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High-level Segment – Country Commitments on Energy in the Context of the United Nations

High-level Dialogue on Energy

Achieving Sustainable Development Goal 7 in the United Nations Economic Commission for Europe Region - Status and Progress

Prepared by the secretariat based on data provided by the custodian agencies

Summary

The United Nations Economic Commission for Europe (ECE) region continues to fall short in its progress towards attainment of Sustainable Development Goal 7. The COVID-19 pandemic has also posed and continues to pose significant challenges.

In the ECE region, there is 100% access to electrical power and clean cooking fuels, but significant challenges remain in terms of the quality of service, and affordability. Although there has been an increase in installations of renewable energy systems in the region, investments need to more than double to achieve the 2030 target. The ECE region as a whole has an increasing share of renewable energy in final energy consumption, though certain sub-regions have low and declining investment rates.

Some countries in the ECE region export large quantities of fossil fuels and have some of the world's highest levels of energy intensity. Their national incomes are based on fossil fuel energy, and the livelihoods of large numbers of people depend on it. Achieving a transition to sustainable energy across the region will require major changes in these economies and societies.

The Committee on Sustainable Energy is invited to take note of this document at its thirtieth session and invite member States to take urgent and bold action that will deliver concrete, near-term outcomes and, longer-term, achieve the 2030 Agenda for Sustainable Development and the Paris Agreement.

I. Introduction

1. This document provides a summary of the status and progress to achieve Sustainable Development Goal (SDG) 7 in the United Nations Economic Commission for Europe (ECE) region. The ECE region includes 56 countries in Europe, North America and Asia.¹ The focus of SDG 7 on Affordable and Clean Energy is to ensure access to affordable, reliable, sustainable and modern energy. The targets of SDG 7 are:

- 7.1 – By 2030, ensure universal access to affordable, reliable and modern energy services
- 7.2 – By 2030, increase substantially the share of renewable energy in the global energy mix
- 7.3 – By 2030, double the global rate of improvement in energy efficiency
- 7.A – By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
- 7.B – By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support.

II. Key Messages

A. Progress towards achieving SDG 7 in the ECE region

2. The ECE region continues to fall short in its progress towards attainment of SDG 7. There is 100% access to electrical power and clean cooking fuels, but significant challenges remain in terms of the quality of service, and affordability. There has been some progress on energy efficiency, but much more remains to be done. The rate of progress in improving energy intensity is insufficient to meet the 2030 goal. Although there has been an increase in installations of renewable energy systems in the region, investments need to more than double to achieve the 2030 target. The ECE region as a whole has an increasing share of renewable energy in final energy consumption, while certain sub-regions have low and declining investment rates.

3. Significantly, there are countries within the ECE region that export large quantities of fossil fuels, and have some of the world's highest levels of energy intensity. Their national incomes are based on fossil fuel energy, and the livelihoods of large numbers of people depend on it. Achieving a transition to sustainable energy across the region will require major changes in these economies and societies.

B. Priority actions

4. Bold action in three areas will deliver concrete, near-term outcomes and, longer-term, achieve the 2030 Agenda for Sustainable Development and the Paris Agreement. Country commitments are sought to:

- (a) Achieve superior performance in buildings;
- (b) Address growing concentrations of methane in the atmosphere; and
- (c) Modernize resource management.

¹ <https://unece.org/member-states-and-member-states-representatives>

5. Three long-term initiatives are needed to secure the 2030 Agenda for Sustainable Development while mitigating climate change:

- (a) Achieve carbon neutrality by 2030,
 - (b) Ensure a just transition to remove social obstacles to real transformative action;
- and
- (c) Enable a hydrogen economy.

III. Progress on achieving SDG 7 in the ECE region

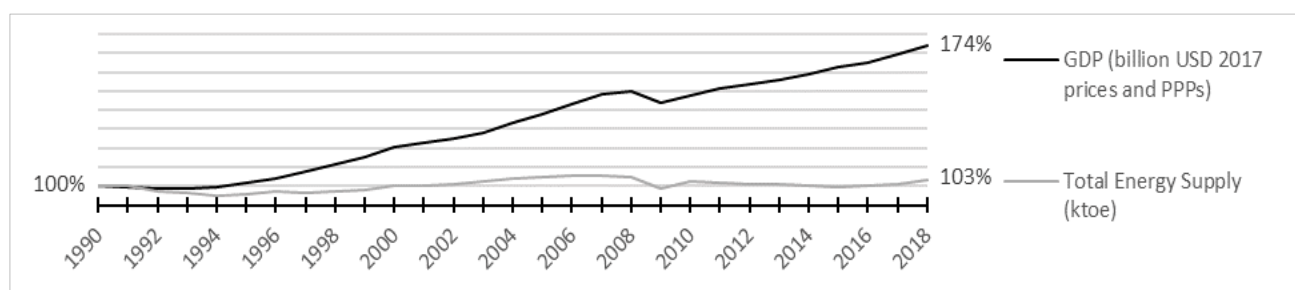
A. Energy access

6. Although the ECE region has achieved near-universal household electrification in terms of physical access, issues related to ageing infrastructure, a lack of supply diversity, and increasing costs often lead to poor power quality and, for some, unaffordability or energy poverty. Non-electric energy sources are used widely to provide heat, and human comfort and safety depend on substantial heating services that are not reflected in the statistics on access to electricity networks. A number of households spend more than 10% of their income on energy, thereby falling within the definition of energy poverty. Climate policies that do not address the combined challenges of energy affordability and access to alternative forms of delivered energy could exacerbate energy poverty in the region. There is a need for systematic tracking and reporting of a broader set of indicators for energy access, including non-electric energy consumption, quality of service, and cost of service/ affordability. In the ECE region, 100% access to clean fuels and technology for cooking has been achieved.

B. Energy efficiency

7. Energy intensity is a proxy indicator for progress on improving energy efficiency (SDG 7.3). Energy intensities vary significantly across the subregions in the ECE region. Over the period 1990-2018, energy intensity declined 41% for the region as a whole, or by 2.9 megajoules per US\$² (from 7.14 to 4.22). The average rate of decline over the period was 1.85% per year. Over the period, growth in total energy supply (TES) was decoupled from that of gross domestic product (GDP). GDP in the ECE region increased by 74% (from 31 trillion US\$ in 1990 to 54 trillion US\$ in 2018, while TES increased by only 2.9% during the same period (from 5.3 gigatonnes of oil equivalent (Gtoe) in 1990 to 5.4 Gtoe in 2018) (see Figure I).

Figure I
Relative changes in Total Energy Supply and GDP growth in the ECE region, 1990-2018 (per cent, 1990=100)



Source: ECE, based on data provided by custodian agencies, March 2021.

² Constant 2017 PPP GDP.

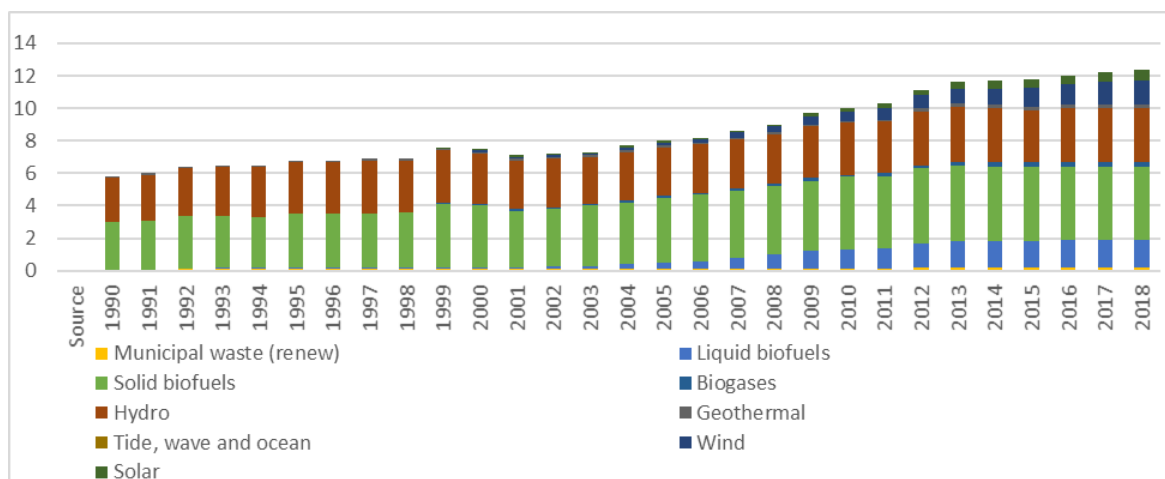
8. Improving energy efficiency is one of the most cost-effective options for meeting growing energy demand. Energy efficiency also helps to ensure rational use of energy, promote economic well-being and an improved quality of life, contribute to a better environment, and build energy security. The key challenge is mobilizing the investments needed to enhance energy efficiency and energy productivity. Analysis for the ECE region indicates that energy sector investment requirements range from between 24 and 29 trillion US\$ between 2020 and 2050, of which 6% to 16% would be to improve energy efficiency. Saving energy and improving productivity are critical imperatives. Operational, technical, and economic improvements are required in the production, transmission, distribution and consumption of energy – before investments are made in new energy supply infrastructure. Such improvements would address energy affordability challenges as well as the growing pressures on energy supply and operational efficiency in the ECE region.

C. Renewable energy

9. The ECE region includes countries with well-established renewable energy markets and well-developed infrastructure for deploying renewable energy. The uptake of renewable energy is progressing, though major differences in renewable energy expansion exist between countries. With an installed renewable electricity capacity of 869 Gigawatts (GW), the ECE region accounts for almost half of the 1,971 GW installed worldwide. Hydropower is the most established renewable energy technology for generating electricity, making up 412 GW (388 GW from large hydro power (LHP)) of total renewable electricity capacity. Generating capacities from renewable energy sources have grown substantially in the ECE region over the last few years because of the rapid expansion of wind energy and photovoltaics (PV) in Ukraine and Kazakhstan (wind energy), and the Russian Federation and Turkey (PV). Although wind and PV markets are growing the most rapidly of all renewable electricity markets in the region (with compound annual growth rates of 7.6% and 10.3%, respectively, between 2011 and 2014) they are only the second and third largest markets overall (with installed capacities of 254 GW and 140 GW, respectively).

10. The share of renewable energy in the ECE region's energy mix has increased progressively from 1990 to 2018, doubling its share in total final energy consumption (TFEC) from almost 6% to just over 12% (see Figure II). While TFEC increased slightly from 1998 to 2018 in absolute terms, its distribution among the main sectors of electricity consumption, transport and heat has shown a notable increase of renewable energy in transport over the last two decades. In terms of investment, the eastern reaches of the ECE region lag global developments and have recently witnessed a decline in renewable energy investments. Barriers to investment continue to exist, but previous experiences with investment, and current government plans, suggest that there is a strong potential for future growth.

Figure II
Renewable energy share in TFEC in the ECE region by technology (%)



Sources: International Energy Agency (IEA), World Energy Balances (2020); UN Statistics Division, Energy Balances (2020).

IV. Challenges for the ECE region

A. Post-COVID economic recovery and resilience

11. The health, social, and economic repercussions of the COVID-19 pandemic have been severe, and it is unclear how long they will last nor how deep they will go. Beyond the tragic loss of life, the enduring repercussions include the implosion of many economic sectors with associated job losses, changes in lifestyles, and fraying of social psychology. Ongoing restrictions intended to slow the progress of the pandemic will strain all sectors of the economy, including provision of food, energy and water. Global pandemics such as the current health crisis will be more frequent as the climate destabilizes. Anticipating them requires systematic, coordinated preparation and investment in resilience, including in the energy system. The crisis has presented an opportunity to pivot to a sustainable economic and energy model by re-orienting demand, supply, and investment conditions to sustainable outcomes.

B. Fossil fuel dependence

12. Fossil fuels dominate the ECE region's energy mix and underpin today's energy access and economic development. The total primary energy supply of ECE countries is just over 80% fossil energy. As a result, there is an underlying tension between achieving SDG 7 targets and other SDGs, such as those related to poverty, hunger and inequities. Often an industrial and urban ecosystem has emerged over time in support of, and because of, the primary energy production. The associated physical and social infrastructure is a political obstacle to transformation and change. Removing that barrier requires application of a just transition to avoid creation of industrial and urban socio-economic ghettos. Accelerating the transition to a sustainable energy system by modernizing and optimizing the existing fossil fuel-based infrastructure, and integrating renewable energy-based infrastructure, is essential to achieving sustainable development. Achieving a just transition will require managing methane accumulations, ensuring efficient energy production, improving industrial and end-use energy efficiency, optimizing resource management, and enabling introduction of renewable energy technology to enhance local environmental, social, and economic performance in line with the 2030 Agenda.

C. Climate commitments

13. Given the ECE region's dependence on fossil fuels, meeting the 2030 Agenda's climate objectives must be integrated with the remainder of the SDGs to achieve the desired decarbonization of the future energy system. Integrated solutions require a clear understanding of the climate-related impacts of energy in connection with the development-related opportunities that energy represents. The two most relevant greenhouse gases from the energy sector are carbon dioxide (CO₂), mainly from the combustion of fossil fuels, and methane (CH₄) emissions from coal and gas production and distribution. The ECE region is falling short on the relevant indicators for these emissions.

D. Increasing the contributions from renewable energy

14. Many countries of the ECE region continue to face challenges in deploying renewable energy. These challenges include inadequate legal and regulatory frameworks, price distortions caused by subsidies, a lack of energy market liberalization, absence of public acceptance, and/or low awareness or capacity regarding the potential for application of renewable energy. ECE countries can overcome these barriers and substantially increase the market uptake of renewable energy both through country-level actions and strengthened regional cooperation.

E. Sustainable resource management

15. The current patterns of resource production and use are unsustainable. A global, principles-based, sustainable resource management system is needed, along with a comprehensive financial reporting framework for extractive industries, if the world is to meet its climate objectives and deliver a better quality of life. Such an architecture for responsible extractive industry management would benefit communities worldwide, and provide assurances to a market and investment community that is calling for tightened environmental, social, and corporate governance aligned with the 2030 Agenda.

16. ECE proposes actions for securing sustainable resources for the future, including:

- A comprehensive ‘Socio-Environmental-Economic Contract to Operate’ that integrates quality of life, a just transition, climate change mitigation and adaptation, and environmental stewardship
- Common sustainable finance taxonomy and principles to support funding in line with environmental, social and corporate governance (ESG) principles
- A shared ‘Principles-based, Integrated, Sustainable Resource Management Framework’ through the existing United Nations Framework Classification for Resources (UNFC) and the United Nations Resource Management System (UNRMS), which is under development
- A comprehensive framework for traceability, transparency, and sustainability in supply chains
- Strategic environmental assessments of government plans and programmes.

F. High-performance buildings

17. ECE’s High-Performance Buildings Initiative aims to transform how buildings are conceived, built, operated, and maintained. Buildings are responsible for 40% of global CO₂ emissions by virtue of the energy services they require. They also represent an important share of ‘embedded carbon’, that is, emissions that occur when making the materials used in buildings. Transforming the built environment can drive sustainability and deliver quality of life in the broadest terms. It also can impact the effectiveness of the world’s responses to multiple environmental, social, health, and economic crises. High-performance buildings enhance the resilience of occupants in the face of such crises.
