

A wide-angle photograph of a large-scale solar farm. The foreground and middle ground are filled with rows of solar panel arrays, each supported by a metal frame. A long, straight asphalt road runs down the center of the farm, leading towards a tall, cylindrical industrial chimney or cooling tower in the distance. The sky is a clear, deep blue. A semi-transparent blue rectangular box is overlaid in the center of the image, containing white text.

# Use of renewable energy sources in Uzbekistan

# Electricity sector in Uzbekistan

as a critical structural component of the economy, is a comprehensive organization that carries out the design, construction, operations, maintenance and repairs.

State Joint-Stock Company "UzbekEnergo" is the governing body in the electric power sector and coal industry.

At this stage, the company consists of 52 companies and organizations, including 39 open type JSCs (including JSC "Uzbekugol"), 12 unitary enterprises, two limited liability companies.

The industry employs more than 55,000 people.

## **State Joint-Stock Company "UzbekEnergo"**

Carries out investment projects involving:

- introduction of modern technologies of combined generation of electricity and heat based on the steam-and- gas turbines (SGTs);
- Introduction of modern renewable energy technologies;
- Development of transit power lines, construction of interconnections of 220-500 kV;
- Modernization of electricity consumption metering for domestic consumers by equipping the sector with advanced electronic power meters and by arranging of the automated metering system - ASQUE.

# Laws of RU provide for development of RESs

- Law on ELECTRIC POWER SECTOR as of 30.09.2009

## **Article 10. Power generating companies**

**Power plants that use renewable energy sources connected to the power grid could be both, public or private**

- Law on RATIONAL USE OF POWER as of 25.04.97

## **Article 10. Key areas of public policy with regards to rational use of power**

Key areas of public policy with regards to rational use of power are:

**-encouraging the development of energy efficient and environmentally friendly technologies and industries**

# Investment projects on modernization of small hydropower plants to be implemented by 2015

№	Names of the initiators and projects	Installed capacity in MW	Projected cost of the projects in mln. USD	Timeline
1	UE "Cascade of Chirchik HPP" HPP-10	34,7	23,5	2013-2015
2	UE "Cascade Kadirinskih HPP » of HHP-3	13,2	19,,5	2012-2015
3	UE "Cascade of Tashkent HPP" HPP-9	15,0	21,0	2012-2015
4	UE "Cascade of Nijne-Bozui HPP" HPP-14	10,7	16,5	2012-2015
5	"Cascade of Samarkand HPP" HPP-2B	21,9	22,0	2013-2015
6	UE "Pharhadskaya HPP" HPP-16	126	32,0	2012-2015
7	"Cascade of Shahrihan HPPs" first stage HPP-UFK-2	6,7	5,8	2012-2015
	Total with regards to modernization:		140,3	

# Construction of a pilot wind power plant

Goal of the project: getting experience in designing, constructing and operating of wind power units, increasing the share of renewable energy in the energy balance

Capacity: 0.75 MW

Construction period: 2014

Power generation: 3,375 kWh per year

Saving of fuel: 1.1 million cubic meters of natural gas per year

Cost of the project: 1.85 million

Source of financing: own

resources – USD 1.85 million



Decree of the President of the Republic of Uzbekistan as of  
01.03.2013 "On measures for further development of alternative  
energy sources"

- The country set up the unique in CA scientific experimental center - "Physics-Sun" AS

In Uzbekistan, the environment and objective preconditions for practical application of solar energy are the basis for the use of the region as a pilot site for implementation of advanced technologies in this field, not only in the country but in the whole of Central Asia

CM of Uzbekistan is to take steps to further deepening of pilot and practical research in the field of solar energy and biogas

Approve proposals of ME, MF, AS RU, "Uzbekenergo" to establish the International Institute for Solar Energy in Tashkent with participation of ADB and other IFIs on the basis of NGO "Physics-Sun" of the Academy of Sciences of Uzbekistan.

Take note that "Uzbekenergo" and «Suntech Power Co.» company (PRC) came to an agreement on establishing the joint venture for production of photoelectric panels in the free industrial economic zone "Navoi"

MF, ME of RU, within two months, are to provide the KM with proposals on stimulating the users of solar and biogas energy by providing them with tax and customs privileges and preferences

ME, AS of RU, "Uzbekenergo" are to submit to the KM of the Republic of Uzbekistan the draft law "On alternative sources of energy."

# "Building of solar photoelectric power plant of 100 MW in Samarkand Oblast "

The project implementation is to be done in accordance with the Decree of the President of the Republic of Uzbekistan dated 01.03.2013g. #4512 "On measures for further development of alternative energy sources" and with the Decree of the President of the Republic of Uzbekistan dated 21.11.2012, # PP-1855 "On the investment program of the Republic of Uzbekistan for 2013."

# Goal of the Project

The main goals of the project are:

- Use of solar energy for power generation in Uzbekistan in the long term;
- improving the reliability of power supply in South-Western part of the energy system;
  - enhancing the efficiency and reliability of power supply for industrial and domestic consumers of Samarkand Oblast;
  - creating the job opportunities in the amount of - 50;
  - power generation - 159 GWh per year;

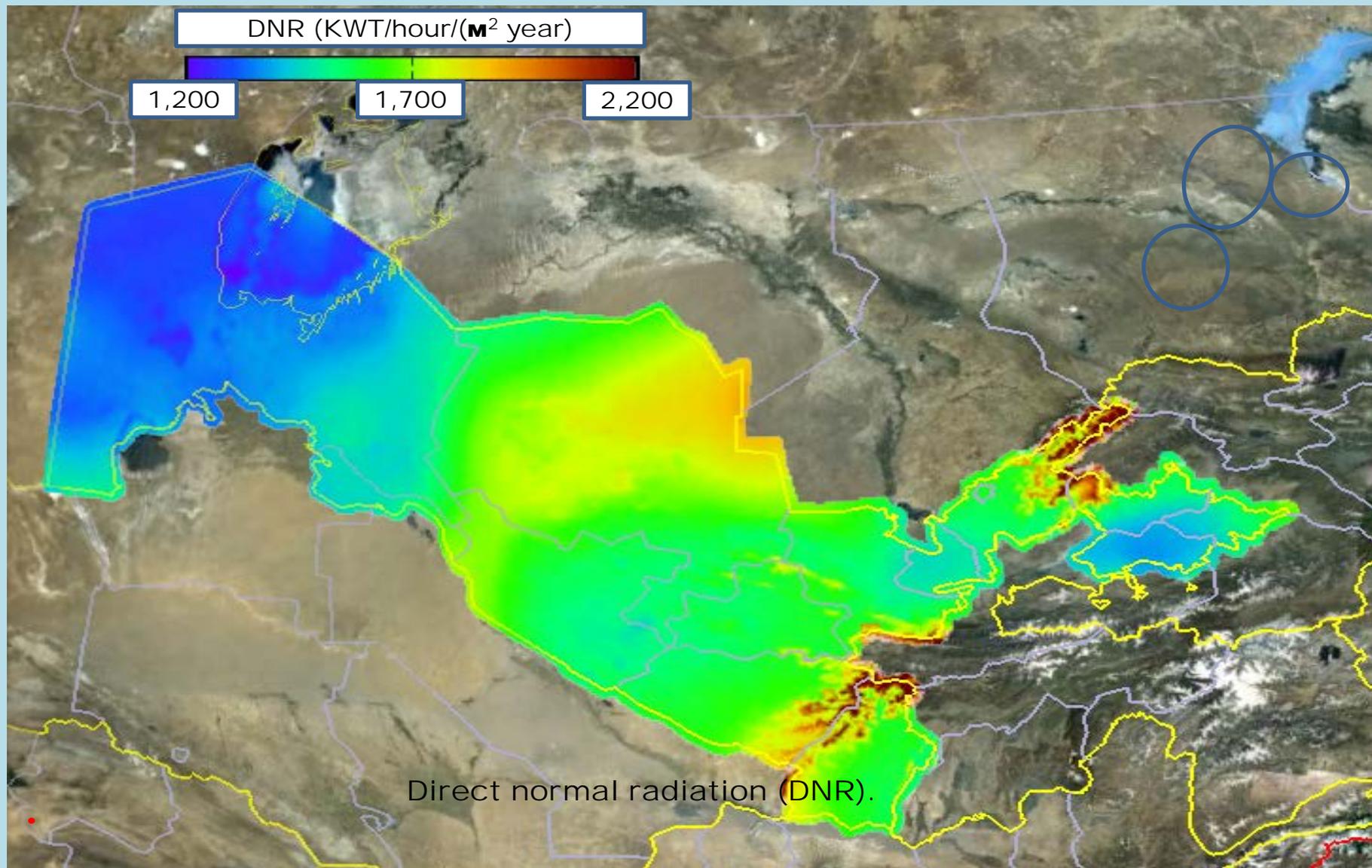
DNR (KWT/hour/(m<sup>2</sup> year))

1,200

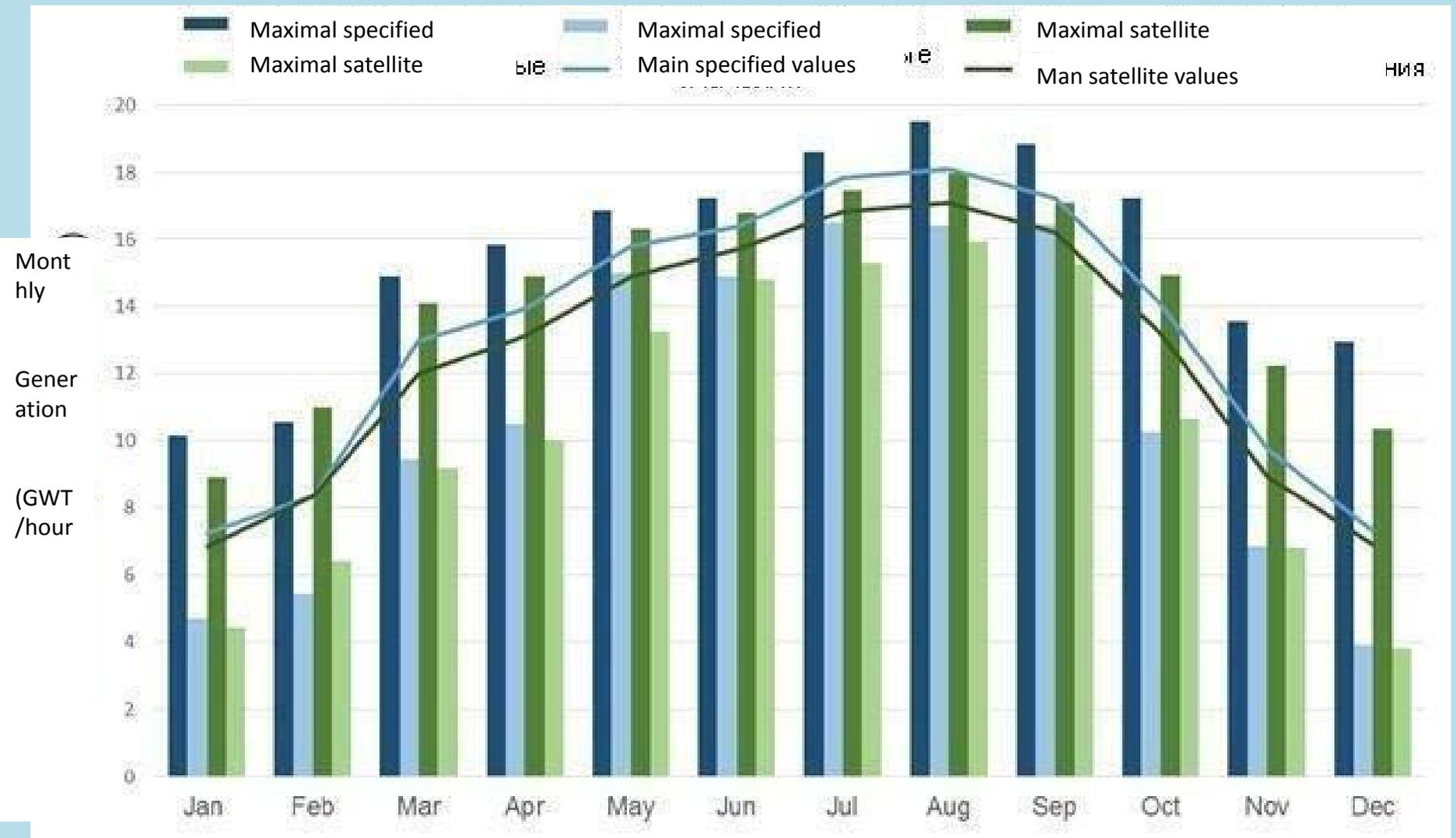
1,700

2,200

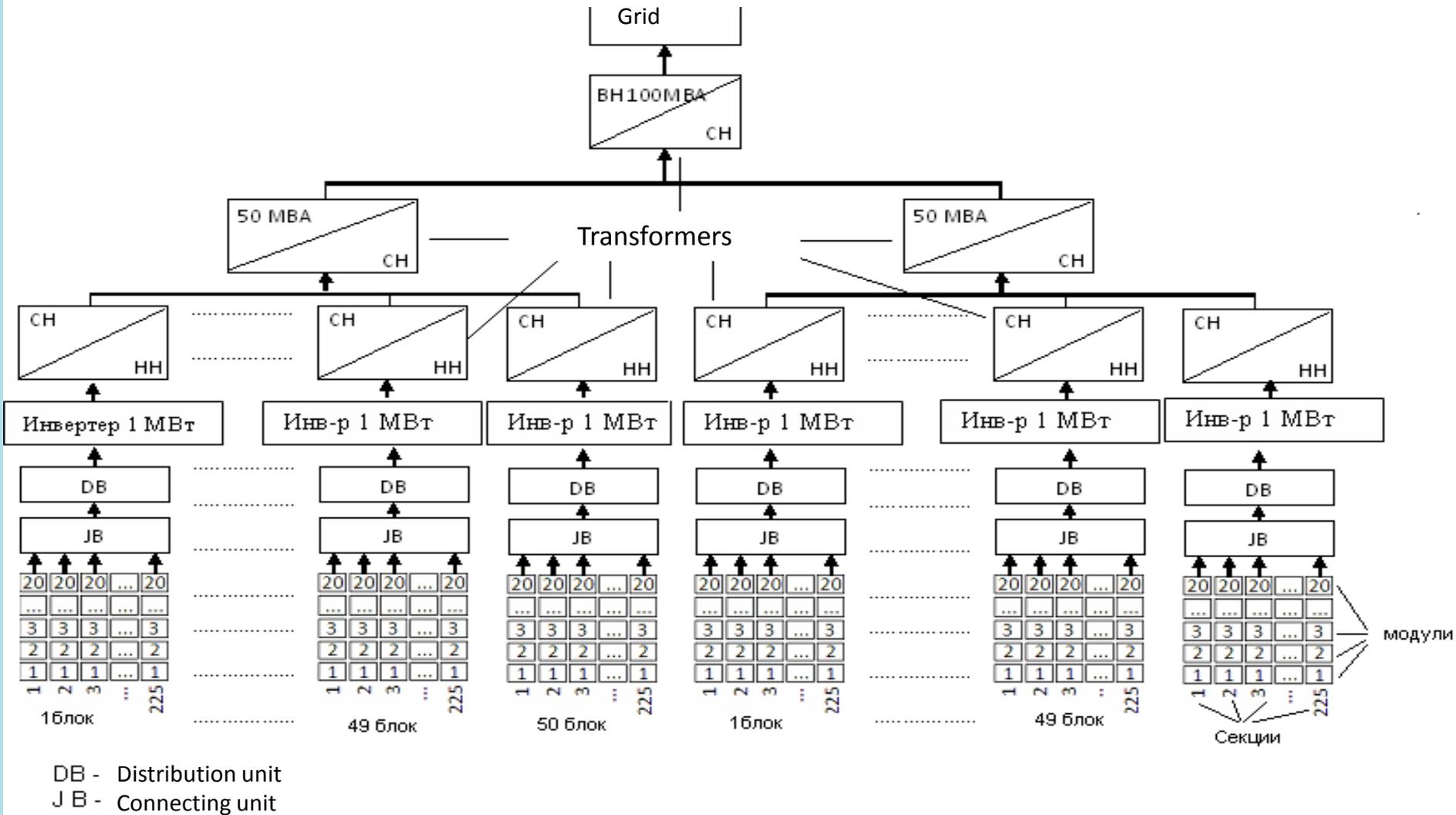
Direct normal radiation (DNR).



# Annual power generation by months



# Functional scheme of photoelectric part, 100 MWT FES



# General parameters

- FES area - 320 hectares
- Crystal system with a fixed slope
- Current state
- Feasibility study is being finalized based on comments
- Annual power output - 159 million kWh
- Service life - over 25 years
- Project implementation - 2013 - 2016.

# Sources of funding

Preliminary project cost:	\$ 310.0 million,
including:	
- ADB funds -	\$110.0 million
- Borrowed FRRU funds -	\$130.0 million
- Own funds of "Uzbekenergo" -	\$26.0 million
- Contribution of the Government of the Republic of Uzbekistan -	\$44.0 million

Thank you for your attention.