NATIONAL
ENERGY HOLDING

Perspective Investment Projects in the Field of Energy

Bishkek, 2020

Structure of the National Energy Holding

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Generation

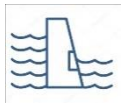
ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО ЭЛЕКТРИЧЕСКИЕ СТАНЦИИ

ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО ЧаканГЭС

Теплоснабжение г. Бишкек

ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО «Бишкектеплосеть»

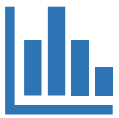
Subscriber base 1.5 million



HPP 3070 MW

TPP 862 MW

Average annual generation



- electricity energy 14 billion kWh
- heat energy - 2 000 thousand Gkal

Transmission

НАЦИОНАЛЬНАЯ ЭЛЕКТРИЧЕСКАЯ СЕТЬ КЫРГЫЗСТАНА

Settlement center

КЫРГЫЗСКИЙ ЭНЕРГЕТИЧЕСКИЙ РАСЧЕТНЫЙ ЦЕНТР

Overall number of staff 16 350 people

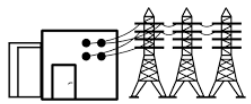
Distribution and marketing

ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО СЕВЕРЭЛЕКТРО

ОШЭЛЕКТРО

ВОСТОКЭЛЕКТРО

ЖАЛАЛАБТЭЛЕКТРО



110-500 kV transmission substation 197 units 12 498 MVA

HVL 110-500 kV 7 500 km

LVL 0,4-35 kV 59 700 km

Distribution substations 23 915 units

The Diagram of the Main Electrical Network of the Kyrgyz Republic's Energy System.

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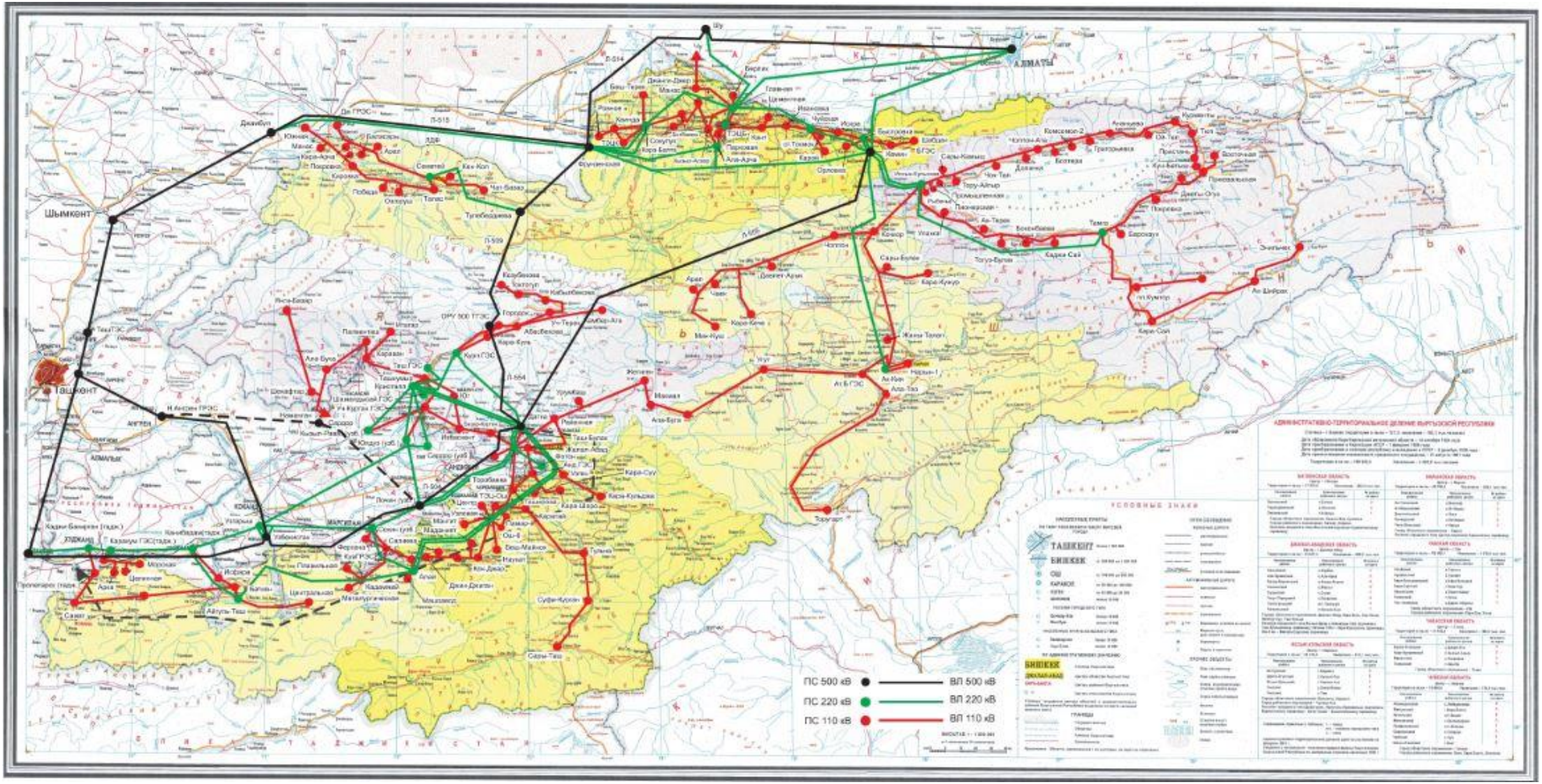

Main Generating Capacities

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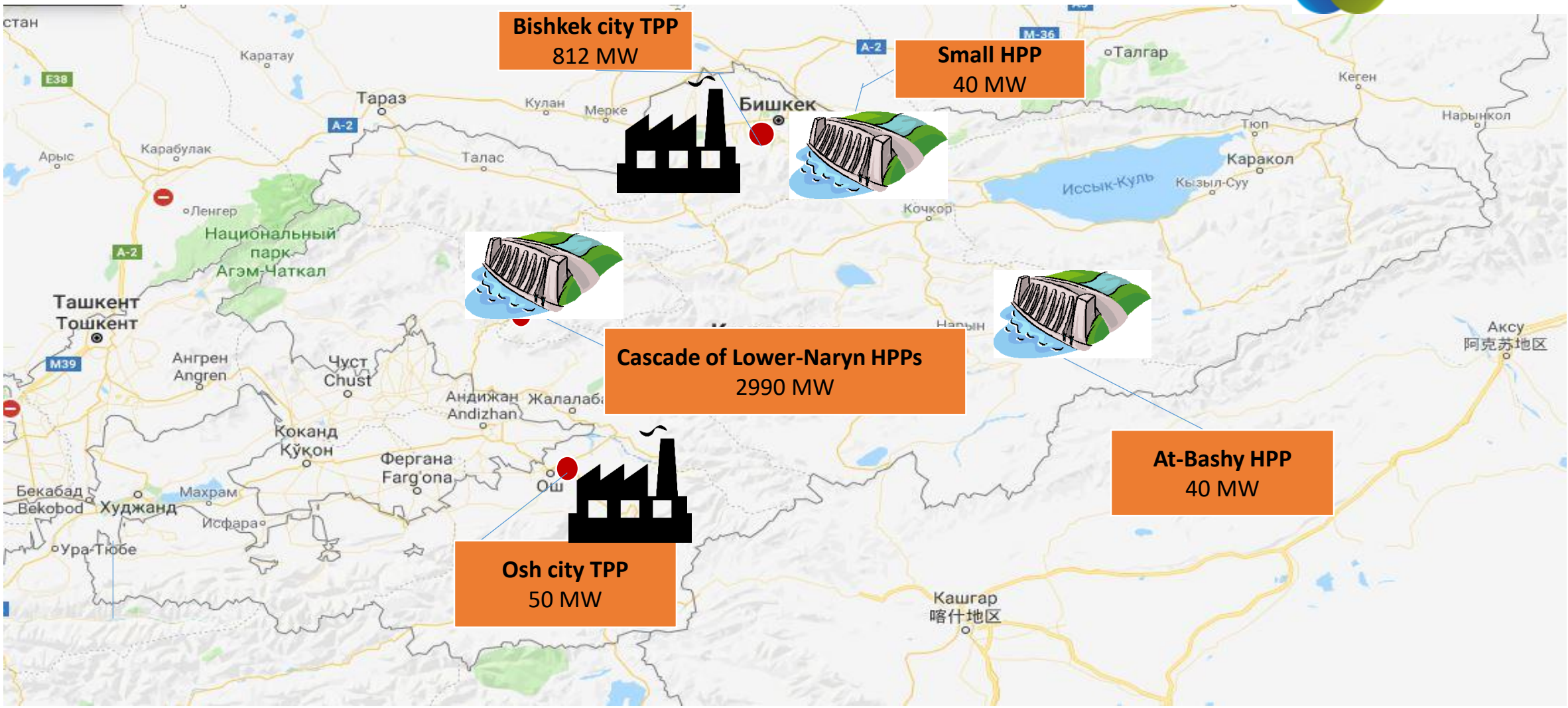

LARGE HPPs	SMALL HPPs	TPPs	TOTAL
3030 MW	40 MW	862 MW	3932 MW

Hydropower potential

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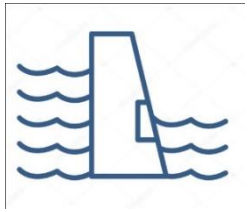
142,5 billion kWh — **GENERAL HYDROPOWER POTENTIAL**

III — **PLACE IN THE CIS AFTER RUSSIA AND TAJIKISTAN**

10% — **UTILIZED**

IT IS POSSIBLE TO CONSTRUCT ON THE NARYN RIVER:

7 cascades



27 hydro power plants

5 600 MW
Total installed capacity

20 billion kWh
Average multi-annual generation

Perspective Projects

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	HPP POWER	CONSTRUCTION PERIOD	Electric energy generation mln. kWh	PROJECT AMOUNT	STATUS
Construction of Upper-Naryn Cascade of HPPs	237,7 MW	5 years	942,4	727,7 mln.$	FS and Project Developed
Construction of Kambar-Ata-1 HPP	1860 MW	8 years	5 640	2 868,5 billion $	FS Developed
Construction of Suusamyr-Kokomeren Cascade of HPPs	1305 MW	8 years	3 317	3,3 billion $	Preliminary FS Developed
Construction of Kazarman Cascade of HPPs	1160 MW	8 years	4 661,6	2 billion $	FS Development is required
Construction of Small HPPs	95 MW	3 years	450	100 mln $	FS Development is required
Solar plant in Chui region	100 MW	1 years	150	70 mln $	FS Development is required

Upper-Naryn cascade of HPPs

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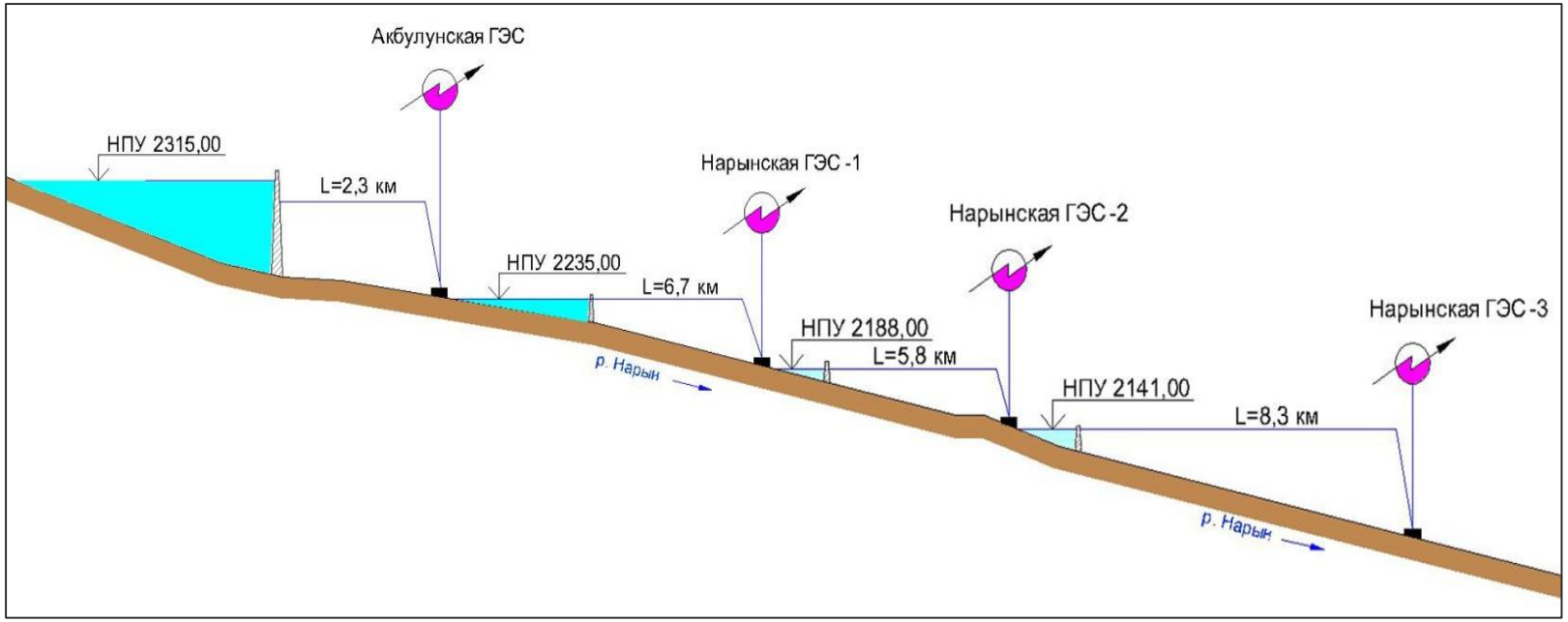
HPP name	Installed capacity, MW	Average multi-annual generation, mln. kWh	Dam height, m	Construction period, months
Akbulun HPP	87,4	345,5	75	72
Naryn HPP-1	47,7	187,5	20,5	36
Naryn HPP-2	47,6	188,8	19	36
Naryn HPP-3	55,0	220,5	9	48
Total	237,7	942,4		86

Location:

The cascade is designed in the upper reaches of the Naryn river, with absolute elevations of 2100-2300 m. All stations are designed according to the dam-diversion scheme with small reservoirs, which reduces the area of flooded lands.

Construction infrastructure:

- ✓ There exists a production infrastructure
- ✓ Close proximity of the highway of the national importance
- ✓ There is an existing 35 kV overhead power line on the right bank of the river
- ✓ The main type of transport in the area of construction is automobile. The nearest railway station "Balykchy" is located at a distance of 183 km
- ✓ The necessary land plots for the construction of hydropower plants are provided
- ✓ The feasibility study of the project and a part of project documentation is developed



The chosen cascade scheme allows the full use of the fall of more than 30-km stretch of the river - the lower pool of the overlying plants is the reservoirs of the underlying ones

Kambar-Ata-1 HPP

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Name	Normal headwater level, NHL, m	Installed capacity, MW	Electric energy generation, mln. kWh	Reservoir volume mln.cbm	HPP type
Kambar-Ata-1 HPP	1 198	1860	5 640	2 730	Near dam type

Location:

The dam of Kambar-Ata HPP-1 is located on the Naryn river in the V-shaped canyon, 14 km above the Kambarata HPP-2

Construction infrastructure:

- ✓ There is a production infrastructure that was used during the construction of Kambar-Ata HPP-2
- ✓ There are the sufficient reserves of quarries of building materials for construction of the dam of Kambar-Ata HPP-1
- ✓ The close proximity of the republican road and a 500 kV power line connecting the North and South of the country
- ✓ Feasibility study developed (by SNC Lavalin International Inc.)

The Map of Priority Small HPPs

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The List of Small HPPs

№	Names of HPPs	Capacity, MW	Location, river
1	**Orto-Tokoi**	25	Orto-Tokoy Reservoir
2	**Kirov**	21	Kirov Reservoir
3	**Papan**	20	Papan Reservoir
4	**Karakul (Kara-Suu-1,2)**	18	Kara-Suu river, (left)
5	**Tayan**	3,5	Sokh river
6	**Tortkul**	3	Tortkul Reservoir

Perspective small HPPs

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Kirov SHPP:

Installed capacity – **21** MV

Average generation - **91,4** million kWh

Project cost – **23** million USD

Karakul SHPP:

Installed capacity – **18** MV

Average generation - **110** million kWh

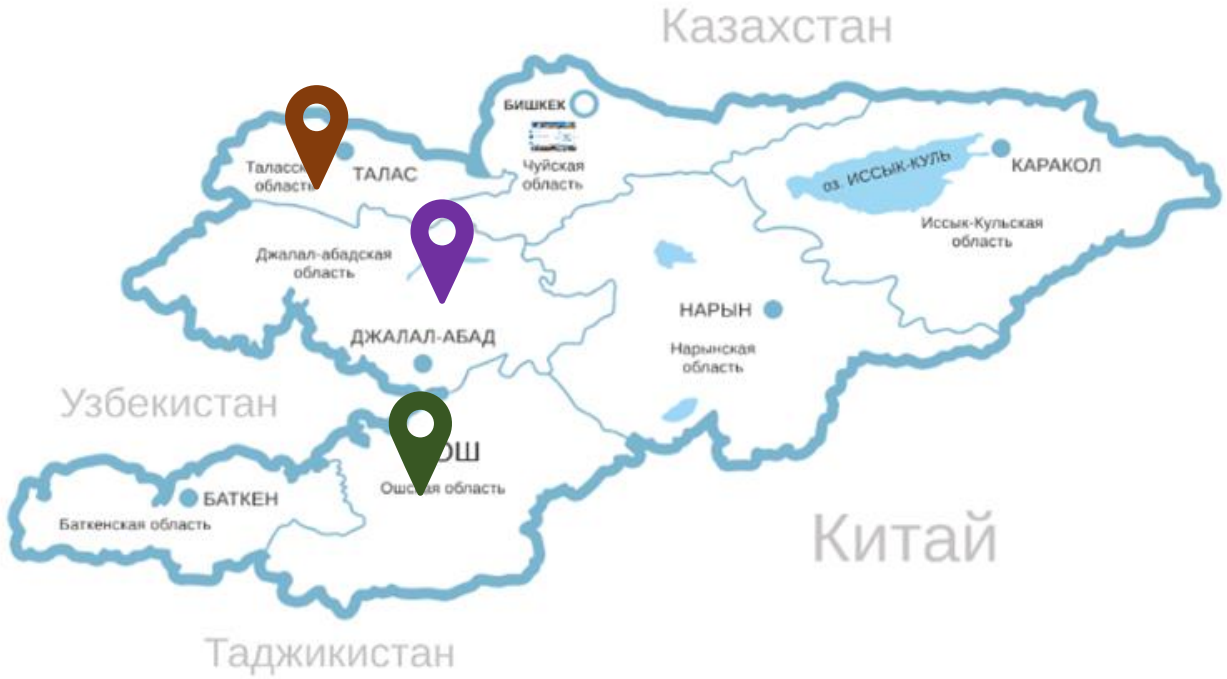
Project cost – **20**million USD

Papan SHPP:

Installed capacity – **20** MV

Average generation - **106** million kWh

Project cost – **28** million USD



Solar power plant in Chuy region

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Solar power plant

Characteristics	Data
Installed capacity	100 MW
Generation	150 mln. kWh
Availability of free space for the construction of solar power plants	

Tariffs in the field of renewable energy

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During the grace period, the tariff (up to 10 years) for electricity generated by renewable energy facilities constructed within the framework of capacity quotas, is established by multiplying the maximum tariff for end consumers by an appropriate coefficient: T quotas = T1 * K

maximum tariff (T1)	coefficient (K)	KG som/kWh	$cent/KWh	€cent/KWh
2,24	1,3	2,912	0,042	0,038
course on 14/02/2020			*69,8*	*76,3*

During the payback period, the tariff for electricity generated by renewable energy facilities constructed beyond the capacity quotas is set at the level of the maximum tariff for end consumers, minus the cost of the transit service of the electricity company: T without a quota = T1 - T2

for 1 kWh		KG som	$cent	€cent
maximum tariff	2,24	0,032	0,029	
Tariff for transit service				
HVL 0,4-6-10 kV	0,148	2,092	0,030	0,027
HVL 110-220-500 kV	0,21	2,030	0,029	0,027
course on 14/02/2020			*69,8*	*76,3*

Marketing

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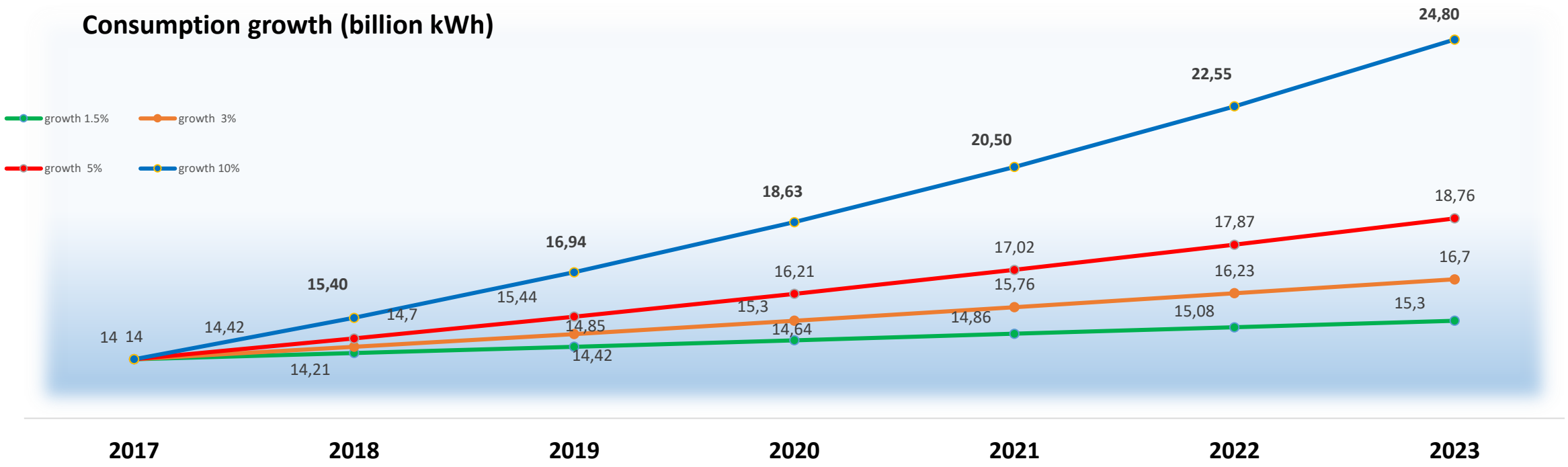

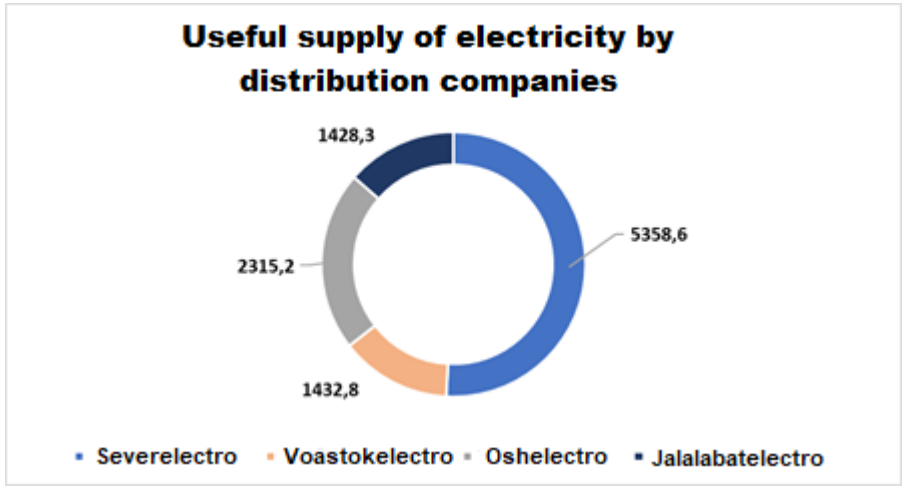

In the medium and long term, a shortage of power is formed in the market

The key buyer of generated electricity will be distribution energy companies **with the condition of guaranteed purchase of the entire volume**

Promising Markets for Electricity

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- ✓ The CASA-1000 project involves the construction of a high-voltage power line connecting the energy systems of the Kyrgyz Republic and the Republic of Tajikistan with the Islamic Republic of Afghanistan and the Islamic Republic of Pakistan to export electricity from the Central Asian countries to Afghanistan and Pakistan;
- ✓ Sustainable increase in domestic consumption;
- ✓ Launch of the EAEU common energy market;
- ✓ The possibility of export to neighboring countries.

Options for cooperation

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in the form of the investment project (direct investments) that assumes project financing

in the form of public-private partnership (PPP), including the following models:

- BOT (Build, Operate, Transfer)
- BOOT (Build, Own, Operate, Transfer)
- BOMT (Build, Operate, Maintain, Transfer)

State support (preferences)

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Protection of the foreign investments

Assistance in implementation of electricity exports in the framework of the project "CASA-1000" (according to the rules of open access to the third parties)

Assistance in obtaining the licenses, permits and approvals

Equal operating conditions for the foreign and local companies

Possibilities of broad cooperation in the framework of PPP

Available qualified personnel

THANK YOU FOR ATTENTION!

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