

9TH

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ENERGY FOR
SUSTAINABLE
DEVELOPMENT



Achieving Energy for Sustainable Development

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Key Messages

1. Energy plays a vital role as an enabler for improving quality of life. Its links to other sectors such as water, climate, health, and agriculture must be strengthened through integrative policies. Without energy, attainment of the 2030 Agenda for Sustainable Development is at risk.
2. The current Nationally Determined Contributions (NDCs) widely fail to meet a 2°C temperature objective let alone the Paris agreement's goal of keeping warming temperatures well below 2°C. Since fossil fuels and producing, transporting, using energy are key components of most countries' economic development and contribute about three-quarter of global greenhouse gas emissions, a revision of the NDCs as such is needed.
3. All nations are committed and are in the process of developing or implementing their approach to achieving their interpretation of sustainable energy and the 2030 Agenda. It is necessary that each country recognizes the perspectives and the drivers of the others, that there is not a single approach to the transition but a multitude of approaches. What truly matters is that the collective outcome delivers the needed results and that this collective approach can achieve these targets faster than individual national or sectoral actions.
4. Coherent policies and enabling environments must be in place to mobilize necessary investments and, in order to be sustained over time, must be rational economically, environmentally, and socially. The risks of transformative investments must be lowered. The current political, regulatory, and industrial infrastructure is not ready for deep transformation. Best practices and experiences should be shared and promoted and, where they are insufficient, reconsidered.
5. 80% of today's energy mix is fossil-based, and fossil energy will remain important, a reality that makes it imperative to address the environmental footprint of fossil fuels urgently.
6. All energy sources, including renewables, nuclear and high efficiency fossil fuel with carbon capture and storage (CCS), must be considered along with new business models and significant improvements in energy efficiency and productivity to ensure that the energy needed for sustainable development is available and affordable.

A. Recommendations for priority action:

7. Some options for addressing energy for sustainable development are sensible economically, environmentally, and socially under all circumstances and should be pursued aggressively and diligently. These include sustainable resource management, energy efficiency improvements in buildings, industry, and transport and methane management in the extractive industries.
8. Energy prices must reflect full costs, including externalities and relevant system costs, to enable sustainable management of energy resources and accelerated uptake of energy efficiency and clean energy technology. Energy subsidies must be rationalised to remove market distortions while protecting vulnerable groups and should be focused on overcoming short-term obstacles.

9. Some countries choose to pursue nuclear power with a view that it can play an important role in the global sustainable energy mix. Nuclear power is the second largest source of low carbon electricity after hydroelectricity. The IPCC 1.5°C pathway report estimates that nuclear power generation will need to grow 2.5 times by 2050 if objectives are to be met. Decisions regarding the future energy mix should be made on the basis of a technology-neutral policy framework where all supply and demand options are recognized for their contribution.
10. Reductions in the costs of renewables present an opportunity for them to meet energy demand to a much greater degree:
 - (a) For Latin America and the Caribbean region, it is important to mainstream renewables in policies, programmes and projects to improve energy access, particularly in rural areas, and to attract investment. Governments can support renewables by reducing risks, extending rational incentives, and providing more conducive legal frameworks and regulatory stability;
 - (b) For Africa and the Arab region, the promotion of local content enhancement across the full renewable energy value chain can catalyse longer term enhanced deployment of renewables with wider socio-economic benefits.
11. It is important to ensure that climate resilience is fully integrated into planning energy infrastructure and investments that are at risk from climate change and variability. Investment in power grids and promotion of cross-border interconnections will accelerate access to electricity, improve efficiency, and accelerate penetration of variable renewable power.
12. Improving the performance of the transport sector, incorporating cleaner and more efficient technologies, multi-modality and greater use of renewable energies is of high importance.
13. For Asia and the Pacific region, clean cooking must be better integrated into energy policy frameworks. In Africa region and in Latin America and the Caribbean region, the gradual replacement of traditional biomass fuels for cooking and heating with modern energy sources should be promoted. New employment opportunities for women are also important: with greater economic value attributed to women's time, households are more likely to choose more efficient technologies with reduced fuel gathering requirements.
14. The United Nations Economic Commission for Europe (ECE) is exploring alternative pathways countries might consider achieving their national targets while contributing to global and regional objectives. The project is an important vehicle for understanding the gaps that exist in meeting the energy-related objectives of the 2030 Agenda and the opportunities available to close the gaps. The other regional commissions might consider undertaking similar assessments and interested agencies might join the process.
15. In every region there is a need for human and institutional capacity for energy planning and management and greater engagement with the private sector, transparency and accountability, monitoring and data collection systems, dissemination and information-sharing between institutions and a stronger role for science and research. Efforts to encourage innovation in energy services and promote collaborative research and development at the regional level should be planned and introduced.
16. The SDG 7 indicators/targets reflect a limited view of energy's contribution. Indicators with explicit links to other sectors and SDGs need to be developed to track movement towards the desired target – a low-carbon energy system that provides affordable access to sustainable energy services for all. Data sources and data gathering/analytical capacity of countries do not meet requirements. The tracking reports of the regional commissions in collaboration with the World Bank and the IEA have highlighted the shortcomings. The reports provide important information for policy makers. The reports should be updated regularly on a three-year cycle. Data gaps and reliability should be addressed to inform investment planning, develop greater

capacity to collect and analyse energy data, harmonize data-collection methodologies and strengthen existing data-collection systems.

17. Development and implementation of suitable policies and institutional frameworks to manage natural resources more sustainably, boost energy efficiency measures and practices, and address barriers preventing progress in energy efficiency and renewable energy deployment is inevitable.
18. Global investment in the energy sector is running behind what is needed to achieve deep transformation. Governments should create conducive environments to gain investor trust. Enhancing open markets and strengthening rule of law can contribute to such trust-building. This applies equally to state-owned investors and foreign and domestic private investors. Governments may wish to undertake energy investment risk assessments on a recurring basis. In particular, governments can enhance the long-term robustness of their energy policy goals, integrate energy and investment policies, and smoothen decision-making processes by reducing institutional complexity. Further, governments could take steps to enhance transparency by embedding consultation in their policy and law-making processes, by enhancing the role of independent energy regulation, stimulating equal investment conditions, and ensuring that national and international obligations are met.

B. Africa is unlikely to achieve SDG 7 by 2030

19. 14. While countries in North Africa have attained nearly universal access to electricity and clean cooking and some countries in the rest of Africa are progressing towards universal access by 2030, most of the continent is unlikely to achieve SDG 7 with existing policies and commitments.
20. *Access:* Due to future projected population growth (from 1.3 billion people in 2017 to 1.7 billion in 2030), roughly the same number of people are likely to be without access to electricity in 2030 as in 2016 (590 million). The number of people without access to clean cooking fuels will reach 900 million by 2030.
21. *Efficiency:* Energy intensity remains high (6.0 MJ/USD in 2014), largely as a result of overreliance on inefficient biomass and weak energy efficiency policies and programmes.
22. *Renewable Energy:* Renewable electricity capacity exceeded 38 GW in 2016 (about 23 percent of the total), driven mainly by developments in wind, solar PV, geothermal and large hydropower. However, the region has ambitious targets that will require substantial political will and innovative and ambitious policies, including an enabling environment for mobilizing private sector finance from foreign direct investment and domestic resources.

C. For Latin America and the Caribbean region SDG7 is unachievable

23. *Access:* The number of people without access to electricity fell from 44 million in 2000 to 18 million in 2014. If current growth rates are maintained and if additional resources are provided for the countries with the largest deficits, 100% access could be attained by 2030. Access to modern energy sources for cooking has been improving, but over 84 million people still lacked access as of 2014. Annual rates of expansion have declined in recent years, and at current rates of progress (roughly 0.5 percent per year) the SDG 7 target will not be achieved.
24. *Electricity:* The region is the least energy intensive in the world. However, it also has the lowest annual rates of improvement (approximately 0.5 percent per year on average between 1990 and 2010). Although the energy intensity indicator has been trending down, driven mainly by efficiency gains in the industrial sector, at the current pace of progress it will be impossible to achieve the target set for 2030.

25. *Renewable Energy*: Renewable energy sources are used widely in the region, with modern renewable energies representing 22.9 percent of TFC in 2014. There has been a slight downward trend in both indicators, which could be reversed with more non-conventional renewable energy and hydropower plants and stronger policies for sustainable use of firewood.

D. Asia and the Pacific region is moving forward but unlikely to achieve SDG7

26. *Access*: Although the region made remarkable progress on electricity access in the last decade almost 10 percent of the region's population still have no access to electricity. The region is on track to reach nearly universal access to electricity by 2030, however there are some countries with acutely low access rates. Almost half of the population rely on polluting and unhealthy cooking fuels and technology, therefore the region is far from being on track to achieve universal access to clean cooking by 2030.
27. *Efficiency*: The region has demonstrated a long-term steep decline in energy intensity, falling from 9.1 MJ/2011 USD (PPP) in 1990 to 6.0 MJ/2011 USD (PPP) in 2014, and progressing towards convergence with the 2014 global average of 5.4 MJ/ USD (PPP).
28. *Renewable Energy*: The share of renewable energy, including both traditional and modern forms, reached 18.3 percent of the region's TFC in 2014, down from 23 percent in 1990, though up from a low of 17.9 percent in 2011. Modern renewables comprised 6.8 percent of TFC in 2014, up from 6.2 percent in 2012. In absolute terms, renewable energy consumption increased from 29.3 EJ in 2012 to 31.1 EJ in 2014.

E. Progress in the ECE region is falling short

29. Attainment of SDG 7 is falling short in the ECE region, except for the target on 100% access to electricity, and if "access" is defined more broadly, challenges remain on access to heating services and on reliability, affordability and quality of service. The region has specific climatic, economic, environmental and political circumstances leading in parts of the region to inefficient use of energy, power cuts, increasing energy costs, and unsustainable and unaffordable heating in winter. ECE falls short as well on the other energy-related SDGs that support improving quality of life. On current trends, energy will not deliver needed support to the 2030 Agenda, notably in the area of climate.
30. *Access*: ECE officially has achieved 100% access to power networks and 98% access to clean cooking fuels, but there are significant quality and affordability challenges. Access to distributed generation sources or to alternative energy networks must be considered.
31. *Efficiency*: The rate of progress in improving energy intensity is insufficient to meet the 2030 goal. Improvements in energy intensity in the region recently have been around -2 percent per annum since 2012.
32. *Renewable Energy*: Annual renewable energy investments in the region need to more than double to achieve the 2030 target. The ECE region has an increasing share of renewable energy in total final consumption (TFC) but certain sub-regions have low and declining investment rates in renewable energy.

F. Arab region overall progress is challenged

33. *Access*: Overall, access to electricity is close to universal in cities across the Arab region but remains fixed at approximately 80 percent in rural areas, with a total of around 36 million people lacking access to electricity in 2014. Planned and unplanned service disruptions in

many countries in the region are a challenge for electricity users, irrespective of the urban–rural divide or income disparities. In some areas, war, regional instability and mass migration also present significant challenges in providing energy access to millions of people. The share of the population using clean cooking fuels and technologies has risen continuously since the 2000s, and stood at 88 percent in 2014, with intra-regional differences.

34. *Electricity:* While the Arab region has historically not been one of the most energy-intensive regions in the world, it has been the only one to have no reduction in its energy intensity over the past 25 years, while energy consumption has more than doubled since 1990. Residential and service sectors combined accounted for at least two-thirds of total annual electricity consumption in the region, of which around 73 percent was consumed by the residential sector alone. A recent study by the World Bank estimated the potential savings from energy efficiency at 21 percent of projected total primary energy supply (TPES) in the Middle East and North African countries by 2025.
35. *Renewable Energy:* Despite a considerable potential for use of modern renewable energy technologies, such as wind and solar power, renewable energy still plays a marginal role in most Arab countries, at 4 percent of TFC in 2014, including biomass. Its overall low contribution to the energy mix reflects the region's globally unparalleled reliance on non-renewable sources.