

List of hydropower stations in the Republic of Kazakhstan

Name	Capacity, MWt	Yearly output mIn KWt hour	Specifications	Operates since
Operating				
Bukhtarminskaya HPS	675	2 600	<p>HPS is built as a dam and consists of the following structures:</p> <ul style="list-style-type: none"> • right-bank concrete dam; maximal height 80 m; • in-channel concrete dam of 87 m maximum height with one surface spillway span of 18 m length; • HPS's appurtenance of 212 m length; • four-chamber single-lane navigation lock. <p>HPS covers peak-loads in the electricity system of Kazakhstan. HPS has 9 hydroelectric generators with radial-axial turbines with generating capacity 75 MWt each, which operate under 61 m pressure. One hydroelectric generator is equipped with spiral case and double water input. Bukhtarminskoe reservoir has dam of 430 m length and includes Zaisan lake.</p>	1966
Shulbinskaya HPS	702	1 660	<p>HPS is built as a dam and consists of the following structures:</p> <ul style="list-style-type: none"> • right-bank earthen (sandy gravel) dam with screen; • left-bank dam with length - 440 m; • HPS's building with bottom outlet; • one-chamber single-lane navigation lock with supply canal; • electricity distribution plant 220 kV. <p>HPS has 6 hydroelectric generators with adjustable-blade turbines with generating capacity 117 MWt each, which operate under 40 m pressure (diameter of rotor is equal 8.5 m). The pressure structures of HPS form a large Shulbinskoe reservoir with seasonal flow regulation. HPS covers peak-loads in the electricity system of Kazakhstan.</p>	1994
Kapchgayaskaya HPS	364	972	<p>HPS is built as a dam and consists of the following structures:</p> <ul style="list-style-type: none"> • in-channel aeolian sand dam; dam's crest length - 470 m, dam height - 50 m, width of the base - 450 m; • Ravine dam; crest length - 370 m, height - 56 m; 	1971

Name	Capacity, MWt	Yearly output mln KWt hour	Specifications	Operates since
			<p>width of the bottom 270 m; gravelly and sandy loam soils;</p> <ul style="list-style-type: none"> • Building of HPS has mounting area and consists of 4 power-unit rooms; <p>HPS has 4 vertical hydroelectric generators with adjustable-blade turbines with generating capacity 91 MWt each, which operate under 40,9 m pressure (maximal generating capacity is 108.5 MWt). The HPS dam form Kapchagaiskoe reservoir with over-year regulation and water volume of 28,14 billion m³.</p>	
Ust-Kamenogorskaya HPS	331,2	1 520	<p>HPS is built as a dam and consists of the following structures:</p> <ul style="list-style-type: none"> • concrete overfall dam; dam's crest length - 92 m, 4 levee sluices; • concrete non-overflow dam; length – 300 m; • length of HPS's building - 129 m; • one-chamber navigation lock. <p>HPS has 4 hydroelectric generators with radial-axial turbines with generating capacity 82.8 MWt each, which operate under 39.8 m pressure. Due to the incomplete removal of the construction crosspiece the downstream level is higher than the designed one by 1.5 m, and therefore the available capacity of HPS is 315 MWt. The HPS dam form Ust-Kamenogorskoe reservoir with daily regulation and water volume of 0.65 billion m³.</p>	1959
Shardarinskaya HPS	100		<p>HPS has 4 hydroelectric generators with adjustable-blade turbines with generating capacity 25 MWt each. The HPS dam form large Shardarinskoe reservoir for irrigation and flood-control with water volume of 5.7 km³, 70 km length, 20 km maximal width and 6,5 m average depth.</p>	
Verkhne-Almatinskaya HPS	15,6	67	<p>has also a name - "Ozernaya", Almatinskaya HPS-1. The most powerful HPS of the coordinated hydroelectric system. HPS has 3 hydroelectric generators with Pelton turbines, which operate under 581 m pressure (a record head pressure of HPS in the USSR). Turbines activate hydroelectric</p>	1953

Name	Capacity, MWt	Yearly output mln KWt hour	Specifications	Operates since
			generators with generating capacity 5.2 MWt each. This HPS is the main HPS of the coordinated hydroelectric system and operates water intake from the Big Almatinsky lake. The metal pressure conduit length is 3116 m.	
Almatinskaya HPS № 2	14,3	85	HPS has 3 hydroelectric generators with horizontal Pelton turbines, which operate under 516 m pressure. Turbines activate hydroelectric generators. The metal pressure conduit length is 1174 m.	1959
Karatalskaya HPS	10,71	50	HPS has 3 hydroelectric generators with radial-axial turbines, which operate under 46.2 m pressure. Turbines activate hydroelectric generators with generating capacity 3.36 MWt each.	1954
Tishinskaya HPS	6,15	36	HPS has 1 horizontal radial-axial hydroelectric generator, which operates under 86 m pressure. HPS is completely automated and is managed from the console of the Khariuzovskaya HPS; sometimes it's name is "Nijne-Khariuzovskaya HPS".	1949
Khariuzovskaya HPS	5,63	36	HPS has 4 horizontal hydroelectric generators which operate under 62 m pressure. 3 generators have capacity 1 MWt each? and one - 2.625 MWt. Turbines are radial-axial. At the beginning the HPS had capacity 3 MWT, but after some time the capacity was increased. Currently HPS is operating. In some publications this HPS has name "Verkhne-Khariuzovskaya".	1928
Issyyskaya HPS-2	5,1	25	HPS is located 0.7 km down from the mud dam of Issyk lake in the Ile-Alatau National Nature Park.	2008
Karatalskaya HPS-3	4,4	?	HPS has 3 horizontal hydroelectric generators.	2009
Karatalskaya HPS-2	4,0	19,5	HPS has 2 hydroelectric generators with generating capacity 2 MWt each, which operate under 19.8 m pressure and the total water discharge 25 m ³ /sec.	2008
Karatalskaya HPS-4	3,5	?	-	2010

Name	Capacity, MWt	Yearly output mln KWt hour	Specifications	Operates since
Talgarskaya HPS	3,2	?	HPS is located on the Talgar river and has 3 hydroelectric generators with horizontal radial-axial turbines. Turbines activate generators with generating capacity 1.1 MWt each. The penstock and escapage pipe are metallic with length 208 and 206 m accordingly. HPS is planned to be reconstructed to increase its capacity up to 6 MWt.	?
Almatinskaya HPS № 5	2,5	18	HPS has 1 hydroelectric generator with radial-axial turbine, which operate under 95 m pressure. The penstock is metallic with length 1484 m	1944
Almatinskaya HPS № 8	2,5	16	HPS has 1 hydroelectric generator with turbine, which operate under 64 m pressure. The metallic penstock with length 1484 m was replaced by another one in 1984.	1948
Almatinskaya HPS № 6	2,5	15	HPS has 1 hydroelectric generator with turbine, which operate under 55 m pressure. The metallic twin pipeline with length 611 m was replaced by another one in 1992.	1946
Almatinskaya HPS № 7	2,5	15	HPS has 1 hydroelectric generator with turbine, which operates under 56 m pressure. The metallic twin pipeline with length 611 m was replaced by another one in 1992.	1948
Almatinskaya HPS № 9	2,5	19,5	HPS has 1 hydroelectric generator with radial-axial turbine, which operates under 102 m pressure. The metallic pipeline with length 254 m was replaced by another one in 1994.	1944
Almatinskaya HPS № 10	2,5	19,5	HPS has 1 hydroelectric generator with radial-axial turbine, which operates under 102 m pressure. The metallic pipeline with length 506 m was replaced by another one in 1998.	
Almatinskaya HPS № 11	2,5	19,5	HPS has 1 hydroelectric generator with radial-axial turbine, which operates under 102 m pressure. The metallic pipeline with length 413 m was replaced by another one in 1997.	1944
Sergeevskaya HPS	2,0	?	HPS is located on the Ishim river; the dam of Sergeevsky reservoir is as a power facility. HPS has 2 hydroelectric generators with generating capacity 1 MWt each.	?

Name	Capacity, MWt	Yearly output mln KWt hour	Specifications	Operates since
Zaysanskaya HPS	2,0	?	HPS has 2 hydroelectric generators with horizontal radial-axial turbines. Turbines are activated by generators with generating capacity 1 MWt each.	?
Aksuskaya HPS	2,0	?	HPS was launched after reconstruction in the beginning of 2008.	?
Uspenskaya HPS (Uspenovskaya HPS)	1,92	?	HPS has 2 hydroelectric generators with vertical Kaplan turbines. Turbines are activated by generators with generating capacity 1,25 MWt each.	?
Antonovskaya HPS	1,6	?	HPS has 2 hydroelectric generators with vertical Kaplan turbines. Turbines are activated by generators with generating capacity 0.8 MWt each.	?
Georgievskaya HPS	1,4	?	-	?
Almatinskaya HPS № 8a	1,0	6,4	HPS has 1 hydroelectric generator with horizontal radial-axial turbine, which operates under 25 m pressure.	1954
Experimentalnaya HPS	0,75	?	HPS is located on the Malaya Alamatinka river.	?
Urdjarskaya HPS	0,2	?	Urdjarskaya HPS - 0,175 MWt; HPS has 1 hydroelectric generator with horizontal radial-axial turbine produced by Austrian plant in 1949. The generator is produced by the "Siemens Shukert" firm.	?
Merkenskaya HPS-3	1,5	6,5	HPS is located on the Merke river in the Merkensky province of the Jambylsky region.	2010
Under construction				
Moynakskaya HPS*	300*	1,27*	<p>HPS is planned as a dam-diversion scheme; HPS consists of the following structures:</p> <ul style="list-style-type: none"> • rock-fill dam with height 94 m; • diversion tunnel with length 9 km; • spillway works; • building <p>HPS will have 2 bucket hydroelectric generators with generating capacity 150 MWt each, which operate under 500</p>	*

Name	Capacity, MWt	Yearly output mln KWt hour	Specifications	Operates since
			m pressure. HPS's dam forms the Bestyubinskoe reservoir on the Charyn river with flooding area about 10 km ² ; reservoir's length - 16 km; width - up to 0.5 km; total storage - 238 million m ³ ; usable storage - 198 million m ³ . Later, down from this HPS, another one reservoir with HPS is planned to be built as a counter-regulator for the Moinakskaya HPS.	
Planned				
Gromotushinskaya HPS	120	600	HPS is located on the Gromatukha river; HPS is planned to operate under 730 m pressure.	
Series of hydroelectric stations on the Chizh river	49,6		Location: Eskeldinsky province, Almatinsky region. 4 HPSs are planned to be constructed: The dam-diversion HPS-1 as a main in the series of hydroelectric stations; Reservoir with the main HPS will regulate flow (total storage - 27.7 million m ³ ; usable storage - 17.7 million m ³); HPS-2, HPS-3, HPS-4 are diversion plants.	
Series of hydroelectric stations on the Borokhudzir river	10,0		Location: Panphilovsky province, Almatinsky region. 3 diversion stations are planned to be constructed: HPS-1 with generating capacity 6.1 MWt, average annual power generation 42.67 million kilowatt-hour, pressure 445 m; HPS-2 with generating capacity 1.8 MWt, average annual power generation 12.45 million kilowatt-hour, pressure 120 m; HPS-3 with generating capacity 2.1 MWt, average annual power generation 14.73 million kilowatt-hour, pressure 140 m.	
Non-operated				
Ulbinskaya HPS	27,6	145	HPS is located on the Tikhaya river (left part of the Ulba river). HPS consists of the following structures: <ul style="list-style-type: none"> The reinforced concrete dam of the Tishinsky reservoir on the Tikhaya river with flood spillway (in 1979 the dam was damaged because it was impossible to open the gates of discharge tunnel caused by siltation; the reservoir was discharged). 	1937

Name	Capacity, MWt	Yearly output mln KWt hour	Specifications	Operates since
			<ul style="list-style-type: none"> • water intake structure on the Tishinsky reservoir; • wood diversion pipeline with diameter 325 sm and length 10 km (currently is demolished); • diversion tunnels; • pressure conduit; • building; • offtake channel to the Ulba river. <p>HPS has 3 vertical hydroelectric generators with radial-axial turbines with generating capacity 9.2 MWt each, which operates under 165 m pressure. In 1985 HPS was laid up and the pipeline was demolished after damage of diversion pipeline.</p>	
Malo-Ulbinskaya HPS			HPS is located near the dam of the Malo-Ulbinskoe reservoir. Now it is not operated.	
HPS with unknown current state				
Nijne-Khariuzovskaya HPS	0,8		Current state is unknown.	1932
Bystrushinskaya HPS	0,675		HPS was damaged by former owners in 1919. It was reconstructed and launched again in 1930. Current state is unknown.	1917

Source: Wikipedia