

Expert Group Meeting

Sustainable and clean energy in North and Central Asia

9-10 June 2021 | Virtual meeting

Meeting Report

A. Introduction

The Expert Group Meeting (EGM) was held virtually on KUDO platform on 9-10 June 2021. The objectives of the meeting are to (i) evaluate the underlying conceptual framework proposed on sustainable and clean energy as a driver for achieving the 2030 Agenda, (ii) provide expert opinion on the determinants and interlinkages of sustainable and clean energy in North and Central Asia, and (iii) discuss emerging issues and policy considerations for the achievement of sustainable and clean energy in North and Central Asia.

The meeting consisted of four substantive sessions which discussed the different aspects of the working paper on sustainable and clean energy in North and Central Asia. Short descriptions of each session are as below.

(i) Synergies and trade-offs of sustainable and clean energy

Given the interlinkages between the sustainable development goals, the ESCAP Subregional Office for North and Central Asia attempted to map out the interlinkages between Goal 7: Affordable and clean energy and other sustainable development goals based on the strength and significance of correlation. Details of the methodology and preliminary findings are as attached. The expert group is expected to evaluate the methodology used and discuss the synergies and trade-offs between sustainable & clean energy and other sustainable development indicators.

(ii) Sustainable and clean energy as a driver for the 2030 Agenda

Sustainable and clean energy can be a driver for North and Central Asia to achieve the 2030 Agenda given its interlinkages with other sustainable development goals. A conceptual framework is proposed to ascertain the determinants of sustainable and clean energy in the subregion and using empirical analysis, the relationship between these drivers of sustainable and clean energy and achievement of sustainable development is analysed. Details of the methodology and preliminary findings are as attached. The expert group is expected to evaluate the conceptual framework and empirical analysis, discuss main determinants of sustainable and clean energy in North and Central Asia and suggest possible improvements for the current framework.

(iii) Emerging issues in the sphere of sustainable and clean energy

North and Central Asia countries increasingly prioritize energy transition strategies in their national development plans. Given the importance of energy development in the subregion, this session will discuss emerging trends in developing renewable energy sources, share experiences of current energy development projects and explore possible implications of these trends and projects on the subregion's strategies for energy development and transition.

(iv) Policy considerations for the achievement of sustainable and clean energy

In the recent decade, energy transition plans have been set in the national strategies of North and Central Asian countries. In line with this, North and Central Asian countries committed to the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change. Policy actions need to be taken to realize these plans and commitments. The expert group is expected to discuss approaches to promote clean and renewable energy practices and share lessons learned and good practices of implementing policies that promotes the development of sustainable and clean energy in the subregion.

The expert group meeting was attended by a total of 38 participants. There were 7 attendees (3 female, 4 male) from member States, 17 participants (5 female, 12 male) from international/ regional organisations, and 14 participants from the United Nations (7 female, 7 male). The list of participants is enclosed in Annex 1.

Almost 30 per cent of meeting participants completed the post-event assessment survey. Based on the post-event assessment, participants rated the meeting favourably (maximum rating of 5) – 4.3 for relevance, 4.6 for effectiveness, and 4.6 for efficiency. Participants also commented that the situation, trend and plans for the development of renewable energy sources in Central Asia were properly shown.

B. Substantive discussions and outcomes

The presentations made during the session highlighted the following.

(i) Synergies and trade-offs of sustainable and clean energy

- a. The presentation on “**Network analysis of Goal 7 in North and Central Asia**” highlighted:
 - Sustainable and clean energy is interlinked with other SDGs. SDG 7 should be analysed in connection with other SDGs to leverage on the interlinkages for more informed policy making.
 - North and Central Asian countries are decomposed into four categories for the analysis. This is to better identify differing patterns of interlinkages among different country groupings. The four categories of country grouping are as follow.
 - whole subregion (all countries);

- whole subregion excluding Russian Federation;
 - resource-rich countries (Azerbaijan, Kazakhstan, Russian Federation, Turkmenistan, Uzbekistan);
 - hydro-reliant countries (Armenia, Georgia, Kyrgyzstan, Tajikistan).
 - Depending on country grouping, the synergies, and trade-offs slightly differ. For the whole subregion, “poverty eradication”, “quality education”, “industry, innovation and infrastructure”, “climate action”, “partnerships for the goals” are the areas that have significant impact on sustainable and clean energy.
- b. The presentation on “**IGES SDG Interlinkages Analysis Tool: methodology and applications**” highlighted:
- The IGES SDG interlinkages Analysis is a tool that helps understand interlinkages among the SDGs and prioritize areas where potential positive impact can be maximized.
 - For SDG 7, the SDG interlinkage tool is used to analyse the synergies and barriers between SDG 7 and other SDGs. The results of analysis could be helpful for creation of new policies and adjustments in national action plans.
 - The tool was successfully applied for scientific methodology in Ghana to analyse urban-rural interlinkages, in Asia to measure the impact of COVID-19 crisis, and to evaluate the synergies and trade-offs for the development of renewable energy in Japan.
 - The tool is based on systematic literature review, word cloud analysis, consultations with experts and empirical data. The methodology consists of 4 components:
 - Identification of SDG interlinkages on causation and construction of the binary adjacency matrix;
 - Quantification of the identified interlinkages based on the time-series data;
 - Visualization of the SDG interlinkages in network graphs;
 - Network analysis of the SDG interlinkages.

(ii) Sustainable and clean energy as a driver for the 2030 Agenda

- a. The presentation on “**Analysing Clean Energy and Sustainable Development**” highlighted:
- A 2-step approach is used to identify the determinants of clean energy and better understand the explanatory effect of clean energy on sustainable development indicators. Renewable energy consumption is the proxy variable for sustainable and clean energy is used as instrumental variable during the course.
 - The 1st stage results show that after controlling for other variables, installed renewable energy capacity, number of renewable energy plants, levelized cost of energy and intraregional energy trade all contribute to explaining the variation in renewable energy consumption. The 2nd stage results show that clean energy can facilitate social development, economic growth and environmental quality improvement in North and Central Asia, which also confirm the synergies and trade-offs identified by network analysis.

- The constants in 2nd stage analysis are significant, indicating that there are uncaptured covariates that may drive sustainable development indicators. The findings are also subject to limited data availability and data quality in the subregion.
- b. The presentation on **“Overview of Global Energy Transformation Prospects for Central Asia” highlighted:**
- the global deployment of renewable energy has seen an upward trend mainly attributed to improved technologies and cost reductions. As of 2019, the cost of electricity generated by renewable energy has fallen sharply and is highly competitive compared to that of conventional fuels. The cost of electricity from Solar PV in particular, has dropped by more than 80% over the past 10 years.
 - Driven by sector development, renewable energy is no longer an alternative energy solution. Rather, it provides a mainstream solution to energy supply, accounting for one third of global power capacity today. The majority of annual power capacity expansion is also from renewable sources.
 - The increasing share of renewable energy in the energy mix has positive socioeconomic implications with regards to employment, justice and inclusiveness. IRENA jobs database shows that employment in renewable energy sector worldwide has been growing steadily over the 8 years, with total employment amounting to 11.46 million jobs in 2019. It is also worth highlighting that women account for almost 50% of these jobs, compared to only 22% in conventional energy sector.
 - Evidence from IRENA shows that renewable energy development and energy efficiency improvements are the two solutions for enabling global energy transformation, and together they offer over 90% of the mitigation measures to reduce energy-related emissions. Energy efficiency improvements in particular, must be scaled up rapidly and substantially.
- c. The presentation on **“Prospects for the development of renewable energy sources” highlighted:**
- Decarbonization and reaching carbon neutrality are important targets for Kazakhstan. The government has set ambitious indicators for renewable energy sector development (RE share reaching 3% by 2020 and 50% by 2050).
 - With an intent to develop renewable energy sector and encourage permanent jobs, Kazakhstan applies special auction mechanism, loan term conditions and investment climate to clean energy generation. The current focus is to develop conventional and renewable sources of energy in a balanced fashion to lower the tariffs for energy users.
 - Kazakhstan has introduced new laws on developing alternative energy sources and new technical standards for generators of renewable energy facilities. The remaining problems to be solved include 1) Integration of RE facilities to the general energy system; 2) Improving the reliability of RE generators especially in peak hours considering that renewable energy facilities have instable generation patterns; 3) Ensure energy safety and energy security of country.

- Renewable energy sector development requires for new structure of the market, which is conducive for new investment and projects. Tariff regulation and legislative framework would also be updated to boost the attractiveness of investment in renewable energy sector.
- Hydrogen is also the focus in Kazakhstan, including the production, transportation and storage of hydrogen, and the transfer of hydrogen into electricity. Currently, the administration of Kazakhstan is in cooperation and talks with EBRD to develop hydrogen projects. Development of hydropower stations would also contribute to the decrease of CO2 emissions.

(iii) Emerging issues in the sphere of sustainable and clean energy

a. The presentation on “**Asia Pacific Energy Portal**” highlighted:

- The Asia Pacific Energy Portal is an extensive knowledge hub developed by UN ESCAP for 53 member states to track the progress towards SDG target 7 in the Asia-Pacific region.
- Energy access in North and Central Asia has nearly reached 100% (Goal 7.1.1), but inconsistent reliability and blackouts are still major problems. Many countries still have outdated electricity infrastructure and have heavy reliance on fossil fuels.
- Access to clean cooking (Goal 7.1.2) has improved a lot in the subregion. However, a large portion of rural populations are exposed to polluting cooking fuels, which is not safe for health, especially for women and children who engage in food preparation.
- Electricity generated from renewable sources account for more than 90% in hydro-reliant countries like Georgia and Kyrgyzstan. There is still room for these countries to expand renewable energy especially in other sectors and in remote areas considering the largely untapped solar and wind potential. The imbalanced energy supply and demand during winter season due to increased heating poses a big problem for renewable capacity.

b. The presentation on “**Renewable Energy in Uzbekistan**” highlighted:

- Due to large hydrocarbon resources, Uzbekistan is now mostly reliant on thermal power plants. It is making continuous progress to diversify towards less carbon-intensive energy sources. The energy sector reforms in Uzbekistan free up the energy market and give rise to four major players in the energy market respectively overseeing energy generation, transmission, distribution, and hydro power.
- There are ambitious plans of 5GW solar, 3GW wind until 2030 and further improvements in energy efficiency and a new nuclear energy power plant by 2028. Carbon neutrality should be achieved by 2050. Uzbekistan calls for grid connectivity and energy cooperation with neighbouring countries to facilitate the transition to sustainable & clean energy.

c. The presentation on “**Clean Energy Opportunities in Central Asia**” highlighted:

- The Asian Development Bank operates all over Asia with 68 member countries. It is financing projects in Central Asia actively with \$6.6 billion going to Central Asia countries and among that, \$4.3 billion goes to the energy sector.
- Four “disruptors” coming in the region in the recent past are identified that are actively changing portfolio choices for ADB:
 - Solar Power: prices have decreased severely enabling global costs to come down and be competitive with conventional energy sources
 - Energy Efficiency
 - Electric Vehicles: increasing market penetration, expected to increase even faster in the future
 - Batteries and Materials
- The power sector challenges in the subregion include: 1) limited export market and stagnant domestic demand; 2) outdated power infrastructure and unstable energy supply; 3) undiversified energy sources and air pollution. The development of renewable energy could help tackle these problems both from demand and supply side.

(iv) Policy considerations for the achievement of sustainable and clean energy

- a. The presentation on “**Policy considerations for sustainable and clean energy**” highlighted:
 - Energy transition needs to ensure positive GDP growth, enhance social welfare, create jobs and protect the environment. At the same time, despite decreasing renewable energy cost, there should not be “one size fits all” strategies in each country’s energy transition.
 - At the global level there are two key frameworks for energy transition: (i) the 2030 Agenda with its SDG 7 and the NDC of Paris Agreement. ESCAP is contributing to these goals by tracking the progress in SDG 7 achievement in Asia and the Pacific. As an example, the Regional Trends Report “Shaping a Sustainable Energy future for Asia and the Pacific” and other ESCAP knowledge products. Besides, ESCAP sets out policy recommendations to help attain SDG7.
 - North and Central Asia countries are well on track with 100% access to electricity and 90% access to clean cooking. However, despite a substantial potential to exploit wind and solar energy, fossil fuels dominate with hydro as the largest renewable energy source.
 - ESCAP is developing National Expert SDG tool for energy planning (NEXTSTEP) to assist policymakers make informed decisions that would help achieve SDG7 targets and NDCs. Georgia was one of the first countries to complete its SDG7 roadmap in Dec 2020.
- b. The presentation on “**Clean Energy Investments in Central Asia**” highlighted:
 - EBRD’s activities in Central Asia concentrate on three broad areas - policy dialogue, technical cooperation and investments. Through investments, the Bank aims to support sector reforms that increase competition and liberalization of the market,

- strengthen frameworks for regionalization and energy security, prioritize energy efficiency and use of renewable energy.
- The region needs stronger macroeconomic policies and predictable sector regulation. Long term regulatory certainty/predictability is key.
 - With assistance from the EBRD and funding from Japan, Uzbekistan developed the Low-Carbon Pathway of the energy sector that envisages early retirement of inefficient capacity, construction of new high-efficiency gas-fired capacity in the short term. The current national policies up to 2030 are consistent with the decarbonisation scenarios to reach carbon neutrality by 2050.
 - In Tajikistan, Qairokkum Rehabilitation and Climate Resilient project supported the Tajik state-owned power utility by financing the rehabilitation and upgrade of dam structure and turbine and hydro-electric equipment. This will increase capacity of Qairokkum and strengthen the plant's resilience against the projected impacts of climate change.
 - As for challenges in the region, they are intermittent and unpredictable nature of wind and solar power, seasonality of hydro, poor diversification of power sector balance with huge reliance on aged power stations.
- c. The presentation on **“Georgia's experience with regards to SDG7 implementation, challenges and development prospects”** highlighted:
- Currently, Georgia's energy system structure is as follows: 25% is renewable energy and 75% is thermal power. Georgia constantly improves its regulatory environment by adopting necessary legislative acts, as well as prioritizing renewable energy development in its national strategies. One of the goals is to ensure universal access to affordable, reliable and modern energy services throughout the country by 2030.
 - One of the current challenges in energy sector of Georgia is increased consumption. As a result, the country is trying to implement hydropower and encourage wind and solar projects. Achieving this could ensure the energy independence of Georgia.
 - Georgia was a pioneer in using ESCAP's National Expert SDG Tool for Energy Planning (NEXSTEP) and was among the first countries in the region to develop a Sustainable Development Goal 7 Roadmap. The roadmap contains a matrix of technological options and enabling policy measures for the Government to consider. It presents several scenarios that have been developed using national data, and which consider existing energy policies and strategies, and reflect on other development plans. These scenarios are expected to enable the government of Georgia to make informed decisions in achieving SDG 7 by 2030 as well as the NDC.
- d. The presentation on **“Sustainable Energy in Central Asia – the Role of Regional Cooperation”** highlighted:
- Regional energy trade depends on modernisation of energy infrastructure. While national strategies highlight the role of FDI, regulatory and institutional barriers to FDI need to be removed.

- The transition to climate neutrality also requires smart infrastructure. Increased cross-border and regional cooperation will help achieve the benefits of the clean energy transition at affordable prices.
- National strategies mainly focus on “self-sufficiency” and export revenues, and not energy saving benefits of import. Thus, re-conceptualisation of the notion of “energy security” in Central Asia is needed.

During the discussions, experts highlighted the following points in each session.

(i) Synergies and trade-offs of sustainable and clean energy

- The possible challenges in conducting SDG interlinkages research due to the lack of reliable data in North and Central Asia subregion.
- Different methodologies were used in the analysis conducted by SONCA and IGES. SONCA team applied data driven methodology, whereas IGES firstly identified causal relationships between relevant peer targets based on literature review, systematic review, machine based text mining and text analysis. Then IGES confirmed the results with experts. Stakeholders’ consultation helped to customize and identify the variables.
- Country groupings are context based. The countries can be decomposed based on various factors: resource endowment, income level, GDP, education level, etc.
- To enrich the SDG interlinkage analysis, it is important to understand the narrative of relationships between variables. All interlinkages are context and country specific. In the case of renewable energy, for example the deployment of wind power in one location might be different from installation in another depending on natural resources, land occupation, etc.
- The SDG interlinkages tool has policy application and it was used for the development of Vietnam’s sustainability policies. In June 2020, IGES provided technical assistance to Vietnam with the development of the national action plan 2021-2030 on sustainable consumption and production.

(ii) Sustainable and clean energy as a driver for the 2030 Agenda

- Aside from increasing renewable energy capacity, energy efficiency improvements from the demand side should also be emphasized to facilitate the transition to green industry and sustainable cities. There is still great potential in the way how transportation industries and cities (e.g. shift to electric cars and energy-efficient buildings) consume energies. We need to look beyond the power sector and focus on user demand.
- Cooperation among regional development banks is encouraged to boost co-finance for green projects.
- The achievement of SDG 7 involves more than renewable energy development from the supply side, and energy efficiency improvements from the demand side. It’s worth noting that enhanced regional energy cooperation and connectivity are also essential to achieve SDG 7 (especially Goal 7.1.1: ensure universal access to energy).
- The four determinants identified are based on literature review and data availability. If time allows, some qualitative variables may also be incorporated in the model, including

governance indicators and indicators of technology transfer. At this point, the variables used are those that yield the best results so far.

- Post-Soviet power infrastructure is in place for energy cooperation in North and Central Asia. However, energy trade has reduced drastically compared to the 1990s. Common regulatory framework, integrated business models and renovated infrastructure are all necessary to increase intraregional connectivity and facilitate energy trade in the subregion.
- Currently the 2-step research uses commonly accepted SDG indicators to evaluate SDG progress in the subregion. Network analysis is capitalized to further narrow down the relevant indicators for the subregion. As mentioned in Session 1, indicators of Goal 1, Goal 4, Goal 9, Goal 13 and Goal 17 are identified as strongly significant correlated indicators with renewable energy consumption. However, the diverse country profile in the subregion may have an impact on spotting the most relevant SDG indicators.

(iii) Emerging issues in the sphere of sustainable and clean energy

- Central Asian countries should find their niche in the new technological age of renewable energy. High potential for clean energy, cooperation and hydrogen production exist in the region. Uzbekistan has tremendous potential for RE development, especially high potential for solar with the help of donors and development banks.
- Data availability and reliability are big issues and ESCAP does not have the capacity to collect these kinds of data. Currently, Asia Pacific Energy Portal doesn't have the capacity to collect national statistics data and mainly perform data aggregation. But it still paints an accurate picture based on aggregated data from other sources like IEA. Adding more information about specific power plants and infrastructure is currently in development. Moreover, availability of emission data is also important and actively worked on.
- There are many positive aspects for developing hydropower, including 1) generation of cheap and environmentally friendly electricity; 2) reduction in CO2 emission; 3) provision of water security, guaranteed water irrigation and prevention of extreme events; and 4) more reliable electricity generation compared to weather dependent RE like solar and wind power. Small-scale hydro power stations are also subject to problems including limited potential and unreliability in the off season.
- Off-grid renewable energy development in urban areas is faster and cheaper than conventional infrastructure since rural areas are more difficult to develop and maintain grid connection. Off-grid solutions will play an important role in achieving universal access, create equity and reach SDGs.

(iv) Policy considerations for the achievement of sustainable and clean energy

- Energy transition is an important factor of economic growth in North and Central Asia. At the same time there should not be "one size fits all" strategies in each country's energy transition.
- North and Central Asia countries are well on track with 100% access to electricity and 90% access to clean cooking. However, despite a substantial potential to exploit wind and solar

- energy, fossil fuels dominate with hydro as the largest renewable energy source; outdated energy infrastructure is one of the main challenges in Central Asia.
- Improved regulatory framework and modernised infrastructure are necessary to increase intraregional cooperation and facilitate energy trade in the subregion. Besides, the region needs stronger macroeconomic policies and predictable sector regulation. Long term regulatory predictability is the key for FDI.
 - ESCAP could use its National Expert SDG tool for energy planning (NEXTSTEP) in other countries of NCA to support North and Central Asia policymakers to achieve SDG7 targets and NDCs.

The working paper on sustainable and clean energy in North and Central Asia is suggested to be updated based on the discussions and outcome of the meeting. Next steps proposed for consideration during the meeting include the following.

(i) Research methodology

- Application of a more comprehensive systemic methodology for conducting research in North and Central Asia.
- To analyse the binary variables and capture better the interlinkages, we need to consider the narrative, whether there is a causation or not. Increased country coverage, and more data could allow us to have in depth study.
- Stakeholder engagement is essential for better analysis as stakeholders provide narratives for SDG analysis and they are closely concerned by the study. Currently, the wide range of literature help to provide multi-dimensional aspects of interlinkages with narrative.
- To incorporate other relevant variables in the covariates and may try out variables from energy supply side as proxy variable for sustainable & clean energy.

(ii) Policy considerations

- To speed up energy efficiency improvements from the demand side, with special focus on greening transportation industry and making cities sustainable.
- Energy supply seasonal volatility issues and electricity accessibility issues in remote and rural areas should be emphasized.
- To take into account the diverse country profiles when it comes to identifying relevant SDG indicators and significant interlinkages with SDG 7 for targeted policy making.
- Implications and linkages of the energy transition towards renewable energy on SDG 7 and other sustainable development indicators should be recognized.
- To strengthen regional energy cooperation and trade from the aspects of interconnected infrastructure, integrated business models and common regulatory framework. Better macroeconomic policies and predictable sector regulation should be developed to attract FDI.

- Balance between opportunity and challenges for renewable energy is important to move forward in achieving a decarbonized future. Collaboration between countries, international organization and financiers is crucial to reach the SDGs.
- To further promote energy transition in North and Central Asian countries and expand renewable energy projects that could be a driver for sustained economic growth and ensure building back better after the pandemic times.
- ESCAP could use its capacity in supporting countries of North and Central Asia in this transition. For example, the representative of Tajikistan expressed an interest in such consultations with UN ESCAP.
- To develop improved roadmaps with better databases on energy achievements to track progress with SDG 7 in North and Central Asia.

Annex 1. List of participants

Member States

Armenia

- Mr. Tigran Melkonyan, Head, Energy Department, Ministry of Territorial Administration and Infrastructure

Georgia

- Ms. Margalita Arabidze, Deputy Head of Energy Reforms and International Relations Department, Ministry of Economy and Sustainable Development
- Mr. Omar Tsereteli, Ministry of Economy and Sustainable Development

Kazakhstan

- Ms. Baltugan Tazhmakina, Head of Division of Implementation and Monitoring of Renewable Energy Facilities, Department of Renewable Energy

Kyrgyzstan

- Ms. Gulzat Kokonbayeva, Leading Specialist of Renewable Energy and Energy Saving Sector

Tajikistan

- Mr. Parviz Atoev, Head, Department of International Relations, Ministry of Energy and Water Resources

Uzbekistan

- Mr. Bekzod Asadov, Leading Specialist at the Department of Renewable Energy Systems, Ministry of Energy

International/ Regional Organizations

Asian Development Bank

- Mr. Sohail Hasnie, Principal Energy Specialist

CAREC Environmental Centre for Central Asia

- Mr. Zafar Makhmudov, Executive Director
- Ms. Irina Bubenko, Knowledge Management Specialist
- Ms. Saltanat Zhakenova, Specialist

European Bank for Reconstruction and Development

- Ms. Veronika Krakovich, Associate Director, Regional Head of Energy, Energy Eurasia, Sustainable Infrastructure Group

Eurasian Development Bank

- Mr. Leonid Efimov, Head, International Cooperation Division
- Ms. Assem Kernebayeva, Managing Director for Business Development

Eurasian Economic Commission

- Mr. Andrey Panteleev, Head of Economic Policy Strategies Section, Macroeconomic Policy Department
- Mr. Vladislav Dmitrakov, Deputy Head of the Section of Electric Power and Nuclear Policy, Energy Department
- Ms. Nare Petakchyan, Chief Specialist-Expert, Economic Policy Strategies Section, Macroeconomic Policy Department
- Ms. Anastasiia Khazhgerieva, Consultant, Economic Policy Strategies Section, Macroeconomic Policy Department

Energy Charter Secretariat

- Mr. Kanat Botbaev, Coordinator, Knowledge Centre
- Ms. Aidana Orynbekova, Coordinator, Transit

International Fund for Saving the Aral Sea

- Mr. Sanoi Boev, Member of the Executive Council

Institute for Global Environmental Strategies

- Ms. Xin Zhou, Research Leader, Strategic & Quantitative Analysis Center

International Renewable Energy Agency

- Mr. Prasoon Agarwal, Regional Programme Officer, Asia Pacific
- Ms. Aleksandra Prodan, Associate Professional for Central Asia

United Nations

- Michaela Friberg-Storey, Resident Coordinator, United Nations in Kazakhstan
- Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP
- Michael Williamson, Chief of Section, Energy Division, ESCAP
- Michiko Enomoto, Head, Asian and Pacific Centre for Transfer of Technology, ESCAP
- Sergey Tulinov, Economic Affairs Officer, Energy Division, ESCAP
- Natalja Wehmer, Economic Affairs Officer, Macroeconomic Policy and Financing for Development Division, ESCAP
- Patricia Wong Bi Yi, Associate Economic Affairs Officer, Subregional Office for North and Central Asia, ESCAP
- Ainur Dyussyubekova, Administrative Assistant, Subregional Office for North and Central Asia, ESCAP
- Artur Akhmetov, Research Assistant, Subregional Office for North and Central Asia, ESCAP
- Valentin Gryunberg, Programme Assistant, Subregional Office for North and Central Asia, ESCAP
- Rauan Zainov, Team Assistant, Subregional Office for North and Central Asia, ESCAP
- Jiayue Cheng, Consultant, Subregional Office for North and Central Asia, ESCAP
- Arukhan Rakhmanova, Subregional Office for North and Central Asia, ESCAP
- Fabian Hafner, Subregional Office for North and Central Asia, ESCAP

Annex 2. Moderators' and Presenters' Profile

Session 1: Synergies and trade-offs of sustainable and clean energy

Nikolay Pomoshchnikov (moderator)

Nikolay Pomoshchnikov is the Head of the Subregional Office for North and Central Asia, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). He has extensive experience in bilateral and multilateral diplomacy. Before joining ESCAP in 2011, he was the Deputy Permanent Representative of the Russian Federation to ESCAP. He has the diplomatic rank of Envoy Extraordinary and Plenipotentiary (second class). He holds a PhD in Political Science.

Jiayue Cheng (presenter)

Jiayue Cheng is a consultant at the Subregional Office for North and Central Asia, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). She conducts thematic research related to sustainable development in North and Central Asia. She attained a BSc in Accounting from Singapore Management University and Postgraduate Diploma in Management from Shanghai University of Finance and Economics.

Xin Zhou (presenter)

Xin Zhou is currently leading the Strategic and Quantitative Analysis Centre at the Institute for Global Environmental Strategies (IGES) in Japan. In the past several years, her main research focus has been placed on SDG interlinkages and indicators, climate policy assessment and energy system scenario analysis. Now, Dr. Zhou conducts and leads research on SDG interlinkages analysis, green investment, development and application of the Japan 2050 Low Carbon Navigator and water-energy-food nexus study. She received her PhD in Environmental Studies from Nagoya University in Japan in 2007.

Session 2: Sustainable and clean energy as a driver for the 2030 Agenda

Nikolay Pomoshchnikov (moderator)

Patricia Wong Bi Yi (presenter)

Patricia Wong is the Associate Economic Affairs Officer at the Subregional Office for North and Central Asia, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). At the subregional office, Patricia conducts and coordinates research related to economic transformation and sustainable development in the subregion. She has a background in international economics and has experiences in program management, monitoring and evaluation, stakeholder engagement, investment promotion and international trade advisory.

Prasoon Agarwal (presenter)

Prasoon Agarwal is the Regional Programme Officer for Asia Pacific at the International Renewable Energy Agency (IRENA). Prior to joining IRENA he was an Energy Sector Co-Lead and Senior Advisor at Global Green Growth Institute (GGGI), where he has been contributing to shape GGGI's global energy thematic strategy. He holds an undergraduate degree in Mechanical Engineering from the Indian Institute of Technology (IIT) Varanasi, and a PhD from Indian Institute of Management (IIM) Ahmedabad.

Baltugan Tazhmakina (presenter)

Baltugan Tazhmakina is the Head of Division of Implementation and Monitoring of Renewable Energy Facilities at the Department of Renewable Energy, Ministry of Environment in Kazakhstan. She has extensive experiences in the field of renewable energy working in various roles in the Ministry of Energy and the Ministry of Environment for the past 8 years. She previously worked as a Specialist at the Aarhus Center in Astana.

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

Michaela Friberg-Storey (Moderator)

Michaela Friberg-Storey is the UN Resident Coordinator in Kazakhstan and has over 20 years of experience working in peace, security and development. She worked on strategic leadership of humanitarian operations and diplomacy for the Red Cross and Red Crescent Movement. She also served as Head of the Security Sector Reform Division of the Agency for Peace, Security and Development of the Swedish Government and worked at the Security Policy Department of the Swedish Ministry for Foreign Affairs. Under the UN Interim Administration Mission in Kosovo, she also headed the Election Field Operations of the Organization for Security and Co-operation in Europe (OSCE), held the position of Director of the European Union Integration Office, and served as the UN Special Envoy for Kosovo. Michaela holds a Bachelor of Arts in political science from Stockholm University and completed a post-graduate master's degree in humanitarian assistance at Uppsala University.

Sergey Tulinov (presenter)

Sergey Tulinov is an Economic Affairs Officer at the Energy Division of the UN Economic and Social Commission for Asia and the Pacific (UN ESCAP). The Energy Division promotes policy dialogues among member States to develop a regional cooperation framework to enhance energy security, with a view towards promoting greater use of sustainable energy resources, including universal access to energy services, improving energy efficiency and scaling up the use of renewable energy through data and policy analysis, information exchanges and best practices.

Sohail Hasnie (presenter)

Sohail Hasnie is the Principal Energy Specialist at the Asian Development Bank. With an academic background in engineering, business and entrepreneurship, before joining ADB, he worked on wholesale electricity market design, pricing regulation, energy efficiency and demand management for the state power utility and independent regulator in Melbourne, Australia. He is a firm believer that the solution to climate change lies in new technology and has applied new technology to many ADB projects as an energy specialist since 2001 in countries including Afghanistan, Cambodia, the People's Republic of China, India, Indonesia, Malaysia and Mongolia.

Bekzod Asadov (presenter)

Bekzod Asadov is the Leading Specialist at the Department of Renewable Energy Systems of the Ministry of Energy in Uzbekistan. He previously served as an engineer in the Department of Perspective Development where he worked on development schemes for power transmission lines. Bekzod holds a master's degree in energy and nuclear engineering from the Politecnico di Torino.

Session 4: Policy Considerations for the Achievement of Sustainable and Clean Energy

Michael Williamson (moderator/presenter)

Michael Williamson is the Chief of Sustainable Energy Development Section at the Energy Division of ESCAP. Since commencing this role in 2018 Michael has worked on regional cooperation for sustainable energy and energy connectivity across ESCAP's 53 member countries, spearheading the Division's intergovernmental, technical assistance and knowledge building efforts. Prior to this, Michael was the acting Director of ESCAP's Subregional Office for South and South West Asia overseeing 10 countries of South and South West Asia. Michael's experience over the last 20 years covers the private sector, government and international organizations with a focus on sustainable development, energy, technology and climate change.

Veronika Krakovich (presenter)

Veronika Krakovich is the Associate Director and Regional Head of Energy Eurasia at European Bank for Reconstruction and Development (EBRD). In her role, she engages in the bank's various activities with a focus on business valuation, financial modelling and M&A transactions. Prior to joining EBRD, she was in several managerial roles at PricewaterhouseCoopers.

Margalita Arabidze (presenter)

Margalita Arabidze is the Deputy Head of Energy Reforms and International Relations Department at the Ministry of Economy and Sustainable Development in Georgia. She has more than 15 years of experience in the energy sector of Georgia and also serves as an Associate Professor at the Faculty of Power Engineering and Telecommunications of the Georgian Technical University. Margalita holds a PhD in Engineering Sciences.

Kanat Botbaev (presenter)

Kanat Botbaev is the Principal Coordinator at the Knowledge Center of the Energy Charter Secretariat and joined the Energy Charter Secretariat in June 2012. He has extensive experiences both in public and private sectors. He began his career as an economist at the State Energy Agency of the Kyrgyz Republic. In 1999-2001 he was with the civil service in the State Investment Commission and Ministry of Finance, where he dealt with the coordination of the external aid in the energy sector.

Annex 3. Final Programme

* All times are stated in Almaty time (GMT+6).

Day/Time	Session
9 June 2021 (Wed)	
09.45 – 10:00	<p><u>Opening Session</u></p> <ul style="list-style-type: none"> Welcome remarks by <i>Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP</i>
10:00 – 12:00	<p><u>Session 1: Synergies and trade-offs of sustainable and clean energy</u> <i>Moderator: Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP</i></p> <ul style="list-style-type: none"> Presentation by <i>Jiayue Cheng, Consultant, Subregional Office for North and Central Asia, ESCAP</i> Presentation by <i>Xin Zhou, Research Leader, Strategic & Quantitative Analysis Center, IGES</i> Open discussion/ Remarks by expert group
12:00 – 14:00	Break
14.00 – 16:00	<p><u>Session 2: Sustainable and clean energy as a driver for the 2030 Agenda</u> <i>Moderator: Nikolay Pomoshchnikov, Head of Office, SONCA, ESCAP</i></p> <ul style="list-style-type: none"> Presentation by <i>Patricia Wong, Associate Economic Affairs Officer, Subregional Office for North and Central Asia, ESCAP</i> Presentation by <i>Prasoon Agarwal, Regional Programme Officer, Asia Pacific, IRENA</i> Presentation by <i>Baltugan Tazhmakina, Head of Division of Implementation and Monitoring of Renewable Energy Facilities, Department of Renewable Energy, Kazakhstan</i> Open discussion/ Remarks by expert group

Day/Time	Session
10 June 2021 (Thur)	
10:00 – 12:00	<p><u>Session 3: Emerging issues in the sphere of sustainable and clean energy</u> <i>Moderator: Michaela Friberg-Storey, Resident Coordinator, UN in Kazakhstan</i></p> <ul style="list-style-type: none"> • Presentation by <i>Sergey Tulinov, Economic Affairs Officer, Energy Division, ESCAP</i> • Presentation by <i>Sohail Hasnie, Principal Energy Specialist, ADB</i> • Presentation by <i>Bekzod Asadov, Leading specialist at the Department of RES, Ministry of Energy of the Republic of Uzbekistan</i> • Open discussion
12:00 – 14:00	Break
14:00 – 16:00	<p><u>Session 4: Policy considerations for the achievement of sustainable and clean energy</u> <i>Moderator: Michael Williamson, Chief of Section, Energy Division, ESCAP</i></p> <ul style="list-style-type: none"> • Presentation by <i>Michael Williamson, Chief of Section, Energy Division, ESCAP</i> • Presentation by <i>Veronika Krakovich, Associate Director, Regional Head Energy, Energy Eurasia MEA, Sustainable Infrastructure Group, EBRD</i> • Presentation by <i>Margalita Arabidze, Deputy Head of Energy Reforms and International Relations Department, Ministry of Economy and Sustainable Development of Georgia</i> • Presentation by <i>Kanat Botbaev, Principal Coordinator at the Knowledge Center, Energy Charter Secretariat</i> • Open discussion
16:00 – 16:10	Break
16:10 – 16:30	<p><u>Closing Session</u></p> <ul style="list-style-type: none"> • Concluding remarks by <i>Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP</i>