International Online Seminar

"The Nexus between Water and Energy in Times of Climate Change"

15 October 2026

Recent changes in seasonal and other pattern of temperature and precipitation as well as melting glaciers have widely been attributed to climate change and are anticipated to stay. This is apparent in the changing flow pattern of surface water with implications on hydropower, irrigation and shipping.

The extraordinary development of PV cells (both costs and production capacity) and pump development open a large-scale CO2 free access to ground water as a major complement to traditional surface water management. Use of Solar pumps has different features: small investment threshold, dependence on ground water availability, differing from surface water flows, can be installed and operated on a standalone basis. They are largely independent of precipitation and melting patterns and require little surface, reducing evaporation.

Surface water is well known, underground water often is little explored. The chances to use underground water are not bad on a global basis: from global sweet water (3% of overall water), ca 69% are bound in ice caps and glaziers, 30% are underground water and less than 1% is surface water.

The seminar will address the nexus between water and energy in times of climate changes with (i) a focus on Central Asia for the use of surface water for power generation and irrigation and (ii) examples from India, China, Brazil for the use of groundwater by pumps. This will address the perspective for solar pumps and the needs for sustainable use of ground water.

The language of the seminar is English and Russian (simultaneous translation provided). Participation is free, to register, please, contact the Organising Committee via e-mail - energetika@unecon.ru.

Program

10:00 – 10:30 (MSK)	**Introduction: the role of energy and water in times of climate change** **Chair: Dmitry Vasilenko**, UNECON The introduction will elaborate on the principal issues of energy and water use in times of climate change. Water and CO2 are the ingredients of plants' photosynthesis by which plants transform the energy of sun light into carbon hydrates and oxygen. Water is also

needed by plants to transport minerals from the places of metabolism. To the extent not covered by precipitation, (sweet) water for irrigation from surface or underground water will even out seasonal and other pattern to allow higher and more regular yields.

- *The impact of climate change on water flows and usage,* **Ralf Dickel**, Independent Expert

10:30 – 12:30 (MSK)

Session 1: Surface water to energy

Chair: Dinara Tazhenova, NJSC NHS Kazhydrogeology, Ministry of Water Resources and Irrigation of the Republic of Kazakhstan

Dams often serve various purposes apart for power generation, like regulating water levels for shipping and for irrigation purposes, resulting in conflicting interests on the release of water. Typically, irrigation is needed during summer seasons while power demand tends to peak in winter.

The session will look at examples from Central Asia with an inherited conflict across borders between use of dams for water irrigation in Uzbekistan vs. power generation in Kyrgyzstan and Tajikistan: the ongoing joint investment approaches to delink the use of water for irrigation from power generation by building additional dams in Kyrgyzstan and Tajikistan as well as approaches in Uzbekistan to improve water management.

- *Water management as a basis for interstate cooperation and reinforcement of regional stability*, **Azamat Omurkulov**, National Institute for Strategic Initiatives under the President of the Kyrgyz Republic

- *Economic integration of Central Asian Region on water resources*, **Manuchehr Sadriddinov,** Small Academy of Sciences under the Presidium of the National Academy of Sciences of Tajikistan

- *Impact of water scarcity and climate change in Uzbekistan on integration processes in Central Asia*, **Aleksey Kobzev**, Expert in Renewable Energy and Climate Change

14:00 – 16:00 (MSK)

Session 2: Energy for water, using solar power to mobilize ground water

Chair: Irina Mironova, Independent Expert

As a discourse in view of an increasing cooling need with raising summer temperatures the first presentation will update on District Heating Generation 5, combining heat and cold supply.

Ground water while very unevenly distributed across the earth looks like having the potential in many places to compensate for uneven precipitation or even for lack of precipitation. However, at least in the medium-term ground water should be replenished.

Use of low investment solar pumps offers high flexibility for deployment, especially in remote areas, subject to ground water availability and depending on sun radiation which is reasonably reliable. It comes at low costs and minimal investment. By contrast water management by dams requires heavy upfront lumpy investment with long constructing times at fixed places and resulting financing challenges, however offering a very flexible - almost spontaneous - power generation.

These topics will be discussed looking at main global examples and the role of development banks.

- *5th Generation District Heating grids – Overcoming the deficits of District Heating as well as heat pumps?*, **Jens Völler,** Team Consult G.P.E. GmbH
- *Water management strategy in Russia,* **Dmitry Makhnovskiy**, *UNECON*
- *Irrigation and Water Conservation in South Asia: Some Insights*, **Ujjayant Chakravorty**, Tufts University
- *Experience of EFSD (Eurasian Fund for Stabilization and Development) in sovereign investment*, **Maxim Titov**, European University at St. Petersburg

16:00 - 17:00 (MSK)

Panel Discussion: What lessons for water management in Central Asia and beyond?

Chair: Disha Gupta, Indira Gandhi Institute of Development Research

Panellists:

- **Maxim Titov**, European University at St. Petersburg
- **Ralf Dickel**, Independent Expert
- **Ujjayant Chakravorty**, Tufts University
- **Yusup Kamalov,** NGO "Union for Defense of the Aral Sea and Amu Darya"