unit was put under short-term repair. At the same time, another TPP unit was put back into operation after a short-term emergency repair. On December 19, two TPP units were put under emergency repairs. On December 20, a TPP and a CHP in eastern Ukraine were unloaded due to technical reasons; the operation of the TPP was promptly resumed. Three CHP units were put under short-term emergency repairs. On December 22, 2 TPP units were put back online after repairs.

The main reason for power outages during the week was **adverse weather conditions**. On December 18, almost 200 settlements in four regions were without power supply: in the Donetsk region (157 settlements, 23,600 consumers), in the Kharkiv region (31 / 1,800), in the Dnipropetrovsk region (3 / 330), and in the Sumy region (3 / 220). On December 19, 132 settlements in three regions were disconnected: in the Donetsk region (100 / 12,800), in the Dnipropetrovsk region (16 / 16,000), and in the Kharkiv region (16 / 1,800; 492 power poles fell or were damaged due to icing). On December 20, settlements in the Donetsk region (63 / 13,000), in the Dnipropetrovsk region (21 / 1,300), and in the Kharkiv region (1,600 consumers) were without electricity supply. On December 21, 81 settlements in the Donetsk and Kharkiv regions were disconnected, 77 of them were without power supply for over 24 hours. On December 22, 397 settlements in the Donetsk, Zakarpattia, Lviv, Volyn, and Kharkiv regions remained offline. The most difficult situation was in the Zakarpattia region, where 271 settlements (64,300 consumers) were disconnected due to squally winds and sleet.

Another reason for the outages was **technological disruptions**. On December 18, 9 settlements (507 consumers) in the Sumy region and 3 settlements (251 consumers) in the Chernihiv region were without power supply. On December 19, 4 settlements (4,300 consumers) in the Zaporizhzhia region, 2 (927) in the Donetsk region, 6 (482) in the Sumy region, and 333 consumers in the Kirovohrad region experienced power outages. In addition, due to technical issues, Ukrenergo's 330 kV substation in the Kyiv region was disrupted without power outages. On December 20, due to technical issues at the Ladyzhynska TPP, 110 kV substations were shut down, and over 200,000

consumers in the Vinnytsia region were disconnected from electricity supply; the consumers were reconnected within 2 hours. In the Lviv region, a 110 kV line was disconnected, and for half an hour agricultural enterprises, consumers, and the railways were without power supply. On the same day, a 110 kV overhead line in the Kyiv region was disconnected. On December 21, 13 settlements (2,600 consumers) in the Sumy region and 238 consumers in the Dnipropetrovsk region were offline, and a 330 kV overhead line was also disconnected in the region. High-voltage lines were also disconnected in the Mykolaiv region, resulting in a short-term power outage at wind generation facilities. On December 22, a high-voltage line in the central region was disconnected by protection without causing any power outages; the line was automatically restored to operation.

According to the [NEURC](#) and [ENTSO-E](#), no commercial electricity exports were performed on December 18-22. Imports amounted to 35.6 GWh and arrived from Slovakia, Romania, and Moldova. Commercial imports from Slovakia [amounted](#) to 24.4 GWh, with capacity ranging from 10 MW to 350 MW. Deliveries from Romania amounted to 10.4 GWh, with a capacity range of 10-415 MW. Imports from Moldova were performed on smaller scale (from 1 to 74 MW), with a total volume of 0.8 GWh.



Source: [Energy Map](#)

At the daily auctions, 15 to 18 companies [booked](#) capacity for imports in the Slovakia-Ukraine direction; the main players were D.Trading, Tviy Energopostachalnyk, Energy Company of Ukraine, and Trade Energy Solution. The marginal price was set on December 20 in the range from 1.95 to 15 UAH/MWh, and the revenue of Ukrenergo reached 7,700 UAH. The capacity from Romania was booked by 8-9 companies, with the main players being D.Trading, CPG Energy, Energo Resource Ri Group, Energy Exchange Solutions, etc. The marginal price was set on December 22 in the range from 0.03 to 0.93 EUR/MWh, and the revenue of Ukrenergo reached app. 102,000 UAH. In the Moldova-Ukraine direction, capacity was booked by 3-4 companies, including CPG Energy, Energo Resource Ri Group, Artlex-Group, and D.Trading. The marginal price was not set. For exports, no capacity was booked.

## **Policy and regulation**

The Regulator approved 2024 [investment programs](#) for 11 DSOs and 2024-2028 [distribution system development plans](#) for 4 DSOs.

The Regulator [approved](#) the regulatory fee level for Q1 2024 at 0.067% of payer's net income from the activities regulated by the NEURC for the reporting quarter.

The NEURC also [published](#) a draft resolution on approval of the 2024-2033 Transmission System Development Plan (the text of the Plan is not publicly available).

The Cabinet of Ministers of Ukraine [has amended](#) the Annex to the Resolution No. 36 of January 16, 2019 "On Approval of the List of Large-scale Privatization of State Property" by adding a new item to the subsection "State Property Fund" of the section "Energy Sector": PJSC Kharkivenergozbut (65.001% shares).

## **Other**

Energoatom has successfully [started](#) transporting spent nuclear fuel from operating NPP units to the Centralized Spent Nuclear Fuel Storage Facility (CSNFSF) designed by Holtec. The CSNFFS saves about 200 million USD annually for Ukraine's budget, which was previously transferred to Russia for fuel storage, and eliminates Ukraine's strategic dependence on Russia.

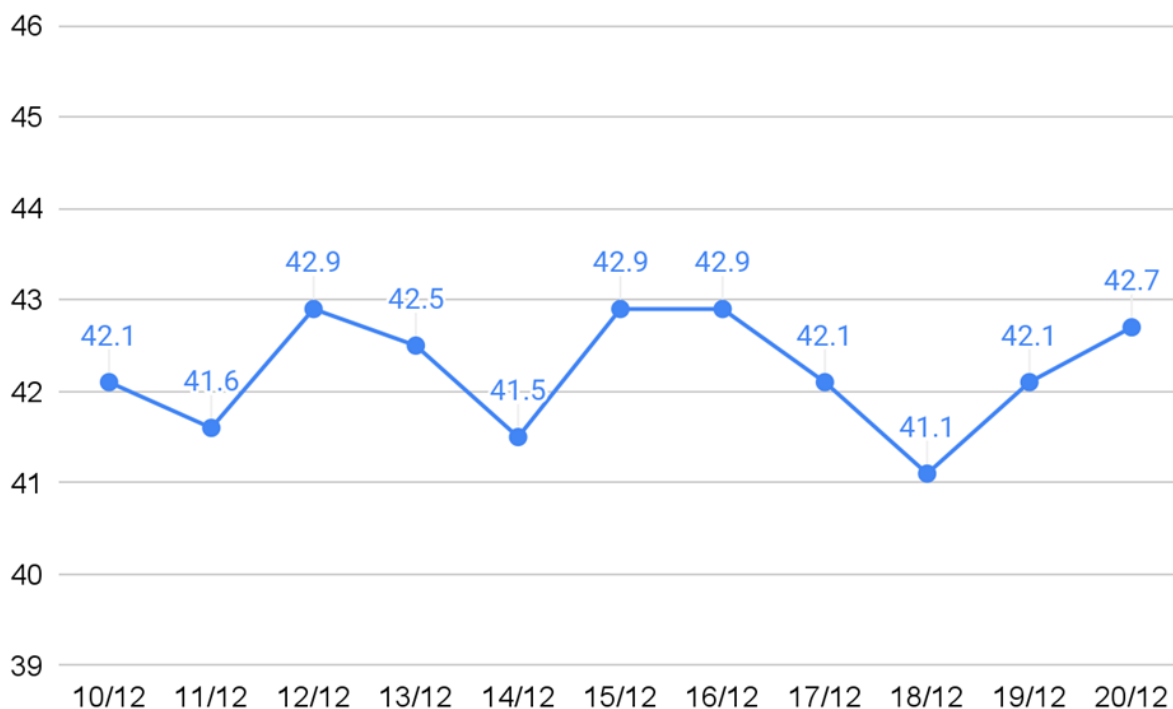
Meanwhile, the Kyiv Regional Military Administration, in cooperation with the community of Bila Tserkva, [is looking for](#) investments to restore the CHP. Experts estimate that the overhaul of the electrical part of the CHP and the turbine will cost over 300 million UAH. To remind, on December 4, the National Bank of Ukraine [sold](#) the property of Bila Tserkva CHP to the Bila Tserkva community for 298.6 million UAH.

## **Gas**

### **Gas system operation**

On December 17-22, the volume of gas transit through the territory of Ukraine amounted to 41.1-42.7 mcm per day, i.e. 38-39% of the capacity contracted by Gazprom (109 mcm per day). In the reporting week, the average daily transit was 42 mcm (-0.3 mcm WoW). There were no transit flows via the Sokhranivka interconnection point.

## Transit of Russian gas through the territory of Ukraine, mcm



Source: [Gas Transmission System Operator of Ukraine LLC](#)

There were no physical imports from EU countries in the reporting week. 4 mcm of gas arrived from Moldova through the Căușeni interconnection point, but it was probably a transit of gas, which later returned to Moldova through the "Consumers of Moldova" virtual interconnection point.

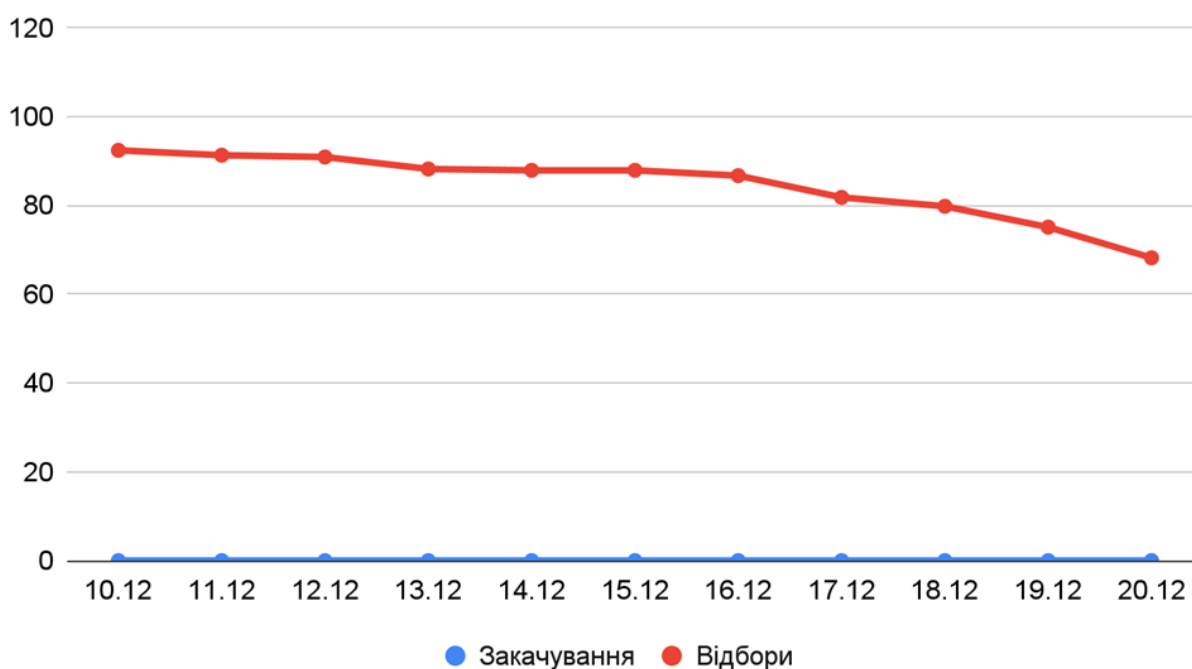
At the same time, gas exports from Ukraine continued. In the circumstances of the ban on the exports of Ukrainian-produced gas, exports are the gas volumes withdrawn from the storage facilities by non-residents, who previously injected it for storage in the "customs warehouse" mode. The volume of such exports in the reporting week was 50.8 mcm (corresponds to the previous week's same period), which were transported through the Drozdowicze/Hermanowice interconnection point with Poland.

Commercial imports into the Ukrainian system have suspended, yet commercial exports of gas through the VIP Ukraine-Poland were performed at 50.4 mcm (actually corresponding to physical volumes). It is also likely that part of the volumes exiting the Ukrainian system to Moldova is the transmission of gas stored by Moldovan companies in Ukrainian storages. This assumption is due to the fact that the volumes of gas transported from the system in the "customs warehouse" mode exceeded the indicators of commercial exports to Poland and amounted to 96.2 mcm.

### ***Underground storage facilities***

According to the [AGSI platform](#), as of December 20, 9.03 bcm of gas was accumulated in the Ukrainian storage facilities (-0.99% as compared to December 16). It corresponds to 29.84% of the total working capacity, i.e. without 4.662 bcm of "long-term storage" buffer gas. Withdrawals from storage in the reporting period decreased by 16% and totaled 304.9 mcm; the average daily withdrawal amounted to 76.2 mcm.

### **Natural gas withdrawals and injections into/from Ukrainian storage facilities, mcm**



Source: [AGSI](#) (all indicators calculated by dividing the primary indicators in MWh by the conversion factor of 10.595 kWh/cm)

## Policy and regulation

The government [amended](#) two procedures on imposing public service obligations on natural gas market entities, according to which companies of Naftogaz Group are obliged to supply gas to certain categories of consumers at discounted prices. Amendments to the Resolution No. 222 of March 6, 2022, expand the list of electricity producers that can be supplied under subsidized price. Now they include business entities that operate gas turbine and gas piston installations; the price was set at 16,500 UAH/tcm (with VAT). Amendments to the Resolution No. 812 of July 19, 2022, also expand the list of consumers who can get cheaper gas, adding religious organizations. The supply price was set the same as for budget organizations - at 16,390 UAH/tcm (with VAT).

On December 19, the Cabinet of Ministers approved the [2023 financial plan](#) and [investment program](#) of Naftogaz. Financial plans of Naftogaz's subsidiaries [Ukrtransgaz](#) and [Ukrqazvydobuvannya](#) were also approved.

## Other

Naftogaz [announced the](#) "integration" of 4 more DSOs into its structure - JSC Korostyshivgaz, JSC Tysmenytsiagaz, JSC Melitopolgaz, and JSC Luhanskaz. The operational management of the last two enterprises will be carried out after the de-occupation of the territories they are located. Thus, the process of returning 27 gas distribution enterprises under state management, which began in November 2022, has been completed.

The international agency Fitch Ratings [raised](#) the credit rating of Naftogaz from RD (restricted default) to CC due to the completion of the debt restructuring procedure for Eurobonds. This rating reflects the agency's view that despite the restructuring, the company's credit risk remains very high, and its default is likely. The main reasons are high operational risks due to the Russian aggression and unpredictability in liquidity due to the war, low level of settlements for gas and limited options for external financing.

Ukrqazvydobuvannya (a subsidiary of Naftogaz, the largest upstream company of Ukraine) [put two wells](#) into operation. The first one was drilled in 1975, but over time transferred to the inactive list



due to technical complications. It has now been recovered by drilling a lateral shaft and performing hydraulic fracturing operations. In this way, it was possible to increase production to 100 tcm per day. The commissioning of the second well, which is located on the same field, also provided 100 tcm of gas per day. Such a debit was also achieved by fracking.

JSC "Naftogaz of Ukraine" and five other companies of the Naftogaz Group [received](#) an order from the High Court of Justice of England and Wales to recognize the previously adopted arbitration decision to compensate the Naftogaz Group for losses in the amount of 5 billion USD for seized assets in the temporarily occupied Crimea. Litigation is part of Naftogaz's strategy to collect the compensation. Naftogaz is also working on enforcement of the arbitration award in the US and other jurisdictions. Russia is scheduled to appear before the US District Court for the District of Columbia on February 23, 2024, after successfully serving a subpoena through diplomatic channels.

## Oil and Motor Fuels

The specialized media [reported](#) that the wholesale prices of liquefied petroleum gas (LPG) increased. At the Ukrainian Energy Exchange auctions on December 20, the average price was 40,782 UAH/t, which is 4,997 UAH/t more than at previous auctions. Ukrainian producers put up for sale 6,973 tons of LPG, which were sold in full. The price on the domestic market remains below import parity. Wholesale buyers actively participate in the auctions in an effort to "dilute" the expensive volumes of imported LPG with a cheaper Ukrainian resource.

At the same time, the retail price of LPG continued to fall: on December [19-21](#), the average price decreased by 0.8 UAH/l - to 31.43 UAH/l.

At the same time, the situation on Ukraine's border with the EU countries remains difficult: [according to](#) the State Border Guard Service, protesters on the border with Poland at the Yahodyn-Dorohusk checkpoint allow only a few trucks to pass per hour.

## International Cooperation

On December 19, representatives of the Ministry of Finance of Ukraine and the European Bank for Reconstruction and Development (EBRD) [reviewed](#) the portfolio of joint projects for the first time in two years. The event was chaired by the Deputy Minister of Finance of Ukraine Olha Zykova and the EBRD Managing Director for Eastern Europe and the Caucasus Matteo Patrone. There are 12 joint projects with the EBRD under implementation with a total loan volume of 2.56 billion EUR. As of December 2023, the funds disbursed under these projects amounted to 1.61 billion EUR (62.8% of the total amount borrowed). Particular attention was paid to initiatives to support the energy sector, including the preparation of the Special capital support project for Ukrenergo, under which a 150 million EUR loan will be used to cover critical operating costs of the company to ensure stable and uninterrupted electricity transmission.

Following the agreement between the Minister of Energy of Ukraine Herman Halushchenko and the Minister for Development Cooperation and Foreign Trade of Finland Ville Tavio to deepen cooperation in energy sector reconstruction projects, the Deputy Minister Yaroslav Demchenkov [met](#) with representatives of the Finnish community, which unites more than 150 companies, business organizations and financial institutions. The parties discussed financial mechanisms for implementing energy projects, investment insurance, and guarantees.

Energoatom and Holtec have reached an [agreement](#) in principle to set up a production facility to localize the production of equipment for Holtec's small modular reactor (SMR). To achieve this, a joint venture will be established, which shall house an engineering and design center, material storage, components production, and training facilities, including a SMR simulator.

The Ukraine Energy Support Fund has [received](#) 88.5 million EUR in additional grants from the German Federal Government. The German Federal Ministry for Economic Affairs and Climate Action is providing 54.3 million EUR (through KfW) and the German Federal Foreign Office is providing 34.2 million EUR. The focus will be on basic repair materials and equipment needed for the winter season, as well as renewable energy projects, including decentralized RES solutions such as solar panels and equipment for administrative and social infrastructure and possibly households. This contribution brings the total pledges to the Ukraine Energy Support Fund to 405 million EUR.

The Verkhovna Rada has [ratified](#) the Agreement between the Government of Ukraine and the Government of the Republic of Korea on Loans from the Economic Development and Cooperation Fund (EDCF). This provides the opportunity to finance long-term innovative economic projects and the participation of Korean companies in Ukraine's recovery. According to the signed agreement, Ukraine or a business entity (a resident of Ukraine that has received a government guarantee) has the right to attract long-term low-interest loans from the Export-Import Bank of Korea through the EDCF. At the first stage, such loans can be used for the supply of equipment. From 2025, it will be possible to attract loans for reconstruction of infrastructure. There is already an agreement to provide Ukraine with the first 2 billion USD for recovery in the form of long-term low-interest loans through the EDCF.

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### **SUPPORT UKRAINIAN ENERGY SECTOR**



*Ukraine urgently needs emergency energy equipment to restore energy supply in the regions affected by war. More than 12,000 items are on the list of requested emergency energy equipment. If your company, association or country is ready to help, please [contact the Energy Community Secretariat's Ukraine Support Task Force](#).*

*[Energy Community Homepage \(energy-community.org\)](http://energy-community.org)*

### **SUPPORT UKRAINIAN ARMY**

*To financially support the Armed Forces of Ukraine, please follow the [link](#) (the National Bank of Ukraine special account).*