

**UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE  
TECHNICAL COOPERATION PROJECT**

**Project title:** Sustainable hydrogen production in the UNECE region and its role in the development of a hydrogen ecosystem and export potential

**Expected timing/duration:** October 2021 – October 2023

**Objective and brief summary of the project:** Hydrogen has been recognised as a possible approach to decarbonisation of otherwise hard-to-abate sectors such as heavy industry or long-haul transport. In addition, hydrogen can provide a solution for long-term energy storage. By 2050 hydrogen could deliver up to 24% of the world’s energy needs. Despite its vast potential to decarbonise the energy system, high costs and unclear regulatory frameworks are obstacles to emergence of a hydrogen economy. There is a need for coordinated action at national, subregional, and regional levels in the UNECE region to enable full commercialisation of hydrogen projects. Across the UNECE region, countries are recognizing the potential for hydrogen to contribute to meeting the objectives of the Paris Climate Agreement. Regional and national hydrogen strategies have been developed in many UNECE countries, including Germany, the Netherlands, Russian Federation, Spain, United States and the European Union. In July 2020, the European Commission unveiled its “[Hydrogen strategy for a climate-neutral Europe](#)” (COM/2020/301) with the aim to boost clean hydrogen production in Europe and develop applications that would reduce greenhouse gas emissions across the industry, transport, power and buildings sectors. In July 2020, the United States published its “[Hydrogen Strategy – Enabling A Low-Carbon Economy](#)”, as a strategic plan to accelerate research, development, and deployment of hydrogen technologies. In October 2020, the Russian Federation approved a [roadmap for the development of hydrogen energy](#) until 2024 as a strategic plan to accelerate research, development, and deployment of hydrogen technologies. The objective of this project is to improve capacities of UNECE member States to develop sustainable hydrogen production strategies while raising awareness and overcoming economic, technical, policy and investment barriers.

The objective of the project will be achieved by implementing the following activities:

- A1.1. Conduct an analysis of national potentials to contribute to development of a hydrogen ecosystem and global energy transitions, including the supply of energy to energy-deficient regions of the world.
- A1.2. Conduct an analysis of priority areas for the development of national hydrogen potential.
- A1.3. Conduct an analysis of hydrogen production potential across CIS countries.
- A1.4. Conduct an analysis of the opportunities for hydrogen export and possible applications in the domestic market.
- A1.5. Organise a peer-to-peer dialogue on best practices and lessons learned in developing national hydrogen strategies in the context of the Paris agreement and Agenda 2030 implementation.
- A2.1. Conduct a subregional assessment of cost and technical performance of hydrogen production from fossil fuels, low-carbon energy, and renewable energy across beneficiary countries.
- A2.2. Refine existing data and assumptions related to sustainable hydrogen production for the energy model.
- A2.3. Propose the directions for the implementation of pilot projects for the supply of sustainable hydrogen for export.
- A2.4. Organise a policy dialogue to identify and overcome existing barriers to development of a hydrogen ecosystem.
- A2.5. Develop recommendations for a coherent international system of standardisation and certification of hydrogen in the context of the Paris agreement and Agenda 2030 implementation.
- A2.6. Develop recommendations for pilot projects in international cooperation in sustainable hydrogen technologies.
- A3.1. Conduct a seminar for representatives of governments, industry, and academia to present and discuss recommendations and discuss how they can be incorporated into draft National Action Plans to meet SDG 7.

**Expected results of the project:**

- EA1. Improved national capacities of CIS countries in identification of the potential in the development of a hydrogen ecosystem, including in the energy supply of regions with energy shortages.
- EA2. Strengthened national capacity of CIS countries in understanding the potential of global, subregional and national cost-effective sustainable hydrogen production and transport.
- EA3. Enhanced knowledge of policymakers and other stakeholders about barriers to developing a hydrogen ecosystem and options for overcoming them.

**Target group and beneficiaries of the project:**

Beneficiary countries: Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan, and Uzbekistan. The target group is policymakers, regulators, chemical and energy industry actors, non-governmental organisations, academia and other experts dealing with the development and deployment of hydrogen projects.

**Justification of project and its relationship to the programme of work:**

The project directly contributes to the objective of Subprogramme 5 “Sustainable Energy” “to ensure access to affordable and clean energy for all and reduce greenhouse gas emissions and the carbon footprint of the energy sector in the region” of the UNECE programme budget for 2021.

**Estimated UN regular budget resources (work months of RB staff/level):**

2 months of P4/ RB

**Estimated extra budgetary resources:**

<b>Donor</b>	<b>Amount (US\$)</b>
The Russian Federation	241,000

<b>Project Manager:</b> Branko Milicevic <i>bms</i> 17.09.2021	<b>Section/Division:</b> Energy Industry Section/Sustainable Energy Division
<b>Cleared by Programme Management Unit:</b> Nicolas Dath-Baron <b>Officer-in-charge</b> 17.09.2021	<b>Approved by EXCOM:</b> 15.10.2021

**Annex**  
**Results-based budget for the extra-budgetary project**

Expected accomplishments	Planned activities	Estimated costs (US\$)
EA1. Improved national capacities of CIS countries in identification of the potential in the development of a hydrogen ecosystem, including in the energy supply of regions with energy shortages.	A1.1. Conduct an analysis of national potentials to contribute to development of a hydrogen ecosystem and energy transition, including the supply of energy to energy-deficient regions of the world P3 x 1-month x \$13,500 per month 1 consultant to conduct an analysis of national potentials x 1 month x \$5,000 per month	18,500 13,500 5,000
	A1.2. Conduct an analysis of priority areas for the development national hydrogen potential. P3 x 0.5month x \$13,500 per month 1 consultant to conduct an analysis of priority areas x 1 month x \$5,000 per month	11,750 6,750 5,000
	A1.3. Conduct an analysis of hydrogen production potential across CIS countries P3 x 1-month x \$13,500 per month 1 consultant to conduct an analysis of production potential x 1 month x \$5,000 per month	18,500 13,500 5,000
	A1.4. Conduct an analysis of the opportunities for hydrogen export and possible applications in the domestic market P3 x 0.5month x \$13,500 per month 1 consultant to conduct an analysis of export and domestic markets x 1 month x \$5,000 per month	11,750 6,750 5,000
	A1.5. Organise a peer-to-peer dialogue on best practices and lessons learned in developing national hydrogen strategies in the context of the Paris agreement and Agenda 2030 implementation. P3 x 0.5month x \$13,500 per month Travel of 1 staff x 1 mission x \$1,500 Travel of experts: 5 experts x 1 mission x \$1,500 per trip Contractual services (individual contractors to help with web design and IT, interpretation, materials)	16,500 6,750 1,500 7,500 750
	EA2. Strengthened national capacity of the CIS countries in understanding the potential of global, subregional and national cost-effective sustainable hydrogen production and transport.	A2.1. Conduct a subregional assessment of cost and technical performance of hydrogen production from fossil fuels, low-carbon and renewable energy across beneficiary countries P3 x 1month x \$13,500 per month 1 consultant to develop assessment report x 1 month x \$5,000 per month
A2.2. Refine existing data and assumptions related to sustainable hydrogen production for the energy model P3 x 1month x \$13,500 per month 1 consultant to update the model and analyse outputs of the energy model x 4 months x \$5,000		33,500 13,500 20,000
A2.3. Propose the directions for the implementation of pilot projects for the supply of sustainable hydrogen for export. 1 consultant to develop assessment report x 1 month x \$5,000 per month		5,000
A2.4. Organise a policy dialogue to identify and overcome existing barriers to development of a hydrogen ecosystem P3 x 0.5-month x \$13,500 per month Travel of 3 staff x 1 mission x \$1,500 Travel of consultant: 1 mission x \$1,500 per trip Travel of experts: 8 experts x 1 mission x \$1,500 per trip Contractual services (individual contractors to help with web design and IT, interpretation, materials)		26,750 6,750 4,500 1,500 12,000 2,000
A2.5. Develop recommendations for a coherent international system of standardization and certification of hydrogen of hydrogen in the context of the Paris agreement and Agenda 2030 implementation. P3 x 0.5 month x \$13,500 per month 1 consultant to develop recommendations 1month x \$5,000 per month		11,750 6,750 5,000
A2.6. Develop recommendations for pilot projects in international cooperation in sustainable hydrogen technologies P3 x 0.5 month x \$13,500 per month 1 consultant to develop recommendations x 1-month x \$5,000 per month		11,750 6,750 5,000
EA3. Enhanced knowledge of policymakers and other stakeholders about barriers to developing a hydrogen ecosystem and options for overcoming them.		A.3.1. Conduct a seminar for representatives of governments, industry, and academia to present and discuss recommendations and discuss how they can be incorporated into draft National Action Plans to meet SDG 7. P3 x 0.5 month x \$13,500 per month Travel of 3 staff x 1 mission x \$1,500 Travel of consultant: 1 mission x \$1,500 per trip Travel of experts: 8 experts x 1 mission x \$1,500 per trip Contractual services (individual contractors to help with web design and IT, interpretation, materials)
<b>Budget summary</b>		<b>211,000</b>
13% of Programme Support Costs (rounded)		27,430
1% Coordination levy		2,500
<b>Budget (rounded)</b>		<b>241,000</b>