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**MARKET ANALYSIS OF THE POWER INDUSTRY OF KAZAKHSTAN**

**JANUARY-APRIL 2023**

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Table of contents

[**1.**](#_Toc133943226)  [**Production of electricity in the UES of Kazakhstan**](#_Toc133943226)  [3](#_Toc133943226)

[*1.1 Electricity generation by regions of the Republic of Kazakhstan*](#_Toc133943227)  [3](#_Toc133943227)

[*1.2 Electricity generation by energy holdings and large energy producing organizations.*](#_Toc133943228)  [4](#_Toc133943228)

[*1.3 Electricity generation by energy producing organizations*](#_Toc133943229)  [5](#_Toc133943229)

[*Samruk-Energy JSC*](#_Toc133943230)  [5](#_Toc133943230)

[*1.4 Shares of energy holdings and large energy producing organizations*](#_Toc133943231)  [5](#_Toc133943231)

[*2.1. Results of the industry in January- April 2023*](#_Toc133943232)  [6](#_Toc133943232)

[*2.2 Electricity consumption by zones and regions*](#_Toc133943233)  [7](#_Toc133943233)

[*2.3 Electricity consumption by consumers of energy holdings and large energy producing organizations*](#_Toc133943234)  [8](#_Toc133943234)

[*2.4 Electricity consumption by large consumers in Kazakhstan*](#_Toc133943235)  [9](#_Toc133943235)

[*2.5*](#_Toc133943236)  [*Export-import of electrical energy*](#_Toc133943236)  [9](#_Toc133943236)

[**3.**](#_Toc133943237)  [**Coal**](#_Toc133943237)  [10](#_Toc133943237)

[**4.**](#_Toc133943238)  [**Renewable energy sources**](#_Toc133943238)  [10](#_Toc133943238)

[*5.1*](#_Toc133943239)  [*RES targets*](#_Toc133943239)  [10](#_Toc133943239)

[*4.1*](#_Toc133943240)  [*RES indicators in Kazakhstan*](#_Toc133943240)  [11](#_Toc133943240)

[*4.2*](#_Toc133943241)  [*Tariff for RES support*](#_Toc133943241)  [11](#_Toc133943241)

[*4.3*](#_Toc133943242)  [*Pass-through RES allowance*](#_Toc133943242)  [11](#_Toc133943242)

[*4.4*](#_Toc133943243)  [*The role of Samruk-Energy JSC in the production of clean electricity*](#_Toc133943243)  [12](#_Toc133943243)

[**5.**](#_Toc133943244)  [**International relations**](#_Toc133943244)  [12](#_Toc133943244)

[*5.1 Overview of the media in the CIS countries*](#_Toc133943245)  [12](#_Toc133943245)

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

According to the System Operator, in January-April 2023 the power plants of the Republic of Kazakhstan generated 40,281.8 million kWh of electricity, which is 748.3 million kWh or 1.9 % more than the same period in 2022.

An increase in generation was observed in the northern and southern zones of the UES of Kazakhstan.

*million kWh*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Zone** | **Generation type** | **January- April** | | **Δ, million kWh** | **Δ, %** |
| **202 2 \_** | **202 3 \_** |
|  | **Kazakhstan** | **Total** | **39,533.5** | **40,281.8** | ***748.3*** | ***1.9%*** |
| *TPP* | 31,756.5 | 31,870.9 | *114.4* | *0.4%* |
| *GTES* | 3904.6 | 3944.2 | *39.6* | *1.0%* |
| *HPS* | 2698.5 | 2583.4 | *-115.1* | *-4.3%* |
| *WES* | 724.4 | 1336.8 | *612.4* | *84.5%* |
| *SES* | 449.5 | 545.7 | *96.2* | *21.4%* |
| *BSU* | 0 | 0.8 | *0.8* |  |
| 1 | **Northern** | **Total** | **29,773.7** | **30,067.1** | ***293.4*** | ***1,******0%*** |
| *TPP* | 26,127.2 | 26,285.9 | *158.7* | *0.6%* |
| *GTES* | 1050.2 | 1,034.2 | *-16.0* | *-1.5%* |
| *HPS* | 2018.5 | 1,720.7 | *-297.8* | *-14.8%* |
| *WES* | 417.4 | 833.5 | *416.1* | *99.7%* |
| *SES* | 160.4 | 192.0 | *31.6* | *19.7%* |
| *BSU* | 0 | 0.8 | *0.8* |  |
| 2 | **South** | **Total** | **4654.3** | **5,183.6** | ***529.3*** | ***11.4%*** |
| *TPP* | 3375.1 | 3461.1 | *86.0* | *2.5%* |
| *HPS* | 680 | 862.7 | *182.7* | *26.9%* |
| *GTES* | 104 | 110.2 | *6.2* | *6.0%* |
| *WES* | 207 | 396.9 | *189.9* | *91.7%* |
| *SES* | 288.2 | 352.7 | *64.5* | *22.4%* |
| 3 | **Western** | **Total** | **5 105.5** | **5,031.1** | ***-74.4*** | ***-1.5%*** |
| *TPP* | 2254.2 | 2,123.9 | *-130.3* | *-5.8%* |
| *GTES* | 2750.4 | 2,799.8 | *49.4* | *1.8%* |
| *WES* | 100 | 106.4 | *6.4* | *6.4%* |
| *SES* | 0.9 | 1.0 | *0.1* | *11.1%* |

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

In January-April 2023, electricity generation in Akmola, Aktobe, Almaty, Zhambyl, Kyzylorda, Mangystau, Pavlodar, North Kazakhstan and Turkestan regions increased significantly compared to the same period in 2022.

At the same time, a decrease in electricity generation was observed in Atyrau, East Kazakhstan, Karaganda, West Kazakhstan and Kostanay regions.

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Region** | **January- April** | | **Δ, million kWh** | **Δ, %** |
| **2022** | **2023** |
| *1* | Akmola | 2 053.8 | 2238.3 | *184.5* | *9.0* |
| *2* | Aktobe | 1 315.2 | 1453.9 | *138.7* | *10.5* |
| *3* | Almaty | 2 345.4 | 2437.6 | *92.2* | *3.9* |
| *4* | Atyrau | 2 541.3 | 2433.0 | *-108.3* | *-4.3* |
| *5* | East Kazakhstan | 3 125.4 | 2203.8 | *-921.6* | *-29.5* |
| *6* | Zhambyl | 1 474.7 | 1645.7 | *171.0* | *11.6* |
| *7* | West Kazakhstan | 872.7 | 796.5 | *-76.2* | *-8.7* |
| *8* | Karaganda | 5 113.1 | 4345.9 | *-767.2* | *-15.0* |
| *9* | Kostanay | 476.3 | 428.3 | *-48.0* | *-10.1* |
| *10* | Kyzylorda | 227.9 | 238.8 | *10.9* | *4.8* |
| *11* | Mangistau | 1 691.5 | 1801.6 | *110.1* | *6.5* |
| *12* | Pavlodar | 17 030.6 | 17,141.1 | *110.5* | *0.6* |
| *13* | North Kazakhstan | 659.3 | 779.5 | *120.2* | *18.2* |
| 14 | Turkestan | 606.3 | 726.9 | *120.6* | *19.9* |
| *15* | Abai |  | 746.9 |  |  |
| *16* | Zhetysuskaya |  | 134.6 |  |  |
| 17 | Ulytauskaya |  | 729.4 |  |  |
|  | **Total for Kazakhstan** | **39 533.5** | **40,281.8** | ***748.3*** | ***1.9*** |

# *1.2* *Electricity generation by energy holdings and large energy producing organizations.*

In January-April 2023, electricity generation by energy holdings and large energy-producing organizations amounted to 17,576 million kWh, which is 187.9 million kWh less than the same period in 2022 (17,763.9 million kWh), and their combined share of the total production volume amounted to 43.6 %.

*million kWh*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2022** | | **2023** | | **Δ 2023/2022** | |
| **January - April** | **share in Kazakhstan, %** | **January- April** | **share in Kazakhstan, %** | **million kWh** | **%** |
|  | **Total** | **17,763.9** | **44.9%** | **17,576.0** | **43.6%** | **-187.9** | **-1.1%** |
| **1.** | ERG | *6,868.6* | *17.4%* | *6,636.0* | *16.5%* | *-232.6* | *-3.4%* |
| **2.** | “Kazakhmys Energy” LLP | *1979.1* | *5.0%* | *2130.4* | *5.3%* | *151.3* | *7.6%* |
| **3.** | “Kazzinc” LLP | *848.6* | *2.1%* | *702.1* | *1.7%* | *-146.5* | *-17.3%* |
| **4.** | “Arcellor Mittal” JSC | *884.3* | *2.2%* | *640.8* | *1.6%* | *-243.5* | *-27.5%* |
| **5.** | “KKS” LLP | *2381.8* | *6.0%* | *2414.4* | *6.0%* | *32.6* | *1.4%* |
| **6.** | CAEPCO | *1952.8* | *4.9%* | *2003.6* | *5.0%* | *50.8* | *2.6%* |
| **7.** | “Zhambylskaya GRES” JSC | *1,157.0* | *2.9%* | *1244.6* | *3.1%* | *87.6* | *7.6%* |
| **8.** | Oil and gas enterprises | *1,691.7* | *4.3%* | *1804.1* | *4.5%* | *112.4* | *6.6%* |

*1.3 Electricity generation by energy producing organizations* *of "Samruk-Energy" JSC*

The volume of electricity production by energy producing organizations of Samruk-Energy JSC for January- April 2023 amounted to 12,828.8million kWh . The increase in electricity generation compared to the same period in 2022 amounted to 580.7 million kWh or 4.7 %.

*million kWh*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2022** | | **2023** | | **Δ 2023/2022** | |
| **January-April** | **share in Kazakhstan, %** | **January -April** | **share in Kazakhstan, %** | **million kWh** | **%** |
|  | **"Samruk-Energy" JSC** | **12248.1** | **31.0%** | **12,828.8** | **31.8%** | **580.7** | **4.7%** |
| *1* | *“AlES” JSC* | 1879.5 | *4.8%* | 1 922 | *4.8%* | *42.1* | *2.2%* |
| *2* | *"Ekibastuz GRES-1" LLP* | 7680.7 | *19.4%* | 7 788 | *19.3%* | *107.5* | *1.4%* |
| *3* | *"Ekibastuz GRES-2" JSC* | 2278.5 | *5.8%* | 2473.1 | *6.1%* | *194.6* | *8.5%* |
| *4* | *"Shardara HPP" JSC* | *147.6* | *0.4%* | 263.4 | *0.7%* | *115.8* | *78.5%* |
| *5* | *“Moynakskaya HPP” JSC* | *195.6* | *0.5%* | 238.7 | *0.6%* | *43.1* | *22.0%* |
| *6* | *“Samruk-Green Energy” LLP* | 6.7 | *0.0%* | 7.3 | *0.0%* | *0.60* | *9.0%* |
| *7* | *WPP Shelek by “Energy Semirechye” LLP* |  |  | 77.7 | *0.2%* |  |  |
| *8* | *"First wind power plant" LLP* | *59.5* | *0.2%* | 58.8 | *0.1%* | *-0.7* | *-1.2%* |

# *1.4 Shares of energy holdings and large energy producing organizations*

*in power generation in Kazakhstan*

As can be seen from the graph below, the share of “Samruk-Energy” JSC in the electricity market of Kazakhstan remains the leader and amounts to 31.8%.

**Kazakhstan**

**31 046,9 mln.kWh**

**Others**



* 1. *Electricity generation by types of “Samruk-Energy” JSC energy producing organizations, million kWh*

1. **Electricity consumption in the UES of Kazakhstan**

# *2.1. The results of the industry in January-April 2023*

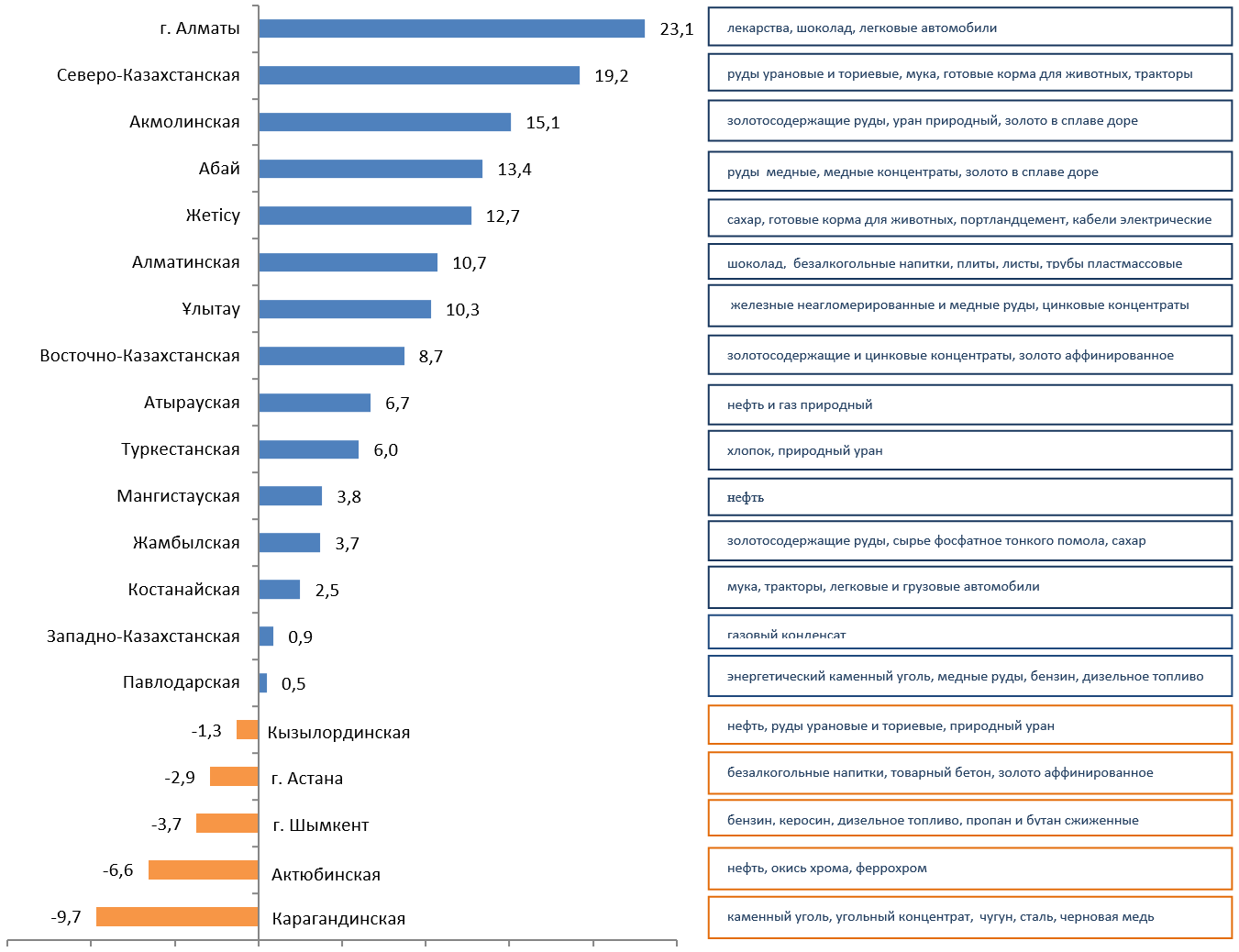
The index of industrial production (hereinafter - IPP) in January-April 2023 in Kazakhstan amounted to 103.5%.

Growth in production is observed in the mining and quarrying industry by 2%, manufacturing - by 5.1%, supply of electricity, gas, steam, hot water and air conditioning - by 5.9%, water supply; collection, processing and disposal of waste, activities for the elimination of pollution - by 7.4%.

Among the regions, the largest growth was recorded in North Kazakhstan, Akmola, Abai, Zhetisu, Almaty regions and Almaty city.

**Change in industrial production indices**

*in % to the corresponding period of the previous year, increase +, decrease -*

****

# *2.2 Electricity consumption by zones and regions*

According to the System Operator, in January-April 202 3 there was an increase in the dynamics of electricity consumption in the republic in comparison with the same indicators in 202 2 by 974.9 million kWh or 2.5%. Thus, in the northern and southern zones of the republic, consumption increased by 1.4% and 7.1 %, respectively.

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **January-April** | | **Δ,  million kWh** | **Δ, %** |
| **2022** | **2023** |
|  | **Kazakhstan** | **39,177.0** | **40,151.9** | ***974.9*** | ***2.5%*** |
| *1* | Northern zone | 25,434.5 | 25,793.8 | *359.3* | *1.4%* |
| *2* | Western zone | 5,077.3 | 5,075.3 | *-2.0* | *0%* |
| *3* | Southern zone | 8665.2 | 9282.8 | *617.6* | *7.1%* |
|  | **incl.by regions** |  |  |  |  |
| *1* | East Kazakhstan | 1 721.6 | 2 620.5 | *898.9* | *52.2%* |
| *2* | Karaganda | 1 780.4 | 5 408.8 | *3628.4* | *203.8%* |
| *3* | Akmola | 3 693.1 | 4 087.6 | *394.5* | *10.7%* |
| *4* | North Kazakhstan | 1 651.2 | 611.8 | *-1,039.4* | *-62.9%* |
| *5* | Kostanay | 2 298.3 | 1 628.0 | *-670.3* | *-29.2%* |
| *6* | Pavlodar | 1 982.5 | 6 748.6 | *4,766.1* | *240.4%* |
| *7* | Atyrau | 604.1 | 2 404.4 | *1800.3* | *298.0%* |
| *8* | Mangistau | 4 362.1 | 1 844.2 | *-2,517.9* | *-57.7%* |
| *9* | Aktobe | 6 619.9 | 2 157.4 | *-4,462.5* | *-67.4%* |
| *10* | West Kazakhstan | 2 323.5 | 826.7 | *-1,496.8* | *-64.4%* |
| *11* | Almaty | 3 859.1 | 4 193.3 | *334.2* | *8.7%* |
| *12* | Turkestan | 669.4 | 2 092.7 | *1423.3* | *212.6%* |
| *13* | Zhambyl | 6 638.4 | 1 742.5 | *-4,895.9* | *-73.8%* |
| *14* | Kyzylorda | 973.4 | 694.3 | *-279.1* | *-28.7%* |
| *15* | Ulytau |  | 1 416.9 |  |  |
| *16* | Abai |  | 1 114.2 |  |  |
| *17* | Zhetysusky |  | 560.1 |  |  |

# *2.3 Electricity consumption by consumers of energy holdings and large energy producing organizations*

In January-April 2023, there is a decrease in electricity consumption by consumers energy holdings and large energy-producing organizations.

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **January- April** | | **Δ, million kWh** | **Δ, %** |
| **2022** | **2023** |
|  | **Total** | **15,107.1** | **14,784.7** | **-21,716.1** | **-2%** |
| *1.* | *ERG* | *5,039.9* | *4,811.7* | *-228.2* | *-5%* |
| *2.* | *“Kazakhmys Corporation” LLP* | *1375.6* | *1427.1* | *51.5* | *4%* |
| *3.* | *“Kazzinc” LLP* | *1000.4* | *502.2* | *-498.2* | *-50%* |
| *4.* | *“Arcelor Mittal Temirtau" JSC* | *995.3* | *1240.2* | *244.9* | *25%* |
| *5.* | *“KKS” LLP* | *2291.3* | *2280.6* | *-10.7* | *0%* |
| *6.* | *CAEPCO* | *2015.0* | *1953.7* | *-61.3* | *-3%* |
| *7.* | *“Zhambyl” GRES* | *701.6* | *876.3* | *174.7* | *25%* |
| *8.* | *Oil and gas enterprises* | *1688.2* | *1693.1* | *4.9* | *0%* |

In January-April 2023, there is an increase in electricity consumption by “Samruk-Energy” JSC companies by 146.8 million kWh or 5% compared to the same indicators for 2022.

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **January-April** | | **Δ, million kWh** | **Δ, %** |
| **2022** | **2023** |
|  | **"Samruk-Energy" JSC** | **2,797.7** | **2944.5** | **146.8** | **5%** |
| *1.* | *“Bogatyr- Komir” LLP* | *109.4* | *115.1* | *5.7* | *5%* |
| *2.* | *“Alatau Zharyk Company” JSC* | *386.3* | *379.5* | *-6.8* | *-2%* |
| *3.* | *"AlmatyEnergoSbyt" LLP* | *2302.0* | *2449.9* | *147.9* | *6%* |

*2.4 Electricity consumption by large consumers in Kazakhstan*

In January-April 2023, compared to the same period in 2022, electricity consumption by large consumers decreased by 339.8 million kWh or 2.7%.

*million kWh*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Consumer** | **January-April** | | **Δ, million kWh** | **Δ, %** |
| **2022** | **2023** |
| *1* | *“Arcelor Mittal Temirtau" JSC* | *1284.7* | *1240.2* | *-44.5* | *-3.5* |
| *2* | *AZF ( Aksuysky ) "TNK Kazchrome" JSC* | *1691.8* | *1,703.6* | *11.7* | *0.7* |
| *3* | *“Kazakhmys Smelting” LLP* | *433.5* | *190.8* | *-242.7* | *-56.0* |
| *4* | *“Kazzinc” LLP* | *945.5* | *907.4* | *-38.1* | *-4.0* |
| *5* | *"Sokolovsko-Sarbayskoye GPO" JSC* | *559.0* | *443.4* | *-115.7* | *-20.7* |
| *6* | *“Kazakhmys Corporation” LLP* | *445.7* | *385.0* | *-60.7* | *-13.6* |
| *7* | *AZF (Aktobe) "TNK Kazchrome" JSC* | *997.8* | *891.4* | *-106.4* | *-10.7* |
| *8* | *RSE “Channel them. Satpaev"* | *83.1* | *60.4* | *-22.6* | *-27.2* |
| *9* | *"YDD Corporation" LLP* | *280.7* | *371.0* | *90.3* | *32.2* |
| *10* | *"Ust-Kamenogorsk titanium -magnesium plant" JSC* | *251.0* | *215.3* | *-35.6* | *-14.2* |
| *11* | *"Atyrau Oil Refinery" LLP* | *284.5* | *268.2* | *-16.3* | *-5.7* |
| *12* | *“Tengizchevroil”LLP* | *630.6* | *671.6* | *41.1* | *6.5* |
| *13* | *PAZ (Pavlodar Aluminum Smelter) JSC* | *322.8* | *314.0* | *-8.8* | *-2.7* |
| *14* | *"KEZ" (Kazakhstan electrolysis plant) JSC* | *1251.5* | *1240.0* | *-11.5* | *-0.9* |
| *15* | *"NC Kazakhstan Temir Zholy" JSC* | *1226.7* | *1314.3* | *87.6* | *7.1* |
| *16* | *"KEGOC" JSC* | *1,809.8* | *1942.3* | *132.5* | *7.3* |
| **Total** | | **12,498.6** | **12,158.8** | **-339.8** | **-2.7** |

# *Export-import of electrical energy*

In order to balance the production and consumption of electricity in January-April 2023, exports to the Russian Federation amounted to 441.6 million kWh , imports from the Russian Federation 724.5 million kWh .

*million kWh*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **January-April** | | **Δ, million kWh** | **Δ, %** |
| **2022 \_** | **2023 \_** |
| **Export of Kazakhstan** | **-615.7** | **-1018.3** | **-402.6** | **65.4%** |
| *in Russia* | *-396.0* | *-441.6* | *-45.6* | *11.5%* |
| *in the IPS of Central Asia* | -219.7 | -576.8 | -357.0 | 162.5% |
| **Import of Kazakhstan** | **476.6** | **724.5** | **247.9** | **52.0%** |
| *From Russia* | 476.6 | 724.5 | 247.9 | 52.0% |
| **Balance- flow "+" deficit, "-" excess** | **-139.1** | **-293.9** | **-154.7** | **111.2%** |

# **Coal**

According to the Bureau of National Statistics, Kazakhstan produced 38,633.8 thousand tons of hard coal in January-April 2023, which is 1% less than in the same period in 2022 (38,882.1 thousand tons).

*thousand tons*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Region** | **January-April** | | **Δ, thousand tons** | **Δ, %** |
| **2022** | **2023** |
| 1 | *Pavlodar* | *24,138.3* | *24,724.3* | *586* | *2%* |
| 2 | *Karaganda* | *11,547.1* | *10,585.2* | *-961.9* | *-8%* |
| 3 | *East Kazakhstan* | *2710.2* | *2,883.7* | *-173.5* | *-6%* |
|  | **Total for the Republic of Kazakhstan** | **38,633.8** | **38,882.1** | **- 248.3** | **-1%** |

In January-April 2023, Bogatyr Komir LLP produced 15,412.7 thousand tons, which is 2.4% less than in the corresponding period of 2022 (15,795.8 thousand tons).

The sold volume of coal in January- April 2023 amounted to 15,488.5 thousand tons, of which 12,145.1 thousand tons went to the domestic market of the Republic of Kazakhstan, which is 1.4 % less than in the same period in 2022 (12,321, 4 thousand tons) and for export (RF) - 3,343.3 thousand tons, which is 2.6 % less than in the corresponding period of 2022 ( 3,434.1 thousand tons).

According to the indicators for January- April 2023, in comparison with similar indicators in 2022, Bogatyr Komir LLP observed a decrease in coal sales by 267 thousand tons or 1.7 %.

*thousand tons*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Region** | **January-April** | | **Δ,** **thousand tons** | **Δ, %**  **2023/2022** |
| **2022** | **2023** |
| **Total to the domestic market of the Republic of Kazakhstan** | | **12,321.4** | **12,145.1** | **-176.3** | **- 1.4 %** |
| **Total for export to Russia** | | **3434.1** | **3343.3** | **-90.7** | **-2.6%** |
| **TOTAL** | | **15,755.5** | **15,488.5** | **-267** | **- 1.7 %** |

# **Renewable energy sources**

# *RES targets*

Since the adoption by Kazakhstan of the vector for the transition to a "green economy", the electric power industry has gone through a serious path of reform.

The state has created the necessary measures to support the development of the renewable energy sources (hereinafter referred to as RES) sector in order to achieve the established target indicators.

- 3% share of RES in total electricity generation by 2020 (achieved);

- 15% share of RES in total electricity generation by 2030;

- 50% share of alternative and RES in total electricity generation by 2050.

Given the large resource potential of RES in Kazakhstan, as well as due to the created conditions for supporting the development of RES, over the past 7 years, the installed capacity of RES facilities has increased by almost 11 times.

# *RES indicators in Kazakhstan*

According to The Ministry of Energy of the Republic of Kazakhstan there are 130 renewable energy facilities with an installed capacity of 2400 MW. (WPP - 958 MW; 44 SPP - 1148 MW; 37 HPP - 280 MW; 3 BioPP - 1.77 MW).

According to the System Operator, the volume of electricity supply in the EU of the Republic of Kazakhstan by objects using renewable energy sources (SPP, WPP, BGS, small hydropower plants) of the Republic of Kazakhstan for January -April 2023 amounted to 2089.5 million kWh . Compared to January-April 2022 (1376.9 million kWh ), the increase was 712.6 million kWh or 51.8 %.

*million kWh*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2022** | | **2023** | | | **Δ, million kWh** | **Δ, %** |
| **January-April** | **share in Kazakhstan, %** | **January-April** | | **share in Kazakhstan, %** |
| **1** | **Production in the Republic of Kazakhstan** | **39533.5** | **100%** | **40281.8** | | **100%** | **748.3** | **1.9%** |
| **2** | **RES generation in Kazakhstan** | **1376.9** | **3.5%** | **2089.5** | | **5.2%** | **712.6** | **51.8%** |
| **3** | **RES generation, incl . by zones** | ***share in the respective zone*** | | | | | | |
|  | *Northern zone* | *621.8* | *2.1%* | *1072.1* | *3.6%* | | *450.3* | *72.4%* |
|  | *Southern zone* | *654.2* | *14.1%* | *909.3* | *17.5%* | | *255.1* | *39.0%* |
|  | *Western zone* | *100.9* | *2.0%* | *107.4* | *2.1%* | | *6.5* | *6.4%* |
| **4** | **RES generation, incl . by zones** | ***share in RES of the Republic of Kazakhstan, %*** | | | | | | |
|  | *Northern zone* | *621.8* | *45.2%* | *1072.1* | *51.3%* | | *450.3* | *72.4%* |
|  | *Southern zone* | *654.2* | *47.5%* | *909.3* | *43.5%* | | *255.1* | *39.0%* |
|  | *Western zone* | *100.9* | *7.3%* | *107.4* | *5.1%* | | *6.5* | *6.4%* |
| **5** | **RES generation, incl . by type** | ***share in RES of the Republic of Kazakhstan, %*** | | | | | | |
|  | *SES* | *449.5* | *32.6%* | *545.7* | *26.1%* | | *96.2* | *21.4%* |
|  | *WES* | *724.4* | *52.6%* | *1336.8* | *64.0%* | | *612.4* | *84.5%* |
|  | *Small HPPs* | *203.0* | *14.7%* | *206.2* | *9.9%* | | *3.2* | *1.6%* |
|  | *BSU* | *0.0* | *0.0%* | *0.8* | *0.0%* | | *0.8* | *-* |

# *RES support tariff*

As part of the support for the development of RES, LLP "Financial Center for Supporting the Development of RES" (hereinafter referred to as RFC LLP) carries out a centralized purchase of electricity produced by RES facilities.

In turn, RFC LLP distributes the total amount of electricity received from RES facilities to conditional consumers and qualified conditional consumers (traditional power plants) at the tariff for supporting RES.

# *Through RES allowance*

In accordance with subparagraphs 4-5) of paragraph 3 of Article 7-1 of the Law on RES Support, from July 1, 2021, a surcharge for supporting the use of renewable energy sources applied by conditional consumers to the ceiling tariff is applied.

Surcharge for supporting the use of renewable energy sources - the price determined by the settlement and financial center in accordance with the zone of consumption of electrical energy for energy-producing organizations that are conditional consumers or qualified conditional consumers.

The amounts of the allowance for supporting the use of renewable energy sources for 2023:

1. for conditional consumers in the first zone of electricity consumption in the amount of 1.97 tenge/ kWh without VAT;

2. for conditional consumers in the second zone of electricity consumption in the amount of 0.56 tenge/ kWh without VAT;

3. for a qualified conditional consumer LLP "GRES Topar " in the amount of 0.87 tenge / kWh without VAT.

# *The role of “Samruk-Energy” JSC in the production of clean electricity*

Electricity generation by renewable energy facilities of “Samruk-Energy” JSC (SPP, WPP and small HPPs) in January-April 2023 amounted to 185.6 million kWh , which is 71.4% higher compared to the same period in 2022 (108.3 million kWh ).

The share of RES electricity of Samruk-Energy JSC, taking into account small HPPs, in January-April 2023 amounted to 8.9% of the volume of electricity generated by RES facilities in the Republic of Kazakhstan, while in 2022 this figure was 7.9%.

*million kWh*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **2022** | | **2023** | | **Δ, million kWh** | **Δ, %** |
| **January-April** | **share in Kazakhstan, %** | **January-April** | **share in Kazakhstan, %** |
|  | **RES S-E, including:** | **108.3** | **7.9%** | **185.6** | **8.9%** | **77.3** | **71.4%** |
| 1 | *Cascade of small HPPs of AlES JSC 43.7 MW* | *44.5* | *3.2%* | *41.8* | *2.0%* | *-2.7* | *-6.1%* |
| 2 | *Samruk - Green LLP Energy » SPP 2MW + SPP 1MW + SPP 0.4MW* | *4.3* | *0.3%* | *1.7* | *0.1%* | *-2.6* | *-60.5%* |
| 3 | *Samruk - Green Energy LLP WPP Shelek 5 MW* | *0.0* |  | *5.6* | *0.3%* |  |  |
| 4 | *First Wind Power Plant LLP WPP 45 MW* | *59.5* | *4.3%* | *58.8* | *2.8%* | *-0.7* | *-1.2%* |
| 5 | *Energy Semirechye LLP WPP Shelek 60 MW* | *-* | *-* | *77.7* | *-* | *-* | *-* |

# **International relations**

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

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

**Kazakhstan**

**Kazakhstan signed the IAEA Country Framework Program for 2023-2028**

Minister of Energy of the Republic of Kazakhstan A. Satkaliyev and IAEA Director General R. Grossi in Astana signed the Country Framework Program ( Country Program Framework ) between Kazakhstan and the Agency for 2023-2028. The signing took place within the framework of the official visit of the IAEA Director General to Kazakhstan.

The country framework program is the basis for medium-term planning of technical cooperation between Kazakhstan and the IAEA.

The new program for 2023-2028 is developed taking into account the accumulated experience of technical cooperation and takes into account the status of Kazakhstan as a country planning to build its first nuclear power plant. It identifies four priority areas: nuclear power infrastructure, nuclear and radiation safety, food security and nuclear medicine.

The transfer of nuclear technology and technical cooperation resources is expected to support the country's national development goals.

Recall that Kazakhstan has been cooperating with the IAEA since 1994, gaining access to the latest technological and research developments and strengthening its scientific and technical potential.

**In Kazakhstan, energy facilities will be confiscated from their owners if they are improperly maintained**

The total length of heat supply networks in the Republic of Kazakhstan is about 14 thousand km. The average depreciation in the country reaches 54%.

energy facilities from their owners if they are maintained in an improper way.

This was announced at a government meeting by the Prime Minister of the Republic A. Smailov :

- completed the technical audit of the republic's power plants, which was carried out with the involvement of international consultants;

- as a result, a rating was formed in terms of wear, operating time of the main equipment, fuel consumption, technological violations, etc.;

- Plans for further action are currently being prepared;

- at the same time, roadmaps are being formed for all 37 CHPPs together with akimats to prepare for the upcoming heating season;

- this year, the government will legislatively strengthen the activities of energy supervision , which will receive the right to unscheduled inspections;

- the state will receive the legislative right to withdraw power facilities from property in case of their improper maintenance, if this poses a threat to the operation of life support systems;

- the government, akimats and owners will, as a matter of priority, provide funding for the relevant projects for the repair and reconstruction of the energy infrastructure;

- based on the applications of the regions, a pool of 47 projects was formed to replace heat supply networks in the amount of 69 billion tenge;

- 2 thousand km. thermal networks with wear and tear of about 77% are privately owned;

- in connection with this, it is required to tighten control over their condition and mandatory repair work;

- it is necessary to increase the responsibility of the owners of power facilities , to provide for this in contracts for the provision of services;

- execution should become not advisory, but strictly obligatory;

- it is also necessary to work out the issue of reconstruction of private heating networks through budgetary lending;

- the return of funds in this case will be carried out within the framework of the Tariff program in exchange for investments.

According to the Minister of Industry and Infrastructure Development M. Karabaev :

- the total length of heat supply networks in the republic is about 14 thousand km;

- average wear in the country reaches 54% - replacement of 7.5 thousand km is required;

- the highest level of deterioration is noted in the Abai ,

- East Kazakhstan, Karaganda, Pavlodar, North Kazakhstan regions;

- in 2023, 69.4 billion tenge was allocated from the budget for the implementation of 47 communications projects with a depreciation rate of more than 75%;

- it is planned to reconstruct about 107 km of heating networks with these funds;

- in general, by 2029, the task is to reduce the wear and tear of heat pipelines to 43%.

The Prime Minister instructed the responsible departments to approve the action plan for the preparation of all housing and communal services, housing and social facilities for the upcoming heating season and immediately begin its implementation.

At the same time, A. Smailov outlined the need to complete the technical examination of existing heating networks by June 1 and, based on the results, determine the feasibility of transferring private networks in emergency condition to communal ownership.

Recall that in 2022, several major accidents occurred at thermal power plants in the republic, including in the city of Ekibastuz, a local emergency of a man-made nature was declared due to an accident in heating networks.

November 28, 2022 President of Kazakhstan K.-J. Tokayev instructed the government to consider returning troubled energy assets to state ownership.

**Kyrgyzstan**

**In 2023 to finance the energy sector Kyrgyz Republic provided 31.1 billion soms**

In 2023 to finance the energy sector The Kyrgyz Republic provides funds in the amount of 31.1 billion soms, including budgetary funds of 21.9 billion soms, special account funds of 26.4 billion soms and public investment of 9.1 billion soms.

The cost of subsidizing thermal energy of the State Enterprise " Kyrgyzteploenergo " is provided for 1.5 billion soms. As of April 1, 800.9 million soms (51%) were allocated.

In the republican budget for 2023, 1.2 billion soms are provided for local state administrations, which are necessary to cover the costs of electricity consumed by institutions financed by local budgets. As of April 1, 486.2 million soms (42%) were financed.

Budget loans in 2023 are provided in the amount of 4.7 billion soms, 255 million soms were allocated, of which:

JSC "Electric Stations" - a project for 3 billion soms was approved.

JSC " Chakan HPP" 2 billion soms for the construction of a small hydroelectric power plant "Bala- Saruu " at the Kirovsky VDK . Manas r. Talas region (at the expense of the republican budget - 1300 million soms and at the expense of the savings accounts of the National Bank of the Kyrgyz Republic - 700 million soms; (Decree of the Cabinet of Ministers of the Kyrgyz Republic dated April 15, 2022 No. 202-r).

the Kambar-Ata HPP-1 construction project , a budget loan of Electric Stations OJSC in the amount of 1.6 billion soms.

Need by year:

2022 - 117.5 million soms (fully allocated);

2023 - 816.7 million soms;

2024 - 621.4 million soms. Decree of the Cabinet of Ministers of the Kyrgyz Republic of 28.06.2022 No. 358-r).

As of April 1, 2023, 180.0 million soms were allocated.

For the construction of a small hydroelectric power station in the Orto-Tokoi vdkhr . a budget loan in the amount of 350 million soms is provided.

Capitalization:

In order to improve the financial stability of state strategic energy enterprises, 10.8 billion soms are provided for Electric Stations OJSC and the National Electric Grid of Kyrgyzstan to increase authorized capital. As of 04/01/2023 536.7 million soms were allocated (Resolution of the Cabinet of Ministers of the Kyrgyz Republic dated November 28, 2022 No. 661).

125.2 million soms are provided for administrative expenses of the Ministry of Energy (budget, special account funds).

As of 04/01/2023 44.1 million soms were allocated.

**PJSC Inter RAO started supplying electricity to Kyrgyzstan**

, the Russian energy company PJSC Inter RAO began supplying electricity from Russia to the Kyrgyz Republic in transit through the Unified Energy System of Kazakhstan, the company said.

On April 15, 2023, for the first time in history, the supply of electricity from the UPS of Russia to the energy system of Kyrgyzstan began in transit through the UPS of Kazakhstan. The total planned supply for the period April 2023 to March 2024 is about 900 million kWh .

It is noted that the planned delivery schedule will be agreed by the parties on a regular basis in accordance with the provisions of the operational dispatch control and the rules for the functioning of energy markets .

At present, the supply will be up to 400 MW per hour. The main factor determining the volume of supply is the capacity (transit) of electrical networks in the UES of Kazakhstan.

If the transit capacity can be increased, then the Russian side is ready to provide supplies to Kyrgyzstan in volumes that fully cover the existing deficit, which, according to available information, reaches 3 billion kWh .

Inter RAO is a diversified energy holding that manages assets in Russia, as well as in Europe and the CIS. Inter RAO is the only operator for the export and import of electricity in the Russian Federation .

**Energy Committee established under the Chamber of Commerce and Industry of Kyrgyzstan**

It will unite 25 energy companies of the country, the CCI reported.

The head of the chamber, Temir Sariev, held a meeting with representatives of the energy industry.

The Chamber of Commerce and Industry of the Kyrgyz Republic is a body that unites the entire business of the republic. The Chamber does its best not only to lobby the interests of entrepreneurs, but also to protect them from all kinds of illegal encroachments. I am very glad that representatives of such an important industry as energy have contacted us, and I think that the new committee will actively promote the current agenda.

Representatives of energy companies noted that it is necessary to urgently address issues related to renewable energy sources.

In the conditions of energy shortage , the role of RES has increased significantly, and therefore it is no longer possible to delay the solution of a number of problems in creating a full-fledged cluster of renewable energy sources. For example, it is necessary to define a code for equipment intended for the industry; in addition, there is a proposal to include hydrogen technology in the list of codes, as well as for some of the equipment used in the construction and operation of small hydropower plants. It is vital to significantly simplify the legislation so that the allocation of land and water for renewable energy is barrier-free .

**Republic of Belarus**

**In Belarus, the capacity of renewable energy installations has grown almost 14 times over 13 years**

In Belarus, the total electric capacity of renewable energy sources (RES) installations has grown almost 14 times over the past 13 years. This was stated by Deputy Chairman of the State Standard - Director of the Energy Efficiency Department Vitaly Kretsky during the conference "30 years of success and achievements in creating an energy efficient country."

Significant work has been done in Belarus in the direction of the development of renewable energy.

As of January 1, 2023, the total electrical capacity of RES installations amounted to 631.5 MW, which is almost 14 times higher than the same indicator thirteen years ago - 45 MW in 2009. Today, there are 84 photovoltaic plants with a capacity of 272.7 MW (or 43.2% of the total installed capacity of installations for the use of renewable energy sources), 54 hydroelectric power plants with a capacity of 96.1 MW (15.2%), 108 wind turbines with a capacity of 122 MW (19.3%), 31 biogas complexes with a capacity of 40.2 MW (6.4%), 11 wood-fired mini-CHPs with an electric capacity of about 100.5 MW (15.9%).

**By 2025, the volume of reconstruction of power grids in Belarus is planned to be doubled**

By 2025, the volume of reconstruction of power grids in Belarus is planned to be doubled.

Karankevich spoke about this at a meeting with the workforce of OAO Belenergoremnaladka .

The task for the current year is to increase the volume of reconstruction of electric networks by 1.4 times compared to 2022, and by 2025 the volume of their modernization should double. This will meet the growing demand for the use of electricity by the population for heating and hot water supply.

The total length of power grids in the country exceeds 280,000 km, of which about 200,000 km are distribution networks. They are constantly being renovated and new ones are being built.

Over the past five years alone, 9.4 thousand km of power transmission lines have been built and modernized in the country. However, we cannot simultaneously satisfy all the requests of citizens. After all, once the power grids were built for certain loads - mostly household ones, and were not designed for electric heating .

“But the system was quickly reformatted, work on the modernization of the power grid infrastructure is being carried out in stages within the framework of long-term plans for the modernization of power grids, agreed with the regional executive committees.” At the same time, special attention is paid to such work in rural areas, where it is planned to reconstruct 5.7 thousand km of power networks over the five-year period.

First of all, sections of depreciated power grids are included in the long-term reconstruction plans.” In general, according to him, the standard service life of power grids is 33 years.

Among the key tasks facing industry organizations in 2023, Viktor Karankevich named the commissioning of the second power unit of the Belarusian nuclear power plant, the completion of measures to integrate it into the country's energy system, including the commissioning of peak-reserve sources with a total capacity of 800 MW.

Since the inclusion of the first power unit of the BelNPP in the unified energy system (November 3, 2020), more than 13.7 billion kWh of electricity have been generated, which made it possible to replace 3.6 billion cubic meters. m. of natural gas.

**The level of digitalization of the energy complex of Belarus exceeds 60%**

Deputy Minister of Energy Denis Moroz spoke about this as part of his visit to the booth of organizations of the Ministry of Energy at the Thibault exhibition .

The Deputy Minister named the key areas for the introduction of automation and digitalization technologies in the industry.

Among them are the management of electrical networks and the construction of new digital substations. A good example of such a project is the 330 kV Mogilev substation.

This is the first fully digital substation of this voltage class in the country. Putting the facility into operation made it possible to increase the reliability of power supply to the Mogilev energy center , to halve the area for equipment. Due to the high automation of processes at the substation, the constant presence of personnel is not required. This significantly reduces the operating and labor costs for its maintenance.

In total, there are 1,400 substations with digitalization elements in the country , 6 are fully digital.

An important area of work on the digitalization of power grid facilities is the development of "smart", or Smart grid networks.

This technology is based on the formation of a single automated system that allows real-time monitoring and control of power transmission lines, including generation, transmission and consumption of electricity. "Smart" electrical networks automatically respond quickly to changes in various parameters and allow uninterrupted power supply with high economic efficiency.

Pilot projects for the introduction of Smart technology Grid implemented in Borisov, Bobruisk, Liozninsky , Pinsk districts of electrical networks. It is planned that similar projects will be carried out in other regions. We have such plans.

According to him, the introduction of modern IT solutions is also an additional opportunity to provide qualitatively new services to consumers. For example, in the electric power industry, in order to automate the metering of electric energy, the electronic meters of household subscribers that we are implementing are combined into the ASKUE-byt automated system with subsequent integration into the ERIP.

This makes it possible for household consumers to pay for electricity at tariffs differentiated by time periods and to reduce their costs.

To date, more than 4 million meters have already been replaced with electronic ones, which is 90.6% of their total number.

**Belarus to expand work on modernizing power grids for heating housing stock**

Energy supply organizations will increase the pace of construction and modernization of the power grid infrastructure to meet the growing demand of the population for electricity for heating and hot water supply, said Deputy Minister of Energy Denis Moroz.

This work is organized in accordance with long-term plans for the modernization of power grids approved in agreement with the regional executive committees, which cover more than 1.5 thousand settlements.

In total, about 5.7 thousand km of electric networks will be put into operation over the five-year period.

In 2023, the country plans to reconstruct and build more 2,000 km of overhead transmission lines, more than 20 transformer substations of various voltage classes, including completion of investment projects for the modernization of the 750 kV Belorusskaya high-voltage substation, the 220 kV Stolbtsy substation with its transfer to a higher voltage class of 330 kV.

Thus, additional opportunities will be created for the growth of electricity consumption, including for the purposes of heating and hot water supply.

According to Denis Moroz, over the past two years, the volume of electricity consumption by the population for these needs has increased more than 5 times - from 92.5 up to 474.9 million kWh .

In the period from 2021 to 2022, about 665 thousand square meters were put into operation. m of new multi-apartment electrified housing, 40.9 thousand applications of citizens (84%) were satisfied for the issuance of technical conditions for the connection of electrical installations of individual residential buildings to electrical networks in order to use electrical energy for heating and hot water supply.

The growth in demand for electricity was largely facilitated by incentive tariffs for the population, adopted at the level of the Head of State, as well as the possibility of reimbursement of part of the costs of citizens for the electricity supply of the operated housing stock under Decree No. 127   
.

**Russia**

**Electricity generation in the Russian Federation in the 1st quarter of 2023 decreased by 0.5%, to 320 billion kWh**

Electricity generation in Russia in January-March 2023 amounted to 320 billion kWh , which is 0.5% lower than in the first quarter of 2022 according to Rosstat.

In particular, Russian thermal power plants (TPPs) increased generation by 3.2% over three months, to 221 billion kWh , remaining the main supplier of electricity to the country's unified energy system (UES) with a share of 68.8% of total electricity generation. At the same time, NPPs and HPPs reduced their output by 8.4% and 7.4%, to 53.7 billion kWh and 44.7 billion kWh , respectively.

Renewable energy generation facilities produced 1.5 billion kWh of electricity in the first quarter, which is 7.3% more than a year earlier.

In March 2023, the total electricity generation in the Russian Federation amounted to 105 billion kWh , which is 2.5% less than in March last year. Thus, production at thermal power plants increased by 2.2%, but at nuclear power plants and hydroelectric power plants it decreased by 12.9% and 9.7%, respectively. Generation at renewable energy facilities increased by 11.3% to 1 billion kWh .

**The results of the selection of renewable energy projects in 2023 have been summed up in the Russian Federation**

ATS JSC (100% subsidiary of the NP Market Council Association) has summed up the selection of investment projects for the construction of generating facilities based on the use of renewable energy sources (RES) in 2023.

The selection of renewable energy projects in 2023 was carried out in relation to wind generation, solar generation and hydro generation facilities .

As part of the first stage of the selection of renewable energy projects, which was carried out by ATS JSC from March 22 to March 28, 2023, wholesale market participants that fulfilled the requirements of the Agreement on Accession to the Wholesale Market Trading System for admission to selection submitted applications for 135 objects, the total declared required amount of annual revenue of which amounted to 110,924 million rubles. Thus, 70 applications were submitted for wind generation facilities, 65 applications for solar generation facilities, and no applications were received for hydro generation facilities.

At the second stage of selection, which was held from March 29 to April 4, 2023, within which participants had the opportunity to submit applications with reduced values of the efficiency indicator in relation to the objects declared at the first stage of selection, 33 applications were adjusted in relation to wind generation facilities and 36 applications for solar generation facilities.

During the extended selection period, held on April 5, 65 applications for solar generation facilities were adjusted.

As a result, according to the results of the selection of RES projects in 2023, 41 projects were selected in aggregate with a total amount of required annual revenue of about 25 billion rubles: WPP - 17 facilities with a declared revenue of 11,521 million rubles, SES - 24 facilities with a declared revenue of 13,641 million rubles. The total announced planned volume of installed capacity amounted to 1,825 MW: WPP - 738.5 MW, SPP - 1,086.5 MW.

The winners of the selection were: for wind generation - LLC " Uralenergosbyt ", for solar generation - LLC " Unigrin Power ", LLC " Solar Retail", LLC " Solar Ulyanovsk".

**PJSC Inter RAO expects a decrease in electricity exports in 2023**

PJSC Inter RAO (the export-import operator of electricity in Russia) expects that foreign electricity supplies in 2023 will be reduced compared to 2022.

The volume of exports will be significantly influenced by energy consumption, in particular, in Siberia and the Far East, as well as the water content of rivers for generating hydroelectric power plants.

According to her, by the end of 2022, the company exported 12-13 billion kWh of electricity.

According to the scheme of the program for the development of electric power systems ( EPS UES), the supply of electricity abroad in 2023 will amount to 12.33 billion kWh , and by 2028 will decrease to 9.43 billion kWh .

Maintaining supplies to China and Mongolia

According to the head of the block trading Panin , the company expects that the volume of electricity exports to China and Mongolia this year will remain at the level of the previous one.

Last year's results were record-breaking. It was about 4.7 billion kWh . With Mongolia it was cumulatively 5.2 billion kWh . We would like to come to the same value.

Earlier, Deputy Minister of Energy of the Russian Federation Pavel Snikkars told reporters that exports to China and Mongolia would remain at the level of 2022, but allowed the indicator to be exceeded.

Possible export to Kyrgyzstan

Panina also announced the operator's plans to start exporting electricity to Kyrgyzstan.

She explained that the supplies depend, among other things, on the energy system of Kazakhstan, as well as the need to build a power transmission line.

**Uzbekistan**

**Uzbekistan reforms hydropower sector**

Decree of the President of the Republic of Uzbekistan dated March 30, 2023 was adopted.

No. PP-104 "On measures to further reform the hydropower sector." The text of the document is available at the link.

The document provides:

bringing the total hydropower capacity to 4999 MW by 2030, including the creation of additional capacities - 2311 MW, with the participation of private investors - 615 MW;

implementation from 2023 additionally of the following promising construction projects:

in the Bostanlyk district of the Tashkent region of the Yukoripskem , Korongitugay , Toldiksoy hydroelectric power plants, the cascade of the Oygain hydroelectric power plants and the Yukoripskem pumped-storage power plant with a total capacity of 876 MW;

on the Naryn River in the Namangan region of the cascade of Naryn hydroelectric power plants with a total capacity of 225 MW;

in the Saryasi district of the Surkhandarya region of the cascade of the Yukoritupalang hydroelectric power plants with a total capacity of 264 MW.

The Program of additional measures for the further development of hydropower for 2023-2030 was approved. It includes:

updated targets for further development of hydropower and increased use of hydrological potential in 2023-2030;

a list of 9 investment projects with a total capacity of 748.5 MW included in the Investment Program of the Republic of Uzbekistan for 2023-2025 and implemented in 2023-2027;

a list of 47 investment projects aimed at increasing the use of the existing hydrological potential, creating new and modernizing existing capacities of hydroelectric power plants in 2024-2030;

a list of equipment, components and spare parts necessary for the construction and operation of small hydroelectric power plants, as well as those recommended for localization in 2023-2025 on a cooperative basis.

A procedure is being established in accordance with which modern principles of corporate governance are being introduced in JSC " Uzbekhydroenergo ", providing for:

implementation of the principles of environmental, social and corporate governance (ESG) and obtaining an ESG rating by 2025;

creation of a corporate and strategic consultant service, as well as bringing the number of independent members on the supervisory board to four people;

introduction from September 1, 2023 of the practice of information disclosure in accordance with environmental standards;

increasing the operating efficiency of the Company from July 1, 2023 by comparing the " benchmarking " method with leading specialized foreign companies.

In addition, by the end of 2024, it is planned to implement the project “Digital Transformation of the Hydropower Industry”.

**Tajikistan**

**Tajikistan has significantly increased the supply of electricity to its neighbors**

Tajikistan in the first quarter of this year exported electricity worth more than $8.6 million, which is 17.5% more than in the same period in 2022, the country's Agency for Statistics reports. In the first three months of 2022, Tajik electricity was supplied abroad in the amount of $7.3 million.

Tajikistan, within the framework of the agreements, according to Barki Tojik , supplies electricity to Afghanistan (all year round) and to Uzbekistan - only in the spring and summer (from May to August).

Contract for 2022 with Da Afghanistan Breshna Sherkat (DABS) provided for the daily supply of Tajik electricity to Afghan consumers up to 400 MW in May-August and 40 MW in September-April.

This is due to the fact that during the autumn-winter period there is not enough electricity even to provide domestic consumers. Residents in rural areas face power cuts, usually from the beginning of autumn until the end of March, and sometimes the cut continues into April.

In the summer, the republic has large surpluses of water and energy resources, part of which is dumped at the hydroelectric power station for nothing.

According to the statistical agency, in the first three months of this year, over 5.4 billion kilowatt-hours of electricity were produced in the republic, which is 1.6% more compared to the same period in 2022.

About 88.4% of electricity was generated by hydroelectric power stations, 11.6% - by thermal stations. Solar power plants produced only 80 thousand sour-hours in three months, which is 0.001% of the total output.

**Armenia**

**Armenia plans to build a new nuclear power plant by 2035-2036.**

The Armenian authorities are going to take measures to complete the construction of a new nuclear power unit by 2035-2035, Minister of Territorial Administration and Infrastructures of the Republic of Armenia Gnel Sanosyan said .

Therefore, according to him, these works should begin as early as 2025-2026, but the construction of a new nuclear power plant is a rather difficult decision. “Everything depends on finance, politics, energy. It will take time, there are many components to consider. The difficulty lies in the fact that new power plants are built for a period of 60 + 40 years, therefore, they must last at least 100 years. Now we need to make the right decisions,” the minister said on Thursday, answering questions from opposition deputies.

G. Sanosyan stressed that the new nuclear power plant should "correctly fit into the energy system of Armenia." The minister explained that the republic currently consumes a maximum of 1200 MW, and this is commensurate with the capacities of many nuclear power plants (in other countries).