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**REPORT**

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

**JANUARY-SEPTEMBER 2020**

**MARKET DEVELOPMENT DEPARTMENT**

**October 2020**

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# **SECTION I**

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

According to the System Operator, Republic of Kazakhstan’s power plants generated 77 756 million kWh of electricity in January-September 2020, which is 1.3% more than in the same period of 2019. The increase in generation was observed in all zones of the UES of Kazakhstan.

*million kWh*

|  |  |  |  |
| --- | --- | --- | --- |
| **Zone** | **Generation type** | **January-September** | **Δ, %** |
| **2019** | **2020** |
| **Kazakhstan** | **Total**  | **76734,1** | **77756,0** | **1,3%** |
| *TPP* | *61689,6* | *61628,4* | *-0,1%* |
| *GTPP* | *6556,8* | *7037,1* | *7,3%* |
| *HPP* | *7709,4* | *7316,8* | *-5,1%* |
| *WPP* | *475,7* | *739,4* | *55,4%* |
| *SES* | *300,1* | *1030,7* | *243,5%* |
| *BSU*  | *2,5* | *3,6* | *44,0%* |
| **North** | **Total** | **58925,5** | **59451,1** | **0,9%** |
| *TPP* | *51262,9* | *51409,0* | *0,3%* |
| *GTPP* | *2236,1* | *2407,8* | *7,7%* |
| *HPP* | *5156,6* | *4912,6* | *-4,7%* |
| *WPP* | *129,8* | *340,8* | *162,6%* |
| *SES* | *137,6* | *377,3* | *174,2%* |
| *BSU*  | *2,5* | *3,6* | *44,0%* |
| **South** | **Total** | **8002,2** | **8363,9** | **4,5%** |
| *TPP* | *4958,1* | *5002,2* | *0,9%* |
| *GTPP* | *157,3* | *125,5* | *-20,2%* |
| *HPP* | *2552,8* | *2404,2* | *-5,8%* |
| *WPP* | *174,0* | *181,1* | *4,1%* |
| *SES* | *160,0* | *650,9* | *306,8%* |
| **Western** | **Total** | **9806,4** | **9941,0** | **1,4%** |
| *TPP* | *5468,6* | *5217,2* | *-4,6%* |
| *GTPP* | *4163,4* | *4503,8* | *8,2%* |
| *WPP* | *171,9* | *217,5* | *26,5%* |
| *SES* | *2,5* | *2,5* | *0,0%* |

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

In January-September 2020, compared to the same period of 2019, electricity production increased significantly (20% growth and above) in Kostanay, Turkestan and Kyzylorda regions. At the same time, a decrease in electricity production was observed in Zhambyl, Mangistau and Northern and East Kazakhstan regions.

*million kWh*

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Region** | **January-September** | **Δ, %** |
| **2019** | **2020** |
| 1 | Akmola |  2 824,9  |  2 965,1  | 5,0% |
| 2 | Aktobe |  2 538,4  |  2 661,2  | 4,8% |
| 3 | Almaty |  4 662,1  |  4 792,6  | 2,8% |
| 4 | Atyrau |  3 827,8  |  4 104,0  | 7,2% |
| 5 | East Kazakhstan |  6 457,0  |  6 252,8  | -3,2% |
| 6 | Zhambyl |  1 517,6  |  1 498,4  | -1,3% |
| 7 | West Kazakhstan |  1 460,0  |  1 504,8  | 3,1% |
| 8 | Karaganda |  10 804,8  |  10 949,0  | 1,3% |
| 9 | Kostanay |  566,2  |  700,3  | 23,7% |
| 10 | Kyzylorda |  271,1  |  337,6  | 24,5% |
| 11 | Mangystau |  3 541,3  |  3 372,9  | -4,8% |
| 12 | Pavlodar |  27 275,5  |  27 225,8  | -0,2% |
| 13 | North Kazakhstan |  2 154,8  |  2 131,3  | -1,1% |
| 14 | Turkestan |  823,7  |  1 012,4  | 22,9% |
|  | **Total for RoK** |  **68 725,2**  | **69 508,2** | **1,1%** |

# *Electricity generation by associated generation*

In January-September 2020, electricity production from associated generation totaled 38.5 billion kWh, which is comparable to the same period in 2019 (38.5 billion kWh). Meanwhile, compared to January-September 2019, the share of associated generation increased slightly to 49.76% of the total electricity generation in Kazakhstan.

*million kWh*

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Name** | **2019** | **2020** |
| **January-September** | **share in the Republic of Kazakhstan, %** | **January-September** | **share in RoK, %** |
| 1 | ERG | **13 817,2**  | **18,0%** | **14 127,9**  | **18,2%** |
| 2 | Kazakhmys Energy LLP | **5 526,6**  | **7,2%** | **5 516,7**  | **7,1%** |
| 3 | Kazzinc LLP | **2 313,6**  | **3,0%** | **2 175,3**  | **2,8%** |
| 4 | Arcellor Mittal JSC | **2 313,6**  | **3,0%** | **2 175,3**  | **2,8%** |
| 5 | KKS LLP | **4 988,8**  | **6,5%** | **5 078,8**  | **6,5%** |
| 6 | CAEC | **4 430,3** | **6,4%** | **4 558,5** | **6,6%** |
| 7 | Zhambyl GRES JSC | **1 303,5**  | **1,7%** | **1 251,8**  | **1,6%** |
| 8 | Oil and gas enterprises | **3 823,8** | **5,0%** | **3 587,4** | **4,6%** |
|  | **TOTAL** | **38 500,5** | **50,2%** | **38 539,1** | **49,6%** |

The volume of electricity production by the energy producing organizations of Samruk-Energy JSC in January-September 2020 amounted to21 072,8mln/kWh, or an increase of -0.5% compared to the same period of 2019.

*million kWh*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **№** | **Name** | **2019** | **2020** | **Δ2020/2019** |
| **January-September** | **share in RoK, %** | **January-September** | **share in RoK %** |  **mln kWh** | **%** |
|  | **Samruk-Energy JSC** | **21 185,7** | **27,6%** | **21 072,8** | **27,1%** | **-112,9** | **-0,5%** |
| *1* |  *AlES JSC* | *3 846* | *5,0%* | *3 775,4* | *4,9%* | *-70,6* | *-1,8%* |
| *2* | *Ekibastuz GRES-1 LLP* | *12 397,7* | *16,2%* | *13 023,6* | *16,7%* | *625,9* | *5,0%* |
| *3* |  *Ekibastuz GRES JSC-2 JSC* | *3 662,7* | *4,8%* | *3 028,5* | *3,9%* | *-634,2* | *-17,3%* |
| *4* |  *Shardara HPP JSC* | *376,4* | *0,5%* | *422,3* | *0,5%* | *45,9* | *12,2%* |
| *5* | *Moinak HPP JSC* | *794,5* | *1,0%* | *706,0* | *0,9%* | *-88,5* | *-11,1%* |
| *6* | *Samruk-Green Energy LLP* | *2,7* | *0,004%* | *3,3* | *0,004%* | *0,53* | *19,4%* |
| *7* | *First Wind Power Station LLP* | *105,7* | *0,1%* | *113,7* | *0,1%* | *8,0* | *7,6%* |

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

# *Electricity consumption by zones and regions*

According to the data of the System Operator, in January-September 2020, there was an increase by 1% in the electricity consumption in the Republic compared to the indicators of January-September 2019. Thus, in the northern zone consumption increased by 2%, western zone by 2%, and in the southern zone by 1%.

 *million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Name** | **January- September 2019** | **January-September 2020** | **Δ, million kWh** | **Δ, %** |
| **I** | **Kazakhstan** | **76 454,9** | **77 594,4** | **1 139,5** | **1%** |
| 1 | Northern zone | 50 202,1 | 51 082,4 | 880,3 | 2% |
| 2 | Western zone  | 9 858 | 9 974,9 | 116,9 | 1% |
| 3 | Southern zone | 16 394,7 | 16 537,0 | 142,3 | 1% |
|  | ***including by region*** |  |  |  |  |
| 1 | East Kazakhstan  | 6 786,1 | 6 739,4 | -46,7 | -1% |
| 2 | Karaganda  | 13 090,3 | 13 429,1 | 338,8 | 3% |
| 3 | Akmola  | 6 566,2 | 6 417,8 | -148,4 | -2% |
| 4 | North Kazakhstan | 1 264,9 | 1 182,3 | -82,6 | -7% |
| 5 | Kostanay  | 3 465 | 3 315,6 | -149,4 | -4% |
| 6 | Pavlodar  | 14 287,1 | 15 127,3 | 840,2 | 6% |
| 7 | Atyrau  | 4 614,7 | 4 624,9 | 10,2 | 0,2% |
| 8 | Mangystau  | 3 787,3 | 3 718,6 | -68,7 | -2% |
| 9 | Aktobe  | 4 742,5 | 4 870,9 | 128,4 | 3% |
| 10 | West Kazakhstan  | 1 456,1 | 1 631,4 | 175,3 | 12% |
| 11 | Almaty  | 8 146,1 | 7 997,6 | -148,5 | -2% |
| 12 | Turkestan | 3 735,1 | 3 720,1 | -15,0 | -0,4% |
| 13 | Zhambyl  | 3 237,7 | 3 585,8 | 348,1 | 11% |
| 14 | Kyzylorda  | 1 275,9 | 1 233,5 | -42,4 | -3% |

# **Industry results for January-September 2020**

*(express information of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan)*

In January-September 2020 compared to January-September 2019, the index of industrial production amounted to 100%. Increase in production volumes was recorded in 12 regions of the republic, decrease was observed in Kyzylorda, Aktobe, Mangistau, East Kazakhstan regions and Shymkent city.

**Change in industrial output by region**

*as a percentage of the corresponding period of the previous year*



In Kostanay region, the extraction of iron ore concentrates increased, production of flour, bars and rods of steel, buses, cars and trucks increased (106.9%).

In Akmola region, extraction of copper and gold-containing concentrates increased, production of flour, portland cement, gold in gold doré alloy, unprocessed gold and tractors increased (106.8%).

In North-Kazakhstan region there was an increase in uranium ore mining, production of unrefined rapeseed oil, processed milk, butter, flour and non-self-propelled freight cars increased (105.3%).

In West-Kazakhstan region due to increase in gas condensate production the index of industrial production amounted to 104.5%.

In Nur-Sultan city the production of soft drinks, refined gold, diesel locomotives and railroad cars increased (104.3%).

In Almaty city, production of beer, leather shoes, medicines and tins of ferrous metals increased (103.2%).

In Almaty oblast, production of confectionery and chocolate, cigarettes, medicines, mounting panels and instrument panels increased (103.1%).

In Karaganda region there was an increase in the production of copper concentrates, production of flat rolled products, refined gold, blistered and refined copper increased (102.7%).

In Zhambyl oblast, phosphate rock extraction increased, production of phosphorus, orthophosphoric acid and phosphate fertilizers increased (101.7%).

In Turkestan Province, there was an increase in the production of processed cotton, oil bitumen, commercial concrete and distribution power boards and boxes (100.9%).

In Pavlodar oblast, production of copper concentrates increased, and production of part of railroad locomotives, streetcar motor cars and rolling stock increased (100.1%).

In Aktobe region due to the increase in the volume of industrial services, the index of industrial production amounted to 100.1%.

In East Kazakhstan region due to reduction of extraction of copper ores and concentrates, decrease in production of coins and medals index of industrial production amounted to 98.5%.

In Shymkent city due to the reduction in production of kerosene, diesel fuel, heating oil and vacuum gasoil the index of industrial production amounted to 97.7%.

The index of industrial production in Atyrau region amounted to 98.2%, Mangistau region 93.2% and Kyzylorda region 88.2% mainly due to a decrease in crude oil production.

*(Source:* [*www.stat.gov.kz*](http://www.stat.gov.kz)*)*

# *Electricity consumption by large consumers in Kazakhstan*

In January-September 2020, electricity consumption by large consumers decreased by 2.1% compared to the same period in 2019.

*million kWh*

|  |  |  |
| --- | --- | --- |
| **№** | **Consumer** | **January-September** |
| **2019** | **2020** | **Δ, %** |
| 1 | Arcelor Mittal Temirtau JSC | 2 747,1 | 2 758,3 | 0% |
| 2 | AZF (Aksu) TNK Kazchrome JSC | 4 327,2 | 4 206,3 | 3% |
| 3 | Kazakhmys Smelting LLP  | 900,6 | 886,8 | 2% |
| 4 | Kazzinc LLP | 2 123,7 | 2 127,0 | 0% |
| 5 | Kazzinc JSCSokolovsko-Sarbay State Enterprise | 1 255,1 | 1 336,3 | -6% |
| 6 | Kazakhmys Corporation LLP  | 956,7 | 905,7 | 6% |
| 7 | AZF (Aktobe) TNK Kazchrome JSC | 2 411,1 | 2 364,4 | 2% |
| 8 | RSE Kanal im. Satpayev | 189,1 | 158,3 | 19% |
| 9 | Kazphosphate LLP | 1 653,5 | 1 622,0 | 2% |
| 10 | NDFZ JSC (part of Kazphosphate LLP) | 1 455,1 | 1 421,4 | 2% |
| 11 | Taraz Metallurgical Plant LLP | 182,5 | 124,3 | 47% |
| 12 | Ust-Kamenogorsk Titanium and Magnesium Combine JSC | 556,7 | 639,3 | -13% |
| 13 | Ust-Kamenogorsk Titanium and Magnesium Combine JSCTengizchevroil | 1 370,8 | 1 409,1 | -3% |
| 14 | JSC " PAZ "(Pavlodar Aluminum Plant) | 711,7 | 707,9 | 1% |
| 15 | JSC " KEZ "(Kazakhstan Electrolysis Plant) | 2 812,8 | 2 803,3 | 0% |
| 16 | Temirzholenergo LLP | 1 053,0 | 1 162,9 | -9% |
| 17 | JSC "KEGOC" | 3 235,4 | 3 838,3 | -16% |
| **Total** | **26 487,0** | **27 050,1** | **-2,08%** |

# **Coal**

# *Steam coal production in Kazakhstan*

According to information from the Statistics Committee of the Ministry of Energy of Kazakhstan, Kazakhstan produced 77 849,2 mln tons of hard coal in the period January-September 2020, which is 1% lower than in the same period in 2019 (78 986,2 thousand tons).

|  |  |  |  |
| --- | --- | --- | --- |
| **№**  | **Oblast** | **January-September** | **Δ, %** |
| **2019**  | **2020**  |
| 1 | Pavlodarskaya | 49 122,40 | 47935,4 | 98% |
| 2 | Karagandinskaya | 24 166,80 | 24 603,00 | 102% |
| 3 | East Kazakhstan | 5 455,50 | 5 219,90 | 96% |
|  | **Total in RoK** | **78 986,20** | **77 849,20** | **99%** |

# *Coal production by Samruk-Energy JSC*

In January-September 2020, Bogatyr Komir LLP produced 31 249,5 thousand tons, which is 2.9% more than in the corresponding period of 2019 (32 173 thousand tons).

# *Coal sales by Samruk-Energy JSC*

In January-September 2020, 31 002 thousand tons were sold, including:

- 23 528 thousand tons were delivered to the domestic market of the Republic of Kazakhstan, which is 2.1% less than in the corresponding period of 2019 (24 035 thousand tons);

- exported to Russia – 7 475 million tons, which is 8.4% more than in the corresponding period of 2019 (8 160 thousand tons).

*thousand tonnes*

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Region** | **Sales volume, thousand tonnes** | **Δ, %** |
| **January-September 2019** | **January-September 2020** |
| Total exports to the domestic market of the Republic of Kazakhstan | **24 035** | **23 528** | **97,9%** |
| Total exports to the Russian Federation | **8 160** | **7 475** | **91,6%** |

As per the figures for January-September 2020, as compared to the same period in 2019, the Company has seen an increase in coal sales by 3.7%.

# **Renewable energy sources**

The volume of electricity produced by renewable energy facilities (SES, wind farms, BGS, small hydroelectric power plants) in January-September 2020 amounted to 2 406 million kWh. Compared to January-September 2019 (1 428.5 million kWh), the increase was 68.4%.

million kWh

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **№** | **Name** | **2019** | **2020** | **Deviation 2020/2019** |
| **January-September** | **share in the Republic of Kazakhstan, %** | **January-September** | **share in the Republic of Kazakhstan, %** |  **mln kWh** | **%** |
|  | **Total output in the Republic of Kazakhstan** | **76734,2** | **100%** | **77755,9** | **100,0%** | **1021,7** | **1,3%** |
| **I** | **Total RES in the Republic of Kazakhstan, including by zones**  | **1428,5** | **1,9%** | **2406,0** | **3,1%** | **977,5** | **68,4%** |
| 1. | *Northern Zone* | *400,8* | *28,1%* | *824,1* | *34,3%* | *423,3* | *105,6%* |
| 2. | *Southern zone* | *853,3* | *59,7%* | *1308,2* | *54,4%* | *454,9* | *53,3%* |
| 3. | *Western Zone* | *174,4* | *0,0%* | *273,7* | *11,4%* | *99,3* | *0,0%* |
| **II** | **Total RES in the Republic of Kazakhstan, including by type**  | **1428,5** | **1,9%** | **2406,0** | **3,1%** | **977,5** | **68,4%** |
| 1. | *SES* | *300,2* | *21,0%* | *1084,3* | *45,1%* | *784,1* | *261,2%* |
| 2. | *Wind farms* | *475,7* | *33,3%* | *736,9* | *30,6%* | *261,2* | *54,9%* |
| 3. | *Small hydroelectric* | *650,1* | *45,5%* | *581,2* | *24,2%* | *-68,9* | *-10,6%* |
| 4. | *Biogas plants* | *2,5* | *0,2%* | *3,6* | *0,1%* | *1,1* | *0,0%* |

In January-September 2020, there is a decrease in electricity production by large and small hydropower plants compared to the same period in 2019, while electricity production by WES, SES and BSU facilities increased.

million kWh

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Name** | **2019** | **2020** | **Deviation 2020/2019** |
| **January-September** | **share in the Republic of Kazakhstan, %** | **January-September** | **share in the Republic of Kazakhstan, %** | **mln kWh%** | **%** |
|  | ***Electricity production in the Unified Energy System of the Republic of Kazakhstan*** | **76734,2** | **100,0%** | **77755,9** | **100%** | **1021,7** | **1,3%** |
| 1. | Production of "clean" electricity (RES + Large hydroelectric power plants)  | *8263,9* | *10,8%* | *10034,0* | *12,9%* | *1770,1* | *21,4%* |
| 2. | Production of "clean" electricity (RES excluding Large hydroelectric power plants) | *1428,5* | *1,9%* | *2406,0* | *3,1%* | *977,5* | *68,4%* |

Electricity generation by RES facilities of Samruk-Energy JSC (SES, WES, small HPPs) in January-September 2020 amounted to 250.8 mln kWh or 10.4% of the total volume of electricity generated by RES facilities, which is 13.5% lower compared to the same period of 2019 (in January-September 2019, the Company's RES generation amounted to 264.3 mln kWh, and the Company's RES share was 18.5%).

 The Company's share in the production of "clean" electricity (SES, RES, small and large HPPs) for January-September 2020 decreased by -10.8% (2,136.9 million kWh) compared to the same period of 2019. (239 mln. kWh).

million kWh

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **№** | **Name** | **2019** | **2020** | **Deviation 2020/20/2019.** |
| **January-September** | **share in the Republic of Kazakhstan, %** | **January-September** | **share in the Republic of Kazakhstan, %** |  **million kWh** | **%1.** |
|   | Productionof "clean" electricity by JSC "Samruk-Energy" (SES, wind farms, small and large hydroelectric power plants)  | 2395 | 29,0% | 2136,9 | 21,3% | -258,1 | -10,8% |
| 2. | Production of "clean" electricity by JSC "Samruk-Energy" (SES, wind farms and small hydroelectric power plants), incl.: | 264,3 | 18,5% | 250,8 | 10,4% | -13,5 | -5,1% |
| 3. |  *Cascade of small hydroelectric power plants of "AlES" JSC* | *155,9* | *10,9%* | *133,9* | *5,6%* | *-22,0* | *-14,1%* |
| 4. | *Samruk-Green Energy LLP* | *2,7* | *0,2%* | *3,2* | *0,1%* | *0,5* | *18,5%* |
| 5. | *First Wind Power Station LLP* | *105,7* | *7,4%* | *113,7* | *4,7%* | *8* | *7,6%* |

The main decrease in the share of the Company's RES power generation is the commissioning of new RES facilities in the RoK.

Commissioning of new RES facilities (total volume of commissioning for 9 months 977 mln kWh increase by 68.4% to the same period of 2019):

- SES Kaskelen LLP "MISTRAL ENERGY" - 50 MW;

- Badamsha-1 WPP of "Arm Wind" LLP - 48 MW;

- WPP Koktal-1,2 Wind Power city LLP - 4,5 MW;

- SES Zhatysay "KaDi Company" LLP - 4.8 MW;

- UKSES 50 LLP - 50 MW;

- WPP of Golden Energy corp LLP - 30 MW;

- NPP Agadyr -1,2 "KazSolar-50" LLP - 50MW+10MW;

- Astana Expo" WPP of "CATEK Green Energy" LLP - 100 MW.

# **Centralized electricity trading by KOREM JSC**

*(Information provided by KOREM JSC)*

*General results of the trades*

According to the results of centralized electricity trading in September 2020, 8 transactions were concluded in the volume of 92,832 thousand kWh for a total amount of KZT 730,695.36 thousand (excluding VAT), (including, in the "day-ahead" mode and trading for medium and long-term periods), including:

 - spot trades in "day-ahead" mode - 6 deals were concluded in the volume of 6,720 thousand kWh for the total amount of 55,776 thousand tenge (without VAT). The minimum price at spot trades in "day-ahead" mode amounted to 8.3 tenge/kWh (excluding VAT), the maximum price - 8.3 tenge/kWh (excluding VAT)¹.

 Spot trades "during the operational day" - no deals were concluded.

 - Electricity trades for medium- and long-term periods - 2 deals were concluded in the volume of 86,112 thousand kWh for the total amount of 674,919.36 thousand tenge (excluding VAT). The minimum price at spot trades in the "day-ahead" mode amounted to - 8.3 tenge/kWh (excluding VAT), the maximum price - 8.3 tenge/kWh (excluding VAT).

For the same period of 2019, the total volume of centralized bidding amounted to 930,073 thousand kWh. The table below shows the dynamics of transaction prices concluded at centralized bidding in September 2019-2020.

**Dynamics of prices formed as a result of centralized trades**

|  |  |  |  |
| --- | --- | --- | --- |
| **September** | **spot trading in the "day-ahead" mode** | **trading for medium- and long-term periods** | **within the operational day** |
| MIN price  | MAX price | MIN price  | MAX price | MIN price  | MAX price |
| **tg/kWh (excluding VAT)** |
| **2019** | **6,5** | **7,15** | **1,1** | **8,8** | **6,48** | **6,48** |
| **2020** | **8,9** | **8,3** | **5,76** | **7,95** | **0** | **0** |

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

According to the results of spot trades held in September 2020, 6 transactions were concluded in the volume of 6,720 thousand kWh for a total amount of 55,776 thousand tenge (excluding VAT). The minimum price at spot trades in the "day-ahead" mode amounted to 8.3 tenge/kWh (excluding VAT), the maximum price - 8.3 tenge/kWh (excluding VAT).

The table below summarizes the volumes and bid-ask prices and the final results of spot trades in the "day-ahead" mode in September 2020.



The table shows that the total demand amounted to 34,416 thousand kWh, while the supply amounted to 11,328 thousand kWh. The unsatisfied demand volume in September 2020 amounted to 27696 thousand kWh, and the unsatisfied supply volume amounted to 4,368 thousand kWh. In the process of spot trading, 89 bids were accepted into the trading system, including 68 bids from buyers and 21 bids from sellers.

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

According to the results of trades held in September 2020 no deals were concluded. According to the results of spot trades held "during the operational day" in September 2019, 120 deals were concluded in the volume of 600 thousand kWh for a total amount of 3,888 thousand tenge. The minimum and maximum price at spot trades "during the operational day" amounted to 6.48 tenge/kWh (excluding VAT).

**Results of trades for medium- and long-term period**

According to the results of trades for medium- and long-term periods in September 2020, 2 deals were concluded in the volume of 86,112 thousand kWh for a total amount of 674,919.36 thousand tenge (without VAT). The minimum price for this type of centralized trades was 5.76 tenge/kWh (excluding VAT), and the maximum price was 7.95 tenge/kWh (excluding VAT). Transactions were registered based on the results of centralized trading in electricity with a delivery period of one quarter.

Compared to the same period of 2019 in September 2020, there was a 52-fold decrease in the volume of trades for the medium- and long-term period.

In September 2019, according to the results of bidding for the medium- and long-term periods, 52 deals were concluded in the volume of 4,459,608 thousand kWh for a total amount of 25,583,985.6 thousand tenge (excluding VAT). The minimum price for this type of centralized bidding was 1.1 tenge/kWh (excluding VAT), the maximum price was 8.8 tenge/kWh (excluding VAT).

# **Export-import of electric energy**

In January-September 2020, the main direction of electricity export-import of the RK was the Russian Federation (export to the Russian Federation – 767.5 mln kWh, import from the Russian Federation –843.5 mln kWh). KEGOC – 727.5 mln kWh in order to balance electricity production-consumption. Electricity import from the Russian Federation in the reporting period in the amount of 651.6 mln kWh was carried out in order to balance production-consumption of electricity.

million kWh

| **Name** | **January-September** | **Δ 2020/2019гг.** |
| --- | --- | --- |
| **2019** | **2020** |  **mln kWh** | **%** |
| **Kazakhstan's exports** | **4 115,3** | **1 319,9** | **-2 795,4** | **-67,9%** |
| **to Russia** | *4 112,1* | *767,5* | *-3 344,6* | *-81,3%* |
| **to Central Asian ECO** | *3,2* | *552,4* | *549,2* | *17230%* |
| **Kazakhstan's imports** | **1 033,0** | **1 158,3** | **125,3** | **12,1%** |
| **from Russia** | *1 029,6* | *843,5* | *-186,2* | *-18,1%* |
| **from Central Asian ECO** | *3,3* | *314,8* | *311,5* | *9331,5%* |
| **Balance-flow " + "deficit," - " excess** | **-3 082,4** | **-161,6** | **2 920,8** | **-94,8%** |

# **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 the common electric power market of the Union on the basis of power systems operating in parallel, taking into account the priority provision of electricity 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 EDM will be observed.

On September 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 treaty on the formation of a common electric power market of the Union in the form of the Protocol on Amendments to the Treaty on the Eurasian Economic Union of September 29, 2014 (in terms of the formation of a common electric power market of the Eurasian Economic Union).

On December 20, 2019, the High Council adopted Decision No. 31 "On the plan of measures aimed at the formation of a common electric power 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 common electric power market of the Union, as well as other acts stipulated by the said Protocol.

In 2020, the 13th meeting of the Advisory Committee on Electricity under the EEC Collegium in absentia (September 26, 2020), two meetings of the Subcommittee on the formation of the EEU EDM of the Advisory Committee on Electricity under the EEC Collegium are held, the work on the development and agreement by the EAEU member states of the rules of functioning of the EAEU EDM is carried out (49th meeting on January 23-24, 2020, 50th meeting on May 29, 2020, 51st meeting on September 02, 2020) and one meeting of the Subcommittee members (February 20-21, 2020).

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

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

Since 1992, 53 meetings of the Electricity Council of the Commonwealth of Independent States (hereinafter referred to as the CIS EES) have been held.

By the decision of the CIS Unified Energy System (Protocol No. 50 of 21.10.2016), the Consolidated Schedule for the formation of the common electricity market of the CIS member States was approved.

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Activities** | **Due date** | **Current status** |
| 1 | Implementation of activities in accordance with section II. Action Plan for Cooperation between the EEC and the CIS EES, approved on June 10, 2016. | 2016-2020 | Permanent participation of the EEC representatives at the meetings of the CIS EEC, and representatives of the CIS EEC EC – at the meetings on the formation of the EAEU EER is ensured. |
| 2 | Preparation of a draft Procedure for settling deviations from the agreed values of interstate electric energy flows | 2016-2017. | The decision to develop a procedure for regulating deviations from the agreed values of interstate electric energy flows was made at the 45th meeting of the CIS Unified Energy System. The draft Procedure was considered at the 29th meeting of the Working Group "Formation of the common electricity market of the CIS countries" on September 15, 2016 in Moscow (Russia). In accordance with the Decision of the 47th Session of the CIS EES, the CIS EES Action Plan for 2016 includes the development and approval of draft documents on determining the values of deviations from the agreed values of interstate electricity flows and regulating the values of deviations from the agreed values of interstate electricity flows. Work continues. |
| 3 | Preparation of a draft Procedure for distributing the capacity of interstate cross-sections / export-import cross-sections between participants in export-import activities. | 2018-2020 | By the decision of the 50th meeting of the CIS Unified Energy System, Methodological recommendations on metrological support of measuring systems for electric energy metering on interstatepower transmission lines were approved.By the decision of the 50th session of the CIS Unified Energy System, the Schedule for monitoring the use of regulatory technical documents in the field of metrology of electrical measurements and electricity metering in the production activities of power systems of the CIS member States was approved. |
| 4 | Preparation of a draft Procedure for compensation of costs associated with the implementation of transit/transmission/movement of electricity through the energy systems of the CIS member States. | 2018-2020 | The unified data exchange layout format for recording interstate electricity flows, developed by the Working Group on Metrological Support for the Electricity 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 management bodies of the CIS member States for use in organizing the recording of interstate electricity flows and the exchange of data on interstate flows. |
| 5 | Harmonization of national legislation in the field of electric power, 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 CIS EES approved Conceptual approaches to technical regulation and standardization in the field of electric power. The Regulation on the Working Group "Updating and harmonization of the regulatory and technical framework for Regulating the Electric Power Industry"was also approved. The Work Plan of this Working Group was approved by the decision of the 51st meeting of the CIS EES. |

# **CASA-1000 project implementation status**

*Project Description*

The CASA-1000 project is the first step towards creating a regional electricity market for Central and South Asia (CASAREM), using the significant energy resources of Central Asia to help reduce the energy deficit in South Asia on a mutually beneficial basis.

It is planned to start delivering electricity under the CASA-1000 project in 2021. It is assumed that the transmission line capacity will be about 6 billion cubic meters. kWh per year.

The project financing process is managed by the World Bank.

The project is divided into two main packages:

* construction of power transmission lines in Kyrgyzstan, Tajikistan, Afghanistan and Pakistan;
* Construction of two-terminal high-voltage DC converter substations in Pakistan and Tajikistan.

The construction period after signing the contract is 42 months (2021).

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

*(according to the website of the CIS EES Executive Committee)*

**Kyrgyz Republic**

**Total electricity losses in 2019 amounted to 2.3 billion kWh**

Total losses of electricity in 2019 amounted to 2 billion 337.6 million kWh (15.4% to the volume of electricity supplied). This is stated in the materials of the National Statistical Committee of Kyrgyzstan.

At the same time, technological losses amounted to 2 billion 317.2 million kWh (99% of the total losses).

On the whole in the republic in 2019, the energy industry enterprises produced more than 15 billion kWh of electricity, which is 3.9% less than in 2018. At the same time, about 92% of its volume was generated by hydroelectric power plants.

Depreciation of power equipment in Kyrgyzstan: Which company has the largest percentage of obsolete equipment?

The degree of wear of the main equipment of electrical networks is more than 70%. This is reported in the materials of the National Energy Holding. At the same time, a large percentage of networks and equipment of electric distribution companies are not suitable for further operation.

The share of worn–out equipment in operation for 1.5–2 standard periods increases and amounts to about 20% for substations 35/6-10 kV and 35% for substations 6-10/0.4 kV."

Equipment wear in power companies:

— "Electric stations" (HPP, CHP) — 79.80%;

— "NES of Kyrgyzstan":

— PS 110-220-500 kV — 69%;

— 110-220-500 kV OVERHEAD LINE — 36%;

— "Bishkekteploset"

— Backbone networks — 81.8%;

— Distribution networks — 70.8%;

— "Severelectro"

— VL/KL 0,4-6-10-35 kV — 62%;

— PS 35 (TP, KTP 6-10/0.4 kV) — 58%;

— "Oshelektro"

— VL/KL 0,4-6-10-35 kV — 71.5%;

— PS 35 (TP, KTP 6-10/0.4 kV) — 68.7%;

— "Jalalabatelectro"

— VL/KL 0,4-6-10-35 kV — 49.3%;

— PS 35 (TP, KTP 6-10/0.4 kV) — 46.5%;

— "Vostokelectro"

— Overhead line/CL 0,4-6-10-35 kV — 56.7%;

— PS 35 (TP, KTP 6-10/0.4 kV) — 45.6%;

— Chakan HPP 100%.

Electric stations" will be allocated from the budget 1 billion soms of credit for the import of electricity from Kazakhstan and the purchase of fuel for CHP

JSC "National Energy Holding Company" was instructed to ensure the conclusion of a contract for the supply of electric energy from the Republic of Kazakhstan in the amount of up to 500 million kWh, the Ministry of Finance — to provide JSC "Electric Stations" in the period from September to December 2020 a budget loan of 1 billion soms to pay for imported electric energy and the purchase of fuel for teploelectric power plants of Bishkek and Osh cities.

The State Agency for Regulation of the Fuel and Energy Complex under the Government of the Kyrgyz Republic is instructed in accordance with the established procedure to revise, from October 2020, tariffs for electric and thermal energy supplied by Electric Power Stations OJSC for electric and thermal distribution companies, taking into account the cost of importing electric energy and the cost of purchasing fuel for thermal power plants in Bishkek and Osh by the autumn-winter period of 2020/2021, in the amount of 600 million soms.

Deputy Prime Ministers of Kyrgyzstan and Russia discussed energy projects

Deputy Prime Minister of Kyrgyzstan Erkin Asrandiyev spoke about specific projects that were discussed with Deputy Chairman of the Government of Russia Alexey Overchuk during the 22nd meeting of the Intergovernmental Kyrgyz-Russian Commission on Trade, Economic, Scientific, Technical and Humanitarian Cooperation.

Thus, according to Asrandiyev, special attention was paid to the further development and deepening of cooperation in the field of economy, trade, investment, energy, agriculture, pharmaceutical and chemical products, as well as the implementation of a number of joint projects.

As the Deputy Prime Minister noted, Russia is one of the main trading partners of Kyrgyzstan and ranks second among our foreign economic partners in terms of trade volume.

"We are ready to further deepen our cooperation, in particular, in the field of energy, we have agreed in close cooperation with the Russian Inter RAO on the implementation of a project to create a single billing center in Kyrgyzstan," he said.

Also, as Asrandiyev stressed, the project for the production of solar panel plates is seen as promising and implemented in the shortest possible time. "This is a good example of cooperation when Russian investors came to Kyrgyzstan, implemented a project here and the finished project was delivered to Russia," he said.

Republic of Belarus

On the readiness of energy facilities to work in the autumn-winter period (22.09.2020)

On September 22, 2020, a press conference was held on the topic of the readiness of housing and utilities organizations and energy facilities to work in the autumn-winter period. The event was attended by representatives of the Ministry of Housing and Communal Services of the Republic of Belarus, the Ministry of the Executive Committee, the leadership of the State Energy and Gas Supervision State Institution and the State Enterprise Beltopgaz. Deputy Chief Engineer Yevgeny Pantelei spoke at a press conference on behalf of GPO Belenergo.

The following measures are being carried out to improve the reliability of electrical equipment of GPO "Belenergo": replacement of worn−out switches 35 − 330 kV, replacement of inputs 35 − 330 kV, replacement of worn−out switches 10 kV vacuum, replacement of physically worn disconnectors 35 - 330 kV, replacement of isolators disconnectors 35 - 110 kV, replacement of cells of complete switchgear, replacement defective current transformers and voltage transformers 35 − 330 kV, the introduction of surge arresters 35 − 330 kV and 6 − 10 kV, etc.

Major repairs of the 0.4-750 kV transmission line amounted to 14,976.6 km (62.93% of the plan for 2020).

In terms of measures to improve the reliability of electrical networks, the following were replaced: 4086 10 kV poles, 13383 0.4 kV poles, 361 km of 10 kV wire, 909.7 km of 0.4 kV wire, 167.4 km of lightning cable for 35 kV overhead lines and above. 5825 distribution points and transformer substations were repaired, 79 complete transformer substations were centrally repaired.

Clearing of the glades of the 10-750 kV overhead line on an area of 12,027.22 hectares (88.2% of the plan for 2020) was carried out, also RUP-oblenergo, together with forestry enterprises, was put in order in the forest strips adjacent to the glades of the 10-750 kV overhead line, over a length of 2,326.96 km (70% of the plan for 2020).

RUP-oblenergo The 35-330 kV overhead line was expanded on an area of 206 hectares (23.4% of the 2020 plan).

Since the beginning of 2020, 528.5 km (51.62% of the 2020 plan) of uninsulated 10 kV overhead line wires passing through the lands of the forest fund have been replaced with protected (coated) wires. 7,321.03 km (63.51% of the total length) of 10 kV overhead lines passing through the lands of the forest fund are made in an isolated design.

6-10 kV cable lines were replaced in the regional, district cities of the republic and in Minsk in the amount of 230.05 km (76.48% of the 2020 plan).

As of September 21 of this year, the operational reserves of heating oil of RUP-oblenergo amounted to more than 352 thousand tons.

The systems of fire automation, smoke removal, sources of external and internal fire-fighting water supply, and the possibility of access to them have been checked.

There are 184 mobile diesel power plants on the balance sheet of RUP-oblenergo.

Emergency recovery and operational field teams are fully equipped with protective equipment and necessary materials and tools. Emergency training and personnel briefings are conducted.

The number of emergency recovery and operational field teams for the State enterprise "Belenergo" is more than 1,250 with a staff of more than 8,800 people. The number of automotive and special equipment is more than 3280 units.

The project of automation of distribution networks has been successfully completed in Pinsky rural RES.

This is the first project of its kind in the Brest region and only the third in Belarus. Its implementation was carried out within the framework of a Comprehensive action plan for accelerated socio-economic development of the Pinsky district for the period up to 2020. The General contractor for the reconstruction was JSC Belelektromontazhnaladka. The undoubted advantage of the project is that it is implemented mainly on the basis of Belarusian-made equipment. On August 14, the renovated facility was opened by Yuri KLIMOVICH, Director of the Pinsk Electric Networks branch of RUE Brestenergo, Oleg GRISCHUK, Deputy General Director of JSC Belelektromontazhnaladka, and Vladimir ZABAVNYUK, head of the Pinsk Rural RES.

In two years, reconstruction of 35/10 kV substations "Rudka" and "Molotkovichi", telemechanization of twelve 35-220 kV substations, renovation of the distribution point "Tepenets" with retrofit of 10 kV cells were carried out. The equipment of five transformer substations has been replaced, 128 reclosers have been installed.

Communication channels are organized with all renovated facilities. The main communication channel is implemented on the basis of HTC-7075 PLC modems manufactured by NPO NovoTestSystems LLC using existing high-frequency channels. The cost of channels based on these modems is significantly lower than the cost of high-voltage communication equipment. During the period of trial operation, modems have shown a stable connection, and their use can be considered as a basic option for organizing communication channels with objects during the implementation of such projects.

During the work in the Pinsky district, 55 short-circuit current indicators of the ITKZ LineTroll R400D were also installed. In order to detect malfunctions, they use both magnetic and electric fields, these devices are completely autonomous and do not require external transformers or connections. To detect a short circuit on the line, the indicator reacts to an increase in current beyond the set value and starts flashing when fixed. The red LED beacon shows the location of the damage and is visible at a great distance both during the day and at night. A very important section of the project was the installation of a new dispatch board for the district dispatch service. The shield is a "video wall" that combines several screens into one visual field. 32 Samsung UH55F-E high-resolution liquid crystal panels with an ultra-narrow frame of 1.7 mm are used, which allows the most holistic reading of graphic information. The total size of the video wall is 9.7 x 2.7 m. Such a dispatch board, built on display panels, allows not only to display a dynamic model of a 10 kV network on the screen, but also makes it possible to obtain up-to-date technical information on each specific electrical installation. The dispatcher has schemes with reference to the terrain, modes and switching programs, as well as photo and video materials obtained from surveillance cameras at controlled facilities. According to Oleg KOZIK, the head of the automated control systems section of JSC Belelektromontazhnaladka, the introduction of a video wall for RDS will help to effectively monitor in operating mode and respond promptly in cases of emergency or emergency situations. "When the staff of the power grids regularly goes around the facilities and notices some defects somewhere, they bring them into this dispatch system. If an accident occurs, the system automatically detects the location of the damage and localizes the damaged area, and the dispatcher immediately sees on the screen exactly where the breakdown occurred. He also has the ability to switch the system to demo mode and calculate the network. This is usually done when new consumers appear or it is necessary to calculate how the network mode will be maintained during repair work." In addition, the project has an SMS notification system. For example, if you need to temporarily withdraw a line, the dispatcher switches to demo mode and sees a list of consumers who will be disconnected. After that, he sends them a message that there will be no voltage for some time due to repair work. In case of an accident on the line, the system generates such a list automatically. This approach also gives an advantage in terms of logistics. To make it easier for the dispatcher to find places where the visiting team should go, he has a road map with all the objects at his disposal, and the exact location of the cars of the OVB is also displayed on it. If you need to inspect a certain substation, the dispatcher, opening the map, sees the car closest to the TP and gives the crew the command to leave. "The system of issuing orders is very convenient. The dispatcher on his equipment enters into the program what, where and how exactly it should be connected. The field team has a tablet on which this "switching form" is automatically transmitted. The OVB goes to the place, performs the necessary operations and indicates on the tablet that the action has been performed. The notification immediately comes to the dispatcher's monitor. This whole procedure is tied to coordinates, that is, if the OVB arrived at the wrong place where it was supposed to, the navigator will indicate that "you are not there," Oleg Mikhailovich shares innovations.

According to the Pinsk Electric Networks branch of RUE Brestenergo, the introduction of a set of automation measures in Pinsk rural RES will allow: – to improve the quality of power supply to consumers, as well as the safety of personnel during the production of operational switches in the network; – to reduce the monetary costs of repair and operation of substation equipment and the time it is under repair; – to receive information about the parameters of the network mode at its various states, calculation of generalized technical and economic characteristics of network operation; – give advice and hints to the dispatcher on the optimal management of network modes in normal and post–emergency conditions; – display switching devices and bus sections through which power can be supplied to the disconnected section, indicating the maximum possible power that does not overload other network elements; - minimize power interruptions, power and energy losses in the network, the number of operational switches, moving from one facility to another; – to replace a part of physically worn-out and obsolete network equipment. We hope that such developments will find wide application in the distribution power grids of Belarus.

The power system of the Russian Federation is ready to issue electricity to neighboring states - ROSSETI

The Russian energy system is ready to provide the necessary amount of electric power to neighboring states, the CEO of PJSC ROSSETI told reporters> Pavel Livinsky.

In 2018, the Baltic states, Poland and the European Commission signed a political agreement in Brussels on synchronizing the power grids of the three Baltic countries with the networks of continental Europe. By 2025, the Baltic states will have to finally withdraw from the BRALL energy ring (Belarus, Russia, Estonia, Latvia, Lithuania) and connect to the European energy system.

Ties with neighboring states remain, there is a flow, including to the Lithuanian energy system. In case of changes, and if there are no such needs, we can switch to isolated work at any time, but electricity exports are carried out, all flows are working as long as there is a need for this.

Now the Kaliningrad Region's power system is connected to the rest of Russia via the electric networks of Belarus, Estonia, Latvia and Lithuania. The energy independence of the region will be provided by four new power plants with a total capacity of about 1 GW. Three of them (on gas fuel) already put into operation, another one, coal, is being built as a spare and will operate in cold reserve mode.

The power generation facilities of the Kaliningrad Region have successfully tested the operation of the region's power system in an isolated mode. For eight hours, the power system of the Kaliningrad Region was disconnected from the BRALL energy ring and worked in isolation.

Generating companies are leaving the wholesale energy market en masse due to a variety of non-market mechanisms.

Over the past five years, 49 power plants with a total capacity of 1.2 GW have decided to trade electricity on the retail market - directly with the consumer or a distribution company. In this way, a thermal power plant can quadruple its income, experts say, and a direct buyer can save up to 10% of the cost of electricity. Only special restrictions can stop the generation leaving.

The wholesale energy market is losing its attractiveness for generating companies. Since 2015, 49 power plants with a total installed capacity of 1.25 GW have gone into the retail segment, according to the Market Council (energy market regulator). According to the rules, stations with a capacity of no more than 25 MW can switch from wholesale to retail, and this is prohibited for large facilities. As noted in the "Market Council", the transition is taking place for economic reasons, since the working conditions in the retail market are more attractive for some stations.

The cost of electricity in the wholesale market consists of two components - capacity (ready to work) and electricity (actually generated kilowatt-hours). In most thermal power plants, the payment for capacity is formed through a competitive power take-off (COM) mechanism. However, some of the stations also receive various additional payments: a surcharge under the program of contracts for the supply of power (PDM, guarantees a return on investment in the construction of the facility), to reduce energy tariffs in the Far East, the construction of a new generation in the Kaliningrad region and Crimea. Due to the increase in the number of surcharges, the average one-rate price of the wholesale market is constantly growing: in January - July of this year it was 2.5 thousand rubles. for 1 MWH in the first price zone (the European part of the Russian Federation and the Urals) and 1.8 thousand rubles. for 1 MWH in the second price zone.

In the retail market, the price is formed differently. A power plant with a capacity of less than 25 MW sells electricity to a specific consumer, a guaranteeing supplier (GP) or an energy sales company (ESC). Moreover, the contractual price cannot be higher than the one-rate price of the wholesale market. If the station receives only a payment by WHOM, but does not receive other surcharges for power, then it becomes more profitable for it to negotiate with the consumer directly. In addition, electricity producers in the retail market have no requirements for maintaining equipment in working condition, and there is also no need to undergo a power take-off procedure, the "Market Council" adds. Some generators specifically reduce the power of their stations in order to go to the retail market.

In the Council of Energy Producers (SPE, unites general companies), that objects that cannot compete with highly efficient generation in the wholesale market primarily go to the retail market. The SPE believes that it is necessary to raise the issue of finalizing the models of the wholesale and retail energy markets, including through the development of the institute of free bilateral agreements, leveling the conditions for the functioning of distributed generation and generation of the wholesale market. The Association of SOEs and ESC agree that without the introduction of special restrictions, the trend for the withdrawal of generation from the wholesale energy market will continue.

Taking into account the style of initiatives to introduce payment for the network reserve and differentiation of the FGC tariff, we do not exclude that instead of eliminating non-market surcharges to restore the attractiveness of the wholesale market, proposals for restrictions and surcharges for retail generation may appear.

The retail segment is more interesting for generators: they get the opportunity to sell power four times more expensive than on the wholesale market, as well as get rid of unprofitable obligations under regulated contracts (RD, contracts for the sale of power and electricity to the population at reduced prices), says Alexey Zhikharev, partner at Vygon Consulting. Moreover, the direct buyer will receive from such a generator a price lower by 5-10% than from the GP, he continues. But for consumers buying electricity and power from the wholesale market, the outcome of generation in the retail segment will mean an increase in final prices. According to Alexey Zhikharev, an additional 1.2 GW in retail increases the total load for such consumers by more than 10 billion rubles per year.

Republic of Tajikistan

The water level in the Nurek reservoir has reached its maximum level

In the energy sector of the republic on September 2, the water level in the reservoir of the Nurek HPP reached its maximum level.

According to the technical parameters, in order to fully fill the reservoir of the Nurek HPP, the water level should reach 910 meters. The day before , the water level in the reservoir of the Nurek HPP reached 909 m. 69 cm .

According to the source, the water flow on the Vakhsh River in the area of the Nurek reservoir yesterday amounted to 869 cubic meters per second, which is 346 cubic meters less than the same period last year.

According to the source, every day in the country, on average, more than 43.5 million kWh of electricity is generated.

Earlier, Barki Tojik reported that the export of electricity to Afghanistan and Uzbekistan was stopped due to low water. This is due to a decrease in the inflow of water on the Vakhsh River and the redistribution of networks in Afghanistan.

According to the ministry, 546.6 million kWh of electricity was exported to Afghanistan in six months. This indicator in Uzbekistan amounted to 358.3 million kWh.

For the first time in 10-12 years, there was no idle discharge of water from the reservoirs of the Vakhsh cascade hydroelectric power station.

In the energy sector of the country, this year, due to low water, there was no idle discharge of water from the reservoirs of the Vakhsh cascade hydroelectric power station, including the Nurek hydroelectric power station. The water level in the reservoir of the Nurek HPP reached its maximum level in early September.

Compared to previous years, the inflow of water on the Vakhsh River was significantly less. Due to the lack of water this year, the export of electricity to Afghanistan and Uzbekistan was stopped earlier than the agreed deadlines. This is due to a decrease in the inflow of water on the Vakhsh River.

The water flow on the Vakhsh River near the Nurek reservoir in early September averaged 869 cubic meters per second, which is 346 cubic meters less than the same period last year. Every day in the country, on average, more than 43.5 million kWh of electricity is generated.

A few years ago, the annual idle discharge of water from reservoirs of hydroelectric power plants in Tajikistan was equivalent to 7-8 billion kWh of electricity. In order to somehow reduce the volume of idle water discharge, the republic began to supply electricity to neighboring countries at a relatively low price. At that time, Tajik power engineers said that it was better to sell electricity than to pass water into "idle".

135 border villages of Tajikistan will be electrified within five years

In the energy sector of the country, more than 500 km of power transmission lines will be stretched in 135 villages of Gorno-Badakhshan Autonomous Region and Khatlon Region within the framework of the Rural Electrification project.

The project will also install 139 transformers to provide electricity to 135 border villages.

The International Development Association (World Bank Group) will allocate $31.7 million to implement a rural electrification project in Tajikistan.

The project provides for the construction of small networks for connection to centralized networks, the construction of infrastructure for electricity generation, in particular, small hydroelectric power plants, the installation of wind generators and solar panels, the construction of infrastructure for electricity distribution, including power lines, transformers, electricity meters, etc.

The project also includes the provision of technical support to Pamir Energy for the construction of the Sebzor hydroelectric power plant.

The project implementation period is five years, that is, in the period from 2020 to 2025.

Electricity production in Tajikistan decreased by 5.6%

Tajikistan has reduced the production and export of electricity. According to Avesta in the energy sector of the republic, in the eight months of 2020, 13 billion 477.9 million kWh of electricity was produced in the country, which is 803 million kWh less than in the same period last year, or 5.6%.

According to the source, electricity exports also decreased during this period. Compared to January-August 2019, the amount of electricity sales to neighboring countries decreased by more than $30 million, or almost 40%, and amounted to over $46.4 million. At the same time, the volume of electricity exports for eight months is not reported.

Earlier, Mirzo Ismoilzoda, the head of the Barki Tojik energy holding, confirmed that since July 27, the volume of Tajik electricity exports to neighboring Afghanistan has decreased. The reason is a decrease in the inflow of water in the Vakhsh River, he said at the time.

In early September, Tajikistan resumed the export of electricity to Afghanistan, which was interrupted due to low water and a decrease in the water level in the reservoirs of the country's hydroelectric power plants, including the reservoir of the Nurek hydroelectric power plant.

At that time, Barki Tojik reported that due to the fact that the water level in the reservoir of the Nurek HPP reached the maximum level, it was decided to resume electricity supplies to Afghanistan.

"Now about 1.3 million kWh of electricity is exported to Afghanistan every day, in the summer period, up to 8 million kWh were exported to the neighboring country every day, depending on the circumstances," the ministry noted.

According to Barki Tojik, 546 million kWh of electricity was exported to Afghanistan in the first half of this year, and 358 million kWh to Uzbekistan.

Tajikistan and Afghanistan supported the rapid implementation of the CASA-1000 project

Tajikistan and Afghanistan, during the visit of the Afghan delegation headed by Acting Minister of Foreign Affairs of Afghanistan Hanif Atmar, considered issues of bilateral relations and cooperation between the two countries in various fields, and also exchanged views on the situation in the region and the world, the RT MFA reports.

As part of the visit, on the eve of September 17, Tajikistan's Foreign Minister Sirodjiddin Muhriddin met with his Afghan counterpart Hanif Atmar in Dushanbe.

The sides noted that the joint fight against terrorism, extremism and drug smuggling is an important area of cooperation between the two countries. It was stressed that in order to eliminate the consequences of the COVID-19 pandemic, it is necessary to develop cooperation and partnership between the two countries.

In a joint statement following the meeting of the delegation of the parties, it is noted that Tajikistan supports the efforts of the Government of Afghanistan to ensure peace and stability in the country. In this regard, the Tajik side welcomes the process of inter-Afghan negotiations, which began on September 12, 2020 in Doha.

The Tajik side hopes that the inter-Afghan peace talks will lay a solid foundation for restoring peace and stability in this war-torn country.

Tajikistan is well aware of the key role of Afghanistan in ensuring security in the entire Central Asian region and has always supported the constructive initiatives of the international community to ensure peace and stability in Afghanistan and its economic and social reconstruction. Tajikistan has paid close attention to these issues during its current chairmanship of the Istanbul Process — the Heart of Asia.

Today, the whole world is witnessing bloody conflicts in various countries and regions, the growing activity of terrorist and extremist groups, the aggravation of geopolitical and geostrategic competition. Undoubtedly, these phenomena can pose a serious threat to the current situation and the future of the countries of our region. In this regard, it is considered necessary to take joint measures to destroy the bases of terrorists, organized criminal groups and drug traffickers.

Tajikistan is ready to strengthen and expand the legal framework of bilateral cooperation with Afghanistan. Currently, the parties are considering a number of new documents on cooperation in various fields.

One of the priority areas of cooperation between the two countries is the energy sector. Tajikistan is ready to take the necessary measures to ensure and increase regular electricity supplies to neighboring Afghanistan. In this context, cooperation between the two countries is of great importance in the joint implementation of the CASA-1000 regional project in the shortest possible time.

Tajikistan strives to build new transport corridors between our countries and implement mutually beneficial regional projects. In this regard, it fully supports the creation of the KTAI transit corridor (Kyrgyzstan, Tajikistan, Afghanistan and Iran) and creates all the necessary conditions for its effective functioning.

Within the framework of the Tajikistan— Afghanistan—Turkmenistan railway program, the project of the Jaloliddin Rumi—Nizhny Panj railway and the bridge over the Panj River to Kunduz have been agreed, and their construction will begin in the near future. It will be part of the railway between Tajikistan, Afghanistan and Iran and will be connected to the international transport corridor "North —South".

Tajikistan and Afghanistan successfully cooperate within the framework of international and regional organizations, such as the UN, the Shanghai Cooperation Organization, the Organization of Islamic Cooperation and others.

Tajikistan and Afghanistan are countries with deep historical, cultural, linguistic, spiritual and artistic ties. Tajikistan is ready to continue to provide assistance to Afghanistan in training national personnel. Dozens of Afghan students are currently studying at Tajik universities in various disciplines on the basis of scholarships from the Government of Tajikistan.

Following the meeting, in the presence of the heads of the two delegations, a Memorandum of Understanding was signed between the Committee for Environmental Protection under the Government of the Republic of Tajikistan and the National Agency for Environmental Protection under the Government of the Islamic Republic of Afghanistan on cooperation in the field of environmental protection.

The President commissioned two modernized units of the Sarband HPP

Emomali Rahmon visited Sarband HPP in Levakant today and commissioned two blocks of this important hydropower facility. According to the press service of the head of state, power units No. 2 with a capacity of 39 MW and No. 6 with a capacity of 49 MW have been put into operation. It is noted that the reconstruction of power unit No. 3 has now begun.

It should be noted that the design capacity of the Sarband HPP is 240 MW, and this is the fifth largest power plant in the republic.

In 2010-2012, the 4th HPP unit with a capacity of 45 MW was completely reconstructed.

Earlier it was reported that five of the six units of the Sarband hydroelectric power station should be reconstructed by 2022. After the reconstruction, the capacity of the HPP will reach 270 MW, instead of the current 240 MW.

Recall that the reconstruction of the Sarband HPP began in November 2016. Later, changes were made to the HPP modernization project, according to which five hydroelectric units will be upgraded instead of three.

The joint venture Sinohydro-Heidrochaina is engaged in the replacement of HPP units.

The project of rehabilitation of the Main HPP with a capacity of 240 MW is financed by a grant of the Asian Development Bank in the amount of $136 million. Earlier it was planned that the first, second and fifth hydroelectric units of the station would be upgraded. Also, as part of the modernization, major repairs of the third and sixth hydraulic units were planned.

According to the energy sector, during the dismantling of unit No. 5, the condition of the equipment turned out to be worse than expected. Since units No. 3 and No. 6 have the same design and age, it can be reasonably assumed that their replacement may be preferable to an assessment of their condition and repair, as originally determined.

In turn, Barki Tojik requested ADB to make a minor change in the scope of work of the project in order to use the saved grant funds for the modernization of units No. 3 and No. 6. The project consists of two phases, its implementation will be completed in 2022.

The Sarband HPP was put into temporary operation as part of the construction of a cascade of hydroelectric power plants on the Vakhsh River in 1962, and in 1966 it was fully launched. Over the years of operation, the HPP has generated more than 50 billion kWh of electricity.

 Republic of Kazakhstan

Kyrgyzstan plans to buy 500 million kWh of electricity from Kazakhstan in the first quarter of 2021

Kyrgyzstan has a preliminary agreement with Kazakhstan on the purchase of 500 million kWh of electricity in the first quarter of 2021, First Deputy Prime Minister Almazbek Baatyrbekov said on Birinchi Radio.

According to him, now there is a cycle of low water and little water has entered the Toktogul reservoir compared to last year — 14.8 billion cubic meters of water have been accumulated, or 2 billion cubic meters less.

"At the same time, this year the government exchanged electricity with Kazakhstan in the amount of about 300 million kWh. Since September 15, these 300 million kW.We will start receiving electricity from Kazakhstan. In addition, due to the lack of water on the part of the government, 500 million kWh is planned to be purchased and by the end of the year, if we buy, we plan that 800 million kWh will be saved in the Toktogul reservoir," the first Deputy Prime Minister said.

There is also a preliminary agreement with the Kazakh side on the purchase of 500 million kWh for the 1st quarter of 2021, but today the price has not been specified.

Kazakhstan says that according to their internal procedures, the price for this year has been clarified, and next year it will be clarified at the beginning of the year, he added.

"In addition, it is planned to increase the volume of electricity generation at the Bishkek CHP. God willing, there will be no rolling blackouts," he said.

Transfer of Almaty CHPP-2 to gas. Briefly about the most important thing.

As it is known, JSC "Samruk-Energo" is working on the modernization of the Almaty CHP-2 in order to minimize emissions into the environment. Given the importance of the topic, the company tried to provide answers to the most pressing questions related to this project.

 Almaty CHPP-2: gasification

Almaty CHPP-2 will be fully converted to gas. Thus, an end has been put to active discussions on how to modernize the CHP-2 and minimize its harmful effects from emissions on the environment.

This issue was initiated by the public of the city, environmentalists – they were uncompromising in their conviction, demanding the transfer of the station to environmentally friendly fuel – gas. The arguments were heard, and a principled positive decision on this issue was made at the state level. On August 1, 2019, the roadmap for the modernization of CHP-2 was approved.

About the choice of project options.

 Discussions and discussions of the modernization option were also hot and not only in person, but also online. In particular, using the Zoom and Facebook platforms. In total, over 20 thousand people took part in the open debate. In accordance with the technical specification for the development of the feasibility study, four options were considered:

• Modernization of boilers with conversion to gas;

• Reconstruction of existing boilers with installation of gas cleaning equipment;

• Expansion of CHP-2;

• Construction of a new gas station.

 After discussing the problem with energy specialists, environmentalists, economists, and government representatives, the sole shareholder of the owner of the station, JSC Samruk–Energo, taking into account the opinion of the public and industry professionals, chose an acceptable, environmentally friendly and technically feasible option No. 1. Its developer of the feasibility study is KazNIPIEnergoprom JSC.

Why KazNIPIEnergoprom?

The selection of the feasibility study "Modernization of Almaty TPP-2 with minimization of environmental impact" was carried out by an open tender with the participation of several potential development groups: JSC "Kazakhstan Research and Design and Survey Institute of Fuel and Energy Systems "Energia", IP "Kuanysh Yerlan Muratuly", JSC "KazNIPIEnergoprom Institute".

The only potential supplier with the relevant application is KazNIPIEnergoprom Institute JSC, which has a 60–year history of energy construction and carries out the entire range of pre-design and design work in the field of thermal power engineering. On November 15, 2019, an agreement was signed with this organization for the development of a feasibility study with a validity period until December 31, 2020.

And if the CHP-2 is demolished at all?

 CHP-2 provides about 50% of the heat of the district heating and electricity supply zone of Almaty. The remaining facilities of JSC "AlES" will not be able to compensate for such a volume of heat and electric energy that has been eliminated.

 In addition, the station is connected by extended thermal networks with other energy sources of the company – CHP-1 and the Western Thermal Complex. Together they optimize the production of thermal energy, balance each other and minimize fuel costs. In the event of the demolition of CHP-2, 14 boiler houses with a capacity of 100 Gcal per hour will be required to replace its installed thermal capacity with the construction of the necessary infrastructure. Of course, all these measures to compensate for the loss of thermal energy of the CHP-2 will not improve the ecology of the city. And if the import of electricity at certain multibillion-dollar costs can be adjusted, then the import of thermal energy from other regions is impossible. Especially in such significant volumes – 3,200 thousand Gcal per year.

And if you build a new station?

The construction of a new gas power plant on another site is an expensive project in itself. The price of the issue is about 275 billion tenge. Plus, it is necessary to build additional infrastructure for the station: water supply, gas supply, extended heating networks, etc.

About suggestions and comments.

 At the stages of discussion of the feasibility study, there is an opportunity for everyone to speak out. The document in full will be submitted to public hearings during the state environmental assessment, according to the "Environmental Code of the Republic of Kazakhstan". All interested organizations and members of the public will be able to take part in public hearings.

 ...Minus 80% of emissions, plus gas from KazTransGas

 What does this choice of project No. 1 give to Almaty residents? The main thing is clean air. The transfer of the CHP-2 station included in the complex of JSC ALES to the combustion of natural gas completely eliminates the atmosphere of the city from emissions of coal ash, sulfur dioxide and ash. Emissions of nitrogen oxides and carbon are reduced, greenhouse gas emissions are reduced. In general, it is estimated that when converting CHP-2 to gas, the annual amount of emissions of pollutants into the atmosphere is reduced by more than 80%.

 At the same time, the project has the lowest construction cost – 98.4 billion tenge. This is without taking into account the construction of two external gas pipelines. There is a preliminary technical condition for gas supply from the national operator KazTransGas JSC. In addition, the implementation of this project also removes the problem with ash dumps. Today, the total area of dry storage gold dumps at CHP-2 is 200 hectares. The transfer of the station to gas will allow the use of these lands for other needs of the city.

Improve what is there.

 Is it really possible to "tune" the project of the 70s of the last century to the level of the 21st century? The specialists who dealt with this issue give their reasoned arguments. To put it simply, then:

• the reconstruction of CHP-2 is based on the preservation of the energy source using the existing site with the existing infrastructure;

• pulverized coal boilers will be replaced with new gas boilers with the preservation and strengthening of the existing frame; that is, the foundation is reliable and strong, with a high degree of seismic safety - existing, and the equipment, technology – new, with high efficiency;

• new boiler units are placed above the station level of 0.000 m, which meets the regulatory requirements of the Republic of Kazakhstan; they are installed on existing boiler frames;

• new boilers have improved environmental and technical and economic indicators; their efficiency is 94.5% (on existing boilers about 89%);

• to ensure emissions of nitrogen oxides during natural gas combustion, it is proposed to install 8- and low-toxic vortex gas burners and 4 air blast nozzles.

At whose expense is the project?

 In 2019, a roadmap for the implementation of the project was approved, according to the points of which the project will be financed. JSC "AlES" does not have such resources. The city will not pull the project either. Currently, various financing options are being worked out: lending, funds from the state budget, shareholder support, participation of Kazakhstani development institutions, PPP, marginal tariffs. Combined solutions are possible. But it is unequivocally clear: green energy requires considerable investments.

Clean air costs money.

Natural gas is a much more expensive type of fuel for Almaty than Ekibastuz coal. If we compare in terms of conventional fuel, its price is currently 2.3 times higher than the cost of coal. The final tariff for thermal energy for Almaty consumers consists of tariffs for its production, transmission, distribution of several companies of the city's energy complex.

 But the feasibility study did not determine the tariff itself, but assessed the impact of changes in the costs of CHP-2 on tariffs. The document shows the impact on the tariffs of the transfer of the station to the production of thermal energy of JSC "AlES" and on heat supply services for Almaty consumers.

After the implementation of the project of converting CHP-2 to gas, the following algorithm was determined:

• the fuel component in the cost increases 2.2 times,

• the cost of heat energy production will increase by 1.6 times,

• the estimated tariff for the production of thermal energy of JSC "AlES" will increase by 30-40%.

• the estimated tariff for thermal energy for consumers will increase by 20-25%.

• all other heat sources, except CHP-2, are taken into account at the level of 2020 indicators.

What stages of project approvals and approvals are coming?

• Public hearings of the EIA (Environmental Impact Assessment) will be held in October-November 2020.

• Then the feasibility study will be submitted for approval to the state expertise.

• Based on the conclusion of the state expertise, the feasibility study will be approved by the customer – JSC "Samruk-Energo".

What are the realistic deadlines for the completion of the project?

Taking into account the opinion of the public and the Akimat of Almaty, actions are currently being taken to optimize the timing of the final transfer of the station to gas. As previously reported, according to the approved plan, the completion of the complete modernization of the CHP-2 was planned in 2029. But it is worth noting that the station has 8 boilers, and their conversion to gas will be carried out in stages. This means that from 2025, part of the CHP will already be converted to gas.

Almaty's energy sector is "green"

by AlES JSC on a systematic basis and consistently engaged in improving the environmental friendliness of its facilities. A few facts:

• by 2013, all boilers of the company's thermal power plants were equipped with emulsifiers of a new generation, with a degree of ash recovery of 99.2%, at CHP-1, and 99.5% at CHP-2 and CHP-3;

• this made it possible to reduce the total emissions of AlES for inorganic dust from 19 thousand tons in 2007 to 8 thousand tons in 2019;

• work was carried out to reduce the yield of nitrogen oxides and environmental measures were carried out in terms of repairing the main and auxiliary equipment of all three of the company's CHP plants;

• CHP-1 has been switched to 100% gas combustion since 2017;

• total emissions of JSC AlES were reduced from 68 thousand tons in 2007 to 49 thousand tons in 2019, which is 27%;

• the development of a pre-feasibility study for the transfer to gas of CHP-3 has begun.

 JSC "AlES" together with JSC "Samruk-Energy", other large industrial enterprises of the country and associations of KEA and Kazenergy participates in the working group on the creation of a new Environmental Code of the Republic of Kazakhstan, as well as a handbook on the best available technologies.

The first step is done. Who's next?

The main investment projects of Pavlodar CHP-3 and CHP-2

The total amount planned for the implementation of investment programs of two heat and power plants of PAVLODARENERGO JSC in 2020 is 1 billion 428 million tenge. Including investments in projects under the investment program approved by the DCREM amount to 91 million 652 thousand tenge. The power engineers told about which investment projects are being implemented at Pavlodar CHP-3 and CHP-2 during a press tour with the participation of representatives of the DCREM in the Pavlodar region, non-governmental organizations and regional media.

"We have the right to know what results have been achieved with the funds that consumers have paid under the tariff," said Timur Amirkhanov, head of the Department of the Committee for Regulation of Natural Monopolies, Protection of Competition and Consumer Rights of the Ministry of National Economy of the Republic of Kazakhstan for the Pavlodar region. – According to the results of the press tour, we can say that the investment program for the previous year has been fully implemented, the indicators that were agreed with the authorized body have been achieved."

One of the most significant recent projects has been the installation of a station coordinator at the Pavlodar CHP-3. PAVLODARENERGO has invested about 211 million tenge in its implementation.

"The station coordinator has been implemented to maintain the electrical and thermal load of the entire station in an automated mode. It connects the local control systems of five boilers and five turbine units of the CHP-3 into a single chain. The goal of the coordinator is to find a balance between the load of turbo generators and consumers of thermal energy. For example, with an increase in steam consumption, it is necessary to increase the load of boilers. Or, conversely, if the consumption changes downwards, the boiler must be unloaded. The station coordinator automatically balances the steam pressure in the main steam line and the load of the turbo generators. This reduces the risk of an emergency and an unplanned equipment shutdown," said Vadim Lesin, Deputy General Director of PAVLODARENERGO JSC.

In addition, in the conditions of the electric power market, the station coordinator allows you to execute the commands of the Kegoc system operator as quickly and accurately as possible, ensuring a uniform rate of load reduction and set, as well as maintaining the installed capacity.

As part of the investment program, a new automation project, the PRANA predictive and remote monitoring system has been implemented at Pavlodar CHP-3. The cost of the system is 195 million 387 thousand tenge, It allows you to anticipate the development of malfunctions and accidents at the turbine unit, ensures the trouble-free operation of power plants and reduces unplanned downtime. The system compares the current data on the condition of the equipment with mathematical models and automatically detects emerging malfunctions. In one second, PRANA processes 2500 parameters of a working power unit. And acoustic sensors are capable of detecting movement, vibration or deformation of the foundation plate of the turbo generator, changing and registering the parameters of the integrity and operation of the equipment. PRANA performs system diagnostics in seconds, whereas a specialist needs from several hours to several days for such work.

Among the major investment projects of CHP-3 is the expansion of the first stage of the ash dump. An additional capacity of 2,820 thousand m3 is necessary for the storage of ash and slag waste, since the current capacity of the second stage of the ash dump has already exhausted itself. In addition, a reserve of time is needed for the construction of the third stage of the TPP-3 ash dump. The expansion of the first stage will ensure the storage of ash and slag from CHP-3 for a little more than two years.

The costs planned for the implementation of the project amount to 188 million tenge.

PAVLODARENERGO JSC has signed an agreement with SEVKAZENERGOPROM LLP for the development of a project for the construction of a reinforced concrete chimney No. 2 at the CHP-3. This construction will make it possible to remove restrictions on the traction of the station's boilers and will make it possible to connect boilers No. 7 and No. 8 to the pipe, the construction of which is planned in the future.

In Kazakhstan, it was allowed to increase the marginal tariffs for electricity.

The Committee on Regulation of Natural Monopolies reported how much prices will rise because of this. The state agency noted that by the order of the Minister of Energy, the marginal tariffs for this type of utility services increased by an average of 17%. Due to this, the prices of energy supply organizations in 13% of the country's regions increased by an average of 8.2%. The average value of the selling price is 17.14 tenge per kWh without VAT, which is 1.25 tenge higher.

"By the end of the year, electricity prices are expected to increase by an average of 6% for the population in Kyzylorda, Mangystau, West Kazakhstan regions and Almaty," the KREMLIN predicted.

Tariffs for regulated water supply and sanitation services will be changed until the end of 2020 within the approved long-term tariff limits. The same applies to thermal energy.

At the same time, the KREMLIN explained that the marginal prices for these types of public services from 2015 are laid for five or more years. At the same time, a natural monopoly entity may apply for a tariff change, calling the reason for the increase in the marginal cost of electricity.