



# REPUBLIC OF UZBEKISTAN

## ENERGY POLICY

Ministry of Economy of Uzbekistan

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- \* Outlook of energy policy, demand and supply

# UZBEKISTAN: General Information

## LOCATION



# UZBEKISTAN: General Information

**Area:** 447.8 thous.sq.km  
**Population:** above 30 mln.

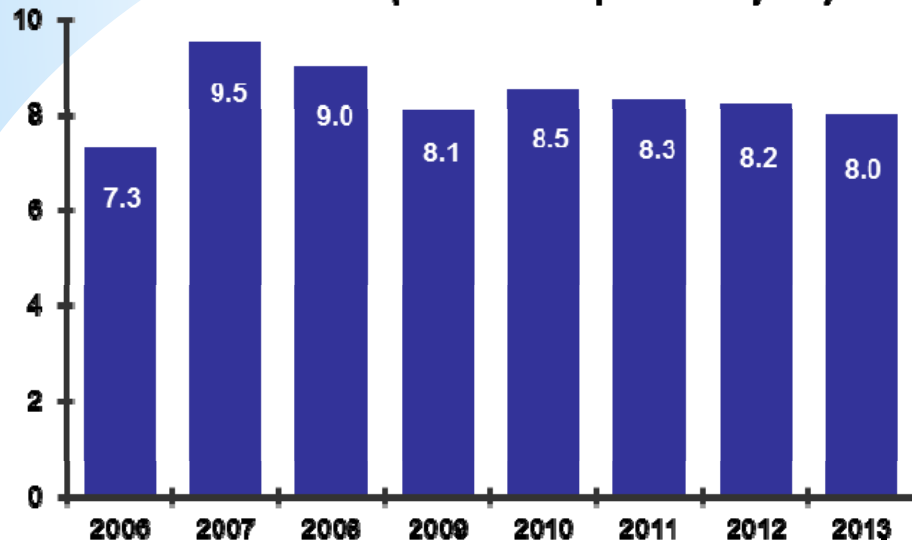


■ Uzbekistan borders on 5 countries with the total population of 60 mln. people

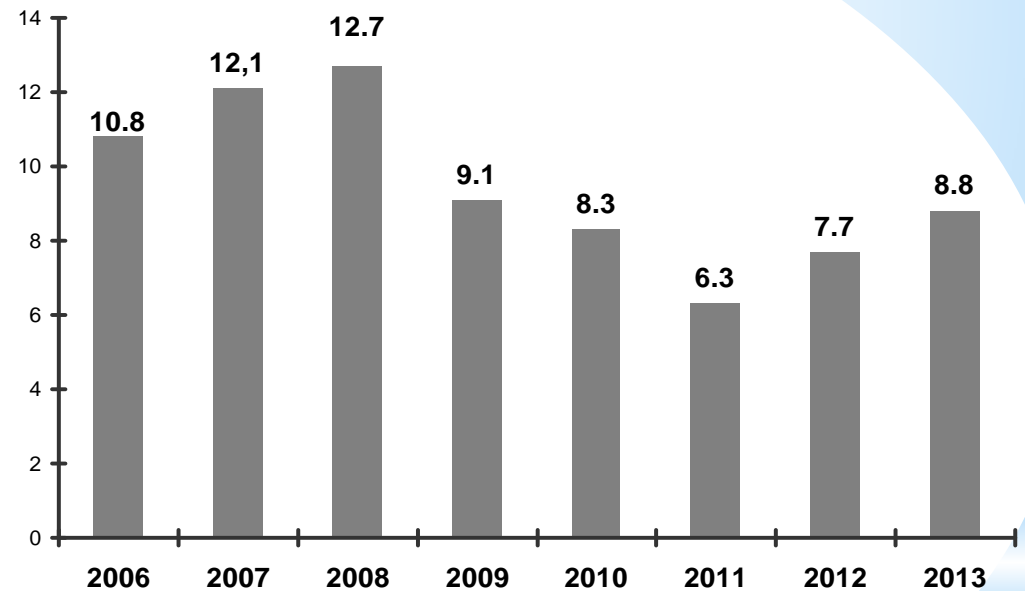
# Main trends of social economic development of Uzbekistan

Sustained high rates of economic growth  
(7-9% per annum on average)

**GDP growth rate**  
(In % to the previous year)



**Growth rate of industry production**  
(in % to the previous year)



- for the period of independence, the development of GDP based on purchase power parity has increased 3.5 times

- volume of industrial production has grown more than 3 times during 1990-2012

# Main trends of social economic development of the Republic of Uzbekistan

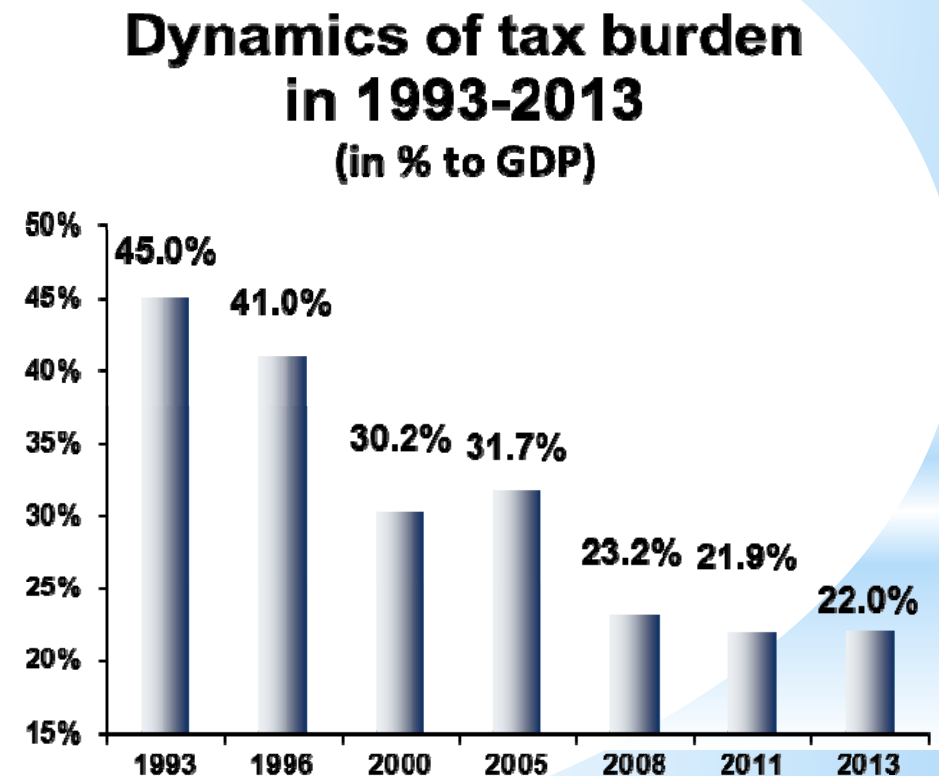
(in % to previous year)

#	Indicators	2013	Forecast	
			2014	Average rates until 2030
1.	GDP growth rate	108.0	108.1	107.0-108.0
2.	Inflation rate (end of period)	6.8	6-7	5-6
3.	Industry production growth rate	108.8	108.3	108-109
4.	Agriculture production growth rate	106.0	105.8	105-106
5.	Investment growth rate	109.3	109.5	109-112
6.	Decreasing of Energy intensity of Economy	15.3	115.0	110-115

# Government support for development of the economy

For the years of Independence the aggregate tax burden decreased by almost 3 times. Moreover the Government provides additional tax incentives for exporters, small business enterprises and companies engaged in new investments and starting production of new goods and products

Taxes	Tax rates in 1992-2009	Tax rates in 2013
Legal entities income tax	45%	9%
Individual income tax	13%-60%	8%-22%
Value added tax	30%	20%
Single social payment	40%	25%
Single tax payment for small enterprises	15,2%	6% (in industry - 5%)



# Factors assuring sustainable economic development of the Republic of Uzbekistan during 2014-2030

1. Retaining macroeconomic stability, domestic and external balance of the economy;
2. Active industrial policy, aimed for structural changes, rapid growth of the share of processing industry with the production of high value added goods;
3. **Implementation of modern innovative technologies, including environment-friendly and energy-saving;**
4. Modernization and development of the industrial infrastructure, particularly transport, power industry, water use and sewer systems, as well as means of communication;



State joint stock company "Uzbekenergo" is the governing body in the power energy and coal industries - the major structural components of the economy.

The company includes 54 enterprises and organizations.

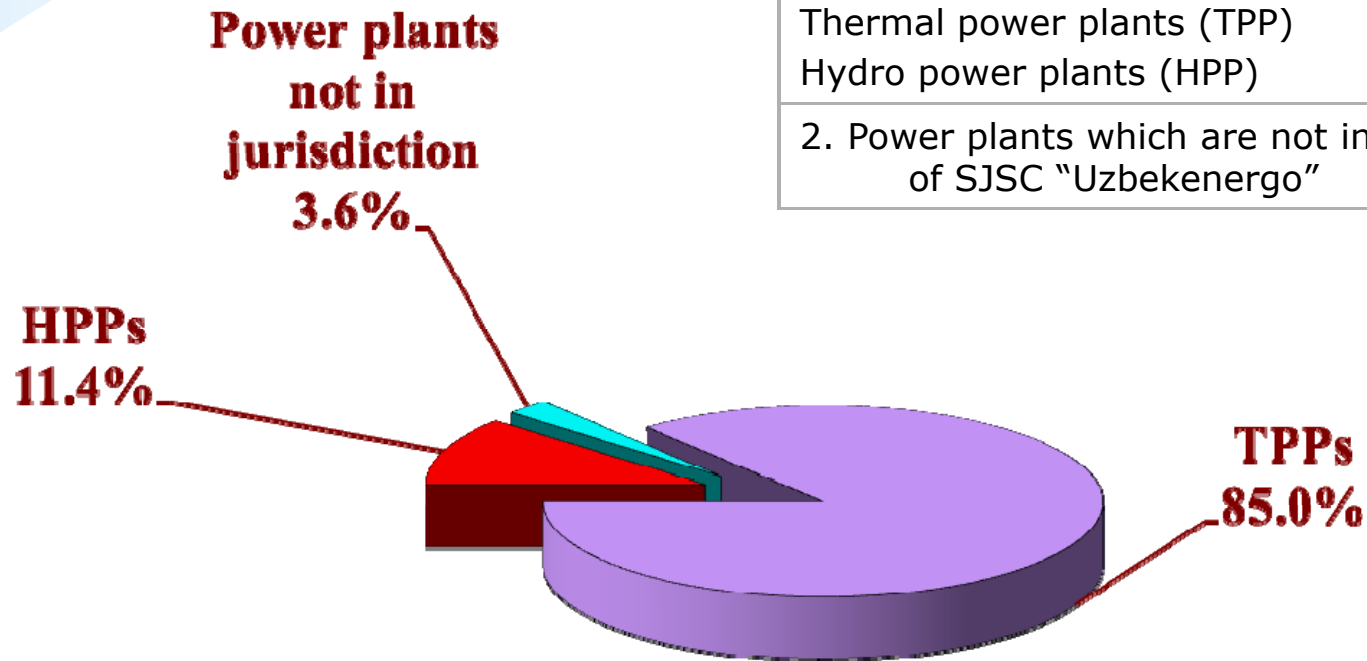
The installed capacity of power plants of "Uzbekenergo" is 12.5 million kW.

The Thermal Power Plants of total capacity about 11,0 mln. kW is the base of the Power System of Uzbekistan. The power units of capacity from 150 to 800 MW each are set up at 5 big Thermal Power Plants

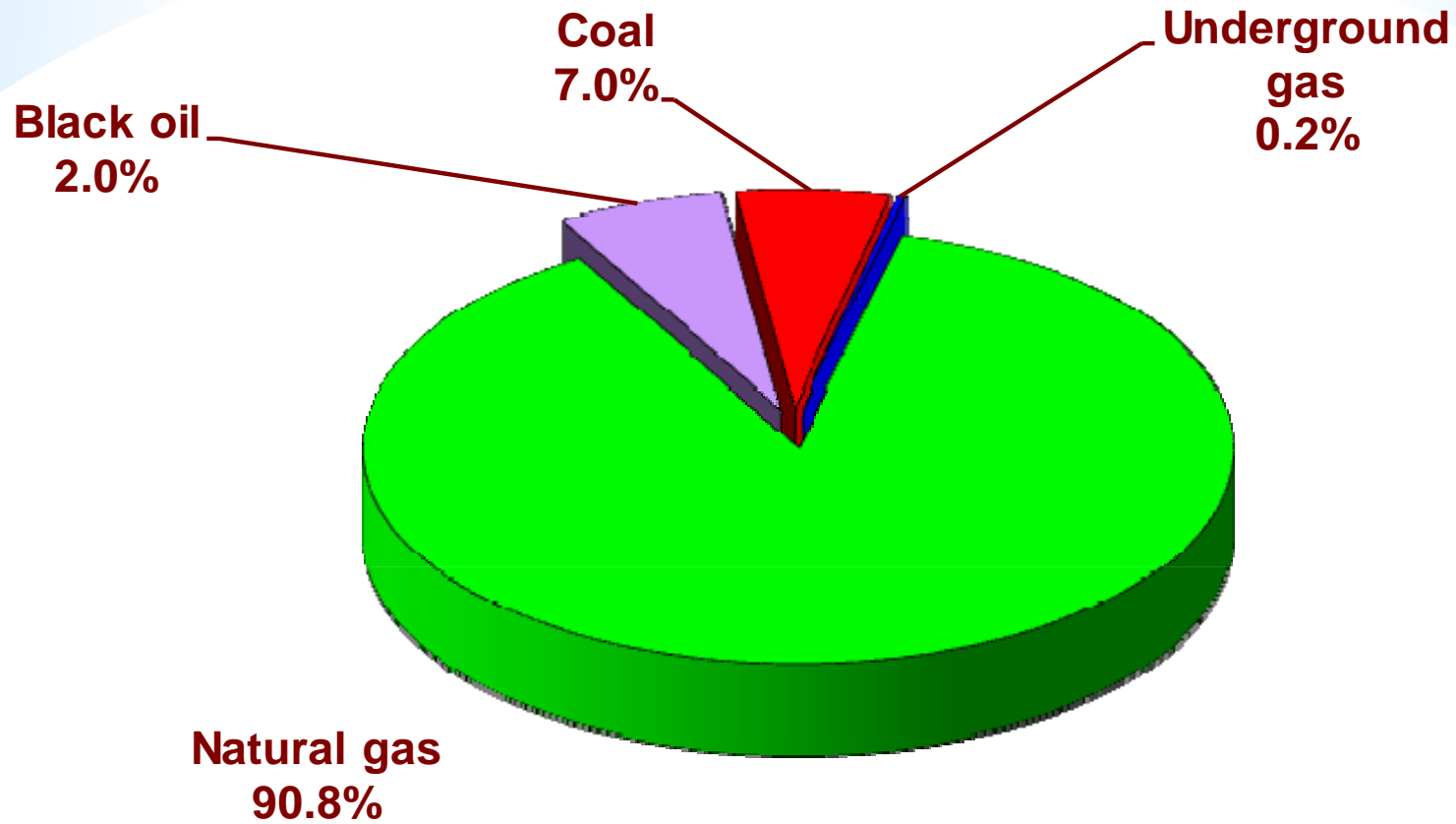
These are such a big Thermal Power Plants as Talimardjan, Syr-darya, Novo-Angren, Tashkent and Navoiy TPP's generating over 85% of electric power.

# Structure of Installed Capacities of Power Plants in Uzbekistan

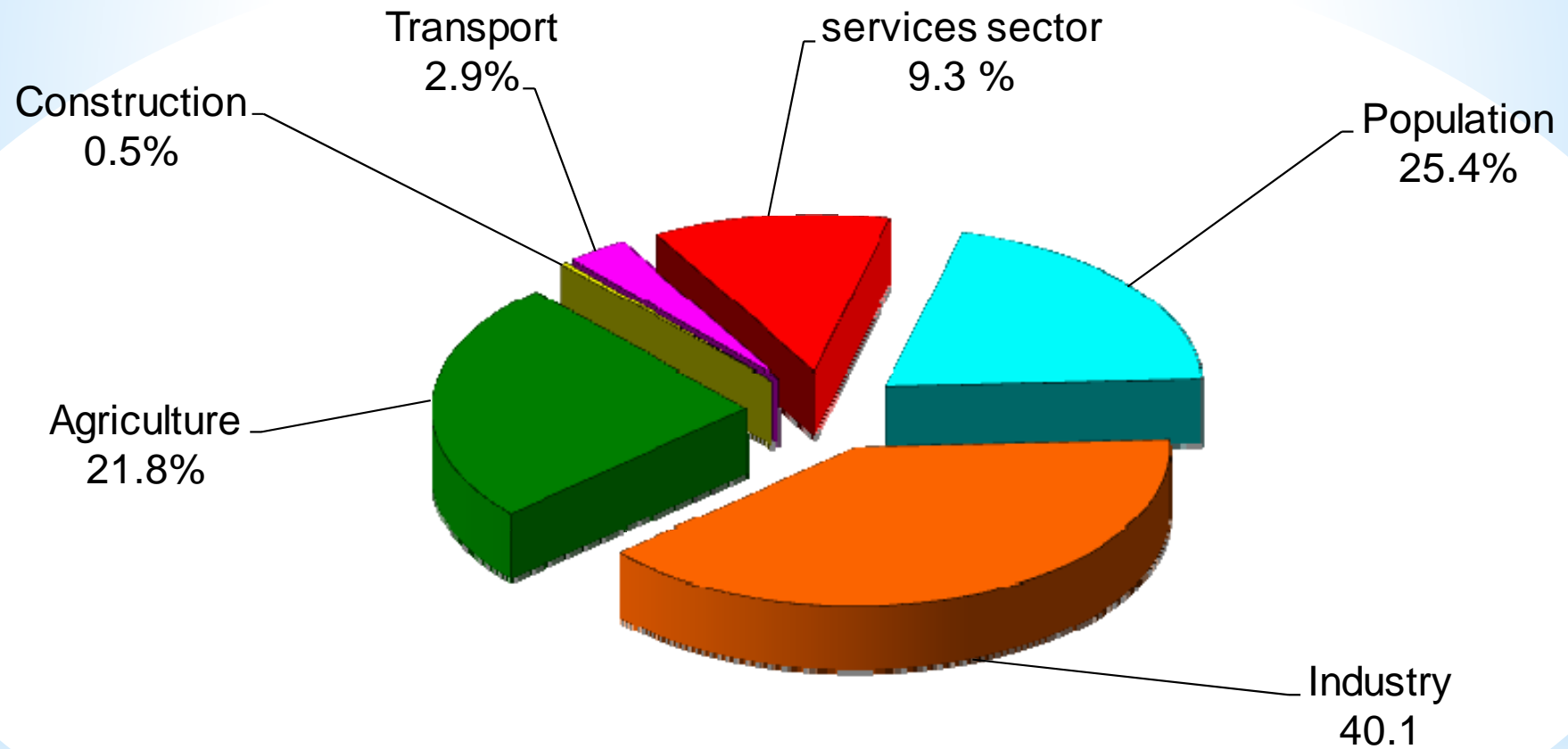
The installed capacities of power plants in Uzbekistan (MW), total including:	12,945.0
1. SJSC "Uzbekenergo" including:	12,467.0
Thermal power plants (TPP)	11,048.0
Hydro power plants (HPP)	1,419.7
2. Power plants which are not in jurisdiction of SJSC "Uzbekenergo"	478.5



# Structure of Fuel Consumption by Thermal Power Plants



# \* Electrical Energy Consumption by Economic Sectors and Population



# Current Energy policy and measures

# \* Government strategy in the energy policy

- \* Forcing the energy efficiency policy
- \* Development of technology based on ecologically friendly energy;
- \* Energy efficiency as a part of national forecasts;
- \* Priority to the development of RES.
- \* Growth of energy resources' commercial export

# \* Legal framework

- \* “Law on Energy”, 2009
- \* Article 20 of the Law “On rational energy usage” (1997)
- \* Decree of the President of the Republic of Uzbekistan dated March 01, 2013 no. 4512 “On measures for further development of alternative energy sources“
- \* The Resolution of the President of the Republic of Uzbekistan March 01, 2013 no. 1929 “On creation of the International Institute for Solar Energy“
- \* Draft Law of the Republic of Uzbekistan “On renewable energy sources” - to be presented to the Parliament.
- \* Program of expenses decreasing and cost reduction in industrial enterprises.
- \* Decree of the Cabinet of Ministers of 25.07.2011 № 211 “Improving energy efficiency of industrial enterprises” supported by International Development Association

# ENERGY SECTOR Development Stages

**1-stage: (1991-1996)** – Energy independence and reorientation of the fuel-energy market to achieve society's priority social goals.

**2-stage: (1997-2002)** - Introduction of market management mechanisms; incentives for domestic and foreign investment into sector.

**3-stage: (2003-present)** – Raising energy efficiency and introduction of renewable energy sources



# Main measures on Energy Policy

- \* Program of expenses decreasing and cost reduction in industrial enterprises
- \* Project “Improving energy efficiency of industrial enterprises“ supported by International Development Association (WB)
- \* Preferential loans and incentives on tax and customs payments for modernization and re-equipment production by new energy-efficient technology
- \* Incentives for organizing the domestic production energy-efficient goods
- \* Works on gradually equipping (starting from 2015) households and new constructing houses (ADB) with energy-efficient devices and boilers of domestic production

## Program for Priority Development of Power Industry till 2015

No	Power Industry Sector	Quantity of Projects	Capacity/ Length
1	Thermal Power Plants	15	2,639 MW
2	Hydro Power Plants	10	83.45 MW
3	Power Networks 110-500 kV	9	933.4 km, 2,099 MW
4	Power Distribution Networks 0.4-35 kV	1	25.1 thousand km, 4,057 transformers, 58 substations (35 kV)
5	Electricity Consumption Metering System Introduction	4	4.5 million electricity meters
6	Others	8	Production of composite materials, current transformers, electricity meters, LED lamps, diesel oil synthesis and repair companies modernization

## \* List of Investment Projects in Thermal Power Sector

No	Name of project	Capacity MW	Sources of funding
1	Construction of CCGT unit at Navoi TPP	478 MW CCGT unit	UFRD loans
2	Introduction of gas turbine technology at Tashkent CHPP (with CDM component)	27 MW GTU	NEDO grant
3	Expansion of Talimardjan TPP with construction of two CCGT units	2 x 450 MW CCGT units	UFRD , ADB, JICA
4	Installation of gas expansion machines at Syrdarya and Talimardjan TPPs with expansion of 220kV open switchyard at the above plants	20	UFRD loan
5	Transfer of generating units No 1-5 of Novo-Angren TPP to all-the-year-round coal burning with modernization of "Angren" coal strip mine (first stage)	-	Loans of UFRD and Exim Bank (China)
6	Construction of generating unit with heat extraction for high-ash coal burning at Angren TPP	130-150	Chinese loan for SCO countries
7	Reconstruction of cooling towers No 1 and No 2 and 220kV open switchyard at Navoi TPP	-	Own funds
8	Full-scale modernization of two generating units at Syrdarya TPP	50	UFRD loan
	<b>Total</b>	<b>1,625</b>	

## \* Construction of combined cycle gas turbine in the Navoi TPP

The aim of the project is to provide reliable and quality supply of heat and electrical energy to consumers in South-West power center, Navoi free industrial and economic zone and reduce unit cost of energy resources for production and decrease the environmental impact of the HPP.

Capacity: 478 MW.

Output of electrical energy:

3,4 – 3,5 billion kWh annually.

Project implementation period: 2009-2012.

The total cost: 468 million USD.

Sources of finance:

Own funds of SJSC “Uzbekenergo” – 131,98 million USD;

Loans of the Fund of Reconstruction and Development of the Republic of Uzbekistan – 351 million USD;

Loans of commercial banks – 46,8 million USD.

**Expansion of Talimarjan TPP with construction of  
2 combined cycle generators with capacity of 450 MW each**

**Capacity:** 2x450 MW.

**Output of electrical energy:**

6,8 – 7,0 billion kWh annually.

**Project implementation period:** 2013-2016.

**The total cost:** 1280 million USD.

**Sources of finance:**

Own funds of SJCS «Uzbekenergo» – 380 million USD

Loaned finance (ADB, JICA) – 650 million USD

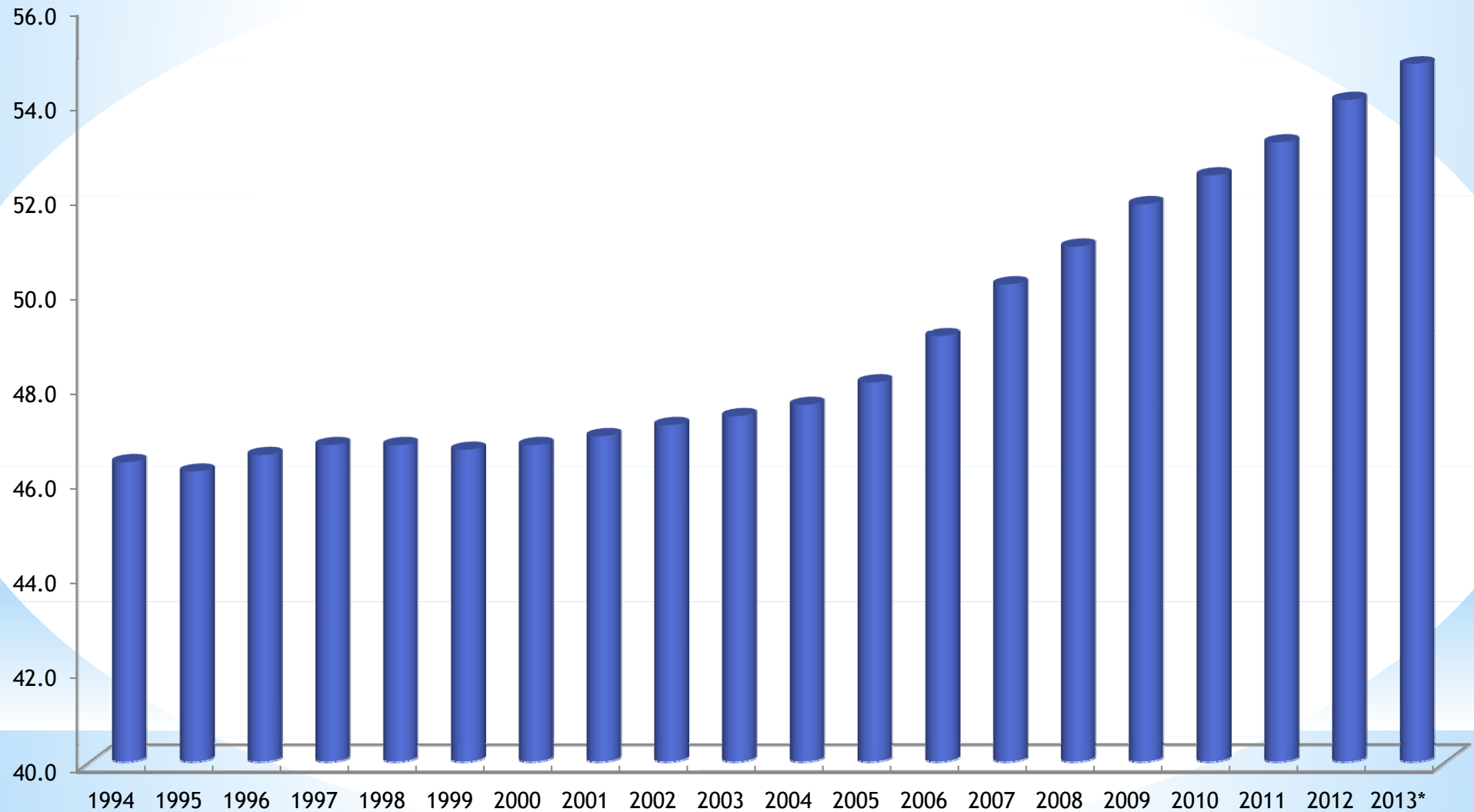
Fund of Reconstruction and Development of Republic of  
Uzbekistan – 250 million USD.

# Energy demand and supply (statistics)

During the economic reform years, the Power Industry's enterprises annually generate up to 48bln.kW/h of electric power and more than 10 mln. Gcal of thermal power that fully meet the economic and population demand of the country.

# Power energy demand and supply

billion.kWh



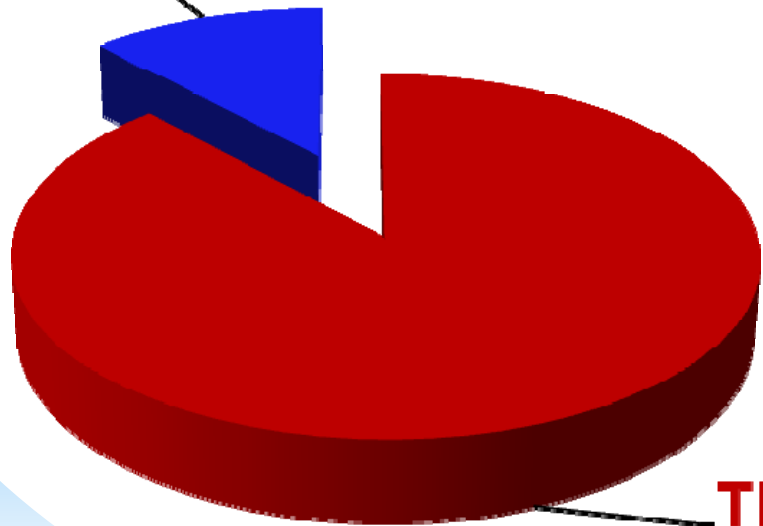


# Outlook of energy policy demand and supply

# Outlook of changing the structure of power energy capacities up to 2030<sup>th</sup> y.

2013 Y.  
54.9 BILLION KWH

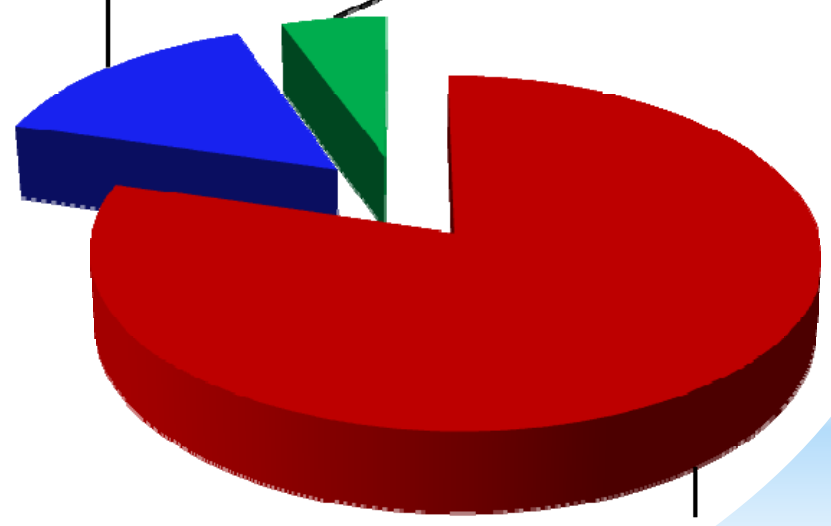
HPP;  
11,5%



TPP;  
89,5%

2030 Y.  
105.0 BILLION KWH

HPP;  
16%



RES;  
7%

TPP;  
77 %

## \* Hydroelectric Potential and its Use in the Republic of Uzbekistan

According to the estimate of total hydroelectric potential of 656 rivers with confluents having overall water-producing area of 83,369 km<sup>2</sup>:

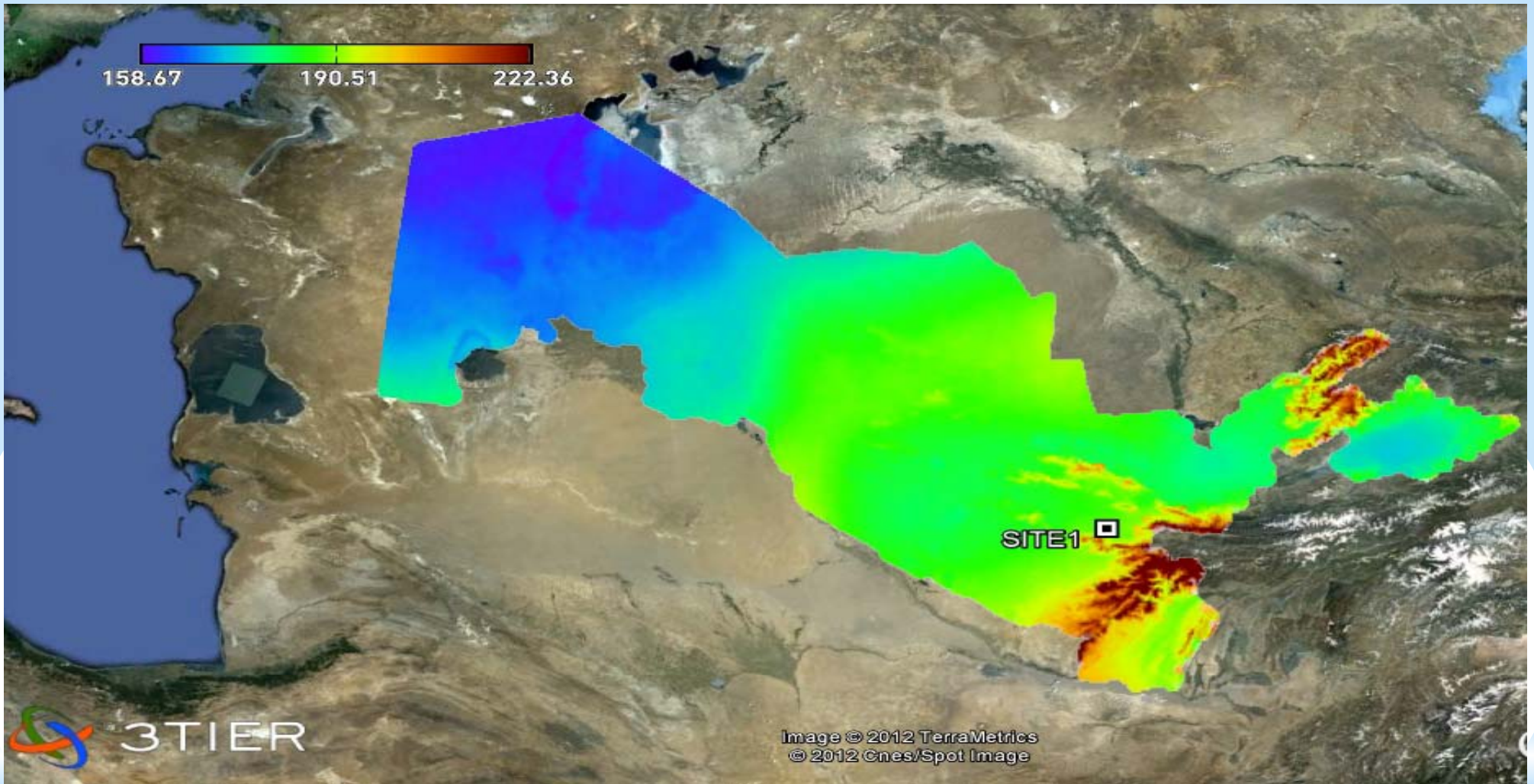
1. Total theoretical hydroelectric potential of river flow in the country is 88.5 billion kWh.

2. Total technical hydroelectric potential is 21.09 billion kWh, including:

- ✓ 6.85 billion kWh at operating HPPs;
- ✓ 3.06 billion kWh at canal drop structures;
- ✓ 1.36 billion kWh at irrigation reservoirs;
- ✓ 9.82 billion kWh on rivers.

3. Presently it is used 6.27 billion kWh of technical potential, including:

- ✓ 5.17 billion kWh generated by HPPs in SJSC “Uzbekenergo” system;
- ✓ 1.1 billion kWh generated by HPPs in the system of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan.



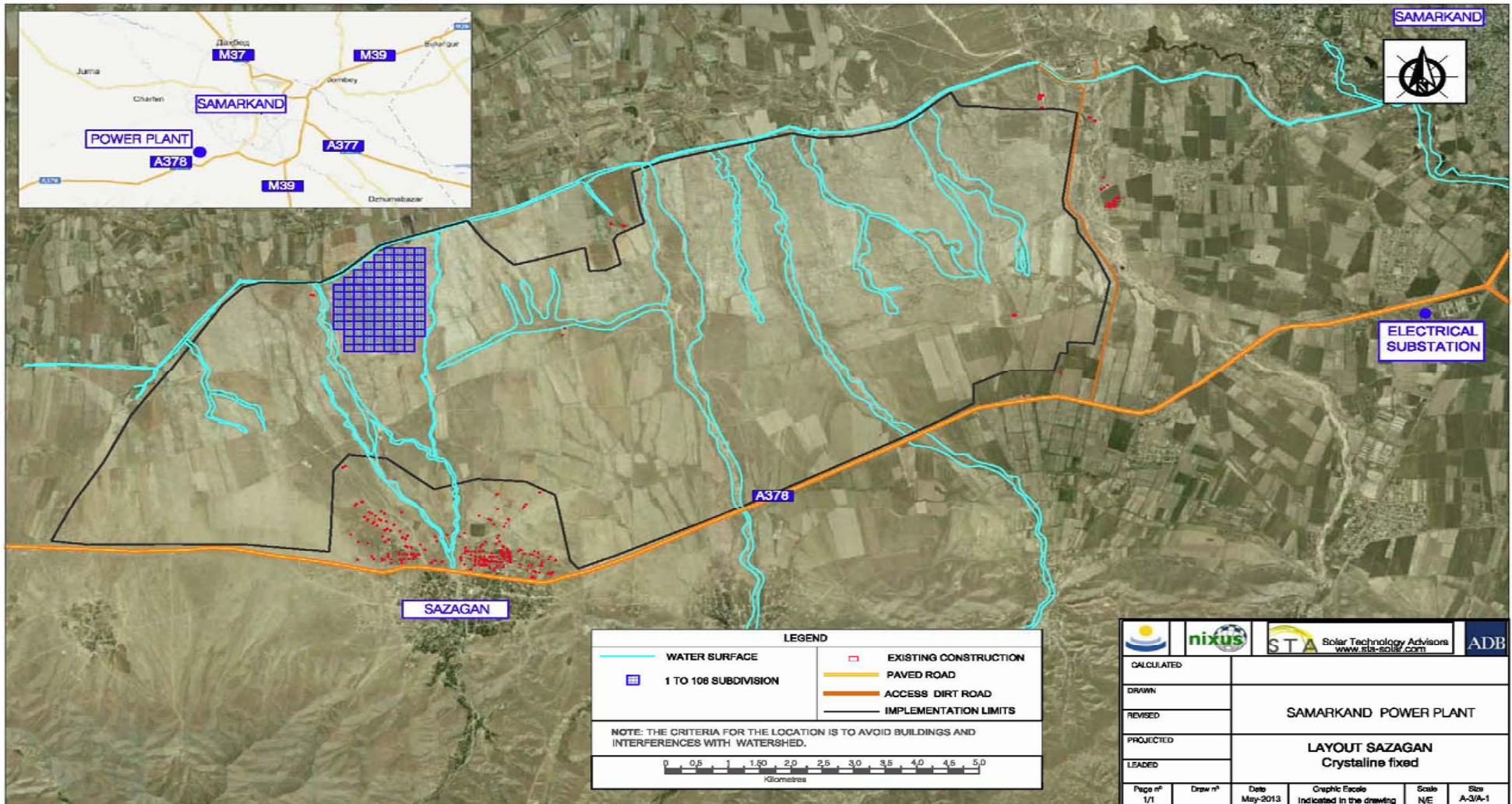
**The total potential of solar radiation in the Republic of Uzbekistan is estimated to be in the range from 525 billion kWh up to 760 billion kWh**



## **Construction of 100MW Solar Photovoltaic Power Plant in Samarkand Province**



\* The site is located 4 km north of Sazagan settlement



# Production of photovoltaic panels in Uzbekistan

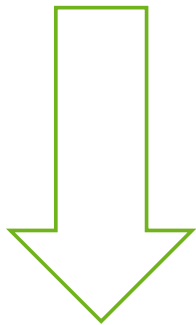
The project implementation is to be done in accordance with the Decree of the President of the Republic of Uzbekistan dated 01.03.2013, №4512 "On measures for further development of alternative energy sources". It's being implemented by SJC "Uzbekenergo" jointly with Chinese partners in Free industrial economic zone "Navoi". Its capacity is at the first stage will be 50 MW solar panels per year. In the future it is planned to reach capacity of 100 MW per year.

Currently project documentation and JV agreements are being finalized.

# Potential of biogas in Uzbekistan

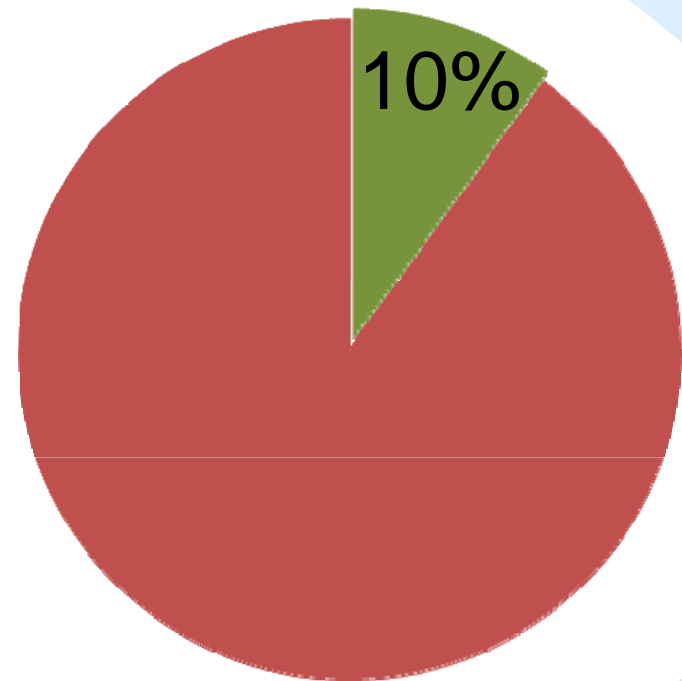
Technical potential of biogas production  
In Uzbekistan

8,9 bln. cubic. m. / year



6 bln. cubic. m. / year  
methane

Resource of biogas in comparison with  
the production of natural gas in the republic



60-65 bln. cubic. m./year  
methane production in the republic



# Biogas plant in the farm «Milk agro» Tashkent region



## UNDP Project "Promotion of Biogas Technology in Uzbekistan"

### Technical characteristics

**Power**

**300 m<sup>3</sup> tonnes  
in a year**

**Volume**

**120 tonnes in a  
year**

**Biofertilisers**

**2800 tonnes in  
a year**

**Loadings**

**5-7 tonnes  
manure daily**

**Electric power**

**20 kWt\*h**

# THE LIST OF EXPERIMENTAL AND PILOT PROJECTS ON THE IMPLEMENTATION OF SOLAR AND BIOGAS ENERGY

In accordance with the Decree of the President of the Republic of Uzbekistan dated 01.03.2013, №4512 "On measures for further development of alternative energy sources", on the 25<sup>th</sup> of July, 2013, by the Cabinet of Ministers of Uzbekistan was approved "The list of experimental and pilot projects on the implementation of solar and biogas energy in 2013-2018 years". It includes projects for installation of: biogas units with the total cost of more than 14 mln. USD, PV units with the total cost of more than 100 mln USD.

**THANK YOU FOR  
ATTENTION!**