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Attaining carbon neutrality in the ECE region

Attaining carbon-neutrality in the United Nations Economic Commission for Europe region by 2050 – a discussion paper about the role of fossil fuels in sustainable energy

Note by the secretariat

I. Introduction

1. Work on sustainable energy in the United Nations Economic Commission for Europe (ECE) 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. Access to affordable, clean, and modern energy services underpins quality of life and attainment of the 2030 Agenda for Sustainable Development (2030 Agenda). "Energy for sustainable development" goes beyond Sustainable Development Goal (SDG) 7 and recognizes the breadth of energy's contribution and burden:

(a) Analyses to date indicate that the world is not on a path to achieve a 2ºC target, but rather is on a path to between 4ºC and 6ºC, levels that represent an existential threat for most species, including humans[1];

(b) Conversely, the reality is that 80% of today's energy is fossil-based, and fossil energy underpins quality of life. The number of countries and the number of people whose incomes and livelihoods depend on fossil energy comprises the majority of the world population and national economies[2];

(c) Similarly, though significant progress is being made, countries are not on track to meet their commitments under the 2030 Agenda, and the social and economic dimensions of the development agenda also are falling short[2].

[1] See for example IPCC: Climate Change 2014 Synthesis Report – Summary for Policy Makers from the AR5 Synthesis Report, https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf; Global Tracking Framework reports 2017, 2018, 2019 https://trackingsdg7.esmap.org/; https://www.seforall.org/sites/default/files/2019-05/TrackingSDG7_execsum-2019.pdf UNECE Progress in Sustainable Energy: http://www.unece.org/index.php?id=47830

[2] UNECE Progress in Sustainable Energy: http://www.unece.org/index.php?id=47830; International Energy Agency: Tracking clean energy progress https://www.iea.org/tcep/; World Energy Outlook series https://www.iea.org/weo/

2. This is at odds with outcomes from major conferences and summits about climate change and meeting the Paris Agreement, yet, it is clear that without decarbonization in all economic sectors and of all potent greenhouse gases, 2ºC cannot be achieved.

3. In practice, this implies the modernization of the energy sector with a focus on coal and finding innovative solutions for energy and carbon-intensive industries like steel, cement and transport towards a green economy and low-carbon society. It also means taking a look at the gas sector as a major source of methane emissions in the medium- and long-term and as a major source of CO_2 emissions from power generation. Different sectors are not independent of each other and making changes in one will have implications for another. As the choices that we make now in one sector can either restrict or expand our options later on, the restructuring of sectors or regions in the name of reducing the carbon footprint of the energy sector has to be tackled with foresight and social inclusion, and with the medium- and long-term needs of countries and people in mind.

4. There is now the possibility for the Committee on Sustainable Energy (the Committee) as a neutral platform for its member States and other stakeholders to exchange views on the topic and debate the use of instruments and learnings about the role of cleaner fossil fuels in sustainable energy, and in particular the concept of carbon neutrality. Results and recommendations from the first phase of the project "Pathways to Sustainable Energy" can be helpful in this context (see also document ECE/ENERGY/2019/1).

5. With this in mind, the paper is presented to the Committee to kickstart a discussion about the challenges that need to be overcome to deliver the 2030 Agenda in all its dimensions in an integrated way, and so that it is both pragmatic and rational economically, socially, and environmentally acceptable.

6. The objective is to take a position to strengthen and solidify the Committee's work across its subsidiary bodies and to provide the possibility to develop position papers, funding proposals and make policy recommendations on what it takes to achieve carbon neutrality in the region and which role fossil fuels can play in the context of the 2030 Agenda.

7. Taking into account the proposals made in this Committee session, the forthcoming groups of experts' meetings will provide countries and experts with the opportunity to refine the statement so that it can be proposed for Committee approval at the twenty-ninth session on 25-27 November 2020.

II. Principles towards carbon neutrality in the ECE region

8. Getting the energy equation right is an absolute imperative. Each country has its unique endowment of resources and its own cultural, regulatory, and legislative heritage. Each country will pursue its own pathway to deliver on its commitments under the 2030 Agenda and the Paris Agreement while striving towards increased economic development and quality of life for its population.

9. Many countries have started to shift efforts towards carbon- or climate-neutral concepts, and while it can be expected that these efforts will create new opportunities and employment, it will also have disruptive effects on countries, high-carbon regions and energy intensive industries. Fear of job losses, disruptive structural and cultural changes, economic decline and negative political implications influence the debate more strongly that the benefits of a low-carbon transition. The deep structural shift needs to be foreseen and carefully planned and managed together with a thorough investigation and investment into zero-, low-, or negative carbon technologies.

10. As the world is not on track to achieve the 2ºC Paris Climate objective, it is clear that such technologies will allow a more strategic approach so that all countries are able to implement the necessary structural and infrastructure related changes.

11. To stabilize global temperatures at any level, net CO_2 emissions would need to be reduced to zero. This means the amount of CO_2 entering the atmosphere must qual the amount

that is removed. Achieving a balance between CO_2 sources and sinks is often referred to as net zero emissions or carbon neutrality. Carbon neutrality should not be confused with zero- low- or negative carbon efforts. The term refers to achieving net zero CO_2 emissions by balancing carbon emissions with carbon removal or simply eliminating carbon emissions altogether.

12. Given the imperative to integrate what appear to be irreconcilable objectives, the Committee is asked to endorse the following principles:

(a) Decarbonizing the energy system will require deep transformation through urgent near-term actions that are consistent both with sustained medium- and long-term efforts and with countries' quality of life ambitions;

(b) Improving energy efficiency or energy productivity throughout the world are the first priority and the best means for progressing quickly on delivering quality of life in an environmentally sustainable manner. Development, dissemination, and deployment of best practices and standards in all sectors, notably buildings, industry, and transport, will be critical;

(c) Improving integration of both natural gas and power markets enhances the contribution of low-carbon alternatives and the technical, economic, and environmental efficiency of the interconnected system. Better integration can be achieved through stronger interconnections, common standards, and market designs that place fair and proper value on the energy services provided (e.g., balancing markets that compensate for intermittency across a wide geographic area);

(d) There is a critical need to rationalize subsidies[3] in energy, specifically those that distort investment and consumption decisions, while protecting vulnerable populations. The rationalization will involve shifting tariff subsidies that induce over-consumption and deter investments in either energy efficiency or low-carbon alternatives. An efficient shift would be to income supports. A second rationalization would be proper accounting of externalities including, for example, placing a real and explicit price on carbon (either through markets or taxes);

(e) All technologies will be needed if the objectives of energy for sustainable development are to be met;

(i) Many countries of the ECE region intend to continue using their fossil energy resources, notably coal. It is therefore essential that high-efficiency, low-emissions technology be deployed along with carbon capture and storage to minimize the environmental footprint and carbon intensity of the energy system. There is a need to address the environmental footprint of fossil energy through development, widespread dissemination, and global deployment of best practices and investment guidelines.

(ii) It also will be essential to address methane emissions from the extractive industries, an undertaking that will require monitoring and reporting emissions as well as remediating sources of methane in the energy system. Given the importance of methane for global warming, the business case for remediation, and the expectation that natural gas will make a sustained contribution to the energy transition, addressing methane emissions is an urgent priority.

(f) Research, development, and deployment of technologies and innovative business models aligned with the 2030 Agenda is essential, as is using the existing energy infrastructure to assist in the transformation.

13. Energy policy cannot be devised and implemented in a vacuum. Achieving the 2030 Agenda requires integrated, cross-sectoral policy formulation. The Committee is committed to collaborating with the other sectoral committees of ECE and other relevant international organisations to ensure well-reasoned nexus policies.

[3] More work needs to be carried out in this field to be more specific.

14. Through these principles the Committee is committed to the deep transformation of the energy system in ways that meet the ambitions of its member States. The Committee will work with the community of institutions at national, regional, and international levels - including the financial community and industry - to ensure the effective development, dissemination, and deployment of a range of standards, guidelines, and best practices with the quality of life aspect in mind. The critical dimensions to pursuit of these principles are:

- **Pragmatism**. The world is late in responding to the climate crisis, and the solutions to date have been insufficient. It is important to recognize that, in the near term, energy efficiency and renewables alone cannot deliver the integrated solutions that are needed. All necessary approaches that keep the world within a "carbon budget" consistent with a 2°C target while delivering quality of life must be pursued
- **Activism**. It is essential that real actions deliver measurable results. The deployment of ECE's Framework Guidelines on Energy Efficiency in Buildings[4] can deliver lower energy requirements per square meter while improving indoor air quality. Measuring and mitigating methane emission must reduce the volumes of methane being introduced to the atmosphere. The same holds for the rest of the sustainable energy agenda
- **Tightened commitments**. There are two gaps in the energy system today. The first gap lies between the commitments countries have made and what they currently are achieving, and the second gap lies between the commitments and what is truly needed to deliver on both the 2030 Agenda and the Paris Agreement. Both gaps require attention.

III. Proposed next steps

15. The proposed timeline for the development of the position paper is as follows.

(a) 25-27 September 2019 Committee on Sustainable Energy: Consultation with member States and experts, recommendations for the subsidiary bodies;

(b) October 2019 to April 2020 Groups of Experts on Coal Mine Methane, on Cleaner Electricity Systems and on Gas. Other subsidiary bodies could also be involved, e.g. the Groups of Experts on Energy Efficiency, on Renewable Energy and the Expert Group on Resource Management: Refinement of position paper;

(c) April 2020 Bureau of the Committee: Feedback and recommendations on position paper, if requested;

(d) 25-27 November 2020 Committee on Sustainable Energy: Adoption of position paper, followed by submission to the ECE Executive Committee and the ECE;

(e) December 2020: Letter to the Secretary General.

16. ECE also collaborates with other organisations throughout the United Nations Development System and through the coordination mechanism of UN-Energy[5] to ensure coordinated approaches. A good example of the collaboration is the annual International Forum on Energy for Sustainable Development that ECE delivers with the other regional commissions and with a wide range of partners such as the United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), the International Energy Agency (IEA), the International Atomic Energy Agency (IAEA), the World Bank Group, regional development banks, and other stakeholders. Efforts will seek partners and collaboration inside and outside the United Nations Development System and will involve the private sector, academia and associations.

[4] For more information see http://www.unece.org/info/media/news/sustainable-energy/2019/unece-fosters-improved-energy-efficiency-in-buildings/doc.html

[5] http://www.un-energy.org/