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**REPORT**

**ANALYSIS OF THE ELECTRICITY AND COAL MARKET OF KAZAKHSTAN**

**JANUARY-SEPTEMBER 2021**

**DEPARTMENT "MARKET DEVELOPMENT"**

**October, 2021**

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# **SECTION I**

# **Electricity generation in the UES of Kazakhstan**

According to the System Operator, power plants of the Republic of Kazakhstan in January-September 2021 generated 83,852.9 million kWh of electricity, which is 7.8% more than the same period in 2020. The growth in generation was observed in all zones of the UPS of Kazakhstan.

*million kWh*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Zone** | **Generation type** | **January-September** | | **Δ, %**  **2020** |
| **2020** | **2021** |
| **Kazakhstan** | **Total** | **77756.0** | **83852.9** | **7.8%** |
| *TPP* | 61628.4 | 66331.1 | 7.6% |
| *GTES* | 7037.1 | 7798.8 | 10.8% |
| *hydroelectric power station* | 7316.8 | 7161.5 | -2.1% |
| *WES* | 739.4 | 1184.7 | 60.2% |
| *SES* | 1030.7 | 1374.3 | 33.3% |
| *BSU* | 3.6 | 2.5 | -30.6% |
| **Northern** | **Total** | **59451.1** | **64402.6** | **8.3%** |
| *TPP* | 51409.0 | 56260.8 | 9.4% |
| *GTES* | 2407.8 | 2213.0 | -8.1% |
| *hydroelectric power station* | 4912.6 | 4944.9 | 0.7% |
| *WES* | 340.8 | 534.5 | 56.8% |
| *SES* | 377.3 | 446.9 | 18.4% |
| *BSU* | 3.6 | 2.5 | -30.6% |
| **South** | **Total** | **8363.9** | **8851.7** | **5.8%** |
| *TPP* | 5002.2 | 5092.3 | 1.8% |
| *GTES* | 2404.2 | 2216.6 | -7.8% |
| *hydroelectric power station* | 125.5 | 194.5 | 55.0% |
| *WES* | 181.1 | 423.5 | 133.8% |
| *SES* | 650.9 | 924.8 | 42.1% |
| **Western** | **Total** | **9941.0** | **10598.6** | **6.6%** |
| *TPP* | 5217.2 | 4978.0 | -4.6% |
| *GTES* | 4503.8 | 5391.3 | 19.7% |
| *WES* | 217.5 | 226.7 | 4.2% |
| *SES* | 2.5 | 2.6 | 4.0% |

# 

# *Electricity generation by regions of the Republic of Kazakhstan*

In January-September 2021, compared to the same period in 2020, electricity generation increased significantly (an increase of 15% or more) in Akmola, Zhambyl, Kyzylorda, Pavlodar and Turkestan regions. At the same time, a decrease in electricity generation was observed in Aktobe, Almaty, East Kazakhstan, Karaganda, Kostanay, Mangystau, North Kazakhstan regions.

*million kWh*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No. p / p** | **Region** | **January-September** | | **Δ, %** |
| **2020** | **2021** |
| 1 | Akmola | 3,292.1 | 3,857.4 | 17.2% |
| 2 | Aktobe | 2910.0 | 2,729.7 | -6.2% |
| 3 | Almaty | 5239.4 | 5,138.9 | -1.9% |
| 4 | Atyrau | 4,567.2 | 5,126.9 | 12.3% |
| 5 | East Kazakhstan | 6978.2 | 6,875.8 | -1.5% |
| 6 | Zhambyl | 1661.2 | 1951.4 | 17.5% |
| 7 | West Kazakhstan | 1651.7 | 1,758.8 | 6.5% |
| 8 | Karaganda | 12,232.8 | 11,530.5 | -5.7% |
| 9 | Kostanay | 772.1 | 735.9 | -4.7% |
| 10 | Kyzylorda | 370.0 | 457.5 | 23.6% |
| 11 | Mangistau | 3,722.1 | 3,712.9 | -0.2% |
| 12 | Pavlodar | 30,884.7 | 36,613.5 | 18.5% |
| 13 | North Kazakhstan | 2381.2 | 2059.8 | -13.5% |
| 14 | Turkestan | 1,093.3 | 1303.9 | 19.3% |
|  | **Total for Kazakhstan** | **77,756.0** | **83,852.9** | **7.8%** |

The volume of electricity production by energy producing organizations of Samruk-Energy JSC for January-September 2021 amounted to 26,252.9million kWh or an increase of 24.6% compared to the same period in 2020.

*million kWh*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2020** | | **2021** | | **Δ 2021/2020** | |
| **January-September** | **share in Kazakhstan, %** | **January-September** | **share in Kazakhstan, %** | **million kWh** | **%** |
|  | **JSC "Samruk-Energy"** | **21,072.7** | **27.1%** | **26,252.9** | **31.3%** | **5,180.2** | **24.6%** |
| *1* | *JSC AlES* | 3775.4 | *4.9%* | 3649.3 | *4.4%* | *-126.1* | *-3.3%* |
| *2* | *LLP "Ekibastuz GRES-1"* | *13,023.6* | *16.7%* | 16398.4 | *19.6%* | *3374.8* | *25.9%* |
| *3* | *JSC "Ekibastuz GRES-2"* | *3,028.5* | *3.9%* | 5071.5 | *6.0%* | *2043.0* | *67.5%* |
| *4* | *JSC "Shardara HPP"* | *422.3* | *0.5%* | 398.2 | *0.5%* | *-24.1* | *-5.7%* |
| *5* | *JSC "Moinak HPP"* | *706.0* | *0.9%* | 622.9 | *0.7%* | *-83.1* | *-11.8%* |
| *6* | *Samruk-Green Energy LLP* | *3.2* | *0.004%* | 14.9 | *0.018%* | *11.70* | *365.6%* |
| *7* | *LLP "First wind power plant"* | *113.7* | *0.1%* | 97.7 | *0.1%* | *-16.0* | *-14.1%* |

# **Electricity consumption in the UES of Kazakhstan**

# *Consumption of electrical energy by zones and regions*

According to the System Operator, in January-September 2021, there was an increase in the dynamics of electricity consumption in the republic compared to January-September 2020 by 7%. So, in the northern zone of the republic, consumption increased by 6%, in the southern zone by 12% and in the western zone by 7%.

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **I nv a r - september 20 20** | **I january - september 20 21 \_ \_** | **Δ,  million kWh** | **Δ, %** |
| **I** | **Kazakhstan** | **77,594.4** | **83193.1** | **5,598.7** | **7%** |
| 1 | Northern zone | 51,082.4 | 54057.0 | 2974.6 | 6% |
| 2 | Western zone | 9,974.9 | 10637.6 | 662.7 | 7% |
| 3 | Southern zone | 16,537.0 | 18498.5 | 1961.5 | 12% |
|  | ***including by regions*** |  |  |  |  |
| 1 | East Kazakhstan | 6,739.4 | 6893.1 | 153.7 | 2% |
| 2 | Karaganda | 13,429.1 | 13906.2 | 477.1 | 4% |
| 3 | Akmola | 6417.8 | 7314.6 | 896.8 | 14% |
| 4 | North Kazakhstan | 1,182.3 | 1253.6 | 71.3 | 6% |
| 5 | Kostanay | 3315.6 | 3510.8 | 195.2 | 6% |
| 6 | Pavlodar | 15,127.3 | 16108.2 | 980.9 | 6% |
| 7 | Atyrau | 4624.9 | 4867.2 | 242.3 | 5% |
| 8 | Mangistau | 3,718.6 | 3900.6 | 182.0 | 5% |
| 9 | Aktobe | 4,870.9 | 5070.4 | 199.5 | 4% |
| 10 | West Kazakhstan | 1631.4 | 1869.8 | 238.4 | 15% |
| 11 | Almaty | 7997.6 | 8947.4 | 949.8 | 12% |
| 12 | Turkestan | 3,720.1 | 4198.8 | 478.7 | 13% |
| 13 | Zhambyl | 3,585.8 | 3928.9 | 343.1 | 10% |
| 14 | Kyzylorda | 1233.5 | 1423.5 | 190.0 | 15% |

# **The results of the industry in January-September 2021**

*(express information of the Bureau of National Statistics ASPR RK)*

January-September 2021 compared to January-September 2020, the industrial production index (hereinafter referred to as IPP) amounted to 102.7%. An increase in production volumes was recorded in 14 regions of the republic, a decrease was observed in Atyrau, West Kazakhstan and Mangystau regions.

**Changes in industrial output by region**

*in % to the corresponding period of the previous year*

In the city of Almaty , due to an increase in the production of plastic bags, boxes, boxes made of paper or cardboard, ready-mixed concrete, mortars, steel pipes, building prefabricated metal structures, furniture, cars and trucks, buses, the IPP amounted to 120.1 % .

In the Almaty region, the IPP amounted to 113.6 % due to an increase in the production of soft drinks, fruit and vegetable juices, pasta, sugar, plastic pipes, prefabricated metal structures, ready-mixed concrete, Portland cement, mortars.

In the city of Nur-Sultan, the IPP amounted to 112.6 % due to the growth in the production of soft drinks, preforms, ready-mixed concrete, mortars, refined gold, switchboards, building prefabricated structures made of cement and concrete, and the production of railway and diesel locomotives.

In the Kostanay region , the IPP amounted to 108.6 % due to an increase in the extraction of gold and aluminum ores, copper and iron ore concentrates, iron ore pellets , the production of flour, butter, bran, asbestos, gold in doré, hot-rolled steel bars and rods, tractors, harvesters and cars .

In the Akmola region by increasing the extraction of gold ores, the production of chilled poultry meat, pesticides , prepared animal feed, pipes and hoses made of rubber, slag wool, natural uranium, the production of combines, tractors and trucks IPP was 108.6%.

In the North-Kazakhstan region, due to the growth in the production of milk , flour, confectionery, linseed oil, packaging bags and packages , plastic pipes, an increase in the production of freight cars , the IPP amounted to 10 6.7 %.

In the city of Shymka, due to the increase in the production of soft drinks, sunflower oil, medicines, Portland cement, fuel oil, diesel fuel, motor oil, transformers, plastic pipes, electrical wires and cables, the IPP amounted to 106.5 % .

In the Zhambyl region, due to the growth in the extraction of gold ores, finely ground phosphate raw materials, the production of sugar, pesticides, phosphate fertilizers, pharmaceuticals, ferrosilicomanganese, orthophosphoric acid, diesel fuel, bituminous mixtures, and heating oil, the IPP amounted to 10 5.5 % .

In the Aktobe region, the IPP amounted to 104.8% due to an increase in the production of oil, gas condensate, zinc concentrates, iron ores, an increase in the production of ready-made animal feed, chromium salts, chromium oxide, sodium bichromate, diesel fuel, heating oil, building prefabricated metal structures, medical equipment.

In the East Kazakhstan region , the IPP amounted to 104.4 % due to an increase in the extraction of copper, gold-bearing and lead-zinc ores, gold-bearing concentrates, the production of finished animal feed, refined gold, enriched uranium, trucks and tractors.

In Pavlodar region , the IPP amounted to 104.3 % due to the growth in the extraction of copper ores, the production of pesticides, ferrosilicon chromium, propylene polymers, gasoline, diesel fuel, kerosene , steel rods and rods, electrical wires and cables, and electricity .

In the Turkestan region due to the growth in the extraction of uranium and thorium ores, gold concentrates, the production of soft drinks, flour, sausages, electrical transformers, circuit breakers, building prefabricated metal structures IPP amounted to 10 2 , 4 %.

In the Kyzylorda region, the IPP amounted to 100.5% due to an increase in the extraction of uranium and thorium ores, the production of rice, sulfuric acid, lime, Portland cement, building prefabricated concrete structures.

In the Karaganda region, the growth of IPP amounted to 100.2 % due to an increase in the extraction of coal, gold concentrates, lead-zinc ores, the production of medicines, coke and semi-coke from hard coal, pig iron, flat and galvanized rolled products, unalloyed steel, copper wire .

In Mangistau (97.6%) and Atyrau (96.8%) regions, the IPP decreased mainly due to a reduction in crude oil production.

In West Kazakhstan IPP amounted to 92.9% due to a decrease in gas condensate production.

# *Electricity consumption by large consumers in Kazakhstan*

In January-September 2021, compared to the same period in 2020, electricity consumption by large consumers increased by 1.46%.

*million kWh*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Consumer** | **January-September** | | |
| **2020** | **2021** | **Δ, %** |
| 1 | ArcelorMittal Temirtau JSC | 2,747.1 | 2804.8 | 2% |
| 2 | JSC AFP (Aksu) "TNK Kazchrome" | 4327.2 | 3903.6 | -10% |
| 3 | Kazakhmys Smelting LLP | 900.6 | 810.9 | -10% |
| 4 | Kazzinc LLP | 2,123.7 | 2060.8 | -3% |
| 5 | JSC "Sokolovsko-Sarbayskoye GPO" | 1255.1 | 1,197.8 | -5% |
| 6 | Kazakhmys Corporation LLP | 956.7 | 964.0 | 1% |
| 7 | AZF JSC (Aktobe) "TNK Kazchrome" | 2411.1 | 2416.2 | 0% |
| 8 | RSE “Channel them. Satpaev" | 189.1 | 265.1 | 40% |
| 9 | Kazphosphate LLP | 1653.5 | 1491.5 | -10% |
| 10 | NDFZ JSC (part of Kazphosphate LLP) | 1455.1 | 1264.5 | -13% |
| 11 | LLP "Taraz Metallurgical Plant" | 182.5 | 223.6 | 22% |
| 12 | JSC "Ust-Kamenogorsk titanium and magnesium plant" | 556.7 | 501.0 | -10% |
| 13 | Tengizchevroil LLP | 1370.8 | 1354.5 | -1% |
| 14 | PAZ JSC (Pavlodar Aluminum Smelter) | 711.7 | 712.1 | 0% |
| 15 | JSC "KEZ" (Kazakhstan electrolysis plant) | 2812.8 | 2823.3 | 0% |
| 16 | TemirzholEnergo LLP | 1,053.0 | 1269.1 | 21% |
| 17 | JSC "KEGOC" | 3235.4 | 4,076.0 | 26% |
| **Total** | | **26,487.0** | **26,874.1** | **1.46%** |  |

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Name** | **January-September** | | **Deviation, million kWh** | **Δ , %**  **2020** |
| **2020** | **2021** |
| **I** | **JSC "Samruk-Energy"** | **5220.97** | **5,834.2** | **613.2** | **11.7%** |
| *1.* | *LLP "Bogatyr-Komir"* | 217.41 | 218.8 | 1.4 | 0.7% |
| *2.* | *JSC "AlatauZharyk Kompaniyasy"* | 644.30 | 685.0 | 40.7 | 6.3% |
| *3.* | *AlmatyEnergoSbyt LLP* | 4359.25 | 4930.4 | 571.1 | 13.1% |

# **Coal**

# *Coal mining in Kazakhstan*

According to the Bureau of National Statistics, Kazakhstan produced 79,097.6 thousand tons of hard coal in January-September 2021, which is 2% more than in the same period in 2020 (77,849.2 thousand tons).

*thousand tons*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Region** | **January-September** | | **Δ, %** |
| **2020** | **2021** |
| 1 | Pavlodar | 47,935.4 | 47,941.7 | 100% |
| 2 | Karaganda | 24 603.00 | 24,736.10 | 101% |
| 3 | East Kazakhstan | 5,219.90 | 6,004.80 | 115% |
|  | **Total for the Republic of Kazakhstan** | **77,849.20** | **79,097.60** | **102%** |

*Coal mining by Samruk-Energy JSC*

In January-September 2021, Bogatyr Komir LLP produced 32,991.5 thousand tons, which is 5.6% more than in the corresponding period of 2020 (31,249 thousand tons).

*Sale of coal by Samruk-Energy JSC*

In January-September 2021, 33,046 thousand tons were sold, including:

- to the domestic market of the Republic of Kazakhstan 25,917 thousand tons, which is 10.2% more than in the corresponding period of 2020 (23,528 thousand tons);

- for export (RF) - 7,128 thousand tons, which is 4.6% less than in the corresponding period of 2020 (7,475 thousand tons).

*thousand tons*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No. p / p** | **Region** | **Sales volume, thousand tons** | | **Δ, %**  **2021/2020** |
| **January-September 2020** | **January-September 2021** |
| **Total to the domestic market of the Republic of Kazakhstan** | | **23 528** | **25 917** | **110.2%** |
| **Total for export to Russia** | | **7475** | **7 128** | **95.4%** | **1 144** | **46.8%** |

# According to the indicators for January-September 2021, compared to the same period in 2020, the Company observed an increase in coal sales by 6.6%.

# **Renewable energy sources**

According to the system operator, the volume of electricity production by renewable energy facilities (SPP, WPP, BGS, small HPPs) of the Republic of Kazakhstan in January-September 2021 amounted to 3,395.6 million kWh. Compared to the period of January-September 2020 (2,406 million kWh), the increase was 41.1%.

million kWh

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **2020** | | **20 2 1g** | | **Deviation**  **2020/2021,** | |
| **January-September** | **share in Kazakhstan, %** | **January-September** | **share in Kazakhstan, %** | **million kWh** | **%** |
|  | **Total output in Kazakhstan** | **77756.0** | **100.0%** | **83852.9** | **100%** | **6096.9** | **7.8%** |
| **I** | **Total RES in the Republic of Kazakhstan, incl. by zones** | **2406.0** | **3.1%** | **3395.9** | **4.0%** | **989.9** | **41.1%** |
| 1. | *Northern zone* | *824.1* | *34.3%* | *1572.6* | *46.3%* | *748.5* | **90.8%** |
| 2. | *Southern zone* | *1308.2* | *54.4%* | *1618.5* | *47.7%* | *310.3* | **23.7%** |
| 3. | *Western zone* | *273.7* | *11.4%* | *204.8* | *0.0%* | *-68.9* | **-25.2%** |
| **II** | **Total RES in the Republic of Kazakhstan, incl. by type** | **2406.0** | **3.1%** | **3395.9** | **4.0%** | **989.9** | **41.1%** |
| 1. | *SES* | *1084.3* | *45.1%* | *1802.0* | *53.1%* | *717.7* | **66.2%** |
| 2. | *WES* | *736.9* | *30.6%* | *1047.8* | *30.9%* | *310.9* | **42.2%** |
| 3. | *Small HPPs* | *581.2* | *24.2%* | *543.8* | *16.0%* | *-37.4* | **-6.4%** |
| 4. | *BiogasInstallations* | *3.6* | *0.1%* | *2.3* | *0.1%* | *-1.3* | **-36.1%** |

January-September 2021 there is an increase in the production of electricity by solar power plants, wind farms and small hydropower plants compared to the same period in 2020.

million kWh

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2020** | | **2021** | | **Deviation 2020/2021,** | |
| **January-September** | **share in Kazakhstan, %** | **January-September** | **share in Kazakhstan, %** | **million kWh** | **%** |
|  | ***Electricity production in UES RK*** | **77756.0** | **100%** | **83852.9** | **100.0%** | **6096.9** | **7.8%** |
| 1. | Production of "clean" electricity (RES + Large HPPs) | 6674.9 | 8.6% | 8306.3 | 9.9% | 1631.4 | 24.4% |
| 2. | Production of "clean" electricity (RES excluding Large HPPs) | 2406 | 3.1% | 3395.9 | 4.0% | 989.9 | 41.1% |

Electricity generation by renewable energy facilities of Samruk-Energo JSC (SPP, WPP, small hydropower plants) for January-September 2021 amounted to 238.5 million kWh or 7% of the volume of electricity generated by renewable energy facilities in the Republic of Kazakhstan, which is compared to the same period in 2020 year lower by 4.9 % (in January-September 2020, the Company's RES generation amounted to 250.8 million kWh, and the share of the Company's RES was 14%).

million kWh

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2020** | | **2021** | | **Deviation 2020/2021,** | |
| **January-September** | **share in Kazakhstan, %** | **January-September** | **share in Kazakhstan, %** | **million kWh** | **%** |
| 1 | Production of “clean” electricity by Samruk-Energy JSC (RES excluding Large HPPs), including: | **250.8** | **14%** | **238.5** | **7.0%** | **-12.3** | **-4.9%** |
|  | *JSC AlES Cascade of small HPPs* | *133.9* | 0.7% | *129.6* | *3.8%* | -4.3 | -3.2% |
|  | *Samruk-Green Energy LLP SPP 2 MW* | *3.2* | 0.9% | *0.6* | *0.0%* | -2.6 | -81.3% |
|  | *Samruk-Green Energy LLP WPP Shelek 5 MW* |  |  | *10.6* | *0.0%* | 10.6 |  |
|  | *First Wind Power Plant LLP WPP 45 MW* | *113.7* | 0.9% | *97.7* | *2.9%* | -16.0 | -14.1% |

# **Centralized electricity trading JSC "KOREM"**

*(information of KOREM JSC)*

*General trading results*

Based on the results of the centralized trading in electricity in September 2021, 68 transactions were concluded in the amount of 277,476 thousand kWh for a total amount of 3,360,372.36 thousand tenge (excluding VAT) (including spot trading in the “one day ahead” mode » and trades for the medium and long term), including:

* spot trading in the "one day ahead" mode - 57 transactions were concluded in the amount of 123,096 thousand kWh for a total amount of 1,161,537 thousand tenge. The minimum and maximum price at spot auctions in the “one day ahead” mode amounted to 8.65 tenge/kWh (excluding VAT), and the maximum price was 9.5 tenge/kWh (excluding VAT);
* spot trading “during the trading day” - no deals were made;
* trades in electricity for the medium and long term - 11 transactions were concluded in the amount of 265,080 thousand kWh for a total amount of 2,198,835.36 thousand tenge (excluding VAT). The minimum price for this type of centralized trading was 1.46 tenge/kWh (excluding VAT), the maximum price was 11.58 tenge/kWh (excluding VAT).

For the same period in 2020, 8 transactions were concluded in the amount of 92,832 thousand kWh. Table 4 shows the price dynamics of transactions concluded at centralized trading in September 2020-2021.

Dynamics of prices established as a result of centralized trading

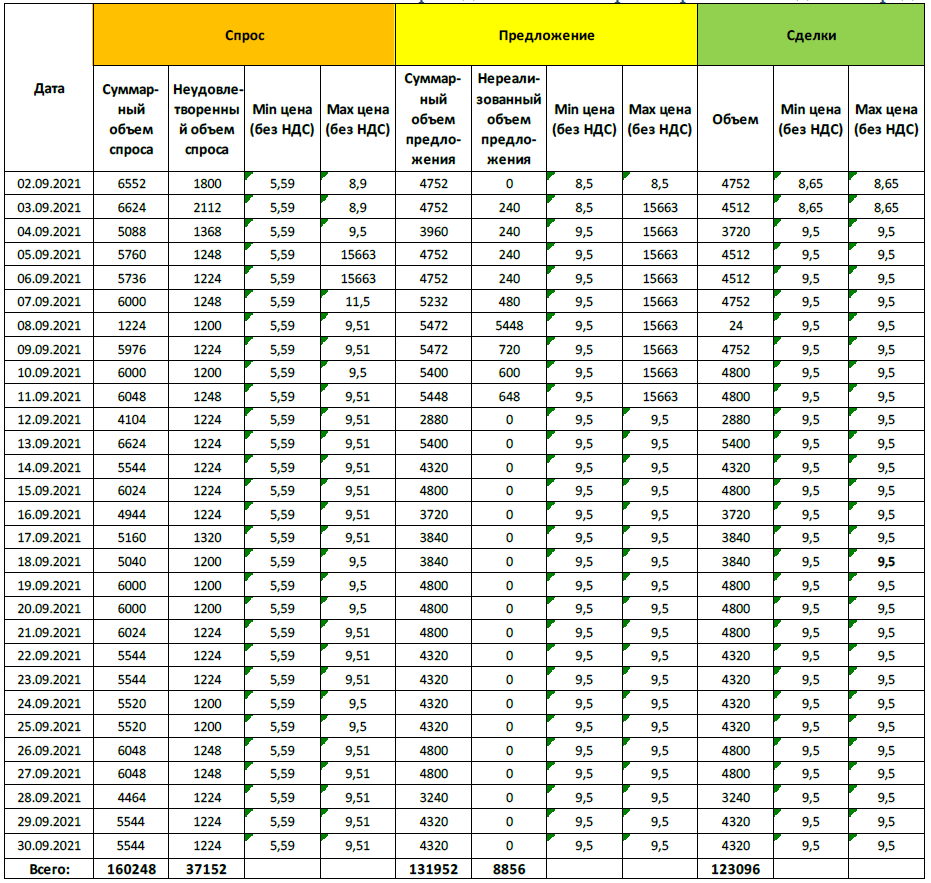
in September 2020-2021

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **September** | **spot trading in the "day ahead" mode** | | **trades for medium- and long-term periods** | | **during business days** | |
| MIN price | MAX price | MIN price | MAX price | MIN price | MAX price |
| **tg/kW\*h (excluding VAT)** | | | | | |
| **2020** | **8.3** | **8.9** | **5.76** | **7.95** | **-** | **-** |
| **2021** | **8.65** | **9.5** | **1.46** | **11.58** | **-** | **-** |

***Results of spot trading in the "day ahead" mode***

Based on the results of spot trading in September 2021, 57 transactions were concluded in the amount of 123,096 thousand kWh, the minimum clearing price for spot trading in the “one day ahead” mode was 8.65 tenge/kWh (excluding VAT) , and maximum - 9.5 tenge/kWh (without VAT)..

The table below shows the final day-ahead spot trading results for September 2021.



The table shows that the total demand amounted to 160,248 thousand kWh, while the total supply amounted to 131,952 thousand kWh, with transactions in the amount of 123,096 thousand kWh.

The unsatisfied volume of demand in September 2021 amounted to 37,152 thousand kWh, and the unsatisfied volume of supply was 8,856 thousand kWh. In the process of spot trading, 141 orders were accepted into the trading system, of which 102 were orders from buyers and 39 were orders from sellers.

***Results of spot trading "during the trading day"***

Based on the results of the auctions held in September 2021, no deals were concluded. According to the results of the auctions held in September 2020, no deals were also concluded.

***Trading results for the medium and long term***

In September 2021, following the results of trading for the medium and long term, 11 transactions were concluded with a volume of 265,080 thousand kWh for a total amount of 2,198,835.36 thousand tenge (excluding VAT). The minimum price for this type of centralized trading was 1.46 tenge/kWh (excluding VAT), and the maximum price was 11.58 tenge/kWh (excluding VAT).

For the same period in 2020, for trading in electricity for the medium and long term, 2 transactions were concluded with a volume of 86,112 thousand kWh for a total amount of 674,919.36 thousand tenge (excluding VAT). The minimum price at spot auctions in the “one day ahead” mode was 8.3 tenge/kWh (excluding VAT), the maximum price was 8.3 tenge/kWh (excluding VAT).

# **Export-import of electrical energy**

In order to balance the production and consumption of electricity in January-September 2021, exports to the Russian Federation amounted to 1,026.2 million kWh, imports from the Russian Federation - 1,183.6 million kWh.

Including export of KEGOC JSC to the Russian Federation - 980.1 million kWh, import of electricity for the reporting period in the amount of 970.6 million kWh.

million kWh

| **Name** | **2020** | **2021** | **Δ 2021/2020** | |
| --- | --- | --- | --- | --- |
| **January-September** | | **million kWh** | **%** |
| **Export of Kazakhstan** | **-1,380.2** | **-2,089.6** | **-709.4** | **51.4%** |
| **in Russia** | **-767.5** | **-1,026.2** | **-258.7** | **33.7%** |
| **in the IPS of Central Asia** | **-612.7** | **-1,063.4** | ***-450.7*** | **73.6%** |
| **Import of Kazakhstan** | **1,158.3** | **1488.9** | **330.6** | **28.5%** |
| **From Russia** | **843.5** | **1,183.6** | **340.2** | **40.3%** |
| **from IPS Central Asia** | **314.8** | **305.2** | **-9.6** | **-3.1%** |
| **Balance-flow "+" deficit, "-" excess** | **-221.9** | **-600.8** | **-378.9** | **170.8%** |

# **SECTION II**

# **Status of formation of the Common Electricity Market of the Eurasian Economic Union**

The common electricity market of the Eurasian Economic Union is planned to be formed by integrating the national electricity markets of **Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia.** The EAEU Member States are gradually forming a common electric power market of the Union on the basis of parallel operating electric power systems, taking into account the priority provision of electric energy to domestic consumers of the Member States.

At the same time, the balance of economic interests of producers and consumers of electric energy, as well as other subjects of the EAEU OER, will be observed.

May 29, 2019 as part of the celebration of the fifth anniversary of the signing of the Treaty on the Eurasian Economic Union The Supreme Council signed an international agreement on the formation of a common electric power market of the Union in the form of a Protocol on amendments to the Treaty on the Eurasian Economic Union dated May 29, 2014 (in terms of the formation of a common electric power market of the Eurasian Economic Union).

On December 20, 2019, the Supreme Council adopted Decision No. 31 “On the plan of measures aimed at the formation of a common electricity market of the Eurasian Economic Union”, which establishes, among other things, the deadlines for the approval and entry into force of the rules for the functioning of the Union’s common electricity market, as well as other acts provided for by the specified protocol.

At present, the EAEU Member States are working on the development and harmonization of the rules for the functioning of the EAEU CER.

In 2021, two meetings of the Advisory Committee on the Electricity Industry under the EEC Board were held (14th meeting on January 21, 15th meeting on April 21), two meetings of authorized representatives of the Member States (March 18 and July 30), 16 meetings of the Subcommittee on the formation of the IER EAEU Advisory Committee on the Electricity Industry under the EEC Board (56th meeting on January 14, 57th meeting on February 5, 58th meeting on February 25-26, 59th meeting on March 11-12, 60th meeting on March 26, 61- th meeting 9 April, 62nd meeting 16 April, 63rd meeting 13 May, 64th meeting 7 June, 65th meeting 24-25 June, 66th meeting 7 July, 67th meeting 22-23 July , 68th meeting 12-18 August, 69th meeting 26-27 August, 70th meeting 9-10 September, 71st meeting 16-17 September) and one workshop on 1 July).

Work on the formation of a common electricity market of the Eurasian Economic Union continues.

# **Status of formation of the Electricity market of the CIS**

Since 1992, 55 meetings of the Electric Power Council of the Commonwealth of Independent States (hereinafter - CIS EEC) have been held.

By decision of the EEC of the CIS (Minutes No. 50 dated October 21, 2016), the Consolidated Schedule for the Formation of a Common Electricity Market of the CIS Member States was approved.

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Events** | **Period of execution** | **Current status** |
| 1 | Implementation of activities in accordance with Section II . Action Plan for Cooperation between the EEC and the EEC of the CIS, approved on June 10, 2016. | 2016-2020 | Permanent participation of the EEC representatives at the meetings of the EEC of the CIS, representatives of the EC of the EEC of the CIS - at the meetings on the formation of the EER of the EAEU is ensured. |
| 2 | Preparation of a draft procedure for the settlement of deviations from the agreed values of interstate power flows. | 2016-2017 | The decision to develop a procedure for settling deviations from the agreed values of interstate power flows was taken at the 45th meeting of the EEC of the CIS. The draft Procedure was considered at the 29th meeting of the Working Group "Formation of a common electric power market of the CIS countries" on September 15, 2016 in Moscow (RF). In accordance with the Decision of the 47th meeting of the EEC of the CIS, the Action Plan of the EEC of the CIS for 2016 includes the development and approval of draft documents on determining the magnitude of deviations from the agreed values of interstate electricity flows and the settlement of deviations from the agreed values of interstate electricity flows. Work continues. |
| 3 | Preparation of a draft procedure for the distribution of throughput capacity of interstate sections / export-import sections between participants in export-import activities. | 2018-2020 | By the decision of the 50th meeting of the EEC of the CIS, Methodological recommendations for the metrological support of measuring complexes for metering electric energy at interstate  power lines.  By the decision of the 50th meeting of the EEC of the CIS, the Schedule for monitoring the application of regulatory technical documents in the field of metrology of electrical measurements and electricity metering in the production activities of the energy systems of the CIS member states was approved. |
| 4 | Preparation of a draft procedure for compensation of costs associated with the implementation of the transit / transmission / movement of electricity through the energy systems of the CIS member states. | 2018-2020 | The unified format of the data exchange layout for accounting of interstate electricity flows, developed by the Working Group on metrological support of the electric power industry of the Commonwealth of Independent States, was approved by the decision of the 33rd meeting of the CIS EEC and recommended to the electric power industry management bodies of the CIS member states for use in organizing the accounting of interstate electricity flows and data exchange on interstate flows. |
| 5 | Harmonization of national legislation in the field of electric power industry, development and adoption of national regulatory legal documents necessary for the formation and functioning of the CIS EER. | 2020-2025 | The decision of the 51st meeting of the EEC of the CIS approved the Conceptual approaches to technical regulation and standardization in the field of electric power industry. The Regulations on the Working Group “Updating and Harmonizing the Regulatory and Technical Base for Regulating the Electricity Industry” were also approved. By the decision of the 51st meeting of the CIS EEC, the Work Plan of this Working Group was approved. |

# **Overview of the media in the CIS countries**

*(according to information from the website of the CIS EES Executive Committee and KOREM JSC)*

**REPUBLIC OF ARMENIA**

**The "Electric Networks of Armenia" company pledged 100% of its shares to raise credit funds.** The corresponding decision was made at the meeting of the Armenian Public Services Regulatory Commission on September 1.

**According to the draft decision, Electric Networks of Armenia CJSC plans to conclude agreements on obtaining credit funds with the European Bank for Reconstruction and Development, the Asian Development Bank, and the International Finance Corporation. The company's shares were pledged to secure the fulfillment of credit obligations.**

The deputies of the Senate of the Parliament of the Republic of Kazakhstan adopted the bill "On Ratification of the Protocol on Amendments to the Treaty on the Eurasian Economic Union dated May 29, 2014 in connection with the accession of the Republic of Armenia to it." The document is aimed at ensuring effective cooperation in the field of electric power industry between the member states of the EAEU, including with the Republic of Armenia. Armenia acceded to the Treaty on the Eurasian Economic Union within the framework of the Treaty on Accession of the Republic of Armenia, signed on October 10, 2014. It was ratified by all member states, and on January 2, 2015, Armenia became a full member of the EAEU. Within the framework of the Interstate transmission of electricity, regulation of relations between Armenia through the territory of the EAEU member states, a protocol has been developed. Its purpose is to determine the methodology for the implementation of interstate transmission of electricity between the EAEU countries in connection with Armenia's accession to the agreement. The draft protocol was approved by the Council of the Eurasian Economic Union in March 2017. The ratification of the document will allow the energy networks of the EAEU member states to function effectively, taking into account Armenia's accession to the protocol on ensuring access to the services of natural monopoly entities in the electric power industry, including the basics of pricing and tariff policy.

**The implementation of the electricity market liberalization program will begin on February 1.** The process of market liberalization began in 2019 with the assistance of USAID - it was then that the relevant amendments were made to the current legislation, and new institutions were introduced. Business entities will have the opportunity to export or import electricity and trade it on the wholesale market.

" **Electric Networks of Armenia", the company "Tashir", which is part of the Group, is starting to implement the second stage of modernization of the power grid economy** . For this purpose, the company attracted loans from the European Bank for Reconstruction and Development (EBRD) ($70 million) and the Asian Development Bank (ADB) ($35 million). At the first stage of the program implementation, we focused on eliminating losses in the network, replacing electricity meters using smart electricity meters. At the second stage, more attention will be paid to improving the quality of electricity, reducing blackouts.

**Rosatom State Corporation and the Armenian government are developing a memorandum on the construction of a new nuclear power plant in the country.** We are talking about the construction of a low-power reactor, which must be built by the end of the life of the 2nd unit of the Armenian (Metsamor) NPP. In the near future, the modernization process of Unit 2 will be completed and a license for its operation until 2026 will be obtained. Rosatom Corporation will be involved in the process of technical operation of the plant and maintaining its high level of safety, as well as the task of further extending the life of the reactor until 2036.

**The volume of electricity production, according to operational statistics, in January-August 2021 decreased by 1.5%** compared to the same period last year. The volume of electricity production for the eight months of 2021 amounted to 5,030.5 million kWh. At the same time, this indicator in August 2021 decreased by 12.3% compared to August 2020, and by 8.8% compared to July 2021.

Since May 15, the Armenian NPP has been stopped for a large-scale scheduled preventive maintenance (PPR), which will last 141 days - until October 3.

**REPUBLIC OF BELARUS**

**In July, a comprehensive testing of a 315 MW power unit at station No. 4 of the Lukomlskaya GRES was successfully completed as part of the project “Construction of an automatic frequency and power flow control system (AFRC) in the Belarusian energy system. 12th turn.** The implementation of this project is extremely relevant from the point of view of improving the reliability and stability of the energy system of the Republic of Belarus in connection with the construction and commissioning of the Belarusian NPP.

The results achieved are unique at the moment in RUE "Vitebskenergo", as for the first time the automation of the traditional steam power unit No. 4 (315 MW) of Lukomlskaya GRES was fully ready to participate in the primary and secondary regulation of frequency and power in the power system in accordance with the most modern regulatory requirements of the State Production Association "Belenergo". The outdated control system of power unit No. 4 was modernized with the transfer of automatic regulators to a modern software and hardware complex by expanding the existing steam turbine control system. With the direct participation of the power plant personnel, unique solutions for automating the deep unloading mode of the power unit from 120 to 100 MW (deep unloading in automatic mode) were successfully implemented.

**At the Gomel CHPP-2, the overhaul of the power unit st. No. 2 with a capacity of 180 MW.** On July 20, the power unit was included in the network of the Belarusian energy system. During the repair, to ensure reliable and economical operation of the power unit, two blocks of coil packs of the high-pressure convective superheater of the TGME-206 steam boiler were replaced; control of the metal of steam pipelines, collectors, heating surfaces, desuperheaters and the drum of the TGME-206 boiler; repair of shut-off and control valves, drum, gas-air path of the boiler of pumping units; modernization of the ignition and signaling device for the burners of the steam boiler TGME-206; repair of steam heating turbine T-180/210-130-1 (including repair of oil coolers, steam distribution system, shut-off and control valves, revision of bearing supports No. 1-9); repair of the turbogenerator TGV-200-2MUZ with the replacement of the rotor shroud rings.

**In the branch "Mogilev CHP-2" RUE "Mogilevenergo" one of the turbines is being reconstructed** with the replacement of the generator due to its physical deterioration. The new R-18/24-2.1/0.25 heating turbine was manufactured at the Kaluga Turbine Plant, the turbogenerator was manufactured at the Lysvensky Privod Heavy Electrical Machine Building Plant (Russia). To control the steam turbine, an automated monitoring and control system is provided, supplied by the Kaluga plant complete with the turbine. For auxiliary equipment, the project provides for automated control systems that will be able to be included in the overall process control system of the CHPP. In addition to generating electricity, the new turbine is designed to supply steam to a network heater that provides heating with network water for city utility networks, as well as the largest industrial enterprises of Mogilev. The general contractor for the replacement of the turbine is the branch of SU CHPP-2 of SE Belenergostroy. Commissioning of the equipment is scheduled for 2022.

**As part of the implementation of the Measures for the regime integration of the Belarusian NPP into the balance of the energy system, four power plants are building a PEI** based on a gas turbine unit (with a total capacity of 800 MW).

At Berezovskaya GRES, work has already been done on the installation of foundations for gas turbines No. 1-5, for chimneys and step-up transformers, as well as for water coolers, cooling pumps and an expansion tank container. Concreting of the foundation slab of the auxiliary transformer module 10/6 kV and the slab for the GTU control module was completed. The construction of the foundation for the supply tank of liquid fuel and storage tanks No. 1 and 2 was completed, the foundation for the autotransformer and the transfer paths were also completed. The first of five gas turbines was delivered to the construction site. At present, Berezovskaya GRES is carrying out reinforcement of fire barriers; installation of monolithic grillages of portals and foundations for 330 kV outdoor switchgear equipment, grounding, lightning protection, vertical planning and installation of reinforced concrete panel fencing, as well as concrete preparation for 110 kV outdoor switchgear portals and construction of a road along the PRI site to 110 kV outdoor switchgear.

All three GTUs have already been installed on the foundation at Lukomlskaya GRES. The foundations for the control module and the electrical equipment module were also installed, the sand base and concrete preparation of the foundation for the fan cooling tower module were completed, and the elements of the reinforcement cage are in the process of being manufactured. The installation of foundations for the overpass between the PREI site and the diesel facilities was completed, reinforced concrete columns of the overpass were mounted. At the moment, the station is working on the installation of foundations for storage tanks for diesel fuel, the building structures of the frame of the treatment facilities are being manufactured, and measures are being taken to lower the water. Also, the installation of metal structures of the overpass of technological pipelines from the main building to the PREI site is being carried out, an oil collector is being installed for auxiliary transformers 10/6 kV and cable channels are being installed on the territory of the outdoor switchgear and GTU.

At the Novopolotsk CHPP, two GTU modules were installed on the foundation, as well as the foundations for the control module and the electrical equipment module were completed. Foundations for 110 kV power transformers were also installed. Currently, the plant is carrying out work on the installation of foundations for auxiliary transformers 10/6 kV, as well as a number of other works.

At CHPP-5, GTUs No. 1, 2, 3, 4 were installed on the foundation. The foundations for the installation of GTUs No. 5 and 6 are ready. Also, the plant has already carried out work on the installation of the foundations of the liquid fuel separator unit, the liquid fuel transfer unit, the compressed air unit, a heating module and a block-module for closed circuit cooling pumps, an AT-2 transformer was installed, and at the moment, the installation of cable rack metal structures and electrical equipment is underway. In the process of performing work on the installation of foundations for closed-type cooling towers and installation of foundations for power transformers 110 and 330 kV.

**THE REPUBLIC OF KAZAKHSTAN**

**The Eurasian Economic Union has not yet launched a single electricity market, but the export potential of its member countries is growing. Belarus is nearing completion of a nuclear power plant that was originally supposed to enable exports, and a recent EDB report forecasts a rise in electricity surplus in Central Asia from 37.2 TWh in 2020 to 45.6 TWh in 2030. What trade opportunities will the single energy market provide for the EAEU , analyzed the professor of the Russian-Armenian University, the president of the NGO "Energy Security Institute" Vahe Davtyan.**

**Common energy market and export prospects**

Apparently, the EAEU common electricity market will be launched without a common natural gas market. This, of course, contradicts the position expressed more than once by Minsk and Yerevan, but the decisions taken by the Eurasian Economic Commission form the conditions under which the transition to the electricity market without deep integration in the gas transport sector will not only not be painful, but can bring serious dividends to members of the Union.

In particular, we are talking about the possibility of commercial supplies of electricity to the European market through the establishment of a transparent transit tariff. However, before examining the prospects for exports in the European direction, let us turn to the specifics of the functioning of the national electricity markets of the EAEU member countries. This is necessary, first of all, in order to determine the export potential of the Union, as well as to identify problems in intra-Union electric power communications.

The main characteristic of the electricity markets of the EAEU in terms of the formation of a common market continues to be energy surplus and, consequently, the focus of most member countries on export.

Having excess generating capacity, they are aimed at finding foreign markets, which is why they often use protectionist methods to promote their energy interests. The latter is in direct conflict with the basic principle of the formation of a common electricity market - the liberalization of national markets (for more details, see the previous article).

Liberalization concerns not only the organization of the internal structure of the market, the rules of its functioning, but also export-import operations. And in this sense, not all members of the Union are ready to “open the gates” for external suppliers, including partners in the EAEU. There is a conflict of interest, and this, perhaps, is the "Achilles' heel" of the Eurasian power industry integration.

**Generation opportunities of the EAEU countries**

Let's look at some numbers. The total electricity generation in the EAEU in 2019 exceeded 1.2 trillion kWh. (the results of 2020 have not yet been summed up). As for the volume of mutual trade, until 2018 it reached about 10 billion kWh, however, this figure decreased significantly due to the cessation of Belarus' electricity imports from Russia in 2018 (imports amounted to about 3 billion kWh annually).

Let us consider the main electric power characteristics of the EAEU members separately.

Russia. The installed capacity of power plants of the UES of Russia as of the beginning of 2020 amounted to 246,342.5 MW. Consumption and generation of electricity has been growing over the past 10 years. In 2019, generation increased by 0.9% compared to 2018, to 1,080.6 billion kWh, consumption increased by 0.4% and amounted to 1,059.4 billion kWh. Electricity surplus in Russia, according to various estimates, ranges from 20 to 30 GW.

Belarus. The installed capacity of generating facilities in Belarus is 10,073.99 MW. Electricity consumption in the republic is 38 billion kWh per year. It is expected that after the launch of the second unit of the BelNPP, electricity generation in Belarus will increase by 18 billion kWh, which opens up great opportunities for export.

Kazakhstan. As of 2021, the total installed capacity of power plants in Kazakhstan is 23,621.6 MW, and the available capacity is 20,078.6 MW. The volume of electricity production reaches 106 billion kWh. At the same time, Kazakhstan is a net exporter of electricity: the excess generation reaches 5 billion kWh.

Armenia. Armenia has an excess of generating capacity: out of an installed capacity of 2885 MW, about 2000 MW are used today. The annual production of electricity in Armenia is about 7 billion kWh, of which up to 1.5 billion kWh is exported to Iran. At present, the construction of the 3rd Iran-Armenia high-voltage transmission line is underway, which will increase the mutual flows between the countries from the current 350 MW to 1200 MW. In turn, this transmission line is part of the North-South (Iran-Armenia-Georgia-Russia) international electricity corridor project, the implementation of which may in the future provide the republic with positioning in international, including Eurasian, electricity markets.

Kyrgyzstan. The installed capacity of power plants in Kyrgyzstan is 3892 MW, of which 862 MW are thermal power plants, 3030 MW are hydroelectric power plants. Annual generation in Kyrgyzstan is about 15 billion kWh. Currently, the republic is struggling to provide electricity to the domestic market, although according to the CASA-1000 program (electricity transmission project in Central Asia and South Asia, funded by USAID), it is planned that starting from 2023, Kyrgyzstan, together with Tajikistan, will begin supplying electricity to Pakistan and Afghanistan. In particular, deliveries are planned to be carried out in the summer, when a surplus of electricity is formed in the country.

As can be seen from the above indicators, almost all EAEU member countries are aimed at developing export strategies. At the same time, taking into account the availability of the necessary generating capacities, as well as a convenient geographical location, Russia, Belarus and Kazakhstan have the greatest potential to intensify exports.

As for Armenia, it is in a post-war shock, and the regional geo-economic architecture does not allow us to talk about the full diversification of export destinations. Moreover, due to problems with exports (due primarily to the slow pace of implementation of the above-mentioned Iran-Armenia power line project), the operation of one of the key energy facilities, the 5th power unit of the Hrazdan TPP (480 MW), was stopped in the republic.

Regarding Kyrgyzstan, two key problems should be noted. Firstly, the energy system of the republic has accumulated a colossal debt, which over the past 15 years has reached $15 billion. This affects the tariff policy, which causes significant damage to the investment climate of the system. Secondly, currently in the energy system of Kyrgyzstan there is a high depreciation of fixed assets, which reaches 60%. At the same time, in international practice, wear of 30% is already considered critical.

**Europe or Asia?**

Let us return, however, to the prospects for exports in the European direction. Today, among the members of the EAEU, only Russia delivers to the Baltic countries and Finland. In 2019, supplies to Lithuania amounted to 6.3 billion kWh (by RUB 20.5 billion), to Finland – 7 billion kWh (by RUB 21.9 billion). It is obvious that the member countries of the EAEU can also join this section with the payment of the cost of transit. It is here that favorable conditions are formed for the other participants in the Eurasian integration, aimed at using their excess capacities.

Given the geographical location, good prospects are highlighted for Belarus. Although the Baltic countries refuse to import Belarusian electricity, deliveries can be made to Finland, for example. This will become possible after the launch of the second power unit of the BelNPP, supplies from which, according to some estimates, can reach up to 10 billion kWh, in monetary terms - from €300 million to €400 million ($356.5-475.3 million). Among other things, this may also be interesting from the point of view of covering the Russian loan allocated for the construction of the nuclear power plant.

Theoretically, Kazakhstan can also join this section, dynamically developing generating capacities, especially in the field of renewable energy (according to the energy development strategy of the republic, the share of renewable energy by 2030 will be 10%, by 2050 - 50%). But given its geographical location, the supply of electricity to Europe through Russian networks seems inappropriate.

Here it is possible to use a swap supply model, however, considering the issue in the context of the interests of the EAEU, the most optimal scenario is the promotion of Belarusian and Russian electricity on the European markets. As for Kazakhstan, the most promising development scenario is the activation of exports to the dynamically growing Asian market, which has consolidated its position as a driver of global energy demand.

**All power plants of the Republic of Kazakhstan in the first half of 2021 generated 57,325.4 million kWh of electricity, which is 7.1% more than the same period in 2020. The growth in generation was observed in all zones of the Unified Energy System (UES) of Kazakhstan. This is reported with reference to the data of the System Operator in the Analytical Review of the Electricity and Coal Market in Kazakhstan for January-June 2021, prepared by the Market Development Department.**

The volume of electricity production by energy producing organizations of Samruk-Energy JSC for this period amounted to 17,891.1 million kWh, which is **25.8 %** more than last year's figures for the same period.

At the same time, according to the analysis, in the dynamics **of electricity consumption** of the republic in January-June 2021, there was an increase of 6% compared to January-June 2020. So, in the northern zone of the republic, consumption increased by 6%, in the southern zone by 10% and in the western zone by 2%.

The company's experts note that according to the forecast balance of electric energy and capacity for 2021-2027 of the Ministry of Energy of the Republic of Kazakhstan, an increase in electricity consumption by an average of 2.4% is expected. In addition, by 2027, a shortage of electric capacity is predicted, taking into account the necessary reserve in the amount of about 898 MW. At the same time, already now in the UES of Kazakhstan there is a shortage of regulation capacity of about 1000 MW.

To solve these problems, today, with the support of the Samruk-Kazyna Fund, a number of major projects are being implemented in the country's energy sector related to the construction of new stations and the expansion and modernization of existing ones.

In terms of **thermal coal mining**according to the data provided in the Analysis of the Electricity and Coal Market, in January-June 2021, Kazakhstan produced 52,147.2 thousand tons of hard coal, which is 1% less than in the same period of 2020. Including 22,244 thousand tons were mined at the Bogatyr Komir open pits. During this period, the company sold 22,517 thousand tons, including: 18,230 thousand tons for the domestic market of the Republic of Kazakhstan, - for export (RF) - 4,287 thousand tons.

The volume of electricity production by objects using **renewable energy sources** (RES: solar and wind power plants, small hydroelectric power plants, biogas plants) in Kazakhstan in January-June 2021 amounted to 2005.5 million kWh. Compared to the period January-June 2020 (1470 million kWh), the increase was 1.4%.

Electricity generation by own renewable energy facilities amounted to 156.9 million kWh or 7.8% of the total electricity generated by renewable energy facilities.

## Growth in electricity production noted in Kazakhstan

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The growth in generation was observed in all zones of the Unified Energy System (UES) of Kazakhstan.

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In addition, by 2027, a shortage of electric capacity is predicted, taking into account the necessary reserve in the amount of about 898 MW. At the same time, already now in the UES of Kazakhstan there is a shortage of regulation capacity of about 1000 MW.

## Kazakhstan puts into operation a hydroelectric power station built with the help of China

**As part of the implementation of the Chinese Belt and Road Initiative, the Turgusun HPP was put into operation in the East Kazakhstan region of the Republic of Kazakhstan. This was reported by Xinhua on August 10, noting that the capacity of the hydroelectric power station is almost 25 MW, and it is located about 40 km from the city of Altai.**

The Turgusun HPP is the first joint Chinese-Kazakhstani project in the field of hydropower since the launching of the Belt and Road Initiative by the party and state leader of the PRC Xi Jinping in 2013. For the construction of the hydroelectric power station, the China International Corporation for Water Resources and Energy, which is a subsidiary of the giant China Three Gorges Corp., was involved; the contract was signed in 2014.

The project, due to its great environmental significance, was included in the State Program of Industrial and Innovative Development of Kazakhstan and received increased attention from the government of the republic.

It should be emphasized that the Altai region of the East Kazakhstan region previously had a serious shortage of energy supply, which will now be reduced by half.

**How much and when will electricity tariffs increase in Kazakhstan**

And about. Chairman of the Committee for the Regulation of Natural Monopolies of the Ministry of National Economy of the Republic of Kazakhstan Askhat Zhapsarbay told how much electricity tariffs will increase in the near future.

“Increased tariffs by the Ministry of Energy for energy-producing organizations by an average of 15%, depending on the region, will affect end consumers within a radius of 7.2% - we are currently raising this issue. That is, it will vary by region. We will try to carry out the work in such a way that it does not affect the population group. That is, we will apply this differentiation, and we hope to do it in such a way that it is quite painlessly perceived by the so-called population group,” Askhat Japsarbai said at a briefing at the CCS. He added that the increase in tariffs is planned approximately from September 1. “We have a divided increase - that is, a 15% increase in tariffs for energy-producing organizations took place on April 1. On July 1, we already raised part of the tariffs. September 1 - these are the regions where we have not yet had time to increase. On average in the republic it will be 3.5%,” the speaker concluded.

**The first wind power plant is being built in the Kostanay region.** The capacity of the first wind power plant "Ybyray" is 50 MW. The cost of the project is 26.3 billion tenge and is being implemented through private investment. To date, 7 out of 16 wind turbines have been installed, each with a capacity of 3.2 MW. A step-up substation 35/110 kV, a 110 kV line, 35 kV lines to the installed wind turbines and an administrative and residential area have been built,” the head of the region said. Wind turbines, as it became known, are supplied from China. In the near future, the installation of the remaining windmills and power lines will begin. “As part of the tests, on August 17, the initial start-up of 5 wind turbines was carried out. Start-up and adjustment works continue.

**Kcell has built the first base station based on alternative electricity in the Charyn Canyon.** The energy to power the base station is produced using a hybrid wind-solar installation with a capacity of 6 kilowatts. An alternative power supply provides reliable communication in such a remote and inaccessible area. At the same time, the installation does not have a negative impact on the environment due to renewable and environmentally friendly solar and wind energy.

The structure of the hybrid wind-solar installation includes:

- Kazakhstan-made wind generator that converts wind energy into electrical energy;

- solar panels that change the energy of the sun into electrical energy;

- Electricity storage system that provides accumulation of energy generated by wind and sun;

- inverter device that starts the conversion;

- DC voltage, generated from solar and wind energy into AC voltage, feeds the operability of the entire cellular base station.

**In Almaty, from September 1, the tariff for electricity supply for legal entities, or consumers using electricity for non-domestic needs, is increased.** The tariff for electricity does not change for individuals and consumers using electricity for domestic needs, not related to the production (sale) of goods, works and the provision of services, AlmatyEnergoSbyt LLP reported.

**The company named the reasons for increasing the marginal price for electricity for consumers in Almaty and the Almaty region:**

1. from April 1, 2021, the increase in the marginal tariffs of energy-producing organizations of the Republic of Kazakhstan for electric energy in accordance with the order of the Minister of Energy of the Republic of Kazakhstan dated March 30, 2021 No. 108;
2. from June 1, 2021, the tariff of the regional energy transmission organization JSC "Alatau Zharyk Kompaniyasy" for regulated services for the transmission of electric energy in accordance with the joint order of the Departments of the Committee for Regulation of Natural Monopolies of the Ministry of National Economy of the Republic of Kazakhstan for the city of Almaty and the Almaty region dated May 17, 2021;
3. change in the structure of the formation of the selling price for electric energy of energy-producing organizations in accordance with the law "On amendments and additions to certain legislative acts of the Republic of Kazakhstan on supporting the use of renewable energy sources and the electric power industry" in terms of introducing from July 1, 2021 a surcharge to support the use of renewable sources energy.

For consumers of the city of Almaty and the region of the Almaty region, from September 1, 2021, the following tariffs will apply, agreed by the Departments of the Committee for Regulation of Natural Monopolies of the Ministry of National Economy of the Republic of Kazakhstan for the city of Almaty and the Almaty region, determined by the following groups of consumers:

**Group I:** household consumers using electrical energy for their own household needs, not related to the production (sale) of goods, work and the provision of services - 16.86 tenge per 1 kWh without VAT (18.88 tenge per 1 kWh with VAT);

**Group II:** consumers using electrical energy not for domestic needs - 20.79 tenge per 1 kWh without VAT (23.28 tenge per 1 kWh with VAT);

**Group III:** legal entities financed from the state budget - 27.23 tenge per 1 kWh without VAT (30.50 tenge per 1 kWh with VAT).

**Group IV:** consumers producing socially important food products (SZPT) - 19.74 tenge per 1 kWh without VAT (22.11 tenge per 1 kWh with VAT).

**For individuals and consumers** using electricity for domestic needs, the tariff is differentiated depending on the volume of electricity consumption for each permanently residing in an apartment / house:

* The first level tariff is 15.65 tenge per 1 kWh without VAT (17.53 tenge per 1 kWh with VAT),
* The second level tariff is 20.23 tenge per 1 kWh without VAT (22.66 tenge per 1 kWh with VAT),
* The third level tariff is 25.29 tenge per 1 kWh without VAT (28.32 tenge per 1 kWh with VAT).

There are several ways to find out the amount of consumption per permanent resident for each level of differentiated tariff:

* on the site - for this, go to the figure corresponding to each level on the next page of the site https://esalmaty.kz/ru/home-tariffs;
* this information is indicated in the invoice;
* you can also always consult by phone - by contacting the round-the-clock Contact Center at 8 (727) 356-99-99 or at the nearest branch of AlmatyEnergosbyt LLP.

**REPUBLIC OF KYRGYZSTAN**

**The head of the JSC "National Electric Network of Kyrgyzstan" was replaced.** Zholdoshbek Achikeev has been appointed General Director instead of Emil Kudanaliev. This was reported by the press service of NESK.

**Masdar is interested in building solar power plants in the Kyrgyz Republic. This became known last week at a meeting of representatives of the Ministry of Energy and energy companies of Kyrgyzstan with a delegation from the United Arab Emirates (UAE).** Representatives of the UAE noted that Kyrgyzstan has a high potential in the field of renewable energy sources and Masdar is interested in investing in solar power plants. The Ministry of Energy added that the company invested in the construction of a solar power plant in Uzbekistan$110 million

**For 7 months of 2021, major repairs were carried out at 62 substations, current repairs were carried out at 167 substations.** Overhaul of 110-220-500 kV overhead lines on power transmission lines was completed at 318.9 km. Maintenance of 110-220-500 kV overhead lines was carried out at 4,263.4 km. In the branches of the company, work is being carried out to replace old porcelain insulators on power lines with new glass ones. This year, by the end of October, it is planned to upgrade 51,491 insulators. The new insulators will ensure the reliability of power transmission lines, especially in winter, when the load on the network increases three times compared to summer. In addition, buildings, structures, vehicles are being repaired, as well as work related to the prevention of flood impacts on power facilities.

**In 2020, 15.4 billion kWh were generated in Kyrgyzstan. Losses amounted to 2.4 billion kWh.** In the republic in 2020, energy industry enterprises produced 15.4 billion kWh. electricity, which is 1.9% more than in 2019. This was reported by the National Statistical Committee. About 91% of its electricity is generated by hydroelectric power plants.

In 2020, electricity was consumed in the amount of 15.5 billion kWh. or 2.3% more than in 2019. 300.1 million kWh were released (exported) outside the republic. electricity, which is 11.4% more.

Of the total amount of electricity consumed, 142.3 million kWh were used for own production and economic needs, which is 12.8% less compared to 2019.

In 2020, compared to the previous year, electricity consumption increased in the field of telecommunications (communications) - by 24.6%, in industry (including the distribution of electricity for domestic needs and the population) - by 6.4%, and in agriculture - by 3.1%.

There was a decrease in electricity consumption in the social sector - by 9%, in transport - by 26.5%, in hotels and restaurants - by 48%.

Total electricity losses in 2020 amounted to 2.4 billion kWh, of which 99.5% were technological losses.

More than half (53%) of the volume of usefully supplied electricity in 2020 fell on the share of industry (including the distribution of electricity for domestic needs and the population), 26% - on agriculture, and the share of other industries in its total volume amounted to 21%.

# **For 8 months of 2021, electricity consumption in Kyrgyzstan, with a plan of 9.7 billion kWh, amounted to 10.5 billion kWh.**

Including HPPs generated 8.98 billion kWh and CHPPs 1.26 billion kWh, which is 50 million kWh more than last year.

In total, about 959.5 million kWh of electricity was consumed in August, which is 110 million kWh more than last year. For 8 months of the current year in the republic, with a plan of 9.7 billion kWh, consumption amounted to 10.5 billion kWh, which is higher by 1.1 billion kWh compared to the same period last year.”

**THE REPUBLIC OF MOLDOVA**

**Opportunities to increase efficiency and modernize the energy system were reviewed by Minister of Infrastructure Andrei Spinu with a WB team led by Energy Manager for Europe and Central Asia Sudeshna Banerjee.** During the discussion, energy projects implemented with the support of the World Bank were considered. The parties mentioned the Moldova Power System Development Project (PDSE), which aims to increase the capacity and improve the reliability of the electricity transmission system by building high-voltage 400 kV lines of one circuit in the direction of Vulcanesti-Chisinau.

Aspects of the preparation of the 2nd stage of the project to improve the efficiency of the District Heating System (SACET II) in the capital were also considered.

**On Monday, the Prosecutor General's Office announced the initiation of a criminal case on the fact of embezzlement of state funds on an especially large scale under gray schemes in the process of importing electricity to the Republic of Moldova.** According to the agency, during the investigation of the criminal case, it was established that at the beginning of 2008, the decision-makers in JSC "Energocom" (the company responsible for providing electricity to Moldova) implemented a criminal scheme by which they embezzled state money in the amount of 11,927,173 US dollars, which is equivalent to 123,957,916 lei. It is also reported that this was carried out by prior agreement and in agreement with officials from the Ministry of Economy and Infrastructure, the National Energy Regulatory Agency, as well as others, including from abroad. According to the materials, the implemented scheme made it possible to steal public money by unreasonably increasing the purchase price of electricity and then appropriating the difference in price.

Given the complexity of the case, the legal object of which concerns the energy security of the state, the decision of the Prosecutor General ordered a criminal investigation by a group of prosecutors from the Prosecutor General's Office.

**Natalia Gavrilita and the World Bank team discussed the efficiency and modernization of the energy system in Moldova** The purpose of the meeting was to discuss the energy program of the World Bank and future programs to improve the efficiency and modernization of the national energy system.The World Bank team presented the energy projects currently being implemented in the Republic of Moldova. This is the Power System Development Project (PDSE), which aims to increase the capacity and reliability of the electricity transmission system in Moldova by building a 400 kV single circuit overhead transmission line in the direction of Vulcanesti-Chisinau.

# **Energy security of the Republic of Moldova discussed in Brussels**

## Prime Minister Natalia Gavrilitsa held yesterday a meeting with Commissioner for Energy in the European Commission Kadri Simson.

The officials discussed the latest developments in this area, the role of the EU in the development of the energy sector of our country, as well as the possibility of completing projects started with neighboring countries and which could be an alternative in the supply of gas and electricity.

# **RUSSIAN FEDERATION**

# **RusHydro proposed to build new hydropower plants in the Far East**

After the catastrophic summer floods in the Far East, RusHydro proposes to revive the Soviet project for the construction of a complex of anti-flood hydroelectric power stations on the tributaries of the Amur. We are talking about the Nizhne-Zeyskaya, Nizhne-Nimanskaya, Selemdzhinskaya and Gilyuiskaya HPPs with a total capacity of up to 1.6 GW. As Nikolai Shulginov, head of the Ministry of Energy, told Kommersant, the cost of all hydroelectric power plants is estimated at 320 billion rubles, but there is no need to build all four stations. Most likely, the RusHydro project will be monetized through a mechanism similar to capacity supply agreements. According to analysts, this option could cost the wholesale energy market 70 billion rubles. annually.

**Rosatom allows the construction of wind farms in all regions where it is possible.** The list of regions where the company implements its projects in the field of wind energy in the future will be clear after the results of the competition under the CSA 2.0 program are announced

Novavind, the wind energy division of the state corporation Rosatom, allows the construction of wind power plants (WPPs) in all regions of the Russian Federation, where this is possible.

The current CSA program (contracts for the supply of power, according to which there is state support for the development of renewable energy sources) has already been planned.

JSC Novavind is a division of Rosatom, whose main task is to consolidate the efforts of the state corporation in the advanced segments and technological platforms of the electric power industry. The company was founded in September 2017. The Novavind circuit concentrates the management of all the competencies of Rosatom in the wind energy industry - from design and construction to power engineering and the operation of wind power plants.

**In Dagestan, the implementation of the first project for the construction of a solar power plant has begun.** The facility is going to be put into operation in January 2022, 1.5 billion rubles of investments will be invested in its creation

**Price zones of the Russian wholesale energy market will not be expanded until 2025**

The government instructed not to expand the price zones of the wholesale electricity and capacity market (WECM) until 2025. The relevant paragraph is contained in the decree of the Cabinet of Ministers, which approves the national plan for the development of competition in the country for 2021-2025. Currently, there are two price zones in Russia - in the European part of Russia and in the Urals (the first price zone) and in Siberia (the second price zone).

# **Inter RAO will have to stop exporting to the EU with a high tax on CO 2 .** The European "transboundary carbon regulation" (TCO) may impose such a high CO2 tax on electricity exports to the EU that it will exceed the profit from sales, in which case Inter RAO will be forced to refuse such exports.

The European Union in July presented a draft TUR, which involves the gradual introduction of a tax on the import of goods with high CO2 emissions during production. The fee is proposed to be introduced from 2023 and initially extended to several industries, including the electric power industry.

# **The Ministry of Energy proposed to reduce the planning period for power take-offs to three years.** The Ministry of Energy of the Russian Federation has developed a draft resolution of the Government of the Russian Federation, according to which the period for which competitive power take-offs (CTOs) are carried out can be reduced from six to three years. The corresponding document was published on Thursday on [the portal](https://regulation.gov.ru/) of draft regulations.

**Rosseti Tyumen trained line personnel on the rules for working on electrical grid equipment under operating voltage.** 7 brigades of the Tyumen branch of the company received permission to carry out scheduled and urgent repair work in networks up to 1000 volts without removing the voltage. The technology allows carrying out repairs in distribution networks without limiting the mode of power supply to consumers.

The modern method of working under voltage has a number of advantages: power engineers do not need to limit the power supply mode, which means that consumers will no longer experience discomfort when working in the power grid complex. Energy company specialists do not waste time disconnecting equipment, grounding, or preparing a workplace. Sometimes these actions take more time than direct repairs. The technology allows to reduce the operating costs of the electric grid company. At the same time, the new method turned out to be safer - with it the risk of electrical injuries is significantly reduced.

By 2023, the energy company plans to introduce live works throughout the service area. In the future, in addition to repair work, power engineers will be able to adjust street lighting networks and modernize the electricity metering system without removing the voltage.

# **In Primorye, a new energy transit was put into operation to supply the BAM and the Trans-Siberian Railway** . The length of the new 220 kV transit Lesozavodsk - Spassk - Far East is 250 km. In addition to the construction of the line, the expansion of open switchgears of two key transit links was carried out - the 220 kV Lesozavodsk and Spassk substations.

Facilities focused on ensuring the reliability of power supply to consumers in the Primorsky Territory, including the two priority development territories Mikhailovsky and Nadezhdinskaya, increasing the network capacity in the south of the region are included in the national project - the Comprehensive Plan for the Modernization and Expansion of the Backbone Infrastructure. The total investment amounted to 8.3 billion rubles.

**THE REPUBLIC OF TAJIKISTAN**

**Tajikistan continues to supply electricity to Afghanistan** in full in accordance with previously signed contract agreements. In the energy sector of the country, about 9 million kWh of electricity is supplied to the other side of the Pyanj every day. For example, on August 5, 8.8 million kWh of electricity was exported to the neighboring country.

Electricity supplies to Afghanistan continue, despite the political situation in that country. OAHK "Barki Tojik" has signed an agreement on the supply of electricity with the Afghan company "Breshno" for the current year, and the Tajik side is fulfilling its obligations. The State Energy Holding is able to export more electricity to neighboring countries, given the large reserves of water resources. At present, there is an idle discharge of water from the reservoir of the Nurek HPP, which was not the case last year.

**Tajik power engineers started collecting water resources in the Kairakkum reservoir for electricity generation in winter only last week. This is explained by the fact that last dry summer the republic sent almost all the water of the Syrdarya to the irrigation needs of Kazakhstan and Uzbekistan, as well as local farmers.**

Fayzullo Avezov, director of the Kairakkum HPP, said that this summer, 1.6 billion cubic meters of water was provided to Kazakhstan and Uzbekistan, as well as some areas of the Sughd region for irrigation of farmland, due to the water intake limit of the reservoir of this station.

**President of the Republic of Tajikistan Emomali Rahmon opened one of the two newly built 110 kV substations in the city of Khorog, GBAO.** The commissioning of these substations is a historic stage in the power supply of the region, since for the first time the power system of the region reaches a capacity of 110 kV. The project is funded by the Government of Switzerland through their federal agency State Secretariat for Economic Affairs (SECO) and the Government of the Republic of Tajikistan, and co-financed and implemented by Pamir Energy. The new substations will make up for energy losses of up to 2.5 MW during peak hours, which will be used to provide reliable electricity to areas with growing demand within GBAO and the border regions of Afghanistan.

# **Over the past month, Tajikistan has supplied Afghanistan with products worth $12.2 million.**

The total volume of trade between Tajikistan and Afghanistan in August 2021 amounted to 12.3 million US dollars, AP reports with reference to the Agency on Statistics under the President of Tajikistan.

In the structure of bilateral trade between these countries, 12.2 million dollars (99.2% of the total) falls on the supply of Tajik products to Afghanistan, and a little more than 0.1 million dollars (0.8%) - on imports from Afghanistan .

In general, in January-August 2021, the volume of Tajik-Afghan trade amounted to $64.5 million, which is 22% more than in the same period in 2020.

Export of Tajik products to Afghanistan for eight months of this year was made in the amount of 63.5 million dollars, and Afghan goods were imported in the amount of 1 million dollars.

There are no official data on the commodity groups of the Tajik-Afghan trade turnover in the report of the statistical agency, but earlier it was reported that the main commodity supplied by Tajikistan to Afghanistan is electricity.

In 2020, 65% of Tajik exports to this neighboring country were electricity.   
The Ministry of Energy of Tajikistan in July this year, when the Taliban already ruled the entire length of the Tajik-Afghan border, reported that the supply of Tajik electricity to Afghanistan continues according to the schedule agreed by the parties at the beginning of the year.