
Economic Commission for Europe
Committee on Sustainable Energy

Committee on Sustainable Energy
Twenty-eighth session

Geneva, 25-27 September 2019

Item 8(d) of the provisional agenda

Future work of the Committee on Sustainable Energy

Conclusions and Recommendations arising from the Twenty-eighth Session of the Committee on Sustainable Energy

The Committee on Sustainable Energy:

Agenda Item 1. Opening and adoption of the agenda

Documentation:

ECE/ENERGY/122 – Annotated provisional agenda

1. Adopted the Agenda as presented.
2. Agreed to consider recommendations and conclusions after each agenda item, followed by adoption of the report of the Committee at the end of the twenty-eighth session.

Agenda Item 2. Matters related to the Committee on Sustainable Energy

Election of officers

3. Elected Mr. Jürgen Keinhorst (Germany) as Chair, and Mr. Admir Softić (Bosnia and Herzegovina), Ms. Natela Turnava (Georgia), Mr. Pawel Pikus (Poland), Mr. Jean-Christophe Füeg (Switzerland), and Ms. Nataliya Boyko (Ukraine) as Vice-Chairs until the end of the thirtieth session of the Committee on Sustainable Energy. The term of office of the already elected officials, Mr. Talgat Karashev (Kazakhstan), Ms. Jelena Simovic (Serbia), and Mr. Jarad Daniels (United States) as Vice-Chairs was for two years from the date of their election until the end of the twenty-ninth session of the Committee.

4. The Chairs of the Committee's subsidiary bodies are Vice-Chairs of the Committee *ex officio* (currently Mr. Aleksandar Dukovski, Group of Experts on Energy Efficiency, Mr. Barry Worthington, Group of Experts on Cleaner Electricity Systems, Mr. Raymond Pilcher, Group of Experts on Coal Mine Methane, Mr. Francisco de la Flor, Group of Experts on Gas, Mr. Nazir Ramazanov, Group of Experts on Renewable Energy, and Mr. David MacDonald, Expert Group on Resource Management).

5. Underscored the desirability, for the sake of ensuring continuity of the Bureau, that not all officers be elected at the same time.

Agenda Item 3. High-level segment: Accelerating and deepening the transition to sustainable energy systems

Documentation:

ECE/ENERGY/2016/7 – Pathways to sustainable energy

ECE/ENERGY/2018/1 – Pathways to sustainable energy – status report

ECE/ENERGY/2019/1 – Pathways to sustainable energy: Accelerating energy transition in the ECE region

6. Thanked donors, member States, experts, and the advisory board for their support of the Committee-overseen project “Pathways to Sustainable Energy,” summarized in document ECE/ENERGY/2019/1.

7. Thanked the groups of experts for shaping the “Pathways to Sustainable Energy” project and for engaging in the policy and technology dialogues. Took note of their recommendations on the effectiveness and efficiency of current approaches, structures and work plans during the informal open-ended consultations held on 16 May 2019.

8. Took note of the results of the first phase of the project “Pathways to Sustainable Energy” including an ongoing multistakeholder policy consultation process, subregional engagement, a concept for an early warning system and technology references and

(a) endorsed the policy recommendations (Chapter II of document ECE/ENERGY/2019/1) noting that *all* energy technology options will play a role in countries’ pathways to sustainable energy, including energy efficiency, low- and no-carbon energy sources (renewable energy, bio-methane, hydrogen, nuclear power¹), and greenhouse gas reducing approaches (carbon capture and storage (CCS), cleaner electricity generation from coal, methane management, and system integration, for example);

(b) requested EXCOM to inform ECOSOC of the project results with regards to the region’s strategic options to attain sustainable energy and the links to the 2030 Agenda for Sustainable Development;

(c) requested the secretariat to use the outcomes of the project to provide substantive input to the range of climate and sustainable development initiatives such as the United Nations Climate Action Summit and related outcomes, the Global Tracking Framework, the implementation and tracking of the 2030 Agenda and related SDGs, including the High-Level Political Forum.

(d) requested the secretariat to continue implementing the “Pathways to Sustainable Energy” project until its completion and to present a final report at its next session. The final report should contain a summary for policy makers that could be the basis for a policy dialogue in 2020[2021] about countries’ options to attain sustainable energy;

(e) requested the groups of experts to refine the findings, recommendations and key insights for the final report of the project through (1) research on existing policies and

¹ Not all countries can or will pursue all options. There are conflicting views among member States if nuclear power should be part of the list of options towards sustainable energy. This point is to be clarified during the session.

measures and suggestions for possible innovative policy options in their respective areas; (2) development of adaptive, cross-cutting and holistic policy options; and (3) reactions on targets, metrics, and signposts as the basis for an early-warning system;

(f) requested the secretariat and the groups of experts consider the findings of the pathways project in preparing their future work plans.

(g) requested the organisation of a high-level political dialogue with countries provided a host-country and supporting funds can be secured (see also para d) above);

(h) encouraged a broader set of countries to engage and contribute to the project and asked the secretariat to continue to explore alternative and extrabudgetary funding sources. In this context, requested the secretariat to draft a project proposal for Phase II of the “Pathways to Sustainable Energy” project to explore policy options in greater detail to be discussed with potential donors;

(i) took note of the differences among the ECE sub-regions and the need to undertake more detailed analysis of pathways at the sub-regional level and to consider *all* technology options, including cleaner coal, bio-methane, nuclear power¹ and hydrogen, and mandated the secretariat to secure funding for the next phase of the project as set forth in Annex 1;

(j) requested the Chair to report the Committee’s requests for a potential Phase II to EXCOM at the next opportunity;

(k) requested to reach out to ECE’s sister regional commissions for enhanced outreach on the key findings in a cooperative manner and requested the secretariat to take steps for a potential joint undertaking to implement the policy recommendations, provided funding will be made available;

(l) took note that the end date of the project is 31 October 2019 if no additional funds are secured.

9. Reflected on the outcomes from the Committee-wide strategic dialogue held in Geneva on 16 May 2019, confirmed the need to ensure strategic alignment of its mandate and programme of work with the 2030 Agenda for Sustainable Development not only with SDG 7, but also with SDGs 9, 11, 12, 13, and 17, and encouraged nexus work and links throughout the sustainable energy subprogramme.

10. Recommended to build on this opportunity to strengthen ECE’s and the Committee’s role as a neutral platform for policy and technology dialogues on attainment of the energy-related SDGs and targets, and to continue to collaborate with the other Regional Commissions for accelerated progress, for example through the international fora process.

Agenda Item 4: Attaining carbon neutrality in the ECE region

Documentation:

ECE/ENERGY/2019/2 – Attaining carbon-neutrality in the ECE region by 2050 – a discussion paper about the role of clean fossil fuels in sustainable energy

(a) Modernization of energy infrastructure and “just” transition

11. Noted with appreciation the progress in preparing the cross-cutting project on transformation of the energy sector and the efforts made by the secretariat to acquire needed resources. The Committee endorsed the partnership with Boston University² and supported a joint project on the topic.

12. Took note of the intent of experts to prepare detailed feasibility and demonstration projects, invited countries to engage in the project through nomination of pilot sites and support for project development, and mandated the secretariat to secure funding for the project and to engage additional partners in the programme. Requested the Chair to report the Committee’s requests for a project on “just” transition to EXCOM at the next opportunity.

(b) Decarbonising electricity

13. Recognized the importance of cleaner fossil fuels in a carbon neutral society and endorsed the principles laid out in document ECE/ENERGY/2019/2 para. 12ff. and the proposed timeline.

14. Requested the Group of Experts on Cleaner Electricity Systems to initiate a discussion about the challenges in delivering on the 2030 Agenda in all its dimensions in an integrated way that is pragmatic and rational economically, socially, and environmentally.

15. Noted that fossil energy will remain an important part of the energy mix through 2050 at least. Requested that the Groups of Experts develop ambitious instruments to reduce the environmental footprint of fossil energy use, including finalizing guidelines for new investment in fossil energy that implement the objectives of the 2030 Agenda, finalization, deployment, and dissemination of best practice guidance on methane emissions, and deploying the ECE recommendations on carbon capture and storage and high-efficiency low emissions technology.

16. Requested the Groups of Experts to develop a joint position paper containing policy recommendations on how to achieve carbon neutrality and the future role of fossil fuels. The statement could be developed in meetings of the subsidiary bodies and under the oversight of the respective Bureaux. Requested the secretariat to facilitate a process across its subsidiary bodies to develop position papers, funding proposals and outreach on the role of fossil fuels in a sustainable energy mix.

Agenda Item 5: Sustainable resource management

Groups of Experts on Cleaner Electricity Systems and Gas and Expert Group on Resource Management: Mandates and work plans

Documentation:

² Memorandum of Understanding signed with Boston University at the auspices of the Committee’s twenty-seventh session.
Link to the MOU:

https://www.unece.org/fileadmin/DAM/97_MoU_between_UNECE_and_Trustees_of_Boston_University_signed2.pdf

ECE/ENERGY/2019/7 – Work plan of the Group of Experts on Cleaner Electricity Systems for 2020-2021

ECE/ENERGY/2019/10 – Work plan of the Group of Experts on Gas for 2020-2021

ECE/ENERGY/2019/11 – Work plan of the Expert Group on Resource Management for 2020-2021

ECE/ENERGY/2019/14 – Best practice guidance for effective methane management in the oil and gas sector: Monitoring, reporting and verification (MRV) and mitigation

ECE/ENERGY/2019/15 – Specifications for the application of the United Nations Framework Classification for Resources to Solar Energy

ECE/ENERGY/2019/16 – Specifications for the application of the United Nations Framework Classification for Resources to Wind Energy

ECE/ENERGY/2019/17 – An overview of the United Nations Framework Classification for Resources Update

Group of Experts on Cleaner Electricity Systems

17. Noted with appreciation the change of name of the Group of Experts on Cleaner Electricity Production from Fossil Fuels to the Group of Experts on Cleaner Electricity Systems in response to its request in the twenty-eighth session (ECE/ENERGY/2018/2, para. 61) and in the light of the critical role electricity is making to deep transformation of the energy system.

18. Noted with appreciation the progress that the Group of Experts on Cleaner Electricity Systems has made on delivering on its mandated activities and Work Plan for 2018-2019.

19. Approved the request of the Group of Experts on Cleaner Electricity Systems for extension of its mandate until 31 December 2021 and the Work Plan of the Group of Experts for 2020-2021 with a possibility of extension.

Group of Experts on Gas

20. Noted with appreciation the progress that the Group of Experts on Gas has made on delivering on its mandated activities and the Work Plan of the Group of Experts on Gas for 2018-2019.

21. Recognizing that gaseous fuels — whether conventional natural gas, renewable/decarbonized gas, or hydrogen — will continue to serve as an important energy vector for the foreseeable future, requested the Group of Experts to support ECE member States in developing policies to accelerate uptake of renewable, decarbonized and low- and zero-carbon gas projects. Mandated the secretariat to seek extrabudgetary funding to support activities in this area, including the creation of a Task Force. Requested the Group of Experts on Gas to collaborate with the Group of Experts on Renewable Energy on this topic.

22. Approved the request of the Group of Experts on Gas for extension of its mandate until 31 December 2021 and the Work Plan of the Group of Experts for 2020-2021 with a possibility of extension.

23. Noted with appreciation the completion of the document Best Practice Guidance for Effective Methane Management in the Oil and Gas Sector: Monitoring, Reporting and Verification (MRV) and Mitigation (ECE/ENERGY/2019/14), endorsed the document, and

requested the relevant Groups of Experts to engage, with the support of the secretariat, in dissemination activities as mandated in their respective work plans.

Expert Group on Resource Management

24. As per the decision of the ECE Executive Committee at its One-hundred and second meeting (EXCOM/CONCLU/102), noted with appreciation the change of name the Expert Group has made from Expert Group on Resource Classification to Expert Group on Resource Management. Noting that the United Nations Economic and Social Council (ECOSOC) Decision 2004/233 needs updating to reflect the new name for the United Nations Framework Classification for Resources (UNFC) and the broadening of its areas of application, requested the Expert Group to start the process of updating the Decision.

25. Noted with appreciation the progress that the Expert Group on Resource Management has made on delivering on its mandated activities and Work Plan for 2018-2019.

26. Approved the request of the Expert Group on Resource Management for extension of its mandate until 31 December 2024 with a possibility of extension and the Work Plan of the Expert Group for 2020-2021. Noting the inadequacy of the regular budget to support the expanded scope of work of the Expert Group, the Committee mandated the secretariat to receive extrabudgetary funding to support the activities. Requested the Chair to report the Committee's requests for more work on resource management to EXCOM at the next opportunity.

27. Approved the request of the Expert Group on Resource Management for two additional sessions during its annual meeting given the importance of resource management, the scope of the activities covered by the Group and the increased application of UNFC globally. The Expert Group currently meets for eight sessions per annum and is requesting to increase to ten sessions per annum. If approved, this change would be effective from 2020.

28. Noted the proposal to develop a Centre on Sustainable Resource Management (CSRSM) to coordinate the International Centres of Excellence on Sustainable Resource Management (ICE-SRM). Mandated the secretariat to receive extrabudgetary funding to support activities in this area and requested the Chair to report the Committee's requests about international centres of excellence to EXCOM at the next opportunity;

29. Endorsed the following documents: Specifications for application of the United Nations Framework Classification for Resources to Solar Energy (ECE/ENERGY/2019/15); Specifications for the application of the United Nations Framework Classification for Resources to Wind Energy (ECE/ENERGY/2019/16); and took note of the updated United Nations Framework Classification for Resources as contained in ECE/ENERGY/125.

30. The Committee requested the Expert Group to simplify and update the UNFC category and sub-category definitions as soon as possible and to issue the updated document as an ECE Energy Series publication and to do so in all UN languages to facilitate its global application and deployment.

31. Taking note of UNECE's nexus activity on "Sustainable use of natural resources", the Committee recommended strengthened collaboration of the energy subprogramme with other

subprogrammes of ECE. Mandated the secretariat to receive extrabudgetary funding to support activities in this area.

32. Noting the enhanced applicability of UNFC and UNRMS to the sustainable management of raw materials required for the global battery industry, including recycling and reuse of the batteries, recommended the Expert Group on Resource Management to strengthen its cooperation with the World Economic Forum - Global Battery Alliance in order to address the policy challenges. Mandated the secretariat to receive extrabudgetary funding to support activities in this area.

Groups of Experts on Energy Efficiency, Renewable Energy and Coal Mine Methane

Documentation:

ECE/ENERGY/2019/8 – Work plan of the Group of Experts on Energy Efficiency for 2020-2021

ECE/ENERGY/2019/9 – Work plan of the Group of Experts on Renewable Energy for 2020-2021

ECE/ENERGY/2019/6 – Work plan of the Group of Experts on Coal Mine Methane for 2020-2021

ECE/ENERGY/2019/13 – Best practice guidance for effective methane recovery and use from abandoned coal mines

Group of Experts on Energy Efficiency

33. Noted with appreciation the progress achieved by the Joint Task Force on Energy Efficiency in Buildings³ in promoting the Framework Guidelines for Energy Efficiency Standards in Buildings and encouraged member States to continue support for the Joint Task Force through extrabudgetary funding.

34. Approved the amended Terms of Reference for the Joint Task Force on Energy Efficiency Standards in Buildings of the ECE Region for 2020-2021 and extended its mandate for 2020-2021 with a possibility of extension (see document ECE/ENERGY/2019/8, Annex).

35. Noted the High-Performance Buildings Initiative to deploy and disseminate the UNECE Framework Guidelines for Energy Efficiency in Buildings, including International Centres of Excellence on High Performance Buildings, the Global Building Network, and case studies of application of the guidelines (the initiative, terms of reference for the centres, and criteria for qualifying to be an International Centre of Excellence on High-Performance Buildings. Mandated the secretariat to seek extrabudgetary funding to support activities in this area and requested the Chair to report the Committee's requests for international centres of excellence to EXCOM at the next opportunity.

36. Encouraged member States to propose candidates for the global consortium of universities participating in the Global Building Network and the network of local institutions constituting International Centres of Excellence for High-Performance Buildings.

37. Took note that ECE at its sixty-eighth session focused on smart sustainable cities as drivers for the implementation of the 2030 Agenda and that ECOSOC took note of the

³ with the Committee on Urban Development, Housing and Land Management (previously the Committee on Housing and Land Management) and the participation of ECE Working Party 6 on Regulatory Cooperation and Standardization Policies

Framework guidelines for Energy Efficiency Standards in Buildings at the recommendation of ECE. Requested the secretariat to engage with the other regional commissions to encourage global uptake of the Framework Guidelines.

38. Noted with appreciation the activities of the Task Force on Industrial Energy Efficiency and encouraged member States to provide support for the Task Force through extrabudgetary funding.

39. Noted with appreciation the progress that the Group of Experts on Energy Efficiency has made on delivering on its mandated activities and Work Plan for 2018-2019.

40. Approved the request of the Group of Experts on Energy Efficiency for extension of its mandate until 31 December 2021 and the Work Plan of the Group of Experts for 2020-2021 with a possibility of extension.

Group of Experts on Renewable Energy

41. Noted with appreciation the progress that the Group of Experts on Renewable Energy has made on delivering on its mandated activities and the Work Plan of the Group of Experts on Renewable Energy for 2018-2019.

42. Approved the request of the Group of Experts on Renewable Energy for extension of its mandate until 31 December 2021 and the Work Plan of the Group of Experts for 2020-2021 with a possibility of extension.

43. Requested the Group of Experts on Renewable Energy to explore interest among its constituency to initiate a process for sustainability certification/standards of solid biofuels and/or technical standards for feeding hydrogen, bioenergy into the gas grid based on successfully implemented examples. Mandated the secretariat to receive funding for this process and requested the Chair to report the Committee's requests for such a project to EXCOM at the next opportunity;

44. Noted with appreciation the support provided by the so-called "Renewable Energy Hard Talks" to member States on problem solving and priority identification to increase the uptake of renewable energy. Mandated the secretariat to receive funding from donors for the implementation of these activities.

45. Mandated the secretariat to receive funding to support updates and publications about the status of renewable energy in the ECE region with the Renewable Energy Policy Network for the 21st Century (REN21).

Group of Experts on Coal Mine Methane

46. Noted with appreciation the progress that the Group of Experts on Coal Mine Methane has made on delivering on its mandated activities and the Work Plan of the Group of Experts on Coal Mine Methane for 2018-2019.

47. Approved the request of the Group of Experts on Coal Mine Methane for extension of its mandate until 31 December 2021 and the Work Plan of the Group of Experts for 2020-2021 with a possibility of extension.

48. Noted with appreciation the active engagement and effective collaboration of the Group of Experts with the International Centres of Excellence on Coal Mine Methane (ICE-CMM) and expressed support to expand their network beyond Poland and China. The Committee encouraged the secretariat to work closely with all interested parties on setting up such entities in relevant locations worldwide.

49. Endorsed the efforts of the Group of Experts to establish extrabudgetary projects with the existing ICE-CMMs to ensure proper oversight of the ICEs, including coordination of their activities and alignment with the needs and work plan of the Group. Mandated the secretariat to seek extrabudgetary funding to support activities in this area and requested the Chair to report the Committee's requests to EXCOM at the next opportunity.

50. Noted with appreciation the completion of the document Best Practice Guidance for Effective Methane Recovery and Use from Abandoned Coal Mines (ECE/ENERGY/2019/13), endorsed the document, and requested the relevant Groups of Experts to engage, with the support of the secretariat, in dissemination activities as mandated in their respective work plans.

Agenda Item 6: Gender and energy

51. Noted the dialogue on gender and energy and requested regular updates on how gender activities are being integrated into the work of the sustainable energy subprogramme.

Agenda Item 7: Regional outreach and collaboration activities

(a) Regional advisory services and outreach activities

Documentation:

ECE/ENERGY/2019/18 – Report on regional advisory services in sustainable energy

52. Took note of document ECE/ENERGY/2019/18, stressed the importance of regional advisory services and capacity building activities for its work, and requested a report on regional advisory services at its twenty-ninth session.

(b) Extrabudgetary and UN Development Account projects

53. Took note of a joint project on resilience and protection of critical infrastructure from natural and man-made disasters with OSCE. Thanked the OSCE for the invitation to become an institutional partner and agreed to support OSCE in the implementation of the project. Mandated the secretariat to secure resources in this context and requested the Chair to report the Committee's requests to EXCOM at the next opportunity.

(c) International Forum on Energy for Sustainable Development

54. Thanked UNESCAP for hosting the Tenth International Forum on Energy for Sustainable Development (Tenth Forum) on 7-8 October 2019 in Bangkok, Thailand. Invited member States to attend and to disseminate the outcomes of the Tenth Forum.

55. Thanked Georgia for its offer to host the Eleventh International Forum, mandated the secretariat to begin preparations in collaboration with the other regional commissions and interested partners and encouraged countries and experts to participate.

(d) Collaboration with other International Organisations

56. Endorsed the collaboration with the other United Nations Regional Commissions, the World Bank Group, the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), Sustainable Energy for All (SEforAll), the International Energy Charter, and REN21 on tracking progress towards attainment of the energy-related SDGs and targets and requested the secretariat to seek funding for the activities on an ongoing basis. Encouraged the secretariat to engage with other organizations and groups with relevance for ECE energy activities to ensure complete coverage of relevant data and analysis, including deepened collaboration with organizations comprising UN Energy and with other intergovernmental, industrial, and civil society organizations.

57. Expressed support for ECE's continued involvement in UN Energy and the SDG 7 Task Force.

Agenda Item 8: Future work of the Committee on Sustainable Energy

(a) Review of subprogramme performance and planning

Documentation:

ECE/ENERGY/2019/3 – Draft programme of work of the sustainable energy subprogramme for 2020

ECE/ENERGY/2019/12 – Draft rules of procedure of the Committee on Sustainable Energy

58. Adopted the proposed draft programme of work of the sustainable energy subprogramme for 2020 (ECE/ENERGY/2019/3) and recommended submission to the ECE Executive Committee (EXCOM) for subsequent approval.

59. Requested the secretariat in cooperation with the Bureau to refine the draft rules of procedure for the Committee on Sustainable Energy (ECE/ENERGY/2019/12) based on the recommendations made in the session and to present a draft for approval at its next session. The document should clarify (a) the relationship between the Committee on Sustainable Energy and its subsidiary bodies; (b) the role of the respective Bureaux and nomination process; (c) decision-making and taking a position when not in session; and (d) decision-making in case of disagreement.

60. Until such rules of procedure are approved by the Committee, agreed that the Bureau could [propose positions and] advise the secretariat between sessions on specific topics identified by the Committee when in session, as it is already the case for the projects it oversees. [for debate: Such proposals can be taken in person or by phone and must be minuted] Requested an update on any such positions taken at the subsequent session of the Committee. In this context decided that decisions related to the project "Pathways to Sustainable Energy" and the use of recommendations for events specified under para. 8 above and any potential decisions required on extrabudgetary funding with respect to the Committee's programme of work are such topics.

61. Acknowledged the work of the expert groups to achieve the energy-related SDGs. Requested that future mandates and work plans for the subsidiary bodies give special attention to joint activities across sectors within governments and within ECE in addressing energy

nexus issues, and to explore potential partnerships for enhanced capacity-building and sharing of experiences and lessons learned.

62. Thanked the private sector for its continued contributions to the work of the sustainable energy subprogramme and renewed its wish to involve the private sector in its activities and meetings.

63. Requested the secretariat to proceed with preparations for the twenty-ninth session of the Committee on Sustainable Energy, 25-27 November 2020 in Geneva, including a draft agenda, draft report, and all supporting documents necessary for implementation of the programme of work for the ECE sustainable energy subprogramme for 2020-2021 and the work plans of its six subsidiary bodies.

(a) Approval of documents

Documentation:

ECE/ENERGY/2019/4 – Provisional calendar of meetings for 2020

ECE/ENERGY/2019/5 – Revised publication plans for 2019 and 2020 and draft publication plan for 2021

64. Endorsed the Revised publication plans for 2019 and 2020 and draft publication plan for 2021 (ECE/ENERGY/2019/5) with the requested changes as reflected in its annex [and/or the annex to this document].

65. Endorsed the Provisional calendar of meetings for 2020 (ECE/ENERGY/2019/4).

66. Renewed its request to member States of ECE and other participants of the meeting to provide expert focal points to the secretariat.

(c) Any other business

67. Requested the following amendments to paragraphs 82 and 85 of the report ECE/ENERGY/119 of its twenty-seventh session to:

82. The Committee noted with appreciation the report on regional advisory services, extrabudgetary projects and projects under the United Nations Development Account since its last session. The report included emphasis on gender issues and empowering women in energy policy and cooperation with other stakeholders.

85. Supported activities to develop gender-responsive policy recommendations to ensure gender equality in access to sustainable energy, in participation in decision-making and management of the energy and related sectors, in opportunities for jobs and career development in countries with economies in transition and in work undertaken in the context of capacity-building in countries with economies in transition, and recommended the regional advisory services to continue the work related to national commitments to meet SDG 7 in the ECE region. Requested an agenda item on gender at its twenty-eighth session.

(d) Adoption of the report and close of the meeting

Documentation:

ECE/ENERGY/123 – Report of the Committee on Sustainable Energy on its twenty-eighth session

68. Adopted the report of the twenty-eighth session of the Committee on Sustainable Energy (ECE/ENERGY/123) subject to any necessary editing and formatting.

Annex 1

Pathways to Sustainable Energy: Phase II

Much work has been undertaken to develop a tool that can now be used for deeper assessment of policy and technology choices and to both confirm and synthesize the project outcomes for consideration by high-level decision makers.

Phase 2 will include the following components:

- Closer assessment of the technologies considered on a preliminary basis in Phase 1;
- Close assessment of the specific opportunities and challenges in ECE sub-regions;
- Consideration of alternative nexus approaches and business models;
- Preparation of a status report on progress of the ECE region in meeting commitments under the 2030 Agenda and the Paris Climate Agreement (early warning system report);
- Testing strategic options using the project's models and the outcomes of the technology and regional assessments
- High level political dialogue on the project outcomes
- Dissemination of the project results

A. Closer assessment of the technologies

A family of deep-dive projects will update the analyses that have been the basis for the project to date:

- The currently undertaken deep dive on *natural gas* is exploring: 1) natural gas displacing competing higher carbon-intensity fuels in power generation, transport, heating, and other end-use markets; 2) the possibility of natural gas enhancing the uptake of renewables by compensating their intermittency (balancing markets); and 3) penetration of new markets through small-scale liquified natural gas (LNG) and compressed natural gas (CNG). An important part of the exploration involves addressing environmental issues associated with natural gas use including both methane management and CO₂ emissions.
- A deep dive on *coal* is proposed to explore: 1) technology options including high efficiency, low emissions technology and carbon capture and storage for reducing the net carbon intensity of coal-fired power; 2) policy option pathways for CCS that are equivalent to other low- or no-carbon technologies at comparable stages of development, including an assessment of the storage volumes that will be required; 3) opportunities for design of coal-fired technology to operate flexibly and support deployment of intermittent energy resources; 4) assessment of the existing fleet of coal-fired power stations and the opportunities either to reduce their net carbon emissions or replace with alternative technology; and 5) economic comparison of power generating technologies to meet demand requirements considering environmental and social constraints and market design issues.
- A deep dive on *nuclear power* will explore the role that nuclear energy could play as a strategic option for those countries that choose to use nuclear power to meet their international commitments. It will examine the economic, operational, and design assumptions embedded in the Pathways analysis and will consider: 1) the potential for advanced nuclear technologies and small modular reactors to minimize capital and operating costs while meeting safety standards and obtaining social license to operate; 2) nuclear energy displacing higher carbon-intensity fuels in power generation, transport,

heating, and other end-use markets; and 3) how nuclear energy can work with renewables to achieve the least emissions in the most cost-efficient and diversified way. The deep dive will compare the full life-cycle health, safety and environmental impact of nuclear energy compared to other energy sources. The project will also study the associative aspects of nuclear energy in other sectors of the society, including health, industry, innovation, and gender participation in advanced sciences and technologies.

- A deep dive on *hydrogen* will review the economic, operational, and design assumptions and will consider: 1) ongoing regional and global activities by renowned international organisations on the topic of hydrogen and their gaps; 2) the techno-economic potential of hydrogen to displace hydrocarbon fuel use in the future energy system with particular emphasis on a range of sectors including transport, industry (e.g., chemical, metallurgical) and residential/commercial; 3) the environmental performance of hydrogen and its potential to decarbonise the energy system and improve local air quality; 4) essential technology and infrastructure prerequisites including but not limited to fuel cells, catalytic conversion, onboard hydrogen storage, large-scale hydrogen storage, liquefaction, hydrogen compatible pipelines; 5) Options for hydrogen production (decarbonising natural gas (e.g., steam methane reforming, partial oxidation), coal gasification, biomass gasification, electrolysis of water (power-2-hydrogen-to-X), by-product of industrial processes; and 6) enablers and constraints to creating reliable national and international supply and demand markets for hydrogen.
- Other technology deep dives will be conducted as needed and as further donors are identified to complete the technology suite.

B. Close assessment of the specific opportunities and challenges in UNECE sub-regions

Geographic deep dives will be proposed at the sub-regional and, as appropriate, national level. While the project has developed a deep modelling capability, the ECE-level analyses and first cut sub-regional analyses have not had sufficient granularity to inform countries' strategic options at the national or sub-regional level. The sub-regional and national analyses would not only reconsider the input assumptions and policy options from a modelling perspective but would also engage key players within each sub-region or country to confirm assumptions and to explore policy choices.

C. Consideration of alternative nexus approaches and business models

This assessment will explore the opportunities presented by nexus policy approaches and consider their implications for the energy sector. Likewise, one of the organizing principles for the scenario analysis in Phase 1 turned on the question of business models for delivering on the 2030 Agenda. The assessment will explore in more detail the range of alternative business models (traditional, large-scale utilities; distributed generation; energy service companies; green energy; and the like) and their implications for countries' strategic options. The assessment of alternative nexus approaches and business models will engage ECE's expert communities to explore and debate the viability of the alternatives.
