



Ministry of Energy of the  
Republic of Uzbekistan

# Development of energy sector of the Republic of Uzbekistan

# REFORMS IN THE ENERGY SECTOR OF UZBEKISTAN



## JSC Thermal Power Plants

~ Total installed capacity:

**11 539 MW**

~ 7 TPP~ 3 CHP



## JSC "Uzbekhydroenergo"

~ Total installed capacity:

**2 071 MW**

~ 50 HPP



## Private stations

~ Total installed capacity:

**3 674 MW**

~ 7 TPP,  
**2 Photovoltaic PP**



## JSC "Regional Electric Grids of Uzbekistan"

Distribution and supply of electrical energy to consumers through distribution networks.



## JSC "National Electric Network of Uzbekistan"

Transportation of electrical energy from generation sources through high voltage networks



## JSC "Uzbekneftegaz"

extraction and processing of hydrocarbon raw materials



## JSC "Uztransgaz"

Transportation, building up the export and transit potential of natural gas



## JSC "Hududgaztaminot"

distribution of natural gas to the end consumer



Electricity market models and transition stages identified



Together with experts from the WB, ADB and EBRD, a new version of the Electricity Law is being developed



The Electricity Grid Code is being developed with technical support from the World Bank and The ADB



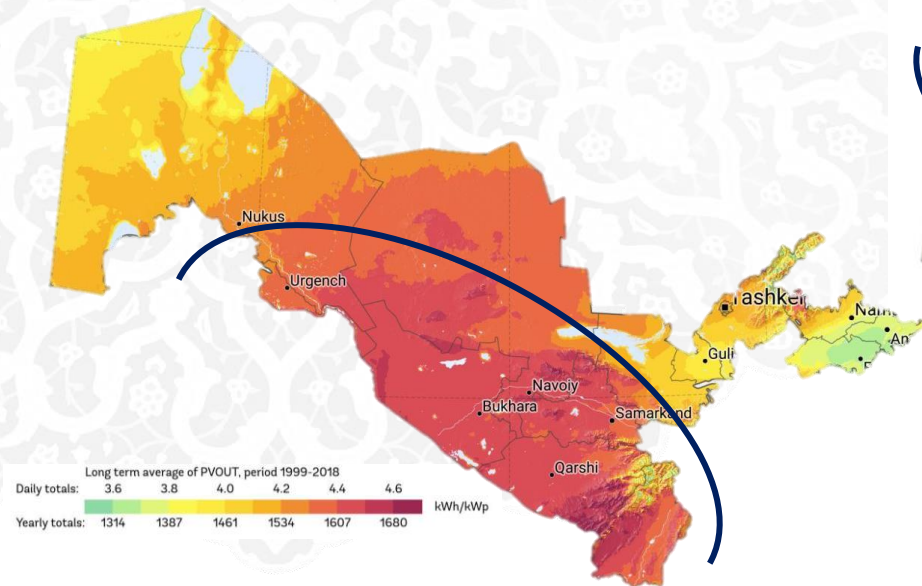
The Concept for the provision of the Republic of Uzbekistan with electric energy for 2020-2030 was developed



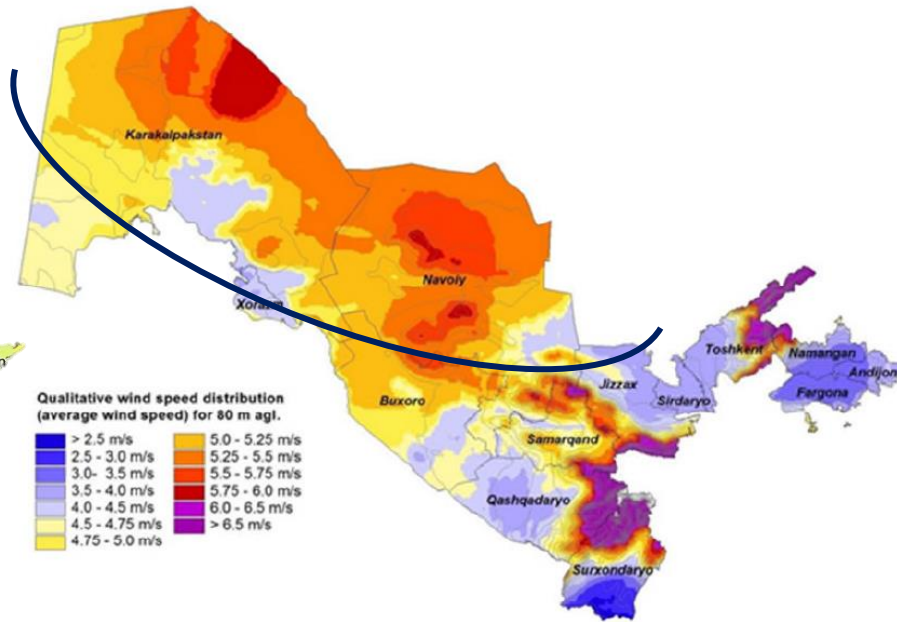
Transition to IEC standards in progress

# UZBEKISTAN RENEWABLE ENERGY POTENTIAL

## Solar potential



## Wind potential



## Diversification of energy supply by sources



**HPP**

\$2,8 billion investment in 2022-2030 to develop 60 new projects and upgrade 18 existing stations



**PPP**

**51 billion** tons of oil equivalent



**WPP**

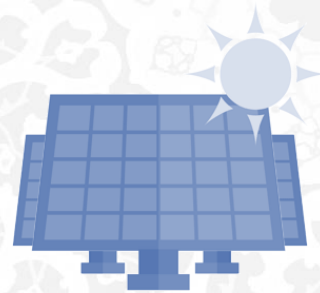
**360 million** tons of oil equivalent



# SIGNED AGREEMENTS ON PPP TERMS

## Photovoltaic plants

**8 projects** with a total capacity of **1 647 MW**



Power, MW	Investments, millions of USD.
1247	970
100	100
200	179
100	90

(with 62,5 MW BESS)

## Wind farms

**7 projects** with a total capacity of **3 100 MW**



Power, MW	Investments, millions of USD.
500	600
2 600	3 708

(with 300 MW BESS)

**22 projects**  
with a total capacity  
of **10.75 GW**  
and the cost of  
**\$9.5 billion**

Combined cycle power plants  
**5 projects** with a total capacity of **5 114 MW**



Power, MW	Investments, millions of USD.
1 500	1 050
240	150
240	150
1 560	1 100
1 574	875

Gas-piston power plants  
**4 projects** with a total capacity of **894 MW**



Power, MW	Investments, millions of USD.
500	300
174	105
220	140

# IMPLEMENTED AND PLANNED WORKS IN THE FIELD OF RENEWABLE ENERGY SOURCES

## Works performed in 2017-2022

Number of announced tenders	7
Number of projects	17
Number of agreements signed	13
Capacity of signed projects	4 747 MW
Adopted legal documents on projects	10
The cost of signed projects	5,8 billion dollar

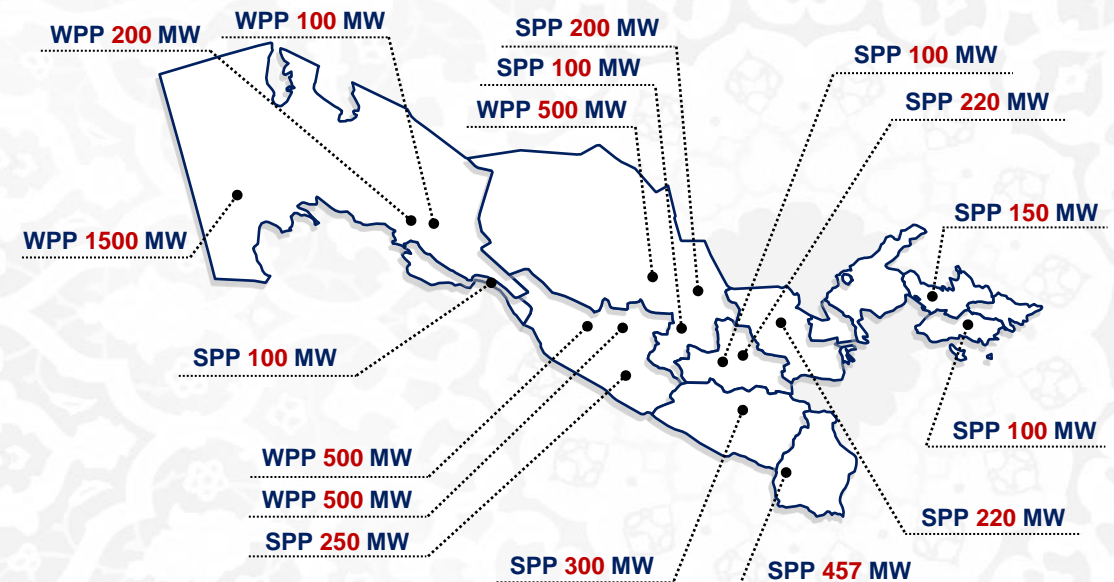
### Commissioned solar power plants

Investors	Masdar (UAE) Total Eren (France)
Total capacity of projects	200 MW
Electricity generation per year	500 million kWh
Saving natural gas per year	150 million cubic m
Reducing greenhouse gas emissions per year	200 thousand tons
Funds raised by investors within the project	200 million dollar



## Planes till 2030

Total RES capacity	15 000 MW
Solar photovoltaic stations	10 000 MW
Wind farms	5 000 MW
Total annual output	40 billion kWh
Total annual gas savings	11,4 billion cubic meters
Total cost of investment	14 billion dollar
Permanent jobs created	3 000
Prevention of CO2 emissions	16 million tons

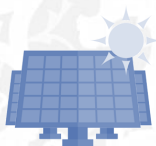




# ONGOING NEGOTIATIONS WITH COMPANIES ON SOLAR PROJECTS

Implementation of **2 projects** with a total capacity of **1 000 MW** by “**CEEC-GEZHOUBA**”

Total capacity	<b>1 000 MW</b>
Total annual output	<b>2,6 billion kWh</b>
Total annual gas savings	<b>750 million cubic meters</b>
Total cost of investment	<b>900 million dollar</b>
Prevention of CO2 emissions	<b>1,1 million tons</b>
Location	<b>Kashkadarya and Bukhara regions</b>



Implementation of **2 projects** with a total capacity of **2 000 MW** by “**HUANENG RENEWABLE**” and “**POLY GROUP**”

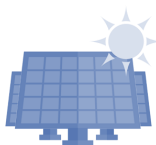
Total capacity	<b>2 000 MW</b>
Total annual output	<b>5,2 billion kWh</b>
Total annual gas savings	<b>1,5 billion cubic meters</b>
Total cost of investment	<b>1,8 billion dollar</b>
Prevention of CO2 emissions	<b>2,1 million tons</b>
Location	<b>Tashkent and Jizzakh regions</b>



**8 projects**  
with a total capacity  
of **4,9 GW**  
and the cost of  
**\$ 4390 billion**

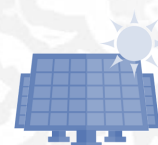
Implementation of **2 projects** with a total capacity of **600 MW** by “**CNCEC No.7**” and “**Xian electric Engineering**”

Total capacity"	<b>600 MW</b>
Total annual output	<b>1,5 billion kWh</b>
Total annual gas savings	<b>412 million cubic meters</b>
Total cost of investment	<b>540 million dollar</b>
Prevention of CO2 emissions	<b>608 tons</b>
Location	<b>Navoi and Tashkent regions</b>



Implementation of **2 projects** with a total capacity of **1300 MW** by “**ACWA Power**” and “**CAMCE**”

Total capacity"	<b>1 300 MW</b>
Total annual output	<b>3,3 billion kWh</b>
Total annual gas savings	<b>950 million cubic meters</b>
Total cost of investment	<b>1,15 billion dollar</b>
Prevention of CO2 emissions	<b>1,3 million tons</b>
Location	<b>Navoi and Tashkent regions</b>



# ONGOING NEGOTIATIONS WITH COMPANIES ON WIND,BESS and TL PROJECTS

Construction of wind power plant with a capacity of **600 MW** by “**Liaoning Lide**”



Total capacity	<b>600 MW</b>
Total annual output	<b>2,1 billion kWh</b>
Total annual gas savings	<b>600 million cubic meters</b>
Total cost of investment	<b>700 million dollar</b>
Prevention of CO2 emissions	<b>840 tons</b>
Location	<b>Bukhara region</b>



Construction of wind power plant with a capacity of **500 MW** by “**Universal Energy**”



Total capacity	<b>500 MW</b>
Total annual output	<b>1,8 billion kWh</b>
Total annual gas savings	<b>420 million cubic meters</b>
Total cost of investment	<b>600 million dollar</b>
Prevention of CO2 emissions	<b>720 tons</b>
Location	<b>Jizzakh region</b>



**4 projects**  
with a total capacity  
of **2,3 GW**  
and the cost of  
**\$ 2,8 billion**

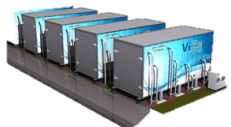
Construction of BESS with a total capacity of **1 200 MW** by “**ACWA Power**” and “**Sungrow**”



Total capacity"	<b>1 200 MW</b>
Working hours	<b>for 2 hours</b>



Total cost of investment	<b>1 billion dollar</b>
Location	<b>Tashkent, Bukhara and Samarkand regions</b>
The capacity in each region	<b>400 MW</b>



Construction of 220-500 kV transmission lines and 220-500 kV substations by “**Xian electric Engineering**”



Overall length of TL	<b>1 000 km</b>
Total amount of SS	<b>5 SS</b>
Total cost of investment	<b>500 million dollar</b>
The regions for TL	<b>Bukhara, Samarkand, Ferghana, Sirdarya, Namangan, Surkhandarya and Navoi</b>
The regions for SS	<b>Tashkent, Ferghana and Namangan regions</b>





# INVESTMENT OPPORTUNITIES FOR THE CONSTRUCTION OF SOLAR PHOTOVOLTAIC AND WIND POWER PLANTS

## ADB Solar 3 and 4

**2st quarter of 2023** – announcement of the Prequalification Request (RfQ) stage

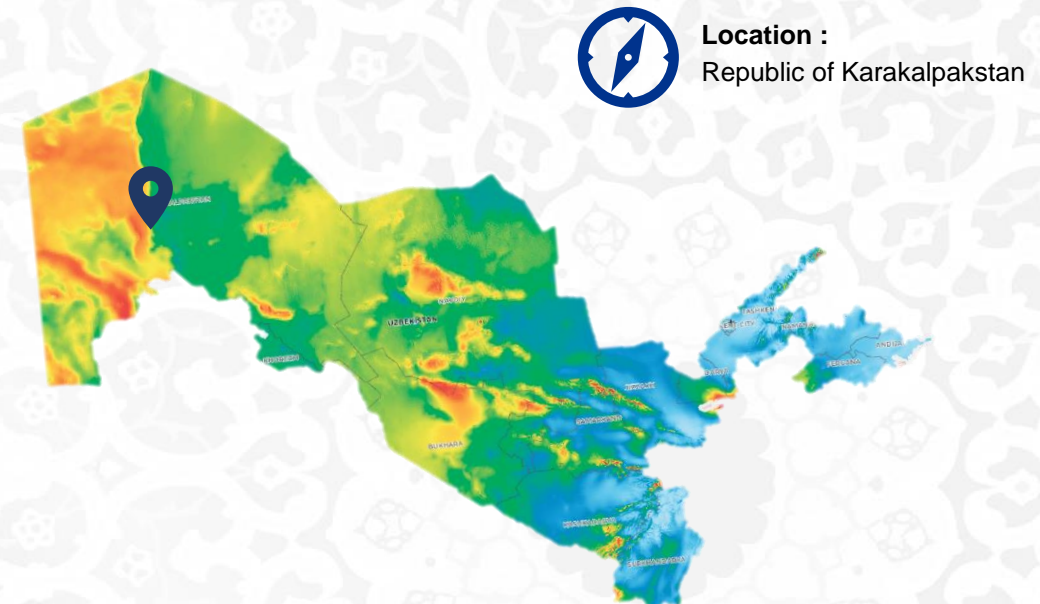
Construction of two photovoltaic plant with a total capacity of 250 MW in the Jizzakh region



## Wind Phase 3

**2st quarter of 2023** – Announcement of the Request for Proposals (RfP) stage







Construction of a 700-1000 MW wind farm in the Republic of Karakalpakstan

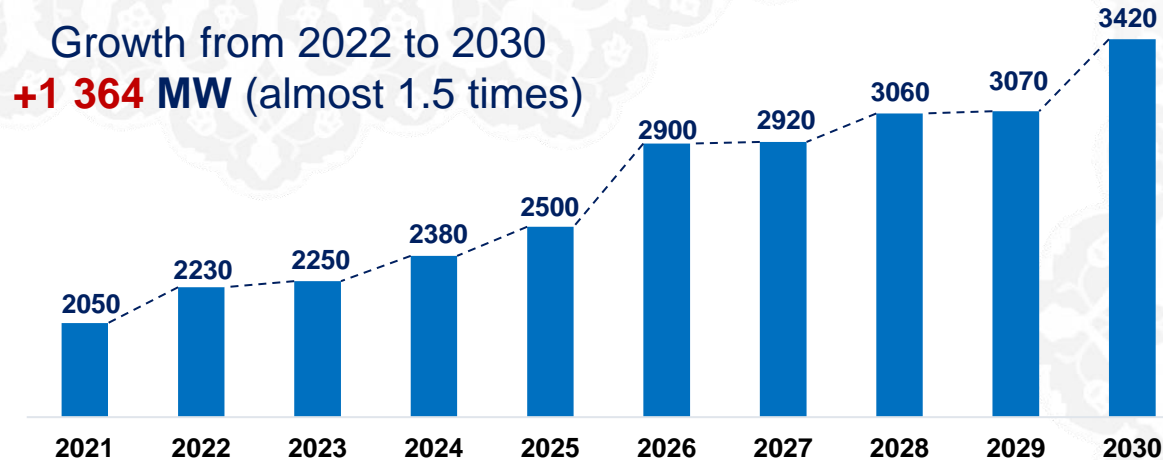




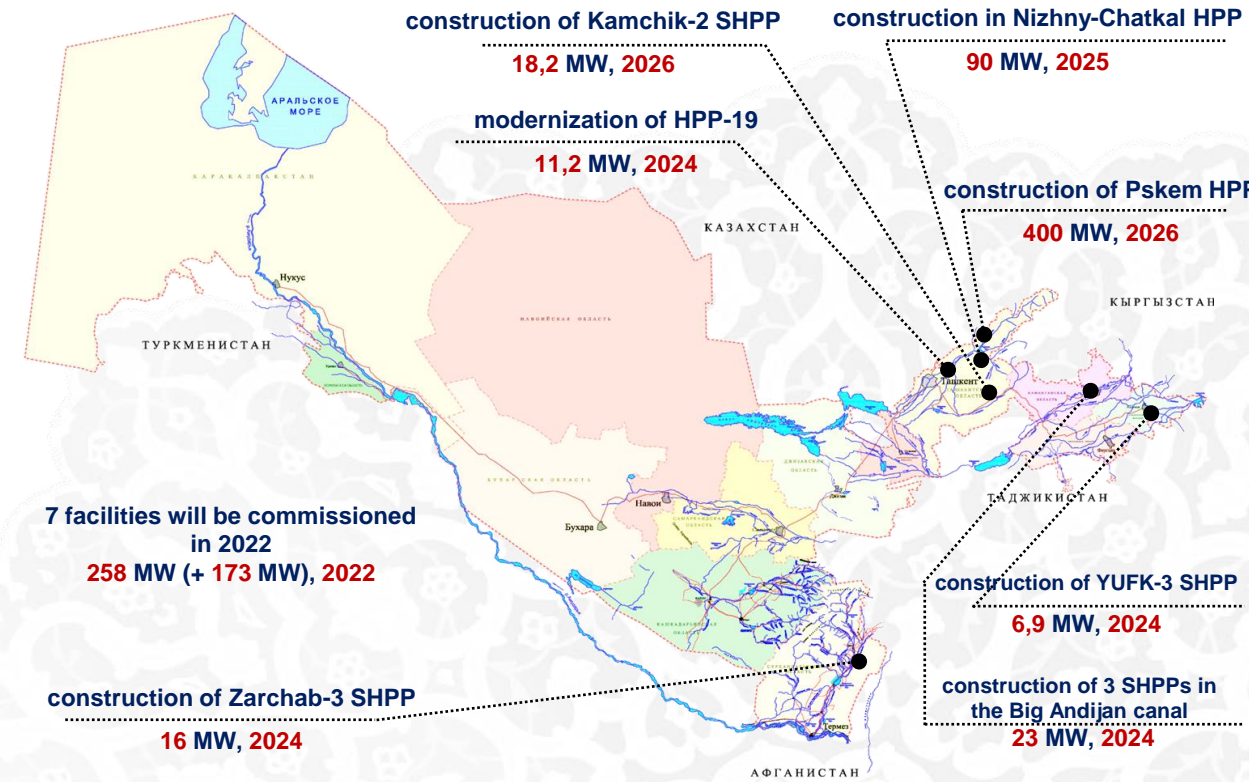
# HYDROPOWER DEVELOPMENT

## Target indicators for hydropower development

	Number of projects (construction and modernization)	<b>78 (1 308,2 MW)</b>
	Projects in cooperation with the private sector (SHPP)	<b>200 (56,6 MW)</b>
	Planned total power	<b>1 364 MW</b>
	Additional annual output	<b>4,7 billion kWh</b>
	Total cost of projects	<b>2,8 billion dollar</b>
	Created jobs	<b>over 2 000</b>



By 2030, all existing HPPs will be fully modernized



## Investment program

**Number of projects– 13**  
**Power- 796,6 MW (+712 MW)**

**Cost - 1 292,4 million dollar**

**Construction – 8**  
**Power- 560 MW**

**1 145,5 million dollar**

**Modernization – 5**  
**Power- 236,6 (+152) MW**

**146,7 million dollar**

**Created jobs - 386**

**2,2 billion kWh**  
**additional generation**

# Potential areas of cooperation

## ACHIVEMENTS OF 7TH GERMAN-UZBEK BUSINESS COUNCIL

## PROPOSALS FOR GERMAN COMPANIES

**SIEMENS**

- 1 Cogeneration
- 2 Efficiency upgrades for existing fleet
- 3 Solar PV projects – 1 GW
- 4 Digitalization, introduction SCADA in to gas system



- 1 Decarbonisation
- 2 Fertilizers based on urease and nitrification inhibitors
- 3 Installation of air separation units on Navoiazot

- 1 Production of synthetic detergents

- 1 Production of fungicides, herbicides, insecticides

**Henkel**



- 1 Solar and wind projects **500-1000 MW**
- 2 Construction of mini and micro HPPs
- 3 Conducting energy audit
- 4 Construction of cogeneration facilities
- 5 Construction gas storage systems
- 6 Production of carbon fiber
- 7 Introduction of energy efficient technologies
- 8 Digitalisation