

Environmental benchmarking

Environmental benchmarking is a tool for assessing and managing the environmental efficiency of Samruk-Energy JSC by comparing its own indicators with the results of leading companies in the industry. This approach promotes the introduction of the best international practices in the field of environmental management and sustainable development. The current analysis uses publicly available data for 2021–2023. After the publication of environmental indicators for 2024, the benchmarking will be updated and its results will be posted on the Company's official website.

The following indicators are defined for benchmarking:

- utilisation of fresh water for technological and domestic needs;
 - direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions.
- To determine the environmental trend, the largest companies in the energy industry in Kazakhstan and the world were analysed, namely:
- Enel;
 - ERG;
 - RusHydro PJSC.

Production figures

Company	2021		2022		2023	
	Electricity generation, billion kWh	Installed capacity, GW	Electricity generation, billion kWh	Installed capacity, GW	Electricity generation, billion kWh	Installed capacity, GW
Samruk-Energy JSC	35.61	6.215	35.88	6.275	35.33	6.275
ERG	19.91	3.387	19.23	3.387	19.16	3.387
Enel	222.6	87.1	227.8	8.6	207.33	81.4
RusHydro PJSC	143.8	38.2	135.7	38.4	140.9	38.5

Greenhouse gas emissions (Scope 1,2)^{48,49}

Company	2021		2022		2023	
	Direct GHG emissions, million tonnes CO ₂ eq (Scope 1)	Indirect GHG emissions, million tonnes CO ₂ eq (Scope 2)	Direct GHG emissions, million tonnes CO ₂ eq (Scope 1)	Indirect GHG emissions, million tonnes CO ₂ eq (Scope 2)	Direct GHG emissions, million tonnes CO ₂ eq (Scope 1)	Indirect GHG emissions, million tonnes CO ₂ eq (Scope 2)
Samruk-Energy JSC	40.3	0.015	32.99	0.013	33.010	0.011
ERG ⁵⁰	30.2	0.13	29.7	0.1	29.3	0.1
Enel	51.6	9.9	53.1	8.92	34.5	7.79
RusHydro PJSC	30.58	-	30.88	-	32.05	-

⁴⁸ RusHydro PJSC does not disclose Scope 2.

⁴⁹ Enel and RusHydro PJSC are engaged in energy production based on the operation of hydroelectric power plants that minimise greenhouse gas emissions.

⁵⁰ ERG has mining and processing facilities in addition to energy production facilities, Scope 1 includes all types of production facilities.



Fresh water withdrawal, million m³

Company	2021	2022	2023
Samruk-Energy JSC	211.247	230.694	222.398
ERG	2,069	1,989	1,947
Enel	73.1	76.0	55.0
RusHydro PJSC	672.96	686.76	708.6

Specific indicators

Company	2021		2022		2023	
	m ³ /thousand kWh	tonnes CO ₂ eq/thousand kWh	m ³ /thousand kWh	tonnes CO ₂ eq/thousand kWh	m ³ /thousand kWh	tonnes CO ₂ eq/thousand kWh
Samruk-Energy JSC	5,93	1,13	6,43	0,92	6,29	0,93
ERG	103,92	1,52	103,43	1,55	101,62	1,53
Enel	0,33	0,28	0,33	0,27	0,27	0,20
RusHydro PJSC	4,68	0,21	5,06	0,23	5,03	0,23

The companies differ in terms of installed capacity and the volume of electricity generated, so the comparative analysis of specific indicators of greenhouse gas emissions and fresh water intake is tentative.

According to the obtained results, Samruk-Energy JSC has the following tendency:

- specific GHG emissions in 2023 remained at the level of 2022 without significant changes, similarly to ERG and RusHydro PJSC. At the same time, Enel demonstrates an annual decrease of the indicator: by 3.6% in 2022 and by 25.9% in 2023;
- the average specific water withdrawal for 2021–2023 was 6.22 m³/thousand kWh, which:

- 20 times higher compared to Enel (0.31 m³/thousand kWh);
- is 26.4% higher than that of RusHydro PJSC (4.92 m³/thousand kWh);

- 16.6 times lower than ERG (103 m³/thousand kWh).

Based on the results of the analysis, Samruk-Energy JSC confirms its commitment to the sustainable development course. We will continue systematic work on carbon footprint reduction, introduction of modern technologies and solutions aimed at reducing greenhouse gas emissions. Modernisation of main and auxiliary equipment remains an important priority, which will improve resource efficiency and reduce water intake for technological needs of our subsidiaries.