



# HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT

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## 2018 HLPF Review of SDG implementation: SDG 7- Ensure access to affordable, reliable, sustainable and modern energy for all

### Status of Progress on SDG 7

**Energy lies at the heart of both the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change.** Ensuring access to affordable, reliable, sustainable and modern energy for all by 2030 will open a new world of opportunities for billions of people through new economic opportunities and jobs, empowered women, children and youth, better education and health, more sustainable, equitable and inclusive communities, and greater protections from, and resilience to, climate change.

### **Urgent action is needed, however, to leave no one behind and to achieve Sustainable Development Goal 7 (SDG7) and consequently other SDGs:**

- **1 billion people currently live without electricity.** From 2000 to 2016, the proportion of the global population with access to electricity increased from 78 per cent to 87 per cent, with the number of people living without access to electricity dipping to just about 1 billion. If the current trends continue, there would still be 674 million people living without access to electricity in 2030. To reach universal access by 2030, the rate of access to electricity needs to improve 0.8 per cent every year.
- **3 billion people continue to lack access to clean cooking solutions.** Access to clean fuels and technologies for cooking has gradually improved to reach 59 per cent globally in 2016, up 10 percentage points since 2000. Even with this progress, however, almost 3 billion people are still cooking with polluting fuel and stove combinations. To reach universal access to clean cooking by 2030, the annual rate of clean cooking access needs to accelerate to 3 percent. If the current trajectory continues, 2.3 billion of the global population would remain without access to clean cooking in 2030.
- **Modern renewable power generation is expanding rapidly, but much greater efforts will be required in end-uses.** Rapidly falling costs and policy support have made solar and wind cost-competitive with conventional power generation





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sources in many places, making them account for over 50 per cent of annual global power capacity additions in recent years. However, total global renewable energy consumption increased only marginally to 17.5 per cent in 2015, from 17.3 per cent in 2014, reflecting lack of progress in use of renewables for transport and heating/cooling.

- **The global rate of improvement in energy efficiency has been accelerating recently.** During the period 2014-15, global primary energy intensity fell by 2.8 per cent, the fastest decline since 2010. However, energy intensity needs to improve at an annual rate of 2.7 per cent over the period 2016-2030, compared with the average rate of 2.2 per cent per year over the period 2010-15, necessitating a significant ramp-up in global policy ambition.

**SDG 7 remains within reach.** The good news is that advances in technologies, rapid cost declines, strategic shifts in policies, new business models and a growing number of best practices are accelerating the transformation of the energy systems in many places and bringing this goal within reach. To leave no one behind, we must capitalize on this momentum to mobilize greater political will and cooperation, together with higher levels of public and private investment in a sustainable energy future.

## Implementation

**Emerging experiences across countries and sectors provide valuable insights for accelerating global progress towards SDG7.** More encouraging than global trends are the strong gains evident within specific countries, across both the developed and developing worlds. Evidence is mounting that with holistic approaches, targeted policies and strengthened international cooperation, substantial gains can be made in clean energy and energy access that will improve the lives of billions of people to leave no one behind.

**Hopeful signs are seen in lagging regions, with off-grid solutions starting to make a difference to complement grid electrification.**

- ***The two regions with the furthest behind are increasing their electricity access rates*** over the period 2014–16 —reaching 86.7 per cent in Central Asia and Southern Asia and 43 per cent in Sub-Saharan Africa in 2016. The absolute access-deficit in Sub-Saharan Africa peaked in 2015 at 595.3 million people and began to fall for the first time by 28.5 million people in 2016.





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- **Off-grid solutions are emerging as an important driver of rural electricity access.** Emerging evidence suggests off-grid solar electricity reaches about 141 million people in rural areas in the developing world, complementing grid electrification. Uptake is highly concentrated in about a dozen pioneering countries.
- **Affordability remains a key concern.** Estimates suggest that, even in countries with universal access, affordability concerns affect about 30 per cent of the population; in countries working toward universal access, affordability affects 57 per cent of those who already have access.

## Success stories are few and far between in the area of clean cooking:

- **While parts of Asia have seen access to clean cooking outpace growth in population, in Sub-Saharan Africa, gains have only been marginal,** with the region's overall population growing four times faster than the population that gained access to clean cooking technologies between 2014-2016.
- **The need for rapid deployment of clean cooking fuels and technologies has not received the political attention it deserves,** even in spite of the smaller costs needed to ensure clean cooking solutions for all compared to electrification. High entry costs for many clean cooking solutions, a lack of consumer awareness of their benefits, financing gaps for producers seeking to enter the market, slow progress in the innovation of clean cookstoves, and lack of infrastructure for fuel production and distribution have together kept widespread solutions to this challenge out of reach.

## Progress on renewable electricity is not yet matched by heating and transport:

- **Significant progress is seen in several countries.** China alone accounted for nearly 30 per cent of absolute growth in renewable energy consumption globally in 2015. Brazil was the only country among the top 20 largest energy consumers to substantially exceed the global average renewable share in all end uses: electricity, transport and heating. The UK's share of renewable energy in total final energy consumption grew by 1 percentage point annually on average since 2010 – more than five times the global average over the same period.
- **Much greater efforts will be required in end-uses, such as heating/cooling and transport** – which together account for 80 percent of global energy consumption and where renewable penetration remains low yet unexploited potential exists.





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One avenue would be greater adoption of district energy systems (for heating or cooling) based on biomass, geothermal or solar thermal energy. As the electricity sector decarbonizes, other energy uses can increasingly switch into electricity, such as electric vehicles.

- ***Sustaining the growth of renewable electricity will further require additional attention to grid integration issues***, including the incorporation of battery storage and smart grid technology to support management of variable generation resources.

## There is growing evidence of the de-coupling of growth and energy use:

- ***Global gross domestic product (GDP) grew nearly twice as fast as primary energy supply in 2010-15.*** In fact, economic growth outpaced growth in energy use in all regions, except for Western Asia, and in all income groups.
- ***Improvement in industrial energy intensity, which is the largest energy consuming sector, was particularly encouraging***, at 2.7 percent per annum since 2010. However, progress was more modest elsewhere, such as in transportation, residential energy consumption, and power generation, transmission and distribution.
- ***Energy efficiency policies remain to be systematically adopted in many countries.*** Building codes for residential and commercial facilities should include energy performance standards for new construction and major renovation. It would be important to adopt ambitious cross-sectoral integrated policy approaches that promote stretch improvements through targets or fiscal incentives, as have been applied with some success in China and Europe.

## Financing for SDG 7 will need to double globally:

- ***Financing for SDG currently stands at level of about US\$ 500 billion per year, while US\$ 1 to 1.2 trillion per year until 2030 will be needed to achieve SDG 7.*** Investment is not spread equally, with developed countries and some middle-income countries accessing finance, but many developing countries left out.
- ***The financing requirements for universal electrification are estimated at US\$ 52 billion per year to 2030***, primarily needed for India and sub-Saharan Africa. To date, nearly all investment has been directed to grid expansion, with donor financing accounting for 55 per cent of total investments in 2013. Financing for private





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sector off-grid solutions has started to take off, albeit from a low base, in particular for pay-as-you-go solar home systems.

- **The financing requirements for universal access to clean cooking solutions are estimated at US\$ 4.4 billion per year to 2030.** Yet, the current level of funding is negligible: only about US\$ 240 million in 2014, according to one estimate. Private finance in this sector is very limited.
- **Renewable energy financing requirements are estimated at US\$ 442 to 650 billion per year until 2030.** Actual renewable energy investment was US\$ 263 billion in 2016. Developing countries accounted for 48 per cent of 2016 investment, with China the biggest recipient. Globally, 90 per cent of renewable energy investment in 2016 was financed by private sources.
- **Energy efficiency financing requirements to meet the SDG 7 target are estimated at US\$ 560 billion per year to 2030.** Overall energy efficient investment was US\$ 231 billion in 2016, with energy efficient measures in buildings accounting for close to 60 per cent.

**Advancement in SDG7 has the potential to spur progress across SDGs** on poverty eradication, gender equality, mitigation of and adaptation to climate change, food security, health, education, sustainable cities and communities, clean water and sanitation, jobs, innovation, transport, and refugees and other situations of displacement. To realize this opportunity, closer cross-sectoral cooperation is needed at all levels between actors and decision makers.

- **Access to clean fuels and technologies has the potential to save millions of lives each year.** Household air pollution resulting from the inefficient use of clean fuels and technologies for cooking alone is responsible for some 4 million deaths annually.
- **Effective action towards a low-carbon and climate-resilient energy system is essential for achieving the objectives of the Paris Agreement and the 2030 Agenda.** The energy sector accounts for roughly two-thirds of all anthropogenic greenhouse-gas emissions.
- **Globally over 291 million children go to primary schools without any electricity.** Sub-Saharan Africa has the lowest rate with 35 per cent, followed by South Asia with 48 per cent.





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- **The clean energy transition generates jobs.** The renewable energy sector worldwide employed 9.8 million people worldwide in 2016. Energy efficiency and renewable energy are creating more jobs than the fossil fuel industry, enabling net employment gains.
- **Energy and water are closely interlinked and interdependent.** If we continue with business as usual, it will be impossible to meet the simultaneous huge increases in water and energy demands in the next decades. The inextricable linkages between these two critical resources requires a suitably integrated approach.
- **Cities globally consume up to 75 per cent of energy, and are responsible for 70 per cent of greenhouse gas emissions.** Promoting sustainable cities requires coordinated multi-sectoral investments and integrated policies.

**Greater access to energy services can improve women's health and well-being, free up their time and enable their economic empowerment.** Women and children without clean cooking access spend an average of 1.4 hours/day collecting fuel. In order to enhance the effectiveness of actions under all SDGs, there is the need to ensure that all elements of energy planning and policy-making factor in gender dimensions and actively advance women's leadership at all levels.

**Special attention should be placed to those countries who are lagging the furthest behind and who are the most vulnerable, namely LDCs, LLDCs and SIDS.** The rates of access to electricity in LDCs, LLDCs and SIDS stood at 44.8 per cent, 53.1 per cent and 76.3 per cent respectively in 2016. Investing in sustainable energy in these countries will have a significant positive impact across different SDGs in the true spirit of leaving no one behind, which is the aim of the 2030 Agenda.

**Strengthened capacity-building is necessary to ensure effective implementation of SDG7.** Across countries, a wide variety of capacity-building strategies and activities have been used to promote access to clean energy, and a wider deployment of energy efficiency and renewable energy technologies and services. These lessons need to be synthesized to provide a solid basis for scaling up capacity building efforts, including on enabling frameworks, technology cooperation, investment measures, technical know-how transfer and training of staff.

**Energy technology innovation is accelerating at a historically unprecedented pace.** It is driven by a convergence of forces that are reshaping the electric power industry (including climate change, the need for resilient infrastructure, increasing stress on





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resources, and decentralized supply). Innovation has helped enable dramatic reductions in the costs of key renewable energy technologies, although driven mainly by economies of scale. For example, solar photovoltaic (PV) module prices dropped by over 80 per cent over the past seven years, and the global weighted average levelized cost of electricity (LCOE) fell by 73 per cent to US\$ 0.10/kWh in 2017. Significant further innovation is needed, however, in all aspects of the energy system if we are to markedly accelerate the energy transition, achieve the SDG 7 targets and meet the Paris Agreement on climate change.

**Sustained efforts are needed to improve data quality and availability.** One key area of focus is to improve the coverage and precision of household survey questionnaires to more accurately reflect the nature and quality of service for electricity and clean cooking. Current indicators do not make it possible to capture the affordability and reliability dimensions emphasized by SDG7. The off-grid solar revolution is making it increasingly challenging to accurately reflect trends in rural electrification. Equally important is to strengthen statistical capacity to produce accurate energy balances, particularly in the developing countries, where many challenges remain in capturing, for instance, the traditional uses of biomass. There is still relatively little information on the energy efficiency of major consuming sectors outside of the major economies that is critical to inform policy interventions.

## Recommendations for action

**All stakeholders must step up and focus their efforts in support of SDG 7 to leave no one behind.** The multi-stakeholder SDG 7 Technical Advisory Group convened by UN DESA has proposed a Global Agenda for Accelerated SDG 7 Action as a foundation for concerted action by all stakeholders in support of SDG 7, recognizing the special challenges facing those countries that are most vulnerable and the furthest behind, including least developed countries, small island developing States and land-locked developing countries. Key elements of the Global Agenda for Accelerated SDG 7 Action are presented below.

### I. Advancing SDG 7 implementation

- **Make clean-cooking solutions a top political priority**, and put in place specific policies, cross-sectoral plans and public investments, supported by renewed game-changing multi-stakeholder partnerships.
- **Close the electricity access gap** by establishing detailed plans of action nationally,





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regionally and globally to “leave no one behind”, backed by determined leadership, targeted policies and regulations, multi-stakeholder partnerships, bottom-up actions and increased investment in both on- and off-grid solutions. Cross-border grid connections, on-grid renewable energy solutions and decentralized options will all be required to respond to the differing needs of countries and regions.

- **Accelerate the pace of transition towards renewable energy**, especially in end-use sectors such as transport, buildings and industry, to combat climate change and realize substantial economic, health and environmental benefits.
- **Harness the potential of decentralized renewable energy solutions**, which are key to universal energy access and empowerment of people, companies and communities.
- **Scale up investments in energy efficiency across all sectors of the economy**, supported by well-designed, evidence-based policies, as well as by regional, national and local action plans.
- **Double the financing for SDG 7 globally**, from the current annual level of about US\$ 500 billion to US\$ 1 to 1.2 trillion per year until 2030.
- **Scale up capacity-building and education**, with renewed, cross-sectoral approaches, to develop human and institutional capacities and required skills in support of universal energy access and energy sector transformation.
- **Enhance innovation systems, including research, development, deployment and diffusion** in the design and operation of the whole energy system, and especially in the end-use sectors of transport, industry and buildings.
- **Invest in data collection systems and data analysis** to build institutional capacities at the national level and ensure effective monitoring of the SDG 7 targets, including, as needed, through improved, policy-relevant indicators.

## II. Strengthening interlinkages between SDG 7 and other SDGs

- **Harness the potential of cross-sectoral interlinkages to maximize multiple benefits and synergies** by promoting energy as an enabler for all the SDGs. Special attention should be given to the interlinkages between energy and poverty eradication, reduction of inequalities, gender equality, jobs, climate change, food security, health, education, clean water and sanitation, sustainable cities and communities, innovation, transport, industrialization, peace and security, refugees and other situations of







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displacement.

- **A unified approach is required to achieve SDG 7 and meet the goal of the Paris Agreement simultaneously.** Decarbonization of the world's energy systems and attainment of the targets of SDG 7, including ensuring universal access to modern energy by 2030, are mutually reinforcing and must be advanced at the same time.
- **Integrate gender equality and women's empowerment into all energy actions** to advance the SDGs.
- **Promote sustainable and low-carbon cities** with reliable and affordable public transportation systems, energy-efficient built environments and significant shares of their energy needs met by cleaner energy sources.

### III. Addressing regional priorities

- **Strengthen cooperation at the regional level** to promote innovation and facilitate financing; support regional cross-border power grid connectivity to enhance energy security, advance economic integration and sustainable development; and share best practices that are responsive to regional needs regarding SDG 7 and its interlinkages with other SDGs.
- **Prioritize ending energy poverty in the most vulnerable countries.** Investments (by all stakeholders) in sustainable energy in these countries will have a significant positive impact across different SDGs, and exemplify the true spirit of leaving no one behind. The most vulnerable countries—in particular, African countries, least developed countries, landlocked developing countries and small island developing states—deserve special attention, as do countries in situations of conflict or post-conflict.

### IV. Accelerating transformation towards a sustainable, inclusive and equitable energy future

- **Promote transformational investments** in developing sustainable, inclusive and equitable energy systems, including by strengthening energy systems through cross-border grid connections and fully incorporating decentralized renewable energy solutions in energy planning, while recognizing that energy transition will take different paths in different parts of the world. Promoting such a transformation will require multiple and multifaceted actions by all actors, including a concerted, multilateral approach that paves the way for advancing universal energy access through decentralized solutions, while at the same time advancing the Paris





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Agreement.

- **Transform human behaviour from energy-intensive lifestyles to more sustainable patterns**, promoting technological and institutional changes that would result in adequate food, clean water, better education and reduction of poverty and gender inequalities, together with reductions in air pollution and greenhouse gas emissions.
- **Strengthen decision-making processes by reinforcing improvements in energy data collection, indicators and monitoring efforts**, adopting, as needed, a broader range of forward-looking indicators on energy for sustainable development, including interlinkages indicators (e.g., energy-health and energy-jobs).
- **Harness the power of all stakeholders to drive change** through advocacy, capacity-building, mobilization and collaborative action, including businesses, civil society, women and youth.

**Turning the Global Agenda into action requires increased international cooperation among all stakeholders** on specific, strategic, bold and time-bound plans of action and partnerships, including through facilitation of efforts by the UN Secretariat including the UN Regional Commissions and in coordination with the UN development system, international organizations, multilateral development banks, businesses, civil society and other stakeholders. UN-Energy should be strengthened to increase coherence and coordination across UN system and collaboration with multi-stakeholders. Future global milestones, such as the High-Level Political Forum, the UNFCCC Conference of the Parties, and the Secretary-General's Climate Change Summit 2019, present key platforms for sharing lessons and inspiring further actions in support of SDG 7. The UN Decade on Sustainable Energy for All 2014–2024 should also be leveraged to strengthen leadership-level engagements, share plans, programmes and lessons, and catalyse action, partnerships and resources globally. Efforts of the multi-stakeholder SDG 7 Technical Advisory Group should continue to be strengthened and leveraged to support such efforts.

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