


Economic Commission for Europe

Committee on Sustainable Energy

Twenty-eighth session

Geneva, 25–27 September 2019

**DRAFT Report of the Committee on Sustainable Energy on
 its twenty-eighth session BEFORE session**

Contents	<i>Paragraphs</i>	<i>Page</i>
I. Introduction and attendance		
II. Opening and adoption of the agenda (agenda item 1)		
III. Matters related to the Committee on Sustainable Energy (agenda item 2).....		
A. Election of officers		
IV. High-level segment: Accelerating and deepening the transition to sustainable energy systems (agenda item 3)		
A. Pathways to Sustainable Energy: Presentation of results and recommendations		
B. Discussion with the subsidiary bodies		
C. High-level policy dialogue with countries		
V. Attaining carbon neutrality in the ECE region (agenda item 4)		
A. Modernization of energy infrastructure and “just” transition		
B. Decarbonizing electricity		
VI. Sustainable resource management (agenda item 5)		
A. Gas pathways to 2050 and the interplay with renewable energy		
B. Managing resources in a carbon constrained world		
C. Groups of Experts on Cleaner Electricity Systems and Gas and Expert Group on Resource Management: Mandates and work plans		
D. Efficiencies, cities and circular economy		
E. Groups of Experts on Energy Efficiency, Renewable Energy and Coal Mine Methane: Mandates and work plans		
VII. Gender and energy (agenda item 6)		
VIII. Regional outreach and collaboration activities (agenda item 7).....		

- A. Regional advisory services and collaboration activities
 - B. Extrabudgetary and UN Development Account projects.....
 - C. International Forum on Energy for Sustainable Development.....
 - IX. Future work of the Committee on Sustainable Energy (agenda item 8).....
 - A. Review of subprogramme performance and planning
 - B. Approval of documents.....
 - C. Any other business.....
 - D. Adoption of the report and close of the meeting.....
- Annex
- Pathways to sustainable energy: Phase II.....

I. Introduction and attendance

1. 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 emissions and the carbon footprint of the energy sector in the region. It promotes international policy dialogue and cooperation among governments, energy industries and other stakeholders. The current focus of the Committee on Sustainable Energy (the Committee) is on energy efficiency, renewable energy, cleaner electricity systems, coal mine methane, natural gas, and sustainable resource management through the work of six subsidiary bodies.
2. The Committee had the opportunity to rethink its procedures, structures, and activities during its informal, open-ended consultation on 16 May 2019 in Geneva. At its twenty-eighth session, the Committee continued these consultations and exchanged views about the ongoing energy transition and the role that the Committee and its six subsidiary bodies could play to accelerate and deepen the transition to sustainable energy systems. The session was held in Geneva on 25–27 September 2019.
3. Nearly one hundred experts from the following ECE member States participated: Albania, Austria, Azerbaijan, Croatia, Georgia, Germany, Italy, Kyrgyzstan, Kazakhstan, Norway, Poland, Republic of Moldova, Russian Federation, Switzerland, the Republic of North Macedonia, Ukraine, and United States of America. A representative of the European Union also participated.
4. The following intergovernmental and non-governmental organizations and academic institutions were in attendance: IEA Clean Coal Centre, International Institute for Applied Systems Analysis (IIASA), Organization for Security and Cooperation in Europe (OSCE), World Energy Council (WEC), World Economic Forum (WEF), Assocarboni General Association of Coal Operators, Unison Group, Innovationsregion Lausitz GmbH, EMS Foundation, Green Building Alliance, Methane Center, Municipal Budget Education Organization “Aerospace licey N13” Khimky, Polish Chamber of Ecology, Solarspar association, State Committee on Mineral Resources, World Coal Association, Boston University Institute for Sustainable Energy, Dublin City University/Hydrogen Ireland, EUCLID, Fernuni Schweiz, Fraunhofer Institute for Systems and Innovation Research, HEIG-VD (IIDE) of HES-SO University of Applied Sciences Western Switzerland, Institute for Advanced Sustainability Studies (IASS Potsdam), Imperial College London, Institute Interdisciplinaire du Developpement de l’Entreprise, Moscow School of Management SKOLKOVO Energy Centre, Nanyang Technological University Singapore, Oxford Institute for Energy Studies, University of Geneva, and University of Leeds.
5. Independent experts, representatives of academia and the private sector also attended at the invitation of the secretariat.

II. Opening and adoption of the agenda (agenda item 1)

Documentation: ECE/ENERGY/122 – Annotated provisional agenda for the twenty-eighth session

6. The Chair of the Committee, Mr. Jürgen Keinhorst, opened the meeting and presented the provisional agenda, which was adopted without change.

7. He referred to challenges countries face to implement pledges they have made under the 2030 Agenda on Sustainable Development (2030 Agenda) and the Paris Climate Agreement. He stressed the importance of the outcomes of the UN Climate Summit that overlapped with the Committee's session, and their possible consequences for the work of the Committee. He invited delegates to consider how to accelerate and deepen the transition to a sustainable future that leaves nobody behind.

8. The Chair informed the Committee that he would chair items 1 to 3 and 5(d) to 8 of the provisional agenda. Item 4 would be chaired by Mr. Barry Worthington, Vice-Chair of the Committee and Chair of the Group of Experts on Cleaner Electricity Systems, and items 5(a) to (c) would be chaired by Mr. David MacDonald, Vice-Chair of the Committee and Chair of the Expert Group on Resource Management.

9. The Committee agreed to consider recommendations and conclusions after each agenda item, followed by the adoption of the report of the Committee at the end of the twenty-eighth session.

III. Matters related to the Committee on Sustainable Energy (agenda item 2)

A. Election of officers

10. The Committee elected Mr. Jürgen Keinhorst (Germany) as Chair, and Mr. Admir Softić (Bosnia and Herzegovina), Ms. Natela Turnava (Georgia), Mr. James Gannon (Ireland), Mr. Pawel Pikus (Poland), Mr. Alexander Tolparov (Russian Federation), Mr. Jean-Christophe Füeg (Switzerland), and Ms. Nataliya Boyko (Ukraine) as Vice-Chairs until the end of the thirtieth session of the Committee.

11. The term of office of 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. The Committee underscored the desirability, for the sake of ensuring continuity of the Bureau, that not all officers be elected at the same time.

12. 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).

IV. High-level segment: Accelerating and deepening the transition to sustainable energy systems (agenda item 3)

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

13. In 2014, the Committee mandated the extrabudgetary project “Pathways to Sustainable Energy” (the project) to allow a deepened conversation about the consequences of the ongoing energy transition from all angles. The project has become an important vehicle for understanding the gaps that exist in meeting the energy-related objectives of the 2030 Agenda and the opportunities that the countries of the region have to close them.

14. The project set forth three milestones: (i) development of sustainable energy policy and technology options to 2050 supported by modelling and experts’ insights; (ii) development of a concept for an early-warning system to monitor and forecast if achievement of sustainable energy objectives is on track; and (iii) facilitation of a high-level political dialogue to exchange views countries’ choices, and to find concrete solutions to accelerate and deepen the energy transition.

15. The high-level segment was dedicated to presentation of the results of the first phase of the project.

A. Pathways to Sustainable Energy: Presentation of results and recommendations

16. On behalf of the modelling team, Mr. H.-Holger Rogner from the International Institute for Applied Systems Analysis (IIASA) presented the final results. The Committee was updated on the status of the project. Its reactions and recommendations will be integrated into the final project report and will shape future project activities.

17. The presenter challenged the Committee to think holistically and realistically about the future, reminding of the urgency and scale of needed change if countries’ pledges are to become reality. He made the link between successful policy interventions and concrete actions on the ground. Remarks explored global and regional energy challenges and drew conclusions on where the region is headed on energy.

B. Discussion with the subsidiary bodies

18. Discussions with representatives of the six subsidiary bodies clarified some of the challenges of the ongoing transformation in energy from a technology point of view. In particular, discussants explored major driving forces, critical uncertainties and unknowns with influence on energy systems development and innovation. Remarks also covered resource management, nexus areas, and social aspects that are often non-quantitative and hence not easily included in a modelling exercise.

19. The morning session closed with an introduction of Energy Transition Toolkits and featured an interactive exhibition by partnering institutions: The Institute for Advanced Sustainability Studies (IASS), the Global Climate Forum (GCF) and the World Energy Council (WEC). The Committee was invited to participate in existing interactive energy transition toolkits hands-on, including during lunch and evening breaks. These toolkits (Kopernikus Project ENavi – Energiewende navigation system; Decision Theatre on sustainable mobility and the WEC’s transition toolkit) can be transferred across regions and sectors and have many connection points with the project. This session was offered in the context of joint learning and information exchange with partners and stakeholders and provided additional context for the Committee’s deliberations on pathways to sustainable energy.

C. High-level policy dialogue with countries

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

20. The high-level panel reacted to the results of the project in the context of ECE subregional specificities and the role of technologies and innovation in reaching sustainable energy, as there are numerous interpretations of what is “sustainable energy” or what could be a strategic pathway to achieve it. Remarks stressed the need for future deep dive analyses within the modelling and scenario work, the implementation of an early warning system, and the tracking of progress of energy indicators in line with the 2030 Agenda, especially at the side-lines of the UN Climate Summit events, held in the same week in New York.

21. The Committee was then invited to provide guidance on the future direction of its programme of work and an effective and streamlined role of the subsidiary bodies to support desired outcomes to accelerate the delivery of energy for sustainable development and concretise its reputation as a credible and relevant partner.

22. The Committee wished to thank 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.

23. It further thanked its six subsidiary bodies for shaping the “Pathways to Sustainable Energy” project and for engaging in the policy and technology dialogues. In particular, the Committee 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.

24. Building on the preceding discussions, the Committee 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 the ECE Executive Committee (EXCOM) to inform the United Nations Economic and Social Council (ECOSOC) of the project results with regards to the region’s strategic options to attain sustainable energy and the links to the 2030 Agenda;

(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 Sustainable Development Goals (SDGs), including the High-Level Political Forum (HLPF);

(d) requested the secretariat to continue implementing the project until its completion and to present a final report at its next session. The final report should contain a summary for policy makers as a basis for policy dialogue about countries’ options to attain sustainable energy;

¹ Not all countries can or will pursue all options. There are conflicting views among member States regarding the list of options to be included. This point is to be clarified during the session.

(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 measures and suggestions for policy options; and (2) 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 and other stakeholders to engage and contribute to the project and asked the secretariat to secure needed funding for Phase II of the project as set forth in the Annex of this report;

(i) requested the Chair to report the Committee's endorsement of Phase II of the project to EXCOM at the next opportunity;

(j) requested to reach out to ECE's sister regional commissions on key findings in a cooperative manner and requested the secretariat to take steps for possible joint undertakings, pending available resources; and

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

25. 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 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.

26. 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.

V. Attaining carbon neutrality in the ECE region (agenda item 4)

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

27. “Carbon neutrality” refers to achieving net zero CO₂ emissions by balancing carbon emissions with carbon removal or simply by eliminating carbon emissions altogether (the transition to a “post-carbon economy”). Many countries have started to shift efforts towards carbon-neutrality as fossil fuels will continue to play an important role for ECE member States in the short- and medium term.

28. The session provided an opportunity for the Committee to take a position on the role that fossil fuels will play in the region and provide recommendations to the United Nations Development System on options for achieving carbon-neutrality.

A. Modernisation of energy infrastructure and “just” transition

29. A multistakeholder panel discussed various approaches to a “just” transition as an integrated approach to sustainable development. Such an approach would address social

progress, environmental protection and economic success when considering regional restructuring of energy infrastructure.

30. The panel focussed on the Upper Silesia region of Poland that continues to produce and use coal to drive industrial output. Emissions of CO₂ and methane are a significant challenge. Members of the panel have experience dealing with the issues of the Silesian industrial setting and presented their views on effective “just” transition strategies and the ongoing deep structural shift. The panel made recommendations regarding the future work of the sustainable energy subprogramme.

31. In the light of the discussions, the Committee:

32. 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.

33. 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.

34. Requested the Chair to report the Committee’s endorsement of a project on “just” transition to EXCOM at the next opportunity.

B. Decarbonising electricity

35. A multistakeholder panel presented the Committee with perspectives on the role of coal in the energy mix and the reasons for its persistence in the system and allowed an exchange with experts about what is required for modernization and carbon neutrality. The session provided an overview of current financing sources and trends and actions needed to achieve carbon neutrality, involving all energy technologies, so that regional desertification can be avoided, and no one is left behind.

36. Discussions included remarks on the importance of clean fossil fuels in a carbon-neutral society, power market design and flexibility to accommodate a growing share of intermittent renewable energy and the importance of financing clean energy projects. Panellists stressed the broader economic context, as countries’ choices are guided by economic and social considerations, and they cautioned not to underestimate the contributions of methane emissions from the coal sector, which continue to increase as mining accesses deeper resources. Mitigation of these carbon emissions is possible with proper financing. The panel also made recommendations regarding the future work of the sustainable energy subprogramme.

37. In a moderated discussion, the Committee considered document ECE/ENERGY/2019/2 about Attaining carbon neutrality in the UNECE region by 2050 – a discussion paper about the role of fossil fuels in sustainable energy. Delegates commented on the challenges that needed to be overcome to deliver the 2030 Agenda in all its dimensions in an integrated way, and such that it is both pragmatic and rational economically, socially, and environmentally acceptable.

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

38. The Committee stressed the importance to develop a position paper of the ECE on [carbon-neutrality/coal/fossil fuels] in the energy mix and:

39. 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.

40. 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.

41. 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 CCS and high-efficiency low emissions (HELE) technology.

42. 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.

VI. Sustainable resource management (agenda item 5)

43. This session was dedicated to the responsible use of natural resources that a move towards a low-carbon society will require. For the ongoing energy revolution, access to critical raw materials and rare earth minerals is fundamental, as is building on existing technologies and adapting them for future needs. This session looked at the ECE region and geopolitical consequences.

A. Gas pathways to 2050 and the interplay with renewable energy

44. The session, jointly led by the Groups of Experts on Gas and Renewable Energy allowed an exchange of views on possible pathways for gas to 2050 and its interplay with renewable energy. A multistakeholder panel investigated how a deep and genuine transformation of today's energy system could be facilitated by synergies between the traditional and emerging energy sectors – for example, natural gas and renewable energy.

45. Panellists presented models that capture interlinkages between electricity, renewable energy and gas and reflected upon the challenges that integrating renewable energy sources into the grid pose. They made recommendations about policies that could harness system-wide synergies between intermittent renewable energy sources and gas infrastructure and that would accelerate development and deployment of renewable/decarbonized gas projects. Outcomes from the workshop on the improved understanding on the role of natural gas in achieving the 2030 Agenda, preceding the Committee session on 24 September 2019, were reported. The panel also made recommendations regarding the future work of the sustainable energy subprogramme.

B. Managing resources in a carbon constrained world

46. A multistakeholder panel investigated how the United Nations Framework Classification for Resources (UNFC) and the United Nations Resource Management System (UNRMS) could assist the management of resources in the move to carbon neutrality and delivering on the 2030 Agenda and the Paris Climate Agreement. Panellists stressed the vast amounts of critical raw materials that were necessary to facilitate the energy transition and deliberated issues like sustainable resource management and geopolitics, how to improve the efficiency in the production and consumption in creating the services required for sustainable development and climate change, and how to create framework conditions in ways that the capital market can finance. The panel also made recommendations regarding the future work of the sustainable energy subprogramme.

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

Documentation: 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

47. In this session, the Chairs of three Groups of Experts reported on the implementation of their respective work plans for 2018-2019, Bureau work and the main developments since the twenty-seventh session.

48. In the light of the discussions, the Committee:

1. Group of Experts on Cleaner Electricity Systems

49. 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-seventh 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.

50. 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.

51. 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.

2. Group of Experts on Gas

52. 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.

53. 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.

54. 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.

55. 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.

3. Expert Group on Resource Management

56. As per the decision of EXCOM 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 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.

57. 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.

58. 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.

59. 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.

60. Noted the proposal to develop a Centre on Sustainable Resource Management (CSRМ) 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;

61. 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.

62. 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.

63. 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.

64. 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.

D. Efficiencies, cities and circular economy

65. Today's cities are in the midst of large economic transformation across the globe. Given rapid urban expansion and a drive towards "smart and sustainable", could cities become the centre of catalytic change for circular economy transformation and bring the 2030 Agenda on Sustainable Development on target, thus avoiding chronic resource stresses? This was the question that this panel debated, providing practical examples to demonstrate the benefits of integrated city planning.

66. The panel presented ways to measure "smartness" with a variety of possible key performance indicators, metrics and methods, referring to digital technologies like geospatial applications. The Canton of Geneva served as a case study about how such data is collected, made accessible and used for building management and policy evaluation.

E. Groups of Experts on Energy Efficiency, Renewable Energy and Coal Mine Methane: Mandates and work plans

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

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

67. In this session, the Chairs and Vice-Chairs of three Groups of Experts reported on the implementation of their respective work plans for 2018-2019, Bureaux work and the main developments since the twenty-seventh session.

68. The Chair of the Group of Experts on Energy Efficiency also informed the Committee of progress related to the Joint Task Force on Energy Efficiency Standards in Buildings with the Committee on Urban Development, Housing and Land Management (previously the Committee on Housing and Land Management) with the participation of ECE Working Party 6³.

69. In the light of the discussions, the Committee:

1. Group of Experts on Energy Efficiency

70. Noted with appreciation the progress achieved by the Joint Task Force on Energy Efficiency in Buildings 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.

71. 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).

72. 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.

73. 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.

74. 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 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.

75. 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.

76. 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.

³ The Working Party on Regulatory Cooperation and Standardization Policies (WP.6) encourages increased regulatory coherence in specific sectors that have a critical impact on sustainable development and promotes greater resilience to natural and man-made hazards.

77. 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.

2. Group of Experts on Renewable Energy

78. 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.

79. 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;

80. 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.

81. 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).

82. 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.

3. Group of Experts on Coal Mine Methane

83. 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.

84. 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.

85. 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.

86. 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.

87. 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.

VII. Gender and energy (agenda item 6)

88. Gender (SDG 5) has become an integral part of activities at the United Nations. This multistakeholder panel look at how entrepreneurial women are leading transformational systems change in their regions or communities and are overcoming two major challenges towards gender equality: restricted access to productive and financial resources and family stigma. Perspectives covered why gender matters and how regional initiatives for promoting renewable energy applications and new business models have been translating this untapped potential into a substantially narrower gender gap in energy.

89. The Committee 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.

VIII. Regional outreach and collaboration activities (agenda item 7)

A. Regional advisory services and collaboration activities

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

90. The Committee received an update of regional advisory services since its last session. The report back included reference to cooperation with other stakeholders in the region.

91. The Committee 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

92. The Committee received an update of extrabudgetary projects and projects under the United Nations Development Account as well as other stakeholders since its last session.

93. The Committee took note of a joint project on resilience and protection of critical infrastructure from natural and man-made disasters with The Organization for Security and Co-operation in Europe (OSCE). It thanked the OSCE for the invitation to become an institutional partner in this project and agreed to support OSCE in its implementation, 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

94. The Committee was informed on the progress of the preparations for the Tenth International Forum on Energy for Sustainable Development to be hosted by Thailand in Bangkok on 7-8 October 2019, back-to-back with the second session of the Committee on Energy of the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP). As is tradition, the intent is to agree on a balanced set of options of what countries could do concretely and effectively and to inform the programme of work of the ECE sustainable energy subprogramme.

95. The discussion extended to the Eleventh International Forum on Energy for Sustainable Development, likely hosted by Georgia in 2020.

96. In the light of the discussions, the Committee:
97. Thanked UNESCAP for hosting the Tenth International Forum on Energy for Sustainable Development and invited member States to attend and to disseminate the outcomes of the Forum.
98. Thanked Georgia for its offer to host the Eleventh International Forum, mandated the secretariat to begin preparations in collaboration with the other United Nations Regional Commissions and interested partners and encouraged countries and experts to participate.
99. 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.
100. 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 other intergovernmental, industrial, and civil society organizations.
101. Expressed support for ECE's continued involvement in UN Energy and the SDG 7 Task Force.

IX. Future work of the Committee on Sustainable Energy (agenda item 8)

A. Review of the 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

102. Following the change to an annual budget period from the beginning of 2020 onwards, the Committee was informed of developments regarding the preparation of the proposed budget for 2020 and for 2021 and implications for the work of the subprogramme.
103. The Committee was invited to provide guidance on the future direction of its programme of work and an effective and streamlined role of the subsidiary bodies to support desired outcomes to accelerate the delivery of energy for sustainable development and concretize its reputation as a credible and relevant partner.
104. After reflection on the Draft rules of procedure prepared in accordance with the Guidelines on procedures and practices for ECE bodies adopted by the Economic Commission for Europe (ECE/ENERGY/2019/12), the Committee:
105. Adopted the proposed draft programme of work of the sustainable energy subprogramme for 2020 (ECE/ENERGY/2019/3) and recommended submission to EXCOM for subsequent approval. Requested a draft programme of work of the sustainable energy subprogramme for 2021 for adoption at its next session.
106. Requested the secretariat in cooperation with the Bureau to refine the draft rules of procedure for the Committee (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 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.

107. 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 (i) the project “Pathways to Sustainable Energy” and (ii) the use of recommendations for events specified under para. 8 above and (iii) any potential decisions required on extrabudgetary funding with respect to the Committee’s programme of work are such topics.

108. 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.

109. 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.

110. Requested the secretariat to proceed with preparations for the twenty-ninth session of the Committee on Sustainable Energy on 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. Decided that Committee meetings could also be held outside Geneva at no cost to the secretariat, should a host-country be found.

B. 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

111. The Committee was presented with two documents to support the implementation of the previously mandated areas of work, notably document ECE/ENERGY/2019/5, which contains changes to the already approved 2019 and 2020 publication plans and the draft publication plan for 2021.

112. After discussion, the Committee:

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

114. 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

115. The Committee requested the following amendments to paragraphs 82 and 85 of the report on its twenty-seventh session (ECE/ENERGY/119) to read:

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

116. The Chair summarized the major decisions, conclusions and recommendations taken by the Committee.

117. The Committee adopted the report of its twenty-eighth session (ECE/ENERGY/123) subject to any necessary editing and formatting.

118. The twenty-eighth session was adjourned on 27 September 2019 at XX hours.

Annex

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:

- (a) Closer assessment of the technologies considered on a preliminary basis in Phase 1;
- (b) Consideration of alternative nexus approaches and business models;
- (c) 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);
- (d) Testing strategic options using the project's models and the outcomes of the technology and regional assessments;
- (e) High level political dialogue on the project outcomes;
- (f) 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:

(a) 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;

(b) 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;

(c) 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: 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;

(d) 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 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, coal gasification, biomass gasification, electrolysis of water, 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.

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 and their implications for countries' strategic options.
