



Russian War Against Ukraine: Energy Dimension

DiXi Group alert

(status as of 12:00, May 19)

Stop russian nuclear terrorism!

Stop the atrocities!

Introduce full embargo on russian oil and gas imports now!

#StopRussianAggression

#StandWithUkraine

Summary

- **App. 609,600 consumers did not have electricity supply all over Ukraine, while almost 187,000 consumers remained without gas supply.**
- **The Luhansk region fully lost electricity supply.** The last functioning large substation as well as 220 kV high-voltage line were damaged by the Russian shelling. Repair was not possible until the end of hostilities.
- **The fire in the Chernobyl NPP Exclusion Zone continues and is the largest by scale in 2022**, covering the area of 1,500+ hectares. Its extinguishing is significantly complicated by winds and limited technical resources of rescuers due to the consequences of the occupation (theft and destruction of a large number of special equipment and fuel), as well as threat of explosions of the mines. The radiation background remained within the standards so far.
- The Russian Deputy Prime Minister Marat Husnullin made a provocative statement, offering Ukraine to buy electricity generated by the Zaporizhzhia NPP; otherwise, it will "work for Russia". Ukrenergo and Energoatom stated that **ZNPP operates in Ukraine's power system under the control of Ukrainian specialists**, and electricity supply to Russia is physically impossible (as the IPS of Ukraine has no links to the Russian power system). Any change in the situation at ZNPP would mean an escalation of nuclear terrorism by Russia.

- **The Prime Minister Denys Shmyhal welcomed the European Commission's adoption of the RebuildUkraine strategic reconstruction plan**, that will be based on a plan developed by the National Council for the Recovery of Ukraine from the Consequences of War.
- The Minister of Economy Yulia Svyrydenko announced **Ukraine will receive 25,000 tons of petroleum from Poland** as part of aid.

Attacks:

Donetsk region In the last 24 hours, 10 settlements of Donetsk region, including Mariupol, Bakhmut, Kramatorsk, Avdiivka, were shelled from aircraft, missile systems, multiple launch rocket systems "Smerch", tanks and heavy artillery, killing 10 civilians and injuring 6, as the [National Police reported](#). The shelling damaged at least 38 civilian facilities, including homes, schools, a garment factory, a community center and critical infrastructure.

[According](#) to the Mariupol City Council, there is a threat of complete extinction of the Azov Sea due to the bombing of the Azovstal Iron & Steel Works. Possible damage to technical facilities, which isolate thousands of tons of concentrated hydrogen sulfide solution, can result in a leak which would completely kill the flora and fauna of the Azov Sea and reach the Black and Mediterranean Seas. As a necessary measure, the mayor of Mariupol Vadym Boychenko mentioned immediate admission to the site of international experts and the UN to examine the situation and prevent an environmental disaster of global scale. In addition, the City Council [reported](#) that the Russian occupiers were aiming to completely destroy Azovstal as the important Ukrainian industrial complex. The leader of so-called "Donetsk People's Republic" Denis Pushilin [said](#) that a technology park or just a recreational park area shall be created on the site.

Luhansk region

On May 18, the Russians used aircraft to destroy civilian facilities in the settlements of Loskutivka, Katerynivka and Orikhove, and carried out assault operations near the towns of Ustynivka and Zolote-4, as the Luhansk Regional Military Administration Head Serhii Haidai [reported](#). As a result of the shelling, the settlements suffered heavy destruction. Damage to residential houses was also recorded in the towns of Vrubivka and Komyshevakha, and the village of Nyrkove. Due to the fighting near Lysychansk, the Russian occupiers destroyed the last working electricity substation and damaged the 220 kV power line, leaving the city and the entire region without electricity. The city of [Severodonetsk](#) was severely shelled, damaging at least 8 homes and killing 4 civilians.

Kharkiv region

The Kharkiv Regional military Administration [recorded](#) the massive return of residents to Kharkiv, but cannot guarantee their complete safety. In particular, on May 18, 3 districts of Kharkiv came under fire, with 3 civilians injured; on the morning of May 19, the occupiers fired again in one of the districts, a projectile [hit](#) a boiler room of the Institute of Endocrine Pathology. In addition, the settlements of Tsyrukun, Prudyanka, and Vilhuvatka were shelled during the day, and 3 people were injured; active hostilities continued in the north and southeast of Kharkiv, in particular in the Izyum area.

Sumy region

In the evening of May 18, massive attacks from the territory of Russia continued along the entire border of the Sumy region, [reported](#) the Sumy Regional Military Administration Head Dmytro Zhyvytsky. In particular, mortar and artillery shelling of the [Shostka district](#), 10 explosions on the territory of Hlukhiv community, 6 mortar shellings of Velyka Pysarivka community, artillery and machine gun attacks of Bilopilnya and Putyvl communities were recorded. According to preliminary information, there were no casualties.

Chernihiv region

[According to](#) the State Border Guard Service of Ukraine, during the day, there were 2 shellings of the region from the territory of Russia. The enemy used large-caliber machine guns, automatic grenade launchers, and barrel and jet artillery to fire. [According to](#) the General Staff of the Armed Forces of Ukraine, the enemy launched a missile strike on the settlement of Desna.

Mykolaiv region

[According to](#) the Mykolaiv Regional Military Administration, as of May 19, since the beginning of the Russian invasion, 3,531 residential facilities were partially or completely damaged in the region, in particular 2,503 facilities of housing stock, 283 electricity, 145 gas, 53 heat and 16 water supply facilities. [According to](#) the mayor of Mykolaiv Oleksandr Sienkevych, as a result of May 18 attacks on the city, about 20 houses were damaged. During the day, 4 [fires](#) were registered as a result of the Russian aggression and shelling of the city of Mykolaiv and the region.

Kherson region

On May 18, the Russian troops fired with multiple rocket launch systems "Grad" on a column of civilians who were trying to evacuate from the occupied to Ukraine-controlled territory. [According to](#) the Operational Command "South", 5 people with injuries escaped from the shelling and were taken to hospital, 1 person was killed, the fate of 4 more was unknown. In addition, the Operational Command "South" [noted](#) that the Russian invaders were preparing a so-called "press-tour" for Russian and foreign media to visit the cities of Kherson, Nova Kakhovka, Skadovsk, Armyansk, to meet with the appointed occupying "authorities" and demonstration of fake evidence that Ukraine was allegedly shelling on civilians.

Zaporizhzhia region

[According to](#) the Zaporizhzhia Regional Military Administration, as of May 19, 1,089 households in the region were completely destroyed or partially damaged. The enemy attacked with jet and barrel artillery and mortars the infrastructure and residential houses in the settlements of Huliaipilske, Novodanylivka, Malynivka and Huliaipole. As a result of hostilities, 671 consumers were disconnected from electricity supply in the service area of Orikhiv electric networks, as well as 3 settlements in the service area of the Polohy district branch (384 buildings).

The Russian aggressors [reported](#) in their news channels that the Russian Deputy Prime Minister Marat Khusnullin made a number of provocative statements during a visit to Melitopol. Inter alia, there was a statement on plans to launch the circulation of Russian ruble in all occupied territories of Ukraine, as well as the payment of pensions and salaries in rubles to residents of the region this month.

Dnipropetrovsk region

On the night of May 19, the Russian invaders fired 5 times from multiple rocket launch systems "Grad" and "Uragan" on the village of Velyka Kostromka (Zelenodolsk community), [reported](#) the Dnipropetrovsk Regional Military Administration Head Valentyn Reznichenko. As a result of the

shelling, residential buildings were damaged, and the residents were left partially without electricity and gas supply.

Nuclear and Radiation Safety:

As of 08:00 on May 19, all operating NPPs of Ukraine operated stably, and the radiation, fire and environmental conditions at the station sites and adjacent territories were within the standards. 8 of 15 operating nuclear units were in [operation](#) (3 at the Rivne NPP, 2 each at the Zaporizhzhia and South Ukraine NPPs, and 1 at the Khmelnytskyi NPP), the other 7 were under maintenance or put in reserve. All operating NPPs regularly transmit data from station monitoring systems to the IAEA.

Chornobyl NPP Exclusion Zone

[According](#) to the State Agency for Exclusion Zone Management (SAEZM), the level of fire danger has increased significantly due to dry and windy weather, as well as the large number of mines and flares left by the occupiers, which became additional sources of ignition. Currently, the largest fire of the current year is covering over 1,500 hectares (in area near the Zelenyi Mys checkpoint, the Opachychi Forestry). Its extinguishing is significantly complicated by winds and limited technical resources of rescuers due to the consequences of the occupation (theft and destruction of a large number of special equipment and fuel), as well as threat of explosions of the mines left by the Russian military.

However, according to the SAEZM, the [radiation status](#) was within controlled levels. Also, according to the assessment of the State Nuclear Regulatory Inspectorate and several specialized enterprises, there are no radiation risks to public health outside the fire areas. Meanwhile, the IAEA plans to [send](#) another technical mission to the Chornobyl NPP site in the coming weeks to help with radiation protection, safety of radioactive waste management, and nuclear safety issues.

The State Bureau of Investigation reported on [suspicion](#) of the Deputy Director General of the Chornobyl NPP SSE of desertion and possible assistance to the Russian troops in seizing the site. The official was detained in March 2022 - under the martial law he left place of service and was hiding in the Zakarpattia region.

Zaporizhzhia NPP

For 11 weeks 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. ZNPP power units are serviced by Ukrainian personnel with proper rotation, but the plant's nuclear and radiation safety are under constant threat.

As of May 19, the radiation background on the territory of the ZNPP industrial site and the sanitary protection zone of the station (8-12 $\mu\text{R}/\text{h}$) 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 Russian Deputy Prime Minister Marat Husnullin made a provocative statement, offering Ukraine to buy electricity generated by ZNPP; otherwise, it will "work for Russia". In turn, Ukrenergo [assured](#) that ZNPP operates in Ukraine's power system under the control of Ukrainian

specialists. As the IPS of Ukraine has no physical connections with the Russian power system, the supply of electricity from Ukrainian generation facilities to Russia is physically impossible. At the same time, any change in the situation at ZNPP would mean an escalation of nuclear terrorism by Russia. The Acting President of Energoatom Petro Kotin also said the ZNPP is controlled by Ukrainian specialists and electricity it generates is supplied to the Ukrainian power system, with transmission of electricity to Russia physically impossible.

Meanwhile, IAEA Director General Rafael Grossi assured he was [preparing](#) the Agency's mission to the ZNPP to "carry out important work in the field of nuclear safety and security".

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 65 days already, Ukraine's power system has been stably operating in trial synchronous mode with the Continental Europe network (ENTSO-E). Commercial exports of electricity to Poland via the Dobrotvirska 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 an average level of about 100 MW, the maximum volume reached 150 MW.

In addition, there are technical [cross-border flows](#) between the energy systems of Ukraine and Eastern European countries (Romania, Hungary and Moldova). The current cross-border capacity between the power system of Ukraine and ENTSO-E is about 2 GW, and potentially can be increased to 4-5 GW. However, the trial mode of synchronous operation does not provide for full-fledged commercial exports/imports of electricity.

Ukrenergo [continued](#) to restore the damaged energy infrastructure. Particularly, in the central region of Ukraine, the next stage of transformer equipment installation has started at a 750 kV substation. Repair crews were also working on two 330 kV and 750 kV overhead lines: dismantling damaged supports, mounting concrete foundations and assembling metal parts of new supports. In the northern region, a 110 kV switch has been put into operation at one of the 330 kV substations, and a 110 kV cell was being installed. In the eastern region, the TSO crew together with sappers continued inspection of two 330 kV lines, which slowed down repairs. In the southern region, two 330 kV substations were being restored - in addition to equipment, substation buildings were also being repaired.

Electricity market performance

Day-ahead market (DAM): As of May 19, the DAM weighted average settlement price was relatively [stable](#) and amounted to 2,326.77 UAH/MWh (-0.9% vs the previous trading day). At the same time, the dynamics of exchange prices in the Eastern European markets was versatile, which had some influence on the change in their gap to Ukraine. The prices in Slovakia, Hungary and Romania were app. 2.7-2.9 times [higher](#) than the Base DAM price index of Ukraine, while the spread to Poland was narrower at 2.1 times.

The total volume of trading on DAM [increased](#) to 16,101 MWh (+20.1% vs the previous day), although it still remained low. At the same time, the increase in supply to 84,252.6 MWh (-18.9% vs the previous day) led to a higher DAM surplus - for the third day in a row, the gap with the volume of purchase bids remained stable at about 5.2 times. The [structure of electricity](#) purchase has changed slightly: 80% belonged to suppliers, 19.8% to system operators, 0.2% to producers and traders.

Intraday market (IDM): On May 18, the weighted average price of electricity on IDM practically [did not change](#) and amounted to 2,738.97 UAH/MWh (-0.9% vs the previous day). Meanwhile, the total volume of trading decreased to 304.9 MWh (-44.6% vs the previous day). At the same time, the continued declining dynamics of supply - at 29,742.2 MWh (-15.4%) did not lead to reduction in market surplus. The gap with the volume of purchase bids increased from 68 to 99 times. In the [purchasing structure](#), the dominant part (63%) was occupied by suppliers, 33.6% by producers, 3.4% by system operators.

Disruption and resumption of supply

[According](#) to the Ministry of Energy, as of May 18, 679 settlements were disconnected from electricity, a total of app. 609,600 consumers. During the day, electricity supply was resumed to app. 20,300 consumers.

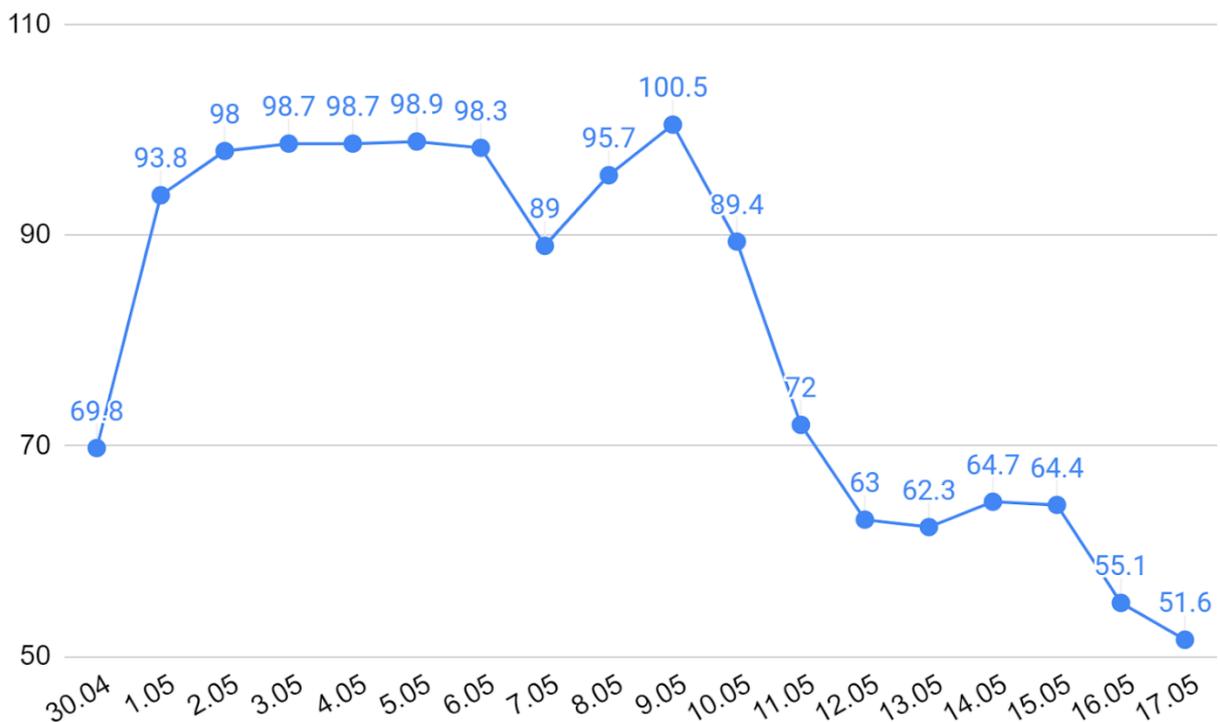
Large-scale power supply disruptions and, consequently, active recovery works were taking place:

- in the **Donetsk region**, [according](#) to DTEK, supply to 7,700 consumers in 11 settlements was resumed during the day; 281 settlements ([according](#) to the Cabinet of Ministers, 322,700 consumers in total) were left without electricity supply;
- in the **Luhansk region**, [according](#) to the Cabinet of Ministers, 117,510 consumers were left without electricity supply; [according](#) to Regional Military Administration, as a result of the Russian shelling, the last large substation of the region was damaged, a 220 kV transmission line was damaged as well; repair was not possible until the end of hostilities;
- in the **Kharkiv region**, [according](#) to the Cabinet of Ministers, 72,500 consumers were still with no electricity supply; supply to 1,200 consumers was resumed during the day;
- in the **Kyiv region**, according to DTEK, power supply to the settlements affected by hostilities has been completely restored; restoration works took 45 days, with supplies were to almost 600 settlements (260,000 consumers in total); 10,000 km of lines, 71 high-voltage substations and 2,975 transformer substations were restored;
- in the **Zaporizhzhia region**, as of 07:00 on May 19, 22,173 consumers in 75 settlements were left without [electricity supply](#);
- in the **Mykolaiv region**, [according](#) to the Cabinet of Ministers, supply to 900 consumers was resumed during the day; [according](#) to the Regional Military Administration, 90 settlements (incl. 3 partially) were left without electricity supply;
- in the **Kherson region**, [according](#) to the Cabinet of Ministers, supply to 3,300 consumers was resumed during the day;
- in the **Odesa region**, [according](#) to the Cabinet of Ministers, supply to 3,600 consumers, was resumed during the day;
- there was no up-to-date information on power supply in the **Dnipropetrovsk, Chernihiv and Sumy regions** at the time of the review preparation.

Gas Sector:

As of May 17, the transit of Russian gas through the territory of Ukraine decreased by 3.5 mcm compared to the previous day and amounted to 51.6 mcm. These volumes are more than twice 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 0.22 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 [stated](#) at the Gazterm conference (Poland) that Ukraine is interested in importing gas from the Polish LNG terminal. For this purpose, GTSOU plans to continue increasing firm capacity at interconnection points with Poland.

Disruption and resumption of supply

The **Donetsk, Luhansk, Zaporizhia, Kharkiv, Chernihiv and Mykolaiv regions** had the most challenging situation in gas supply. [According](#) to the Cabinet of Ministers, as of May 18, 187,000 consumers were left with no gas supply. Gas supply to more than 9,300 consumers was restored during the day.

In the **Kyiv region**, restoration of gas distribution in 120 settlements to more than 150,000 consumer facilities was [completed](#). As consumers return to their homes, the local DSO specialists promptly inspect the intra-house networks and resume gas supply.

In the **Zaporizhia region**, as of the morning of May 19, the situation didn't change: 69,981 consumers in 88 settlements [remained](#) without gas supply. The day before, damage to low and

medium-pressure gas pipelines in the city of Orikhiv and the village of Novoandriivka (Polohy region), caused earlier that day by shelling, was eliminated.

In the **Kherson region**, as of 13:00 on May 18, the Vysokopillia community, partially the Velyka Oleksandrivka, Novovorontsovka and Stanislav communities [remained](#) without gas supply. Many communities had problems with LPG supply.

In the **Kharkiv region**, the local DSO [continued](#) restoration works in Derhachi, Mala Danylivka, and the Vilkhivka community. Gas supply was restored to 2,000 consumers in the day.

In the **Mykolaiv region**, as of May 18, 145 gas infrastructure facilities were [damaged](#) due to Russian aggression, and 3,254 consumers were left without gas supply.

In the **Sumy region**, the local DSO has [inspected](#) 364 km of overhead and underground gas pipelines since the beginning of the year. These works are critical given Russia's aggression and related damage to gas infrastructure.

In the **Chernihiv region**, restoration work on gas supply in the Bobrovytsia district (city of Chernihiv) was [underway](#). In addition, the State Emergency Service specialists [inspected](#) more than 7.5 km of gas networks for explosives during the entire period of their engagement.

Operational information on gas supply in the **Donetsk and Luhansk regions** was not available at the time of the review preparation.

Countermeasures of Ukrainian Companies and Public Authorities

The Prime Minister Denys Shmyhal [welcomed](#) the European Commission's adoption of the RebuildUkraine strategic reconstruction plan. Shmyhal noted it is an important message stating that the EU will be a key player in the reconstruction of Ukraine, and the strategy will be based on a plan developed by the National Council for the Recovery of Ukraine from the Consequences of War. The plan will focus on 4 main elements: reconstruction of all infrastructure according to the latest standards, modernization of the Ukrainian government and its institutions, deepest integration with the EU in all areas, and economic transformation, including new business opportunities.

The First Deputy Prime Minister and Minister of Economy Yulia Svyrydenko [announced](#) Ukraine will receive 25,000 tons of petroleum from the Polish reserves as part of the aid. The increase of fuel transportation capacity is also an issue for work. The first deliveries are expected on May 23.

The Bureau of Economic Security [reported](#) it has seized more than 30 billion UAH of Russian and Belarus property. These are the corporate rights and assets of a mining and processing plant, which extracted titanium-rich minerals, 17,800 railway cars with an estimated value of about 15 billion UAH (incl. 1,625 cars with cargo of about 3 billion UAH), more than 160 vehicles and special equipment (220 million UAH), as well as assets of one of the financial institutions (over 12.4 billion UAH).

Naftogaz [published](#) consolidated financial statements for 2021, reporting 12 billion UAH in net profit, compared to 19 billion UAH in net loss in 2020. The CEO of Naftogaz Yurii Vitrenko stated the company would be profitable in 2021 even if it did not receive a fee for the organization of gas transit, which is an important achievement. Also, according to the [report](#), so far none of the company's critical facilities and infrastructure has been significantly damaged, but other facilities with a total value of app. 400 million UAH have been affected. In 2022, the company forecasts that Naftogaz Group's natural gas production will reach 12.1 bcm under optimistic scenario, 11.25 bcm under pessimistic one.

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.

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