



**NATIONAL SCIENTIFIC RESEARCH INSTITUTE OF
RENEWABLE ENERGY SOURCES UNDER MINISTRY OF
ENERGY OF THE REPUBLIC OF UZBEKISTAN**

(NIRES)

“HYDROGEN FOR A CARBON-NEUTRAL SOCIETY”

Astana –2024



PREREQUISITES FOR DEVELOPMENT OF RENEWABLE AND HYDROGEN ENERGY UTILIZATION IN UZBEKISTAN

"Action Strategy for the Development of Uzbekistan for 2017-2021" defines the reduction of energy and resource intensity of the economy, wide introduction of energy-saving technologies in production, increasing the use of renewable energy sources, and increasing productivity in industries.

The Decree of the President of the Republic of Uzbekistan dated August 22, 2019 № PP-4422 "On accelerated measures to improve energy efficiency of the economy and social sphere, introduction of energy-saving technologies and development of renewable energy sources" was adopted.

The Decree of the President of the Republic of Uzbekistan dated 09.04.2021 № PP-5063 "On measures on development of renewable and hydrogen energy in the Republic of Uzbekistan" was adopted.

The Law of the Republic of Uzbekistan "On the Use of Renewable Energy Sources" dated May 21, 2019.





**Decree of the President of the Republic of Uzbekistan PP-5063
dated 09.04.2022 "On measures to develop renewable and
hydrogen energy in the Republic of Uzbekistan"**

Creation of hydrogen energy infrastructure of the Republic, increasing the efficiency of scientific and practical research in the field of renewable and hydrogen energy, wide introduction of innovative technologies into production, as well as ensuring the transition of the Republic of Uzbekistan to "green" energy.



Creation of the National Scientific Research Institute of Renewable Energy Sources under Ministry of Energy and organization of its activities;

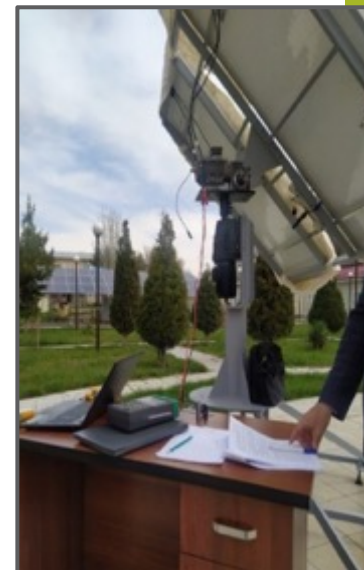
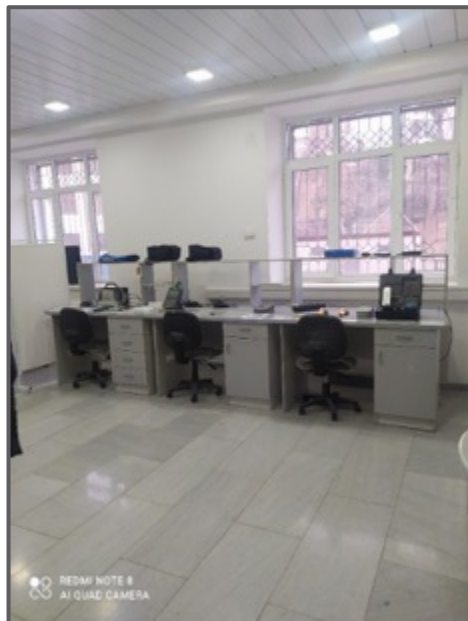
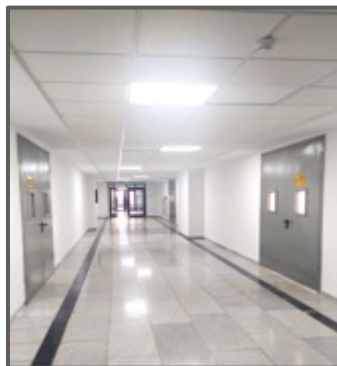
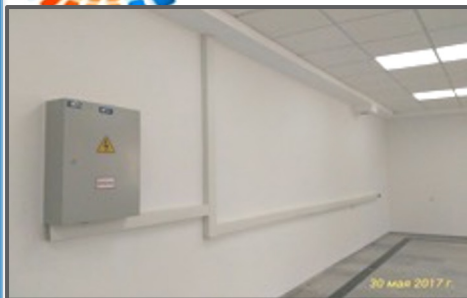


Creation of a Hydrogen Energy Research Center and a laboratory for testing and certification of renewable and hydrogen energy technologies on the basis of the Institute;





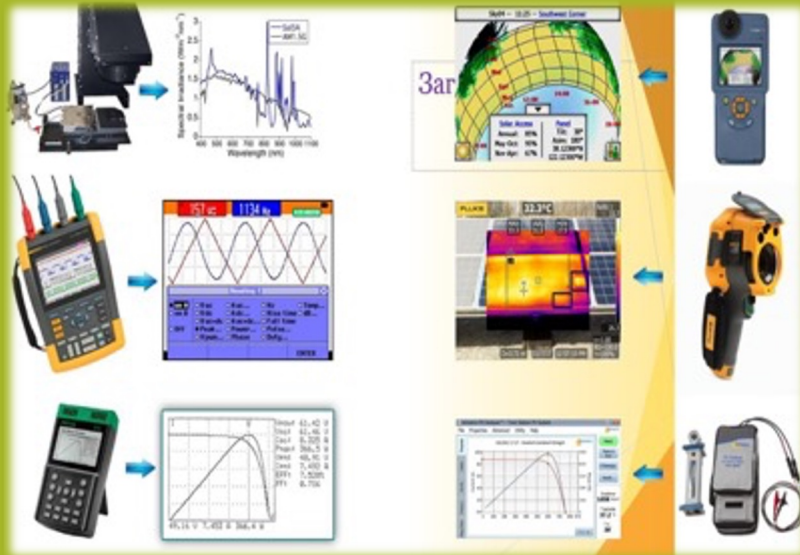
PHOTOVOLTAIC MODULE TESTING LABORATORY



NATIONAL SCIENTIFIC RESEARCH INSTITUTE OF
RENEWABLE ENERGY SOURCES UNDER MINISTRY OF
ENERGY OF THE REPUBLIC OF UZBEKISTAN



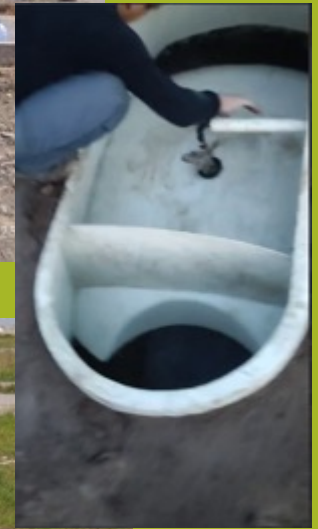
EQUIPMENT, DEVICES AND PROCESSES FOR TESTING PE MODULES





Test site of the Institute



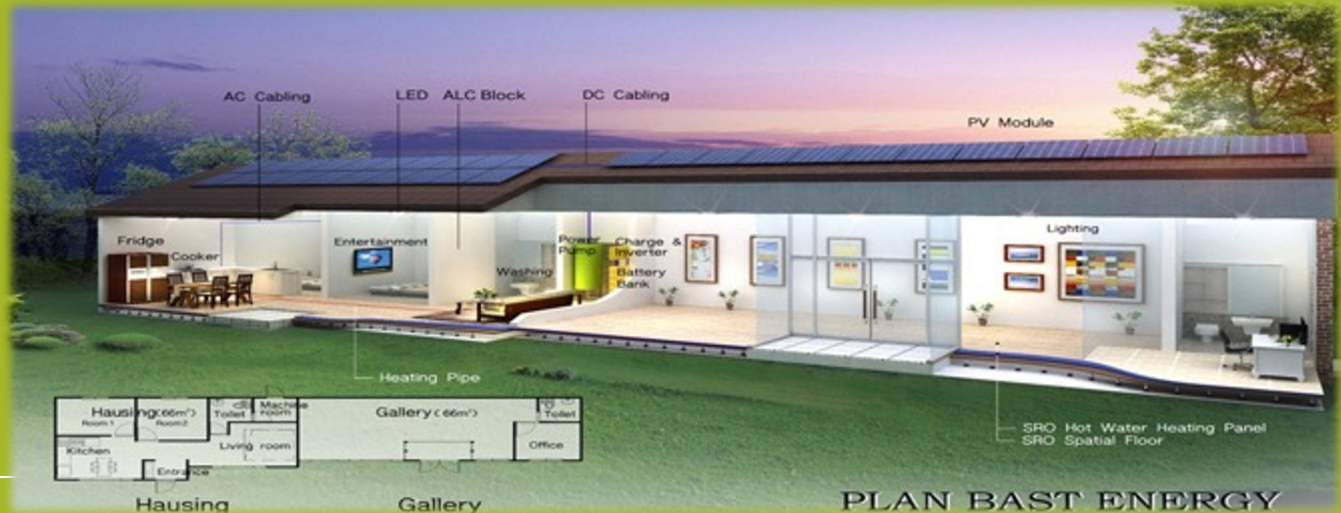


REDM11012 12

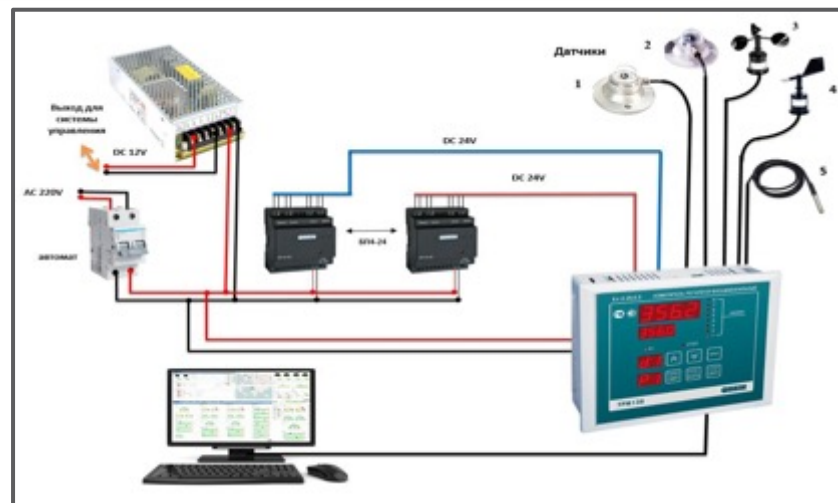
02/04/2024 16:27



Energy efficient house using SRO heating system, heat pump and PPS



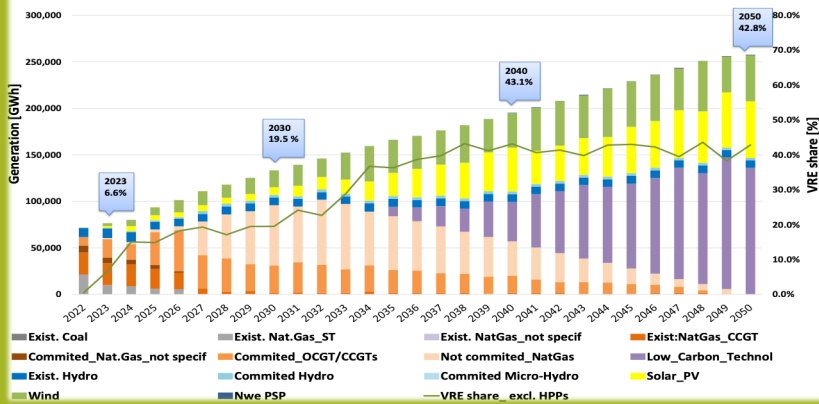
Weather station





Exploring ways to achieve carbon neutrality

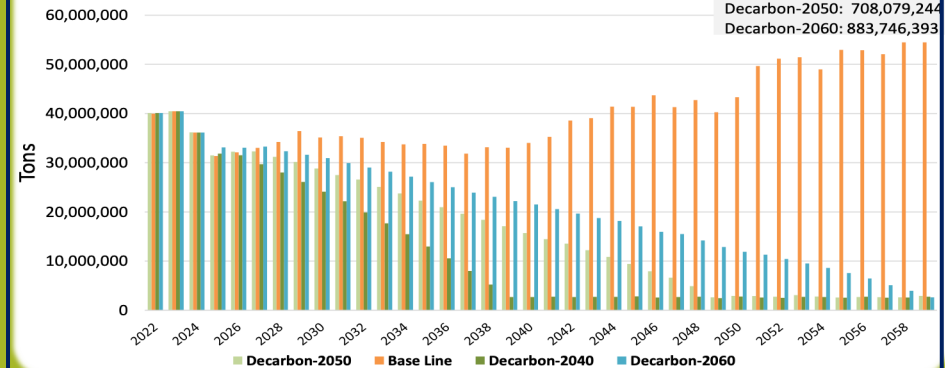
Generation Mix & share of variable renewable energies (VRE)



Roadmap for decarbonization of Uzbekistan's electricity sector. The Ministry of Energy, in cooperation with the Ministry of Investment and Foreign Trade, with support from the EBRD and the Government of Japan, has engaged a consortium of international experts to develop a roadmap to study the feasibility of carbon-neutral power generation in Uzbekistan by 2050.

CO₂-emissions

BaseLine vs. Decarbonisation scenarios



Development of the Decarbonization 2050 scenario. The Decarbonization Scenario, supported by the World Bank, defines an achievable pathway for the national energy sector to achieve zero CO₂ emissions by 2050 while meeting other energy-related sustainable development goals.

Hydrogen power

A Hydrogen Energy Research Center was established at the RES Institute



A roadmap for green hydrogen development has been developed



Pilot projects launched with key partners



Bioenergetics

The RES Institute is engaged in the development of bioenergy resources utilization



There are several private and public sector projects.



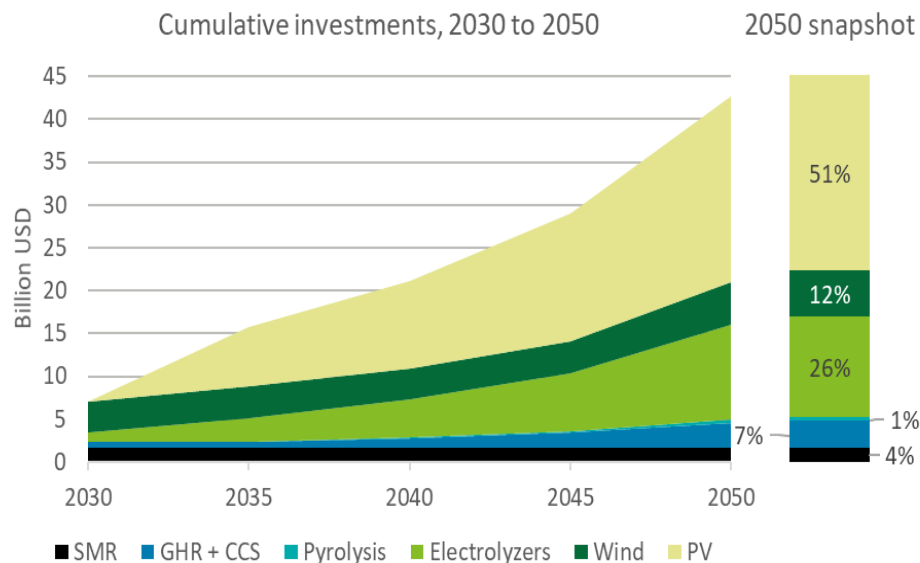
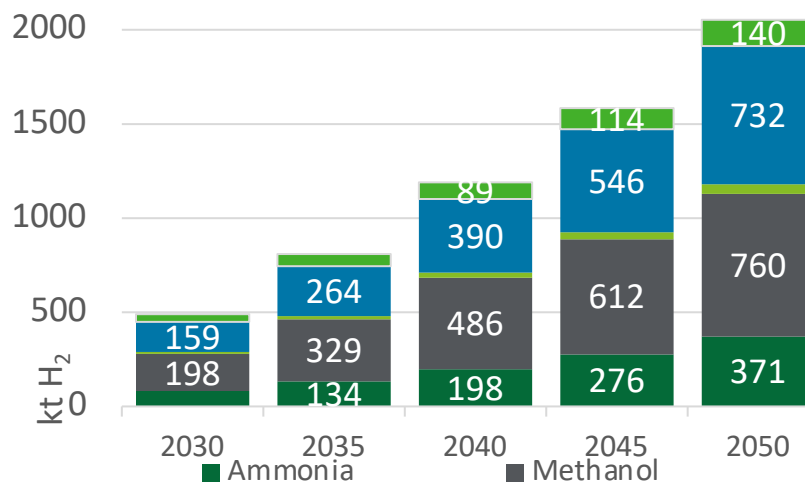
Potential assessment and identification of bioenergy projects has been initiated with AFD support





Hydrogen for industry

Annual domestic demand for hydrogen by sector in Uzbekistan, 2030-2050





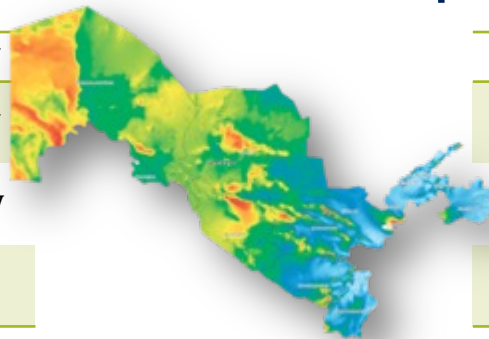
Renewable energy sources

PV potential

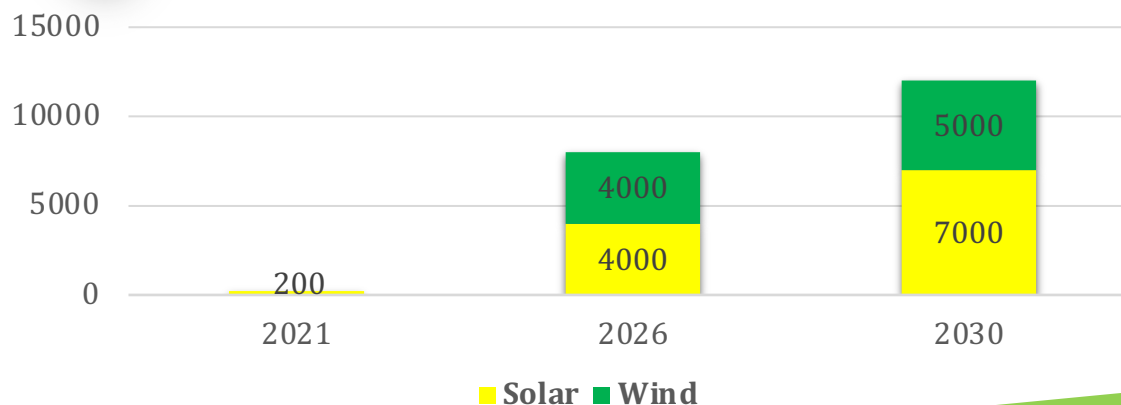


Contract	6 547 MW
Under review	2 800 MW
Goal by 2030	7 000 MW

WG potential



Contract	3 100 MW
Under review	2 150 MW
Goal by 2030	5 000 MW





Research center and pilot projects

Massive and cheap hydrogen synthesis
Synthesis of green or blue hydrogen in renewable energy zones or industrial zones, taking advantage of economies of scale



**Hydrogen
research center**



Distributed H2 facilities
A green hydrogen plant for urban needs, located on the outskirts of each city.



Export
opportunities



Urban transport



Local industries'
demand for H2



Hydrogen for
heating



Grid excess
power to gas and
storage





SATREPS on hydrogen in Uzbekistan

Uzbek-Japanese Innovation Center for Youth (UJICY)

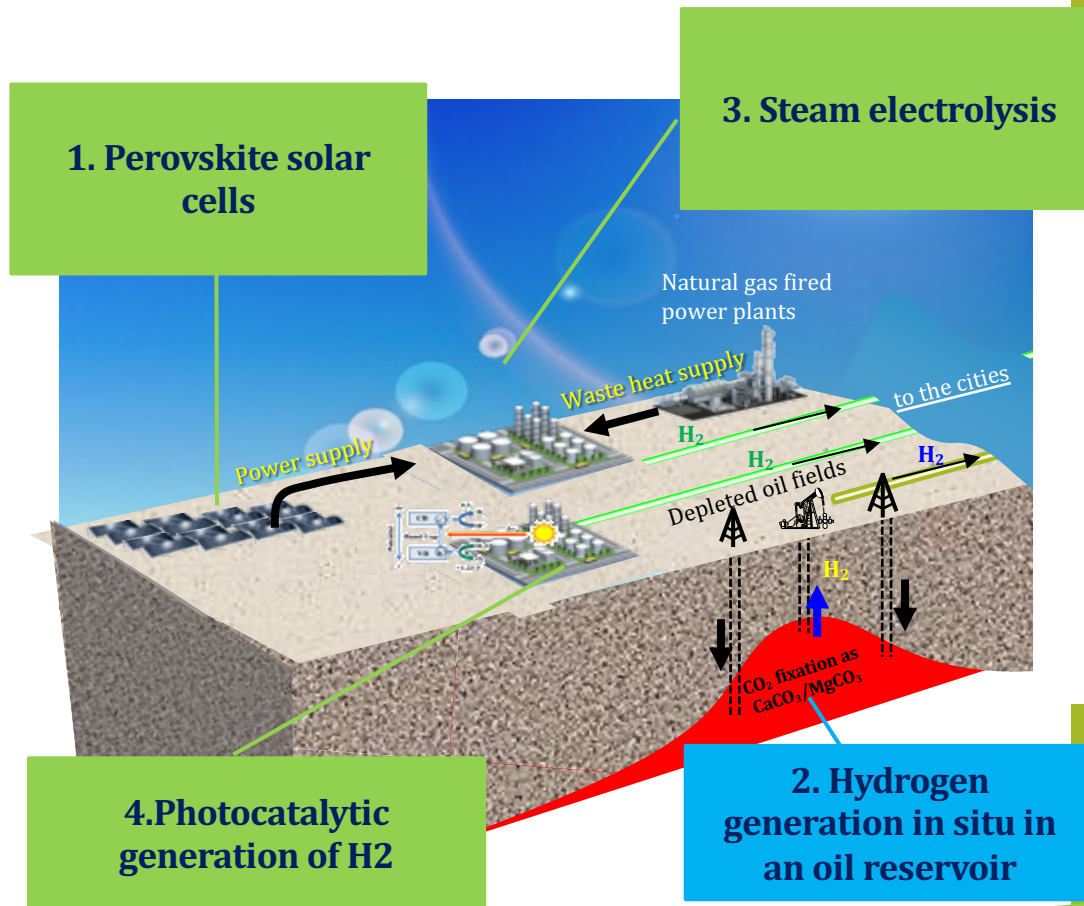
Kyushu University (Japan)

International Institute for Carbon-neutral Energy Research

Navoi State University of Mining and Technologies

National University of Uzbekistan

National Scientific Research Institute of Renewable Energy Sources under Ministry of Energy



NATIONAL SCIENTIFIC RESEARCH INSTITUTE OF
RENEWABLE ENERGY SOURCES UNDER MINISTRY OF
ENERGY OF THE REPUBLIC OF UZBEKISTAN



**THANK YOU FOR YOUR
ATTENTION!**

2B, Build.2, Chingiz Aytmatov str.
100084 Tashkent, Uzbekistan
E-mail: info@nires.uz
Tel.: +99871 231 10 00
Mob. +99890 323 05 31
Web. nires.uz

