

INTERNATIONAL RENEWABLE ENERGY AGENCY

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Note of the Director-General

Renewable Energy and the UN Sustainable Development Goals (SDGs)

An outline of relevant IRENA work to-date

1. The Sustainable Development Goals (SDGs), adopted by the UN General Assembly in 2015, provide a powerful framework for international cooperation to achieve development objectives and a climate-safe future. The 17 SDGs, at the heart of “Agenda 2030”, define a path to end extreme poverty, fight inequality and injustice, and protect the planet. Sustainable energy is central to the success of Agenda 2030. The global goal on energy - SDG 7 - encompasses three key targets: ensure affordable, reliable and universal access to modern energy services; increase substantially the share of renewable energy in the global energy mix; and double the share of energy efficiency.

2. With its mandate on renewable energy, IRENA has an important role in supporting countries in the pursuit of the Agenda 2030. The Agency’s programmatic activities span across all regions, with a range of technology, economic and social advisory and knowledge products to support the transformation of the energy system.

3. IRENA has played a key role in relationship to the SDG 7 target to “increase substantially the share of renewable energy in the global energy mix”. As the SE4ALL renewable energy hub, exploring options for doubling the share of renewables in the global energy mix by 2030 has been central to IRENA’s work. The *Agency’s REmap* analysis provides an authoritative global roadmap to make this target a reality, and is accompanied by editions focused on the opportunities and needs of individual countries and regions. REmap finds that achieving a doubling is not only economically feasible, but often the lowest-cost option for providing energy in a sustainable manner.

Figure 1 Meeting multiple development objectives through affordable and clean energy



4. IRENA also has made a significant contribution to the SDG 7 target to “ensure affordable, reliable and universal access to modern energy services”. Through its *International Off-grid Renewable Energy Conference (IOREC)* platform, IRENA convenes key stakeholders to chart the course towards universal access to modern energy services by 2030. IRENA also provides state-of-the-art analysis to support policy makers in setting enabling conditions for accelerating deployment of renewable energy. IRENA’s recent report *Policies and Regulations for Private Sector Renewable Energy Mini-grids* analyses general and technology-specific policy and regulatory measures needed to support mini-grid deployment for expanding electricity access.

5. As countries look to simultaneously meet different development and climate objectives, renewable energy is best understood as part of a holistic strategy to promote economic prosperity, well-being and a healthy environment. In addition to SDG 7, IRENA's work also highlights the role of renewable energy solutions in directly and indirectly contributing to at least 12 other goals including:

- **SDG 2: Ending hunger, achieve food security and improved nutrition, and promoting sustainable agriculture.** IRENA has for long been examining renewables-based technologies for the agricultural sector. In its most recent report *Renewable Energy Benefits: Decentralised Solutions in the Agri-food Chain*, IRENA has analysed different renewable energy applications along the agri-food chain and associated socio-economic impacts in terms of food security, job creation, poverty reduction, and gender equality. IRENA's Policy Brief *Solar Pumping for Irrigation: Improving livelihoods and sustainability* explores how solar-powered pumping technologies can help improve yields, reduce vulnerability to changing rainfall patterns, and enable multiple cropping practices, all with the objective of stimulating socio-economic development in the agriculture sector helping the fight against poverty. IRENA's report *Boosting Biofuels: Sustainable Paths to Greater Energy Security* focuses on the sustainable use of biofuels, including the boosting of third generation fuels, and methods of increasing crop and residue yields for first and second generation fuels.
- **SDG 6: Renewable energy can also improve water security.** The energy sector relies heavily on water for energy extraction and production, accounting for 15% of water withdrawals globally. Solar PV and wind, the most rapidly growing technologies, consume up to 200 times less water than conventional options including coal, natural gas and nuclear.
- **SDG 8: Promoting sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.** IRENA's report *Renewable Energy Benefits: Measuring the Economics* uses econometrics to identify the real benefits of renewable energy on countries' economies, revealing that doubling the share of renewables in the energy mix by 2030 could not only increase global GDP, but also improve overall welfare and support over 24 million jobs in the sector. In its annual review *Renewable Energy and Jobs 2016*, IRENA further presents job creation trends in the renewable energy sector, showing that already today, renewable energy has led to job creation for over 8.1 million people worldwide. In June 2016, IRENA furthermore published its *G20 Toolkit for Renewable Energy Deployment: Country Options for sustainable growth based on REmap*, which sets out policy strategies from cost and developmental benefits brought about by renewable energy.
- **SDG 9: Building resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation; and SDG 11: Making cities and human settlements inclusive, safe, resilient and sustainable.** IRENA has done significant work in the area of final consumption, including in both urban and rural communities. In its forthcoming report *Renewable Energy in Cities*, IRENA highlights how renewable energy can become a critical component in the transition towards sustainable energy systems, including in urban areas with space constraints, high energy use density, and limited capital stock turnover, looking at solutions ranging from the direct deployment of renewable energy (e.g. biomass boilers, solar water heating) and production and delivery through (existing) networks (e.g. renewable electricity, H2 and synthetic gas, district heating and cooling based on renewable energy). In its working paper *The Renewable Route to Sustainable Transport*, IRENA examines ways to scale up renewable energy use in transport and improve the overall sustainability of the sector – helping curb greenhouse gas (GHG) emissions and urban air pollution.
- **SDG 12: Ensure sustainable consumption and production patterns; and 13: Taking urgent action to combat climate change and its impacts.** IRENA's work has demonstrated that doubling renewables in the global energy mix by 2030 is not only feasible, but cheaper

than not doing so. In its flagship publication *REmap: Roadmap for A Renewable Energy Future, 2016 Edition*, IRENA shows how scaling up renewable energy, coupled with greater energy efficiency, could help put the world on track to keep the rise of temperatures within 2°C, in line with the 2015 Paris Agreement. In its report *Letting in the Light: How solar photovoltaics will revolutionise the electricity system*, IRENA furthermore shows how solar PV power could help a large range of countries with different socio-economic contexts to save costs and provide their populations with secure, clean energy access.

6. Achieving the Sustainable Development Goal (SDG) on energy will transform the energy system while helping meet other SDGs such as for health, poverty alleviation, water and cities. Renewable energy solutions can expand electricity access, increase productivity, create jobs, improve water security and bolster poverty alleviation efforts. The wider sustainable development impact of renewable energy must be taken into account when strategies for the implementation of SDGs are developed.

Questions for discussion

Participants will be invited to discuss how the use of renewable energy can help countries and communities maximize sustainable development outcomes. Considering the cross-cutting nature of renewable energy in the context of Agenda 2030, participants may wish to share their national experiences in developing comprehensive SDGs implementation strategies and discuss ways in which IRENA can support these efforts, in particular to address interlinkages across SDGs.

Suggested readings

Boosting Biofuels: Sustainable Paths to Greater Energy Security (2016) [[Link](#)]

G20 Toolkit for Renewable Energy Deployment: Country Options for sustainable growth based on REmap (2016) [[Link](#)]

Letting in the Light: How solar photovoltaics will revolutionise the electricity system (2016) [[Link](#)]

REmap: Roadmap for A Renewable Energy Future, 2016 Edition (2016) [[Link](#)]

Renewable Energy and Jobs – Annual Review 2016 (2016) [[Link](#)]

Renewable Energy Benefits: Measuring the Economics (2016) [[Link](#)]

Solar Pumping for Irrigation: Improving livelihoods and sustainability (2016) [[Link](#)]

The Power to Change: Solar and Wind Cost Reduction Potential to 2025 (2016) [[Link](#)]

The Renewable Route to Sustainable Transport: A working paper based on REmap (2016) [[Link](#)]

Accelerating Off-grid Renewable Energy: Key Findings and Recommendations from IOREC 2015 (2015) [[Link](#)]

Renewable energy in the water, energy and food nexus (2015) [[Link](#)]

Water use in china's power sector: Impact of renewables and cooling technologies to 2030 (2016) [[Link](#)]