



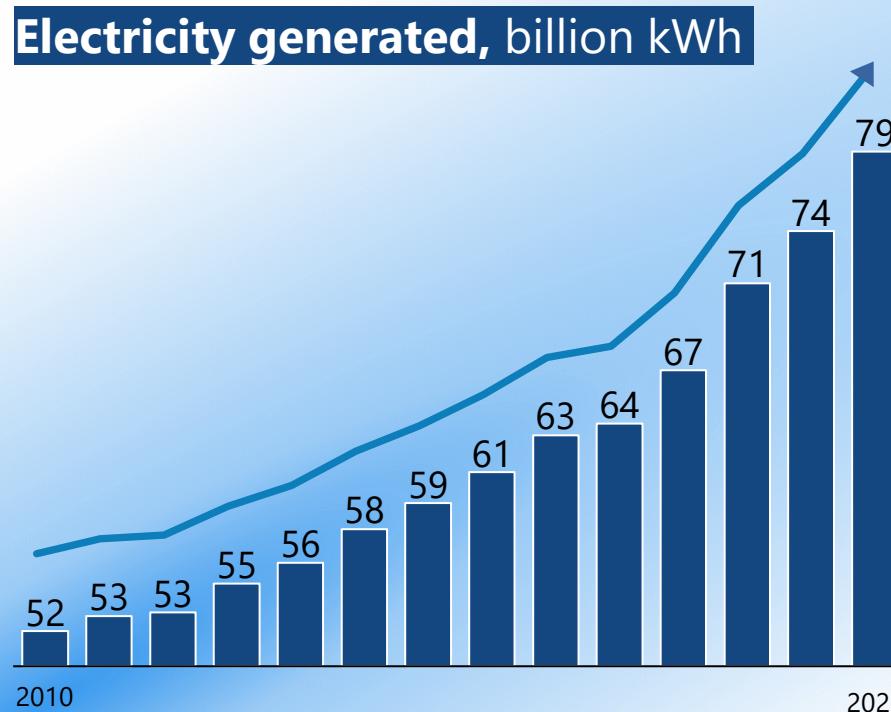
ATOMIC ENERGY AGENCY  
under the Cabinet of Ministers  
of the Republic of Uzbekistan

# Prospects for the implementation of SMR project in the Republic of Uzbekistan

2024

## OVERVIEW OF UZBEKISTAN ENERGY SYSTEM

UZBEKISTAN ENERGY  
SYSTEM WITNESSES STEADY  
AND SUBSTANTIAL GROWTH  
IN ENERGY DEMAND



78.7

bln kWh  
2023

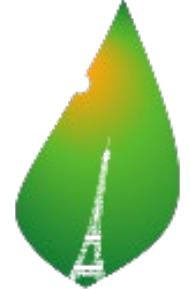
106.5

bln kWh  
2026

THE REQUIRED INCREASE IN  
ELECTRICITY GENERATION IS  
+35% IN 3 YEARS

# NATIONAL STRATEGY FOR REDUCING GREENHOUSE GAS EMISSIONS

- In **2023**, about 90% of electricity is generated from **organic fuels**
- Diversification of the country's fuel and energy mix by including '**green**' energy generation
- By **2030**, consumption is expected to increase to **120 billion kWh**
- About half of the energy is planned to come from '**green**' sources, including future nuclear power plants



PARIS2015  
UN CLIMATE CHANGE CONFERENCE  
COP21·CMP11

**Reducing emissions  
by 35% per GDP  
compared to 2010**

PD – 436  
02/12/2022

THE ENERGY SOLUTION MUST BE

**GREEN**



**STABLE**



**DURABLE**



**COST  
EFFECTIVE**



# THE ROLE OF UZATOM



PD-Nº188  
2024/05/24

By the **Decree of the President of the Republic of Uzbekistan from 2024/05/24**, the **Atomic Energy Agency** was created (former *Agency for the Development of Atomic Energy*), reporting directly to the **Cabinet of Ministers of the Republic of Uzbekistan** (formerly – to the Ministry of Energy)

## Atomic Energy Agency under the Cabinet of Ministers of the Republic of Uzbekistan

**Uzatom Agency is responsible for the development and implementation of the coordinated national policy in the field of peaceful uses of nuclear energy**

Agency objectives:

- ▶ Develop legislation framework
- ▶ Attract investments and financing
- ▶ Ensure technology and safety choice
- ▶ Conclude contracts for the design and construction of new nuclear facilities in the country
- ▶ Establish cooperation with the IAEA

## The Directorate for the construction of NPP under the Atomic Energy Agency established in February 2019

**The Directorate performs the functions of single customer for all projects implemented by Uzatom with the objective to become the operating organization in the future**

The Directorate objectives:

- ▶ Organize engineering surveys on NPP sites
- ▶ Develop and approve contracts for construction & life cycle of NPPs
- ▶ Develop technical documentation for NPPs
- ▶ Control the quality of construction works of NPP
- ▶ Coordinate work with foreign consultancies

# CURRENT CAPABILITIES IN THE FIELD OF PEACEFUL USE OF NUCLEAR SCIENCE AND TECHNOLOGIES IN UZBEKISTAN



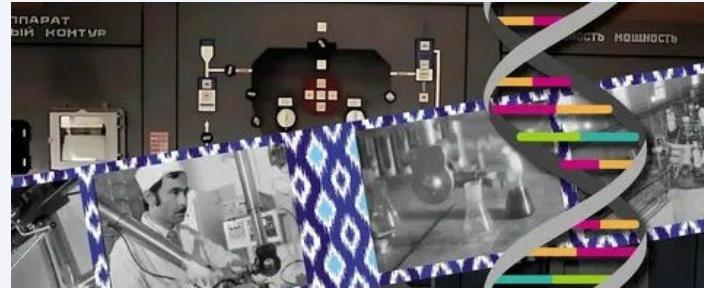
## Nuclear Physics Institute in Tashkent



Institute has a research reactor BBP-CM, Cyclotrons; Neutron generator; Gamma unit; Isotopes laboratory



## State enterprise 'Radiopreparat'



Production of radiopharmaceuticals and isotopes: Co-57, P-32, P-33, S-35, Fe-55, Fe-59, I-125, I-131, Sm-153, Lu-177, Hg-203, etc.



## NAVOIURANIUM State Company



Main activities are extraction of natural uranium and its processing to U3O8 oxide. Export sales of uranium oxide U3O8



## Tashkent State Technical University



## Samarkand State University



## National University of Uzbekistan



Capacity of universities **1,500**

Laboratories **30**

Academic staff **100+**

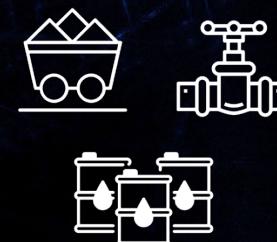
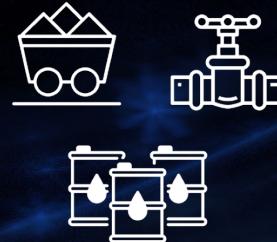
Academic degrees **64%**

There are universities that have departments or programs related to nuclear engineering and nuclear physics. Focus on research and education in areas such as nuclear reactors, radiation protection, nuclear materials, and related fields

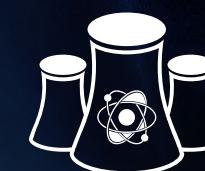
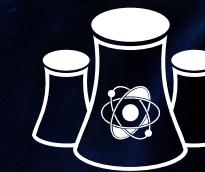
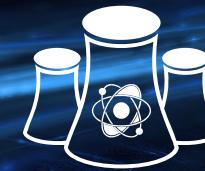
# WHY GO NUCLEAR



## TRADITIONAL ENERGY



## NUCLEAR



COSTS  
PREDICTABILITY,  
STABLE FUEL  
PRICES

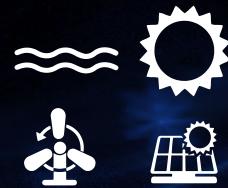
NO DIRECT CO2  
EMISSIONS INTO THE  
ATMOSPHERE

INDEPENDENCE  
FROM ENERGY  
RESOURCE  
IMPORTS

# WHY GO NUCLEAR



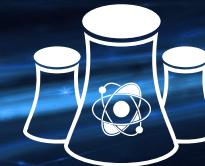
## RES



## NUCLEAR



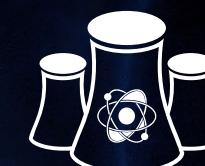
NON-INTERMITTENT  
RELIABLE ELECTRIC  
POWER SUPPLY



EFFICIENT USE OF  
LAND AND AREA



LIFETIME



INDEPENDENCE  
FROM WEATHER  
AND CLIMATE  
CONDITIONS



# WHY GO NUCLEAR

## NATIONAL DEVELOPMENT



- ▶ NUCLEAR INDUSTRY CREATION
- ▶ TECHNOLOGICAL SOVEREIGNTY

- ▶ STABILITY OF THE ENERGY SYSTEM
- ▶ TARIFF EFFICIENCY
- ▶ BALANCED ENERGY MIX

## ENERGY SECURITY



NUCLEAR POWER WILL CONTRIBUTE TO



## ECONOMIC BOOST

- ▶ DIVERSIFICATION OF THE ECONOMY
- ▶ LOCAL INDUSTRY DEVELOPMENT



## HUMAN RESOURCES DEVELOPMENT

- ▶ HIGH-QUALIFIED JOBS CREATION
- ▶ SCIENCE AND RESEARCH DEVELOPMENT

# WHY SMR



1

The increase in the share of renewable energy sources is characterized by the unstable and variable nature of electricity generation

2

The significant volumes of renewable energy sources in the energy system dictate the need to develop additional balancing regulation instruments

3

The lack of sufficient power reserves in the power system could make it vulnerable to cascading blackouts in the event of a major nuclear power plant accident.

4

Therefore, it makes sense to integrate NPPs into the energy balance of the Republic of Uzbekistan by introducing NPPs with SMRs capable of operating in load-following mode.



**EASY INTEGRATION OF SMRs INTO  
SMALL ELECTRICAL NETWORKS**

**MODULARITY OF SMRs ALLOWS  
TO MEET SPECIFIC ENERGY  
DEMANDS**

**RELATIVELY SHORT CONSTRUCTION  
TIME FOR POWER UNITS WITH SMRs**

**SMALLER AREA OF DEPLOYMENT**

**MANEUVERABILITY ALLOWS OPTIMAL  
OPERATION WITH RENEWABLE  
ENERGY SOURCES**

# THE FIRST-OF-A-KIND EXPORT EPC-CONTRACT FOR SMR NPP IS SIGNED BETWEEN ROSATOM AND UZATOM

The chosen site **HAS ALREADY BEEN SURVEYED** and **CONFIRMED FOR SUITABILITY AND SAFETY**, which will shorten the project implementation timeline.

The protocol on the **START OF WORKS ON SMR NPP** project is signed.



# Chronology of the nuclear energy program of Uzbekistan

2018	A decision was made to build the first nuclear power plant in the Republic of Uzbekistan; NEPIO and the Regulator were created. Competitive construction sites have been selected
2019	Adoption of the Law of the Republic of Uzbekistan on the use of atomic energy and peaceful purposes Work has begun on selecting a site for the construction of a nuclear power plant
2020	A priority site for the construction of a NPP has been selected and site description has begun Construction site monitoring – control of the regime after selecting a priority site for construction
2021	Stage 1 SEED Mission, review of the process of selecting a site for the construction of a NPP in Uzbekistan
2022	A preliminary safety assessment report for the nuclear power plant has been developed. Work has begun on studying and evaluating small modular reactor technologies
2023	SEED Mission Stage 2, Nuclear Power Plant Site Assessment Review Work was carried out to study the adaptation of the cooling system of the NPP to the local climatic conditions
2024	<b>Signed an Agreement with Rosatom on the construction of a SMR in Uzbekistan</b> <b>A Protocol was signed on the start of construction of a small nuclear power plant under a contract</b>

# COOPERATION WITH INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)



**INIR Mission,  
Comprehensive Review of the  
Country's Nuclear  
Infrastructure**

**Date:** May 24 - June 3, 2021



**SEED Mission,  
Consideration of NPP site  
design issues taking external  
influences into account**

**Date:** January 16-20, 2023





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2024