Russian War Against Ukraine: Energy Dimension

DiXi Group alert

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#StopRussianAggression

#StandWithUkraine

Summary

- **App. 647,300 consumers all over Ukraine did not have electricity supply, and 187,000 consumers remained without gas supply.** According to the governmental assessment, the Russian troops destroyed more than 200 boiler houses and significantly damaged the Kremenchuk, Chernihiv, Okhtyrka, Luhansk and Severodonetsk CHPs, hundreds of power lines and transformer substations. The sector's losses have already reached dozens of billions UAH.

- As of early June, **the Armed Forces of Ukraine had liberated 1,017 towns and villages**, almost 900 have already electricity supply, 694 - gas supply, and 627 - water supply and sewerage restored, according to the data by the Presidential Office.

- On June 7, **the transmission system operators of Continental Europe responded positively to Ukrenergo's request to re-launch electricity exports from Ukraine**. In order to gradually increase the net transfer capacity of the export direction, six technical prerequisites have to be fulfilled in order to ensure the stability of the interconnected network and increase the ability to dampen low-frequency oscillations.

- According to the IAEA, **almost 40 radiation monitoring sensors have been restored in the Exclusion Zone**, and since June 6, the Agency has been receiving relevant data remotely via the International Radiation Monitoring Information System (IRMIS).

- **The Headquarters for Preparation for 2022/2023 Heating Season** during the martial law was established by the government's decision. The tasks of the Headquarters are to balance the energy system, to carry out repairs, to quickly solve
problems, to establish necessary level of communications between all involved parties. The accumulation of 19 bcm of gas and ca. 3 mln tons of coal are also among the targets.

- Considering that 10 bcm of gas are already in the storages as of early June, the necessary volume for pumping in is 9 bcm. According to the assessment of Naftogaz CEO Yuriy Vitrenko, the need for imports is 6 bcm, and the resource cost is USD 8 bn in current prices.

- To solve the issue of fuel deficit, the State Border Guard Service announced a special access regime for fuel trucks. "Green corridors" for trucks transporting fuel have been agreed with neighboring countries.

Attacks

As of early June, the Armed Forces of Ukraine had liberated 1,017 towns and villages, almost 900 have already electricity supply, 694 - gas supply, and 627 - water supply and sewerage restored, as reported the Deputy Head of the Presidential Office Kyrylo Tymoshenko.

According to the Prime Minister Denis Shmyhal, the Russian troops destroyed more than 200 boiler houses and significantly damaged the Kremenchuk, Chernihiv, Okhtyrka, Luhansk and Severodonetsk CHPs. In addition, hundreds of power lines and transformer substations were damaged, and the sector's losses have already reached dozens of billions UAH.

Coal production in state-owned mines dropped by about a third due to the occupation of some facilities, including production in the Donetsk region halved and two mines shut down completely. At some Ukrainian power plants, the supply of coal is blocked due to the threat of shelling, in addition, there are logistical problems and destruction.

According to preliminary estimates of the Ministry of Internal Affairs, about 270,000 km² of the Ukrainian territories need humanitarian demining, said the Ministry spokesperson Alyona Matveeva. Pyrotechnic units have already inspected over 33,000 hectares of land, 248 settlements have been cleared of mines and ammunition in the Kyiv, Chernihiv and Sumy regions alone, 720 km of highways, 127 km of railways, 1,193 infrastructure facilities, 28 km of gas pipelines and over 1,000 km of power lines. In addition to land demining, the Ministry of Internal Affairs sees a significant need to survey and clean rivers, reservoirs, and coastal waters of the Azov and Black Seas. The probable area of pollution of such waters is about 19,000 km².

Nuclear and Radiation Safety

Chernobyl NPP Exclusion Zone

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In June, specialists of the State Scientific and Technical Center for Nuclear and Radiation Safety (SSTC NRS) on behalf of the State Nuclear Regulatory Inspectorate will conduct a radiation survey of the Kyiv region territories, which were temporarily occupied by the Russian troops. This is due to the fact that Russian military equipment has invaded Ukraine from the Exclusion Zone and the Zone of unconditional (compulsory) resettlement, so there are risks of transferring radioactive contamination beyond its borders.
Zaporizhzhia NPP

In the temporarily occupied Energodar, the Russian occupiers continue to kidnap people. In particular, according to Energoatom, last week they detained and removed about 20 residents of Energodar in an unknown direction, 11 of them were ZNPP employees. Their location was unknown.

Electricity Sector:

Power system operation

Ukraine continued commercial exports of electricity to Poland via the Dobrotvirska TPP - Zamosc transmission line at the stable schedule of 210 MW hourly. Exports to Moldova fluctuate during the day. According to Ukrenergo, as of June 8, it reached 142 MW during the day and 100 MW at night. Also, technical cross-border flows continued between the energy systems of Ukraine and Eastern Europe countries (Slovakia, Hungary, Poland, Romania, and Moldova).

On June 7, the transmission system operators of Continental Europe responded positively to Ukrenergo's request to re-launch electricity exports from Ukraine. In order to gradually increase the net transfer capacity of the export direction, six technical prerequisites have to be fulfilled in order to ensure the stability of the interconnected network and increase the ability to dampen low-frequency oscillations. To remind, since March 16, Ukraine's power system has been operating synchronously with the ENTSO-E network in a trial emergency synchronization mode, which does not provide for exports-imports operations with European counterparts.

Ukrenergo continued to rebuild damaged infrastructure. In the central region, on a 750 kV substation and line, works continued. A transformer at the substation was replaced, a damaged disconnector was dismantled, and communication equipment was restored. Repairs of relay and measuring equipment at two 330 kV substations in the eastern and northern regions continued. Works were underway to completion at a 330 kV overhead line for restoring the normal power supply scheme.

Electricity market performance

Guaranteed Buyer settled with the RES producers under feed-in tariff for May supplies, taking into account the restrictions set by the Ministry of Energy Order No.140 of March 28, 2022 (payments at 15% of the 2021 weighted average feed-in tariff for solar, 16% for wind, 35% for small hydropower, and 40% for biogas facilities). Also, current level of settlements for January was 98%, for February - 83.7%.

Day-ahead market (DAM): On June 8, the weighted average settlement price continued to decrease slowly and amounted to 2,216.77 UAH/MWh (-1.4% vs the previous day). At the same time, the DAM Base indices of the Eastern European countries (Poland, Romania, Slovakia and Hungary) were 3-3.1 times higher than the Base DAM index of Ukraine. The total volume of trading showed a significant increase - up to 17,428.3 MWh (+39.3% vs the previous day). At the same time, the increase in supply to 89,120.2 MWh (-5.3%) led to a decrease in market surplus - the gap with the volume of purchase bids - from 7.5 to 5.1 times. In the structure of purchase, the dominant part (68.4%) was occupied by suppliers, 31.3% by system operators, the remaining 0.3% by producers and traders.

Intraday market (IDM): On June 7, the weighted average price of electricity on IDM continued to decrease slowly and amounted to 2,491.65 UAH/MWh (-5.7% vs the previous day). Meanwhile, the total volume of trading showed a significant jump to 1,179.1 MWh (+203% vs the previous day). At the same time, the continued upward dynamics of supply to 46,299.5 MWh (+10%) did not prevent a significant reduction in market surplus - the gap with the volume of purchase bids fell from 108 to 39 times. In the structure of purchase, the dominant part (99.7%) was occupied by suppliers, 0.3% by system operators.
Disruption and resumption of supply

According to the Ministry of Energy, as of June 7, due to hostilities, a total of 647,300 consumers in 737 settlements were disconnected from electricity supply. During the day, electricity supply was resumed to app. 32,100 consumers.

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

- in the Donetsk region, during the day the DSO specialists restored electricity supply to 11,482 households in 16 settlements of the Pokrovsk, Bakhmut and Kramatorsk districts. A total of 313 settlements were left without electricity (according to the Ministry of Energy - 358,000 consumers), mostly in the Slovyansk, Avdiivka, Maryinka, Toretsk, Bakhmut and Velyka Novosilka districts;
- in the Luhansk region, according to the Ministry of Energy, 128,200 consumers were left without electricity supply;
- in the Kharkiv region, according to the Ministry of Energy, about 73,600 consumers remained without electricity and 4,000 consumers were reconnected. In particular, power supply was restored for the part of Kyivskyi district in Kharkiv, where shell fragments broke an overhead line, which led to the outage of two transformer substations and disconnection of over 400 households;
- in the Zaporizhzha region, according to the local DSO specialists, as of 07:00 on June 8, 25,170 consumers in 83 settlements remained without electricity. During the day, DSO specialists repaired the damage and restored supplies to 2,364 households in the Orikhiv district and 1,208 consumers in the city of Polohy, the villages of Polohy and Voskresenka. At the same time, as a result of fighting, damage was added to the Polohy power grids, with 279 consumers disconnected from electricity supply;
- in the Mykolaiv region, according to the Regional Military Administration, as of June 8, 381 power supply facilities were partially or completely damaged, including 2 in the last 24 hours. The regional branch of the local DSO and a number of transformer substations were damaged, but reconnected the same day. 92 settlements (4 of them partially) of the Bashtanka and Mykolaiv districts remained without electricity supply. According to the Ministry of Energy, supply to 10,100 consumers in the region was restored in the day;
- in the Kherson region, according to the Regional Military Administration, as of 16:00 on June 7, among the communities with contact established, 22 settlements were offline in Vysokopillia community, 7 in Novovorontsovka community, 2 in Muzykivka community, and 1 in Kochubeivka community;
- in the Dnipropetrovsk region, according to the Ministry of Energy, supplies to 4,000 consumers have been restored, in particular in the village of Velyka Kostromka, power grid damaged by shelling has been restored;
- in the Chernihiv region, according to the Regional Military Administration, as of 06:00 on June 8, 1,479 consumers in 7 settlements did not receive electricity supply service;
- there was no up-to-date consolidated information on power supply in the Sumy and Odesa regions at the time of the review preparation.

Gas Sector:

As of June 6, the gas transit through the territory of Ukraine almost didn’t change as compared to the previous day and amounted to 40.2 mcm. These volumes were only 37% of 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 2.2 mcm. At the same time, part of these volumes may be a transit from Poland to Hungary via Ukraine, as on June 6, on Ukraine's gas system exit via the Berehove interconnection point (virtual interconnection point "Bereg") 1.2 mcm of gas was shipped. The General Director of GTSOU Serhii Makogon reported that, as of June 7, gas transit from Poland to Hungary through the Ukrainian system has reached 3 mcm/day.

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

Source: GTSOU

The Headquarters for Preparation for 2022/2023 Heating Season was established by the government's decision. It is chaired by the Minister for Communities and Territories Development Oleksii Chernyshov. The headquarters is also responsible for facilitating the conclusion of contracts for gas supply between district heating and gas supply companies.

The Prime Minister Denys Shmyhal also announced the main expected indicators of 2022 gas balance: in particular, own production is expected at 16-19 bcm, and consumption - at 21-24 bcm. Accordingly, the required imports volumes could reach 2-5 bcm. At the same time, the Cabinet of Ministers instructed Naftogaz to ensure storage of at least 19 bcm at the beginning of the heating season. Given that, as of early June, 10 bcm of gas have been already stored, the required injection volume is 9 bcm.

Ukraine will need a significant volume of imports to ensure this indicator. According to the CEO of Naftogaz Yuriii Vitrenko, such a need for the next heating season would be 6 bcm; these volumes would cost 8 billion USD in current prices. Speaking at the U.S. Commission on Security and Cooperation in Europe (Helsinki Commission) in Washington, Vitrenko said Ukraine is already working with the U.S. government on commercial routes and financial guarantees to ensure imports. In particular, one of the possible options is using gas in the framework of the lend-lease.

Disruption and resumption of supply

The Donetsk, Luhansk, Zaporizhzhia, Chernihiv, Mykolaiv and Kharkiv regions had the most challenging situation in gas supply. According to the Cabinet of Ministers, as of June 7, 187,000 consumers were left with no gas supply. Supply to 200 consumers was restored during the day.
In the Donetsk region, the situation didn’t change: almost the whole region remained without gas supply due to the main gas pipeline damage. Only 1,900 consumers in 2 settlements had gas supply.

In the Luhansk region, there were no changes in gas supply: it was completely suspended due to hostilities which were deeply destroying the region’s critical infrastructure.

In the Kharkiv region, the local DSO specialists restored gas supply to 1,600 households in the Chuhuiv district. Repairs also continued in the Derhachi community (the village of Mala Danylivka and the city of Derhachi). Gas distribution was restored to 7,000 househoulds in the regional center. Underground and overhead gas pipelines were inspected, and holes from shell fragments welded during the restoration works. In addition, emergency crews have restored stable gas supply to many residents in the Shevchenkivskyi district of Kharkiv after recent enemy strikes.

In the Zaporizhzhia region, as of the morning of June 8, the situation with gas supply became worse: 81,160 consumers in 106 settlements were left without gas supply. The day before, in the village of Tavriyske, a medium-pressure underground gas pipeline was damaged by shelling. At the same time, damage caused earlier by shelling to low-pressure gas distribution pipelines was eliminated in the city of Zaporizhzhia. In addition, in the city of Orikhiv, distribution and supply low-pressure pipelines damaged by yesterday’s shelling were restored.

In the Kherson region, as of 17:00 on June 7, there was no information regarding any significant change as compared to the previous day: 1 community (Vysokopillia) has completely remained without gas supply and 3 communities (Velyka Oleksandrivka, Novovorontsovka, Stanislav) partially. However, there is no mobile connection in some of these communities, so there is no up-to-date information on gas supply. LPG reserves were running out in 4 communities (Tyahyn, Hornostaivka, Velyka Lepetykha and Rubanivka); in the Novoraysk community, LPG supply had run out.

In the Mykolaiv region, as of June 8, the situation almost did not change: 592 (+2) gas infrastructure facilities were destroyed or damaged for the whole period of the war (no change vs the previous day), and 6,740 (+87) consumers were left without gas supply.

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

Countermeasures of Ukrainian Companies and Public Authorities

President Volodymyr Zelensky promised to Ukrainians in a video address to keep tariffs on gas and electricity stable, as well as tariffs on heat and hot water next winter. According to him, the government was tasked to do everything possible to ensure that gas and electricity tariffs do not change in the next heating season. Invariability of tariffs for heat and hot water must also be ensured at the local level.

The government set up a Headquarters to prepare for the autumn-winter period of 2022/23 under the leadership of Minister for Communities and Territories Development Oleksiy Chernyshov. The tasks of the Headquarters are to balance the energy system, to carry out repairs, and to respond quickly. Representatives of local authorities, heat suppliers, the regulatory authority and Naftogaz are involved into the work of the Headquarter. Specialists have already formed the first forecasted needs for gas, coal and repair works.

The Cabinet of Ministers also instructed Naftogaz to ensure that at least 19 bcm of gas are available in storages at the beginning of the heating season, and the Ministry of Energy was tasked to increase coal reserves in the warehouses of TPPs and CHPs to 2-3 mln tons. According to the Prime Minister
Denys Shmygal, coal production by state-owned mines has fallen by about a third due to the occupation of some facilities.

At its meeting on June 7, the NEURC adopted a number of decisions, including:

- approval and publication for comments of the draft amendments to the licensing conditions for the electricity and natural gas markets concerning possibilities and conditions for implementing activities of energy storage;
- postponement of the need to bring the connections in line with the requirements of the Distribution Systems Code until the end of martial law for temporarily connected electrical installations;
- approval and publication for comments of the draft amendments to the Resolution №1175 on the procedure of applying electricity distribution tariffs for energy storage facilities;
- changes in the calculation of the projected purchase electricity price by USS for the supply of small non-household consumers, which should be purchased at BCM (10% of actual consumption instead of 50%);
- approval of draft amendments to the procedure for the formation of DSO compliance programs to ensure the separation of energy storage activities; changes to the procedure for collecting and transmitting data for publication on the ENTSO-E transparency platform;
- approval of a draft amendment to include licensees of energy storage activities to the ones paying regulatory contributions;
- approval of the Investment Program of Ukrenergo for 2022.

The State Border Guard Service announced a special access regime for fuel trucks: such vehicles will be given priority in crossing the border, including the allocation of additional lanes for traffic. "Green corridors" for trucks transporting fuel have been agreed with neighboring countries. It is noted that such a process will help solve the problem of fuel shortage in Ukraine faster.

The State Service on Food Safety and Consumer Protection announced the completion of 56 inspections of petroleum stations in Kyiv. As a result, a number of violations were recorded at 36 stations. It is noted that the violators received unreasonable proceeds totaling UAH 707,000. Another 27 inspections are currently underway.

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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