

# ANNUAL REPORT

BRAVERY TO THINK ABOUT TOMORROW

# 2022



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## OPENING SPEECH OF THE GENERAL DIRECTOR OF JSC "MARKET OPERATOR" OLEKSANDR HAVVA

165,666.8 MWh was purchased on the spot electricity market of Ukraine - the day-ahead market, on February 23, 2022. This is the usual average daily volume of electricity trading in this segment of the market, which suggests that Ukrainian businesses did not believe until 4 a.m. of that terrible Thursday that Russia would attack peaceful Ukraine without any reason.

The "Market Operator", which is responsible for organizing the purchase and sale of electricity on the day-ahead market and the intraday market, has adapted to work in war conditions from the first day of the attack.

The IT Department has mobilized its efforts to counter cyber threats and DoS attacks. Employees of the Trading Operations Department were put on round-the-clock duty to quickly respond to problems. Those employees who are not involved in the direct production process voluntarily joined the Armed Forces of Ukraine and the volunteer movement.

The first three days were unstable for DAM and IDM. There was price volatility and a significant decline in trading volume. The peak occurred on February 27 - the price index of basic load electricity for DAM in the IPS of Ukraine decreased to UAH 988.76/MWh, the daily trading volume fell to a record low of 22,8 thousand MWh. By coincidence, since February 24, the energy system of Ukraine has started its operating in isolated operation mode from the energy system of the invaders.

The NCSREPU (National Commission for State Regulation of Energy and Public Utilities) was forced to respond instantly. It was decided to raise the minimum price caps on DAM and leave the current price caps for IDM. This made it possible to stabilize the situation on the spot market and support electricity producers in wartime. The basic load electricity price index for the DAM in the IPS of Ukraine during the whole of March, with the exception of one day, was kept at the level of 2223.82 UAH/MWh.

During the first eight days of March, trading volumes on the day-ahead market were at a relatively high level - the average daily value was 49 thousand MWh. However, since March 9, trading volumes began to fall and within the period from March 9 to March 16 inclusively, the average daily value did not exceed 28 thousand MWh. Since March 17, trading volumes have started to

grow gradually - an average of 38.2 thousand MWh of electricity was emphasized every day until the end of the month. That, in our opinion, showed the activation of business operations and its bravery and its to think about tomorrow. The business also appreciated the advantage of DAM - to come sell and receive 100% payment on the same day.

The demand for electricity purchases on the DAM increased by 46.7% and the average daily trading volume reached the level of 25,727.3 MWh in the third quarter. Trading volumes at the "Market Operator" platform doubled in the fourth quarter, and the determination of Ukrainian businesses to work despite the weekly shelling of the state's energy infrastructure became a manifesto of power engineers against this war.

The "Market Operator" had the bravery to think about tomorrow. We have joined the Committee of European market operators - NEMO Committee - as an observer of the work of the United spot electricity market of the EU. All nominated market operators (NEMO), as well as all transmission system operators (TSO) in European countries, agreed to this.

The NEMO observer status allows JSC "Market Operator" to start technical training for the unification of spot markets of Ukraine and Europe, which could begin as early as the second quarter of 2023 in a test mode, and to study the work of SDAC and SIDC EUROPE in more detail.

Also, at the end of the corporatization of the "Market Operator", we received a Supervisory board, which includes Lina Masiulienė, a representative of the management of the Scandinavian Exchange Nord Pool, and Lukasz Dziekonski, a well-known investment banker in Poland. This opens up new development prospects for the company, both related to the European integration processes of Ukraine and the development of the domestic electricity market.

Therefore, with faith in the victory of Ukraine in 2023 and optimism, we start the New Year of JSC "Market Operator". Hardened by the challenges of 2022, we have many ambitious plans and are not going to stop there. Good luck to us.

## ABOUT JSC “MARKET OPERATOR”: MANAGEMENT AND BUSINESS PROCESSES

JSC “Market Operator” performs an important mission in the state - ensuring energy security in the state through the effective functioning of the day-ahead market and the intraday market.

We work 24/7 to meet the electricity needs of business. We provide instant 100% payments between those who sold and those who bought electricity, which makes it impossible for arrears to appear in these segments of the electricity market. We provide an opportunity for companies that sell and buy electricity on our site to minimize unbalances, and thus reduce their expenses.

We work on the principle of the European exchange, which promotes competition and reduces the price of electricity. We consider ourselves architects of the future of the Ukrainian electric power industry, because Market Operator is the first and only energy company that has implemented and makes payments through the escrow accounts. And we are the first ones having a payment system that works on weekends.

We are part of the European integration process of Ukraine, from the first day of operation we work according to the standards of European market operators and are ready to perform the role of a nominated market operator to combine the “day-ahead” market and the intraday market with the markets of EU countries.

## EMPLOYEE PORTRAIT OF THE JSC «MARKET OPERATOR»

Average work experience

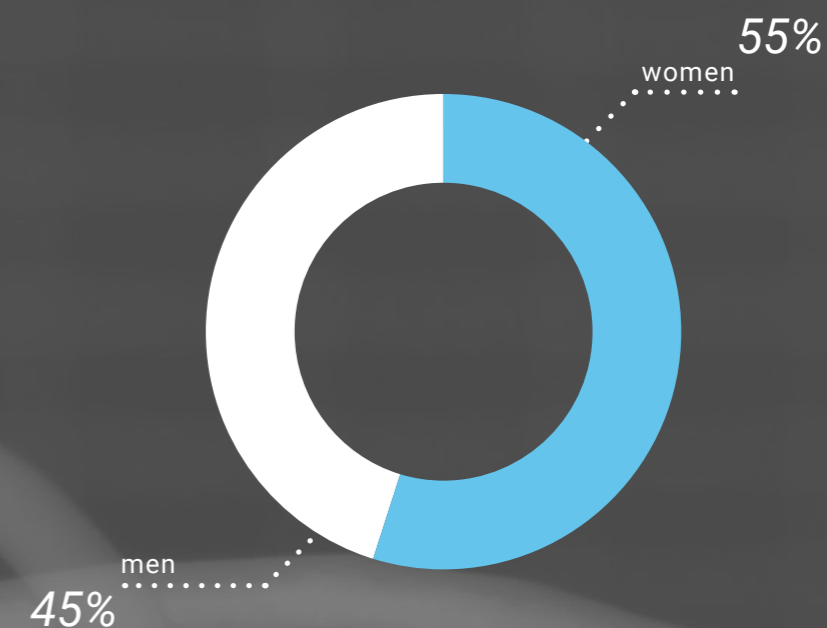
**11**  
years

in the electrical power industry

Average age

**39**  
years

of employees



Boomers  
**BB**  
1946-1965  
3%

Generation  
**X**  
1966-1980  
33%

Millenials  
**Y**  
1981-1996  
57%

Buzzers  
**3\***  
1997 and later  
7%

\*Since Z is a symbol of russian invasion, we deliberately don't use it in the Report

## We are transparent

All business processes of JSC "Market Operator" are carried out automatically that eliminates abuse of official position and ensures equal conditions for all market participants when trading electricity. Orders for the purchase or sale of electricity shall be submitted only using a Qualified Electronic Signature that increases responsibility for the actions of market participants and makes unauthorized access to information impossible.

Information on the results of electricity trading on the "day-ahead" market and the intraday market is public and allows to objectively analyse the situation on the market. The Company's financial statements, issuer's information, as well as decade, monthly, quarterly, and annual analytical reports on the operation of the DAM and the IDM are also publicly available.

We adhere to the main principles of public procurement, i.e. maximum economy and efficiency, openness and transparency, non-discrimination of participants, objective and unbiased evaluation of tender proposals. Transparent procurement allows to increase the financial efficiency of the process of delivering goods, providing services and performing works through competitive selection of suppliers.

## We are responsible

We are responsible to market participants for an honest and conscientious partnership. With the start of the new electricity market, we have built partnership relations with sellers and buyers of electricity, which is expressed in our willingness to assist 24/7, timely and 100% payment, formation of all documents, registration of tax invoices.

We are responsible to employees for making the best working conditions, developing and realizing their own potential. In relations with the labour collective, the administration of JSC "Market Operator" is guided by Collective agreement, which is the result of social partnership at the local level. An important task for us is to develop employees, preserve, improve existing and create new jobs.

Market Operator is a socially responsible company, so we are developing corporate volunteering by the initiative of our trade union organization a socially responsible company, so at the initiative of our trade union organization, we are developing corporate volunteering. Support for employees who found themselves in a tough situation, those who serve in the Armed Forces of Ukraine, good deeds for orphaned children is our manifesto of indifference, which also contributes to strengthen teamwork.

We are concerned about the health of our employees. We guarantee full medical insurance and safe working conditions, which are described in the current regulations on labour protection, fire safety and civil defence of JSC "Market Operator". 100% of employees are vaccinated against COVID-19 get a flu vaccine annually.

We use electric vehicles in our work, LED-ceiling panels are installed in the office, as well as we use electronic document management in our work. And this is our conscious contribution to solving environmental issues.

## We are innovative

We strive to be one step ahead of others. From the first day of work, we demonstrate European standards of work, which is confirmed by certificates of compliance of processes in the Company with international quality standards ISO.

As the owner of a qualified provider of electronic trust services of the ATsSC of the electricity market, JSC "Market Operator" is the only energy company in Ukraine authorized to issue Qualified electronic signatures.

Our IT specialists have developed and patented the ETS/UA software package, a platform for conducting electronic auctions for the purchase and sale of electricity under bilateral contracts.

Our ambitious goal is to conduct netting on the DAM and IDM with the subsequent transition to clearing settlements on the electricity market of Ukraine, as well as to combine the spot electricity market of Ukraine with the global market of the European Union.



## SUPERVISORY BOARD OF JSC “MARKET OPERATOR”



Yulia Zhytnyk

Lina Masiuliene



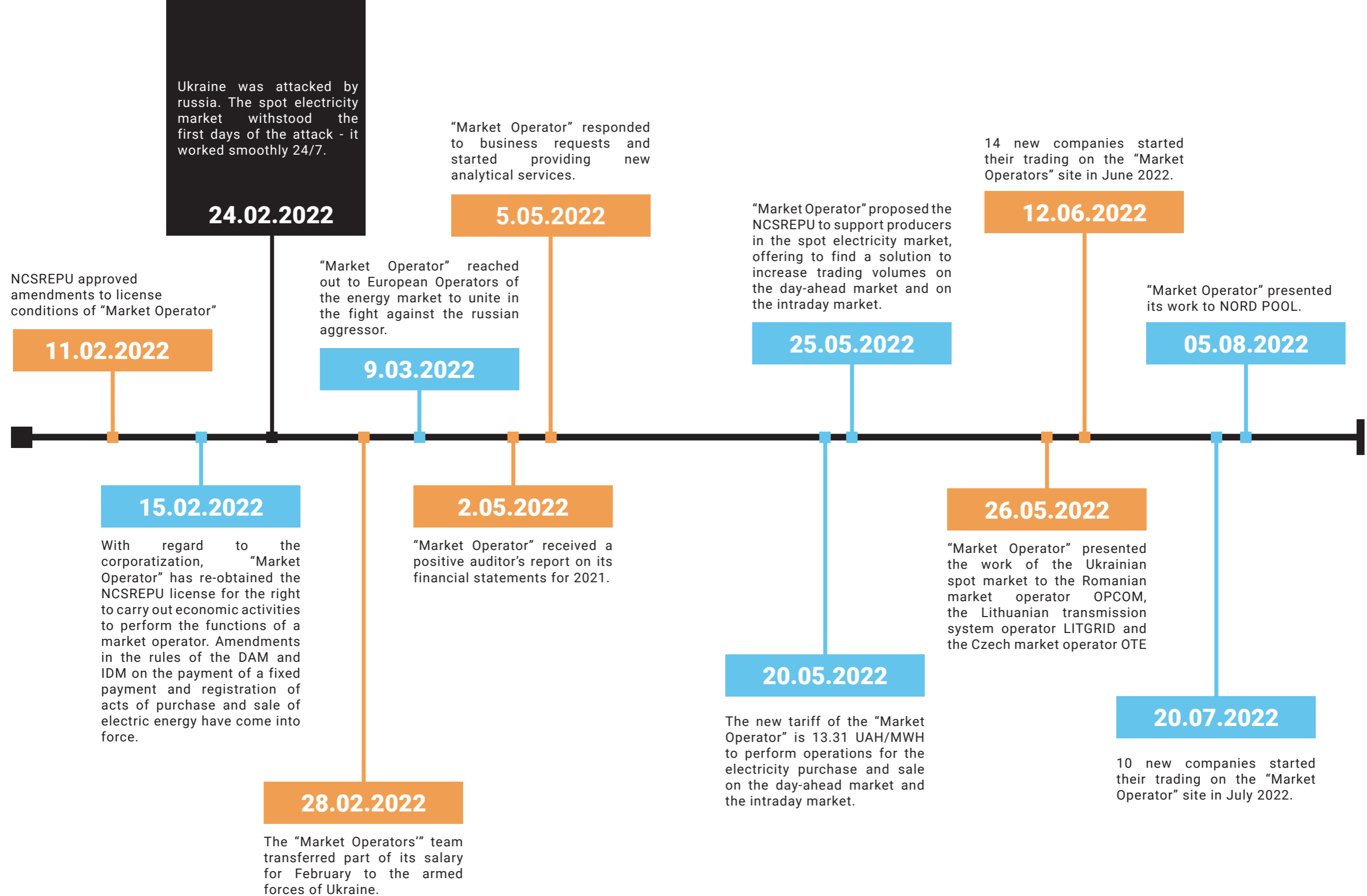
Lukasz Dziekonski

Olena Kovalchuk

On December 29, 2022, the Ministry of Energy of Ukraine appointed members of the Supervisory Board of Joint-Stock Company “Market Operator” and approved its personal composition.

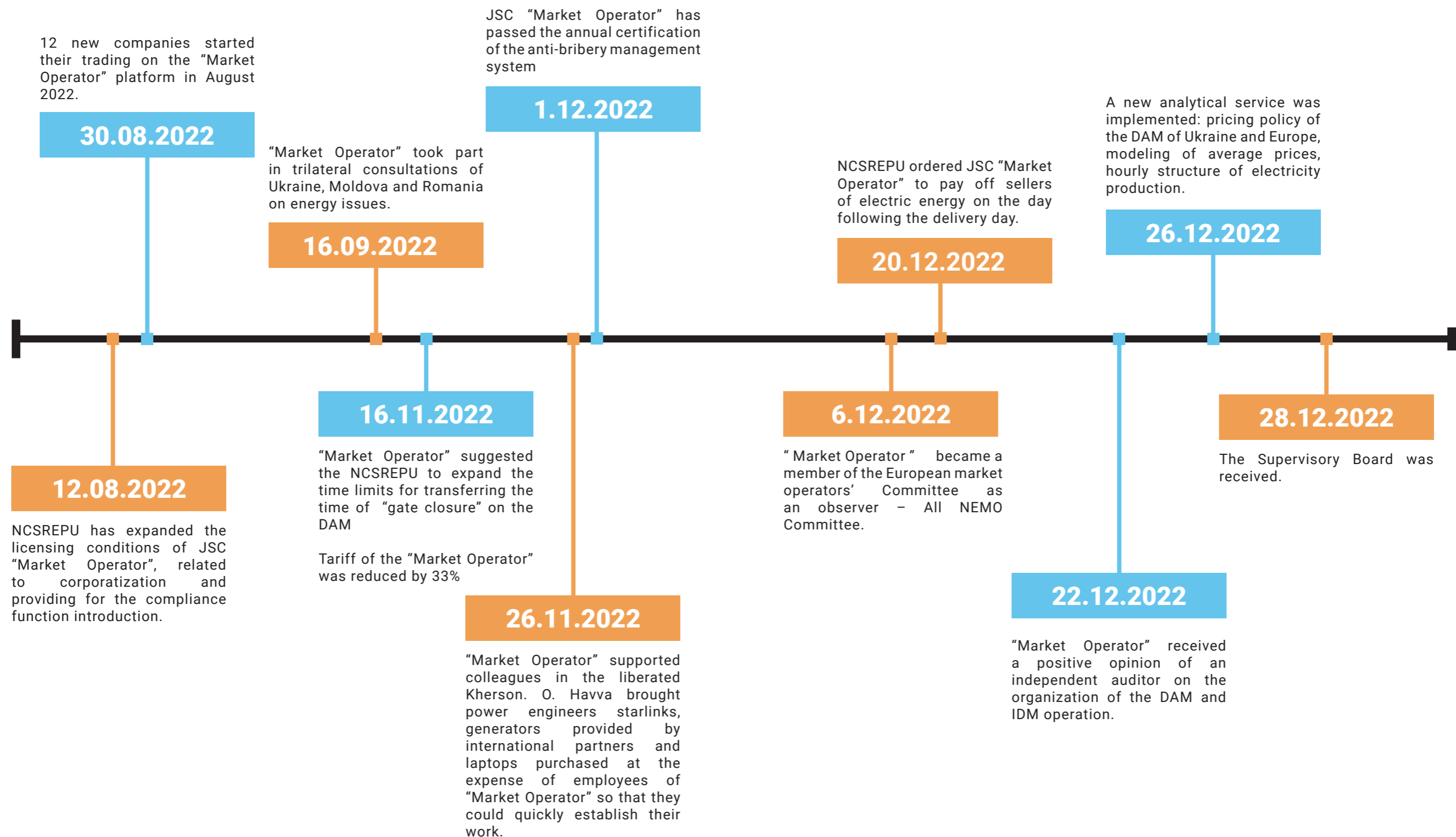
Lukasz Dziekonski, a Polish investment banker, business representative to the European Commission, Lina Masiuliene, a representative of the management of the Scandinavian Nord Pool Exchange, and Yulia Zhytnyk, a Ukrainian lawyer, became independent members of the Supervisory Board of JSC “Market Operator”. Olena Kovalchuk, who has many years of experience working on corporate governance reform, and Dmytro Olefir, who has been working in the Ukrainian electric power industry since 1998, were elected representatives of the state. Based on Article 80 of the Law of Ukraine “On Joint-Stock Companies” Dmytro Olefir terminated his powers of a the Supervisory Board member of JSC “Market Operator” as the state representative on February 8, 2023.

The formation of the Supervisory Board is part of the corporatization of JSC “Market Operator”, a prerequisite for the introduction of market coupling with the EU.



## MAIN EVENTS OF THE YEAR





## MAIN EVENTS OF THE YEAR





# YEAR OF DAM AND IDM

## Key indicators of DAM and IDM for 2022

### Results at the DAM in the IPS of Ukraine

**2 671,04**  
UAH/MW\*h

Price for DAM (Base product)

**17 142 463,5**  
MW\*h

Volume of accepted electricity

**57,852**  
billion UAH (including VAT)

Total cost

### Emphasis on the DAM in 2022:

#### NCSREPU Resolution № 1227 of 30.07.2021

**maximum** level of marginal prices for DAM of the IPS of Ukraine:

**MAX** load hours - 4,000.00 UAH/MW\*h,  
**MIN** load hours - 2,000.00 UAH/MW\*h.

#### NCSREPU Resolution № 239 of 10.02.2022 (as amended)

since 12.02.2022, the **minimum** level of marginal prices for the DAM of the IPS of Ukraine is not less than UAH 987.47/MW\*h.

#### NCSREPU Resolution № 332 of 25.02.2022

since 28.02.2022, the **minimum** level of marginal prices for DAM of the IPS of Ukraine:

**MAX** load hours - 2,646.25 UAH/MW\*h,  
**MIN** load hours - 1 378,97 UAH/MW\*h.

#### NCSREPU Resolution № 2972 of 29.12.2021

since 02.01.2022 **maximum** level of marginal prices for DAM of the BEI:

**MAX** load hours - 3,000.00 UAH/MW\*h,  
**MIN** load hours - 1,650.00 UAH/MW\*h.

#### NCSREPU Resolution № 2972 of 29.12.2021

since 24.02.2022, one commercial zone of **Ukrainian nuclear power plants** with the inclusion of BEI in it has been operating for the duration of isolated operation.

\*isolated mode - testing of independent operation of the Ukrainian power system in order to synchronize with ENTSO-E

#### NCSREPU Resolution № 332 of 25.02.2022

during the special period, **one trade zone of the IPS of Ukraine is defined.**

### Results at the DAM in the BEI

**2 509,93**  
UAH/MW\*h

Price for DAM (Base product)

**1 064 473,2**  
MW\*h

Volume of accepted electricity

**3,278**  
billion UAH (including VAT)

Total cost

\*the price for the IPS of Ukraine is calculated hourly

\*MAX load hours: from 07.00 a.m. to 11.00 p.m.  
MIN load hours: from 00.00 a.m. to 07.00 a.m.  
and from 11.00 p.m. to 24.00 p.m.  
\*\*all prices are indicated without VAT

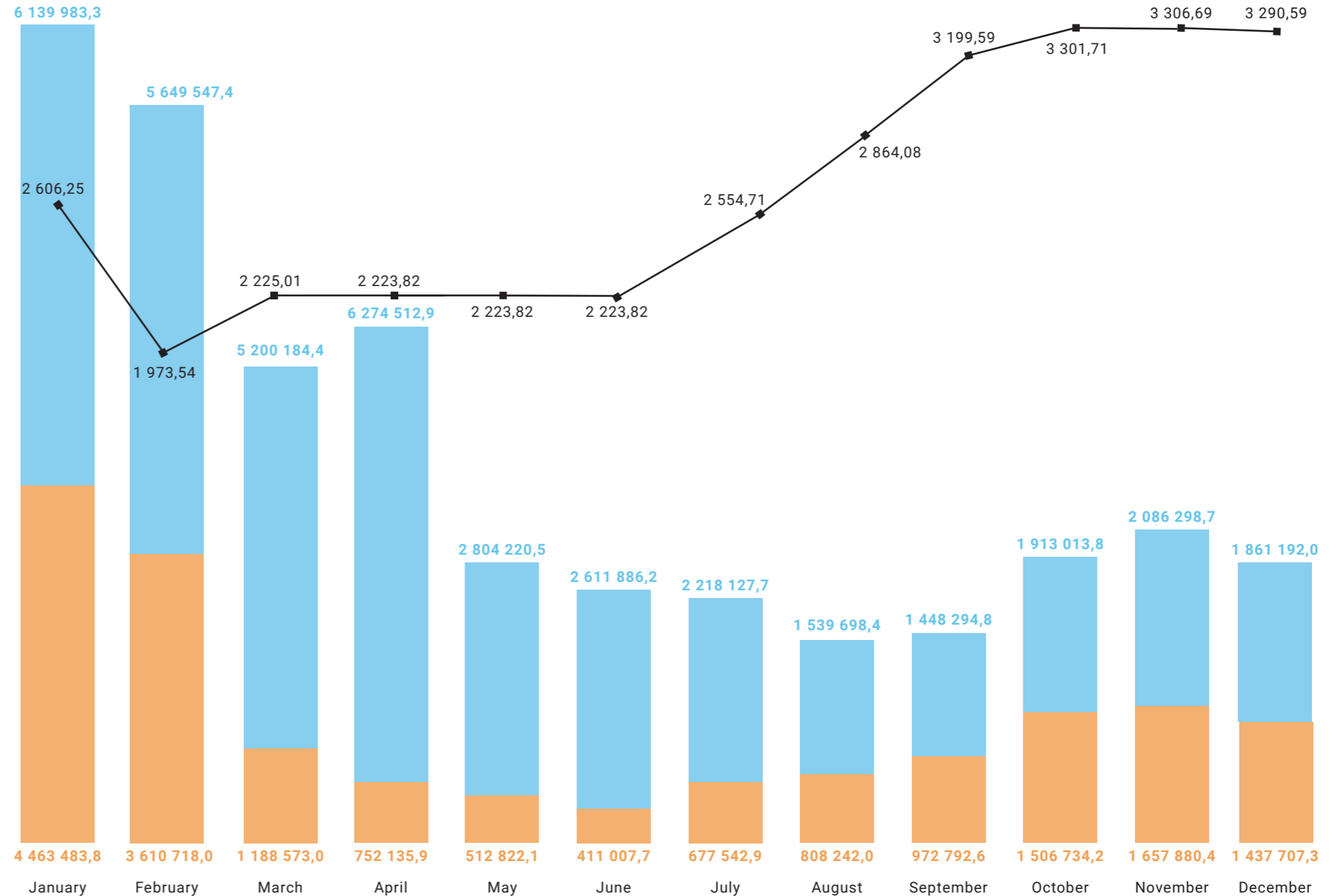
\*the price for BEI is calculated for 01.01-23.02.2022

# IPS OF UKRAINE

## Emphasis on DAM

Price for DAM (Base product)	UAH 2,671.04/MW*h
DAM price level (Base product)	+48,2%
DAM price increase (Base product)	+ UAH 868.86
Accepted volume	17 142 463,5 MW*h
Accepted volume level	-45,3%
Decrease accepted volume	-14 219 266,5 MW*h
Demand	17 999 639,9 MW*h
Demand level	-44,6%
Decrease in demand	-14 470 808,7 MW*h
Supply	39 746 960,1 MW*h
Supply level	-16,0%
Decrease in supply	-7 546 885,1 MW*h

## Supply and demand on DAM



\*comparison with 2021  
\*\*all prices are indicated without VAT

Declared sales volume for DAM, MW\*h

Declared purchase volume for DAM, MW\*h

Price for DAM (Base product), UAH/MW\*h

## Results at the IDM in the IPS of Ukraine

**2 679,61**  
UAH/MW\*h

Weighted average price for IDM

**2 688 646,9**  
MW\*h

Volume of accepted electricity

**8,645**  
billion UAH  
(including VAT)

Total cost

\*the price for the IPS of Ukraine is calculated hourly

## Emphasis on IDM in 2022:

### NCSREPU Resolution № 2969 of 24.12.2021

since 06.02.2022, the **minimum** level of marginal prices for the IDM of the IPS of Ukraine is not less than 105.0% of the price of DAM.

### NCSREPU Resolution № 238 of 07.02.2022

since 09.02.2022, the **minimum** level of marginal prices for the IDM of the IPS of Ukraine is not less than 115.0% of the price of DAM.

### NCSREPU Resolution № 239 of 10.02.2022

since 12.02.2022, the **minimum** level of marginal prices for the IDM of the IPS of Ukraine is not less than 150.0% of the price of DAM.

### NCSREPU Resolution № 299 of 14.02.2022

since 16.02.2022, the **minimum** level of marginal prices for the IDM of the IPS of Ukraine is not less than 110.0% of the price of DAM.

### NCSREPU Resolution № 332 of 25.02.2022 (as amended)

since 01.06.2022, the **minimum** level of marginal prices for the IDM of the IPS of Ukraine is not less than 102.0% of the price of DAM

\*all prices are indicated without VAT

## Results at the IDM in the BEI

Weighted average price for IDM

**2 529,79**  
UAH/MW\*h

Volume of accepted electricity

**6 431,6**  
MW\*h

Total cost

**0,020**  
billion UAH  
(including VAT)

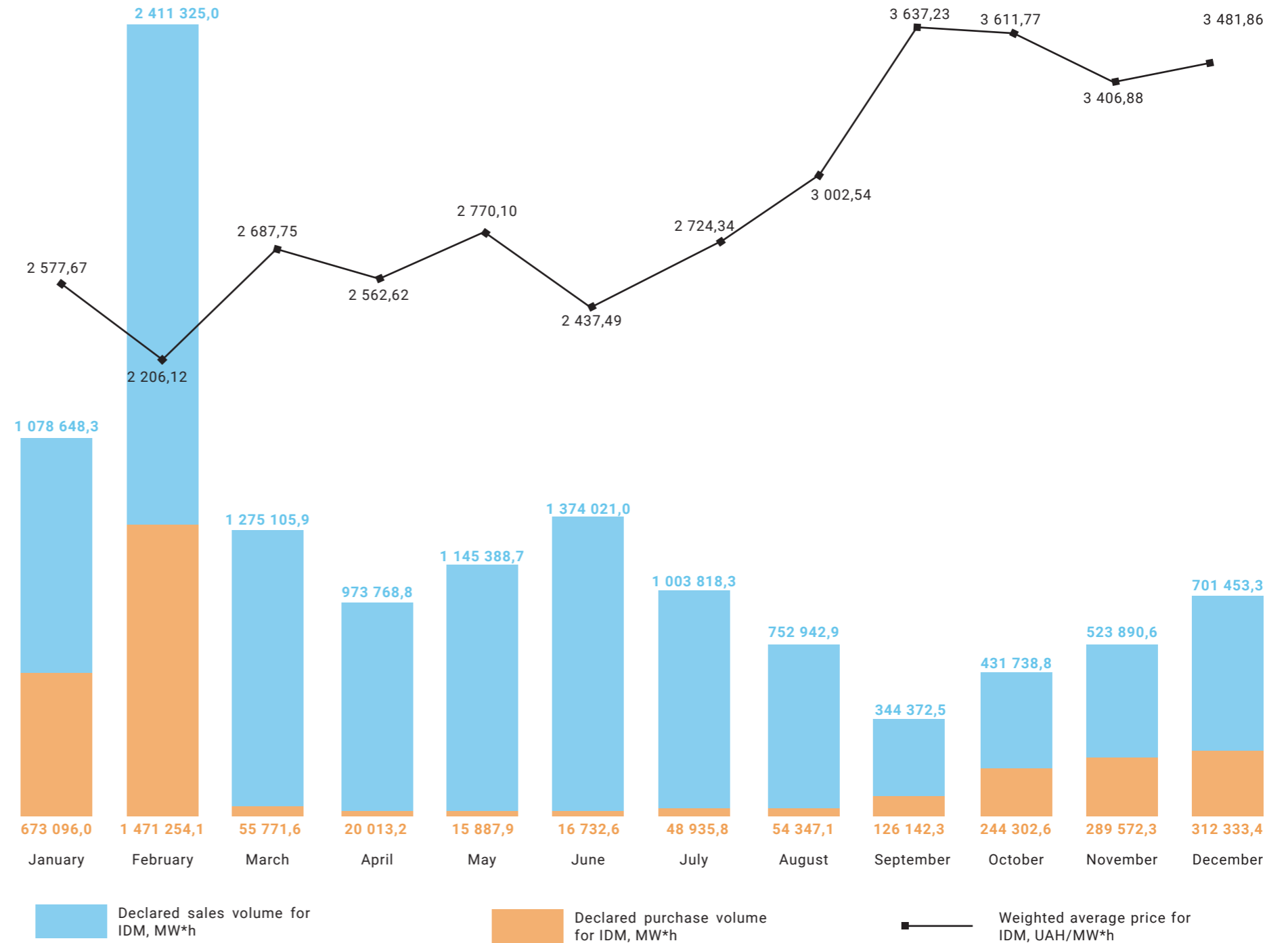
\*the price for BEI of Ukraine is calculated hourly 01.01 - 23.02.2022

# IPS OF UKRAINE

## Emphasis on IDM

Weighted average price for IDM	UAH 2,679.61/MW*h
Level of weighted average price for IDM	+46,1%
Increase of weighted average price for IDM	+ UAH 845.14
Accepted volume	2 688 646,9 MW*h
Accepted volume level	-46,4%
Decrease accepted volume	-2 325 660,5 MW*h
Demand	3 328 388,9 MW*h
Demand level	-51,1%
Decrease in demand	-3 483 934,9 MW*h
Supply	12 016 474,1 MW*h
Supply level	-17,5%
Decrease in supply	-2 549 651,9 MW*h

## Supply and demand on IDM

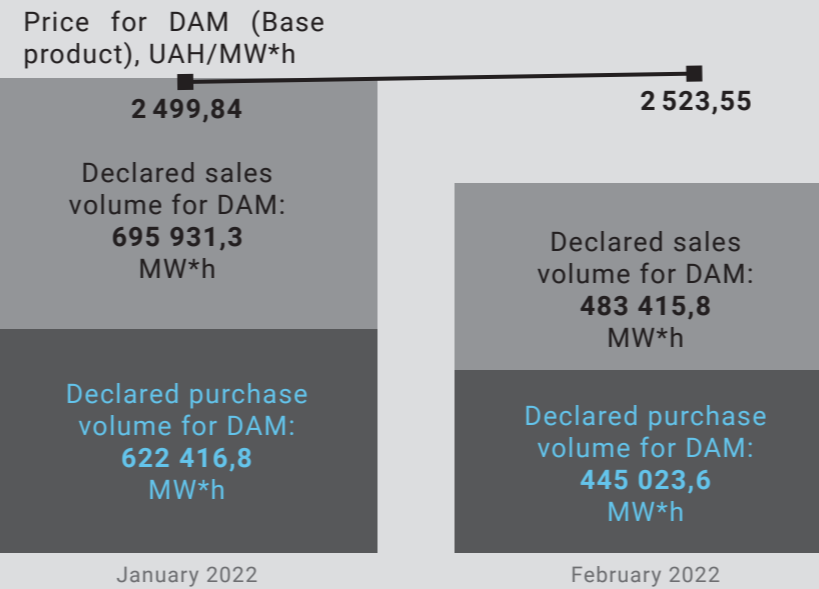


\*comparison with 2021  
\*\*all prices are indicated without VAT

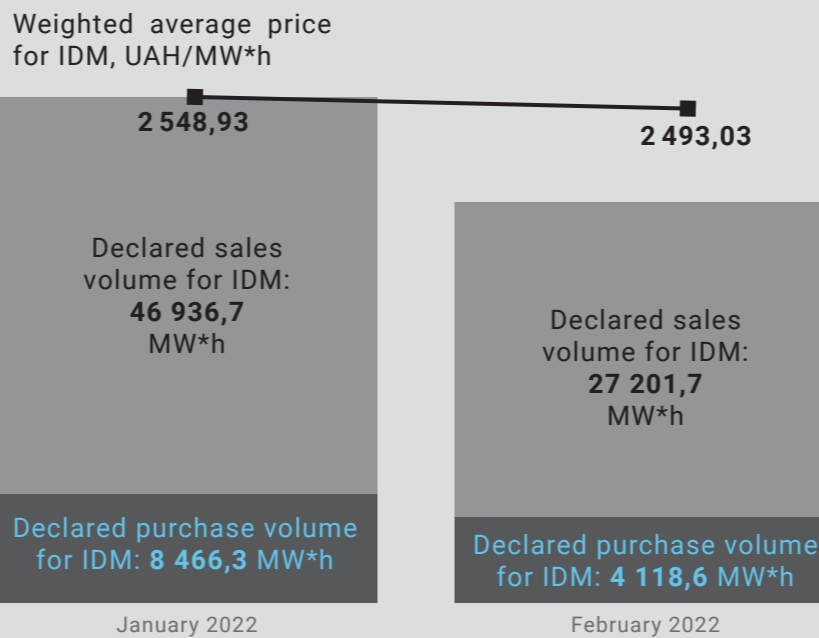
## Emphasis on DAM

Price for DAM (Base product)	UAH 2,297.23/MW*h
DAM price level (Base product)	+40,4%
DAM price increase (Base product)	+UAH +661.31
Volume accepted	1 064 473,2 MW*h
Volume level accepted	+95,1%
Increase accepted volume	+518 905,0 MW*h
Demand	1 067 440,4 MW*h
Demand level	+95,3%
Increase in demand	+520 786,6 MW*h
Supply	1 179 347,1 MW*h
Supply level	+15,1%
Increase in supply	+155 029,0 MW*h

### Supply and demand on DAM



### Supply and demand on IDM



## Emphasis on IDM

Weighted average price for IDM	UAH 2,529.79/MW*h
Level of weighted average price for IDM	+37,7%
Increase of weighted average price for IDM	+ UAH +693.20
Accepted volume	6 431,6 MW*h
Accepted volume level	+44,9%
Increase of the accepted volume	+1 993,3 MW*h
Demand	12 584,9 MW*h
Demand level	+109,5%
Increase demand	+6 578,9 MW*h
Supply	74 138,4 MW*h
Supply level	+0,3%
Increase in supply	+220,3 MW*h

\* the BEI price for 01.01 - 23.02.2022  
 \*\* comparison for January and February 2021  
 \*\*\* all prices are indicated without VAT

# I QUARTER OF 2022

One trade zone, synchronized with the European network ENTSO-E, started its operating in Ukraine.

The spot electricity market has reacted to the military aggression of Russian Federation.

## Prices, accepted and declared volumes on the DAM in BEI

Month	Price of the DAM (Base product), UAH/MW*h	DAM volume accepted, MW*h	Declared purchase volume on the DAM, MW*h	Declared sales volume on the DAM, MW*h	Difference between DAM acceptance and declared purchase volume	Difference between DAM acceptance and declared sales volume
January 2022	2 499,84	620 566,3	622 416,8	695 931,3	-0,3%	-10,8%
February 2022	2 523,55	443 906,9	445 023,6	483 415,8	-0,3%	-8,2%
<b>Indicator for the quarter</b>	<b>2 509,93</b>	<b>1 064 473,2</b>	<b>1 067 440,4</b>	<b>1 179 347,1</b>	<b>-0,3%</b>	<b>-9,7%</b>
<b>Indicator for the year</b>	<b>2 509,93</b>	<b>1 064 473,2</b>	<b>1 067 440,4</b>	<b>1 179 347,1</b>	<b>-0,3%</b>	<b>-9,7%</b>

## Prices, accepted and declared volumes on the IDM in BEI

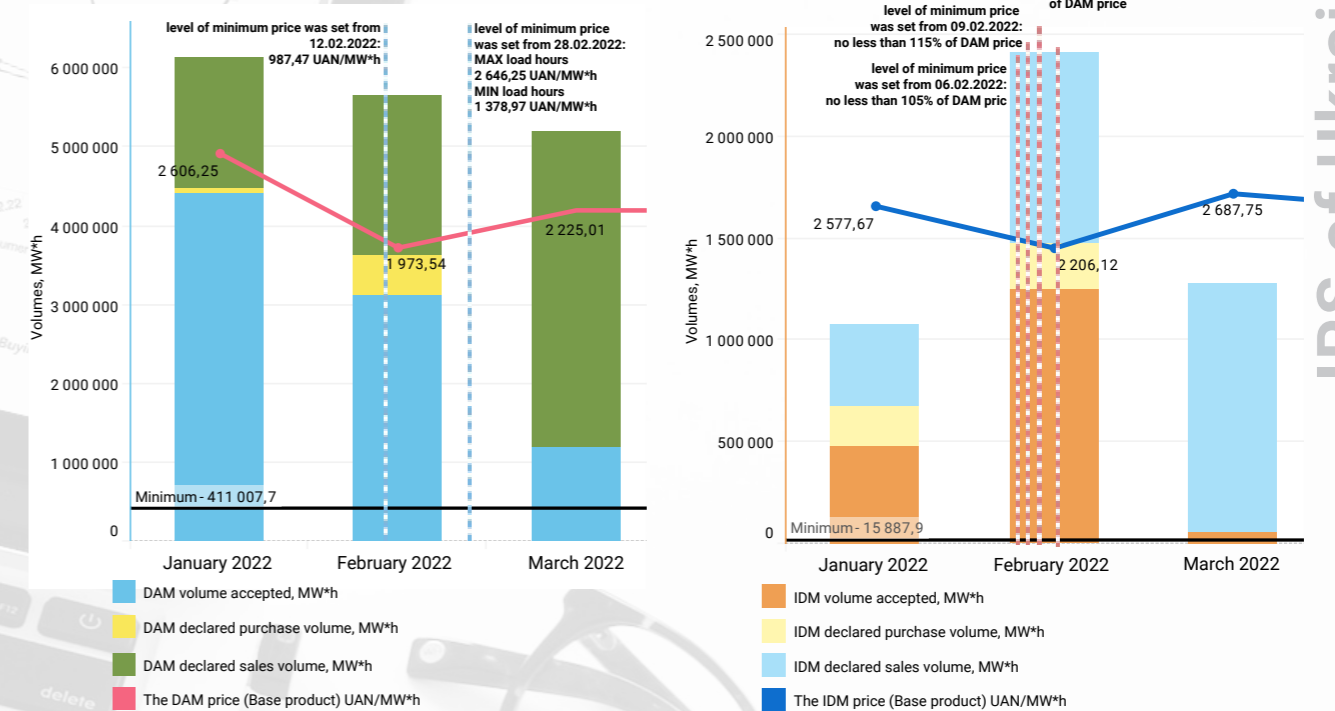
Month	Weighted average price on IDM, UAH/MW*h	IDM volume accepted, MW*h	Declared purchase volume on IDM, MW*h	Declared sales volume on IDM, MW*h	Difference between IDM acceptance and declared purchase volume	Difference between IDM acceptance and declared sales volume
January 2022	2 548,93	4 230,0	8 466,3	46 936,7	-50,0%	-91,0%
February 2022	2 493,03	2 201,6	4 118,6	27 201,7	-46,5%	-91,9%
<b>Indicator for the quarter</b>	<b>2 529,79</b>	<b>6 431,6</b>	<b>12 584,9</b>	<b>74 138,4</b>	<b>-48,9%</b>	<b>-91,3%</b>
<b>Indicator for the year</b>	<b>2 529,79</b>	<b>6 431,6</b>	<b>12 584,9</b>	<b>74 138,4</b>	<b>-48,9%</b>	<b>-91,3%</b>

## Prices, accepted and declared volumes on the DAM in IPS of Ukraine

Month	Price for DAM (Base product), UAH/MW*h	DAM volume accepted, MW*h	Declared purchase volume for DAM, MW*h	Declared sales volume for DAM, MW*h	Difference between DAM acceptance and declared purchase volume	Difference between DAM acceptance and declared sales volume
January 2022	2 606,25	4 404 796,7	4 463 483,8	6 139 983,3	-1,3%	-28,3%
February 2022	1 973,54	3 109 733,6	3 610 718,0	5 649 547,4	-13,9%	-45,0%
March 2022	2 225,01	1 188 573,0	1 188 573,0	5 200 184,4	0,0%	-77,1%
<b>Indicator for the quarter</b>	<b>2 278,10</b>	<b>8 703 103,3</b>	<b>9 262 774,8</b>	<b>16 989 715,1</b>	<b>-6,0%</b>	<b>-48,8%</b>

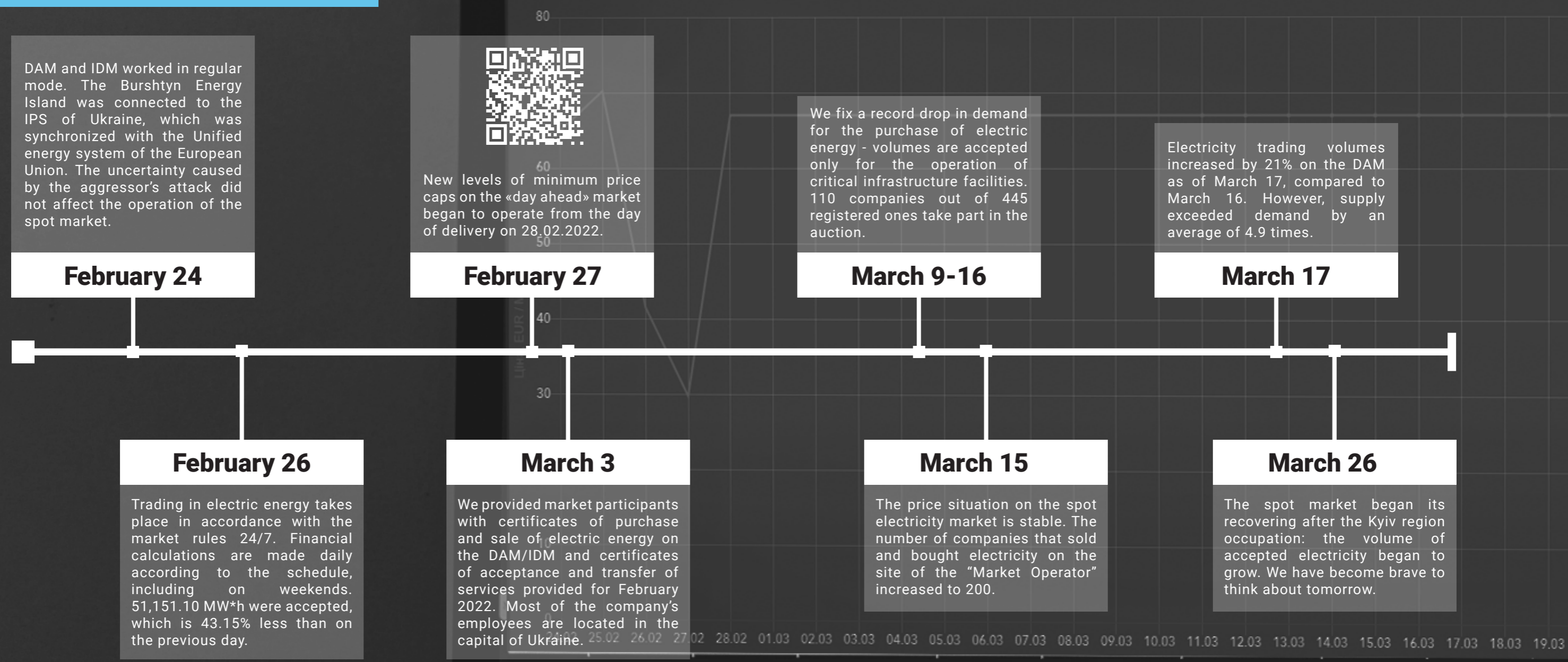
## Prices, accepted and declared volumes on the IDM in IPS of Ukraine

Month	Weighted average price on IDM, UAH/MW*h	IDM volume accepted, MW*h	Declared purchase volume on IDM, MW*h	Declared sales volume on IDM, MW*h	Difference between IDM acceptance and declared purchase volume	Difference between IDM acceptance and declared sales volume
January 2022	2 577,67	480 375,1	673 096,0	1 078 648,3	-28,6%	-55,5%
February 2022	2 206,12	1 249 567,2	1 471 254,1	2 411 325,0	-15,1%	-48,2%
March 2022	2 687,75	55 273,4	55 771,6	1 275 105,9	-0,9%	-95,7%
<b>Indicator for the quarter</b>	<b>2 321,01</b>	<b>1 785 215,7</b>	<b>2 200 121,7</b>	<b>4 765 079,2</b>	<b>-18,9%</b>	<b>-62,5%</b>



IPS of Ukraine

# HOW THE UKRAINIAN SPOT MARKET WORKED IN THE FIRST MONTH AFTER THE **russian attack**

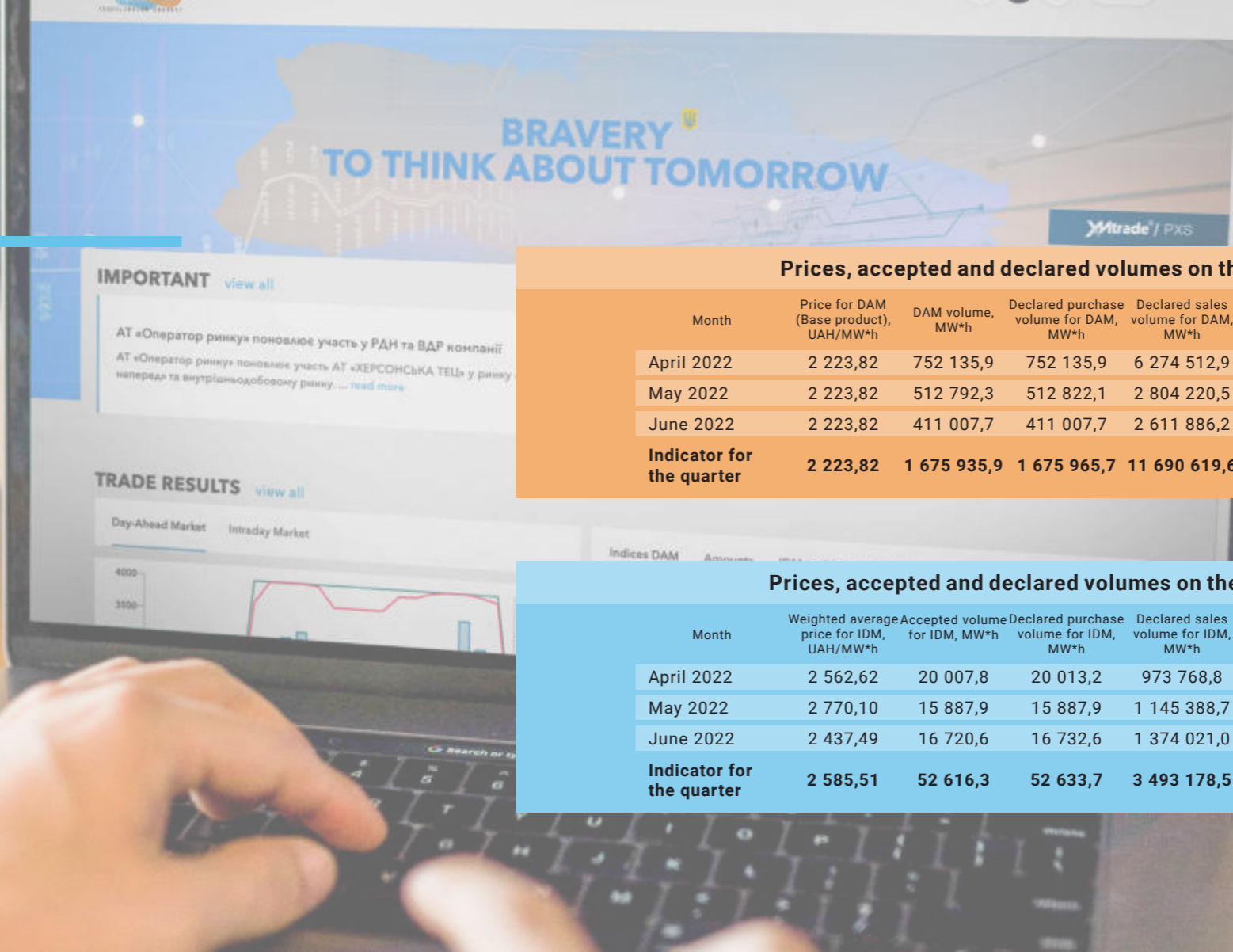


# II QUARTER OF 2022

Changing the minimum DAM PRICE CAPS

Stable electricity prices

Record low trading volumes



Prices, accepted and declared volumes on the DAM in IPS of Ukraine

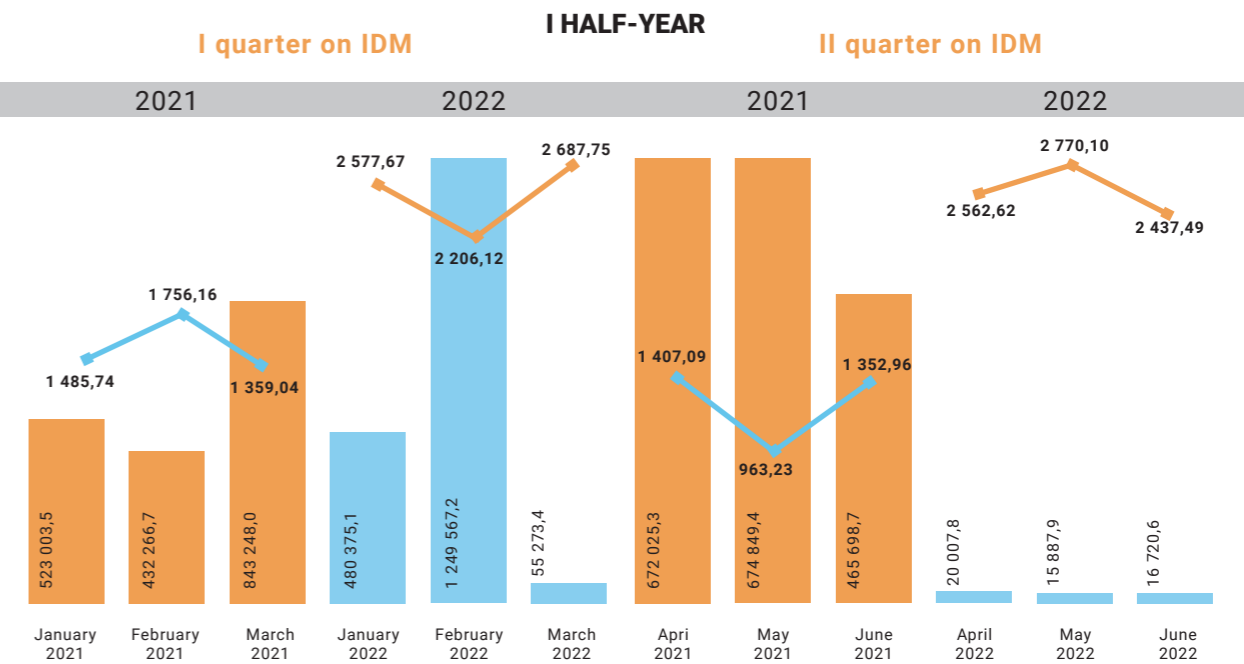
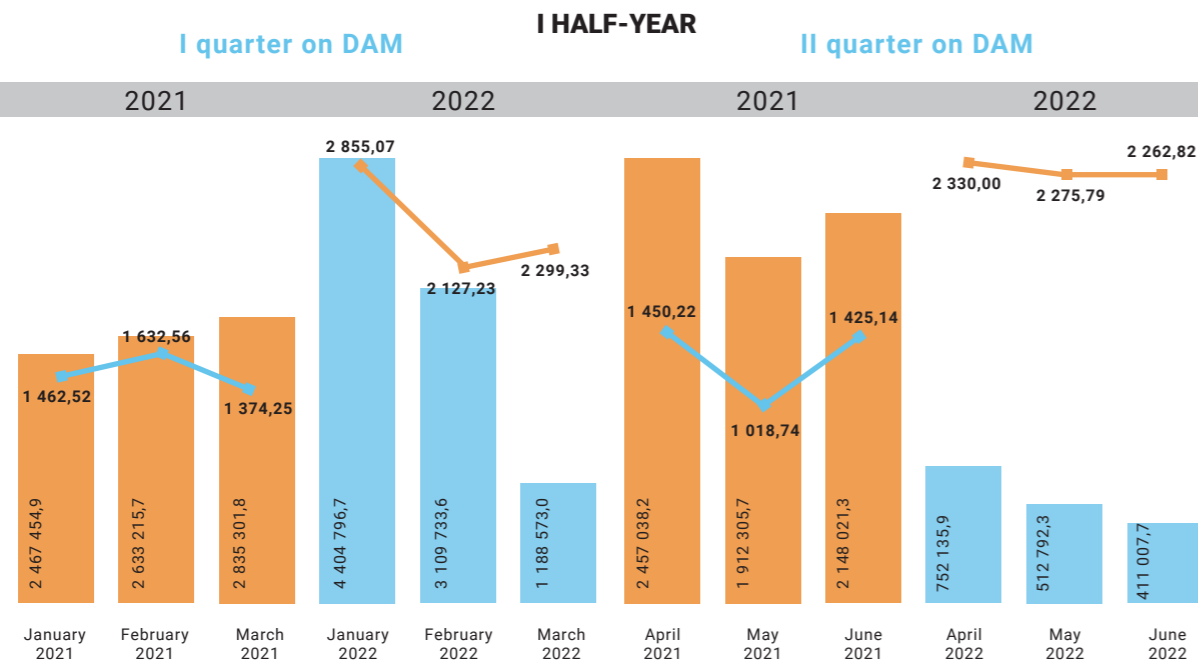
Month	Price for DAM (Base product), UAH/MW*h	DAM volume, MW*h	Declared purchase volume for DAM, MW*h	Declared sales volume for DAM, MW*h	Difference between DAM acceptance and declared purchase volume	Difference between DAM acceptance and declared sales volume
April 2022	2 223,82	752 135,9	752 135,9	6 274 512,9	0,0%	-88,0%
May 2022	2 223,82	512 792,3	512 822,1	2 804 220,5	0,0%	-81,7%
June 2022	2 223,82	411 007,7	411 007,7	2 611 886,2	0,0%	-84,3%
<b>Indicator for the quarter</b>	<b>2 223,82</b>	<b>1 675 935,9</b>	<b>1 675 965,7</b>	<b>11 690 619,6</b>	<b>0,0%</b>	<b>-85,7%</b>

Prices, accepted and declared volumes on the IDM in IPS of Ukraine

Month	Weighted average price for IDM, UAH/MW*h	Accepted volume for IDM, MW*h	Declared purchase volume for IDM, MW*h	Declared sales volume for IDM, MW*h	Difference between IDM acceptance and declared purchase volume	Difference between IDM acceptance and declared sales volume
April 2022	2 562,62	20 007,8	20 013,2	973 768,8	0,0%	-97,9%
May 2022	2 770,10	15 887,9	15 887,9	1 145 388,7	0,0%	-98,6%
June 2022	2 437,49	16 720,6	16 732,6	1 374 021,0	-0,1%	-98,8%
<b>Indicator for the quarter</b>	<b>2 585,51</b>	<b>52 616,3</b>	<b>52 633,7</b>	<b>3 493 178,5</b>	<b>0,0%</b>	<b>-98,5%</b>

Weighted average prices and accepted volumes for DAM for 2021 and 2022 in the IPS of Ukraine

Weighted average prices and accepted volumes for IDM for 2021 and 2022 in the IPS of Ukraine





# III QUARTER OF 2022

Demand for electricity purchases on the DAM increased by 46.7%

Given the significant surplus, Ukraine has started exporting electricity to the EU



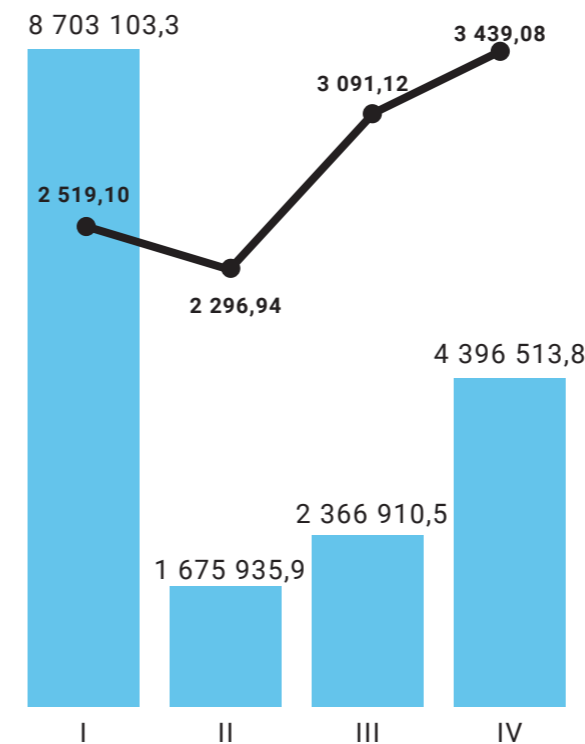
## Prices, accepted and declared volumes on the DAM in IPS of Ukraine

Month	Price for DAM (Base product), UAH/MW*h	DAM volume, MW*h	Declared purchase volume for DAM, MW*h	Declared sales volume for DAM, MW*h	Difference between DAM acceptance and declared purchase volume	Difference between DAM acceptance and declared sales volume
July 2022	2 554,71	664 400,7	677 542,9	2 218 127,7	-1,9%	-70,0%
August 2022	2 864,08	788 429,8	808 242,0	1 539 698,4	-2,5%	-48,8%
September 2022	3 199,59	914 080,0	972 792,6	1 448 294,8	-6,0%	-36,9%
<b>indicator for the quarter</b>	<b>2 869,24</b>	<b>2 366 910,5</b>	<b>2 458 577,5</b>	<b>5 206 120,9</b>	<b>-3,7%</b>	<b>-54,5%</b>

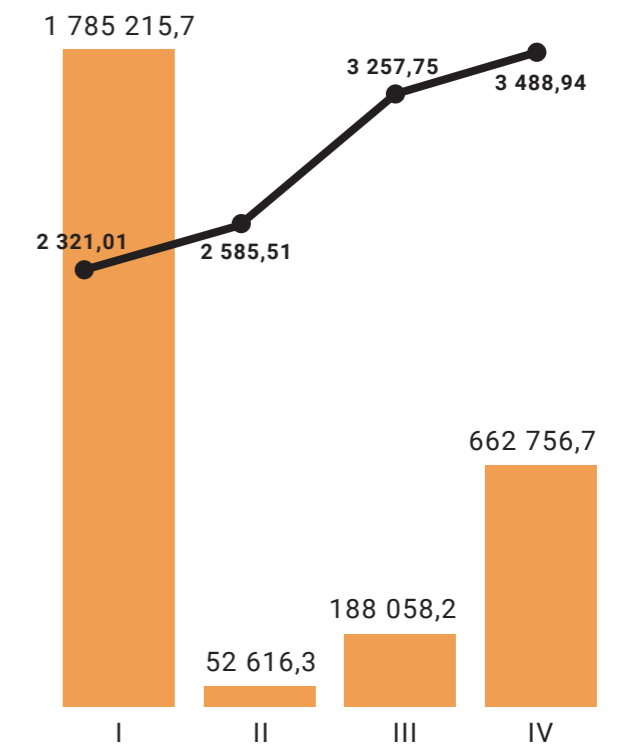
## Prices, accepted and declared volumes on the IDM in IPS of Ukraine

Month	Weighted average price for IDM, UAH/MW*h	Accepted volume for IDM, MW*h	Declared purchase volume for IDM, MW*h	Declared sales volume for IDM, MW*h	Difference between IDM acceptance and declared purchase volume	Difference between IDM acceptance and declared sales volume
July 2022	2 724,34	43 798,2	48 935,8	1 003 818,3	-10,5%	-95,6%
August 2022	3 002,54	49 444,2	54 347,1	752 942,9	-9,0%	-93,4%
September 2022	3 637,23	94 815,8	126 142,3	344 372,5	-24,8%	-72,5%
<b>indicator for the quarter</b>	<b>3 257,75</b>	<b>188 058,2</b>	<b>229 425,2</b>	<b>2 101 133,7</b>	<b>-18,0%</b>	<b>-91,0%</b>

Accepted volumes and weighted average prices for DAM for the first, second, third and fourth quarters of 2022



Accepted volumes and weighted average prices for IDM for the first, second, third and fourth quarters of 2022



\*all prices are indicated without VAT  
\*\*data in the IPS of Ukraine

# IV QUARTER OF 2022

Ukraine's energy system has been subjected to weekly missile attacks by Russia and has experienced two short-term blackouts

The volume of electricity trading on the spot market doubled in comparison with the third quarter

## Prices, accepted and declared volumes on the DAM in IPS of Ukraine

Month	Price for DAM (Base product), UAH/MW*h	DAM volume, MW*h	Declared purchase volume for DAM, MW*h	Declared sales volume for DAM, MW*h	Difference between DAM acceptance and declared purchase volume	Difference between DAM acceptance and declared sales volume
October 2022	3 301,71	1 408 880,4	1 506 734,2	1 913 013,8	-6,5%	-26,4%
November 2022	3 306,69	1 607 050,0	1 657 880,4	2 086 298,7	-3,1%	-23,0%
December 2022	3 290,59	1 380 583,4	1 437 707,3	1 861 192,0	-4,0%	-25,8%
<b>indicator for the quarter</b>	<b>3 299,58</b>	<b>4 396 513,8</b>	<b>4 602 321,9</b>	<b>5 860 504,5</b>	<b>-4,5%</b>	<b>-25,0%</b>

## Prices, accepted and declared volumes on the IDM in IPS of Ukraine

Month	Weighted average price for IDM, UAH/MW*h	Accepted volume for IDM, MW*h	Declared purchase volume for IDM, MW*h	Declared sales volume for IDM, MW*h	Difference between IDM acceptance and declared purchase volume	Difference between IDM acceptance and declared sales volume
October 2022	3 611,77	166 858,8	244 302,6	431 738,8	-31,7%	-61,4%
November 2022	3 406,88	226 578,5	289 572,3	523 890,6	-21,8%	-56,8%
December 2022	3 481,86	269 319,4	312 333,4	701 453,3	-13,8%	-61,6%
<b>indicator for the quarter</b>	<b>3 488,94</b>	<b>662 756,7</b>	<b>846 208,3</b>	<b>1 657 082,7</b>	<b>-21,7%</b>	<b>-60,0%</b>

## Difference between the declared volume of sales and purchases on DAM, MW\*h

Date	1	2	3	4	5	6	7	8	9	10	11	12
I quarter 2022	56 552	77 296	83 012	88 957	90 002	85 584	71 390	92 511	70 898	62 986	69 448	73 945
February 2022	75 005	91 629	95 977	100 801	100 583	93 140	77 616	93 464	81 912	82 863	93 384	102 983
March 2022	116 263	124 600	124 727	120 751	129 036	127 012	124 029	175 004	190 507	208 946	224 875	234 321
II quarter 2022	100 627	114 397	123 227	136 009	132 735	120 823	98 855	290 630	285 957	275 127	285 986	304 414
May 2022	52 880	61 745	63 832	66 562	68 360	62 278	59 378	87 456	101 989	118 675	135 425	144 102
June 2022	54 333	60 795	63 750	68 352	71 123	64 994	63 041	84 025	96 578	111 799	128 990	138 321
III quarter 2022	10 944	21 928	22 995	25 994	26 766	24 791	20 122	76 796	90 727	107 282	124 017	133 727
August 2022	5 677	16 460	15 801	18 853	18 747	17 526	6 696	18 810	26 492	41 393	59 989	70 463
September 2022	8 447	16 149	17 728	18 270	18 091	14 328	3 066	11 641	8 491	17 630	31 584	43 183
IV quarter 2022	2 143	13 250	13 960	16 489	16 925	11 932	-3 424	6 620	261	10 992	31 807	47 915
October 2022	5 324	9 037	14 674	18 075	17 793	15 460	5 756	23 009	20 749	25 751	30 856	35 018
November 2022	4 956	11 958	18 519	21 826	22 087	17 947	5 322	19 304	12 739	18 825	26 752	33 402
December 2022												

## 2022 in IPS of Ukraine

13	14	15	16	17	18	19	20	21	22	23	24	25
76 245	73 822	69 838	66 057	53 824	46 020	50 322	58 027	64 157	67 522	79 396	48 689	
109 469	106 466	100 272	91 667	75 874	59 355	52 047	57 979	65 783	74 244	88 104	68 217	
236 326	233 110	222 223	205 299	183 044	158 295	144 487	142 164	145 260	152 151	160 676	128 507	
317 013	319 036	318 004	318 831	308 983	288 451	260 090	254 893	250 962	252 271	275 141	89 916	
148 325	145 805	139 911	129 297	114 115	100 845	94 397	91 070	83 521	78 867	88 825	53 739	
142 321	139 621	133 172	123 459	107 626	90 350	86 380	80 890	80 575	72 394	77 906	60 084	
133 299	129 574	123 751	114 047	104 925	84 877	34 974	33 462	33 664	31 781	30 809	-668	
79 048	75 953	68 534	55 487	38 363	30 574	16 841	15 401	13 602	12 173	17 901	-9 327	
51 899	48 615	41 374	30 836	19 273	21 191	16 469	6 015	-566	11 041	26 036	-5 291	
59 152	60 826	52 463	37 437	21 707	9 182	2 361	-6 237	-1 872	6 405	9 565	-14 052	474
36 367	29 357	20 512	9 699	10 628	10 840	13 760	16 606	17 955	20 465	20 429	298	
35 469	28 347	19 589	12 828	9 585	12 168	16 373	17 449	18 028	21 408	22 469	-3 862	

**Difference between the declared volume of sales and purchases on IDM, MW\*h**

		1	2	3	4	5	6	7	8	9	10	11	12
I quarter 2022	January 2022	9 635	15 250	20 944	21 991	22 836	20 267	15 258	24 155	17 218	10 276	13 366	15 657
	February 2022	25 664	38 251	48 209	50 198	50 274	41 383	28 655	42 045	33 824	37 009	47 714	56 583
	March 2022	41 316	44 214	40 327	39 708	40 606	40 721	43 758	56 923	62 675	66 736	67 131	66 099
II quarter 2022	April 2022	16 246	16 872	15 892	17 413	17 249	16 447	18 398	44 855	46 666	56 521	65 531	68 561
	May 2022	15 960	21 470	22 320	24 180	24 276	21 442	20 468	35 377	52 333	72 594	90 378	100 935
	June 2022	23 622	35 628	32 396	35 364	35 565	33 115	33 867	52 157	64 602	80 690	99 758	111 279
III quarter 2022	July 2022	7 664	16 340	15 058	18 466	19 355	17 728	13 966	31 886	46 142	63 296	80 700	90 859
	August 2022	7 256	19 192	18 670	21 251	21 536	19 147	8 462	18 819	23 427	37 825	55 908	64 360
	September 2022	2 184	7 816	8 024	10 298	10 539	6 919	358	5 101	6 477	11 845	17 353	22 412
IV quarter 2022	October 2022	-1 264	6 689	8 799	11 993	12 902	6 447	-3 786	2 573	1 792	4 909	16 314	25 827
	November 2022	1 389	4 489	8 202	9 481	10 416	9 357	2 550	9 639	10 196	12 961	18 101	20 844
	December 2022	5 273	11 344	18 239	21 605	22 907	20 819	5 708	16 484	11 101	17 011	21 724	27 371

**2022 in IPS of Ukraine**

	13	14	15	16	17	18	19	20	21	22	23	24	25
	21 025	16 222	15 474	18 027	10 364	7 300	12 483	17 936	24 196	19 672	27 752	8 250	
	56 590	48 916	42 474	38 821	32 546	39 084	33 041	26 972	33 978	34 425	34 441	18 971	
	63 660	61 517	59 589	57 902	56 692	48 571	41 977	40 801	42 842	44 388	48 033	43 147	
	67 522	66 146	62 316	57 779	51 699	44 574	41 374	37 403	35 632	34 729	36 943	16 988	
	105 094	102 346	95 429	84 272	67 798	47 314	27 180	25 411	21 811	19 573	20 669	10 871	
	116 313	113 099	105 631	94 179	76 899	56 399	37 464	29 129	26 568	24 282	21 813	17 469	
	93 894	90 617	84 610	73 539	59 981	39 989	25 479	18 393	15 365	14 476	15 026	2 057	
	71 547	67 671	61 225	48 299	32 332	22 788	14 601	16 857	16 185	14 895	16 717	-374	
	28 180	25 509	20 784	12 214	6 156	3 808	2 370	2 427	646	2 628	4 741	-556	
	35 574	33 373	24 459	12 403	1 231	-555	-1 049	-2 058	-1 415	1 285	1 396	-10 703	600
	23 206	16 906	7 378	1 635	5 821	5 364	8 118	9 780	11 031	14 469	13 428	-441	
	28 608	21 396	17 082	11 741	8 932	11 998	16 586	17 438	16 149	19 579	22 007	-1 980	

**Difference between the declared volume of sales and purchases on DAM, MW\*h**

Date	1	2	3	4	5	6	7	8	9	10	11	12	
I quarter 2022	January 2022	1 746	2 976	2 894	3 180	3 231	3 550	3 943	4 252	3 906	2 998	2 985	3 083
	February 2022	460	1 243	1 232	1 443	1 638	1 978	2 228	2 175	1 780	1 655	1 800	1 833

**2022 in BEI**

	13	14	15	16	17	18	19	20	21	22	23	24
	3 496	3 560	3 445	3 275	3 022	2 858	2 572	2 542	2 495	2 423	2 564	2 522
	2 206	2 087	1 960	1 704	1 369	1 675	1 316	1 230	1 277	1 303	1 411	1 392

**Difference between the declared volume of sales and purchases on IDM, MW\*h**

Date	1	2	3	4	5	6	7	8	9	10	11	12
I quarter 2022	January 2022	-214	12	-1	38	58	44	3 659	3 114	2 202	2 139	2 241
	February 2022	-68	-2	11	13	15	15	9	1 998	1 648	1 511	1 701

**2022 in BEI**

	13	14	15	16	17	18	19	20	21	22	23	24
	2 662	2 749	2 605	2 511	2 449	2 338	2 120	1 950	1 958	1 852	1 971	-25
	2 123	1 921	1 738	1 500	1 101	1 398	972	966	890	892	995	39

### Average hourly difference between the price of DAM and IDM, UAH/MW\*h

Date	1	2	3	4	5	6	7	8	9	10	11	12	
I quarter 2022	January 2022	7,30	7,57	10,91	12,04	11,01	10,54	7,09	40,49	33,35	25,76	13,51	29,74
	February 2022	-127,44	-124,26	-121,89	-121,04	-120,53	-123,36	-127,87	-327,34	-334,35	-330,56	-324,36	-319,94
	March 2022	-137,90	-137,90	-137,90	-137,90	-137,90	-137,90	-141,99	-264,63	-264,63	-264,63	-264,63	-264,63
	Per quarter	-84,63	-83,55	-81,66	-81,01	-81,20	-82,25	-86,24	-177,38	-183,69	-185,12	-187,41	-180,44
II quarter 2022	April 2022	-137,90	-137,90	-137,90	-137,90	-137,90	-137,90	-137,90	-264,63	-264,63	-264,63	-264,63	-264,63
	May 2022	-137,90	-137,90	-137,90	-137,90	-137,90	-137,90	-137,90	-264,63	-264,63	-264,63	-264,63	-264,63
	June 2022	-31,26	-31,26	-27,58	-27,58	-27,58	-27,58	-27,58	-60,23	-60,49	-59,99	-59,99	-59,99
	Per quarter	-100,70	-100,70	-102,44	-102,01	-102,01	-101,13	-102,01	-195,70	-196,58	-194,06	-196,42	-196,42
III quarter 2022	July 2022	-18,00	-22,17	-22,08	-22,14	-22,14	-23,02	-22,52	-52,93	-52,93	-52,93	-52,93	-52,93
	August 2022	-0,32	-0,65	-0,58	-0,32	-0,74	-1,50	-0,32	-61,67	-61,62	-59,81	-59,17	-59,28
	September 2022	-3,66	-7,60	-9,03	-8,61	-9,89	-6,67	-3,95	-33,78	-27,81	-32,10	-42,10	-69,55
	Per quarter	-7,41	-10,17	-10,58	-10,38	-10,93	-10,44	-8,89	-49,60	-47,61	-48,46	-51,50	-60,49
IV quarter 2022	October 2021	-1,81	-9,22	-11,93	-17,21	-16,15	-10,85	-2,02	-5,83	-4,96	-9,50	-23,85	-36,82
	November 2021	-5,98	-6,06	-8,99	-10,19	-9,62	-8,88	-4,33	-15,55	-15,70	-14,50	-10,46	-13,72
	December 2021	-5,56	-7,05	-9,50	-11,82	-11,68	-9,12	-3,39	-11,38	-9,28	-12,02	-18,99	-25,38
	Per quarter	-4,42	-7,46	-10,15	-13,11	-12,52	-9,63	-3,24	-10,87	-9,92	-11,98	-17,85	-25,43

### 2022 in IPS of Ukraine

13	14	15	16	17	18	19	20	21	22	23	24	25
37,00	37,55	38,07	43,08	44,99	36,93	44,81	48,91	54,46	49,92	55,58	16,48	
-313,39	-316,27	-323,64	-336,41	-342,36	-328,82	-330,31	-330,25	-336,14	-342,00	-338,08	-126,93	
-264,63	-264,63	-264,68	-264,68	-264,69	-264,68	-264,68	-264,68	-264,67	-264,67	-260,59	-137,92	
-175,90	-176,61	-178,74	-180,99	-182,19	-180,75	-178,49	-177,06	-176,98	-180,37	-175,80	-80,68	
-264,63	-264,63	-264,63	-264,63	-264,63	-264,63	-264,63	-264,63	-264,63	-264,63	-264,63	-137,90	
-59,99	-59,99	-59,99	-59,99	-59,99	-59,99	-59,99	-59,99	-59,99	-59,99	-59,99	-31,26	
-197,17	-197,17	-197,17	-197,17	-197,17	-197,17	-197,17	-197,17	-197,17	-197,17	-197,17	-102,35	
-52,93	-52,93	-52,93	-52,93	-52,93	-52,93	-65,88	-74,97	-58,05	-58,79	-66,08	-4,88	
-59,06	-59,23	-58,62	-58,61	-59,05	-65,23	-80,67	-66,76	-59,05	-55,07	-67,36	0,00	
-69,02	-69,29	-75,30	-56,51	-34,75	-34,95	-19,06	-11,90	-8,06	-12,48	-29,22	-0,92	
-60,24	-60,39	-62,14	-56,01	-49,06	-51,21	-55,59	-51,64	-42,08	-42,43	-54,49	-1,95	
-44,64	-45,31	-48,38	-39,14	-26,60	-0,40	-0,55	0,00	0,00	-1,13	-1,74	-0,18	0,00
-18,67	-15,28	-11,87	-6,51	-9,56	-15,59	-16,20	-20,01	-24,24	-25,23	-30,24	-2,50	
-30,70	-23,82	-14,20	-16,74	-9,46	-12,76	-14,11	-14,81	-15,58	-16,50	-18,44	-1,55	
-31,48	-28,28	-24,96	-20,95	-15,27	-9,52	-10,22	-11,51	-13,15	-14,17	-16,66	-1,40	0,00

### Average hourly difference between the price of DAM and IDM, UAH/MW\*h

Date	1	2	3	4	5	6	7	8	9	10	11	12
I quarter 2022	January 2022	0,00	0,00	0,00	0,00	0,00	0,00	-14,22	-17,19	-15,40	-15,36	-19,22
	February 2022	0,00	0,00	0,00	0,00	0,00	0,00	-12,88	-21,78	-8,35	-13,32	-8,20
	For the period	0,00	0,00	0,00	0,00	0,00	0,00	-13,78	-18,79	-12,46	-14,68	-14,93

### 2022 in BEI

13	14	15	16	17	18	19	20	21	22	23	24
-17,89	-18,45	-18,90	-18,71	-20,96	-21,93	-21,05	-20,72	-20,19	-21,15	-19,17	0,00
-12,57	-13,53	-14,66	-11,60	-14,96	-14,58	-18,00	-14,45	-10,19	-10,72	-14,13	0,00
-15,73	-16,23	-17,13	-15,93	-18,46	-18,95	-19,93	-18,16	-16,10	-16,98	-16,98	0,00

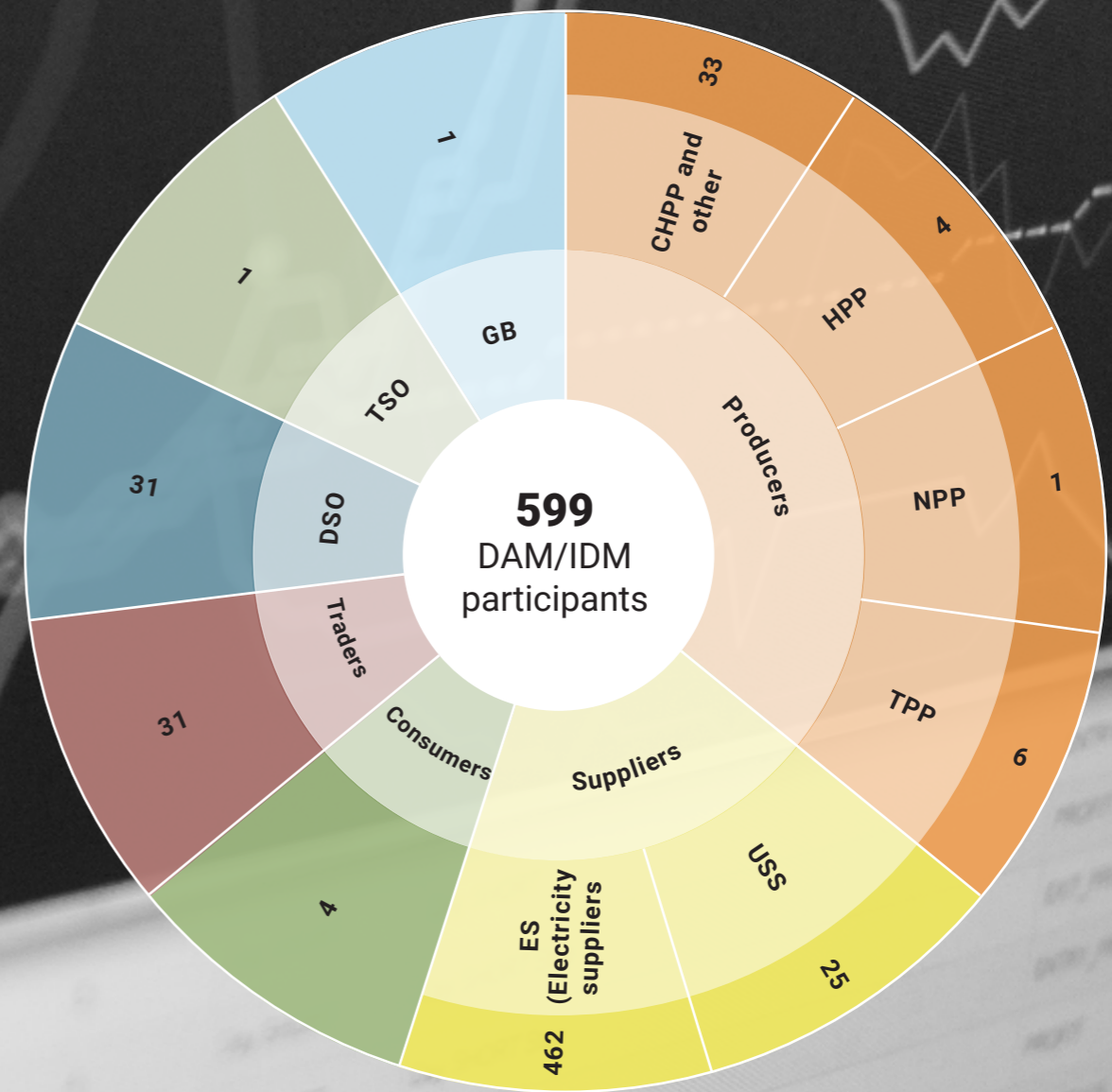
# WHO SOLD ELECTRICITY ON THE SITE OF THE “MARKET OPERATOR”

The total number of contracts for participation in the DAM and IDM that have been registered since the beginning of the operation of JSC “Market Operator” is 780 contracts, 102 of which were concluded in 2022.

599 agreements on participation in the DAM and IDM were in force as of December 31, 2022.

Among the participants of the DAM/IDM there are:

- electric power producers - 44;
- distribution system operators - 31;
- electric energy suppliers - 487;
- traders - 31;
- consumers - 4;
- transmission system operator - 1;
- guaranteed buyer - 1.



## PRICES OF THE DAM COMPARISON WITH EU PRICES

In 2022, electricity prices on the European spot market began to rise rapidly and reached their historic high in August. As of August 30, the price of electricity in 26 European countries was UAH 21,578/MW\*h, while in Ukraine it was 3 128 UAH/MW\*h. The difference is almost seven times.

On September 30, European Union energy Ministers made a political decision to balance prices and approved a package of stabilization measures. Electricity prices began to decline and in some hours became lower than in Ukraine. Compared to September, in general, electricity prices in neighbouring European countries decreased by more than 51% in October, by 43% in November, and by 19% in December.

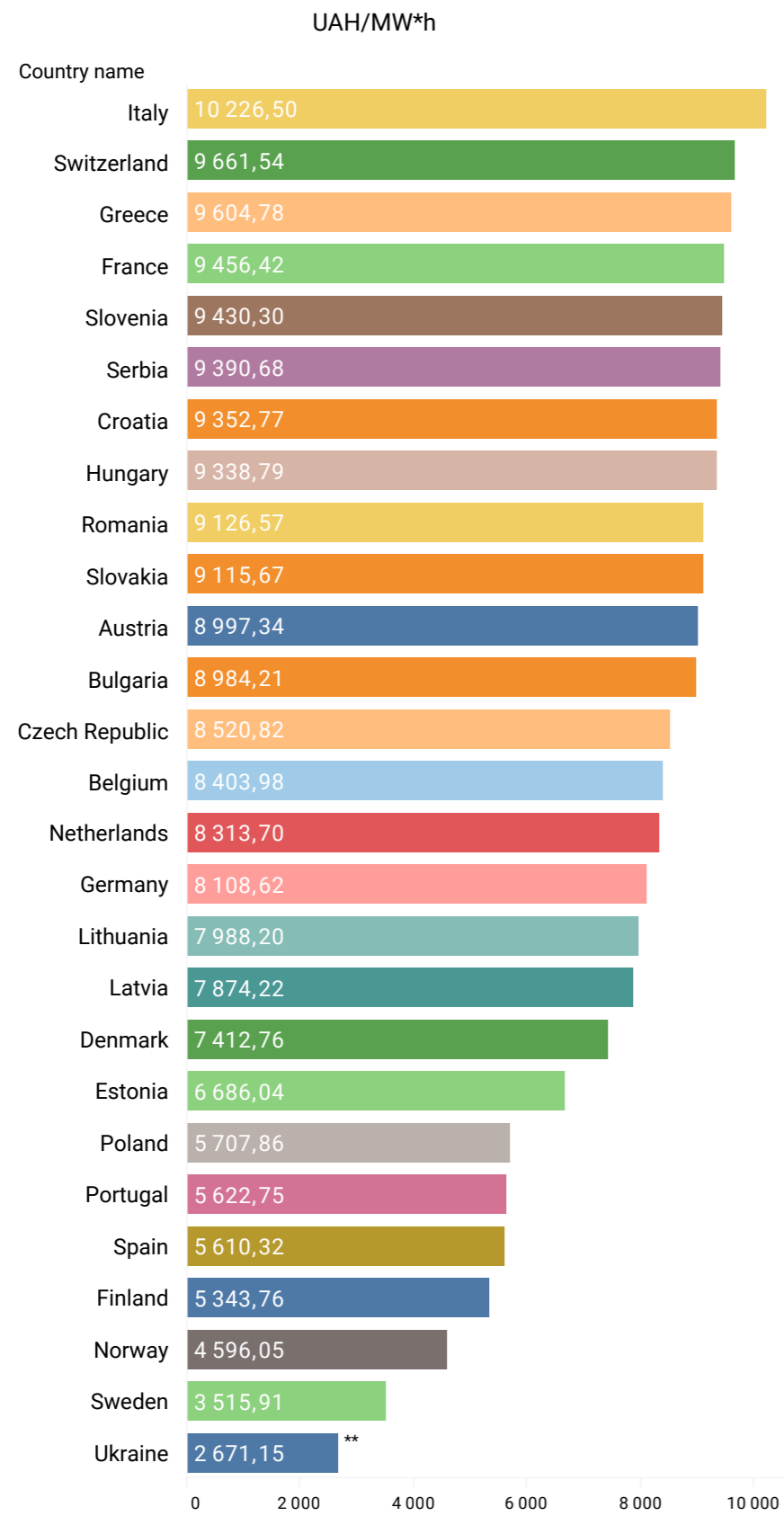


Country name	1	2	3	4	5	6	7	8	9	10	11
Austria	8 032	7 450	7 230	6 967	7 034	7 664	9 038	10 040	10 269	9 723	9 169
Belgium	7 962	7 400	7 146	6 853	6 871	7 308	8 575	9 702	9 985	9 237	8 328
Bulgaria	7 685	6 863	6 391	6 197	6 523	7 731	9 040	10 264	10 262	9 274	8 449
Greece	8 894	8 501	7 921	7 652	7 836	8 726	9 814	10 543	10 250	9 388	8 761
Denmark	6 597	6 209	6 011	5 869	5 906	6 308	7 549	8 725	9 036	8 303	7 571
Estonia	4 919	4 398	3 987	3 838	4 181	5 533	7 029	8 320	8 512	7 899	7 494
Spain	5 918	5 458	5 192	5 017	4 979	5 146	5 577	6 115	6 257	5 989	5 522
Italy	9 760	9 191	8 877	8 662	8 670	9 059	10 117	11 100	11 379	10 764	9 950
Latvia	6 147	5 399	5 136	4 960	5 275	6 553	8 309	9 656	9 871	9 214	8 630
Lithuania	6 355	5 656	5 401	5 206	5 477	6 684	8 433	9 745	9 965	9 261	8 672
Netherlands	8 013	7 410	7 162	6 899	6 891	7 310	8 519	9 635	9 948	9 218	8 210
Germany	7 440	6 936	6 690	6 507	6 584	7 094	8 386	9 461	9 705	8 899	8 068
Norway	4 264	4 079	3 969	3 884	3 903	4 096	4 395	4 911	5 198	5 110	4 957
Poland	5 214	4 851	4 719	4 676	4 737	4 912	5 773	5 833	6 135	5 695	5 149
Portugal	5 925	5 465	5 199	5 023	4 987	5 148	5 577	6 105	6 244	6 009	5 555
Romania	7 681	6 923	6 571	6 352	6 638	7 771	9 116	10 391	10 574	9 688	8 929
Serbia	8 278	7 514	7 104	6 880	6 954	7 681	9 048	10 251	10 599	10 037	9 579
Slovakia	7 841	7 216	6 955	6 752	6 861	7 582	9 156	10 265	10 518	9 756	9 106
Slovenia	8 301	7 677	7 406	7 116	7 188	7 895	9 343	10 482	10 791	10 126	9 543
Hungary	8 093	7 394	7 105	6 894	7 028	7 823	9 331	10 488	10 684	9 910	9 278
Ukraine	1 639	1 587	1 571	1 569	1 568	1 576	1 631	3 114	3 155	3 163	3 129
Finland	2 863	2 606	2 436	2 443	2 725	3 978	5 363	6 665	7 249	7 031	6 849
France	8 723	8 088	7 857	7 389	7 285	7 798	9 090	10 471	10 981	10 505	9 800
Croatia	8 115	7 422	7 121	6 849	6 990	7 798	9 285	10 417	10 725	10 050	9 482
Czech Republic	7 567	7 059	6 806	6 609	6 712	7 283	8 766	9 790	9 977	9 201	8 545
Switzerland	8 967	8 534	8 269	8 026	7 990	8 417	9 550	10 498	10 754	10 390	10 001
Sweden	2 254	2 054	1 970	1 933	2 034	2 414	3 320	4 385	4 818	4 674	4 431

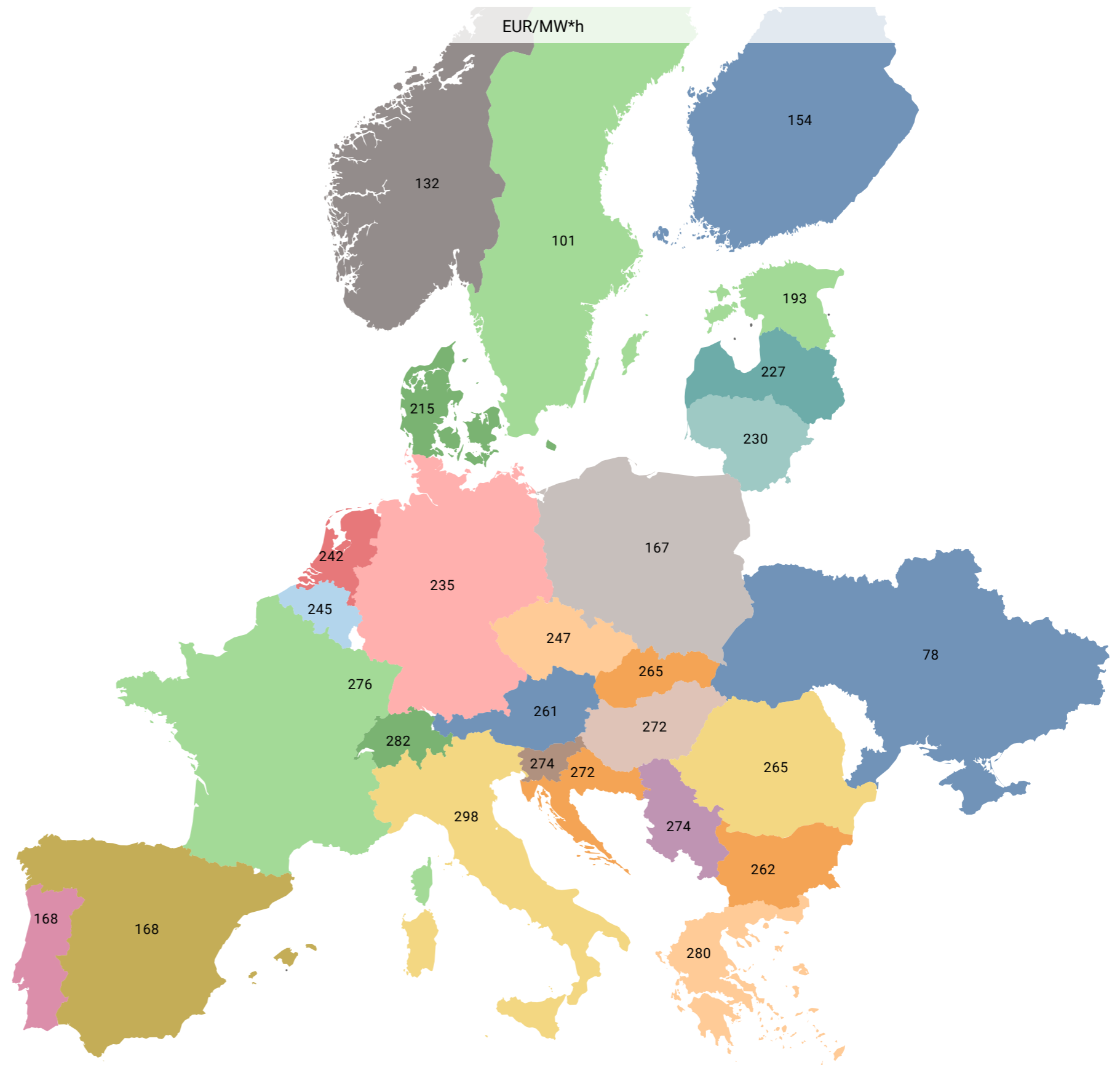
\*all prices are indicated without VAT \*\*data in the IPS of Ukraine

Hour												
12	13	14	15	16	17	18	19	20	21	22	23	24
9 007	8 815	8 551	8 524	8 732	9 155	10 003	10 765	11 311	10 753	9 882	9 371	8 452
7 771	7 096	6 784	6 864	7 241	7 849	9 328	10 570	11 110	10 553	9 651	9 202	8 310
8 042	8 137	7 916	8 207	9 008	10 039	11 127	12 033	12 558	11 770	10 218	9 584	8 304
8 461	8 500	8 146	8 421	9 271	10 396	11 440	12 165	12 774	12 164	10 813	10 284	9 395
7 088	6 541	6 192	6 124	6 476	7 085	8 415	9 334	9 789	9 288	8 528	7 954	7 008
7 124	6 871	6 533	6 588	6 879	7 267	8 382	8 885	9 051	8 061	7 598	6 339	4 776
5 181	5 092	5 007	4 821	4 695	4 808	5 207	5 767	6 411	6 976	7 017	6 535	5 960
9 573	9 280	8 930	9 157	9 595	10 322	11 190	12 098	12 966	12 514	11 507	10 763	10 013
8 286	8 145	7 563	7 690	8 001	8 265	9 608	9 851	10 273	9 437	8 650	7 695	6 367
8 328	8 173	7 594	7 712	8 032	8 345	9 700	9 960	10 456	9 611	8 744	7 773	6 435
7 517	6 752	6 373	6 489	7 009	7 733	9 392	10 406	10 986	10 558	9 689	9 202	8 208
7 557	6 996	6 610	6 605	7 052	7 715	9 147	10 204	10 803	10 193	9 313	8 811	7 830
4 778	4 588	4 480	4 428	4 530	4 711	4 995	5 143	5 135	5 029	4 808	4 606	4 308
5 024	4 947	4 898	4 940	5 208	5 699	6 400	7 258	8 053	8 058	6 949	6 552	5 308
5 231	5 122	5 038	4 851	4 726	4 837	5 217	5 775	6 414	6 979	7 018	6 535	5 965
8 634	8 586	8 338	8 433	9 120	10 003	11 000	11 963	12 549	11 735	10 238	9 543	8 263
9 441	9 310	9 114	9 132	9 433	9 968	10 748	11 565	12 130	11 582	10 461	9 757	8 809
8 942	8 721	8 400	8 446	9 038	9 797	10 632	11 414	12 059	11 402	10 183	9 414	8 319
9 428	9 239	8 949	8 977	9 348	9 832	10 583	11 520	12 248	11 529	10 340	9 706	8 760
9 073	8 880	8 594	8 650	9 267	10 014	10 886	11 770	12 447	11 764	10 457	9 710	8 593
3 117	3 102	3 107	3 115	3 142	3 190	3 261	3 359	3 366	3 356	3 338	3 281	1 671
6 585	6 327	5 965	5 869	6 005	6 286	6 907	7 367	7 025	5 966	5 733	4 738	3 272
9 600	9 476	8 933	8 929	8 873	9 070	10 091	11 097	11 873	11 329	10 380	9 952	9 366
9 362	9 193	8 904	8 943	9 348	9 871	10 660	11 571	12 247	11 551	10 329	9 645	8 588
8 200	7 845	7 521	7 496	7 962	8 587	9 679	10 570	11 204	10 626	9 633	8 966	7 895
9 782	9 435	9 175	9 100	9 237	9 603	10 336	11 043	11 546	11 198	10 482	10 056	9 490
4 167	3 858	3 647	3 576	3 682	3 909	4 472	4 711	4 603	4 210	3 700	3 157	2 404

Yellow - lower price Blue - higher price



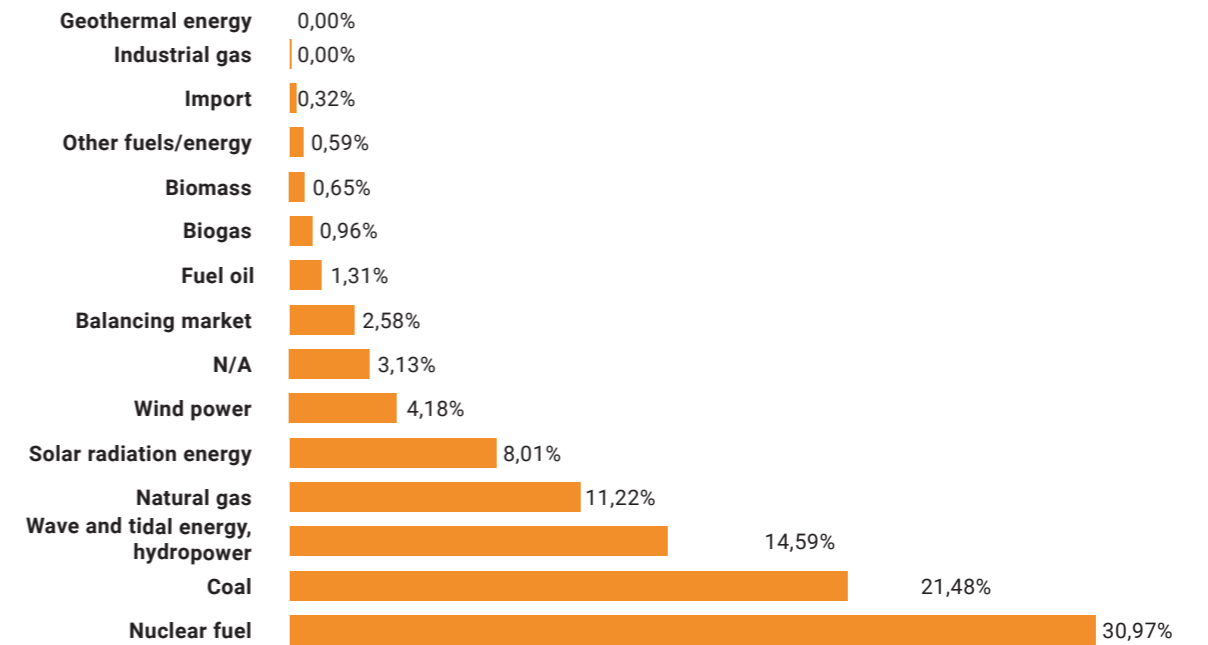
\*all prices are indicated without VAT \*\*data in the IPS of Ukraine





# ENVIRONMENTAL ASPECTS

Share of each energy source used to generate electricity sold in the DAM and the IDM in 2022



\*Due to rounding up to 2 decimal places, the amount of interest may differ from 100%.

30.97% of electricity sold on the day-ahead and intraday markets in 2022 was generated from nuclear fuel and 21.48% from coal.

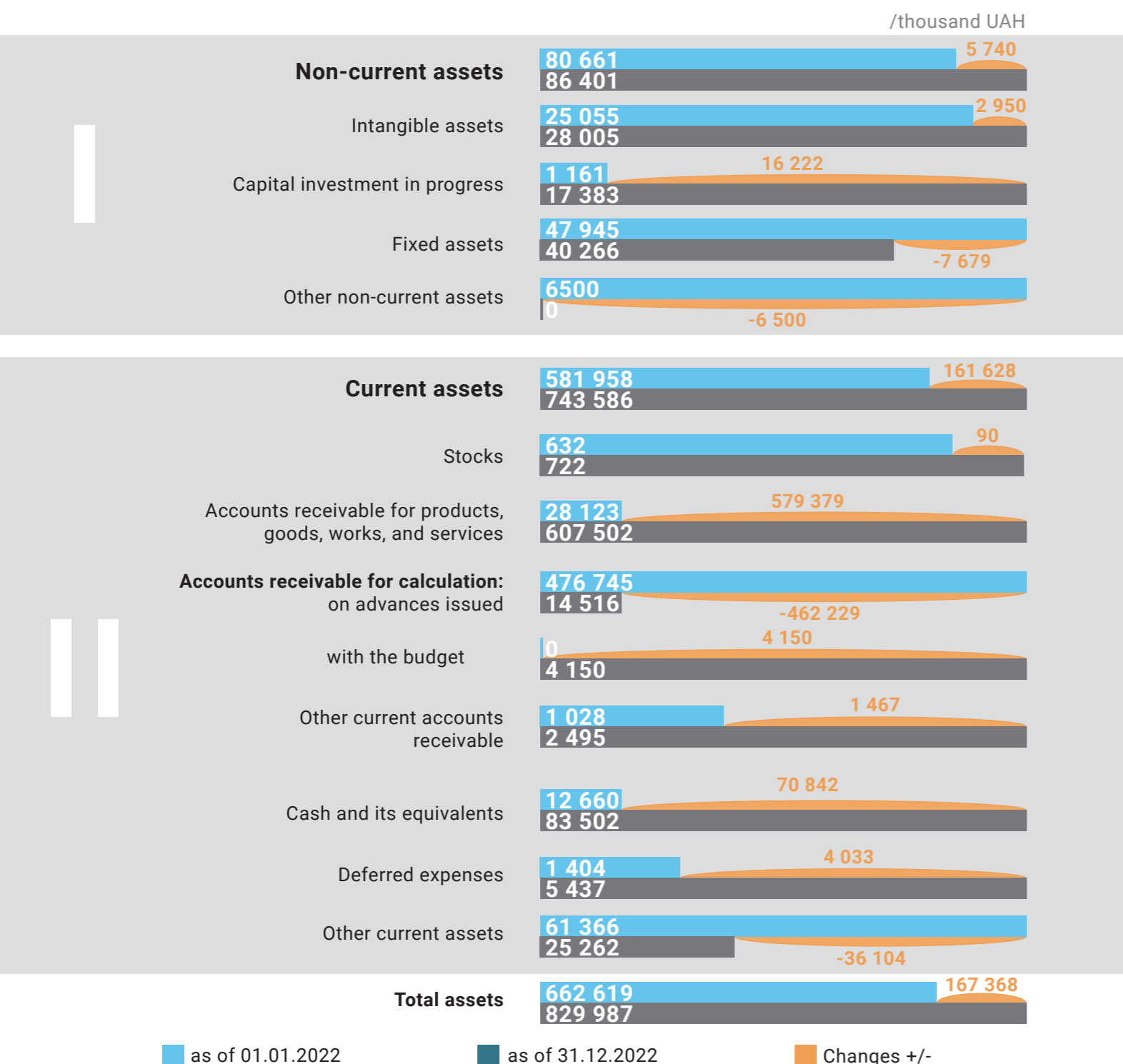
The share of electricity sold on DAM and IDM generated from hydropower last year was 14.59%, natural gas - 11.22%, solar energy - 8.01%, wind energy - 4.18%, fuel oil - 1.31%, biogas - 0.96%, biomass - 0.65%.

2.89% of electricity sold in 2022 at DAM and IDM, the source of origin of which has not been determined. The share of another 3.13% of the electricity source is unknown due to the failure of some market participants to provide relevant information.

# FINANCIAL INDICATORS OF JSC "MARKET OPERATOR"

## Liquidity and commitments

### Asset structure of JSC "Market Operator" in 2022, thousand UAH.

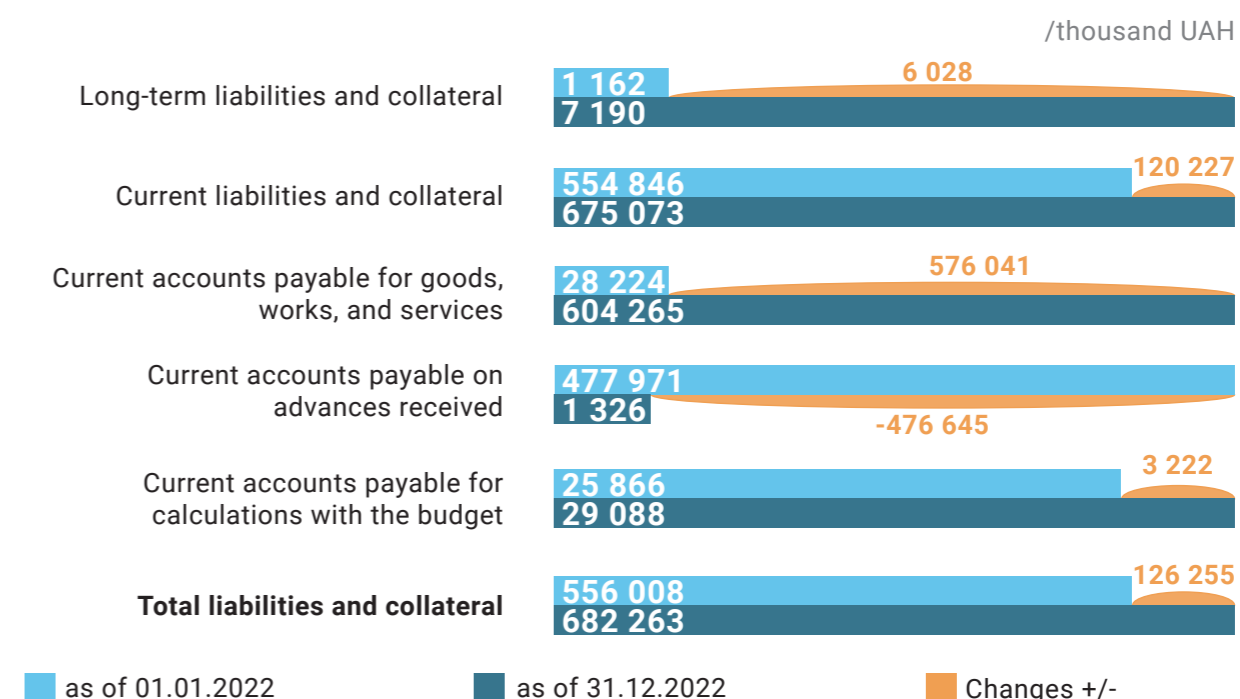


Assets of JSC "Market Operator" have increased by UAH 167,368 thousand since the beginning of the year and, as of 31.12.2022, amounted to UAH 829,987 thousand. The share of current assets has increased by 2% since the beginning of the year.

The most liquid assets of JSC "Market Operator" remain cash, the share of which in the balance sheet currency increased from 2% to 10%, which is due to an increase in the volume of purchase and sale of electric energy on DAM/IDM in the fourth quarter of 2022.

As of 31.12.2022 the share of accounts receivable of the Market Operator amounted to 76% of the balance sheet currency. A significant share of accounts receivable consists of obligations for payments for electric energy (UAH 604,154 thousand). The occurrence of such debt is solely due to the peculiarities of the functioning of the day-ahead market and the intraday market and the reflection in accounting of settlements on the day-ahead market on the last day of the month.

### Structure of liabilities of JSC "Market Operator" in 2022



Liabilities and collateral of the Market Operator have increased since the beginning of the year and, as of 31.12.2022, amounted to UAH 682,263 thousand.

Long-term liabilities (consisting of obligations under the agreement with SFERA, a.s for support services, granting the right to use XMtrade and long-term liabilities for settlements with employees) increased to UAH 7,190 thousand in 2022, due to the conclusion of a new agreement in June 2022 for granting the right to use software with SFERA, a.s and the corresponding reflection of the cost of these services in long-term liabilities (in accordance with International Financial Reporting Standards).

Current liabilities of the Market Operator increased by 21.7% and, as of 31.12.2022, amounted to UAH 675,073 thousand. The largest liability in the structure of liabilities is the current debt for electric energy (88.6%) in the amount of UAH 604,154 thousand. Taking into account the peculiarities of the organization of purchase and sale of electric energy on the DAM and IDM established by law, accounts payable for electric energy (UAH 604,154 thousand) are fully covered by accounts receivable for electric energy (UAH 604,154 thousand).

One of the criteria for assessing the company's financial condition is its liquidity and solvency.

The company has a sufficient level of liquidity, as evidenced by the coverage ratio (current liquidity) - 1.10. This ratio indicates the sufficiency of resources that can be used to repay current liabilities (the standard value is  $> 1-1.5$ ).

The financial stability coefficient of JSC "Market Operator", which can be used to determine the company's ability to repay debts in the short and long term at the expense of existing equity, at the end of 2022 is 0.22. Without taking into account the current accounts payable for electric energy in the amount of UAH 604,154 thousand, which is fully covered by accounts receivable for electric energy, the solvency coefficient of JSC "Market Operator" will be 1.9, which allows the company to completely cover the existing accounts payable with its own capital.

The working capital required to maintain the company's financial stability at the end of 2022 amounted to UAH 68,513 thousand. That is, the excess of working capital over short-term liabilities means that the "Market Operator" can not only repay its short-term liabilities, but also has reserves for expanding its activities and investing assets in its further development.

## TARIFF POLICY

Starting from January 1, 2022, the tariff for the purchase and sale of electricity on the day-ahead market and the intraday market amounted to UAH 3.30/MW\*h (excluding VAT). Fixed payment for participation in trading on the day-ahead market and the intraday market is UAH 2,645.16 (excluding VAT).

Since the actual trading volumes on DAM and IDM have decreased fivefold since March relative to the planned ones, which created a risk for the effective development of the spot electricity market in Ukraine, the National Commission for State Regulation of Energy and Public Utilities has changed the tariff of the "Market Operator" from May 20, 2022 by UAH 13.31/MW\*h.

In the third quarter of 2022, compared to the second quarter, the trading volume increased by 47.8%. Accordingly, JSC "Market Operator" initiated a revision of the tariff and from November 21, 2022 it was reduced by 33% - UAH 8.89/MW\*h (excluding VAT).

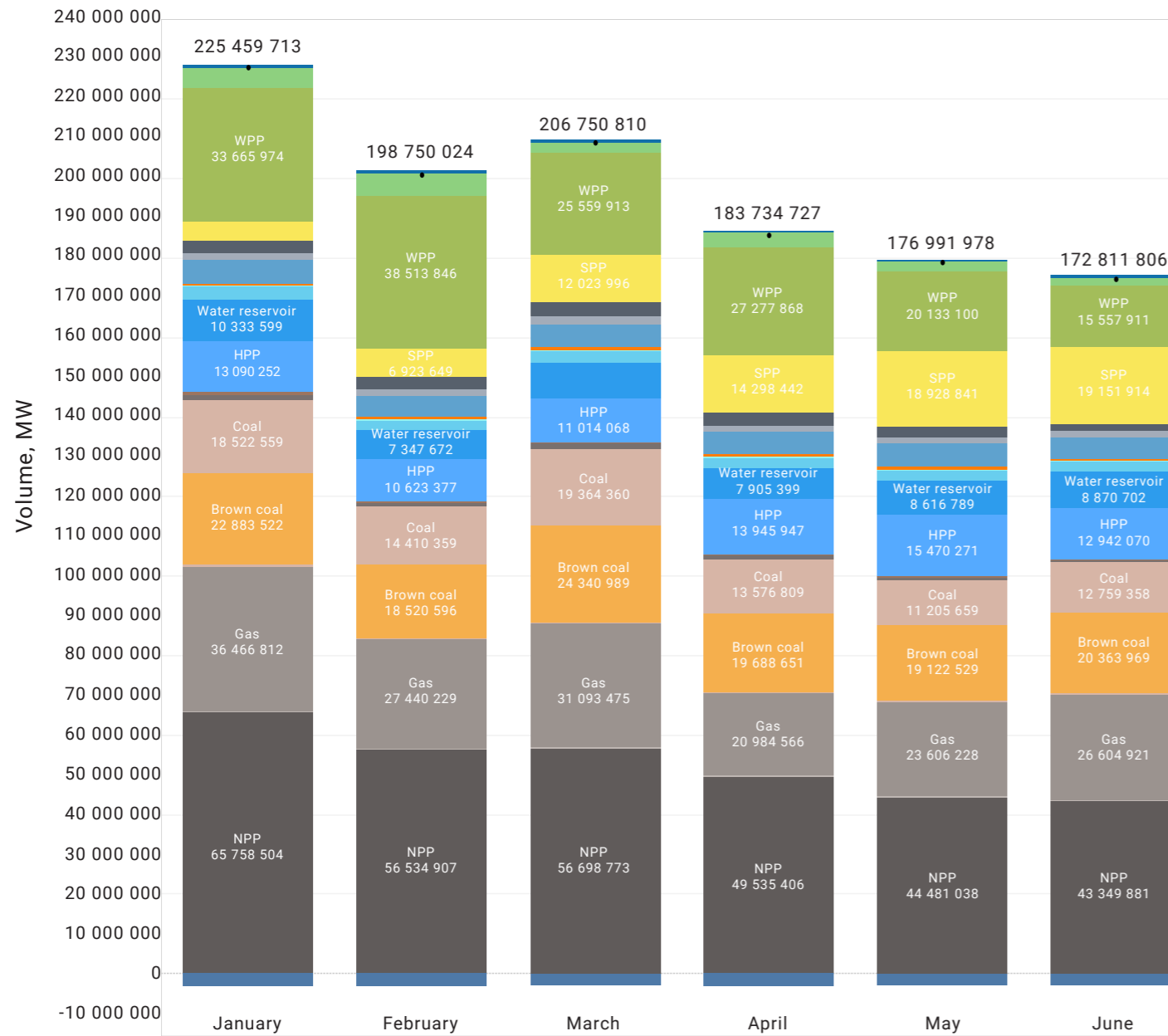
At the same time, the fixed payment for using the "Market Operator"'s software has increased to UAH 3,359.51 (excluding VAT) since November 21. This is due to the which can be used to determine the company's ability to repay debts in the short and long term at the expense of existing equity, growth of the euro exchange rate and a 25% decrease in the number of companies that sold and bought electricity on the site of the "Market Operator".

# ANALYTICAL SERVICES

## Pricing policy of the DAM of Ukraine and Europe, modeling of average prices, hourly structure of electricity production was implemented

The "Market Operator" offered electricity market participants a detailed analysis of the work of the spot market in Ukraine and Europe in 2022. The company has introduced a new service for sellers and buyers of electric energy, which allows to access data on the work of the day-ahead market and the intraday market, prices and volumes of accepted electricity for a month, day, in the context of hours, with the exception of insider and confidential information.

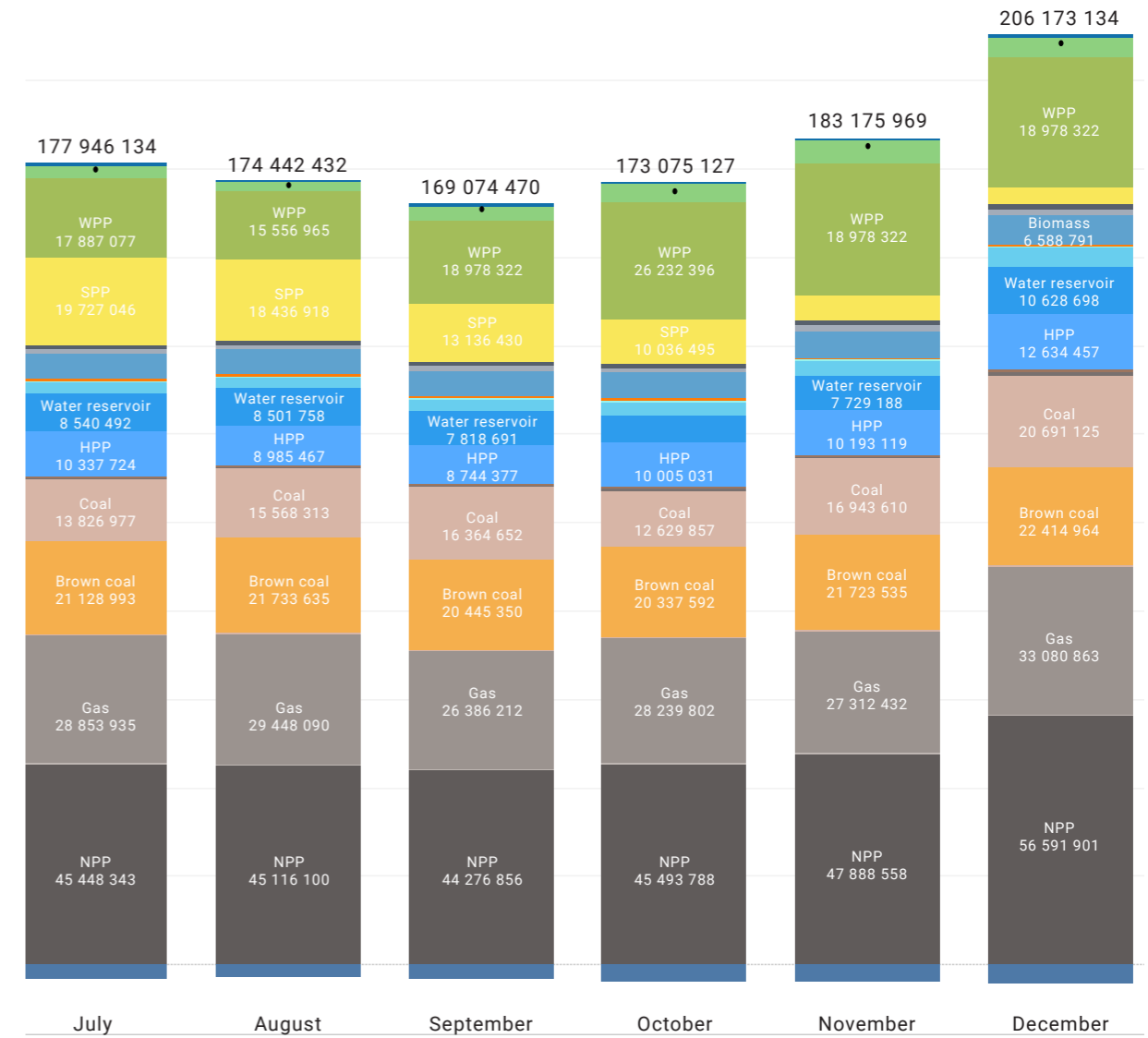
### Monthly production of electricity by European countries



Service for hourly modelling of electricity prices on the D+3 DAM of Slovakia and Romania was offered for traders. Ukraine has a common intersection with these countries and average prices in some hours of the day there are significantly lower than in the Ukrainian DAM.

Market participants can also get a detailed analysis of the results of trading on the DAM and IDM of Slovakia, Romania, the Czech Republic and Hungary. This information allows to study the trading strategies of European businesses in the context of hourly electricity purchases and better prepare for market coupling with Europe.

The pricing policy of 32 EU countries, minimum and maximum prices in UAH and EUR are also available. Market participants also pay attention to the hourly structure of electric energy production by type of generation in a convenient interactive visualization, which is updated daily.



# INTERNATIONAL QUALITY STANDARDS

In 2022, JSC "Market Operator" successfully passed the annual international audit for compliance of the anti-corruption management system with the international standards ISO 37001:2016.



The General Director of JSC "Market Operator"  
Oleksandr Havva

« Only few organizations have an ISO 37001 certificate in Ukraine. And we are proud to be among those who have transparent anticorruption mechanisms.

*This standard also includes compliance requirements for financial control, conflicts of interest, verification of the company's counterparties, and procurement.*

*Availability of a document of this level confirms the transparency of the work of the "Market Operator", which is very important in view of the company's European integration processes.*



Also in 2022, on the basis of an audit conducted by Ukrmetrteststandard, the company received certificates of compliance of the Environmental Management System with the requirements of ISO 14001:2015, and Occupational Health and Safety Management System with the requirements of ISO 45001:2019.

ISO 14001:2015 certification certifies the responsible environmental policy of the company, economical use of energy and raw materials, and therefore the care of the "Market Operator" for the environment.

The social responsibility of JSC "Market Operator" is confirmed by the ISO 45001:2019 certificate. The company takes care of the professional safety and health of employees, works with the risks associated with industrial injuries and emergencies.

The anti-corruption compliance program was implemented in JSC "Market Operator" in 2019. The following year, the company successfully passed an external audit and received an international certificate of compliance with ISO 37001 standards of the built anti-corruption management system. In 2022, a second audit was held, which confirmed that the anti-corruption measures implemented in JSC "Market Operator" comply with international standards.

## IT INFRASTRUCTURE DEVELOPMENT AND CYBERSECURITY

Modern technologies and solutions, embedded in the IT infrastructure of JSC “Market Operator”, have ensured the stable functioning of the DAM and IDM in the conditions of war, constant attacks on the energy infrastructure of Ukraine and long-term power outages.

The introduction of new tools for remote work, the rapid application of new technological solutions made it possible to quickly adapt the company’s business processes to work under martial law. We continued to improve the level of information security and develop information support for the spot market. In 2022, in particular:

**1** The ETS/UA software package has been upgraded in terms of automatic reception and aggregation of data on escrow account balances. This allowed DAM and IDM participants to simultaneously use escrow accounts with several authorized banks.

**2** Together with the Pukhov Institute for Modelling in Energy Engineering, National Academy of Sciences of Ukraine, an independent mathematical model for determining the price and volume of DAM was developed, taking into account additional block applications (related, flexible, etc.). This model was implemented by the Department’s specialists in the ETS/UA software package using the IBM Ilog CPLEX solvory software.

**3** Within the framework of the Memorandum of Cooperation concluded with the Pukhov Institute for Modelling in Energy Engineering, a mathematical model for calculating the short-term forecast of hourly demand for DAM was developed and implemented in pilot operation, which will allow analysing pricing trends for DAM and identifying potential atypical behaviour of market participants.

**4** The use of a Qualified Electronic Signature has been as introduced in all processes of the company’s Electronic Document Management, which significantly reduced the time required for preparing and approving all types of documents and minimized the use of paper.

**5** A vulnerability scanner has been implemented, which is a powerful tool for monitoring and eliminating possible information security shortcomings, providing automatic monitoring and analysis of the society’s IT environment to identify potential ways of malicious intervention (“hacker” attacks, distribution of malicious software, etc.).

**6** With the help of the «Tableau» business intelligence platform and implemented by the specialists of the Department the data collection on the work of energy industry of Ukraine was provided, its generation, processing analysis and visualization on the website of the Market Operator for the Operations Energy working group.

## DEVELOPMENT STRATEGY

JSC "Market Operator" is ready to take on the most difficult challenges related to the development of Ukrainian energy. Our main advantage is transparent 24/7 work, operational daily settlements between those who sold and those who bought electricity, market pricing, high-quality communication and detailed analytics about the work of the day-ahead market and the intraday market. We have a development strategy and interesting IT solutions for the state and business.

### Electricity trade under bilateral contracts

Law of Ukraine No. 3508-д provided JSC "Market Operator" with the opportunity to conduct auctions of electric energy under bilateral contracts. The company has developed and tested the relevant software. It has received an international certificate on information security. To achieve this goal, it remains to obtain a commodity exchange license from the NCSSM (National Commission for Securities and Stock Market) and license the software.

### Netting on DAM and IDM as the first step for implementing clearing settlements between electricity market participants

Netting on DAM and IDM is necessary to facilitate the management of non-cash turnover, and in the future to introduce full-fledged clearing. The company has developed a corresponding draft of amendments to the rules of the electric energy market and is awaiting their approval by the NCSREPU.

### Data collection and aggregation according to international REMIT standards

According to the draft law No. 5322 "On Amendments to Certain Laws of Ukraine concerning the Prevention of Abuse in Wholesale Energy Markets" adopted in the first reading, JSC "Market Operator" should become an administrator for collecting and aggregating data provided by market participants for the possibility of monitoring energy markets by the regulator. After the implementation of this Law by the NCSREPU, the "Market Operator" is technically ready to provide the functions assigned to it by legislators. The JSC "Market Operator" plans to develop and implement a software package to perform the functions of a registered reporting mechanism in 2023.

### Coupling of the spot market of Ukraine with SDAC Europe and SIDC

The CACM Regulation 2015/1222 granted Ukraine the right to merge the spot market with the European one as the Energy Community Contracting Party. JSC "Market Operator" is a part of this European integration process and has already joined the Committee of European market operators – All NEMO Committee - as an observer of the work of the United spot electricity market of the EU. After the implementation of the EU Regulation by the NCSREPU, the company is ready to conclude contracts with the European NEMOs and TSOs, as well as to start market coupling with the EU.

### VAT fund for covering a potential deficit that may arise due to the problem of registering tax invoices

The issue of VAT is very sensitive for the "Market Operator" as a central counterparty in the spot electricity market of Ukraine. The company's income from the implementation of economic activities for the implementation of the functions of the market operator consists of the tariff, approved by the NCSREPU, to implement operations for the purchase and sale of electric energy on the "day-ahead" market and the intraday market and a fixed payment for the use of the "Market Operator"'s Software. Accordingly, there are no components in the tariff structure that would ensure the cost of adding funds to the account in the electronic VAT administration system in cases of late registration or blocking of tax invoices of electricity sellers. Therefore, the NCSREPU proposed to create a VAT Fund to cover the potential deficit that may arise due to the problems of registering tax invoices.

### Trade in certificates of origin of electric energy

New trading projects are needed for the development of JSC "Market Operator". One of them can be the trade in certificates of origin of electricity, which in turn will be our contribution to environmental protection.



**MARKET  
OPERATOR**  
/EQUILIBRIUM ENERGY/



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