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Special Ancillary Services Auctions

UNLOCKED POTENTIAL FOR GRID STABILITY IN UKRAINE

by Olga Gruzhyńska and Igor Piddubnyi

LibMod Policy Paper

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EXECUTIVE SUMMARY

Ukraine's power system entered the full-scale war with a structural shortage of flexibility and a legacy generation mix poorly suited to modern balancing needs. Historically, system flexibility relied on large thermal and hydro assets, while nuclear generation, dominant in both capacity and generation, was designed for baseload operation and cannot be systematically used for daily regulation. Rapid pre-war expansion of intermittent renewables further increased balancing requirements, amplifying system stress and operational complexity for the transmission system operator (TSO) even before 2022.

Russian massive attacks in 2022–2025 sharply worsened this flexibility deficit. Large shares of generation capacity have been damaged, destroyed, or remain under occupation, resulting in persistent shortages of flexible resources as well as high balancing volumes and prices. The TSO has quantified a substantial need for new flexibility, estimating requirements of approximately 1.5 GW of energy storage systems and 1.7 GW of flexible gas-fired capacity by 2030, alongside significant FCR and aFRR reserve needs. While ancillary services have largely been procured without payment arrears, the balancing market has accumulated substantial debts, exceeding €1.25 billion by early December 2025. This has increased financial risks for providers and weakened investment incentives, despite strong nominal revenues. Meeting reconstruction and modernisation needs has required the creation of a bankable procurement mechanism capable of attracting private capital under elevated security concerns and macro-financial and regulatory risks.

Ukraine's standard market framework was not designed to procure new flexibility and has therefore constrained investment in modern assets. Under Market Rules, participation in ancillary services auctions traditionally required existing, commissioned, and certified equipment. In a wartime environment the projects need a procurement mechanism allowing forward contracting, revenue visibility, and credible counterparty conditions to support financing and construction.

The TSO's 2024–2025 special long-term auctions with Euro-linked pricing and delivery deferral, created a bankable pipeline for new projects. Following NEURC-approved amendments to the Market Rules in June 2024, the TSO (Ukrenergo) launched special auctions for FCR and aFRR with five-year contracts and deferral options (introduced in August 2025) to accommodate construction timelines. Auction prices were indexed to the euro (with settlement in UAH based on the NBU exchange rate). Participation required pre-signing contracts and posting guarantee fees and collateral via escrow arrangements, with additional collateral enabling postponement of service starts.

Auction outcomes indicate that the mechanism can deliver both investment mobilisation and cost efficiency through competition. In 2024-2025, private investors commissioned and connected more than 200 MW of battery energy storage systems (BESS), with more than 500 MW expected in 2026. FCR procurement was particularly successful, covering nearly 100% of predicted needs (99 MW) for a five-year term at prices materially below the cap, offering significant savings compared to historic clearing at or near cap. The aFRR coverage improved significantly, but it remains incomplete, requiring further auction rounds and, where necessary, standard annual auctions to address gaps. Euro-linked, long-term revenue guarantees showed their efficiency to support price discovery and reduce risk premiums. As Ukraine's ancillary services market becomes more competitive and participation broadens, average prices can reasonably be expected to move closer to levels observed in comparable European markets.

Sustaining the model requires managing remaining financial and regulatory risks, particularly those linked to payment discipline and market debt. Ancillary services have so far been settled without arrears, despite no structural long-term guarantee that tariff decisions will consistently cover future procurement needs. At the same time, persistent balancing-market arrears adversely affects investor confidence and project economics. Market trust in Ukrenergo as a well-governed, corporatised entity with the capacity to reliably fulfil long-term contractual commitments is essential for sustaining investor confidence and enabling private investment in new flexible capacity during wartime.

Future special auctions should be institutionalised through predictable planning and strengthened credibility safeguards. Further auctions or analogous mechanisms that are aimed at commissioning more flexible capacities should follow a pre-announced, multi-year calendar with sufficient lead time – especially to enable participation by foreign investors who require longer internal approval processes and early financing engagement. Predictable procedures with transparent rules and stable funding arrangements would increase competition, reduce perceived risks, and lower the overall balancing cost in Ukraine’s power system.

Abbreviations

aFRR	automatic frequency restoration reserves
ASM	ancillary services market
BESS	battery energy storage systems
BM	balancing market
CHP	combined heat and power plant
FCR	frequency containment reserves
FRR	frequency restoration reserves
HPP	hydro power plant
NBU	National Bank of Ukraine
NEURC	Energy Regulator – National Energy and Utilities Regulatory Commission
NPP	nuclear power plant
TPP	thermal power plant
TSO	transmission system operator
UES	Ukraine’s energy system

INTRODUCTION

Historically, Ukraine's flexible capacities were represented by conventional large-scale generation. This involved mostly coal-fired thermal power plants built in the 1970s, combined heat and power plants, hydro power plants and hydro pumped-storage plants. Ukraine's nuclear power plants, which prevail both in Ukraine's capacity and generation mix, were designed as a base-load generation. The Ukraine's State Nuclear Regulator¹ prohibited operation of nuclear units in daily dispatch regulation mode, while some units are able to provide limited ancillary services related to frequency regulation after proper certification. Rapid construction of renewable power plants, in particular, solar power plants, in the period preceding the full-scale invasion by Russian troops (24 February 2022) made it challenging for Ukraine's TSO (Ukrenergo) to balance the energy system that has strong seasonality patterns (high electricity consumption during winter and high solar electricity production in summer).

Since 2020, energy reserves have been traded through an **ancillary service market** that was introduced as a specific segment of Ukraine's electricity market (while there is no capacity market in Ukraine). It was not launched together with other market segments in mid-2019 due to delays with certification of providers of ancillary services. Operators of flexible power plants should also be the providers of balancing services to TSO at the balancing market and should play a key role in balancing the Ukraine's energy system. TSO is the operator for both market segments – ASM and BM. It arranges auctions for reserves and balancing electricity, purchases reserves at ASM and issues dispatch instructions resulting in transactions with balancing electricity at BM.

Prior to the full-scale invasion, the ASM was highly concentrated, with participation limited to a small number of operators of large-scale generation assets. The market relied on four main providers of ancillary services: Ukrhydroenergo, which supplied the largest share of FRR; companies within the DTEK Group, providing both FCR and FRR; the operator of the Kharkiv CHP plant, active in both FCR and FRR; and the nuclear operator Energoatom, supplying FCR.

In 2022–2025, Russian attacks damaged or destroyed much of Ukraine's electricity generation capacities. Ukraine's TSO estimates at 52% the total share of available capacity lost in Ukraine's energy system after full-scale invasion with over 22 GW being under Russian occupation since 2014 and over 6 GW, while located at non-occupied territories, remaining damaged due to the war. According to the Ministry of Energy of Ukraine, all thermal and hydro power plants were affected. By the end of October 2025, 86% of TPP available capacity and 65% of HPP available capacity had been lost. Some power plants, for instance, Kakhovka HPP (0.3 GW) and Dnipro HPP (1.5 GW), had been destroyed completely. Even after occupation of the Zaporizhzhia nuclear power plant (6 GW)², base-load NPPs remain the primary source of generation in Ukraine and meet around 50% of electricity demand.

Constant and targeted Russian missile and drone attacks on Ukraine's energy sector resulted in a huge deficit in electricity generation. In this situation, renewable power plants played an important role in helping to make up the deficit: large hydro power plants covered up to 10% with all other renewables (mainly wind and solar) covering about the same percentage. Under such circumstances, Ukraine's government started supporting development of decentralized generation and on-site generation. This supported further development of renewable power plants, while the energy system's balancing issue remained open.

1 State Nuclear Regulatory Inspectorate of Ukraine

2 Zaporizhzhia NPP is the largest nuclear power plant in Europe. It was occupied in March 2022 and is not in operation at the time of writing.

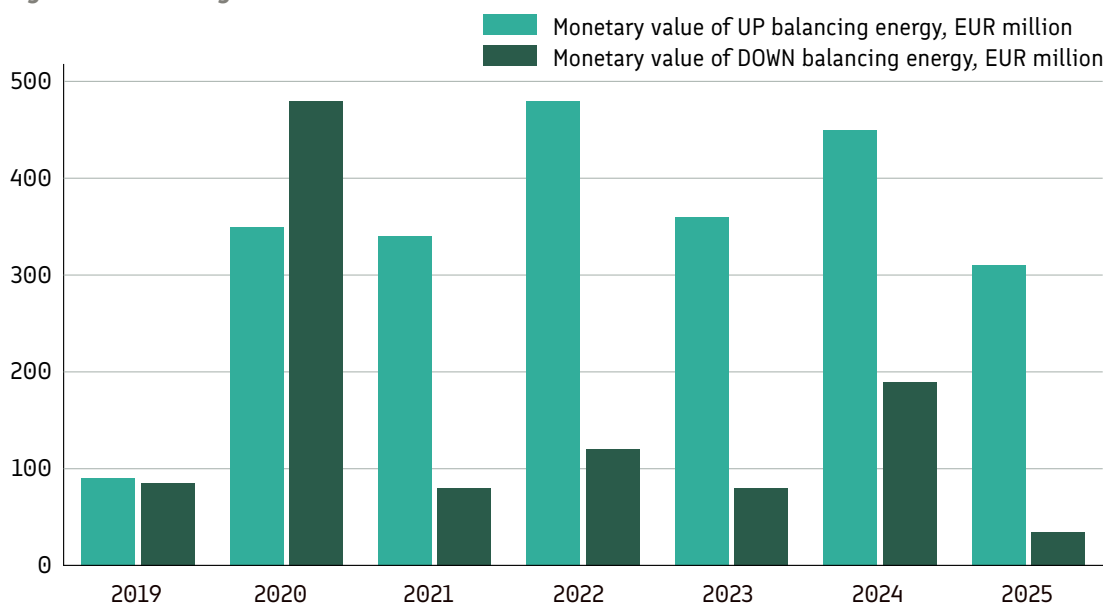
Even before 2022, TSO estimated³ a significant deficit in flexible capacities and a high share of base-load generation in the UES. After Ukrainian power plants and networks were damaged or destroyed, TSO's needs in flexible capacities became more acute than before. Such needs should be covered mostly by new flexible capacities. In the course of 2025, Ukrenergo publicly confirmed the need for 1.5 GW BESS and 1.7 GW of flexible gas-fired power plants by 2030. For the period 2025–2034, the TSO estimated needs of aFRR-up reserves at 1.2 GW and aFRR-down reserves at 0.42 GW.

Ukraine's energy regulatory framework was originally developed with a focus on conventional generation sources from the 20th century, while BESS and natural gas peakers topped the lists of balancing capacities on European electricity markets. Therefore, neither specifics of BESS operations nor European experience in developing ancillary services and capacity markets were fully considered when Ukraine's national regulations were formulated. In line with national Market Rules, potential providers of ancillary services could declare only existing and properly certified equipment for services provision.

Ukraine faced challenges to **encourage private investments in Ukraine's energy sector and specifically for the construction of new flexible BESS and gas peaking facilities during the war. Nevertheless, major progress was achieved in 2024–2025.**

Despite a sharp decline in electricity demand and the destruction of a large share of generation capacity during the full-scale war, the monetary value of balancing energy transactions remained high in 2022–2024. This points to persistent system stress and a structural shortage of flexible resources rather than a temporary imbalance. While ancillary services were largely procured at or near regulatory price caps and have been settled without payment arrears, balancing energy prices reflected tight market conditions under supply constraints. At the same time, the accumulation of payment arrears in the balancing market, which exceeded EUR 1.25 billion as of early December 2025, has amplified financial risks for service providers, weakening the investment signal despite strong nominal revenues.⁴

Figure 1. Balancing Market Results



Source: own representation based on TSO data

³ TSO's Generation Adequacy Report for 2020 approved by NEURC Resolution, 16 June 2021 No. 975, Draft TSO's Generation Adequacy Report for 2021. After the full-scale invasion, TSO closed access to Generation Adequacy Reports for the period of wartime.

⁴ https://ua.energy/uchasnikam_rinku/rezultaty-balansuyuchogo-rynku-2/#1664548377465-2f07a299-7771

Against the backdrop of substantial reserve needs, wartime uncertainty, and persistent debt problems in the electricity market, Ukraine's TSO turned to the use of dedicated ancillary services auctions. Ukrenergo announced and successfully conducted several such auctions, under which it committed to the long-term procurement of ancillary services for a period of 5 years. In 2025, private investors commissioned the first **200+ MW of BESS** and connected them to UES, while total commissioned BESS capacity

was expected to reach **around 500 MW by the end of 2025**.

This paper describes the core framework of special ancillary services auctions, analyses their results, and reviews the first operational outcomes of commissioned capacities. It also formulates recommendations regarding the future role of such auctions and possible avenues for improving their design.

REGULATORY FRAMEWORK FOR SPECIAL TSO AUCTIONS FOR ANCILLARY SERVICES

Although Ukraine's electricity legislation is grounded on and sufficiently complies with the EU Third Energy Package, its electricity market model continues to suffer from excessive state interference and retains some elements of manual state regulation. Among other things, the Energy Regulator applies price caps for transactions in all organized electricity market segments as a convenient pricing mechanism to 'regulate' or limit prices on both the wholesale and retail markets. Market participants should submit their bids within the range of prices caps for both BM and ASM where transactions related to FCR, FRR and balancing electricity are made.

After ASM was launched, price caps were supposed to be valid until synchronization of UES with ENTSO-E and were subject to annual revision. Despite successful earlier completion

of synchronization of UES with ENTSO-E in December 2022, price caps for ancillary services remained the same in UAH equivalent as they were in the spring of 2022. At the same time, the Energy Regulator revised price caps for the balancing electricity several times.

The TSO is sole buyer of ancillary services and selects their providers through auctions in accordance with procedure specified in the Market Rules. TSO publishes a schedule for auctions and needs in different types of reserves at its website <https://ua.energy/>. Before mid-2024, it was possible to conduct solely standard auctions on ancillary services (annual, quarterly, monthly, weekly and daily) and only operators of the commissioned power facilities had a right to take part in the auctions. However, no annual auctions have been announced by TSO.

Table 1. Prices Caps for Ancillary Services

Type of ancillary services	Price caps, without VAT			
	UAH per MW	EUR per MW ⁵		
		24 Feb 2022	1 Sep 2024	1 Dec 2025
FCR	1339.82	40.4	29.3	27.4
automatic FRR (symmetric product)	1339.82	40.4	29.3	27.4
automatic FRR (up)	973.39	29.3	21.3	19.9
automatic FRR (down)	366.43	11.0	8.0	7.5
manual FRR (up)	438.02	13.2	9.6	9.0
manual FRR (down)	164.89	5.0	3.6	3.4
RR (up)	389.36	11.7	8.5	8.0
RR (down)	146.57	4.4	3.2	3.0

5 Converted at official EUR/UAH exchange rate

Source: NEURC, own calculations

For standard auctions, price caps and auction prices for all types of reserves are nominated in UAH per MW, without conversion to EUR equivalents. Historically, auction prices at standard auctions were equal to or close to price caps. Balancing electricity resulting from provision of FRR was sold at BM.

In 2024, EUR equivalents of both Ukraine's FCR price (~30 EUR/MW) and FRR prices (~20 EUR/MW for FRR-up and ~8 EUR/MW for FRR-down) were higher than average prices in many European countries. It was considered as an incentive for attracting foreign investors.

In order to facilitate construction of new flexible capacities and cover a huge deficit in reserves, Ukraine's TSO initiated reforms in ASM through amendments to the Market Rules.

The idea was to introduce **special auctions for ancillary services for up to 5 years** with potential deferral of the start of service provision for up to 3 years (time needed to build flexible facilities). The TSO should have a right to define the exact period of delay in starting service provision. The special auctions should be applied to FCR and aFRR services only. **The auction price should be converted to EUR equivalent** based on the official NBU currency exchange rate with re-conversion to UAH for actual payments for services provided. Such a bold pricing approach should improve bankability of new BESS and flexible generation projects.

On 26 June 2024, after consultations and public hearings with the TSO and potential investors, the Energy Regulator approved relevant amendments to the Market Rules to introduce **special auctions for ancillary services**. For standard auctions (daily, weekly, monthly or annual) both the requirements on the commissioning of facilities prior to auctions (e.g. only commissioned and certified facilities can bid) and price fixation without link to EUR exchange rate remained in force.

In July 2024, the TSO published details of the first special auctions for FCR and FRR ancillary services, which were held in August 2024. Subsequent special auctions for FRR ancillary services were held in December 2024 and May 2025.

According to the new procedure, two categories of entities were able to take part in the special auctions:

1. existing providers of ancillary services bidding for units which have already been certified, and/or units to be constructed in the future.
2. potential providers of ancillary services bidding for the potential units to be constructed.

Prior to participation in the special auction, the bidder had to:

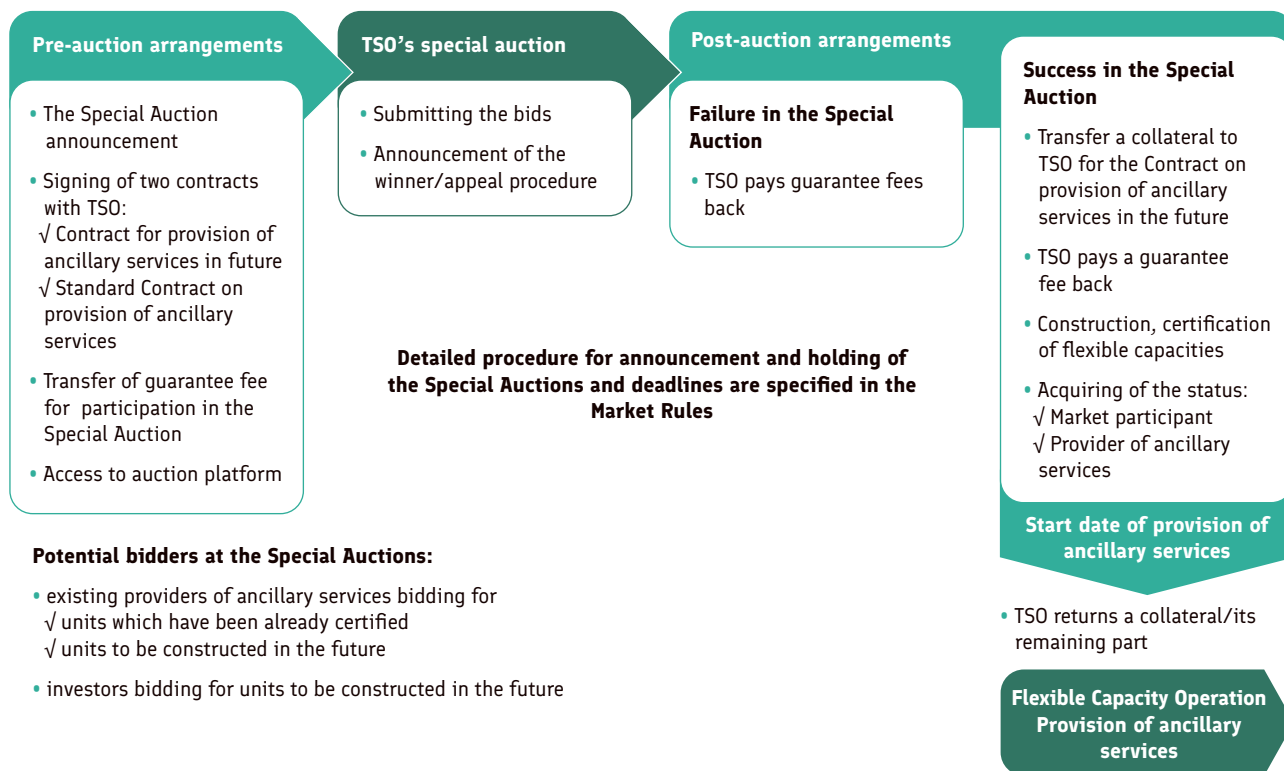
- **sign two contracts with the TSO**⁶:
 - the Contract for provision of ancillary services in future,
 - the Standard Contract on provision of ancillary services with a delay in service provision, and
- **transfer the guarantee fee** in UAH being equivalent of EUR 5 000 per each potential unit either to the TSO's own bank account or the escrow account opened in the Ukrainian bank specified by the TSO. The TSO returns the guarantee fee to the winner after the winner provides collateral for the Contract for provision of ancillary services in the future, and to all other bidders – after the auction results have been published or the appeal procedure is completed.

After a potential bidder successfully transferred the guarantee fee, the TSO provided access to the auction platform.

⁶ The TSO has the right to refuse the signing of the contracts and should provide a justification for such refusal

Figure 2. Prices Caps for Ancillary Services

Source: IMEPOWER



The Contract for provision of ancillary services in the future is signed for each potential unit. A template of the Contract was drafted by the TSO in line with essential provisions approved by the Energy Regulator, and published on the TSO's official website. A Contracting Party may be replaced only upon agreement with the other party (Ukrenergo).

A bidder who is an existing provider of ancillary services does not need to sign the Contract for provision of ancillary services in the future.

A template of the **Standard Contract for provision of ancillary services** was approved by the Energy Regulator, who has sole right to amend its provisions. The Standard Contract is the same for ordinary short-term auctions (hourly, daily, weekly, etc.) and for special long-term auctions, for both existing and potential providers of ancillary services. However, the Standard Contract will be activated for the winner of the special auction after:

- the facility has been commissioned and successfully certified,
- the provider signed all required contracts for participation in the electricity market and was added into relevant market registers.

While the Market Rules and the Standard Contract are focused on specifics for conventional balancing capacities (TPPs, CHPs and HPP), best international experience was not fully taken into account. For instance, there are no provisions related to the need to restore the energy capacity for BESS after it has been activated and has worked the required interval. The Standard Contract envisages common penalties procedure to protect the TSO from non-payments and improper provision of the ancillary services. However, such procedure does not ensure proper TSO payments to service providers for ancillary services and balancing electricity. Moreover, in accordance with the Energy Regulator's decision made in February 2022, during wartime no penalties are accrued and collected by market participants within contracts made at the electricity market in line with the Electricity Market Law.

The winner of the special auction is obliged to provide **collateral for the Contract on provision of ancillary services in the future**. Its amount equals to an equivalent of EUR 30 000 for each MW of maximum capacity that will be provided in line with the special auction's results. A collateral is transferred in UAH terms to the winner's escrow account

opened in the Ukrainian bank specified by the TSO. The conversion is based on the official currency exchange rate set by the NBU. The payment should be made within 30 days after results of the special auction are published or appeal procedure is completed. No banking guarantee can be used as collateral.

The TSO will return the collateral or its remaining part to the winner upon request, but not early than 10 days after the start date of the ancillary service provision. Significant funds will be frozen in Ukrainian banks for the period needed for construction, commissioning and certification of the facilities.

The TSO withholds the collateral if the winner fails to meet requirements and deadlines specified by the Energy Regulator:

- technical characteristics of the equipment of the potential unit should be in line with volumes and type of ancillary services sold at the special auction. **Facility should be properly commissioned and certified.**
- **the winner acquires the status of the provider of ancillary services** in the context of the potential unit. It means that it should sign all required contracts for participation in the electricity market, obtain the license (if required), and should be included into relevant market registers.

The winner is obliged to complete such actions not later than 10 days prior to the start of the ancillary services provision. Initially, the deadline was 45 days prior to the start date. However, after discussions with the TSO, winners of special auctions and other stakeholders, the period was reduced in July 2025. The new deadline provides more time for TSO and auction winners, while certification and success in some other procedures vastly depends on the TSO's actions and good will.

In addition to the deadline's extension, winners of the special auction were granted the right to postpone the start date of ancillary services provision by 1, 2, 3 or 4 months by providing an extra 20% of collateral and signing (before the original deadline) relevant additional agreement to the Contract for provision of ancillary services in the future. After that, TSO withholds the collateral partially or in full depending on the period of postponement of ancillary services provision, or 25% of total collateral (i.e. increased by 20%) if the period of postponement is 1 month, 50% – 2 months, 75% – 3 months and 100% – 4 months. During the period of postponement, the TSO has a right to announce standard auctions only to cover its relevant needs in reserves. Relevant amendments to the Market Rules came into force at the end of July 2025. Since then, 13 winners with over 100 MW of facilities have used their rights to postpone the start date of provision of ancillary services.

If the winner has signed several contracts for provision of ancillary services in the future, it has a right to combine/aggregate them into one contract. Aggregation/combining could be applied to contracts for potential units for which bids were accepted at the same special auction and for the same period of ancillary service provision. Such an opportunity became possible at the end of November 2025 after consultations between the TSO, winners of special auctions and the Energy Regulator. To combine the contracts into one, the winner should sign an additional agreement with the TSO amending one of the contracts and terminating other contracts, ensure availability of proper collateral for all contracts combined. Additional agreement could be signed no later than the deadline for commissioning and certification of the facility and acquiring status of the provider of ancillary services in the context of the potential unit.

After the special auction is completed, **the auction price should be converted to EUR equivalent** based on the official NBU currency exchange rate.⁷ While payments within Ukraine between Ukrainian entities have to be made in local currency only, the price for ancillary services will be further converted from EUR equivalent to UAH in line with the official currency exchange rate.⁸

After the special auction, the TSO monitors progress in project implementation. If there are grounds for potential breach of the deadlines by the winner or postponement of the start date of ancillary services provision, the TSO has a right to offer a respective volume of ancillary services at subsequent auctions.

The new regulatory framework for special auctions for ancillary services as well as terms and conditions for provision of ancillary services differ significantly from standard auctions.

Table 2. Terms and Conditions for Ancillary Services Auctions

Terms and conditions	Standard auctions	Special auctions
Period of ancillary service delivery	Depending on the auction (annual, quarterly, monthly, weekly, daily).	1-5 years with potential deferral of the start of service provision for up to 3 years (to build respective facility).
Requirements to the status of provider of ancillary services and certification of equipment to be used for provision of ancillary services	Required for participation in the auction.	Is not required for participation in the auction, but required prior to the official start of provision of ancillary services.
Price for ancillary services	Defined at the auction and based on price caps.	Defined at the auction and based on price caps.
Currency to which auction price is linked for further payments for ancillary services	UAH	EUR
Collateral	Not applicable	Applicable
Annual maintenance allowance during the period of a contract for provision of ancillary services without penalties	Not envisaged	Possible, subject to prior arrangements with the TSO. Payments for ancillary services are not made for such a period.
Whether any other contract than the contract for provision of ancillary services to be concluded	No	Contract on provision of ancillary services in the future to be signed with the TSO. TSO specified the template of the contract.
Monitoring on provision of ancillary services	Applicable	Applicable
Transfer liabilities on provision of ancillary services to another provider of ancillary services and between facilities owned/managed by the provider	Applicable (except for daily auctions) since December 2025.	Applicable since December 2025

Source: NEURC, own calculations

⁷ average for the month in which the auction took place

⁸ average for the month of service provision

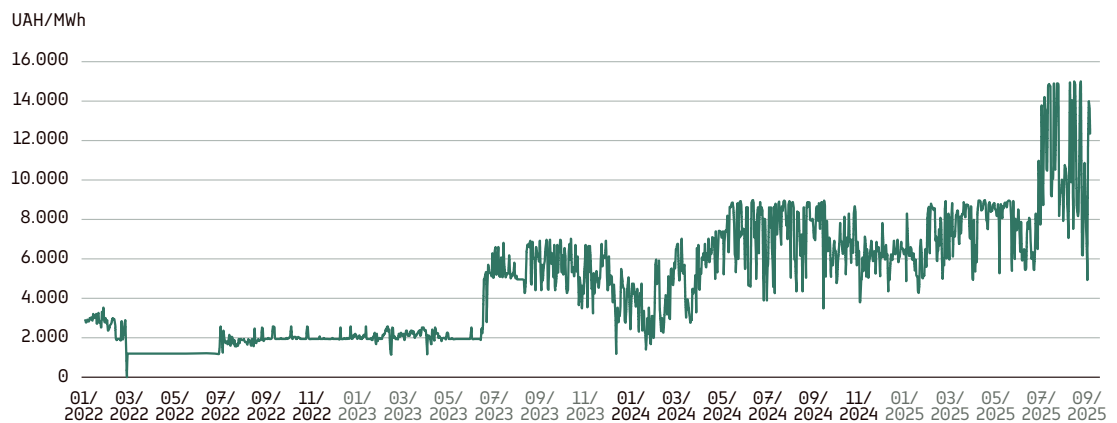
RESULTS OF FIRST SPECIAL AUCTIONS FOR ANCILLARY SERVICES

The initial special auction for FCR successfully secured nearly all of TSO’s declared requirements (99 MW) starting October 2025 for a 5-year term at prices well below the FCR price caps. Only two minor bids were not guaranteed, ensuring full coverage of TSO’s needs. This was further supported by a slight reduction in FCR demand for 2026, from 99 MW to 95 MW.⁹ All 11 winning bidders were local companies, most of which are newly established SPVs backed by domestic investors. Given the persistent trend of actual FCR prices remaining at the price-cap level prior to the launch of the special auctions (around **€27/MW as of December 2025**), the introduction of competitive **procurement delivered potential cost savings of up to 50%** for FCR services for the auctioned 5-year services provision, equivalent to approximately **EUR 67 million**.

The fact that the weighted-average prices achieved in the special auction rounds were below the applicable price caps further confirms the effectiveness of the policy. **Increased competition generated cost savings** in procurement while simultaneously enabling the development of additional flexible capacity.

At the same time, TSO’s aFRR requirements remain partially uncovered, prompting new rounds of special auctions or further standard auctions for short-term services purchase. Key winners include UkrHydroEnergo, DTEK Renewables, and KNESS, along with other local investors such as Zakhidnadraseriv Group, OKKO, and VIB Assets. By November 2025, approximately 70% of aFRR needs were covered through special auctions. Additionally, in October 2025, BESS operators offered 155 MW of capacity for aFRR services. This was partly driven by improved conditions for BESS to capture value from day-ahead price arbitrage on the spot electricity market.

Figure 3. Maximum Daily Spread on Day-ahead Electricity Market, UAH/MWh



Source: own representation based on Market Operator’s data

The TSO confirmed the acquisition of 788 MW of flexible capacity through all special auctions to support system balancing. Despite an extensive promotional campaign by Ukrenergo’s management in 2024, international investors refrained from participating, citing significant risks related to unclear ancillary service rules, procedural issues, and outstanding debts in the balancing market.

⁹ Needs in reserves for 2026 have been already published at TSO’s official website: <https://ua.energy/wp-content/uploads/2025/10/Vymogy-do-rezerviv-2026.pdf>

Table 3. Results of TSO's Special Auctions for Ancillary Services

	Auctioned, MW	Cleared, MW	Confirmed, MW	Remaining, MW	Min price, EUR/MW	Max price, EUR/MW	Avg price, EUR/MW
1st Auction – 15 Aug 2024							
FCR-sym	99	99	99	–	13.0	22.1	15.5
2nd Auction – 22 Aug 2024							
aFRR-sym	421	260	210	211	23.2	29.4	n/a
aFRR-up	579	240	187	392	10.7	21.4	n/a
3rd Auction – 24 Dec 2024							
aFRR-sym	201-252	98	30	181	n/a	n/a	28.9
aFRR-up	472-555	5	–	392	n/a	n/a	–
4th Auction – 27 May 2025							
aFRR-sym	176-230	249	236	n/a	n/a	n/a	16.8
aFRR-up	472-550			n/a	n/a	n/a	20.3
Total							
FCR+FRR	1099	951	762¹⁰	337	n/m	n/m	n/m

Source: Ukrenergo, own estimates

A significant number of winning bidders also used the option introduced by Ukrenergo and the Energy Regulator to postpone the start of service delivery by up to 4 months, provided that the participant increased its financial security by 20%. Among the winners of the symmetric FRR auction, 6 out of 14 participants requested a deferral, most of them for the full 4-month period. A similar pattern was observed in the FRR up segment, where 7 out of 24 winning bidders applied for a postponement. It is important that such flexibility options were embedded in the design of similar mechanisms ex ante, allowing investors to factor more adaptable delivery timelines into their project planning and investment decisions.

As of early **November 2025**, at least **269 MW of additional flexible capacity** had been certified in Ukraine's power system, including **147 MW for FCR and 269 MW for symmetric FRR**.¹¹ The majority of these installations consist of BESS, while around 25 MW are attributable to gas-fired reciprocating engine units. Since total certified FCR capacity exceeds the 99 MW allocated through auctions, it is likely that other market participants outside the auctions are certified for FCR, or that some aFRR winners hold dual certification.

Reserve requirements for 2025 remained unchanged from 2024:

- **FCR:** 99 MW
- **FRR (up):** 1,000 MW
- **FRR (down):** 421 MW
- **RR (up):** 1,000 MW
- **RR (down):** 500 MW

¹⁰ The assessed FCR+FRR capacity in this table is based on publicly available data. However, according to Ukrenergo's published figures, the total contracted FCR and FRR capacity for the same period is slightly higher and amounts to 788 MW.

¹¹ According to the Ukrenergo's data received upon request.

CONCLUSIONS

Despite the wartime environment, Ukraine has been successful in attracting targeted private investment into modern flexible capacities for balancing the energy system. In 2024–2025, private investors commissioned and connected more than 200 MW of BESS to the grid. An additional 500+ MW of BESS is expected to be commissioned in 2026. This progress was driven primarily by the initiative of the TSO, regulatory support from the NEURC, and the willingness of domestic investors and experienced market participants to shoulder elevated risks. It would not have been possible without an extensive outreach and promotion campaign led by Ukrenergo's top management in 2024, which culminated in designing special auctions and subsequent amendments to the regulatory framework, in particular to the Market Rules.

Despite success of the first special auctions for ancillary services covering 100% in FCR needs and around 70% in aFRR needs, there are still opportunities for other market participants to provide ancillary services:

- to cover TSO's needs in reserves during maintenance period (for scheduled/emergency repairs) when winners of special auctions stop their operation. The TSO can cover such needs via standard auctions for ancillary service provision.
- If the next special auctions do not bring success in the situation when the winners of previous special auctions face complications. For instance:
 - significant delays with payments from the TSO for balancing electricity have not yet been addressed,
 - the TSO has already initiated substantial changes in operation of Ukraine's balancing market in the context of auctions on aFRR balancing electricity and the winners of special auctions would be affected,
 - unreliable TSO's payment discipline for ancillary services.

It is important to note that the TSO's expenses for purchase of ancillary services are reimbursed through dispatch tariff, which is subject to the NEURC's approval on an annual basis. As of now, there are no debts from the TSO to the providers of ancillary services. It was achieved in 2024 due to targeted financial support from IFIs to the TSO for repayment of historical debts and sufficient funds approved in TSO dispatch tariff for 2023-2025.

Existing regulatory framework does not contain long-term guarantees that the Energy Regulator would always approve sufficient funding of TSO's expenses through dispatch tariff.

– When TSO's needs in reserves increase further.

The experience of recent special-purpose auctions demonstrates the effectiveness of several policy-design instruments in stimulating investment in BESS and flexible generation:

- **Provision of long-term, guaranteed offtake arrangements**, under which **payment discipline is credibly preserved** (notably within ASM), has proven critical in wartime conditions. This has enabled projects to reach financial closure by offering lenders and investors a clear financial model with stable revenues.
- **Denomination of service payments in EUR**, which is particularly important in a context of macro-financial volatility, significantly reduces currency risk and improves investment predictability.
- **Flexibility to defer the start of service provision**, allowing investors to optimise construction schedules and financing structures. The possibility of additional 4-month deferral was introduced only after the initial auction rounds. It is likely that if it had been embedded in auction design from the outset this would have maximised participation of investors and competition.
- **Market trust in the TSO (Ukrenergo)** as a well-governed entity capable of honouring long-term contractual obligations. Institutional credibility has emerged as a decisive, though often underestimated, success factor.

Importantly, the results of the special auctions held by the TSO in 2024-2025 also indicate clear **potential for price reductions when revenues are linked to EUR and secured on a long-term basis**. As Ukraine's ASM evolves into a more competitive segment, average prices can reasonably be expected to converge towards levels observed in comparable European markets. This demonstrates that appropriately designed auction mechanisms can simultaneously attract investment, mitigate risk, and deliver cost efficiency over time.

Looking ahead, any further special-purpose auctions in ASM – or analogous auction-based support mechanisms – should be conducted on the basis of a **pre-announced, multi-year schedule, with sufficient lead time for preparation**. This is particularly important for foreign investors, who typically require longer internal approval processes and early engagement with financiers. Clear timelines and predictable auction calendars would allow market participants to prepare projects and make investment decisions in advance and, where relevant, to secure external financing at an early stage. This, in turn, would increase competition, reduce perceived risks, and lower the overall cost of system flexibility and new capacity for the Ukrainian energy system.



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