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# The second unit of the Belarusian Nuclear Power Plant goes online

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On 13 May the Belarusian Ministry of Energy announced that the second unit of the Belarusian Nuclear Power Plant (BNPP) had been connected to the Belarusian electricity grid. It uses a VVER type reactor manufactured by Rosatom. The power plant is located in Astravyets in Hrodna oblast, 20 km from the Lithuanian border and 50 km from Vilnius. However, Lithuania was not officially notified of this development. The connection to the grid of the BNPP's second unit will not affect Lithuania's electricity generation system, nor would its potential disconnection have any consequences. Only physical flows of electricity between Lithuania and Belarus is possible (around 200 MW). At present the unit is generating 50% of its design capacity, which is 1200 MW. Plans have been made to raise this to 100% following a test of its commercial operation, during which technological systems and devices will be tested in various work modes, including in the event of the unit's disconnection from the grid. The launch of commercial electricity generation in the second unit is scheduled for October 2023.

The BNPP's first unit, with a similar capacity and using the same reactor type, was connected to the Belarusian grid in August 2020, and its commercial operation started in June 2021. According to official data, at present this unit is generating 100% of its design capacity. Russia and Belarus decided to build this nuclear power plant back in 2008. The investment was intended to diversify Belarus's energy sources: at that time more than 90% of that country's electricity was generated using natural gas imported from Russia. The Russian Atomstroyexport company was selected as the BNPP's general contractor, and the cost of the facility's construction was funded from a $10 billion loan that Russia had granted to Belarus back in 2011.

In line with Minsk's plans, the power plant's expected total capacity (in both units) is 18.5 TWh annually (around 40% of Belarus's electricity demand), which will enable Belarus to reduce its natural gas consumption by 4.5 bmc. Despite several pauses in its operation, between autumn 2020 and May 2023 the first unit generated 14.6 TWh (according to official figures), which enabled Belarus to reduce its gas imports by 3.8 bcm. On 20 May 2023, Belarus's minister of energy Viktar Karankevich announced that he had not ruled out further expansion of the power plant to add another unit. In this context, Minsk is hoping to be able to sell electricity on the Russian market as of 2024 and to increase domestic electricity consumption, for example by boosting the production of electric cars and encouraging Belarusian citizens to instal electric heating systems in newly-built residential buildings.

**Commentary**

- The construction of the nuclear power plant has enabled Belarus to achieve its initially assumed goals, albeit to only a certain degree. Since the first unit was launched, Belarus has managed to reduce its consumption of Russian gas by almost 4 bcm. However, this has not reduced Belarus's energy dependence on Russia, but has only changed the structure of this dependence, as Belarus is still buying nuclear fuel from Russia to run this plant. In addition, Belarus has still not yet met its annual consumption reduction target. Two further problems remain unsolved. These involve the significant electricity surplus which will emerge when both units begin commercial electricity generation, and the emergency power reserve which is required for such a large nuclear facility. According to initial plans, Lithuania was expected to provide Belarus with this reserve. However, due to the crisis on Belarus's border with Lithuania and Poland triggered by Alyaksandr Lukashenka in 2021, Lithuanian and Belarusian energy companies have ceased to cooperate. The authorities in Minsk were hoping to export the Belarusian electricity surplus mainly to the Baltic states and Poland, as well as to Russia and Ukraine, and back in 2011 the Russian-Belarussian Energoconnect company was incorporated to this end. However, despite its still valid legal status, at present this company is effectively defunct. The plan never materialised due to Lithuania's strong opposition and the pressure it put on Latvia and Estonia, and to Poland's lack of interest in such cooperation. Belarus's complicity in the Russian invasion of Ukraine has also damaged the prospects of it exporting electricity to Ukraine, although it had sold small amounts of electricity to Kyiv in previous years.
- The Baltic states will no longer be physically able to import electricity from Belarus, regardless of where it comes from, once the Baltic grids are synchronised with those of the rest of Europe. Although plans had been made to carry out this process in 2025, Vilnius is now seeking to accelerate them. Similarly, the electricity grid in Kaliningrad oblast is capable of operating as a separate system. At the same time, the Belarusian leadership's official plans regarding electricity exports to Russia have not yet been confirmed by Russia, as Moscow has its own surplus of electricity and has not communicated any intention to buy more.
- Faced with the problem of how to sell its electricity, the Belarusian government has resolved to artificially stimulate domestic demand. It is presenting a narrative of increasing power consumption in the country by boosting the popularity of electric vehicles. However, the idea of developing electric heating systems in residential housing should only be viewed as an attempt to find another way to get rid of the surplus. At present these narratives are just an element of the government's information policy and do not reflect reality (the share of electric cars on the Belarusian automotive market is less than 1%). One way of increasing domestic demand for the electricity produced by the nuclear power plant involves decommissioning Belarusian conventional power plants. At the same time, the modernisation of Belarus's electricity generation infrastructure has been ongoing for several years; this involves replacing gas-fired heat storage boilers with electric heat storage boilers (mainly made in Sweden and Germany).
- The operation of the first unit of the NPP in Astravyets has revealed that Rosatom is unable to ensure the reliability of its nuclear technology, which it promotes worldwide as

a modern solution that meets strict security standards. The numerous pauses in the power plant's operation indicate that it is not free from technical, design and construction faults, for which both Atomstroyproekt and the Belarusian sub-contractors are equally responsible. To justify these pauses, the government representatives have cited the need to carry out planned modernisation and maintenance work. In their statements they repeatedly referred to opinions issued by experts of the International Atomic Energy Agency, who during their mission at the facility in 2021 recognised the Belarusian leadership's efforts to boost the power plant's security, although they still had numerous reservations. However, over the two and a half years that have passed since the launch of the first unit, the combined duration of the pauses in the facility's operation has now exceeded one year. The longest such pause happened in 2022, when practically no energy was generated from April to November. Similarly, the launch of the second unit was delayed due to technical reasons, and the Ministry of Energy has scheduled another planned modernisation of the first unit for Q4 2023. It should therefore be expected that the power plant will remain unable to guarantee stable electricity production.

- The instances of malfunction and the attempts by Minsk and Rosatom to cover them up have been discussed in publicly available reports published in March 2023 by the civilian and military institutions of Lithuanian intelligence (VSD and AOTD). They argue that the technical faults found during the first year of the plant's operation pose a threat to Lithuania. Moreover, it should be expected that similar faults and technical problems may emerge during the operation of the second unit. Lithuania will continue to remind its allies in the EU that the existence of the NPP in Astravyets, which is in the vicinity of its border, poses a serious threat to the EU as a whole and should be viewed as a major challenge. On 29 May 2023, the Lithuanian State Nuclear Power Safety Inspectorate issued another statement demanding that Belarus halt the operation of the NPP in Astravyets due to its failure to undergo all the required stress tests, seismic performance assessments and aircraft impact tests. Vilnius has shared its information regarding this issue with the International Atomic Energy Agency, the European Commission and other international institutions dealing with nuclear power safety.
- As the operation of the NPP in Astravyets cannot be blocked, Lithuania has attempted to boost its own emergency response system. Russia's invasion of Ukraine (in which Belarus is complicit) has increased the EU's understanding of Lithuania's arguments. In 2022, the three Baltic states requested the European Commission to boost the EU member states' preparedness and response to emergency situations. Aside from Russia's military activity and its nuclear threats, Lithuania listed the operation of the NPP in Astravyets as a major threat. Vilnius has been an active participant in debates attended by EC representatives and ministers representing individual EU member states who are responsible for civil security. During these debates, efforts have been made to devise a joint EU response strategy in the context of the increased chemical, biological, radiation and nuclear threats posed by Russia's invasion of Ukraine. Lithuania has proposed increasing the EU's spending on civil security, including the establishment of a special-purpose EU funding facility, or for specific EU member states to earmark funds for this purpose in their budgets.

- Despite its awareness of the technical faults and problems with selling electricity generated by this facility, Moscow views the launch of the second unit of the NPP in Astravyets as necessary for propaganda-related reasons. Moreover, it solidifies Belarus's dependence on Russia in spheres such as technology, energy and finance. Rosatom and its subsidiaries provide Russian-made nuclear technology (including reactors and the related infrastructure construction services) to various countries, alongside installation maintenance services, radioactive waste collection, and uranium fuel delivery and disposal. Moreover, Russia offers assistance in educating researchers and technical specialists as well as legislative counselling to those states which have recently started their development of civilian nuclear energy generation. These activities generate revenue for companies which are linked to the Russian state, which in turn boosts Moscow's international political influence. Despite this, Rosatom has faced increasing competition from other companies, as well as numerous problems with concluding and carrying out its contracts. One example involves its failure to cooperate with Finland, which ceased to collaborate with Rosatom on the construction of the Hanhikivi-1 nuclear power plant, citing Russia's invasion of Ukraine as the reason (earlier, plans had been made to instal a VVER 1200 reactor in this NPP). In response to this move, Rosatom filed a complaint with a court of arbitration, demanding €3 billion in compensation. Lithuania also continues to actively oppose Russia's nuclear technology expansion. In March 2023, Vilnius proposed that the EU impose sanctions on Rosatom, including a ban on cooperating with this company on new investment projects carried out in the EU and on importing enriched uranium from Russia. The Lithuanian proposal excluded Hungary from this ban for up to nine years, and envisaged the introduction of transition periods for those states which had signed contracts for the delivery of Russian-made fuel. This mild variant of sanctions proposed by Vilnius is intended to make their introduction more likely, for example by enabling the EU to avoid a potential veto from Hungary, which is still cooperating with Rosatom on the construction of the NPP in Paks.