Operating Performance Review

03

Industry Review

INDUSTRY REGULATION

The main policymaker in the electric power industry is the Government of Kazakhstan. The Ministry of Energy of Kazakhstan is the public authority that manages the industry. The Committee of Atomic and Energy Supervision and Control under the Ministry of Energy of Kazakhstan is the public authority to supervise and monitor the industry.

The Committee for the Regulation of Natural Monopolies of the Ministry of National Economy of the Republic of Kazakhstan is the state body responsible for the control and regulation of a state monopoly operations (including the operations of KEGOC).

FOR THE FIRST TIME, A PARALLEL OPERATION SCHEME HAS BEEN ESTABLISHED FOR THE POWER SYSTEMS OF RUSSIA, KAZAKHSTAN, AND CENTRAL ASIA

2000

INDUSTRY STRUCTURE

The Unified Power System (UPS) of Kazakhstan is a system of power plants, transmission lines and substations.

The electric power industry in Kazakhstan includes the following sectors:

— electricity generation;
— electricity transmission;
— electricity supply;
— electricity consumption;
— other activities in electric power industry.

ELECTRICITY GENERATION SECTOR

179

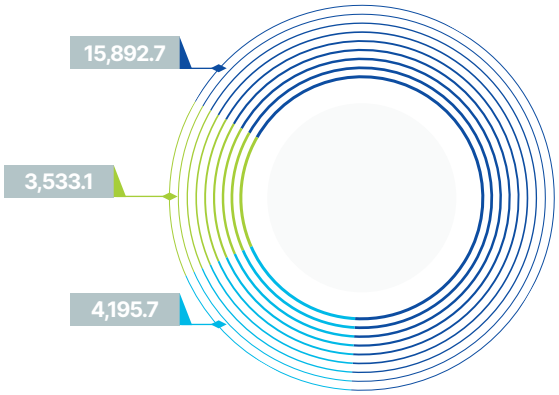
POWER PLANTS GENERATING ELECTRICITY IN KAZAKHSTAN

Electricity in Kazakhstan is generated by 179 power plants of various forms of ownership. The total installed capacity of power plants in Kazakhstan as of 31 December 2020 is 23,621.6 MW; the available capacity is 20,078.6 MW.

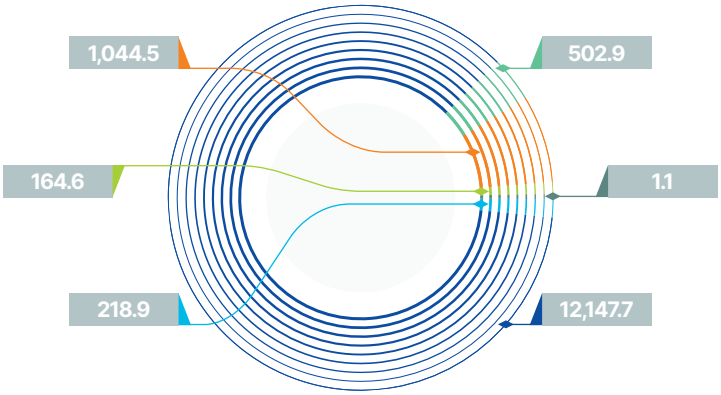
Power plants	Installed capacity, MW
Thermal power plants total	**19,419.5**
steam turbines	17,404.5
• pulverized coal	13,407.0
• gas and fuel oil	3,997.5
gas turbines	2,015.0
Wind farms	**508.6**
Solar power plants	**958.3**
Hydro power plants	**2,734.1**
including small hydro	211.5
Biogas plants	**1.067**
	23,621.6

The total available capacity by zone:

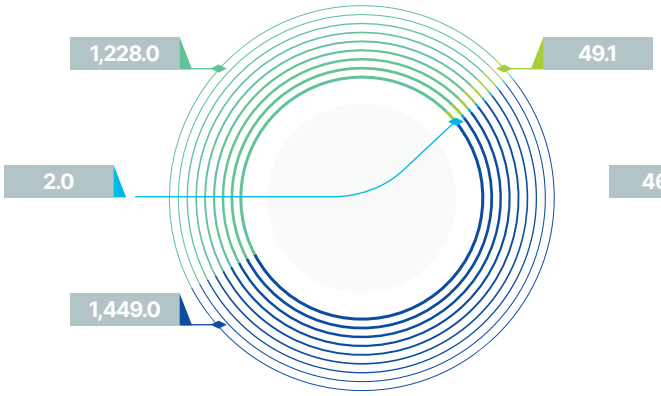
Installed capacity of power plants by zones, MW



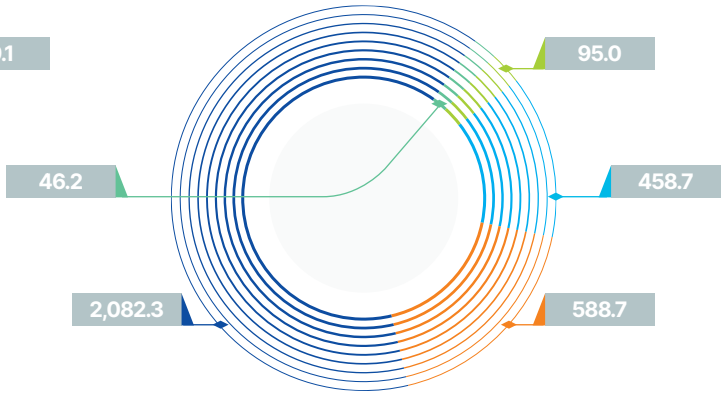
Zone North, MW



Zone West, MW



Zone South, MW



In 2020, 541.6 MW of new generation capacity was commissioned as follows:

Akmola oblast	**133.95 MW**
WPP-1, Golden Energy corp LLP	4.95 MW
Nura PVPP, KB ENTERPRISES LLP	100.00 MW
WPP-2, Golden Energy corp LLP	25.50 MW
Krasny Yar WPP, Wichi LLP	3.50 MW
Aktobe oblast	**48.00 MW**
Badamsha-1 WPP, Arm Wind LLP	48.00 MW
Almaty oblast	**67.45 MW**
Kaskelen PVPP-50, Misrtal Energy LLP	50.00 MW
Nurly-2 WPP, Nurly LLP	4.50 MW
Sarybulak PVPP, KapshagaiSolarPark LLP	4.95 MW
WPP Shelek, SamrukGreenEnergy LLP	5.00 MW
PVPP, TechnoBasalt LLP	3.00 MW
Zhambyl oblast	**69.90 MW**
Koktal-1 WPP, Wind Power city LLP	4.95 MW
Koktal-2 WPP, Wind Electricity LLP	4.95 MW

Zhanatas WPP, Zhanatas Wind Power Plant LLP	60.00 MW
Karaganda oblast:	**36.00 MW**
Kengir PVPP, KAZ GREEN ENERGY LLP	10.00 MW
Agadyr-2 WPP, KazSolar 50 LLP	26.00 MW
Kyzylorda Oblast	**28.00 MW**
Zhalagash PVPP, Nomad Solar LLP	28.00 MW
Mangistau Oblast	**15.00 MW**
WPP, Service LLP	10.00 MW
WPP, Zhangiz LLP	5.00 MW
Turkestan oblast:	**143.30 MW**
Zadarya PVPP, KazGreenTekSolar LLP	14.00 MW
Zhetysai PVPP, KaDi LLP	4.80 MW
UKSES 50 PVPP	50.00 MW
Shymkent PVPP, HEVEL KAZAKHSTAN LLP	20.00 MW
Kentau PVPP, HEVEL KAZAKHSTAN LLP	50.00 MW
Darhan small HPP by KelesHydroStroy LLP	4.50 MW

ELECTRICITY TRANSMISSION

Electric networks in Kazakhstan include 0.4-1,150 kV substations, switchgears, and electricity transmission lines connecting them to transmit and/or distribute electricity. The backbone network in Kazakhstan UPS the national power grid (NPG), which provides electric connections between the regions of the Republic of Kazakhstan and the power systems of neighbouring countries (the Russian Federation, the Kyrgyz Republic and the Republic of Uzbekistan), and enables the supply of elect power by the power plants and its transmission to wholesale consumers. KEGOC owns 220 kV and higher substations, switchgears, interregional and/or interstate transmission lines being a part of the NPG including lines used for connection of power plants.

Regional electric networks provide electric connections inside the regions and deliver electricity to the retail consumers and belong to and are being operated by the regional electric network companies.

Power transmission organisations transfer electricity using their own or third party's power networks (rent, lease, trust management and other types of use) based on the contracts with the wholesale and retail market consumers or energy supplying organisations.

ELECTRICITY SUPPLY

Kazakhstan electricity market power supply sector includes power supplying organisations, which purchase electricity directly from power generators or at the centralized auctions and further sell it to the end retail consumers. Some of power supplying organisations have a role of the "guaranteed power supplier".

The participants of the wholesale electricity market are:

- the power generating organisations that supply electricity to the wholesale market in the amount of not less than 1 MW of the daily average (baseline) capacity;
- the power transmission organisations;
- the power supplying organisations that buy electricity on the wholesale market for power supply purposes in an amount of at least 1 MW of average daily (base) capacity;
- the consumers who buy electricity on the wholesale market in the amount of not less than 1 MW of the daily average (baseline) capacity;
- the system operator, the functions of which are performed by KEGOC;
- the operator of the centralized electricity market, KOREM;
- Financial Settlement Centre for Renewable Energy Support LLP.

541.6

MW
INSTALLED GENERATION CAPACITY COMMISSIONED IN 2020

The centralized dispatch control of Kazakhstan UPS is a task of the National Dispatch Centre of the System Operator (NDC SO), the branch of KEGOC. The centralized operational and dispatch control in Kazakhstan UPS is organised as direct operational subordination of nine regional dispatch centres (RDCs) to NDC SO; these RDCs are the structural subdivisions of KEGOC's Interconnection Electric Networks (MESs) the branches of the company.

STRUCTURE OF OPERATIONAL DISPATCH CONTROL OF KAZAKHSTAN UPS AS ON 01 JAN. 2020

FEDERAL GRID COMPANY OF UNIFIED ENERGY SYSTEM (FGC UES) OJSC

- Siberia Dispatch Control Branch in Kemerovo
- Mid Volga Dispatch Control Branch in Samara
- Urals Dispatch Control Branch in Yekaterinburg
- South Dispatch Control Branch in Pyatigorsk

KEGOC NATIONAL DISPATCH CENTRE OF THE SYSTEM OPERATOR

Zapadny RDC Atyrau	Aktyubinskiy RDC Aktobe	Kostanaiskiy RDC Kostanay	Akmolinsky RDC Nur-Sultan	Tsentralny RDC Karaganda
Atyrau Zharyk JSC (Atyrau REC) Atyrau	EnergoSystema LLP Aktyubinskiye MES Aktobe	Mezhregional-energotransit LLP Kostanay	JSC Akmola REC Nur-Sultan	Karagandy Zharyk LLP Karaganda
Mangistau REC JSC Aktau	West Kazakhstan REC JSC Uralsk	Forfait EPK (Kost. REC), Kostanay	Kokshetauenergo LLP (Kokch. REC) Kokshetau	Karaganda REC JSC, Karaganda
Atyrau CHPP JSC Atyrau	AksayGazPromEnergo LLP (West Kazakhstan oblast)	Zharyk-Zhol REC LLP Rudny	SevKaz REC JSC Petropavlovsk	Zhezkazgan REC JSC Zhezkazgan
CHPP-1 MAEK MAEK-KazAtomProm LLP Aktau	ACHPP Samruk Energy JSC Aktobe	Kostanay YuzhElektroService PUE, Arkalyk	Astana REC JSC Nur-Sultan	GRES LLP Main distribution power plant Topar (KGRES-2) Topar
CHPP-2 MAEK MAEK KazAtomProm LLP Aktau	AZF power plant Transnational Company Kazchrome, Aktobe	ZhitikaraKommun-Energo PUE Zhitikara	Kazakhstan TemirZholy JSC ECh – 6, 7, 8, 10, 11, 14 Nur-Sultan	Karaganda GRES-1, Bassel Group LLS Temirtau
MAEK TPP LLP MAEK KazAtomProm LLP Aktau	ZhaiykTeploEnergo JSC (UrCHPP) Uralsk	LisakovskGorKommunEnergo PHO PUE Lissakovsk	CHPP 1, 2 Astana-Energy JSC Nur-Sultan	CHPP 1, 3, Kaaraganda Energocenter LLP Karaganda
CHPP Atyrau oil refinery JSC Atyrau	Uralskaya GTPP LLP Uralsk	CHPP, SSGPO JSC (RCHPP) Rudny	LLP Stepnogorsk CHPP Stepnogorsk	CHPP-PVS, CHPP-2 of Arcelor Mittal Temirtau JSC Temirtau
TGCHPP-1 TengizChevroil LLP Karaton-1	GTPP Karachaganak Petroleum Operating B.V. Karachaganak Petroleum Operating bv Aksay-2	KTEC CHPP PUE Kostanaiskiy CHPP Kostanay	SevKazEnergo JSC (PCHPP-2) Petropavlovsk	Zhezkazgan CHPP Kazakhmys Energy LLP Zhezkazgan
TGTPP-2 TengizChevroil LLP Karaton-1	ZhGTPP AktobemunayFinance JSC Zhanazhol	ATEC CHPP PUE Arkalyk	First WPP LLP Yereymentau	Balkhash CHPP, Kazakhmys Energy LLP Balkhash
TGTPP - 3 TengizChevroil LLP Karaton-1	SNPS AktobeMunayGaz JSC (GTPP 45) Zhanazhol		LLP CATEK Green Energy WPP Astana - Expo 2017	Shakhtinsk CHPP LLP Shakhtinsk
Kashagan ES AGIP KCO Karabatan	AMK-Munai LLP GPPP, South Karatobe, GPPP, Bashenkol			GTPP Kumkol PKKR JSC
Kalamkas power plant MMG Karazhanbas	ARBZ LLP GPPP			Akshabulak GTPP Crystal Management LLP
Sagat Energy ES	BatysPower LLP GTPP-200			Intumak mini HPP KazModKhoz
KazAzot JSC power station Aktau	Voskhod - Oriel LLP Voskhod GPPP			AgroFirm Kurma biogas power plant
Taiman-2 WPP Issatai raion Atyrau oblast	Zhaikmunai LLP Chinarevo GPPP			KPM Delta LLP Gulshat solar power plant
KUS GTPP Karabatan				Kenggir PVPP SARAN LLP PVPP Kengir
Akshukur WPP Tupkaraganskiy raion Mangistau oblast				Agadyr-1 PVPP KazSolar 50 LLP Agadyr
RMK WPP Tupkar. raion Mangistau oblast				

KEGOC

‘ENERGY’ CDC TASHKENT

Severny RDC Ekibastuz	Vostochny RDC U-Kamenogorsk	Yuzhny RDC, Shymkent	Almatinskiy RDC Almaty
PREC JSC Pavlodar	EKREC JSC Ust-Kamenogorsk	Ontustik Zharyk Transit LLP Shymkent	AZhC JSC Almaty
GorElectroSet LLP Ekibastuz	KazZinc-Energo LLP Ust-Kamenogorsk	ZhES LLP Taraz	TATEC Taldykorgan
EEC JSC power station Aksu	Bukhtarma Mining complex KazZinc LLP Serebryansk	KREC JSC Kyzylorda	KaratalTransit LLP Taldykorgan
Ekibastuz GRES-1 named after Nurzhanov LLP Ekibastuz	AES U-Kamenogorsk HPP LLP U-Kamenogorsk	BaikonurEnergo PEA PUE Baikonur	ZhTsPK LLP Taraz
Ekibastuzskaya power plant GRES-2 JSC Solnechny	AES Shulbinsk HPP LLP Shulbinsk, Kazzinc-TEK (Tekeli CHPP-2) Tekeli to	Zhambyl GRES named after Baturov JSC Taraz	T-Transit LLP Tekeli
CHPP of Aluminium of Kazakhstan JSC (PCHPP-1) Pavlodar	Len.Cas. Company LLP Leninogorsk cascade HPPs Ust-Kamenogorsk	CHPP-1, 2 KazSpetsElektrod LLP Shymkent	Almaty CHPP 1, 2, 3 ALES JSC Almaty
CHPP-2, PavlodarEnergo JSC (PCHPP-2) Pavlodar	AES Ust-Kamenogorsk CHPP LLP Ust-Kamenogorsk	3-Energo-Ortalyk (ShCHPP-3) JSC Shymkent	ALES Kapshagay HPP Kapchagay
CHPP-3, PavlodarEnergo JSC (PCHPP-3) Pavlodar	AES Sogrinsk CHPP LLP Ust-Kamenogorsk	Shardara HPP JSC Shardara	ALES Kaskad HPP JSC Almaty
ECHPP Ekibastuzteploenergo JSC Ekibastuz	Ridder CHPP JSC Ridder	Taraz-EnergoCentre JSC (ZhCHPP-4) Taraz	Moinak HPP JSC
	TeplokommunEnergo (Sem. CHPP) PUE Semipalatinsk	Kentau Service GPK (CHPP-5) Taraz	KazZinc-TEK LLP (Tekeli CHPP-2 and Karatal hydroelectric station)Tekeli
		KyzylordaTeploElektroCentre PUE (KOCHPP-6, KOGTPP) Kyzylorda	Issyk HPP-2, 3 EnergoAlem LLP
		Burnoye Solar-1,2 LLP Taraz	Cascade Karatal HPP LLP (Karatal HPP-2, 3, 4) Karatal
		SKZ-U LLP Zhana-Kurgan	HPP Taldykorgan energy centre
		Nomad Solar LLP in Kyzylorda Zhana-Kurgan	PVPP Kapshagay-100 ENEVERSE KUNKUAT LLP
		Baikonyr Solar LLP in Kyzylorda Zhana-Kurgan	PVPP Shu-100 M-KAT GREEN LLP
		EcoProTech-Astana LLP Turkestan	

The centralised purchase and sale of the electricity produced by renewable energy facilities and delivered to the electric networks of Kazakhstan UPS is the responsibility of Financial Settlement Centre for Renewable Energy Support LLP.

Legend

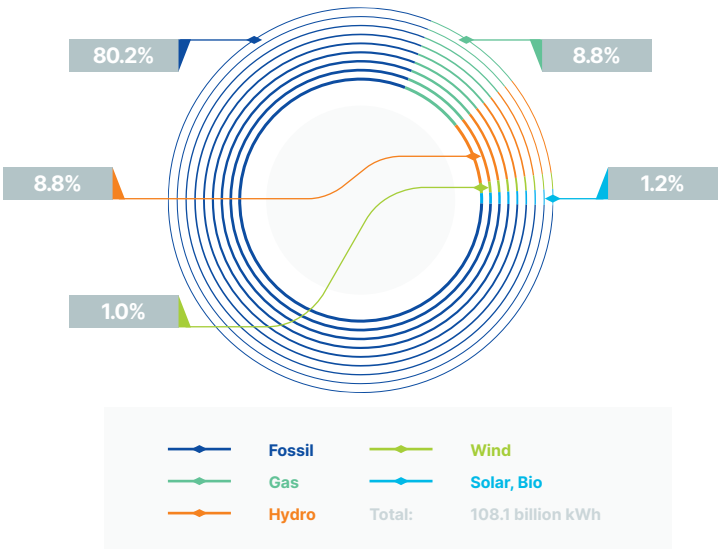
- Level of regional dispatch centres
- Level of regional network companies
- Power stations of the national level
- Power plants level

ELECTRICITY BALANCE

Electricity generation in 2020 for Kazakhstan was 108,085.8 million kWh, including:

Power plants	Generation, million kWh
Thermal power plants total	**96,190.3**
steam turbines	86,662.6
• pulverized coal	74,497.6
• gas and fuel oil	12,165.0
gas turbines	9,527.7
Hydro power plants	**9,545.8**
Wind farms	**1,092.7**
Solar power plants	**1,252.1**
Biogas plants	**4.9**

Structure of electricity production by UPS power plants in Kazakhstan in 2020



In 2020 electricity generation increased by 2,056.0 million kWh or 1.9% compared to 2019.

In this respect:
the electricity generation increased at the following power plants:

Power plants	Amount of increase in electricity generation	
	million kWh	%
Ekibastuz GRES-1 JSC	1,164.9	6.4
EEC JSC	247.4	1.8
CHPP-2 of Arcelor Mittal Temirtau JSC	200.4	9.7
CHPP-3, PavlodarEnergo JSC	141.0	4.8
CHPP-1, ALES JSC	121.1	5.6
3-Energoortalyk JSC (ShCHPP-3)	85.4	12.4
CHPP-3, ALES JSC	77.5	7.3
Balkhash CHPP, Kazakhmys Energy LLP	50.5	4.7
Ekibastuz GRES-2 Power Plant JSC	45.7	0.9
CHPP-1, Aluminium of Kazakhstan JSC	5.6	0.3

the following large power plants saw a decrease in generation:

Power plants	Amount of reduction in electricity generation	
	million kWh	%
Zhezkazgan CHPP, Kazakhmys Energy LLP	-163.7	9.9
PPCHPP-2, SevKazEnergo Petropavlovsk LLP PPTETs-2	-141.5	4.1
ES AZF TNK Kazchrome (GTU)	-130.9	15.8
CHPP-2, ALES JSC	-117.8	4.3
Zhambyl GRES	-69.7	3.7
GRES, Topar LLP	-62.9	1.3

Zhambyl GRES has been working in two-unit mode since the beginning of a year, 1 unit were in operation since 28 March. Since 11 August the power plant has been working in two-unit mode, since 20 December to 1 January 2021 the station has been working in three-unit mode.

80%

OF ELECTRICITY IN KAZAKHSTAN IS GENERATED BY FOSSIL FUEL

Power generation at Kazakhstan's hydro power plants decreased by 439.1 million kWh (4.4%) compared to the same period in 2019. The generation profile of these power plants was dictated by irrigation water management and hydrological conditions.

Electricity generation at TPPs increased by 707.6 million kWh (0.8%).

Electricity generation increased at GTPPs by 552.1 million kWh (6.2%) and RES (solar, wind, bio) by 1,235.4 million kWh, more than two times.

Non-flexible thermal power plants account for the main portion of electricity generation in the UPS of Kazakhstan (about 80%). About half of all hydro power plants are tightly regulated by water irrigation schedules, which leads to a shortage of flexible generation in the UPS of Kazakhstan. The solution to this problem is the construction of new flexible capacity, digitalisation of the power system, introduction of a balancing market, development of energy storage systems, forecasting and modelling of power system operation. The construction of new flexible power plants is being addressed by relevant amendments to the Electricity Law adopted in December 2020. According to the Plan for Locating the Flexible Generation Facilities and Organising Auctions for Construction of New Gas Power Plants, construction of the new flexible power plants in the south of Kazakhstan is expected to start in 2022.

In 2020, KEGOC completed a (digitalisation) project to create an Automatic Frequency and Power Control (AFPC) system, which ensures the most efficient use of the available flexible generation. Five power plants are expected to be connected to the AFPC in 2021: Ekibastuz GRES-1, Moinak HPP, Bukhtarma HPP, Shulbinsk HPP, Ust-Kamenogorsk HPP with a total AFPC reserve of 500 MW.

In 2020, Kazakhstan's electricity consumption, compared to 2019, increased by 2,151.7 million kWh or 2.0% to 107,344.8 million kWh.

Consumption increased in all zones of Kazakhstan: by 1,468.6 million kWh (2.1%) in Zone North, by 76.4 million kWh (0.6%) in Zone West, and by 606.7 million kWh (2.7%) in Zone South.

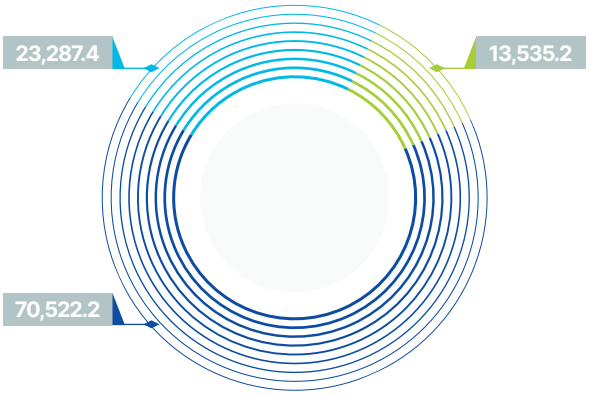
Consumption increased at:

Consumers	Amount of increase in electricity consumption	
	million kWh	%
TNK Kazchrome JSC (Aksuysky ZF)	114.7	2.0
Taraz Metallurgical Plant LLP	112.3	67.5
Canal named after Satpayev RGP	66.6	32.5
TNK Kazchrome JSC (Aktyubinskiy ZF)	66.3	2.1
Kashagan PP, AGIP KCO NCOC	50.6	4.7
Corporation Kazakhmys LLP	39.4	3.2
Kazakhmys Smelting LLP	33.2	2.8
Arcelor Mittal Temirtau JSC	24.9	0.7
Kazakhstan Electrolysis Plant JSC	19.0	0.5
KazPhosphate LLP	9.1	0.4
Aluminium of Kazakhstan JSC	2.3	0.2
Temirzholenergo LLP	1.9	0.1

Compared to 2019 the consumption decreased at:

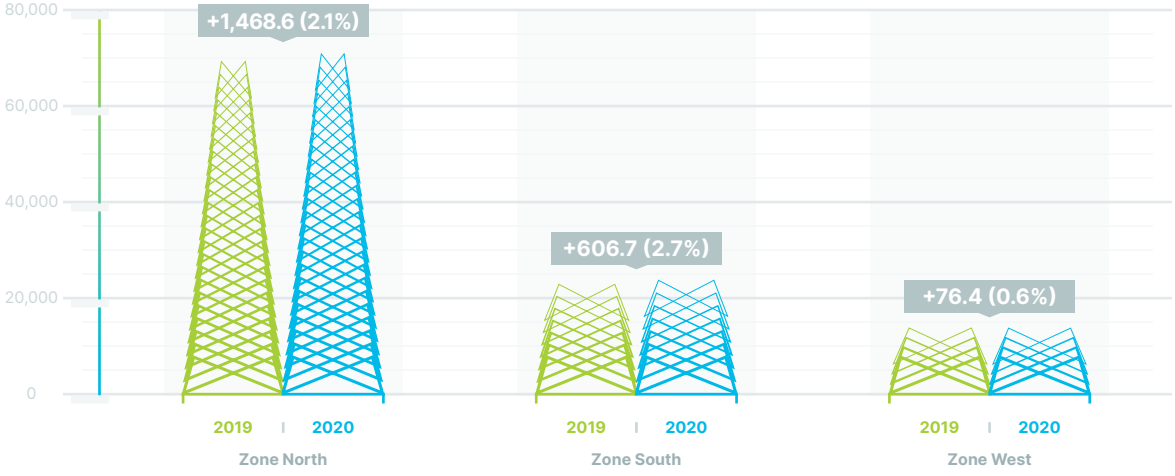
Consumers	Amount of increase in electricity consumption	
	million kWh	%
UKTMK JSC	-228.5	26.2
Sokolovsko-Sarbaiskoye GPO JSC	-100.9	5.5
TengizChevroil LLP	-70.3	3.7
ANPZ LLP	-3.8	0.5
KazZinc LLP	-1.8	0.1

Structure of electricity consumption by zones, million kWh



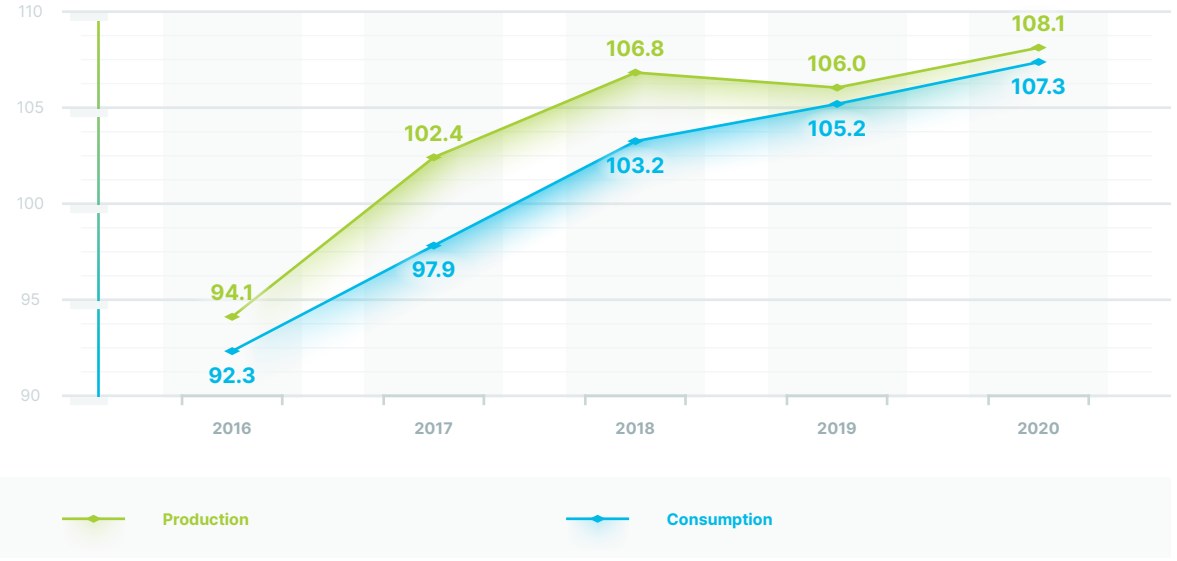
In the reporting period of 2020 compared to the same period of 2019, the most significant increase in electricity consumption was observed in Karaganda oblast: by 470.3 million kWh (2.6%), Pavlodar oblast: by 1,204.4 million kWh (6.2%), Aktobe oblast: 210.1 million kWh (3.3%), West Kazakhstan oblast: 258.7 million kWh (12.9%), Zhambyl oblast: 475.6 million kWh (10.6%), Turkestan oblast: 114.2 million kWh (2.2%).

Electricity consumption by zones, million kWh

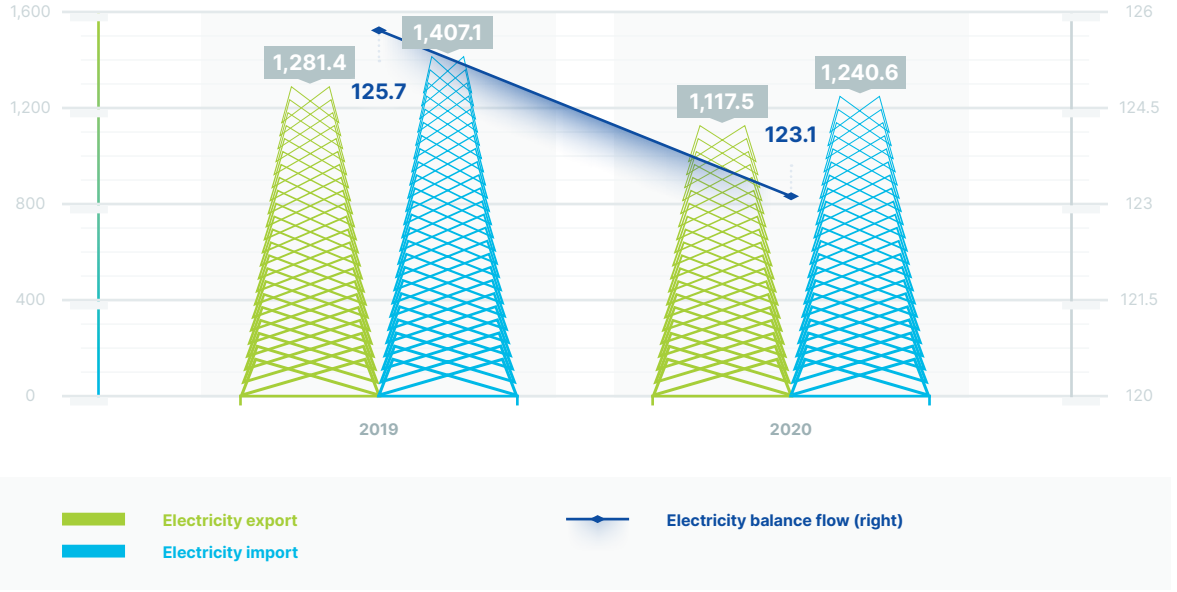


In 2020, electricity generation exceeded consumption by 741.0 million kWh.

Electricity production-consumption, billion kWh



Electricity balance flow on the border with Russia, million kWh



During the reporting period, the balance of electricity flow from the Russian Federation was 123.1 million kWh (125.7 million kWh to the Russian Federation in 2019). At the same time, electricity exports to the Russian Federation amounted to 1,117.5 million kWh (1,281.4 million kWh in 2019), which is 163.9 million kWh lower than in 2019. Electricity imports from the Russian Federation amounted to 1,240.6 million kWh, which is 166.5 million kWh lower than in 2019). Both export and import are shown here net of the balancing electricity provided by Russia.

The balance flow to Central Asia was 864.1 million kWh, with electricity exports amounting to 1,179.0 million kWh, including:

- 810.5 million kWh to the Republic of Uzbekistan (806.6 million kWh from Ekibastuz GRES-1 LLP, 3.9 million kWh from Topar GRES LLP);
- 53.6 million kWh to the Kyrgyz Republic (52.6 million kWh from Ekibastuz GRES-1 LLP).

The amount of electricity supplied under the commodity exchange agreement from the Republic of Tajikistan and the Kyrgyz Republic was 12.2 million kWh and 300.0 million kWh, respectively.

Operating Activity

In accordance with the law of Kazakhstan "On Electric Power Industry", KEGOC as the System Operator shall ensure non-discriminatory access to the electricity market for all market players. The connection to the national power grid shall be provided in accordance with the Grid Code and Rules of Electricity Usage. KEGOC grants equal access to the NPG for all wholesale electricity market participants.

More details on how to access the national power grid is available at "Company – Activity – Procedure for the access to the National Power Grid" section of the company's website.

The consumers of KEGOC services are legal entities: energy-producing, energy transfer, energy supplying organizations, and industrial enterprises.

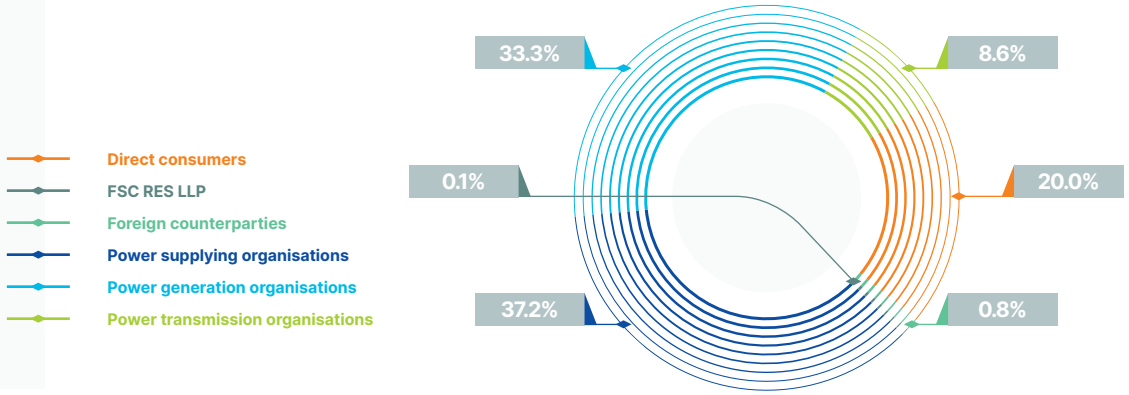
102-6

In 2020 KEGOC delivered all its contracted and requested system services to the wholesale market entities. The total number of service contracts and agreements continued after 2019 and concluded in 2020 was 861.

Contracts	Quantity
Electricity transmission in the national power grid	332
Technical dispatching of the electricity supply and consumption in the grid	151
Management of electricity production and consumption balancing	353
Supply and transmission of reserve electric power	1
Purchase of electricity to cover losses and economic needs	13
Purchase of power control services	3
Purchase of electricity from Russia to compensate unscheduled hourly deviation of actual interstate net power flow	1
Sale of electricity to Russia to compensate unscheduled hourly deviations of actual interstate net power flow	1
Electricity transmission (transit) services for FGC UES PJSC	1
Power (frequency) control services for UzbekEnergo JSC (Uzbekistan)	1
Purchase of electricity transmission services from Batys Transit JSC to cover losses	1
Purchase of unscheduled electricity	1
Purchase of electricity to manage unscheduled electricity flows (from Kyrgyzstan NPG)	1
Sale of electricity to manage unscheduled electricity flows (for Kyrgyzstan NPG)	1
Total:	**861**

EU3

Contract consumer categories

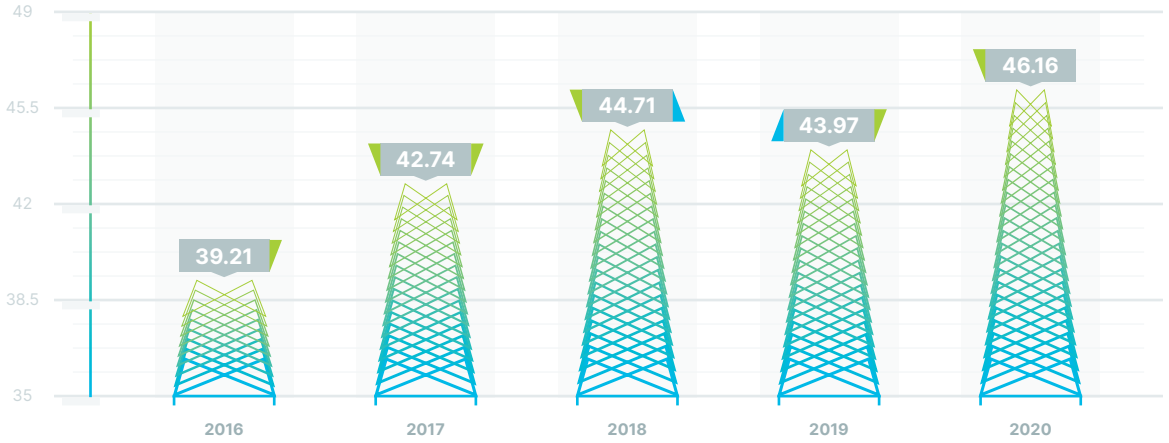


102-6

ELECTRICITY TRANSMISSION

102-7

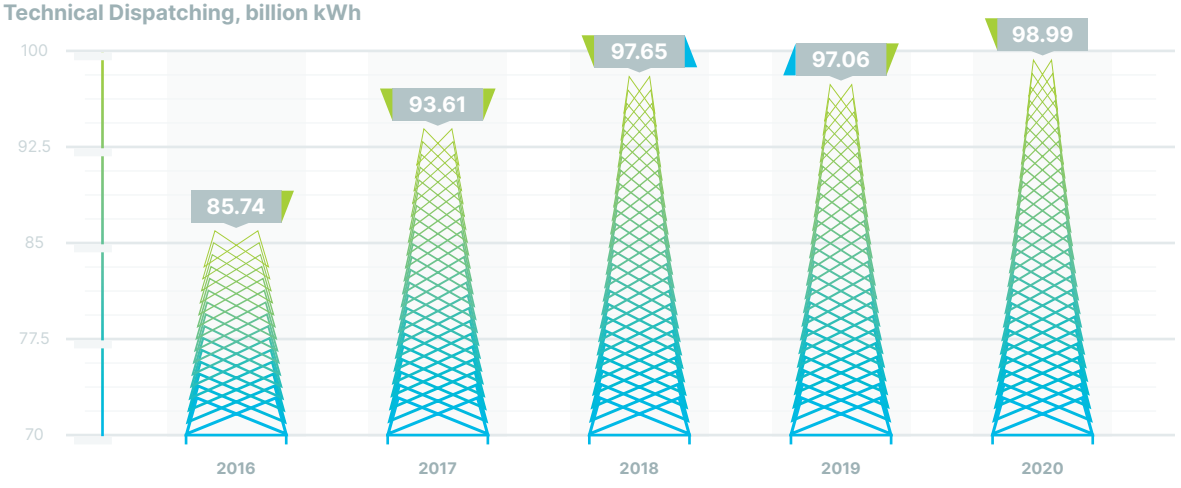
Electricity transmission in KEGOC's networks, billion kWh



The actual amount of the transmission services in the national power grid in 2020 amounted to 46.16 billion kWh, which is higher than in 2019 by 2.19 billion kWh or 5.0%. The main reasons for the increase are:

- the increase in electric power transmission to wholesale market participants in Kazakhstan by 1.45 billion kWh or 3.7% vs. the same in 2019.
- the increase of 0.21 billion kWh, or 21.8%, in electricity exports under the Company's contracts compared to 2019;
- the increase in the amount of electricity transmission through KEGOC's grids of interstate power flow on route of the Russian Federation – the Republic of Kazakhstan – the Russian Federation by 0.53 billion kWh or 14.8% than in 2019 (4.1 billion kWh in 2020, 3.57 billion kWh in 2019).

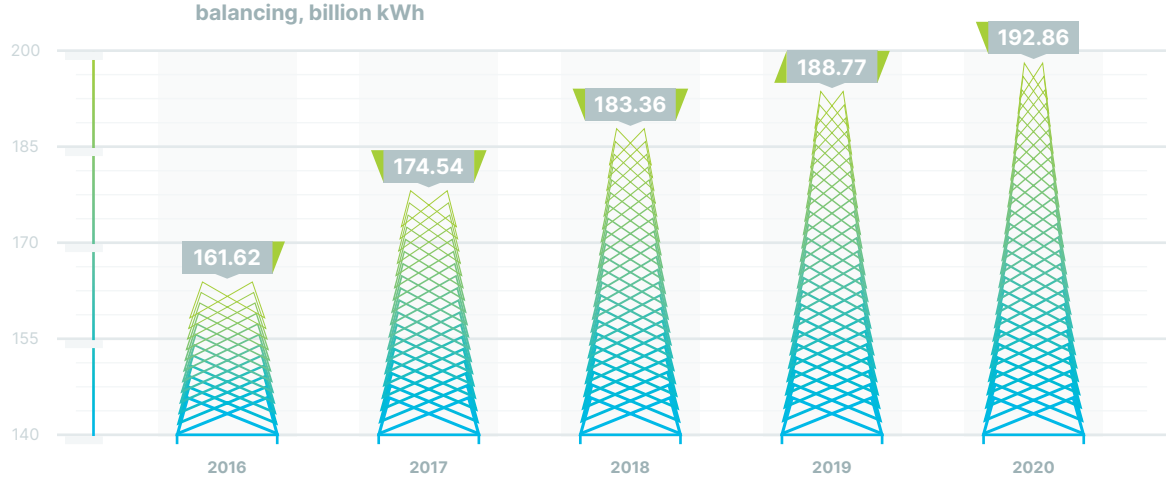
TECHNICAL DISPATCHING



The actual amount of technical dispatching of supply and consumption of electric power in the grid in 2020 was 98.99 billion kWh, which is 1.93 billion kWh or 2.0% higher than in 2019 and is attributed to an increase in electric power generation by power generating organisations of the Republic of Kazakhstan.

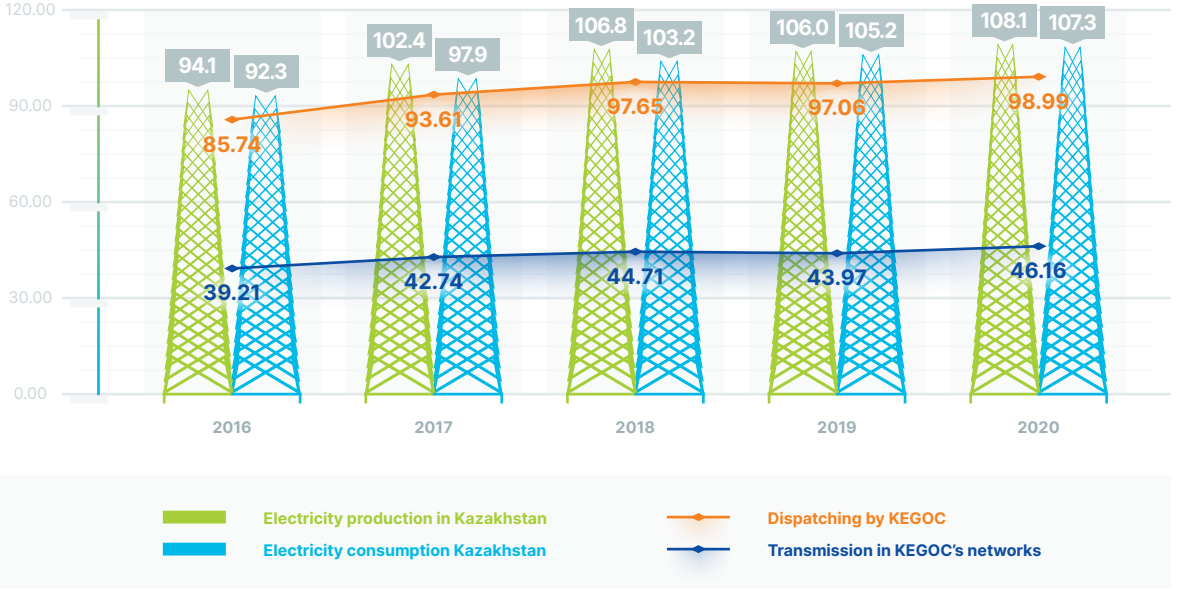
MANAGEMENT OF ELECTRICITY PRODUCTION AND CONSUMPTION BALANCING

Electricity production and consumption balancing, billion kWh



The actual volume of electricity generation-consumption balancing services in 2020 was 192.86 billion kWh, which is 4.08 billion kWh or 2.2% higher than in 2019, due to an increase in electricity consumption in the wholesale market of the Republic of Kazakhstan.

KEGOC in the industry, billion kWh



ELECTRICITY PURCHASE/SALE TRANSACTIONS

In accordance with the Electricity Law in the Republic of Kazakhstan, KEGOC acts as the System Operator of the UPS of the Republic of Kazakhstan to engage with the power systems of neighbouring states to manage and ensure the stability of parallel operation modes.

The consumption of electricity in the UPS of the Republic of Kazakhstan during the day has a pronounced irregularity: consumption drops at night, increases at the beginning of the working day and reaches its peak in the evening hours. At the same time, the UPS of Kazakhstan, where the bulk of the generating capacity comes from thermal power plants, that are technologically can only operate in base mode (cannot change their load quickly), cannot fully cover the variable consumption with their own capacity. As a consequence, imbalances emerge between electricity production and consumption in the UPS of the Republic of Kazakhstan. The shortage of flexible generation capacity in the UPS of Kazakhstan is also exacerbated by the emergency shutdowns of the equipment of existing power plants and the high penetration rate of renewable energy facilities, which are infamous for their unstable generation. Which is why, frequency maintenance and coverage of emerging imbalances in the UPS of the Republic of Kazakhstan is ensured, inter alia, through operation parallel with the UES of the Russian Federation.

In accordance with the Power System Parallel Operation Agreement between the Governments of the Republic of Kazakhstan and the Russian Federation dated 20 November 2009, KEGOC and Inter RAO PJSC annually conclude electricity sale and purchase agreements to compensate hourly unscheduled imbalances in the actual interstate electricity flows at the border of UPS of Kazakhstan and UES of the Russian Federation. In accordance with this Agreement, the financial result of the sale and purchase of deviations is a fair payment for the physical balancing provided by the energy system of the Russian Federation to the UPS of the Republic of Kazakhstan.

In 2020, KEGOC purchased 1,065.6 million kWh of electricity to compensate the hourly unscheduled imbalances of interstate power flow at the border of UPS of Kazakhstan and UPS of Russian Federation for KZT 16,019.9 million (15.03 KZT/kWh).

The sale of electricity by KEGOC to compensate for the hourly unscheduled imbalances at the border of UPS of Kazakhstan and UPS of the Russian Federation amounted to 1,065.6 million kWh or KZT 5,101.7 million (4.79 KZT/kWh).

RENEWABLE ENERGY DEVELOPMENT

Today, the renewable sector is a fast-growing sector in Kazakhstan's electricity production; electricity generation from renewable energy sources (RES) increases every year due to supportive RES development programmes in the Republic of Kazakhstan.

Following the international trends in low-carbon development, in May 2013, Kazakhstan adopted a Concept of Transition to a "Green Economy" with an ambitious target: by 2050, 50% of the generation should be from alternative or renewable energy sources. E.g. according to the Concept of Transition to a "Green Economy" and the Strategic Development Plan of the Republic of Kazakhstan till 2025, the share of renewables in total electricity generation should be 3% by 2020, 6% by 2025, 10% by 2030 and 50% (alternative + renewables) in 2050.

To this end and to meet the requirements of the law, KEGOC established a subsidiary, FSC RES LLP, that has been successfully operating in the RES and power market. The RES laws are being regularly perfected, and through that process KEGOC has initiated an auction system of RES bidding, which has proven to be effective. RES energy enjoys a priority dispatch, and 100% of electricity produced by RES facilities is supplied to the Unified Energy System and paid for.

The ongoing studies are looking for the way to better predict RES generation and show the potential to reduce the unscheduled deviations of RES generation, which will reduce the amount of reserves needed in the power system. A study of simulated energy system is carried out using PLEXOS and DigSilent software, which assesses the impact of renewables on the energy system

and the optimum locations and amounts of renewables based on the existing grid capacity.

In 2021, studies will be carried out on energy storage systems, a review of technologies and their costs, and the potential use of storage in the energy system.

At the end of 2020, 116 RES facilities with a total installed capacity of 1,685 MW were in operation in Kazakhstan.

In 2020 they generated 3.24 billion kWh, or 3% of Kazakhstan's total electricity generation. It is 74% higher than RES electricity generation in 2019. In terms of number of RES facilities by technology, HPPs and PV dominate. The largest number of power plants are located in Almaty, Turkestan and Zhambyl oblasts. At the same time, according to the Ministry of Energy of the Republic of Kazakhstan, 96% of all RES electricity is concentrated in four oblasts of Kazakhstan - Almaty, Zhambyl, East Kazakhstan and Turkestan.

The centralised purchase and sale of RES electricity is based on concluded contracts with RES energy producing organisations and convention-based consumers according to standard forms approved by the Ministry of Energy of the Republic of Kazakhstan.

As of 31 December 2020, FSC RES LLP has entered into 131 contracts for a total installed capacity of 2,811 MW, including: 86 fixed tariff contracts, with a total installed capacity of 1,800 MW; 45 auction-price contracts, with an installed capacity of 1,011 MW. At the end of 2020, the number of operating RES plants selling electricity through RFC RES LLP amounted to 72 units with a total installed capacity of 1,570 MW.

2,543

KWH MILLION OF RENEWABLE ELECTRICITY TRANSACTIONS IN 2020

Since the launch of the RES support mechanism based on the centralised purchase and sale of RES electricity by FSC RES LLP, the purchase of RES electricity has increased from 8 million kWh in 2014 to 2,543 million kWh in 2020. The amount of RES electricity compared to 2019 increased by 88%. The cost of purchasing RES electricity in 2020 was KZT 84,753 million which is almost twice as high as in 2019. The increase is due to the commissioning of new renewable energy facilities, as well as the annual inflation adjustment of fixed and auction prices.

CONSUMER RELATIONS

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To enhance the quality of the services provided, KEGOC developed an internal standard for management of the system services provision and customer complaints. According to this standard, the questionnaires are sent at least once every six months to all consumers of system services. The questionnaires include, inter alia, a request to assess the quality of the Company's personnel work, reliability of the provided business and technical information, promptness of reply to customer requests, quality of system services, and quality of work of the RDC in terms of operational dispatch management. The questionnaires also invite any recommendations on improvement of the quality of services provided by KEGOC. The responses are analysed to enhance the quality of the services.

In 2020, the average annual consumer satisfaction was rated at 4.72 points on the five-point scale, which is a fairly good level. The areas that need improvement are addressed respectively.

There were no fines imposed on the Company for non-compliance with legislation and regulations concerning the provision of services in 2020.

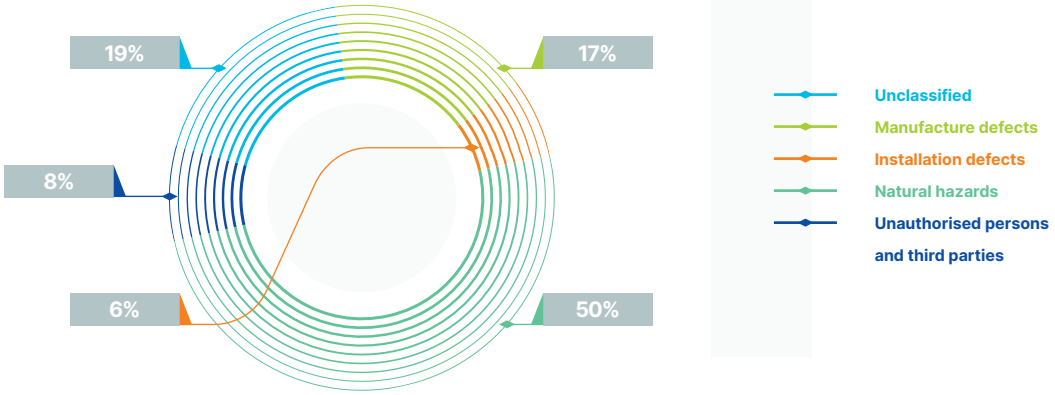
NETWORK RELIABILITY

The power industry in the Republic of Kazakhstan is of great importance, as the key national industries such as metallurgy and oil and gas production are highly energy intensive industries. Accordingly, the competitiveness of the production industries in Kazakhstan and the living standards are highly dependent on the reliability and quality of energy supply to consumers.

In 2020, 248 emergency outages occurred in KEGOC's electricity networks (which is 17% higher than in 2019): in 137 cases the stable network operation was preserved by the successful autoreclosing, and in 111 cases the autoreclosing was unsuccessful.

In 2020, the Company recorded and investigated 48 operational disturbances, including 1 major failure, 2 failures of Class I, and 45 failures of Class II. This indicator grew by 14% compared to 2019.

Breakdown of technical disturbances by class

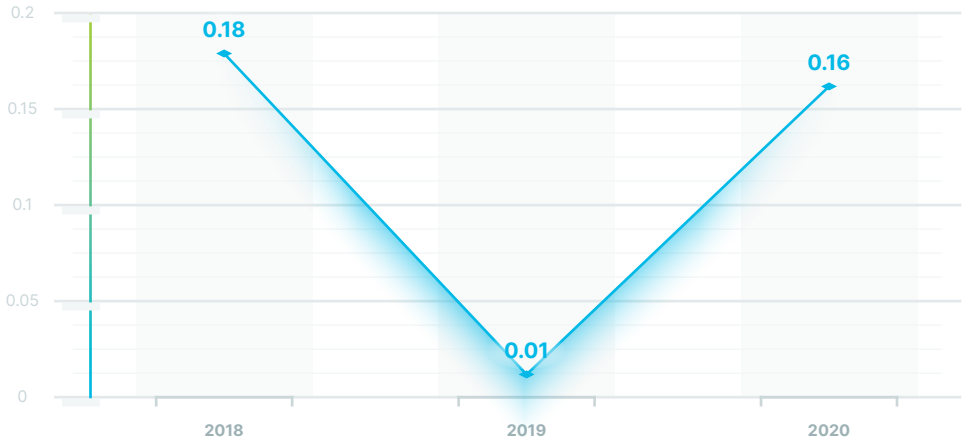


There were 34 technical disturbances on power lines in 2020. Out of the total number of operational disturbances on overhead lines, 15 have damaged the elements of the overhead line.

There were 14 operational disturbances at the substations in 2020. Of the total number of operational disturbances at the substation 6 have damaged the main equipment.

The following sectoral indices are used internationally to evaluate the network reliability performance:

SAIDI – System Average Interruption Duration Index – describes the average one interruption duration per year in minutes.



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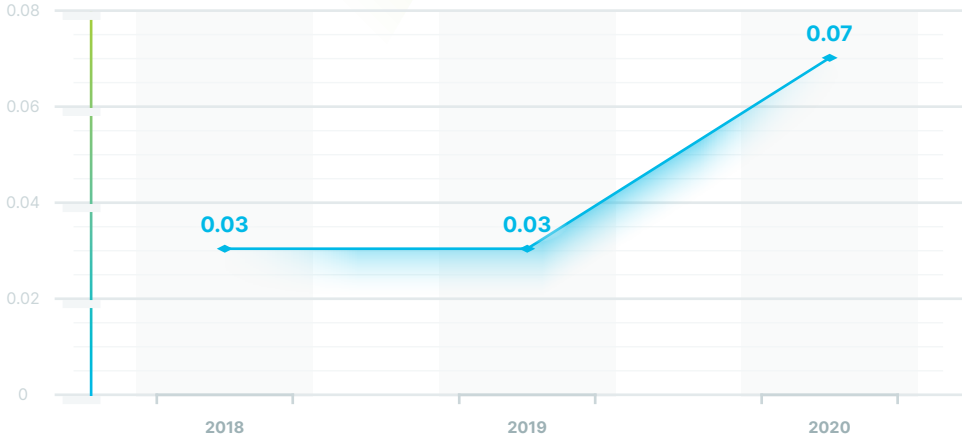
SAIFI – System Average Interruption Frequency Index – is the average interruption frequency.



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In 2020, the number of TPP boiler emergency shutdowns was 1,104 with the total duration of 61,811 hours as compared to 968 shutdowns for 51,223 hours in 2019.

The number the turbine emergency stops in 2020 was 262 with total duration of 27,191 hours as compared to 179 emergency stops and 14,259 hours in 2019.

Power units had 80 emergency shutdowns in 2020 for 4,389 hours as compared to 84 emergency shutdowns for 5,906 hours in 2019.

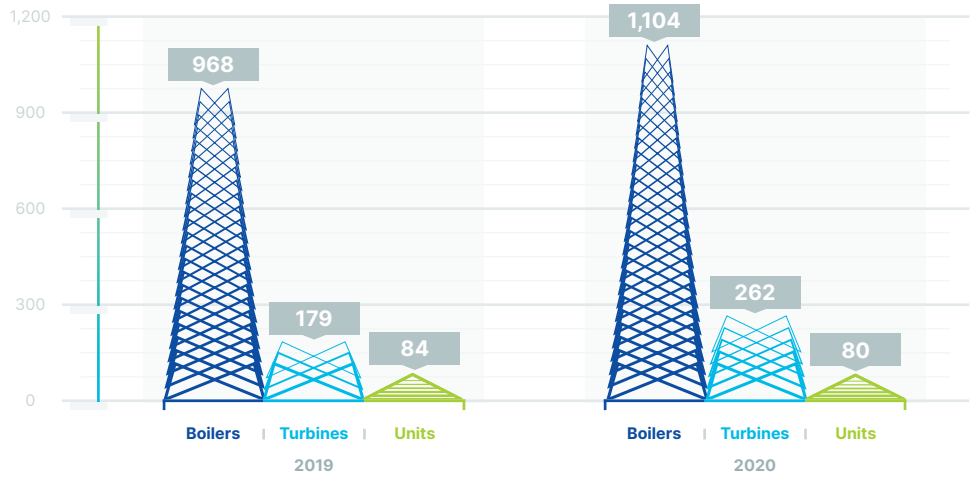
The emergency shutdowns of generating equipment significantly reduce the reliability of the UPS of Kazakhstan and lead to congestions that have to be addressed by the System Operator to prevent emergencies in the UPS of the Republic of Kazakhstan.

The company's development strategy uses SML and WWP indicators to assess the network reliability. SML, the quality indicator, showed 5.21 minutes and the WWP showed 98.63% for 2020.

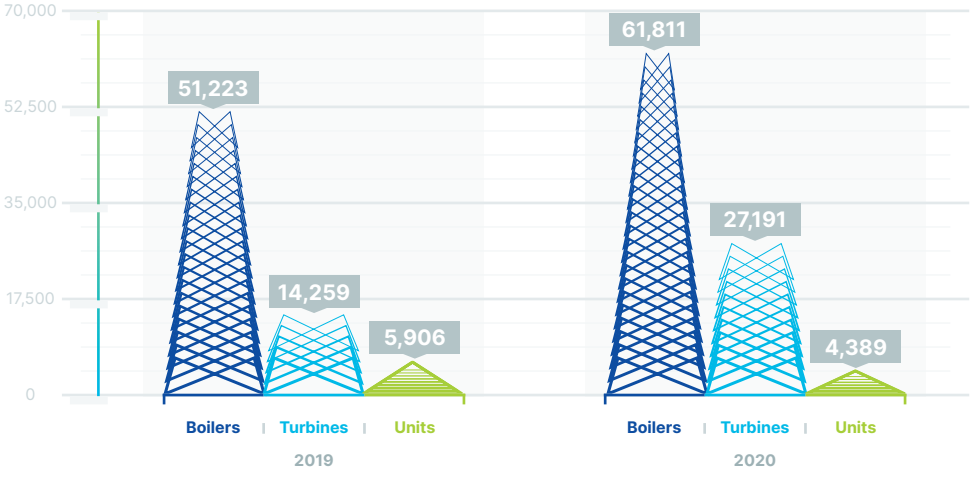
The worse performance is attributed to higher amount of energy not supplied and the emergency load shedding: the total energy not supplied in 2020 was 1368.87 thousand kWh vs 132.10 thousand kWh in 2019. Of the total energy not supplied in 2020 (1,368.87 MWh) 90% (1,226.85 MWh) is due to technical failures caused by:

- natural emergency at Sarbaiskiye MES branch on 7 April 2020 (793.95 MWh or 58% of the total energy not supplied);
- North-South Transit Line shutdowns due to capacity shortages in Zone South of the Republic of Kazakhstan (432.9 MWh or 32% of the total energy not supplied).

Duration of emergency shutdowns in 2020 compared to 2019



Number of emergency shutdowns in 2020 compared to 2019, hours



Thus, less the amount of energy not supplied that occurred due to the above-mentioned reasons (beyond control of the Company), the energy not supplied in 2020 amounted to 142.02 MWh, with SML of 0.54 minutes.

Investment Activity

In order to increase efficiency, reduce technical losses, increase the reliability of the NPG operation and the capacity of the networks, the Company continues to actively implement investment projects.

The year 2020 in Kazakhstan, like the rest of the world, was the year of the COVID-19 pandemic and working under quarantine conditions. However, the Company's employees did their best to achieve the planned amount of capital investment. Despite the quarantine restrictions, the 2020 investment programme targets were met. The plan for 2020 was KZT 35,041.448 million, excluding VAT, and the actual amount of investment was KZT 36,401.030 million, excluding VAT, or 103.9%.

The status of the major and important investment projects is as follows:

Rehabilitation of 220-500 kV overhead lines in Aktyubinskiye MES, Zapadnye MES, and Sarbaiskiye MES branches of KEGOC.

The feasibility study report for the project was approved by the project examination authority in May 2019. In line with the Company's staged implementation approach for major capital projects, the key project parameters have been reviewed and approved by KEGOC's Board of Directors and the Board has decided to proceed with the project. A project implementation plan has been developed and approved for the current project life cycle. In accordance with the approved Procurement Category Strategy, three contracts were awarded for packaged works, including turnkey construction.

In 2020, construction work was completed on 17 out of 24 transmission lines under three turnkey contracts. Since the start of the project, 850 km of 2,029 km of overhead lines have been rehabilitated, of which 625 km were rehabilitated in 2020. For all 24 sites, design and estimate documentation has been developed by the contractor and approved by the project examination authority. The capital expenditures amounted to KZT 14,096.367 million net of VAT, including capitalised loan interest of KZT 337.952 million net of VAT vs the plan of KZT 11,292.369 million net of VAT.

West Kazakhstan Electricity Transmission Reinforcement Project.

The key parameters of the project have been reviewed and approved, and decisions on the development of the design and estimate documentation and subsequent implementation have been taken by KEGOC's Board of Directors. A project implementation plan has been developed and approved for the current project life cycle.

The project was the subject of a feasibility study, the results of which was approved by the project examination authority in January 2019. In 2020, the design and estimate documentation for 11 contracts was under development. The detailed design documentation was developed for all the sites and approved by the project examination authority for 7 sites (5 substations and 2 overhead power lines). The detail design documentation for 4 sites (1 substation and 3 overhead power lines) is currently being reviewed by the project examination authority. Capital expenditure amounted to KZT 750.75 million, excluding VAT vs the plan of KZT 737,317.93 million, excluding VAT.

625

KM OF REHABILITATED TRASMISSION LINES IN 2020

Turkestan External Power Supply Reinforcement Project was switched to the implementation stage in 2020. The key parameters of the project have been approved and the decision to proceed to project implementation stage has been taken by the KEGOC's Management Board. A project implementation plan has been developed and approved for the current project life cycle. A feasibility study report was prepared for the project and approved by the project examination authority in November 2019. In order to implement the project in 2020, a turnkey contract was concluded for the development of design and estimate documentation and the execution of construction and installation work. In 2020, the contractor carried out engineering and geodetic surveys and developed design and estimate documentation for the construction of the 220 kV Ortalyk substation and rehabilitation of 220 kV overhead line. The capital investments amounted to KZT 314.430 million, excluding VAT vs the planned amount of KZT 300 million, excluding VAT.

The status of prospective projects at the end of 2020:

- a pre-feasibility study report, as the first part of a two-phase feasibility study, was being developed by the selected contractor during 2020 **for the North-South HVDC Construction Project.** The results of the pre-feasibility study have been preliminarily approved by the Scientific and Technical Council and the Management Board of KEGOC and forwarded for approval to Samruk-Kazyna. The capital expenditure amounted to KZT 91.800 million, excluding VAT, vs. the plan of KZT 102.000 million, excluding VAT.
- A contractor was selected, and a feasibility study was underway during the reporting period **for the External Power Supply to the Industrial Zone of Ekibastuz project.**

For local and pilot projects, the capital expenditures amounted to KZT 1,102.144 million. Construction of Kazakhtelecom JSC's Data Centre – Pavlodarskaya Substation – PTPP – Communication Node of KazTransCom JSC Communication Line project is in progress; remote access to corporate e-mail and Target Accounting and Tax Accounting Model of the ERP system have been implemented; and delivery of equipment for WAMS NPG Kazakhstan has been completed.

Also, the following non-discounted assets were acquired in 2020 and taken on the balance sheet of KEGOC for the amount of KZT 8,483.686 million, excluding VAT:

- 220/110/10 kV SEZ NIPT substation of 500 MVA;
- Two 220 kV line bays of 220 kV Atyrau substation (L-2145 and L-2135);
- 220 kV overhead line L-2135 220 kV SEZ NIPT SS – 220 kV Atyrau SS (right-hand circuit), 41.1956 km;
- 220 kV overhead line L-2145 220 kV SEZ NIPT SS – 220 kV Atyrau SS (left circuit), 41.3173 km.

The acquisition of the SEZ NIPT facility enabled KEGOC to increase the volume of regulated electricity transmission services.

The capital expenditure to maintain the current level of business was KZT 11,561.853 million, excluding VAT vs planned KZT 13,116.337 million, excluding VAT.

KEGOC will continue to implement the following projects in 2021: "Stage I. Rehabilitation of 220-500 kV OHTLs at Aktyubinskiye MES, Sarbaiskiye MES and Zapadnye MES branches of KEGOC", "West Kazakhstan Electricity Transmission Reinforcement Project", and "Turkestan External Power Supply Reinforcement Project".

Research and Development

EU8

Understanding the importance of R&D for its development, KEGOC has been engaged in research and development activities since its incorporation, and now uses them to achieve the 2028 strategic goals.

R&D activities in the Company are regulated by the "Rules for R&D management", which set uniform requirements for management, planning, registration, monitoring, and acceptance of research and development works implemented at the request of KEGOC. R&D is considered as a process that covers the entire development life cycle: from determining the list of priority areas of scientific and technical study to assessing of the actual benefit for the operations of the company.

Within the framework of cooperation with USAID, ORDENA software was provided to the Company to analyse future power system development plans on a least-cost based technical and economic modelling of the power system.

The Company continues research and development of "Study of the effectiveness of settings of governors of generators of electric power plants of national importance to ensure static and dynamic stability of intersystem electric grids 500-220 kV of UPS of Kazakhstan" conducted as part of "Technological Modernisation and Innovative Development of the Energy Sector of Kazakhstan" Industrial Sector Consortium.

KEGOC jointly with ORGRES Engineering Centre LLC (Russian Federation) completed research of reduction of technical electricity losses in 500 kV transmission lines with OPGW. Based on its results, methods and recommendations were developed on how to reduce losses in the transmission lines of the studied area.

KEGOC's Business Transformation Programme

In 2020, KEGOC's Business Transformation Programme successfully implemented the following key projects and activities, including those related to R&D, to achieve the Company's strategic goals:

CENTRALISED EMERGENCY CONTROL SYSTEM AND AUTOMATIC FREQUENCY AND POWER CONTROL SYSTEM

The project is included in the "Digital Kazakhstan" state programme and has a synergetic effect as it is implemented jointly with domestic power plants. The systems are the elements and basis for building Kazakhstan's future smart digital energy system.

The Centralised Emergency Control System (CECS) ensures the automatic stability of the power system in the event of a disturbance. The Automatic Frequency and Power Control (AFRC) system, provides automatic maintenance of the generation-consumption balance of electricity in the power system.

Objectives: enhance the efficiency of operational control of the country's interconnected power system and increase the reliability of the NPG.

Implementation period: 2017-2021

Current status: CECS has been completed and is operational. AFRC has been completed and commissioning work is in progress.

IMPLEMENTATION OF A MONITORING AND CONTROL SYSTEM BASED ON WAMS/WACS SYNCHROPHASOR TECHNOLOGY

The project was included in the Digital Kazakhstan government development programme.

The monitoring and control system based on WAMS / WACS synchrophasor technologies allows maximum use of the network transmission capacity through real-time control.

Objectives: Real-time monitoring of the power system and control of transmission capacity by developing appropriate algorithms and creating a new adaptive control system for the power grid based on current system parameters with time synchronisation.

Implementation period: 2018–2021 г.

Current status: WAMS is in commercial operation. WACS system delivery was procured.

CYBERSECURITY ASSURANCE PROJECT

In order to prevent information security incidents causing financial and reputational losses with respect to the Company's information assets, the first phase (Conceptual Design) of the Cybersecurity Assurance Project was successfully completed in 2020 in line with the Business Transformation Programme. As part of the project plans for 2020, the Company built its part of the Cyber Shield of Samruk-Kazyna Group of Companies by creating and connecting the Company's information systems to the unified Operational Centre of Information Security of Samruk-Kazyna JSC. The project will improve industrial cybersecurity and introduce cybersecurity solutions for operation process systems.

As part of the second phase (Implementation), testing of the perimeter protection of the operation process control systems (Implementation of firewalls at branches) was completed.

In accordance with the Information Security Development Programme for 2018-2022, KEGOC put into commercial operation the data leakage prevention system (DLP) and the privileged access management (PAM) system. The Company also continued its effort on the implementation of a centralised authentication system for industrial devices (NAC). TUV NORD conducted an external audit of the information security management system for compliance with the ISO 27001 as part of the re-certification audit of the IMS on 24 to 26 June 2020. A certificate of compliance was obtained as a result of the audit.

IT COST REDUCTION PROJECT

In 2020, the transition to a print-as-service (a set of services for the provision of equipment, its technical support and maintenance, as a single service, billed per printed sheet) in the Company's branches was completed. The original phased implementation plan envisaged only three branches to switch to the service model in 2020, however later the new plan included seven branches for the same period.
The Company gets rid of a large number of "miscellaneous" printing devices and hires a third-party organisation that lends high-performance printing machines while maintaining and monitoring them themselves. The implementation of this approach has resulted in savings of KZT 80.57 million for 2020 and total benefits of KZT 183.94 million for 2018-2020.

80.57

KZT MILLION OF SAVINGS IN IT COSTS

Also, as part of the Business Transformation Programme Roadmap, KEGOC proceeded with the following projects: "Building effective human resources capacity", "Development of data architecture", "Research work on the use of data analysis in operation processes", "Automation of HSE processes", "Improvement of project and portfolio management".

In order to promptly switch the employees to remote work due to the COVID-19 pandemic in early 2020 the Company implemented Mobile Iron (MI) software system that enables secure and controlled remote access to the Company's infrastructure. In addition to the new system, the Company deployed additional remote access via Cisco VPN. In cooperation with Microsoft the Company deployed the Teams enterprise communications platform, which has enabled communication and presence during remote work.

Tariff Policy

The operations of KEGOC are regulated by the law of Kazakhstan "On Natural Monopolies", which describes the services provided by KEGOC as the natural monopoly services, including:

- electricity transmission in the NPG;
- technical dispatching of the electricity supply and consumption in the grid;
- electricity generation and consumption balancing.

Once established, KEGOC has been consistently improving the tariff policy of regulated services and playing an active role in activities of relevant organisations to improve the tariff policy.

In accordance with the legislation of Kazakhstan, to approve (revise) its regulated natural monopoly service tariffs, KEGOC shall submit applications to the Committee for the Regulation of Natural Monopolies.

The Company's tariffs are set on a costs-plus basis, whereby the Company, in order to set a tariff for a certain period of time, considers the corresponding estimates of operating and financial costs and a fair rate of return on capital.

In 2013, KEGOC switched to the regulated cap tariffs mechanism. The principles of the cap tariff estimation are similar to the estimation of the annual tariffs except that the cap tariffs shall be approved for a period of several consecutive years. The cap tariffs enable the Company to plan its capacity for long periods, and shareholders have the opportunity to get more information about the Company.

In accordance with the existing procedures KEGOC applied to the Committee on Regulation of Natural Monopolies (CRNM) for approval of the long-term cap tariffs and

tariff estimates for regulated services. The Committee approved the cap tariffs and tariff estimates for KEGOC's regulated services for a five-year period from 01 January 2016 to 31 December 2020.

KZT/kWh	2016	2017	2018*	2019**	2020
Electricity transmission	2.080	2.246	2.496	2.496	**2.797**
Technical dispatching of the electricity supply and consumption in the grid	0.231	0.234	0.237	0.237	**0.306**
Electricity generation and consumption balancing	0.084	0.086	0.088	0.088	**0.098**

* Effective from 1 August to 31 December 2018, KEGOC upon approval of the Committee, reduced the cap tariffs: by 5% from 0.2482 to 0.237 KZT / kWh for technical dispatching, and by 3.4% from 0.091 to 0.088 KZT / kWh for balancing of electricity generation and consumption.

** Given the decision to reduce the cost of electricity the Ministry of Energy of Kazakhstan, as well as the growth trend of the regulated services rendered by the Company, KEGOC, upon approval of the Committee, decided to reduce its cap tariffs to 2018 level starting 1 January 2019.

In 2020 the cap tariffs for regulated services of KEGOC expired, and, in accordance with the requirements of the natural monopoly legislative acts, in July 2020 the Company submitted to the CRNM an application for approval of the cap tariffs and tariff estimates for the next five-year period (2021-2025). The consideration is in progress.

The Company annually arranges the reporting events to present the company performance in delivering services (goods, works). The events are intended to protect consumers' rights, ensure transparency of activities for consumers, and other stakeholders. The main principles of conducting the annual reporting hearings are to ensure publicity and transparency of the Company's activities and preserve the balance of consumer interests.

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Procurement Practices

In 2020, the procurement activities in KEGOC were carried out in accordance with the Procurement Management Standard of Samruk-Kazyna JSC and organizations, fifty and more percent of voting shares (participatory interest) of which are directly or indirectly owned by Samruk-Kazyna on the right of ownership or trust management, and the Procedure for Procurement by Samruk-Kazyna and organizations, fifty and more percent of voting shares (participatory interest) of which are directly or indirectly owned by Samruk-Kazyna JSC on the right of ownership or trust management.

A supplier is selected as follows:

1. through tender:
   - open;
   - closed;
   - two-stage (open, closed);
   - through competitive negotiations;
2. request for quotation;
3. via the e-shop;
4. from a single source;
5. through commodity exchanges;
6. in centralised electricity trading;
7. as a part of intra-holding cooperation.

In 2020, the pre-qualification model for potential suppliers, i.e., the process of assessing potential suppliers against qualification criteria, continued to operate, enhancing the quality of procurement, determining the level of criticality of goods, works and services as determined by their value and purpose in the customers' activities.

The main principles of preliminary qualification of potential suppliers are:

- provide equal opportunities for potential suppliers to participate in the preliminary qualification procedure;
- enhance procurement efficiency;
- encourage the potential suppliers to develop and improve quality, technical and operational characteristics, and reduce costs;
- enhance responsibility of the supplier for the submitted documents and information during the preliminary qualification.

During the preliminary qualification the company assesses the level of compliance of the potential supplier with the following qualification criteria, including social ones:

1. legal component and organization of contractual work of a potential supplier;
2. resources of the potential supplier;
3. ensuring the quality of goods, works, services;
4. environmental protection, occupational health and safety.

Potential suppliers were not entitled to participate in procurements carried out by the Company if:

1. a potential supplier or its subcontractor (co-contractor) or a legal entity in the consortium is on the List of Unreliable Potential Suppliers (Vendors) of the Holding, and (or) on the List of Unscrupulous Participants of Public procurement and (or) on the List of False

Enterprises, and(or) in the Register of Unfair Procurement Participants that is maintained in accordance with legislation of the Republic of Kazakhstan on state property, and (or) in the List of Bankrupts recognised as such by the court law;

2. the potential supplier and (or) subcontractor (co-contractor) engaged by it, and (or) their manager, and (or) founders (shareholders) are included in the list of organisations and persons associated with the financing of terrorism and extremism, in the manner prescribed by the legislation of the Republic of Kazakhstan;
3. the potential supplier is a legal entity whose place of incorporation is a state or territory included in the list of tax havens (offshore zones) approved by the competent authority responsible for ensuring tax revenues and payments to the budget.

In procurement process KEGOC has taken the measures stipulated in the Standard to support the producers of the goods to be procured.

In 2020, the local content was 52% in the procurement of goods and 72% in the procurement of works and services.

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KEGOC procurement in 2020, including subsidiaries

Type of procurement	Amount, KZT million (excluding VAT)
Goods	60,699.66
Works	26,776.97
Services	11,088.97
Total	**98,566.60**

Analysis of Financial and Economic Indicators

PLAN/ACTUAL ANALYSIS

KZT million	2020 / plan	2020 / actual	Deviation	Main reasons for deviations
Consolidated income	**348,730.6**	**375,574.5**	**+7.7%**	
operating income	341,566.3	350,659.5	+2.7%	The increase is mainly due to an increase in: income from electricity transmission, due to the compensating tariff effectiveness dates changed by the authorised body; income from sale of purchased electricity produced by renewable energy sources due to an increase in its actual amount; income from provision of services for electricity capacity availability to bear the load due to an increase in its actual amount.
Consolidated expenditures	**313,751.1**	**309,826.2**	**-1.3%**	
cost of sales	280,571.1	267,056.9	-4.8%	The decrease was mainly: in expenses for compensation of technical electricity losses due to a decrease in their amount and price of electricity purchase; expenses for the purchase of electricity from the energy system of the Russian Federation to compensate the imbalances; expenses for the purchase of services of maintaining availability of electric capacity (expenses of FSC RES LLP); as a result of the absence of unscheduled flows of electricity to Central Asia; expenses for the purchase of electricity to compensate for non-contractual consumption; expenses of capacity regulation provided by third parties due to the lack of contracts for capacity regulation; and other current costs.
general and administrative expenses	10,180.6	8,309.7	-8.6%	The decrease was mainly in information systems support costs, consulting and professional services and other administrative costs.
sales expense	381.9	364.1	-4.7	The decrease is mainly the result of cost optimisation.
Operating profit	**50,432.6**	**74,909.6**	**+48.3**	

ACTUAL INCOME AND EXPENDITURE FOR 2020 VS ACTUAL FOR 2019

KZT million	2020 / plan	2020 / actual	Deviation	Main reasons
Consolidated income	**275,338.4**	**375,574.5**	**+36.4%**	
Operating income	263,162.1	350,659.5	+33.2	Revenue increased mainly due to growth in revenue from sales of purchased electricity generated by renewable energy sources, revenue from regulated services, and revenue from services associated with maintaining readiness of the electric capacity to bear the load (income of FSC RES LLP). At the same time, revenues from the sale of electricity to compensate for the unscheduled hourly deviations of the actual inter-state power balance have decreased.
Consolidated expenditures	**225,067.5**	**309,826.2**	**+37.7**	
cost of sales	200,256.7	267,056.9	+33.4	The increase is due to an increase in costs for the purchase of electricity produced by renewable energy sources, for the purchase of services of maintaining availability of electric capacity (expenses of FSC RES LLP). At the same time, the costs of technical losses have decreased
general and administrative expenses	8,834.2	8,309.7	-5.9	Due to lower expenditure on taxes and other compulsory payments as well as other expenses. At the same time, wage costs have increased due to the indexation of salaries
sales expense	382.3	364.1	-4.8	Decrease mainly as a result of cost optimisation
Operating profit	**53,717.3**	**74,909.6**	**+39.5**	

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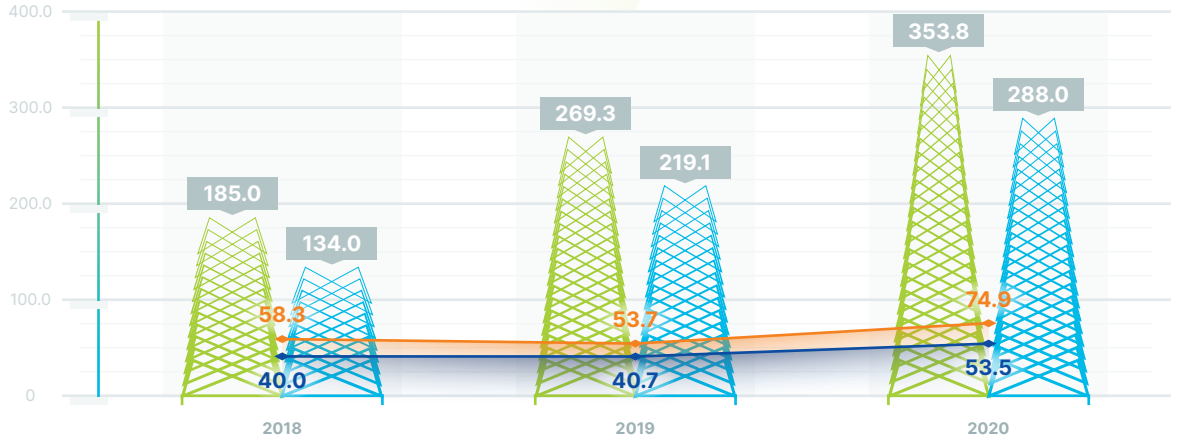
The above factors influenced the operating profit and financial result for 2020.

Financial and economic performance, KZT billion



RATIO ANALYSIS

Key Indicators

Indicator	2018 / actual	2019 / actual	2020 / actual
Strategic KPI, Level 1			
ROACE,%	7.16	7.47	9.48
EBITDA, KZT million	81,222	88,513	108,437
Loan agreement covenants			
Current liquidity ratio (not less than 1)	1.25	2.19	1.69
Covenants set by Samruk-Kazyna			
Debt/EBITDA (not more than 3.50)	2.00	1.70	1.49
Debt/Capital (not more than 1.00)	0.34	0.31	0.32

During 2020, the established financial stability indicators and covenants were not violated.

DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED

The economic component of KEGOC's operations is strategically important both for the Company and for the economy of the state. It is aimed at increasing the long-term value for shareholders and investors of KEGOC.

Procedures for formation and approval of the Business Plan and Budgets (including the capital investment plan for implementation of investment projects for construction, rehabilitation and modernization of the Company's facilities) are regulated by the Rules for development, coordination, approval, amendment, execution and monitoring of execution of the Business Plan (Development Plan) and Budgets of KEGOC. The Business Plan is developed on a consolidated basis, i.e., including the plans of the subsidiaries, for a 5-year period on a rolling basis. An annual budget shall be approved for the Business Plan implementation. The Business Plan shall be monitored by KEGOC's Board of Directors on a quarterly basis.

Economic value distribution

KZT million	2018	2019	2020
Total capitalization	**634,752.89**	**632,163.54**	**663,590.50**
equity capital	472,693.80	481,838.02	502,556.47
borrowed funds	162,059.09	150,325.52	161,034.03
Funds from the government	0	0	0
Economic value generated	**185,017.94**	**269,329.57**	**359,075.67**
operating income	175,797.39	263,162.07	350,659.55
financial revenue	4,951.34	4,171.53	7,146.01
other income	4,269.22	1,995.96	1,270.11
Distributed economic value:	**176,346.50**	**260,222.43**	**338,357.22**
payroll expenses	21,048.03	22,699.12	23,977.19
expenditure on taxes and levies to the state budget	18,553.89	19,110.84	21,591.03
payments to providers of capital	35,233.94	40,842.53	43,952.81
charitable and sponsorship assistance	0	0	0
other operating expenses	92,442.60	177,185.20	242,445.47
other non-operating costs	9,068.04	384.74	6,390.73
Economic value for distribution	**8,671.44**	**9,107.14**	**20,718.45**

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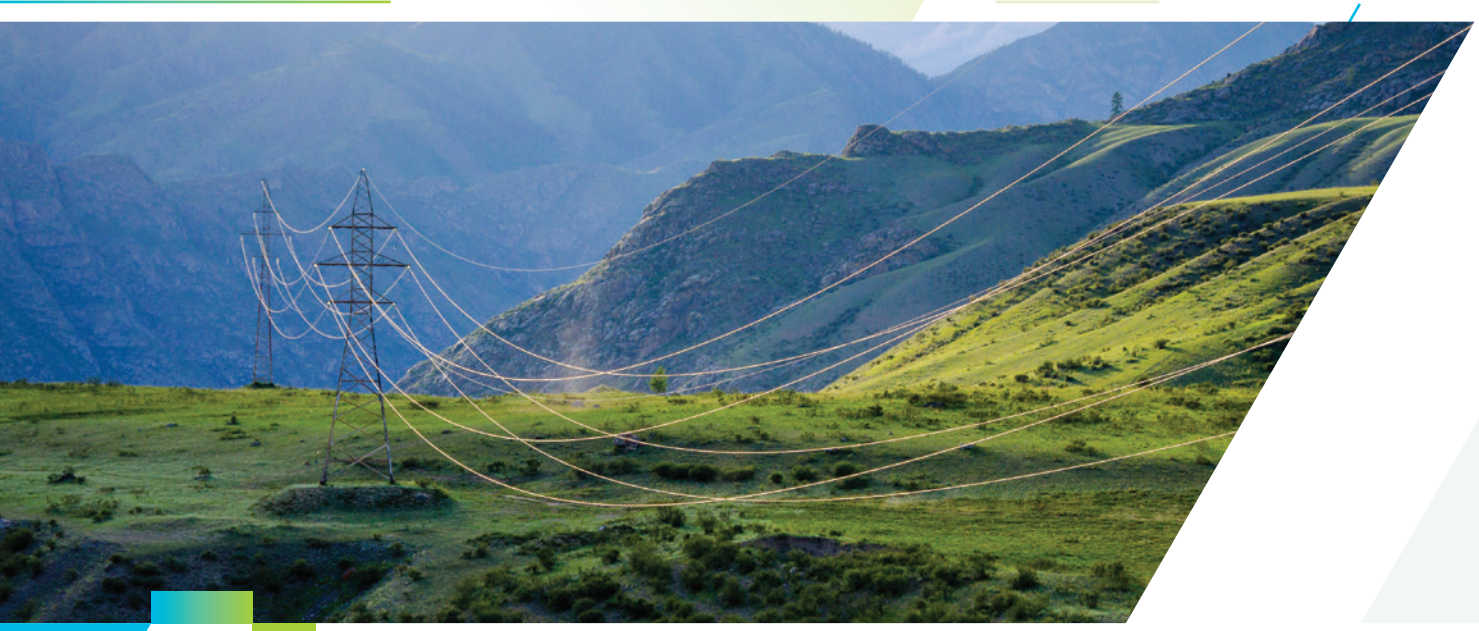

The stable financial performance of the Company shall enable it to fulfil its obligations to the main stakeholders with regard to the following in a timely manner:

- payment of salary and provision of social support;
- payment of dividends to shareholders;
- fulfilment of investment projects and improvement of the quality and reliability of the NPG operation;
- timely payments to suppliers;
- tax payments.

BALANCE ANALYSIS

Indicator, KZT million	2018	2019	2020	2020/2019, %
Non-current assets	698,081.7	659,175.9	695,192.5	5.5
Current assets	57,769.0	97,111.0	116,820.1	20.3
Total assets	**755,850.7**	**756,987.7**	**812,012.6**	**7.3**
Equity	472,693.8	481,838.0	502,556.5	4.3
Non-current liabilities	236,958.6	230,808.2	239,766.9	3.9
Current liabilities	46,198.3	44,341.5	69,689.2	57.2
Total equity and liabilities	**755,850.7**	**756,987.7**	**812,012.6**	**7.3**

Assets of the Company as on 31 December 2020 amounted to KZT 812.01 billion and grew by 7.3% as compared to 2019. Non-current assets account for 86% of the balance sheet structure, most of which are represented by property, plant and equipment. At the end of the year, long-term assets increased by 5.5% (or by KZT 36.0 billion) and amounted to KZT 695.2 billion. The increase in long-term assets is mainly due to the acquisition of long-term financial instruments.

The short-term assets account for 14% of the balance sheet. In 2020, they increased by 20.3%, (or KZT 19.0 billion) to KZT 116.8 billion at the end of the year. The increase is due to an increase in trade receivables and short-term financial instruments.

The capital at the end of 2020 was KZT 502.6 billion, an increase of 4.3%, or KZT 20.7 billion as compared to 2019. The growth is associated with an increase in retained profit. The capital share in the balance sheet structure was 62%.

Liabilities stood at KZT 309.46 billion for the year and increased by 12.5%, or KZT 34.3 billion as compared to 2019. 77% of liabilities are long-term, and 23% are the short-term ones. The long-term liabilities include 21% of loans, 39% of bonds and 37% of deferred tax liabilities. Short-term liabilities represent 59% of trade and other payables.

Risk Management and Internal Control

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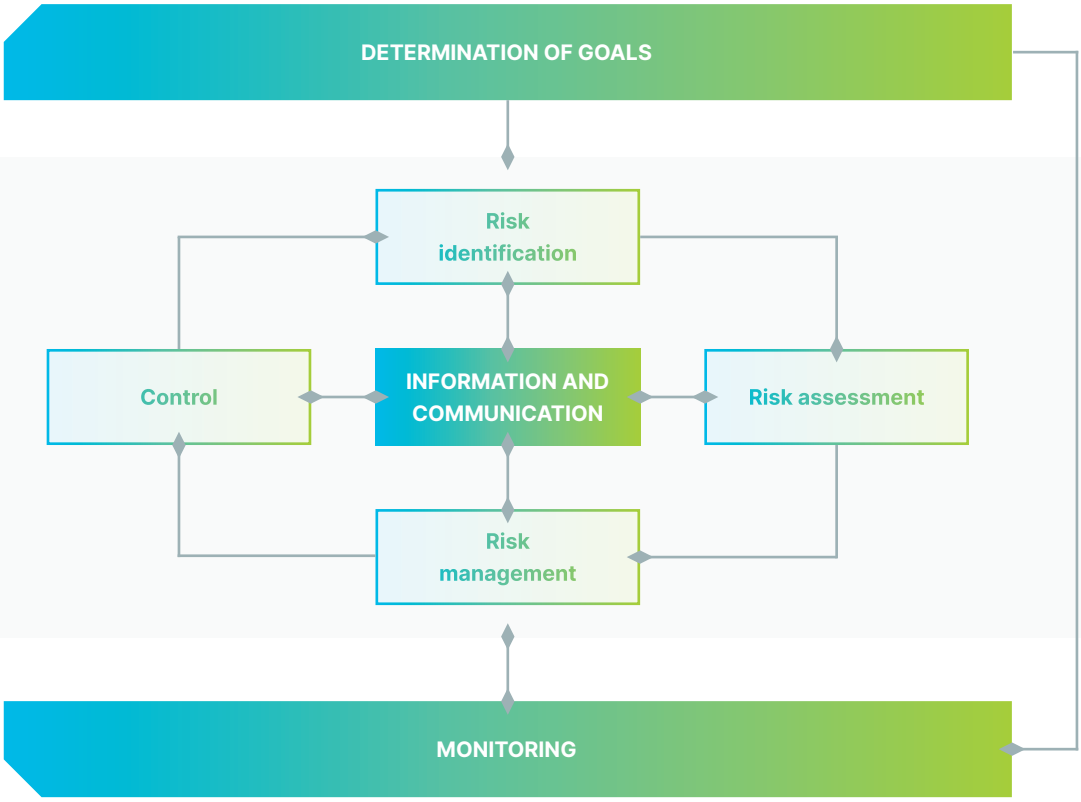
In 2007 KEGOC successfully implemented and since then has been operating the risk management system compliant with generally accepted conceptual models of risk management developed by the Committee of Sponsoring Organizations of the Treadway Commission – COSO ERM Enterprise Risk Management – Integrated Framework and requirements of Samruk-Kazyna.

The corporate risk management system is a key component of the corporate governance system aimed at timely identification of risks, their assessment and development of risk management measures to address the adverse impact they may have on the achievement of KEGOC's strategic and operational objectives.

Risk management process



The objective of the current corporate risk management system (CRMS) is to ensure continuity and stability of operations by mitigating the exposure to internal and external adverse impact on KEGOC's activity.

The main principles of the risk management system are:

- engagement of KEGOC's executives in risk management;
- continuous enhancement of the risk management system;
- continuous learning and knowledge sharing by the Company employees in risk management sphere;
- transparency and integrity in submitting reports and risk escalation.

The risk management involves the Board of Directors, the Management Board, the internal audit services, structural units that own the risks and the structural unit responsible for the risk management.

The Board of Directors is responsible for the effective functioning and development of the RMS, sets the tone for risk management, and is also responsible for implementing mechanisms to ensure that the tone is reflected throughout the Company and the subsidiaries.

The Risk Committee also operates to make decisions on KEGOC's risk management and to make recommendations to KEGOC's Management Board on the Company's risk management. In 2020 the Committee held nine meetings.

KEGOC conducts its business operations taking into account a wide range of business-related risks categorised as: strategic risks, financial risks, operational risks, legal and compliance risks. Following the risks identification and assessment, 51 risks were included into the Company's Risk Register for 2021. Risk management measures were developed, and risk owners were identified for each risk. The dynamics of key risks and implementation of measures for their mitigation is monitored on a regular basis by quarterly reporting risks to the Management Board and the Board of Directors of the Company.

The most important and relevant risks of KEGOC for the reporting year:

Key risk	Risk management
The risk of work-related accidents	The Company's operations expose its staff to the risk of accidents at work as a result of violations of safety and traffic regulations. In order to prevent this risk KEGOC provides training for the executive employees and persons responsible for ensuring safety and labour health; provides safe driving training in extreme conditions for vehicle drivers; develops and distributes safety training videos and slide presentations to the MES branches in order to educate staff on safe working methods; practices video recording of the operational switching and repair work in order to identify violation of safety and health regulations and develop measures to prevent them in future; engages the specialized certification organization to conduct inspections of technical condition, organisation of electric network operations, health and fire safety procedures to identify any violations, certify safe operation conditions at operating facilities in the branches; conducts studies and analysis of best practices of foreign and domestic companies in the field of industrial safety and health.
Currency risk	Fluctuations in the exchange rate of USD and other currencies to KZT may adversely affect the Company's business, financial condition, and results of operations. The Company's revenues are in KZT and a major part of its loan proceeds and interest expenses are in USD and EUR. That is why the growth of the market exchange rates of USD and(or) EUR to KZT can decrease the Company's revenue as compared to its expenses and affect its performance. In order to manage the currency risk KEGOC holds its funds on deposits in foreign currency.
Bank-counterparty credit risk	This risk can occur due to defaults of counterparty banks, lack of or poor credit risk assessment of the counterparty bank. To manage this risk, KEGOC monitors the financial condition of counterparty banks on a monthly basis (credit ratings, financial ratios, sharply negative information) and reallocates funds to the most reliable counterparty banks or other financial instruments.
Risk of exposure to the COVID-19 pandemic	The Company employees are at risk of contracting a coronavirus infection. In order to mitigate this risk, KEGOC has established a coronavirus infection prevention and monitoring committee, 80% of the staff has been switched to remote work, KEGOC employees are provided with sanitizers and medical masks, daily body temperature measurements of employees are conducted, working meetings/training are conducted online, daily monitoring of compliance with sanitary standards in catering facilities is conducted, an action plan for the prevention of coronavirus infection has been developed.

Key risk	Risk management
Non-payment by counterparties of FSC RES LLP	This risk may occur due to untimely payment by convention-based consumers for RES electricity sold. In order to manage this risk, written reminders are sent on a regular basis, claims are pursued for late payments under contracts, and negotiations are underway for possible setoffs.
Risk of non-payment by consumers for rendered services associated with maintaining readiness of the electric capacity to bear the load to the Single Purchaser on the capacity market	This risk may occur due to untimely payment by convention-based consumers for services associated with maintaining readiness of the electric capacity to bear the load. In order to manage this risk, written reminders are sent on a regular basis, claims are pursued for late payments under contracts, and negotiations are underway for possible setoffs.
Threat of an information security management system breach	The following factors may lead to the realisation of this risk: • misidentification of information security requirements; • non-compliance by employees with the information security requirements of the internal regulatory documents; • non-timely conclusion of contracts for the renewal or purchase of anti-virus software licences; • unauthorised access to server rooms: • unauthorised installation of malware; • untargeted cyber-attacks; • lack of information security knowledge among the Company's employees; • unprotected remote work via a VPN channel. In order to mitigate this risk, the Company takes the following measures: • timely conclusion of technical support contracts, renewal of IS system licences; • control of provision of accounts for remote VPN connections, and monitoring of IS information systems; • control of maintenance of the Company's cyber-attack protection systems; • control of compliance with KEGOC's internal regulatory documents; • conclusion of non-disclosure agreements with the Company's counterparties; • implementation of the Corrective and Preventive Action Plan based on the results of the ISMS certification audit; • provision of briefings to employees on KEGOC's information security; • blocking of malware through anti-virus software; • carrying out of activities to update the Company's security systems; • conducting of training and thematic sessions on IS; • administrative action against employees who repeatedly violate information security requirements.

Key risk	Risk management
Non-payment by counterparties for system services provided	This risk may occur due to untimely payment for system services by consumers. The following activities are carried out at KEGOC in order to manage the risk: • written reminders about the need to repay debts; • on-site meetings, video conferences with defaulters on debt repayment, negotiation of payment schedules and agreements on debt repayment; • notification of state and local executive bodies (Akimats, Committees, ES) about termination or temporal suspension of services rendering to the debtor and taking the appropriate measures; • application of technical restrictions in stages: rejection of consumers bids to form the daily schedule, cancellation of the allowed range of deviations from the declared daily schedule, partial or complete termination of system services (isolated operation).
Reduction by CRNM of approved cap tariffs, including the introduction of a compensating tariff	This risk may occur due to the non-compliance with the tariff estimates for regulated services or the investment programme that were used as a basis for approval of the tariffs or their caps. For risk management purposes, KEGOC monitors the compliance with tariff estimates and investment programme, analyses the progress of tariff estimates and investment programme (projects) that were used as a basis for approval of tariffs or their caps, prepares and submits to the CRNM proposals on adjustments to tariff estimates for regulated services and investment programme (if necessary) taking into account information from its structural business units.
Risk of decrease in the volume of rendered system services from those planned in the business plan	This risk may occur due to a general decline in electricity production and consumption in the Republic of Kazakhstan, a decrease in electricity consumption, an economic crisis, changes in the legal framework, or force majeure circumstances (natural disasters, etc.) For risk management purposes, KEGOC forecasts the volume of system services for the forthcoming periods, taking into account the current economic situation in the country, development of regional generation and plans of consumers of system services for increase/decrease, consumption growth/decrease in electricity generation-consumption based on the approved forecast balance of electricity and capacity.

The company's internal audit service annually assesses the CRMS performance.

The Internal Control System (ICS) of KEGOC allows the Company to build the management system capable to promptly response to risks, control the main and supporting business processes and daily operations, as well as immediately inform the executives of the appropriate level of any material deficiencies and areas to improve.

In accordance with KEGOC's Internal Control Management Regulations, the competence of the bodies within the ICS is delineated according to their role in the processes of development, approval, application and evaluation of the effectiveness of the ICS.

The Board of Directors and Management Board of the Company, in carrying out their functions, rely on the Three Lines of Defence model set out in Samruk-Kazyna's Risk Management and Internal Control Policy in accordance with the Company's Assurance Map. The members of the ICS are the Board of Directors, the Management Board, the Audit Committee, the Internal Audit Service, the structural business units (business process owners), the executors of control procedures, and the structural business unit responsible for risk management.