



MINISTRY OF ENERGY AND WATER RESOURCES OF THE REPUBLIC OF TAJIKISTAN



Presentation on “Status and prospects of development of renewable energy sources in TAJIKISTAN”

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- **Capital:** Dushanbe
- **Territory:** 143.1 thousand square meters. km
- **Population:** 8 742 mln. (as of 01/01/2017)
- **Population density:** 58.6 people. km²
- **Official language:** Tajik
- **Currency:** Somoni (TJS)
- **Independence Day:** September 9, 1991
- **Large cities:** Dushanbe, Khujand, Kurgan-Tube, Kulyab.

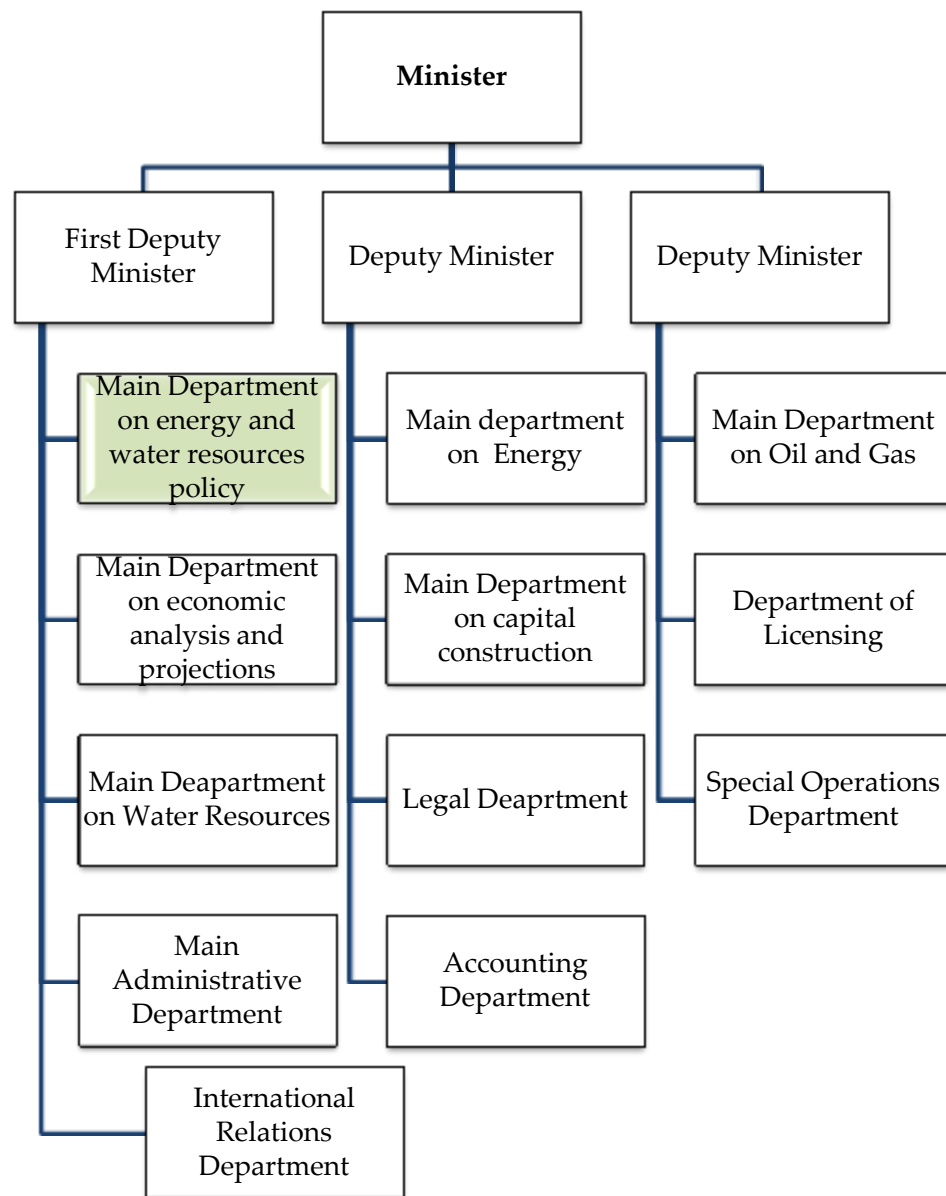
The Republic of Tajikistan borders on the north with the Kyrgyz Republic (987 km), in the east with China (494.95 km), in the south with Afghanistan (1344.15 km) and in the west with Uzbekistan (1332.9 km).

High mountains and comfortable climate make Tajikistan a kind of home of glaciers and, accordingly, significant reserves of water and energy resources, the reserves of which the country occupies one of the leading positions in the world.



The Ministry of Energy and Water Resources of the Republic of Tajikistan is one of the key ministries in the Government of Tajikistan, dealing with water and energy issues, which are strategically important resources for social and economic development of the country.

The Ministry carries out its activities in the implementation of water and energy policies, strategies, programs and plans for the development of fuel and energy sector and water resources as well as management, regulation, planning and capacity development.





Potential for generate 527 billion. KW. hours per year

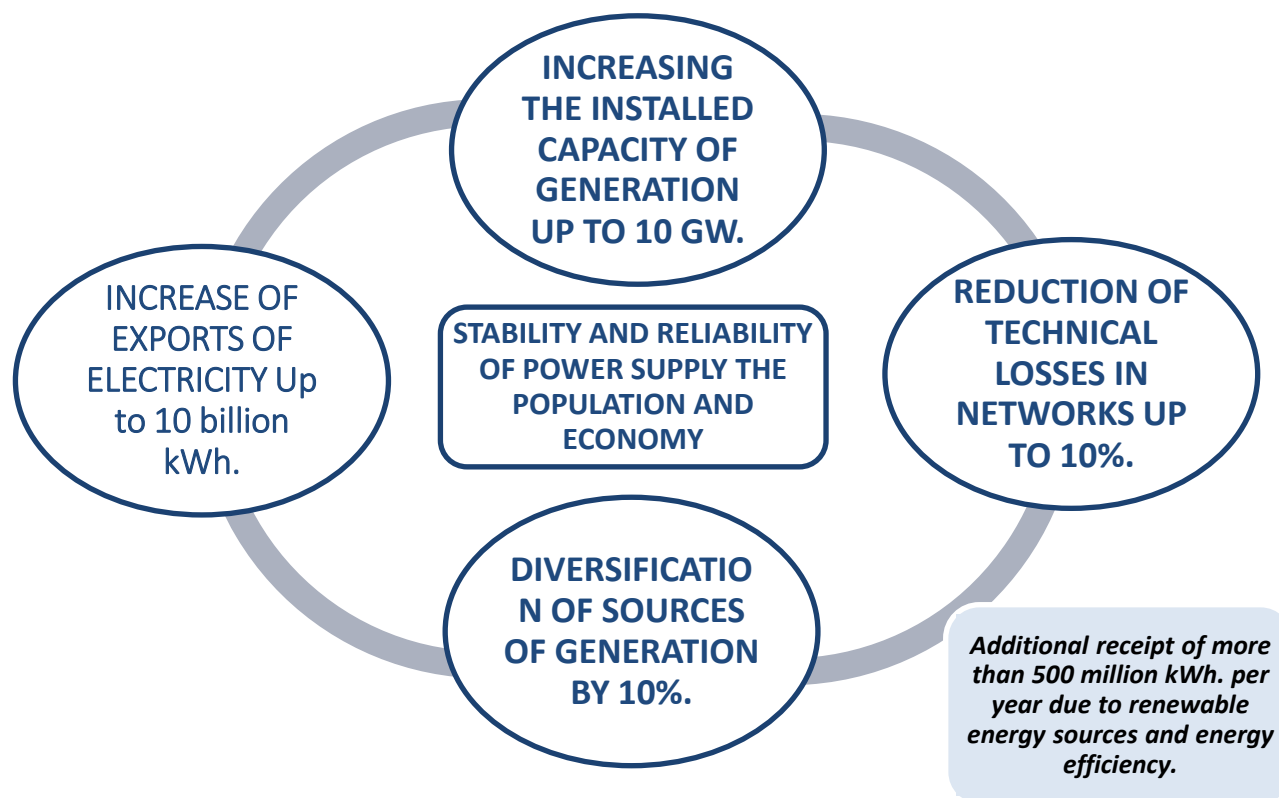
The installed capacity of power plants of 5700 MW

Of these, 95% hydro and 5% thermal power stations

The annual generation more than 17 billion. KW. hour

**Excess of hydropower in the summer months
(from 3 to 5 billion. KW. hour)**

Winter energy shortages more than 1-1.1 billion. KW. hour



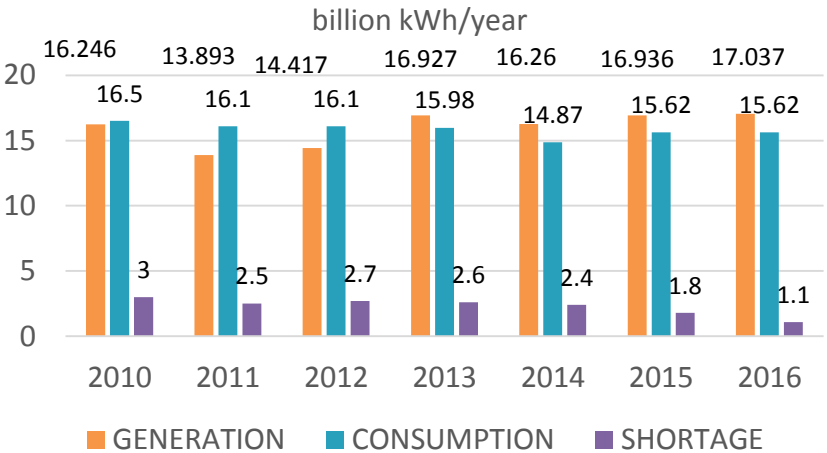
MAIN INDICATORS OF DEVELOPMENT

Achievement of energy independence was determined by the Government of the Republic of Tajikistan as one of the three strategic tasks within the framework of the National Development Strategy until 2030.

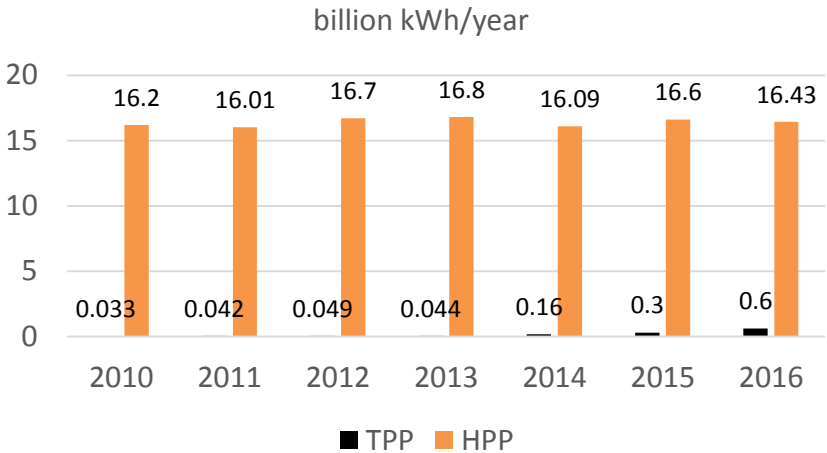
In the National Development Strategy of Tajikistan, up to 2030, the main indicators are identified in the energy sector - 10/10/10 / 10-500, which means



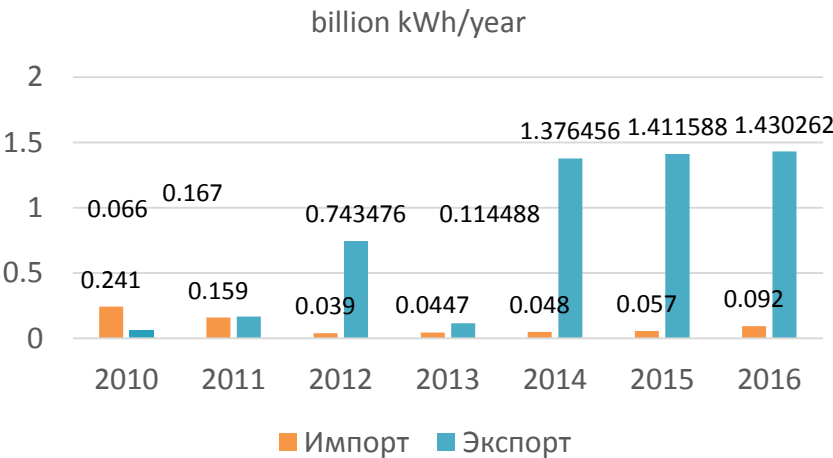
GENERATION AND CONSUMPTION



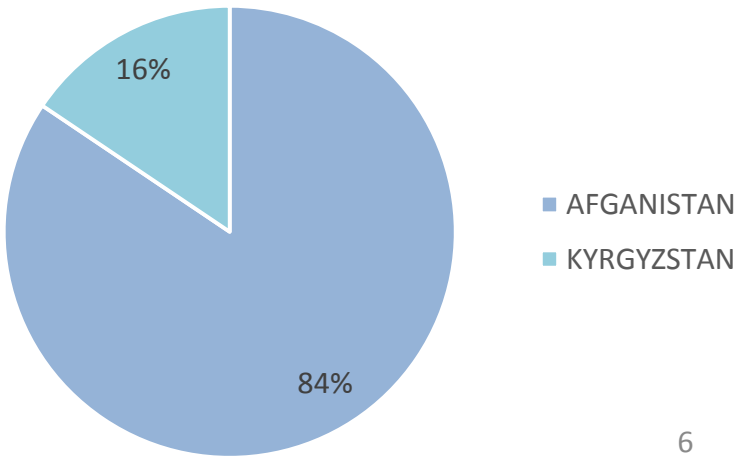
TYPES OF GENERATION SOURCES



IMPORT AND EXPORT

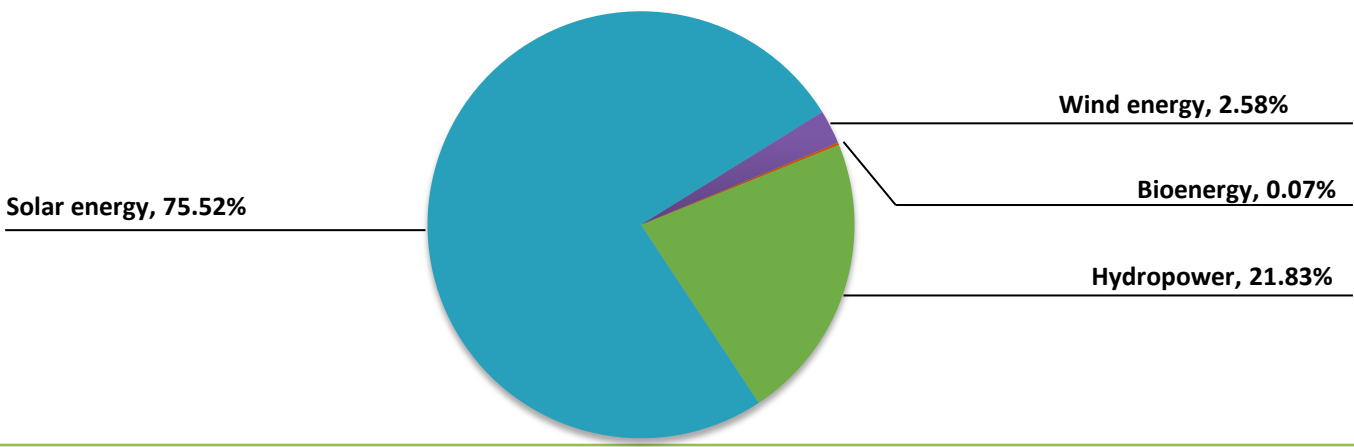


EXPORT FOR 2012-2016

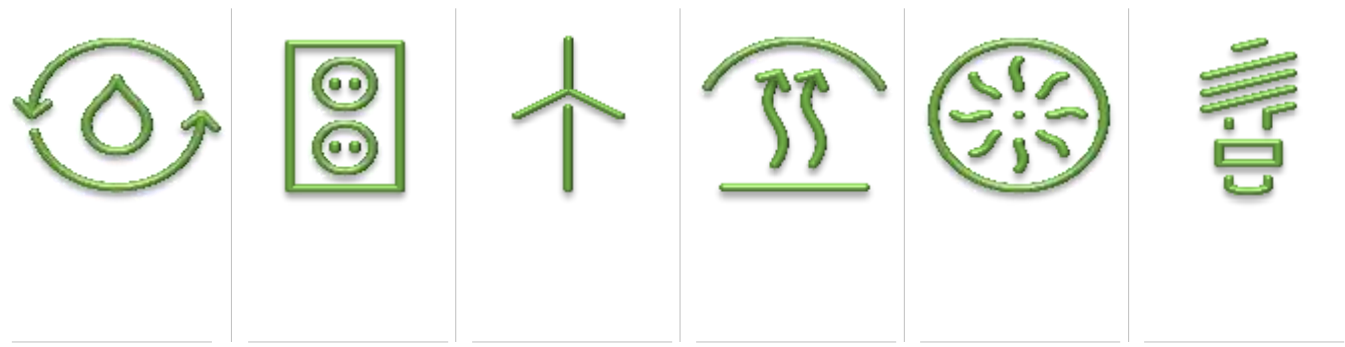




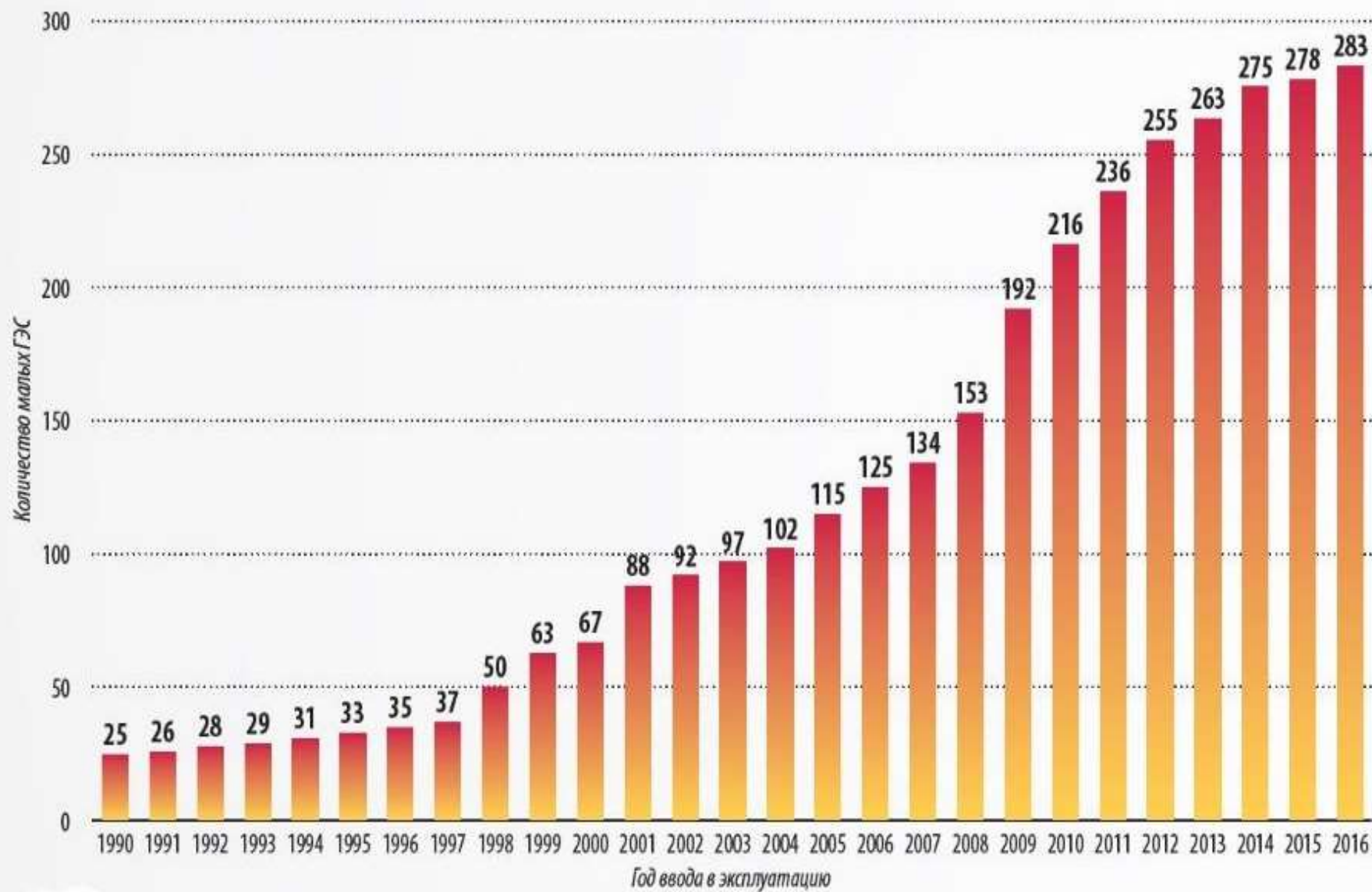
RENEWABLE ENERGY RESOURCES IN TAJIKISTAN



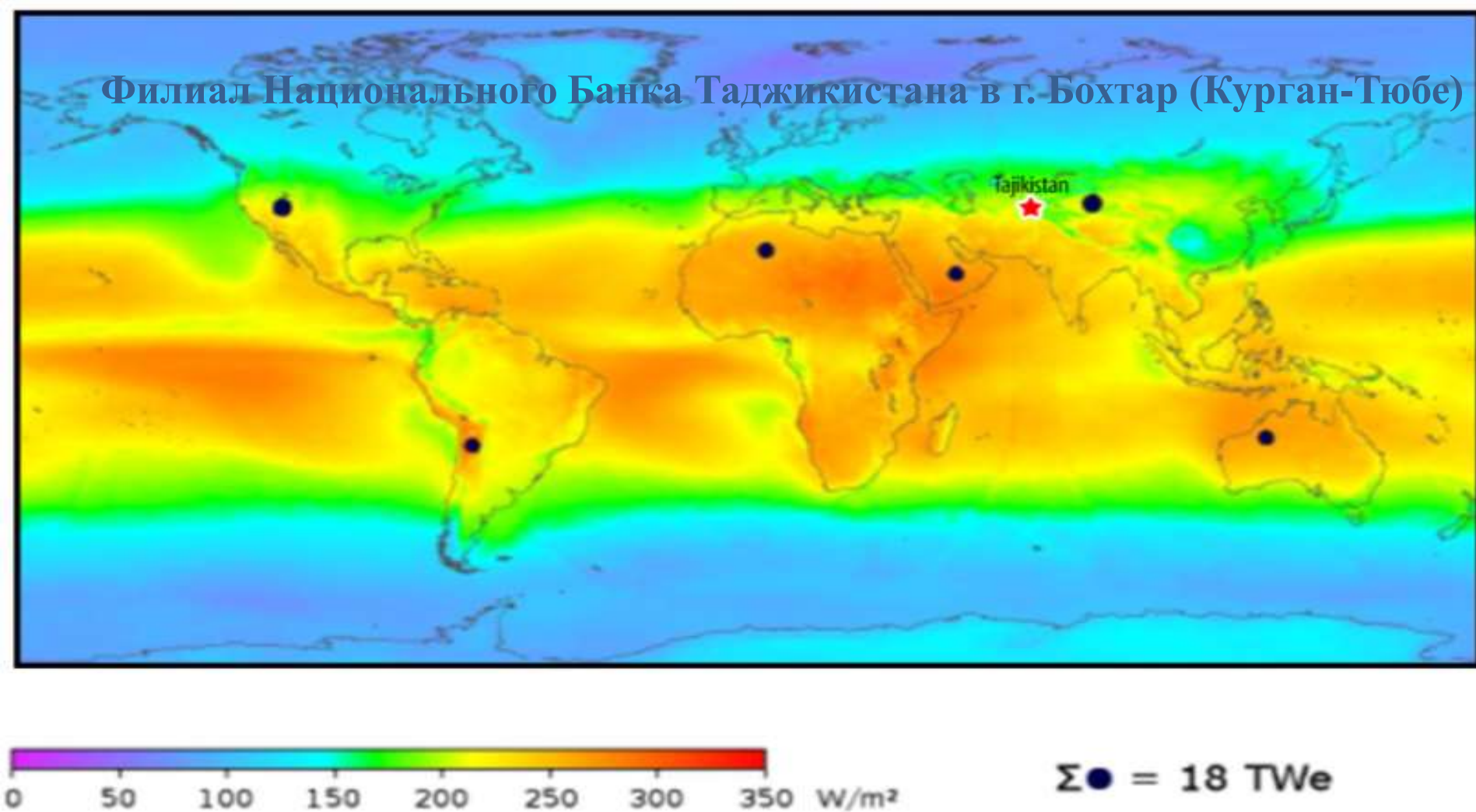
RESOURCES	Gross potential, MW	Technical potential, MW	Economic feasible potential, MW	mln. conventional fuel per year.
Hydropower	60167	32476	32476	64828,74
Solar energy	1822894	1493,7	545,2	224215,96
Wind energy	62257,3	3852,7	1926,35	7657,61
Bioenergy	1614,14	1614,14	807	198,52



THE PACE OF SMALL ENERGY DEVELOPMENT



Филиал Национального Банка Таджикистана в г. Бохтар (Курган-Тюбе)



280-330 - sunny day;

Total solar radiation under clear sky reaches 7500-8000 MJ per 1 sq. m;

The total duration of sunshine ranges from 2100 to 3170 hours per year.



- ❑ **Solar power plant with a capacity of 30 kW;**
- ❑ **The installation class is network, i.e. The installation works directly on the electrical network;**
- ❑ **Solar panels (63 pcs.) - Sharp, the maximum output power of 1 panel is 240W;**
- ❑ **Inverters - 2 x 15 kW - Sunny Tripower (SMA);**
- ❑ **The angle of inclination is 28 °, the solar panels are directed strictly to the south;**
- ❑ **System start-up on 01/06/2013.**

Republican Medical Center of Dushanbe - power 120 kW;

Branch of the National Bank in Kulyab - power 15 kW

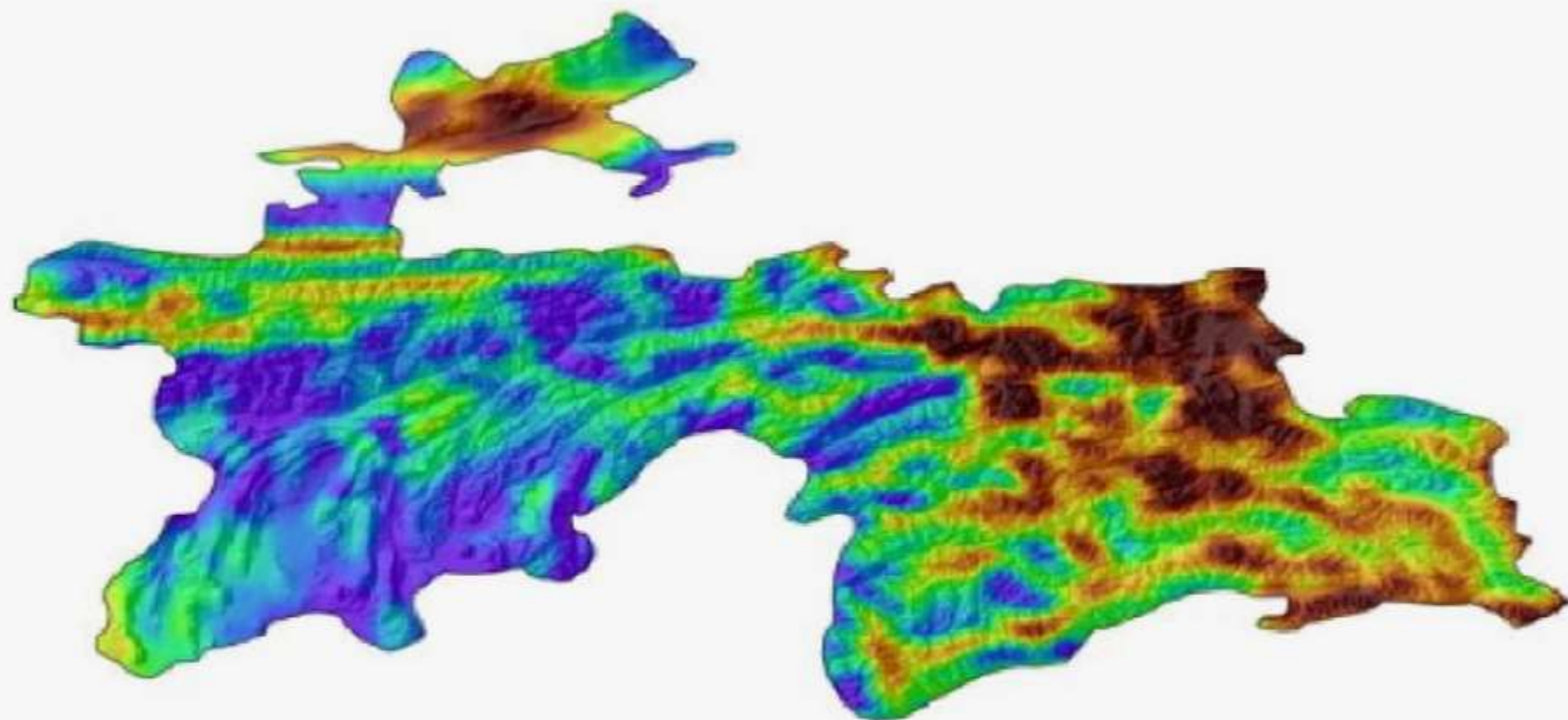
Branch of the National Bank in Kurgan-Tube - power 30 kW;

Ministry of Industry - power 15 kW

Institute of Gynecology, Dushanbe - power 40 kW;



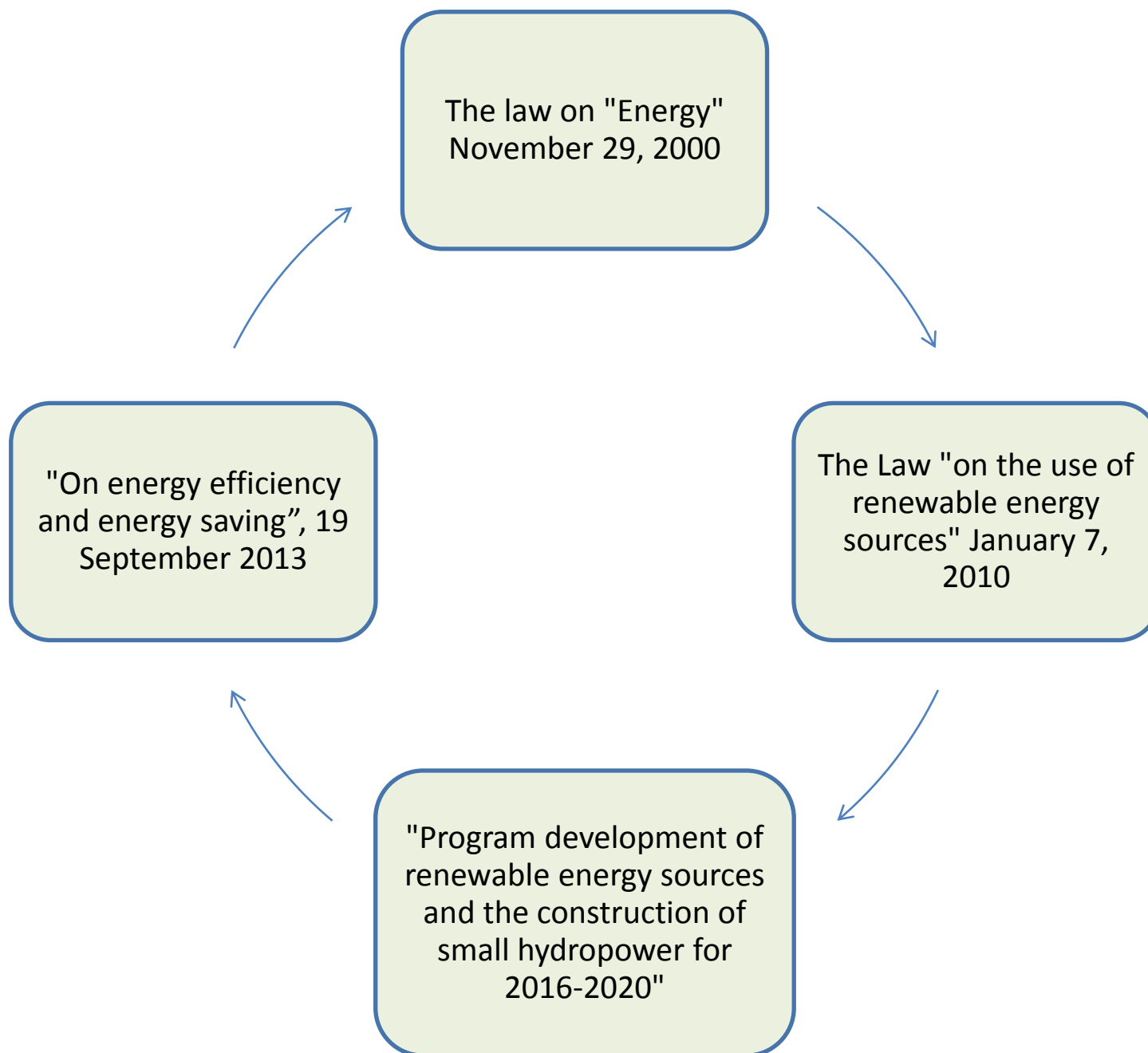
Tajikistan Wind Map at 80m



5km Wind Map at 80m

Wind speed





Educational and technological center for the implementation of renewable energy technologies (RES) and energy efficiency (EE) in Dushanbe, Tajikistan



Equipment of the center

- Samples of photovoltaic panels
- Samples of charge controllers
- Samples of inverters
- Samples of batteries
- Samples of solar water heating systems







Development of solar energy resource maps using solar radiation observations



Increasing the sustainability of energy projects through the use of hybrid power stations (solar and wind "off grid" stations and micro HPPs)



Raising awareness of the population and training personnel in the field of renewable energy through training



Stimulating the use of the public-private partnership in the field of renewable energy



THE USE OF RENEWABLE ENERGY, WHICH CORRESPONDS TO THE CONCEPT OF "GREEN ECONOMY"

GENERATION OF AFFORDABLE AND CLEAN ELECTRICITY

SAVING FUEL RESOURCES, WHICH ARE INTENSIVE USED NOW TO PRODUCE ELECTRICITY

REDUCTION OF EMISSIONS OF CARBON GASES TO THE ATMOSPHERE

SUSTAINABLE MANAGEMENT OF WATER RESOURCES

WATER SECURITY

PROTECTION MUDFLOWS AND FLOODS AND TO MITIGATE THE RISK OF DROUGHT

Thank you for your attention!

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