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HORIZON EUROPE CLUSTER 5 REGIONAL INFO DAY

ENHANCING EU-CENTRAL ASIA RESEARCH COLLABORATION IN HORIZON EUROPE

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Horizon Europe Cluster 5 in Uzbekistan: Research Priorities and Future Cooperation

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Uzbekistan's Climate Goals and Horizon Europe Cluster 5

Climate Change in Uzbekistan: Tangible Impacts

Temperature rise – annual average temperature has increased by 1.5–2.0°C since the mid–20th century

Water stress – more than 60% of Uzbekistan's water originates outside its borders, and per capita water availability is projected to drop by 30% by 2030

Agriculture at risk – up to 20–25% crop yield loss expected in arid regions due to increased drought frequency

Glacier retreat – Tien Shan glaciers feeding the Amu Darya and Syr Darya rivers may shrink by up to 50% by 2050

Uzbekistan's National Climate and Energy Goals

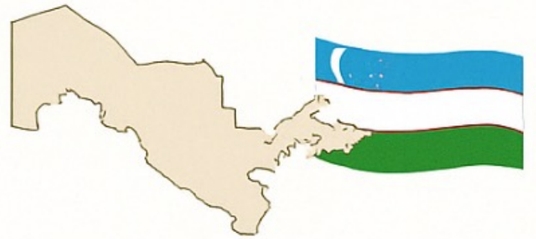
- Increase the share of renewable energy to 54% by 2030
- Reduce GHG emissions per GDP unit by 35% compared to 2010 levels

Why Horizon Europe – Cluster 5 Matters

Cluster 5 of Horizon Europe focuses on Climate, Energy and Mobility – exactly the fields Uzbekistan is prioritizing

It enables collaboration with leading European institutions in:

- Renewable energy integration
- Energy efficiency
- Clean mobility
- Decarbonization technologies



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Uzbekistan - Summary | Climate Change Knowledge Portal

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Estimated Share of Technical Universities and Institutes in Uzbekistan (2024)

Out of 219 registered HEIs in Uzbekistan in 2024, around 24% have a technical or engineering profile, creating a solid foundation for international scientific cooperation

Category	Total HEIs	Technical HEIs (approx.)	Share of Technical (%)
State	108	38	35
Private	70	7	10
International	30	7	23
Total	219	52	24

- [redacted]echnical HEIs make up approximately 24% of the national total
- [redacted] Strong capacity in energy, ICT, engineering and sustainability
- [redacted]trategic alignment with Horizon Europe Cluster 5 priorities

From Mapping to Mobilization: National Network for Cluster 5

Between January 20 and March 25, the Ministry of Higher Education, Science and Innovation of Uzbekistan, in collaboration with the SECCA project, initiated a coordinated outreach campaign.

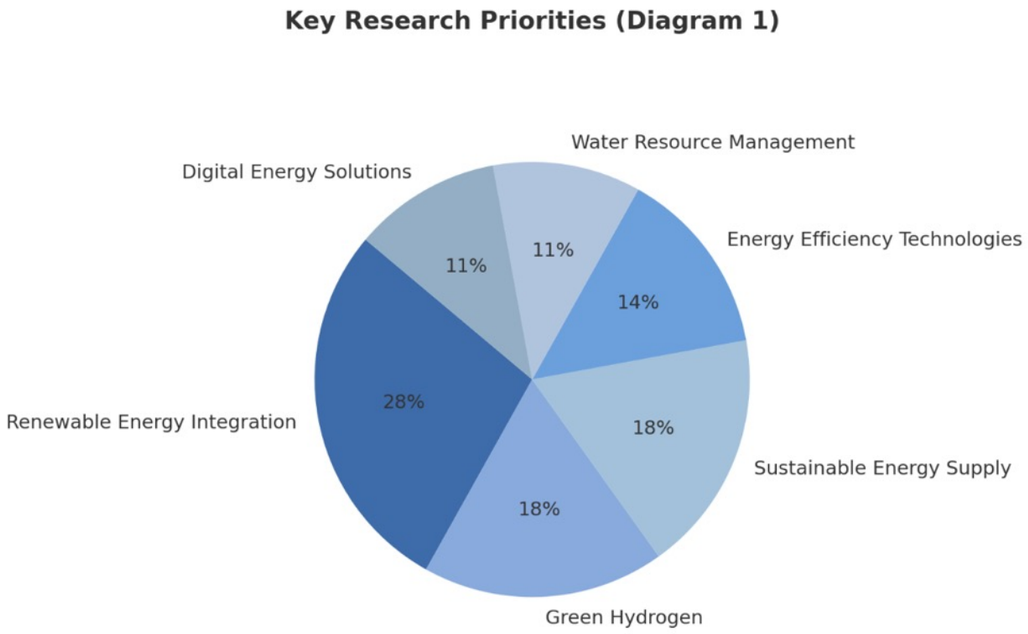
The initiative reached over 100 universities and research institutes via:
– Official requests
– Email briefings
– Social media announcements

As a result, 19 completed partnership profiles were collected from key institutions working in:
– Climate and clean energy
– Sustainable resource management
– Mobility and digital innovation

These responses form the foundation for:
– Establishing a Cluster 5 National Contact Point (NCP) in Uzbekistan
– Launching a national network of Horizon Europe participants

The partnership mapping activity in Uzbekistan provided valuable insights into the country's research potential for Horizon Europe Cluster 5. Out of over 100 institutions contacted, 22 submitted completed profiles, representing diverse regions including Tashkent, Navoi, Karshi, Bukhara, and Fergana — reflecting broad national engagement.

Key Research Priorities



Analysis of the submitted profiles revealed the following key research priorities, which are visualized in Diagram

Renewable Energy Integration – 8 mentions (e.g., TSTU, Jizzakh Polytechnic, Namangan GTU); reflects institutional commitment to clean energy transition

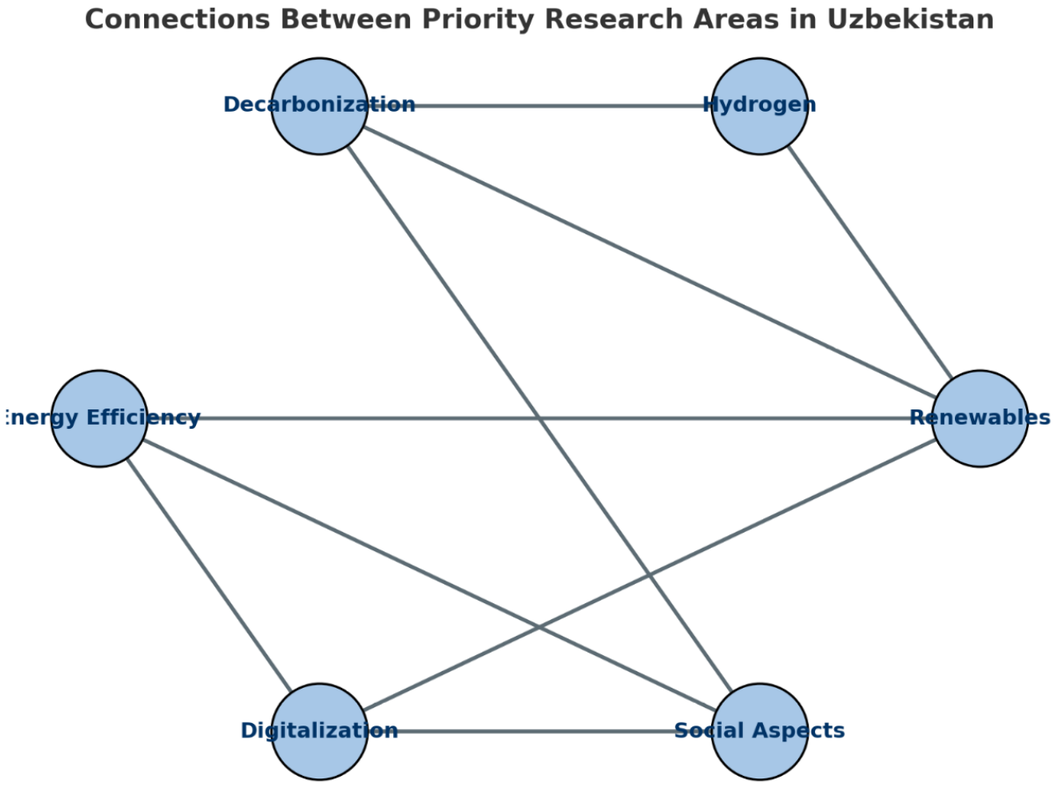
Green Hydrogen – 5 mentions (NGUoGT, NewUU, TSTU); emphasizes focus on innovative decarbonization technologies

Rural Energy Supply & Decarbonization – 5 mentions (KGTU, BukhMTI, Gulistan State); key to sustainable development in rural regions

Energy Efficiency – 4 mentions (Bukhara State, TSTU, Namangan GTU); important for buildings and solar systems

Water Resource Management – 3 mentions (KGTU-Hydraulics, TIIAME); supports climate-resilient agriculture and water-energy balance

Digital Solutions for Energy – 3 mentions (FBTUIT, TSTU, SbTSUE); AI/BIM for energy networks highlights digital transition in energy sector

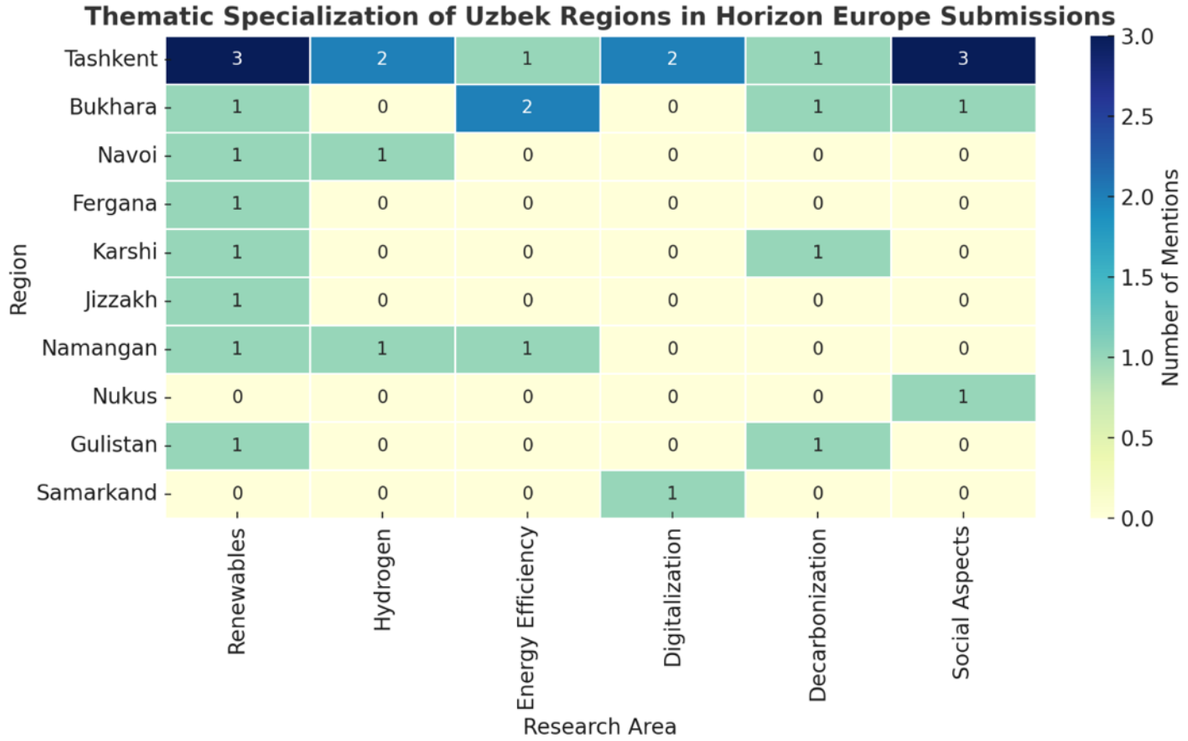


The thematic connections shown in the diagram highlight the **multidisciplinary character of Uzbekistan's research ecosystem**. Analysis of the submitted partnership profiles reveals several important trends:

- **Renewable Energy Integration** stands at the center of institutional priorities, acting as a common link to green hydrogen, energy efficiency, and digital solutions
- **Green Hydrogen** and **Decarbonization** are not treated as standalone topics but often explored in relation to smart grid integration, clean mobility, and climate resilience
- **Digitalization** (e.g., AI and BIM tools) intersects with energy efficiency and social impact themes, reflecting the country's interest in deploying smart technologies for public benefit
- **Social aspects** such as inclusion, gender equality, and governance emerge in connection with energy transition topics, suggesting a growing commitment to **socio-technical approaches**

📌 These thematic intersections show that Uzbek institutions are not only developing expertise in isolated domains, but are increasingly capable of contributing to **complex, integrated research projects under Horizon Europe Cluster 5**

Thematic Specialization of Uzbek Regions in Horizon Europe Submissions



This heatmap illustrates the thematic specialization of Uzbek regions based on the partnership profiles submitted for Horizon Europe Cluster 5.

Tashkent demonstrates the broadest research engagement, covering nearly all themes — especially in **renewables**, **hydrogen**, and **social aspects**.

Bukhara, **Namangan**, and **Gulistan** show notable focus on **energy efficiency** and **decarbonization**, particularly in rural development.

Navoi, **Karshi**, and **Jizzakh** contribute to **renewables** and **climate resilience**.

Digitalization and water-energy governance appear in selected regions (e.g., **Samarkand**, **TIIAME**, **FBTUIT**).

Geographical diversity of responses confirms that Horizon Europe-related research interests are **not limited to capital-based institutions**, but widely distributed across Uzbekistan.

📌 These findings help identify **regional hubs** of expertise and support the design of a balanced, inclusive national strategy for international research cooperation.

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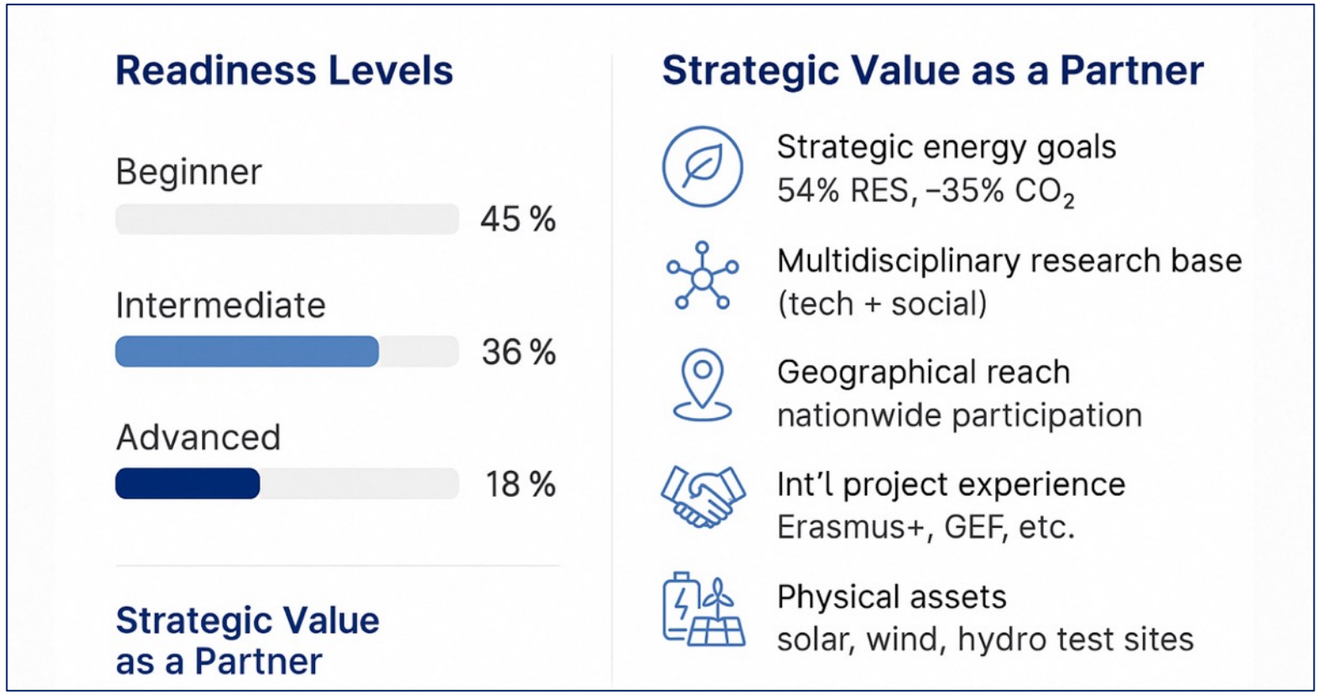

The analysis of submitted partnership profiles shows that Uzbekistan's research institutions exhibit varying levels of readiness to engage in Horizon Europe. While 18% are already advanced, a significant 36% are at the intermediate level – with concrete experience in international projects and strong thematic alignment.

In parallel, Uzbekistan offers strategic value as a long-term partner through its clear energy and climate goals, multidisciplinary expertise, and growing participation in global R&D networks. The availability of physical infrastructure and nationwide institutional involvement reinforces its potential to contribute to integrated, cross-sectoral initiatives within Cluster 5 (Climate, Energy, Mobility).

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Uzbekistan's Readiness and Strategic Value as a Horizon Europe Partner

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Participation of Social and Humanities Institutions in Cluster 5

Several non-technical institutions in Uzbekistan have demonstrated active engagement in Horizon Europe-relevant topics. These actors focus on legal, economic, social, and digital aspects that support cross-cutting themes in Cluster 5:

- Academy of Law Enforcement: *digital forensics and smart city security*
- Research Institute on Family and Gender: *gender and inclusion in energy transition (HORIZON-WIDERA)*
- Tashkent State University of Law: *legal frameworks for RES and climate measures*
- Samarkand Branch of TSEU: *economics of renewables and digital finance*
- Westminster International University: *circular economy and sustainability*
- Kokand University: *education for social innovation in sustainability*

These institutions enhance the interdisciplinary capacity of Uzbekistan's ecosystem and open pathways to consortia that merge technical expertise with social, legal, and policy innovations.

The profiles also revealed active international cooperation through Erasmus+ (DEBSEUz, MechaUz), HORIZON-WIDERA (Family & Gender Institute), SATREPS (NGUoGT), and UNDP/GEF (Bukhara State). This strengthens Uzbekistan's profile as a trustworthy partner for Horizon Europe.

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Cluster 5 Priority Topics for Uzbekistan

Integration of Renewable Energy

Promoting the use of solar, wind, and other clean sources in national power systems

Green Hydrogen Production and Use

Developing sustainable hydrogen as a clean energy vector for diverse applications

Energy Efficiency in Construction and Industry

Enhancing building standards and industrial practices to reduce energy waste

Digital Technologies for Energy and Transport Management

Implementing smart solutions for efficient infrastructure operation and monitoring

Sustainable Management of Water and Energy Resources

Ensuring long-term resilience and efficiency in using vital natural resources

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- Hybrid Renewable Systems – Microgrids, off-grid energy for remote areas
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- Electrolysis Innovation – New materials for cost-effective hydrogen production
- AI for Energy Forecasting – Predictive analytics for consumption and grid balancing
- Water-Energy-Food Nexus – Cross-sectoral resilience approaches in arid zones
- Social-Inclusive Innovation – Gender-responsive approaches to energy transition

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Emerging Research Trends in Uzbekistan (Cluster 5)

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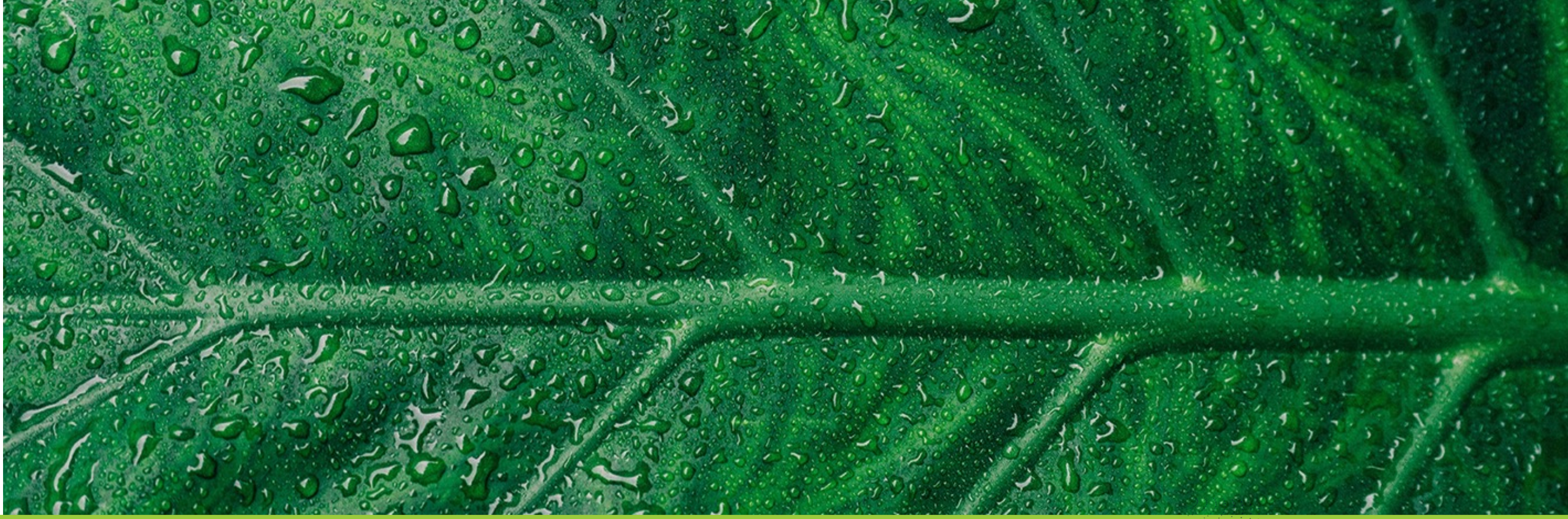

Uzbekistan is not only aligning with EU climate and research priorities – it is ready to co-create, innovate, and lead."

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Join us in shaping tomorrow's energy, mobility, and climate solutions

Why Uzbekistan is Ready – And What We Invite

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- ☀️ **Solar & Wind Test Beds** – real-world pilot sites for EU green tech
- 🧪 **Hydrogen Co-Development** – joint R&D in electrolysis and storage
- 🏡 **Smart Rural Systems** – scalable clean energy models for remote areas
- 🧠 **AI for Infrastructure** – data-driven energy and mobility solutions
- 🏛️ **Policy Experimentation** – legal & governance pilots for green transition

Opportunities for Joint EU-Uzbekistan Projects

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Uzbekistan's Added Value for Horizon Europe – Cluster 5

Uzbekistan offers a unique combination of strengths that position it as a strategic and reliable partner for international research cooperation:

- 🏛️ Policy Alignment: Clear decarbonization targets (54% RES, –35% CO_2 by 2030) aligned with EU goals
- 🧠 Interdisciplinary Capacity: Technical, legal, economic, and social science institutions form a holistic ecosystem
- 🧩 Social Innovation: Active inclusion of gender, governance, and legal expertise for socially responsible transition
- 🌐 Global Experience: Proven record in Erasmus+, UNDP/GEF, HORIZON-WIDERA, and SATREPS
- ⚙️ Applied Infrastructure: Availability of test beds, solar and wind facilities, and digital research platforms
- 📌 These assets support multi-sectoral consortia and innovative projects under Horizon Europe Cluster 5 (Climate, Energy, Mobility)

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Recommendations for Further Development

Expand to Central Asia

Extend the initiative to other Central Asian countries with Cluster 5 NCPs

Regional NCP Collaboration

Facilitate experience sharing via the regional NCP network

Pre-call Seminar in 2025

Organize an extended seminar in Tashkent before the 2025 call launch

Broaden Participation

Invite R&D institutes, NGOs, and private companies, not only form submitters

Dissemination & Access

Publish the template on SECCA's website for wider regional access

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- Establish a national Cluster 5 NCP with EU guidance & capacity-building
- Encourage multi-sectoral consortia combining technical and social innovation
- Create a national database of research competencies aligned with Horizon Europe
- Foster matchmaking events with EU partners through SECCA and NCPs
- Align national funding with Horizon priorities

Next Steps for Enhanced Collaboration

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