

Expert Group Meeting on Sustainable and clean energy in North and Central Asia

**Session 3: Emerging issues in the sphere of sustainable and clean energy**

**BACKGROUND DOCUMENT**

Objectives

- To identify emerging issues in sustainable and clean energy which are of relevance to the subregion
- To discuss trends for improving energy efficiency and facilitating energy transition for the subregion
- To foresee the possible implications of current energy projects in the subregion and countries' strategies for energy development and transition
- To suggest next steps for updating and utilizing presented material in the work of ESCAP and countries in the subregion

Points for discussion

- Considering the 2020 global growth level of renewable energy capacity of 45%<sup>1</sup>, how can North and Central Asia countries accelerate energy transition to match the pace of other countries and facilitate achievement of emission targets?
- How are North and Central Asia countries diversifying their energy composition and are there any priority energy sources that countries are looking to develop?
- In which sectors could countries prioritize to improve energy efficiency?
- What are the foreseeable implications of existing strategies for energy development in North and Central Asia countries? Will the subregion be on track to achieve SDG 7 based on the current energy development trajectory? Why?
- Next steps for consideration include (i) SONCA to update analysis, (ii) expert group volunteer to peer review updated analysis, (iii) updated working paper to be published on SONCA webpage, (iv) findings to be presented at other meetings/ SPECA meeting, (v) any opportunities for collaboration?

---

<sup>1</sup> <https://www.npr.org/2021/05/11/995849954/renewable-energy-capacity-jumped-45-worldwide-in-2020-ia-sees-new-normal#:~:text=Despite%20the%20pandemic%2C%20the%20growth,rate%20of%20increase%20since%201999.>

## Content

As countries in North and Central Asia increasingly prioritize energy transition strategies in their national development plans, the objectives are largely similar to increase energy efficiency, increase the share of renewable energy sources in energy production to diversify the energy mix and ensure energy security.

### *Renewable energy technologies*

Hydropower has been a conventional energy source for several North and Central Asia countries. Nonetheless, geographically water resources are irregularly situated which exposes disparities in the use of hydropower energy. Other challenges related to large scale hydropower plants include the negative effects on biodiversity, uneven distribution of fresh water, forced migration of habitats and the risks of climate change. For example, the newly constructed Sardoba reservoir was damaged last year due to strong storms and winds. Several villages were flooded in Uzbekistan and Kazakhstan and roads destroyed. In Georgia, where electricity demand is expected to double in the next ten years, the construction of the Namakhvani hydro power plant is facing opposition as there are concerns regarding flooding in surrounding villages should the dam be damaged. Active intraregional cooperation and stakeholder consultations is greatly needed considering the transboundary and overarching nature of water in the subregion. In 2015, the World Energy Council stated that the development of hydroelectric power continues to grow mainly because of improvements of existing large plants and construction of micro-hydropower plants. This trend toward micro-hydropower plants reduces public opposition to hydropower and increases energy access especially for remote areas. Small hydro power can be adapted to changing climate conditions easier than large hydro power.

While the increase of renewable energy production principally relies on policies, new technologies drive the change too. One of them is hydrogen. This energy source has the potential to produce stable electricity supply without increasing emission levels. However, the high price of production and storage, the absence of infrastructure, and safety issues are the limitations that would slow down the fast spread of this technology. Wind and solar power technologies have also attracted interest and investments in the subregion in recent years. The vast territory and substantial capacity for wind power in the subregion provide fructuous ground for installations of larger wind turbines with longer rotor blades which generate more electricity and decrease cost per megawatt. Unlike solar panels which have production facilities in some countries of North and Central Asia, wind turbines are mainly imported from other countries.

### *Energy efficiency and energy transition strategies*

Increased urbanization, growing population, and aging infrastructure makes energy efficiency a priority for North and Central Asia countries. Old buildings with centralized heating systems are one of the biggest energy consumers. Higher levels of insulation, reduced air infiltration, and better control of heating systems could reduce energy use in buildings. There have been initiatives to transform old panel buildings to be more energy efficient such as in Tartu, Estonia. Based on the lessons learned from this project, implementation of such initiatives requires concerted multistakeholder coordination. Apartment owners need to have economic interest to save on electricity bills, local governments need to be committed to see through this process and relevant technological expertise needs to be in place as well. Upon identification of potential target buildings and cities where stakeholders are ready to collaborate, pilot

projects to transform the energy infrastructure of old buildings can be considered for North and Central Asia countries.

As digitalization strategies are increasingly prioritized in the subregion, the increasing use of digital technologies may drive up energy consumption. Countries should learn from the old lesson of outdated transportation infrastructure and ensure that information and communications technology infrastructure that are put in place are compatible with current standards. Regular maintenance and upgrades can help ensure that the infrastructure has optimal performance. Additionally, new technologies such as smart thermostats, sensors, smart grids, etc. could reduce energy consumption and promote efficiency. Aside from digitalization, some commonalities in energy transition strategies in the subregion are the building of renewable energy plants and new energy efficient buildings, gasification of energy plants, and reducing investments in fossil fuel projects.

#### *Implications of energy projects and strategies*

As laid out in countries' energy transition strategies, many renewable energy projects have been initiated in the subregion. Multiple foreign institutions invested in the production of solar photovoltaic panels in Armenia, Azerbaijan, Georgia, Kazakhstan, and Russian Federation. Contracts for construction of wind power plants have been awarded in Kyrgyzstan and Uzbekistan. These projects are mainly implemented directly by foreign institutions. Countries in the subregion will need to step up the comparative advantage and acquire technological expertise to ensure sustainable development of the renewable energy sector. Recently, Uzbekistan and the Russian Federation developed national strategies for the development of hydrogen, opening new opportunities for the subregion. Existing natural gas pipelines are evaluated for the possibility of transporting hydrogen from Russia to the European Union. This would create opportunities for energy trade that can facilitate energy transition strategies.

Despite the development of renewable energy in the subregion, non-renewable energy capacity is still increasing at a faster pace in most of the countries. Given that the key trading partners, China and the European Union, are actively seeking to transition towards a carbon neutral economy, this should incentivize countries in the subregion to further prioritize renewable energy development.