



Russian War Against Ukraine: Energy Dimension

DiXi Group alert

(status as of 12:00, May 16)

Stop russian nuclear terrorism!

Stop the atrocities!

Introduce full embargo on russian oil and gas imports now!

#StopRussianAggression

#StandWithUkraine

Summary

- **App. 686,000 consumers all over Ukraine did not have electricity supply, and 216,500 consumers remained without gas supply.**
- According to Energoatom, **along the entire perimeter of the Zaporizhzhia NPP, the occupiers dug trenches, placed sandbags, concrete blocks and other engineering barriers**, as well as forbade employees to bring phones at work. In Energodar, there is a significant decrease in the number of Russian armed personnel.
- According to the details provided by the CEO of Naftogaz Yurii Vitrenko and the General Director of GTSOU Serhii Makogon, **gas transit through the Sokhranivka interconnection point was stopped due to the unauthorized withdrawal of gas by the occupiers**, which they used to supply the Luhansk TPP and other industrial facilities (in particular, Alchevsk Metallurgical Complex and Stakhanov Ferroalloy Plant).
- GTSOU General Director Serhii Makogon informed that the Ukrainian gas system capacity **allows importing gas from LNG terminals in Lithuania, Poland, Croatia, and Greece**. The total volume of firm import capacity is 54 mcm/day: 42 mcm/day from Slovakia, 8 mcm/day from Hungary, and 4 mcm/day from Poland.

- The Verkhovna Rada Chair Ruslan Stefanchuk stated that, **in case Russia refuses to pay reparations for the war damage, Ukraine will insist on seizure and sale of the Russian assets.**

Attacks:

Donetsk region In the last 24 hours, 10 settlements of the Donetsk region, including Mariupol, Avdiivka, Toretsk, and Lyman, were shelled from aircraft, multiple rocket launch systems "Grad" and "Smerch", tanks and heavy artillery, with 6 civilians killed and 12 injured, as the National Police reported. The shelling damaged at least 36 residential facilities, including homes, a mosque, a factory, a café, and critical infrastructure facilities.

In Mariupol, the enemy continued to carry out massive artillery and air strikes, blocked and struck at the Ukrainian military units in the area of the Azovstal Iron & Steel Works, as the General Staff of the Armed Forces of Ukraine [reported](#). [According to](#) Ukraine's Deputy Minister of Defense Hanna Malyar, leaders of almost all global powers and all leading international organizations were involved in the diplomatic efforts to save defenders from the Azovstal Iron & Steel Works facilities. The advisor to the mayor of Mariupol Petro Andryushchenko [noted](#) that the death toll in the blocked Mariupol was unusually high, especially among middle-aged people, due to the consequences of the occupation: nervous breakdowns, lack of medical care, unsanitary conditions and weakened immune system. Only a general evacuation and admission of humanitarian aid from Ukraine could save civilians.

Luhansk region Only 10% of the Luhansk region territory remained under Ukrainian control, but the Russian invaders still follow a plan to reach the administrative borders of the Luhansk and Donetsk regions, aiming to capture the city of Severodonetsk, [reported](#) the Luhansk Regional Military Administration Head Serhii Haidai. To deter the enemy's offensive, the Ukrainian military [blew up](#) the Russian-occupied railway bridges between the cities of Rubizhne and Severodonetsk. Without military success, the Russians continued to attack peaceful neighborhoods of the Luhansk region - the shelling damaged 20 houses in Komyshuvakha, Katerynivka, Novozvanivka and Troitske, as well as 8 private houses and 3 multi-apartment buildings in Hirske, Zolote and Toshkivka, and 7 multi-apartment buildings and an educational institution in Severodonetsk.

Kharkiv region The Russian occupiers fired artillery at civilian infrastructure in the settlements of Dovhenke, Ruski Tyshky, Ternova and Petrivka, as the General Staff of the Armed Forces of Ukraine [reported](#). [According to](#) the Ministry of Defense, fighters of the defense forces in the Kharkiv area pushed back the Russian occupiers on one of the front line directions, and reached the state border of Ukraine in the Kharkiv region.

Sumy region On the morning of May 16, the Russian military opened fire with mortars, grenade launchers, machine guns and submachine guns on the border area of the Sumy region, as the State Border Guard Service of Ukraine [reported](#). Under cover of fire, a Russian sabotage and reconnaissance group tried to

enter Ukraine, but the Ukrainian border guards forced the enemy to retreat beyond the state border.

Odesa region

On the morning of May 16, the Russian troops launched missile strikes on the Odesa region. [According to](#) the Operational Command "South", the facility of tourist infrastructure was attacked (a recreation center, [according to](#) the Verkhovna Rada MP Oleksii Honcharenko), buildings were destroyed, and a fire broke out; a damaged and non-functioning bridge across the Dniester estuary was also attacked. So far, 2 adults were reported injured and 1 child severely injured. Also, on May 15, two Russian anchor [mines](#) were removed from the Odesa region coast, which were removed and neutralized.

Mykolaiv region

On the morning of May 16, the occupiers carried out a series of missile strikes and shelling from multiple rocket launch systems on the residential areas of Mykolaiv, [reported](#) the city mayor Oleksandr Sienkevych. As a result of the shelling, the windows of residential buildings and a low-pressure gas pipeline were damaged, and a fire broke out in a store and a car. [According to](#) the Mykolaiv Regional Military Administration, as of May 16, since the beginning of the Russian invasion 3,395 residential facilities were partially or completely damaged in the region, in particular 2,394 facilities of housing stock, 276 electricity, 137 gas, 53 heat and 16 water supply facilities.

Kherson region

The settlements of the Kherson region were once again under fire, the occupiers did not stop destroying schools and residential houses in the region, civilians were forced to leave their homes to escape, as the Operational Command "South" [reported](#). Dozens of settlements [were left](#) without electricity and water supply, and many communities were in dire need of medicines, hygiene and baby food, fuel, and cash.

Zaporizhzhia region

[According to](#) the Zaporizhzhia Regional Military Administration, the enemy continued shelling of the Ukrainian troops with multiple rocket launch systems, artillery and mortars. The shelling affected the settlements of the region and civilians: in particular, in the city of Orikhiv, artillery strikes damaged medical and religious institutions; in the village of Mala Tokmachka - the building of penitentiary institution; near the village of Dorozhnyanka occupiers blew up the road, and disconnected the road connections between the cities of Polohy and Huliaipole. In the temporarily captured [city of Melitopol](#), the Russian military was looting enterprises, including the Hydromash Plant and the Melitopol Plant for Auto Parts.

Lviv region

In a cyber attack on May 13, the Russian hackers have stolen some of the working files of the Lviv City Council and published them on Russian telegram channels, [reported](#) the deputy mayor of Lviv Andrii Moskalenko.

Nuclear and Radiation Safety:

As of 09:00 on May 16, all operating NPPs of Ukraine were [operating](#) normally; radiation, fire and environmental conditions at station sites and adjacent areas were within current standards.

Chornobyl NPP Exclusion Zone

Reconstruction works are underway in the Exclusion Zone to normalize the functioning of the facilities and ensure their proper safety.

Zaporizhzhia NPP

For the 74th day in a row, the Zaporizhzhia NPP and the satellite city of Energodar have been [under the control](#) of Russian terrorists, who are constantly exerting physical, psychological and informational pressure on the station's employees and residents. The ZNPP power units are serviced by Ukrainian personnel with proper rotation, but the plant's nuclear and radiation safety are under constant threat.

According to Energoatom, at the station site, the Russian military have [disguised](#) the training center destroyed by their shelling. Also, along the entire perimeter of ZNPP, the occupiers dug trenches, placed sandbags, concrete blocks and other engineering barriers. At the same time, they forbade employees to bring phones at work. At the same time, in Energodar, there is a significant decrease in the number of Russian armed personnel, which is likely to be deployed to active areas of the hostilities.

As of May 16, the radiation background on the territory of the ZNPP industrial site and the sanitary protection zone of the station remained [within the standards](#); gamma background in the Zaporizhzhia region was also [stable](#) (7-12 $\mu\text{R} / \text{h}$) and did not pose a threat to life and public health.

The presence of Russian terrorists at nuclear facilities poses extremely high threats to nuclear and radiation safety on a global scale! Ukraine demands to recognize the actions of Russia and Rosatom as nuclear terrorism, which aims to intentionally violate the security of nuclear power plants, international law and basic human rights with the aim of genocide, ecocide and encroachment on the country's sovereignty.

We call on international partners to increase pressure on the IAEA, whose actions may prevent acts of nuclear terrorism by Russia. At the same time, it is critical to minimize Russia's influence on IAEA policies and activities, in particular by removing all Russians from key positions in the Agency's Secretariat and restricting their access to information about Ukraine's nuclear power plants.

We also emphasize the need to impose tough sanctions on the management, staff, products, international projects of Rosatom and, in general, the nuclear industry of the aggressor country!

Electricity Sector:

Power system operation

For almost 2 months, Ukraine's power system has been [stably](#) operating in trial synchronous mode with the Continental Europe network (ENTSO-E). According to the Ukrenergo, the level of consumption in the power system is stable, and its dynamics correspond to the seasonal trend. Commercial exports of electricity to Poland via the Dobrotvirskia TPP - Zamosc transmission line [remained](#) at the stable schedule with a maximum level of 210 MW during the day. Exports to Moldova [fluctuated](#) during the day and were performed at about 100 MW on average.

In addition, there are unidirectional (with Romania) or bidirectional (with Hungary and Moldova) technical [cross-border](#) flows between the energy systems. The current cross-border capacity

between the power system of Ukraine and ENTSO-E is about 2 GW, however, the trial mode of synchronous operation does not provide for full-fledged commercial exports/imports of electricity.

Ukrenergo [continued](#) to rebuild the damaged infrastructure. Particularly, in the liberated area in the eastern region, two 330 kV high-voltage lines were put into operation after repairs, namely damaged supports were restored and cable sections were replaced. Restoration works have begun on another two 330 kV lines. In the previous days, 8 anti-tank mines were cleared at the entrances to them. Repairs also continued at three 330 kV substations in the eastern and central regions. In the north and in the center of Ukraine, a 750 kV overhead line and substation were restored. Together with the sappers, Ukrenergo crews inspected the line, and the reactor equipment is being repaired. The restoration of another 330 kV line, which ensures the reliability of power supply to one of the cities, continued.

Electricity market performance

Bilateral Contracts Market (BCM): On May 9-13, the Ukrainian Energy Exchange (UEEX) held 8 [auctions](#) for the purchase/sale of electricity (3 in commercial sections, 5 in specialized ones). Tenders were initiated by Ukrhydroenergo, Guaranteed Buyer, Poltavavodokanal, companies of DTEK group, universal service suppliers (USS).

Ukrhydroenergo sold 1728 MWh of base load at the price of 1910.75 UAH/MWh and 432 MWh of block positions of different supply hours at the weighted average price of 2391 UAH/MWh. Guaranteed Buyer sold 79,200 MWh of base load at weighted average prices in the range of 1900.12-1918.1 UAH/MWh and 52,600 MWh of block positions at weighted average prices in the range of 2165-2167 UAH/MWh. Auctions for the purchase by USS and Poltavavodokanal were also successful. In total, on May 9-13, 182,400 MWh of electricity was sold at the UEEX.

Day-ahead market (DAM): As of May 16, the DAM weighted average settlement price [increased](#) for the 3rd day already and amounted to 2,373.03 UAH/MWh (+3.6% vs the previous trading day). At the same time, the exchange prices on the Eastern European markets showed synchronized growth, which led to an increased gap with Ukraine. The prices in Slovakia, Hungary and Romania were 3-3.3 times [higher](#) than the Base DAM price index of Ukraine, while the spread to Poland was consistently lower at 2.2 times.

After 4 consecutive days of decline, the total volume of trading on DAM [increased](#) to 11,937 MWh (+82.2% vs the previous day), although it still remains low. At the same time, the opposite dynamics of a significant decrease in supply to 88,730 MWh (-7.1% vs the previous day) led to a significant decrease in market surplus - the gap with the volume of purchase bids dropped from 14.6 to 7.5 times. The [structure of electricity](#) purchase on DAM has changed slightly: 77.6% belonged to suppliers, 22.2% to system operators, 0.2% to producers and traders.

Intraday market (IDM): On May 15, the weighted average price of electricity on IDM continued to [decrease](#) slightly and amounted to 2,698.83 UAH/MWh (-6.7% vs the previous day). At the same time, for the 3rd consecutive day, the total volume of trading was decreasing and reached 115.7 MWh (-48.5% to the previous day). At the same time, there is an opposite trend of increasing supply up to 43,244.7 MWh (+9.9%) leading to a rapid increase in market surplus - the gap with the volume of purchase bids jumped from 179 to 360 times. In addition, the structure of purchase [changed significantly](#): 79.79% was occupied by suppliers, 12% by producers, 8.6% by system operators.

Disruption and resumption of supply

[According](#) to the Ministry of Energy, as of May 15, 873 settlements were disconnected from electricity, a total of app. 686,000 consumers. During the day, electricity supply was resumed to app. 65,800 consumers

Large-scale power supply disruptions and, consequently, active recovery works were taking place:

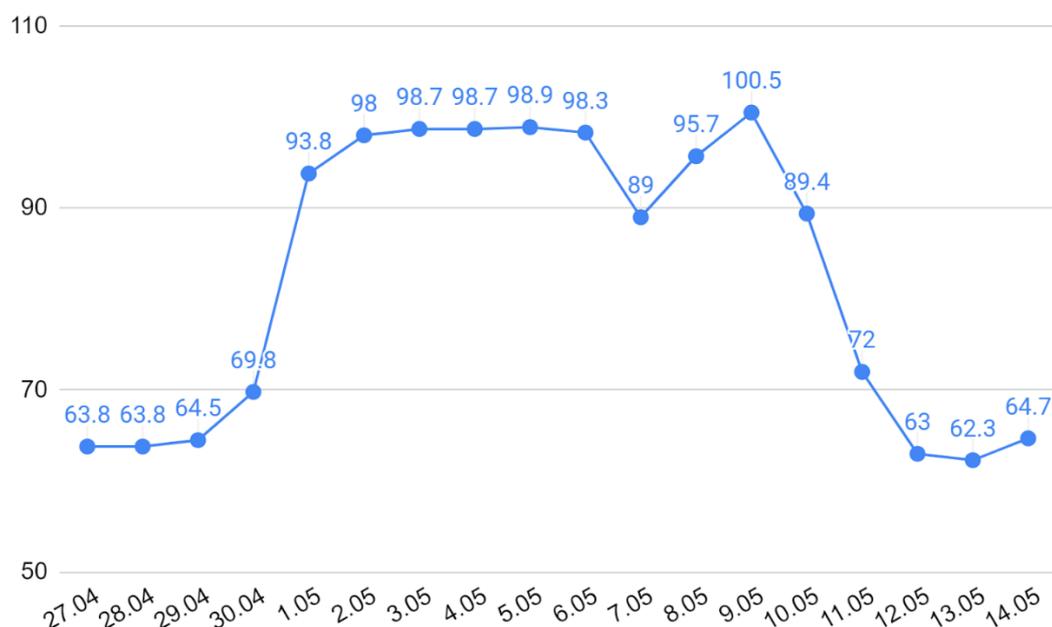
- in the **Donetsk region**, [according](#) to the Cabinet of Ministers, 323,000 consumers were left without electricity supply;

- in the **Luhansk region**, [according](#) to the Cabinet of Ministers, 128,000 consumers were left without electricity supply;
- in the **Kharkiv region**, [according](#) to the Cabinet of Ministers, 149,000 consumers were still with no electricity supply; supplies to 10,000 consumers were resumed during the day;
- in the **Kyiv region**, [according](#) to the Cabinet of Ministers, supply to 16,200 consumers was resumed during the day;
- in the **Zaporizhzhia region**, as of 07:00 on May 16, 21,790 consumers in 76 settlements were left [without electricity supply](#); supply to 871 consumers was resumed during the day;
- in the **Mykolaiv region**, [according](#) to the Cabinet of Ministers, supply to 3,100 consumers was resumed during the day;
- in the **Dnipropetrovsk region**, [according](#) to the Cabinet of Ministers, supply to 6,400 consumers was resumed during the day;
- the **Chernihiv region**, [according](#) to the Cabinet of Ministers, supply to 11,300 consumers was resumed during the day;
- in the **Odesa region**, [according](#) to the Cabinet of Ministers, supply to 8,500 consumers was resumed during the day;
- in the **Sumy region**, [according](#) to the Cabinet of Ministers, supply to 2,700 consumers was resumed during the day;
- in the **Kherson region**, [according](#) to the Cabinet of Ministers, supply to 2,600 consumers was resumed during the day;
- in the **Zhytomyr region**, [according](#) to the Cabinet of Ministers, supply to 1,000 consumers was resumed during the day.

Gas Sector:

As of May 14, the transit of Russian gas through the territory of Ukraine almost did not change compared to the previous day and amounted to 64.7 mcm. These volumes account for much less than the capacity contracted by Gazprom (109 mcm per day). There were no transit flows via the Sokhranivka interconnection point. Physical imports of gas from the EU were reported from the Hermanowice interconnection point (virtual interconnection point "Ukraine-Poland") at 1.68 mcm.

Gas transit through Ukraine (at Sokhranivka and Sudzha interconnection points), mcm



Source: [GTSOU](#)

The General Director of Gas TSO of Ukraine LLC (GTSOU) Serhii Makogon [reported](#) that the current capacity of the Ukrainian gas system allows importing gas from LNG terminals in Lithuania, Poland, Croatia, and Greece. The total volume of firm import capacity is 54 mcm/day: 42 mcm/day from Slovakia, 8 mcm/day from Hungary, and 4 mcm/day from Poland. Also, according to Makogon, 1 mcm/day is transited from Poland to Hungary via the Ukrainian system.

Meanwhile, the CEO of Naftogaz Yurii Vitrenko and the General Director of GTSOU Serhii Makogon [informed](#) that gas transit through the Sokhranivka interconnection point was stopped due to the unauthorized withdrawal of gas by the occupiers, which they used to supply the Luhansk TPP and other industrial facilities (in particular, Alchevsk Metallurgical Complex and Stakhanov Ferroalloy Plant). The exact volumes of stolen gas is difficult to determine. Still, occupiers' interference in the work of gas transit infrastructure was confirmed, which is why GTSOU has declared force majeure.

Disruption and resumption of supply

The **Donetsk, Luhansk, Zaporizhia, Kharkiv, Kyiv, Kherson and Mykolaiv regions** had the most challenging situation in gas supply. [According](#) to the Cabinet of Ministers, as of May 15, 216,500 consumers were left with no gas supply. Gas supply to 12,000 consumers was restored during the day.

In the **Donetsk region**, the local DSO [reported](#) 306 consumers were forcibly disconnected due to the hostilities, while gas supply was restored to 126 consumers.

[According](#) to the **Luhansk** Regional Military Administration Head Serhii Haidai, 21,375 consumers in 5 settlements remained with gas supply. There is a problem of damage to the main gas pipelines and the closure of individual pipelines by the occupiers in uncontrolled areas. According to Haidai, the current gas reserves in storage and pipelines will be enough for 2 months of the region's consumption (in the current security conditions).

In the **Kyiv region**, as of the morning of May 15, gas supply was [restored](#) in 120 settlements (119 completely and 1 partially) to 147,607 consumer facilities. The repairs continued only in the city of Irpin (gas supply was restored to 96% of consumers already).

In the **Kherson region**, as of 17:00 on May 14, the Vysokopillia community, partially the Velyka Oleksandrivka, Novovorontsovka and Stanislav communities [remained](#) without gas supply. In the village of Stanislav, a gas pipeline was blown up two days ago due to attacks by the occupiers. Many communities had problems with LPG supply.

In the **Mykolaiv region**, as of May 16, due to Russian aggression, 137 gas infrastructure facilities were [damaged](#), and 3,333 consumers were left without gas supply. The local DSO [continued](#) to operate in emergency mode.

In the **Kharkiv region**, the local DSO reported 130,000 consumers in the regional center have been [disconnected](#) from gas supply since the beginning of the war. Restoration works continued both in Kharkiv and in the liberated settlements of the region.

Operational information on gas supply in the **Zaporizhia, Chernihiv and Sumy regions** was not available at the time of the review preparation.

Countermeasures of Ukrainian Companies and Public Authorities

The President of Ukraine Volodymyr Zelenskyi [stated](#) in his evening video address that oil embargo is the first priority in work on imposing sharper sanctions on Russia. "No matter how hard Moscow tries to thwart this decision, the time of Europe's dependence on Russian energy resources is coming to an end," he said. The Adviser to the Head of the Presidential Office Mykhailo Podoliak also [called for](#) imposing of the embargo.

The Chair of the Verkhovna Rada of Ukraine Ruslan Stefanchuk [stated](#) that Ukraine has a "plan B" in case Russia refuses to pay reparations for the damage caused by the war. In such a scenario, Ukraine will insist on the seizure of all Russian property and its sale. In addition, the Verkhovna Rada approved a number of appeals to other countries to satisfy Ukraine's interests in paying reparations using the assets seized from Russian citizens.

The National Energy and Utilities Regulatory Commission [announced](#) a meeting on May 17 to additionally consider the issue of revising the tariff for purchase and sale operations at DAM and IDM (Market Operator tariff) in 2022 from 3.30 to 13.31 UAH/MWh (excluding VAT). Among other issues on [the agenda](#):

- "settlement of urgent issues of economic activity of licensees during the martial law" (without a [draft decision](#)),
 - [approval of the](#) Methodology for determining the maximum (marginal) fee for distribution services in small-scale distribution systems and amendments (to the Transmission System Code, Distribution Systems Code, Retail Electricity Market Rules) on the operation of small-scale distribution systems,
 - [approval](#) of draft amendments to the Market Rules (on settlements in the balancing market using escrow accounts to repay debts of market participants to the TSO and increase the transparency of settlement operations),
- [postponement](#), for the period of martial law, of the payments by universal service suppliers for electricity generated by installations of private households for February 2022 until May 25, 2022 (for other settlement periods, i.e. calendar months, - not later than 55 days after their end).

Sources:

The alerts are developed based on collected, verified, and analyzed information reports of over 100 official sources: ministries, state agencies, network operators, and energy companies. Information was collected only from official websites and official social media accounts.

For subscriptions, comments and other questions, please email to: author@dixigroup.org

SUPPORT UKRAINIAN ENERGY SECTOR

Prior to transferring funds, please [email to the Energy Community Secretariat](#)

SUPPORT UKRAINIAN ARMY

To financially support Heroic Ukrainian Army, please follow the [link](#) (The National Bank of Ukraine)

