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Meeting with the Chair of the Committee on Sustainable Energy

Report by the Chair

Report by the Chair of the Committee on Sustainable Energy

The Chair of the Committee on Sustainable Energy (the Committee), Mr. Jürgen Keinhorst, is pleased to submit his report to the 131st meeting of the Executive Committee (EXCOM) on 4 December 2023. At its 125th meeting (Geneva, 30 November 2022), EXCOM approved the programme of work of the sustainable energy subprogramme for 2023.

I. Introduction

1. This report outlines the main achievements of the Committee on Sustainable Energy (the Committee) and its subsidiary bodies in the period from December 2022 to November 2023, as well as major activities planned for the rest of 2023 and for 2024. More information is contained in the report of the thirty-second session of the Committee, held on 13-15 September 2023 in Geneva (ECE/ENERGY/149). Additional activities that took place since the Committee report (ECE/ENERGY/149) was issued are described below.

2. The work of the United Nations Economic Commission for Europe (ECE) on sustainable energy is designed to improve access to affordable and clean energy for all and help reduce greenhouse gas (GHG) emissions and the carbon footprint of the energy sector in the region. It promotes policy dialogue and cooperation among governments, energy industries and other stakeholders. The current focus of the Committee is on resilience and carbon neutrality, sustainable resource management, methane management, renewable energy, natural gas, hydrogen, energy connectivity, energy efficiency, digitalization in energy, just transition, gender and youth through the work of its six subsidiary bodies (see Annex I).

3. At its thirty-second session, the Committee exchanged views on how to build resilient and carbon-neutral energy systems in the ECE region while supporting implementation of the 2030 Agenda for Sustainable Development (2030 Agenda) and the Paris Agreement through sustainable resource management and access to critical raw materials, renewable energy capacity scale-up, interplay of low- and zero-carbon technologies, regional energy connectivity, systemic energy efficiencies and digitalization in energy, methane management and just transition. Building resilient and carbon-neutral energy systems in the ECE region will remain the focus of the Committee's work until the thirty-third session in September 2024.

II. Achievements over the past twelve months

4. Since November 2022 when the Chair gave his last report at the 125th meeting of EXCOM, the Committee has been working on helping countries identify technology and policy options to attain resilient and carbon-neutral energy systems and to accelerate and deepen the transition to sustainable energy across the ECE region in support of the 2030 Agenda and the Paris Agreement commitments.

5. The Committee has implemented the Programme of Work for 2023 of the sustainable energy subprogramme (ECE/ENERGY/2022/1), particularly those activities related to the strategic priorities of the subprogramme: increase energy systems resilience; promote sustainable resource management; support member States in achieving their Sustainable Development Goal 7 (SDG7) objectives through scaling up renewable energy capacity and improving energy efficiency; enable a renewable or low- and zero-carbon hydrogen ecosystem in the ECE region; promote best practices in methane management and reductions; and conceive practices for a just and inclusive energy transition.

6. The Committee has produced many tangible products and accomplishments, delivering on its commitments, despite a range of challenges that were beyond the control of the Committee or the subprogramme:

(a) In Q3 of 2023, ECE was yet again faced with budget freeze that has had implications on three vacant posts - two P4 and one P5 post – preventing the Secretariat from closing the recruiting process and filling these posts.

(b) The economic, geopolitical, energy, social, supply chain, climate, and environmental challenges the ECE region is facing, have exposed the vulnerability of the energy systems in the ECE region. The Secretariat has been faced with challenges to secure additional extrabudgetary resources. The Committee called upon member States to provide resources to support projects and activities that deliver on the Committee’s identified priorities and address the new challenges.

7. The Committee had numerous key cross-cutting achievements during the reporting period. Specifically, it:

(a) Hosted one Committee session, six expert group sessions, 27 bureau meetings, 55 workshops, trainings and webinars, including cross-expert group workshops, reaching more than 4,050 attendees including over 1,200 women.

(b) Engaged in 42 missions in twelve member States, providing 90 days of onsite support, training more than 1,700 experts (including more than 820 women) via 150 meetings, workshops and trainings, and having individual interactions with more than 250 officials and experts.

(c) Developed cross-thematic knowledge and produced reports and policy briefs on a number of topics, including building resilient energy systems, sustainable hydrogen production pathways, sustainable resource management (the United Nations Framework Classification for Resources (UNFC) and the United Nations Resource Management System (UNRMS)), critical raw materials, energy connectivity, the role of women in the energy transition (see informal document “Achievements of the Committee on Sustainable Energy and its Subsidiary Bodies”^a for a list of documents).

(d) Organized special events and high-level dialogues on a range of topics, including building resilient energy systems, critical raw materials, climate finance, energy connectivity and digitalization of energy systems (see informal document “Achievements of the Committee on Sustainable Energy and its Subsidiary Bodies” for a list of events).

(e) Launched a strategic partnership of UN Agencies (ECE, ESCAP and the United Nations Development Programme (UNDP)) active in Central Asia at the 2nd Almaty Energy Forum in November 2023 and formed a Task Force for Energy Transition in Central Asia to design and build resilient energy systems in Central Asia. This community has organized a number of technical workshops in preparation for the 3rd Almaty Energy Forum held on 6-8 November 2023 (see outcomes of the Forum on the event website^b).

(f) Continued collaborating with the UN Working Group on Transforming the Extractive Industries for Sustainable Development, co-chaired by the Regional Economic Commissions, UNDP and United Nations Environment Programme (UNEP). The Working Group was launched in January 2022 to coordinate, inform and assist stakeholders in the sector to transform it into a sustainable system and contribute to the green transition. Some of the achievements of this Working Group include: developing a toolkit for critical raw materials, a knowledge hub, a framework for just transition for the critical energy transition minerals, and providing policy advice and technical assistance to resource-rich countries on improving governance, transparency and environmental and social safeguards. UNFC and UNRMS are also promoted as part of the activities of the Working Group.

(g) Continued with extensive outreach through the “UNECE Sustainable Energy” page on LinkedIn and the ECE Sustainable Energy monthly newsletter, that the subprogramme uses to facilitate the spread of information quickly and more effectively to member States about products, events and resources.

^a <https://unece.org/sed/documents/2023/11/achievements-committee-sustainable-energy-and-its-subsidiary-bodies>

^b <https://unece.org/sustainable-energy/events/almaty-energy-forum-2023>

8. In addition to the cross-cutting accomplishments listed above, specific Committee achievements related to the individual priority areas of work include:

A. Resilience and Carbon Neutrality

9. At the 32nd session of the Committee on Sustainable Energy, the Committee noted that a framework on resilient energy systems is one that is based on: (i) energy security that ensures energy needed at any time is met through a diversity of supply; (ii) affordability of sustainable energy that reduces the costs of electricity, heating, cooling, and transport while increasing systemic energy efficiency; and (iii) environmental sustainability that lowers the carbon footprint and enhances the efficiency across the energy supply chain. Building a resilient energy system requires engaging with all stakeholders to the extent that warrants their ownership of the process and a sense of responsibility for its results. While the transition towards climate neutrality, being a key element of improving resilience of an energy system, will create new opportunities, it may also have disruptive effects on carbon- and energy-intensive industries, as well as on regions, communities, and enterprises that depend on them. Therefore, the Committee called upon ECE member States to assess social impacts of the transition at the planning phase, so that proper protective and ameliorating mechanisms are developed and relevant policies prepare stakeholders to the new reality being put in place.

10. The Committee called upon member States to support the activities related to designing and building resilient energy systems with extrabudgetary resources. During the reporting period the Committee and its subsidiary bodies conducted a number of activities to help countries design and build resilient energy systems. Specifically, it:

(a) Launched a joint and collaborative multi-stakeholder process to shape the Platform on Resilient Energy Systems (Platform). Under the Platform, ECE is strategically collaborating with a number of international organizations, such as European Investment Bank (EIB), International Atomic Energy Agency (IAEA), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), International Telecommunications Union (ITU), Organization for Security and Co-operation in Europe (OSCE), United Nations Economic Commission for Latin America and the Caribbean (ECLAC), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Economic and Social Commission for Western Asia (ESCWA), United Nations Industrial Development Organization (UNIDO), the World Bank, World Meteorological Organization (WMO) etc.

(b) Invited ECE member States to strengthen the proposal by the secretariat “Advanced concept for the Platform on Resilient Energy Systems” (ECE/ENERGY/2023/12) that highlights the unique, timely and innovative proposition of the Platform that is based on: (a) an AI-powered tool using selected and vetted information sources to support tailored and targeted policy and decision-making; (b) a unique forum for information exchange and inclusive multi-stakeholder demand-driven policy dialogues on topical issues, supported by data collection, classification, and policy analysis, and asked for future clarification on the proposal.

(c) Continued disseminating the findings from the extrabudgetary project on “Enhancing the understanding of the implications and opportunities of moving to carbon neutrality in the ECE region across the power and energy intensive industries by 2050” implemented in December 2022. A revised version of the UNECE Carbon Neutrality Toolkit was published in September 2023 and the ECE Export Community has been applying the tool now at national and subregional level. The report on “Rebuilding Ukraine with a Resilient, Carbon-Neutral Energy System” was published in June 2023 and the roadmaps for the Republic of Moldova and the Central Asia region are in preparation. The Committee encouraged member States to apply the UNECE Carbon Neutrality Toolkit with the support of the ECE expert community.

B. Sustainable Resource Management

11. During the reporting period, the Expert Group on Resource Management conducted a number of activities to help countries develop the resources sustainably. Specifically, it:

(a) Accelerated implementation of the United Nations Framework Classification for Resources (UNFC) globally, in particular in countries of the European Union, thanks to the ongoing extrabudgetary project on “Supporting UNECE member States in the development and implementation of UNFC and the United Nations Resource Management System (UNRMS)”. At its 130th session the EXCOM has approved the Phase II of the project and the secretariat will continue to build capacities in ECE member States for sustainable management of resources through the application of UNFC and UNRMS. Since the

(b) Published the United Nations Resource Management System (UNRMS): Principles and requirements (UNECE Energy Series 74), a new global standard for sustainable and integrated management of natural resources, such as minerals, petroleum, renewable energy, nuclear resources, anthropogenic resources, geological storage and groundwater. UNRMS was endorsed by the United Nations Economic and Social Council (ECOSOC) in July 2023 (E/RES/2023/19). UNRMS aims to help countries and companies balance economic development, environmental sustainability and social responsibility in line with the Sustainable Development Goals (SDGs) and the Paris Agreement. At the 9th Asia-Pacific Energy Ministers’ Meeting (APEMM) held in Bangkok, Thailand, on 28-29 October 2023, the Energy Ministers of the region expressed their support for UNRMS in their Ministerial Declaration and invited its application to enhance the sustainability and efficiency of resource management in the Asia-Pacific. The Committee recognized the potential of UNRMS to facilitate the management of a complex hybrid system of renewable and non-renewable resources, considering their unique features and differences and integrating it with the water-food-energy nexus.

(c) Developed four substantive documents, including an updated Bridging Document between the Petroleum Resources Management System and the United Nations Framework Classification for Resources (ECE/ENERGY/GE.3/2023/4), a Bridging Document between the Oil and Fuel Gas Reserves and Resources Classification of the Russian Federation of 2013 and UNFC (ECE/ENERGY/GE.3/2023/5), a Concept Note and Proposed Actions for Application of UNFC and UNRMS to Hydrogen Projects (ECE/ENERGY/GE.3/2023/6) and a UNFC Case Study on the titanium deposit, the Piampaludo exploration project in Italy (ECE/ENERGY/GE.3/2023/7).

(e) Developed a “Policy brief on aligning critical raw materials development with sustainable development” that was presented at the High-level Political Forum in New York in July 2023. The policy brief highlights the role of critical raw materials (CRMs) in the transitions towards carbon neutrality by large-scale deployment of renewable energy and energy storage and points out that the demand for CRMs is expected to increase exponentially in the near future, making sustainable production from primary and secondary (anthropogenic) resources crucial.

(f) Developed a “Policy brief on ensuring sustainable supply of critical minerals for a clean, just, and inclusive energy transition” and provided recommendations to the G20 leaders on how to address the challenges and opportunities related to the supply and demand of critical minerals, which are essential for the deployment of low-carbon technologies and the achievement of the Paris Agreement goals. The policy brief was prepared with inputs from ECE, ESCAP, ESCWA and other stakeholders. The policy brief identifies four key areas of action: enhancing global governance and cooperation, promoting responsible mining and sourcing, fostering circular economy and innovation, and ensuring social inclusion and justice.

(g) Launched a series of dialogues on access to critical raw materials in Central Asia – including at the ECE Sustainable Energy Week in April 2023, 31st session of the Committee on Sustainable Energy in September 2023, and the 3rd Almaty Energy Forum in November 2023. Noted that access to critical raw materials (CRMs) is vital for the ECE region to achieve its climate and sustainable development goals and to support the transition to a carbon neutral and a digital society. Various factors, such as geopolitical tensions,

environmental impacts, market distortions, and technological changes, influence the supply and demand of CRMs. These factors pose significant challenges and risks for the resiliency and sustainability of the CRMs value chain. Policy alternatives that could enhance the resiliency and sustainability of the CRMs value chain include diversifying primary sources, promoting a circular economy, fostering innovation and cooperation, strengthening governance and transparency, and increasing investments (ECE/ENERGY/2023/13). These policies should be aligned with the principles of sustainable development and human rights.

(h) Established a UNFC Adoption Group under the Expert Group to identify and analyze challenges and barriers to widespread UNFC adoption as decision support for governments, industry and capital allocators. The Group will also work together with stakeholders to illustrate and test the use of UNFC to compare and contrast projects and portfolios of projects, in different activities and how the UNFC metrics may be applied in support of opportunities and risk based corporate decision making, sustainability financial assessments and national resource and econometric analyses.

(i) Established a G-axis Task Force under the Expert Group to designate the degree of confidence in the estimate of the quantities of products from the project and to summarise differences in how the UNFC G-axis is interpreted and applied for different resources i.e., whether there are different meanings attached to the G-axis Categories when classifying different resources and what these different meanings and to recommend a way forward to the Expert Group.

(j) Supported the EU to include UNFC in the proposed EU Critical Raw Materials Acts and started to develop templates to support application of UNFC to strategic projects, exploration projects, recycling, and monitoring risks by countries and industry.

(k) Continued to work on promoting women in resource management, including through dedicated webinars and presentations at global conferences.

C. Methane Management

12. During the reporting period the Group of Experts on Coal Mine Methane and Just Transition conducted a number of activities to enhance methane management across the ECE region. Specifically, it:

(a) Developed three substantive documents: i) “The use of high-resolution satellite imagery to identify methane emissions from underground mines: A CMM case study of a mine within the Karaganda Coal Basin” (CMMJT-18/2023/3); ii) “Assessment of coal demand in Tajikistan to 2050 and the alternative options for replacing coal in the country’s energy mix” (ECE/ENERGY/GE.4/2023/4) and iii) “Coal mine closure in Albania and Serbia” (ECE/ENERGY/GE.4/2023/5), as well as two technical studies on the transition of the coal mining sector: (a) “The local geological and mining conditions in Albania and Serbia - principle-based guidelines for designing and implementing a programme for an efficient, safe, and environmentally conscious mine closure”, and, (b) “The assessment of coal demand in Tajikistan to 2050 and alternative options for replacing coal in the country’s energy mix”.

(b) Continued to deliver the Methane Mondays online series raising awareness about methane management across the coal value chain, and secured resources for two extrabudgetary projects, the first on “Strengthening national capacities to reduce coal mine methane emissions from active (CMM) and abandoned (AMM) coal mines and to measure and manage methane emissions across the natural gas value chain” and the second on “Dissemination of best practices in coal mine methane monitoring, reporting, capture, abatement, and use for the purpose of strengthening national capacities for safe and environmentally responsible management of methane from state owned coal mines”.

(c) Raised awareness at ECOSOC about this important and timely work. As a result ECOSOC adopted a resolution (E/RES/2023/186) on Best Practice Guidance for Effective Management of Coal Mine Methane at National Level: Monitoring, Reporting, Verification and Mitigation in which the Council invites States Members of the United Nations, international organizations and the regional commissions to consider the possibility

of taking appropriate measures to ensure the application of the Best Practice Guidance for Effective Management of Coal Mine Methane at National Level: Monitoring, Reporting, Verification and Mitigation worldwide.

(d) Set up two methane-oriented taskforces, on (i) Methane Emissions Reduction, and (ii) Safe Operations and Closure of Coal Mines to improve the effectiveness of its work and engage more closely with international experts specializing in those fields. The Task Forces operate under the auspices of the Group of Experts which guides and oversees their activities.

D. Renewable Energy

13. The Group of Experts on Renewable Energy continued promoting and scaling renewable energy capacity across the ECE region during the reporting period. Specifically, it:

(a) Developed three substantive documents: (a) “Status of implementation of renewable energy action plans across 17 ECE countries” (ECE/ENERGY/GE.7/2023/3); (b) “Bioenergy production and potential for addressing the compound food and energy crisis in Ukraine (ECE/ENERGY/GE.7/2023/4); “Multi-stakeholder Dialogue: policy recommendations to support biofuels market development in Ukraine” (ECE/ENERGY/GE.7/2023/5).

(b) Implemented, in cooperation with the Food and Agriculture Organization of the United Nations (FAO) and UNEP, the SDG Fund Project “Addressing the compounded food and energy crisis in Ukraine through innovative technologies and adaptive agricultural practices”. The findings from this project were disseminated during the multi-stakeholder dialogue on “Untapped Bioenergy Potential of Ukraine: Comprehensive View of Proper Use. Issues of Energy Security and Food Security” and provided concrete recommendations to promote the role of bioenergy in the future energy system in Ukraine.

(c) Developed, as per Ukraine’s request, a study on “Supporting energy crops along roads and highways in Ukraine”. This study highlighted that the cultivation of fast-growing energy trees can not only help to restore the forest strips, but also, under certain conditions, be attractive to private investors. The recommendations from this study helped Ukraine develop their energy strategy and identify possible pilot projects.

(d) Contributed to the Sarajevo Climate and Energy Week and organized a session on Climate adaptation in the Drina River Basin with a focus on energy-water nexus and renewable energy development. Renewable energy plays an important role in helping countries achieve better management of resources within the water-energy-food-ecosystems nexus.

(e) Organized, in cooperation with the Division on Sustainable Transport, a workshop in Georgia on Renewable Energy in Transport. The aim of the workshop was to strengthen knowledge of Georgian experts on international legal instruments and best practices on use of renewable energy in transport.

E. Natural Gas and Hydrogen

14. During the reporting period, the Group of Experts on Gas conducted a number of activities related to the role of natural gas and hydrogen in building resilient and carbon neutral energy systems. Specifically, it:

(a) Organized the event “Business case for hydrogen blending”. In this context, the blending refers to injecting hydrogen into natural gas pipelines. Hydrogen blending could be an effective and cost-efficient transitional solution for reaching carbon neutrality in certain ECE sub-regions. Although blending has multiple advantages, it faces several obstacles that could be overcome with the right policy, regulatory, technical, and geopolitical decisions. For example, the current natural gas infrastructure could be retrofitted or repurposed to be

‘hydrogen proof’. For this to happen, technical regulations on hydrogen blending are needed; ECE could play a role in it.

(b) Launched, in cooperation with the Group of Experts on Renewable Energy and the Expert Group on Resource Management, a Hydrogen Task Force to streamline hydrogen-related activities under the Committee. The Task Force on Hydrogen focuses on three workstreams: (a) hydrogen classification (including UNFC and UNRMS); (b) hydrogen value chain development; and (c) synergies with renewable energy sources. The Hydrogen Task Force will not duplicate already existing initiatives; rather, it will complement the ongoing efforts. The three priorities of HTF are to: i) expand the reach of current initiatives to the countries not usually covered by them (Central Asia, Caucasus, Western Balkans); ii) explore how the UNFC and the UNRMS could be applied to hydrogen projects, and iii) serve to all non-UN actors as a gateway to the UN family of organizations (the Economic and Social Council, other regional commissions, UNEP, UNDP, etc.). The Committee called upon member States to support these timely and relevant activities with extrabudgetary resources.

(c) Continued with the implementation of the extrabudgetary project “Sustainable hydrogen production in the UNECE region and its role in the development of a hydrogen ecosystem and export potential”. In October 2023, the project implementation team organized three regional events to disseminate the project findings to the beneficiary countries: i) Roundtable on Sustainable Hydrogen Production at the Kazakhstan Energy Week on 3 October 2023 in Astana, Kazakhstan; ii) Forum on Ways for Sustainable Hydrogen Production at the Uzbekistan Innovation Week on 18 October 2023 in Tashkent, Uzbekistan; and iii) Policy Dialogue on Green Energy Transition during the Oil and Gas Conference on 25 October 2023 in Ashgabat, Turkmenistan.

F. Electricity Systems and Connectivity

15. The Group of Experts on Cleaner Electricity Systems, the Group of Experts on Renewable Energy and the Task Force on Digitalization conducted a number of activities during the reporting period to discuss the role of electricity and connectivity in building resilient and carbon neutral energy systems. Specifically, it:

(a) Developed a document on “Transitioning electricity supply systems to net-zero emissions power systems – common principles for reliability of supply” (ECE/ENERGY/GE.5/2023/5) that explores the risks of possible unintentional losses in system reliability during energy transition. The document discusses the issue of retention of sufficient dispatchable capacity amid transitioning to net-zero emissions electricity systems and the importance of maintaining the grid reliability and resilience. The Group of Experts on Cleaner Electricity Systems called on ECE member States to assess the challenges related to integration of distributed energy resources and energy storage, and to further explore the role of energy end users, energy efficiency and energy conservation, as an enabler of grid optimization.

(b) Developed, in cooperation with ESCAP’s Expert Working Group on Energy Connectivity, a “Policy brief on advancing power system connectivity in support of SDG7”, that was presented at the 2023 High-level Political Forum in July 2023 in New York.

(c) Launched activities on enhancing regional energy connectivity to improve the resiliency of the energy system and the energy security in Central Asia. These activities will be supported through the extrabudgetary resources and the 16th tranche United Nations Development Account, and will be closely implemented in cooperation with ESCAP. Initial activities included: i) a study on “Energy Connectivity in Central Asia - an inventory of existing national energy systems”, and ii) a series of dialogues on energy connectivity at the Almaty Energy Forum, 6-8 November 2023, in Almaty, Kazakhstan.

G. Energy Efficiency

16. The Group of Experts on Energy Efficiency implemented a number of activities on improving systemic energy efficiencies across the energy systems in the ECE region. Specifically, it:

(a) Developed two substantive documents on advancing energy resilience and decarbonization: i) the document on “Advancing energy resilience and decarbonization across the ECE region: analysis of macro-level status quo and action points for the industrial sector” (ECE/ENERGY/GE.6/2023/5); and ii) on “Advancing energy resilience and decarbonization across the ECE region: unleashing the potential of energy storage and demand-side flexibility” (ECE/ENERGY/GE.6/2023/6).

(b) Led by the Task Force on Energy Efficiency in Industry, the Expert Group conducted a number of activities since the last reporting, including thematic research and content creation for informed policy making. The key activities included: regular bi-monthly fora assembled by the Task Force on Energy Efficiency in Industry and active participation in global thematic conferences such as the United Nations Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals, the International Energy Agency Annual Global Conference on Energy Efficiency, etc.

(c) Received an extension the mandate of the Joint Task Force on Energy Efficiency Standards in Buildings for the period 2024-2025 (ECE/ENERGY/149). This Joint Task Force is coordinated jointly by the Committee on Sustainable Energy Division and the Committee on Urban Development, Housing and Land Management. The Joint Task Force on Energy Efficiency Standards in Buildings continued its activities aimed at maintaining and updating the Framework Guidelines on Energy Efficiency Standards in Buildings, at managing the ECE High-Performance Buildings Initiative and its Centres of Excellence (research, implementation-oriented advanced education and assistance, deployment of the Framework Guidelines on Energy Efficiency Standards for Buildings), and at organizing workshops and train-the-trainer seminars on high-performance buildings and energy efficiency standards. A “Progress report on High-Performance Buildings Initiative” (ECE/ENERGY/2023/14) was presented and highlighted the cooperation activities in advancing energy efficiency standards in buildings in the ECE region. The Committee reconfirmed the relevance of HPBI to the Sustainable energy subprogramme. At the same time, it acknowledged the associated resource implications and, also to avoid duplication of activities, seconded the motion to leverage the existing expertise and explore ways to pool efforts with similar programmes or initiatives, including UNEP and its Global Alliance on Buildings and Construction (Global ABC), for the administration of the network of HPBI Centres of Excellence.

H. Digitalization in Energy

17. The Task Force on Digitalization in Energy, led by the Group of Experts on Energy Efficiency and supported by the Group of Experts on Cleaner Electricity Systems, serves as a platform for constructive policy dialogue for cross-industry experts. The Task Force supports shaping of the policy agenda by exploring opportunities, assessing challenges, risks, and trade-offs of digitalizing the energy system and addressing the barriers to digitalization in energy from a system-level perspective. During the reporting period the Task Force conducted a number of activities. Specifically, it:

(a) Shaped a dialogue on introducing digitalization as an instrument for enabling a balance between energy security, affordability, and environmental sustainability when challenged by the changing energy landscape at the seventieth session of the Commission held under the cross-cutting theme “Digital and green transformations for sustainable development in the region of the Economic Commission for Europe”. The Committee took note of the potential that digital technologies offer in terms of systemic energy efficiency improvements and as a follow up to the seventieth session of the Commission, the Task Force will continue leading on digitalization in energy and will report to the Committee at its next session.

(b) Developed two substantive documents: i) “Key considerations and solutions to ensure cyber resiliency in the smart integrated energy systems” (ECE/ENERGY/GE.6/2023/3-ECE/ENERGY/GE.5/2023/3) and ii) “Improving efficiency and reliability of energy systems by means of big data analytics” (ECE/ENERGY/GE.6/2023/4-ECE/ENERGY/GE.5/2023/4). The Committee called upon member States to support with extrabudgetary resources the activities of the Task Force on Digitalization in Energy and the constructive policy dialogue for cross-industry experts.

I. Just Transition

18. The Group of Experts on Coal Mine Methane and Just Transition continued promoting the concept of just energy transition across the ECE region. During the reporting period the Group of Experts conducted a number of activities. Specifically, it:

(a) Launched the Task Force on Just Transition and put the important and timely topic of “just energy transition” in the focus of the work of the Committee in 2024, and has invited all subsidiary bodies to engage in this cross-cutting topic and explore joint activities that can contribute to accelerate a just energy transition across the ECE region. The Group of Experts Developed two substantive documents: i) “Energy sector in Ukraine: challenges, current situation, perspectives for the future” (ECE/ENERGY/GE.4/2023/6); and ii) Just Transition – the Check List (ECE/ENERGY/GE.4/2023/7).

(b) Launched, as per Albania’s request, the project on mapping Albania’s readiness for just transition in post-coal mining areas. The project aims to identify regulatory, social, technical, and financial barriers that the country needs to address to be able to successfully reclaim and repurpose post-mining land and reorient the economic profile of the concerned areas in accordance with the principles of green economy and just transition. Apart from the final report the project is to develop a Geographic Information Systems’ (GIS) database incorporating relevant information gathered throughout the project and providing maps and other graphical displays of data allowing to examine the current status and the readiness for transition of post-coal mining areas in Albania.

J. Gender and Youth

19. The Committee and its subsidiary bodies have continued to address gender issues related to energy systems in the ECE region. The Committee noted the role that women can play towards sustainable energy and reiterated the need to promote gender parity in the programmes of the Committee and its subsidiary bodies and to update on the progress at future sessions.

20. During the reporting period, the Committee and its subsidiary bodies have focused on improving intergenerational issues in the energy sector across the ECE region. Specifically, it:

(a) Established a Resource Management Young Member Group during the 14th session of the Expert Group on Resource Management, which was held during the ECE Resource Management Week 2023 in April 2023.

(b) Shaped and delivered the 61st United Nations Graduate Study Programme held on 3-14 July 2023 in Geneva. The Group of Experts on Coal Mine Methane and Just Transition played an important role in the 61st United Nations Graduate Study Programme, providing young energy experts from around the world with guidance and supervising their work on a study “Forging a Just Transition: Towards Green Jobs and Rights-Based Futures”, focused on transformation challenges and opportunities of the coal-mining sectors in Poland and Kazakhstan.

III. Major activities planned for 2024 and beyond

A. Resilience and Carbon Neutrality

21. The Committee and its six subsidiary bodies will continue shaping and supporting the Platform on Building Resilient Energy Systems. Key activities will include to:

(a) Mainstream resiliency concepts and systems thinking throughout all the activities and deliverables of subsidiary bodies: from sustainable resource management through just transition and up to systemic efficiencies and digitalization of energy systems.

(b) Start with the implementation of the Stage 1 of the Platform on Resilient Energy Systems dedicated to the development of a knowledge repository with a smart AI-powered search engine, robust data and documents library of vetted sources to uncover hidden insights and summarize information upon request, citing original sources, subject to extrabudgetary resources.

(c) Organize capacity building activities for member States to understand the trade-offs and opportunities to balance the three pillars of energy resilience (energy security, environmental sustainability, energy affordability) for policy making, subject to extrabudgetary resources.

(d) Continue to organically grow and strengthen the strategic partnership with International Organizations under the Platform.

(e) Organize a policy dialogue on building resilient energy systems at the 33rd session of the Committee on Sustainable Energy and report on the progress of expert groups activities that support the Platform.

B. Sustainable Resource Management

22. The Expert Group on Resource Management will continue with the implementation of its Work Plan 2024 – 2025 and will focus on the following activities:

(a) Finalize the implementation of the extrabudgetary project funded by the European Commission “Supporting UNECE member States in the development and implementation of UNFC and UNRMS” (2020-2024).

(b) Launch the implementation of the extrabudgetary project funded by the European Commission “Phase II - Supporting UNECE member States in the development and implementation of UNFC and UNRMS” (2024-2028), to facilitate accelerated implementation of UNFC and encourage member States to participate in the project.

(c) Continue to support the establishment of International Centres of Excellence on Sustainable Resource Management to provide policy support, technical advice and consultation, education, capacity-building, training and information dissemination on UNFC and UNRMS in the ECE region and beyond and seek to establish a collaborative network of the Centres coordinated by the secretariat and in full compliance with the adopted ECE standards and guidelines. The sub-region in focus for 2024 will be Central Asia.

(d) Organize the 2024 UNECE Resource Management Week, with its focus on assuring sustainability principles in resource management. The 15th session of the Expert Group on Resource Management will be organized as part of the Week.

(e) Continue to provide support to ECE member States related to the inclusion of UNFC in the proposed EU Critical Raw Materials Act which is anticipated to be adopted by the end of the first half of 2024. This support will include further development of the templates to support application of UNFC to strategic projects, exploration projects, recycling, and monitoring risks by countries and industry. Capacity-building is planned to support deployment of UNFC in EU Member States.

(f) Promote the use of UNRMS, comprehensive and easy-to-understand guidance documents will be developed that will explain how UNRMS works, its benefits, and how it

can be applied in different contexts. Case studies will be developed to showcase the practical application of UNRMS in real-world situations. Workshops will be organized to offer hands-on training to users and demonstrate how to navigate and use the UNRMS platform effectively.

(g) Implement UNDA 14th Tranche project on “Food-Water-Energy nexus support to post-COVID-19 recovery in Eastern Europe, Western Balkans, Central Asia, the Middle East and Africa”, (2022 – 2025) aimed at developing a sustainable and integrated management approach interconnecting the food, water and energy nexus and helping to manage the impact of the COVID-19 situation. The project will assist the beneficiary countries to identify and develop best practices and measures to apply a cross-cutting nexus approach to food systems, water and energy management. The project is implemented in coordination with ESCAP, ESCWA, ECA, UNEP, WHO/Europe and UNU-INWEH.

(h) Implement UNDA 16th Tranche project (2024 – 2027) on “Sustainable production for critical raw materials required for low-carbon transitions”, which aims to address the challenges faced in producing raw materials for low-carbon energy, mobility, and digital transitions, with a focus on lithium, cobalt, and rare earth elements. It will help Member States in adopting international best practices aligned with the UNRMS principles and requirements to ensure social and environmental viability. The project will provide policy guidance on realizing full value through comprehensive resource recovery, promoting circularity, and ensuring health and occupational safety. ECE and ESCAP will lead the four-year project, with a focus on Central Asia and the ASEAN regions Other Regional Economic Commissions will also participate in the project.

C. Methane Management

23. The Group of Experts on Coal Mine Methane and Just Transition will continue to assist countries in their efforts to cut and manage their methane emissions. The main activities in 2024 will include:

(a) Organize and deliver the Global Methane Forum 2024 in partnership with the Global Methane Initiative and the Climate and Clean Air Coalition that is to be held on 18 – 20 March 2024 in Geneva in parallel with the annual meetings of the Group of Experts on Gas and the Group of Experts on Coal Mine Methane and Just transition.

(b) Continue to promote the recently published “Best Practice Guidance for Effective Management of Coal Mine Methane at National Level: Monitoring, Reporting, Verification and Mitigation” (ECE/ENERGY/139 and ECE Energy Series No. 71), as well as the two best practice guidance documents on monitoring and abatement of methane emissions from active and abandoned coal mines developed by the Group in previous years, and implement two extrabudgetary projects: “Strengthening national capacities to reduce coal mine methane emissions from active (CMM) and abandoned (AMM) coal mines and to measure and manage methane emissions across the natural gas value chain” approved at the 129th EXCOM meeting in July 2023, and “Dissemination of best practices in coal mine methane monitoring, reporting, capture, abatement, and use for the purpose of strengthening national capacities for safe and environmentally responsible management of methane from state owned coal mines” approved at the 130th EXCOM meeting in October 2023.

(c) Gather and compile case studies on coal mine closures, as well as disseminate and facilitate the application of the identified best practices on safe closure of coal mines.

(d) Develop a document directed to non-technical audience, such as the general public and policymakers, on opportunities and challenges of addressing the problem of ventilation air methane (VAM) emissions.

(e) Continue delivering in cooperation with Ember the Methane Monday online series to increase understanding of the sources and scale of methane emissions along the coal value chain, as well as of the existing opportunities for their effective mitigation. Explore opportunities to engage member States in work to develop the relevant normative framework to harmonize methane emissions monitoring and reporting standards in the ECE region.

D. Renewable Energy

24. The Group of Expert on Renewable Energy will continue promoting the scaling of the renewable energy capacity across the ECE region through the following key activities in 2024:

(a) Conduct joint activities with the Environment Division on water-energy nexus in the framework of the upcoming extrabudgetary IKI Project “Regional mechanisms for the low-carbon, climate-resilient transformation of the energy-water-land nexus in Central Asia”. The activities will include: (i) a workshop/technical discussion on energy storage in energy and water security in Central Asia; (ii) regional and national workshops on water demand for sustainable hydrogen at regional and national levels; (iii) multistakeholder dialogue(s) on water-energy-land nexus in Central Asia.

(b) Develop and organize a number of Renewable Energy Hard Talks based on requests of ECE member States.

E. Natural Gas and Hydrogen

25. The Task Force on Hydrogen, under the auspices of the Group of Experts on Gas, and in cooperation with the Group of Experts on Renewable Energy and the Expert Group on Resource Management will focus on the implementation of the following key activities in 2024:

(a) Develop hydrogen value chains to decarbonize hard-to-abate industries (including through synergies with renewable energy) in selected ECE member States, through demand-driven capacity-building workshops.

(b) Apply the United Nations Framework Classification for Resources (UNFC) and UNRMS to hydrogen projects.

(c) Develop a concept and raise funds for a project on promoting international trade, finance, and technology transfer in low-emissions hydrogen. Member States are invited to support this activity with extrabudgetary resources.

F. Electricity Systems and Connectivity

26. The Group of Experts on Cleaner Electricity Systems in cooperation with the Group of Experts on Renewable Energy, the Group of Experts on Energy Efficiency and the Group of Experts on Gas as well as ESCAP’s Expert Working Group on Energy Connectivity, will focus on the following activities in 2024:

(a) Conduct an analysis on the cost of ensuring energy system resilience and its impact on the affordability of energy and develop a document containing analysis of the system lifecycle costs of integrating new technologies on the electric grid.

(b) Explore, in cooperation with the ECE (WP.5) Working Party on Transport Trends and Economics, the impact of e-mobility integration on electric system design and operation, through delivery of workshops and seminars on relevant selected topics of interest, and a background document.

(c) Implement the project on Energy Connectivity in Central Asia that was approved by EXCOM at its 128th meeting in May 2023. The main activity will include development of a roadmap for a regionally interconnected energy system in Central Asia. Member States are invited to nominate experts to join the UNECE Task Force on Energy Connectivity and jointly implement this activity.

(d) Launch the cross-regional project on increased energy security and resilience through energy transition jointly with ESCAP, ECLAC, ESCWA and ECA. The objective of this project is to help member States increase their policy design capacity to enhance energy security and energy system resilience through energy connectivity.

G. Energy Efficiency

27. The Group of Experts on Energy Efficiency, its Task Force on Industrial Energy Efficiency and the Joint Task Force on Energy Efficiency Standards in Buildings, will focus on the following activities in 2024:

(a) Support energy efficiency improvement and decarbonization in industry, through: (i) development of a report on industrial energy efficiency and/or decarbonization, (ii) conducting workshops and information sharing sessions on relevant topics of interest, (iii) contribution to the work of the Platform on building resilient energy systems.

(b) Develop, update, and disseminate energy efficiency standards aimed at raising energy performance of buildings and improving the built environment, through organizing workshops and training seminars on the application of the Framework Guidelines on Energy Efficiency Standards in Buildings.

(c) Conduct, in cooperation with the ECE (WP.5) Working Party on Transport Trends and Economics, an activity that explores viable pathways for a balanced integration of electric mobility.

H. Digitalization in Energy

28. The Task Force on Digitalization in Energy, led by the Group of Experts on Energy Efficiency and supported by the Group of Experts on Cleaner Electricity Systems, will focus on the following activities in 2024:

(a) Assess the contribution of digitalization to designing cleaner electricity systems, through development of a background document on AI and the related challenges and opportunities in the power sector.

(b) Continue working on activities that unlock the potential of energy system efficiency through digitalization, by developing a report or case studies on digitalization in energy, as well as by holding workshops and information sharing sessions on relevant topics of interest, including jointly with the United Nations regional economic commissions and other relevant organizations.

I. Just Transition

29. The Task Force on Just Transition, operating under auspices of the Group of Experts on Coal Mine Methane and Just Transition, will focus on the following key activities in 2024:

(a) Map the just transition efforts across the ECE region and identifying factors necessary for a start and successful progress of the just transition process in the coal mining areas.

(b) Provide demand-driven assistance to member States in designing and implementing just transition strategies for the selected coal mining areas.

(c) Engage with academic institutions on development of curricula and professional trainings necessary to equip the workforce of the future green economy with adequate skills matching the requirements of the transformed energy sector and its redesigned industrial environment.

G. Gender and Youth

30. The Committee and its subsidiary bodies will continue promoting gender parity across its subsidiary bodies and will proactively seek opportunities to address gender issues across the energy system through development of policy briefs or delivery of dialogues.

31. The Committee and its subsidiary bodies will continue working on facilitating the intergenerational dialogue and empowering youth to prepare the next generation of energy experts. The main activities planned in 2024 will include:

(a) A dialogue of the Resource Management Young Member Group during the ECE Resource Management Week 2024.

(b) Activities under the Network of Universities in Central Asia, if extrabudgetary resources are provided.

IV. Any proposed change to the subsidiary structure of the Committee

32. There are no proposed changes to the subsidiary structure of the Committee to report.

33. At its thirty-second session (Geneva, 13-15 September 2023), the Committee on Sustainable Energy adopted the report of its thirty-second session contained in document ECE/ENERGY/149. As part of its deliberations, the Committee:

(a) Adopted the proposed draft programme of work of the sustainable energy subprogramme for 2024, as contained in document ECE/ENERGY/2023/1;

(b) Endorsed the work plans and the renewal of the mandates of the Group of Experts on Cleaner Electricity Systems, the Group of Experts on Coal Mine Methane and Just Transition, the Group of Experts on Energy Efficiency, the Group of Experts on Gas and the Group of Experts on Renewable Energy for the period 2024–2025 with the possibility of extension, as contained in document ECE/ENERGY/149;

(c) Endorsed the work plan of the Expert Group on Resource Management for the period 2024–2025, as contained in document ECE/ENERGY/149; and

(d) Approved the extension of the mandate of the Joint Task Force on Energy Efficiency Standards in Buildings for 2024–2025 and its terms of reference, as contained in the annex to document ECE/ENERGY/2023/10.

34. The Executive Committee is invited to approve the above-mentioned decisions.

V. Follow-up to the 2023 session of the Economic Commission for Europe

35. The Committee took note that the Commission at its seventieth session emphasized the need to further strengthen the work of the Commission in support of digital and green transformations for sustainable development in the ECE region within its existing mandate as appropriate and subject to available resources, as contained in document E/2023/37 E/ECE/1503 section B (70). The panel on “Digitalization as enabler for climate action and decarbonization - the 4Ds of modern energy system: digitalization, decentralization, democratization, and decarbonization” led by the Task Force on Digitalization in Energy concluded that digital solutions enabled advances in connectivity, data, and analytics, and greatly increased overall efficiency of energy system and that digital innovations offer new ways of addressing challenges in energy delivery process, and of finding exceptional ways to address them. The Task Force on Digitalization in Energy will support the Commission to advance its agenda in the area of digital and green transformations during the intersessional period.

36. The Committee further took note that the Commission requested the relevant Sectoral Committees and bodies reporting directly to the Executive Committee, and their subsidiaries, to further explore possible collaboration across subprogrammes and to consider how to enhance the impact of relevant existing ECE instruments, in order to foster digital and green transformations, including by proposing ways to identify, assess and fill gaps in governance and good practices. The Committee called upon member States to support the activities of the Task Force on Digitalization in Energy with extrabudgetary resources.

37. In addition to the two adopted ECOSOC resolutions mentioned in Section III, the Committee further noted with appreciation, that ECOSOC adopted Resolution E/RES/2023/20 on Economic Commission for Europe Decision I (70): “Request to strengthen the role of the secretariat of the Economic Commission of Europe in supporting member States in building resilient energy systems and modernizing resource management systems” and called upon member States to support this request during its next stages, namely in the Fifth Committee of the General Assembly which deals with administrative and budgetary matters.

VI. Intersectoral activities: new activities and/or progress in existing intersectoral activities

38. The Committee is pursuing close cooperation with the following Committees:

(a) Committee on Environmental Policy and Water Convention on **water-energy nexus activities**, namely under the IKI project on water-energy nexus in Central Asia, and on **Environmental Performance Reviews**. The Group of Experts on Renewable Energy and the Expert Group on Resource Management will continue supporting the implementation of this project. In addition,

(b) Committee on Inland Transport under the mandated work of the Working Party 5 on Transport Trends and Economics (WP.5), the Group of Experts on Energy Efficiency and the Group of Experts on Cleaner Electricity Systems have been working together on advancing of **electric mobility** in the ECE region.

(c) Committee on Innovation, Competitiveness and Private-Public Partnerships on innovative low- and zero-carbon technologies for resilient and carbon neutral energy systems and on developing regulatory frameworks and directing private and public **climate financing** for **building resilient energy systems** in the ECE region. Cooperation also includes activities related to **reskilling, upskilling, and bridging the digital divide** in the light of the twin transformation.

(d) Committee on Urban Development, Housing and Land Management, on coordination of the Joint Task Force on **Energy Efficiency Standards in Buildings**.

VII. Technical cooperation activities

39. The Committee received an update of regional advisory services since its 32nd session (ECE/ENERGY/2023/4). The report included information on adjusting regional advisory services, including capacity-building and technical assistance activities, to multiple challenges caused by the various ongoing crises in the ECE region. Field projects under implementation, including those that were developed as a rapid response to these challenges, and ongoing fundraising activities were reported. Based on the demand from programme countries, several studies and capacity-building activities have been implemented and initiated, in particular, in Albania, Georgia, Republic of Moldova, Serbia, Tajikistan, Ukraine, and Uzbekistan.

40. The Regional Adviser continued to work closely with colleagues in the Sustainable Energy Division, other UNECE Divisions, other UN Regional Commissions, UN Resident Coordinator Offices (RCO), organizations of the UN system, and international and national organizations in support of needs of countries eligible for technical cooperation activities based on demand expressed by countries. The activities undertaken in the region are described in detail in document ECE/ENERGY/2023/4.

41. Subsequent to the 32nd session of the Committee, the following activities were completed by the Regional Adviser with the support of other members of the Sustainable Energy Division:

(a) Workshop and field visit on just transition in mining communities and the potential for geothermal energy development, 20-21 June 2023, Tirana, Albania and online

(b) Advisory mission to Armenia, 29-30 June 2023 and Inception workshop in the framework of the preparation phase of the project “Improving the energy efficiency of the global building supply chain industry and its products to deliver high performance buildings,” 30 June 2023, Yerevan, Armenia and online

(c) Publication of the study “Guide for the implementation of energy efficiency measures and valorization of renewable energy sources for public sector buildings” for the Republic of Moldova

(d) Workshop on Knowledge Sharing on Resource Classification and Estimation, 11-12 October 2023, Tbilisi, Georgia

(e) Advisory mission to Uzbekistan, 16-18 October 2023

(f) Advisory mission to Kazakhstan, 6-10 November 2023 and Workshop on De-risking financing of renewable energy and energy efficiency projects, 6 November 2023, Almaty, Kazakhstan in the framework of the Almaty Energy Forum, 6-8 November 2023

(g) Advisory mission to Georgia, 20-22 November 2023, Workshop on Renewable Energy in Transport, 21 November 2023, Tbilisi, Georgia, and Validation workshop in the framework of the preparation phase of the project “Improving the energy efficiency of the global building supply chain industry and its products to deliver high performance buildings,” 22 November 2023, Tbilisi, Georgia and online

42. The Regional Adviser will continue advisory missions, capacity-building workshops, and technical assistance activities based on the requests from programme countries in 2024.

VIII. Cooperation with other organizations

43. UNECE has applied, and continues to follow, a decentralized resource mobilization approach to reduce its dependency on the Regular Budget and to attract extrabudgetary sources of funding. The Division’s access to extrabudgetary funding in 2023 was significantly impeded or delayed through circumstances beyond the Division’s control. More efforts will be required to secure extrabudgetary funding in 2024. The sustainability of the ECE’s partnership with its member States and external parties depends on the value added by UNECE and its recognition by stakeholders as a leader in sustainable energy.

44. As noted previously, the subprogramme has several successful activities ongoing with partners. Beyond the engagement of the expert groups with the full spectrum of stakeholders in each area of work, these include notably the Almaty Energy Forum, the Global Methane Forum, the High-Performance Buildings Initiative, and the IKI project proposal on Improving the energy efficiency of the global building supply chain industry and its products to deliver high-performance buildings that has been selected for further development.

45. The subprogramme has increased its engagement with the finance community, including through the work with DZ Bank and the event “Towards COP28: UNECE Regional Forum on Climate Initiatives to Finance Climate Action and the SDGs” held in July 2023 in Frankfurt, Germany. This pivotal forum brought together influential entities, including the UN Climate Change High-Level Champion for COP27, and representatives from the COP27 and COP28 Presidencies. The event fostered dialogue and collaboration, aiming to bridge investment gaps in crucial climate-related projects, accelerate green energy transitions, and promote responsible resource utilization for sustainable growth. It is set to continue its collaborative efforts at COP28, participating in a high-level event focused on transition finance and its role in achieving deep decarbonization and supporting climate action initiatives.

46. Engagement with the Regional Commissions, UNDP, UNEP, and ILO has also been strengthened namely through the UN Working Group on Transforming the Extractive Industries for Sustainable Development, cooperation with the UNEP’s International Methane Emissions Observatory (IMEO) on methane-related matters, ILO’s engagement in the Task Force on Just Transition, and the delivery of the 3rd Almaty Energy Forum. In addition, the subprogramme remains active in many multi-organizational pursuits, including UN Energy and the Technical Advisory Group on SDG7.

Annex

Structure of the Committee on Sustainable Energy and its subsidiary bodies

