

# MAINSTREAMING RENEWABLES: GUIDANCE FOR POLICY MAKERS

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The universal nature of energy was emphasised in the international political sphere in 2015. In September 2015, the United Nations General Assembly adopted the Sustainable Development Goal on ensuring access to sustainable energy for all (SDG 7). Furthermore, 195 countries adopted the Paris Agreement to address climate change in December 2015, committing to increasing renewables and energy efficiency as part of the goal to limit global temperature rise to 2 degrees Celsius above pre-industrial levels.

There is a clear link between environmental protection, poverty reduction, economic growth and technology development, **and this work on cross-cutting issues cannot be done in silos.** In order to meet the agreed targets, it will be necessary to work across the various domains, including increasing dialogue, using multi-stakeholder approaches and cross-cutting educational programmes, and supporting interministerial collaboration. National budgeting structures also must contain cross-cutting aspects, and finance (and potentially other) ministries must be included in climate and energy decision-making processes alongside energy ministries.

Outside of the political sphere, civil society demonstrated its overwhelming support for a transition to renewable energy, including through the Pope's environmental encyclical and the Islamic, Hindu and Buddhist declarations on climate change, all of which called on communities of faith to commit to a zero- or low-carbon future. Pressure also is being placed on the more-reluctant energy sector players. Even shareholders in fossil fuel companies increasingly are pushing for the companies to become 'greener'. The private sector is taking advantage of the falling costs of renewable energy technologies, and new initiatives have emerged that include both public and private sector actors, acknowledging that all have a role to play in the energy transition.

In parallel, increasing energy access for the 1.2 billion people without access to electricity is an international priority. In order to meet the target of limiting global temperature increase to below 2 degrees Celsius, while at the same time increasing energy access, **remaining fossil fuel reserves will have to be kept in the ground, and both renewable energy and energy efficiency will have to be scaled up dramatically.**

## LEVEL THE PLAYING FIELD

**Fossil fuel subsidies have to be phased out,** as they distort the true costs of energy and encourage wasteful spending and increased emissions. Fossil fuel subsidies also present a barrier to scaling up clean energy by: decreasing the costs of fossil fuel-powered electricity generation, thereby blunting the cost-competitiveness of renewables; creating an incumbent advantage that strengthens the position of fossil fuels in the electricity system; and creating conditions that favour investments in fossil fuel-based technologies over renewables.<sup>i</sup> Fossil fuel subsidies were estimated to be over USD 490 billion<sup>ii</sup> in 2014, compared with subsidies of only USD 135 billion for renewables.<sup>iii</sup>

**Policy design should financially discourage investments in fossil fuels and nuclear, while also removing risk from investments in renewable energy.** This is crucial for scaling up renewables, which can help close the energy access gap. Although there has been some divestment from fossil fuels and advances in renewable energy investment, fossil fuel and nuclear investments continue to be favoured over clean energy in many instances, particularly when short-term gains are the primary consideration and long-term thinking is discounted. This can occur when politicians think only in terms of the next election cycle, or when companies attempt to provide shareholders with quick returns. Furthermore, fossil fuels are more institutionalised and have long-standing, well-financed lobbies.

Conversely, renewables are still less known and often suffer from negative images and messages that are widely communicated, such as the idea that incorporating large shares of renewables is unrealistic due to variability, or that renewables are too expensive. Simultaneously, renewable energy policy changes and uncertainties undermine investor confidence, inhibiting investment and deployment in some markets. Investors consider all of these factors in their decision making, as do insurers (demonstrated by the increasing presence of insurance addressing climate change risks). Likewise, **policy makers should think on a long-term basis in order to increase investment in clean energy and advance the energy transition in their countries.**

## THINK BEYOND THE POWER SECTOR

**More emphasis needs to be placed on strengthening the role of renewable energy in the heating and cooling and transport sectors, as well as on sector coupling.** Policy support for the use of renewables in these sectors has advanced at a much slower pace over the past 10 years than it has in the power sector; currently renewable heat obligations exist in only 21 countries and biofuel mandates exist in only 66 countries, compared to 114 countries with renewable energy regulatory policies in the power sector. Not only should policy support for renewables increase in general, but interaction among the three sectors also needs to increase, and national policies should strengthen local capacity, particularly in the heating and cooling sector due to its distributed nature and to its large reliance on local resources.

**Policy makers need to remove barriers that are preventing the increased share of renewables in heating and cooling and transport.** Current policy initiatives in both sectors are not sufficient to drive the transition from fossil fuels. Policies in the heating and cooling sector, in particular, have not progressed, although heat represents nearly half of annual final energy consumption. To resolve a structural problem of this magnitude, both supply- and demand-side barriers to increasing the use of renewables in both sectors must be addressed, such as lack of trained personnel, costs to retrofit or upgrade, lack of awareness

or knowledge of renewable alternatives, reluctance to change and low consumer confidence. These barriers and others can and should be tackled through a suite of programmes and policy support options, including public awareness campaigns, training programmes and renewable energy incentive policies.

## PLAN FOR A DISTRIBUTED FUTURE

**It is imperative to plan proactively for a future with a higher amount of distributed energy generation.** There is a growing trend towards generation closer to the consumption point, and the use of distributed renewable energy is rising in both developing and developed countries. In developing countries, the use of distributed renewables is primarily a tool for increasing energy access, particularly in rural areas; in developed countries, it is in response to a demand for self-sufficiency and a desire for more-reliable electricity for those connected to the grid, with an increasing number of 'prosumers' emerging.

This change necessitates advanced planning that incorporates a transition to new business models and several policy incentives, while also taking into account the expansion of rooftop solar, decreasing storage costs, increasing energy efficiency measures, the development of community energy projects and the involvement of a new 'smart' technology industry. It also will require a scaling up of infrastructure investments to maintain and build out stable grid networks ready to integrate high shares of variable renewables.

**Comprehensive energy planning is needed to intensify research, development and deployment of enabling infrastructure for distributed resources,** including strengthened electricity networks, energy storage, demand response and flexible power plants. In industrialised countries, a change in existing infrastructure needs to take place; in developing countries, the concept of distributed resources should be taken into account in planning and investment, rather than defaulting to the traditional model of connecting everyone to a centralised grid. To provide proper guidance to decision makers, tools need to be developed that reflect these new renewable energy realities and changing business models, and that help to plan for the integration of distributed renewables in developing and developed countries alike. Rather than resorting to an 'either-or' mentality, off-grid and on-grid solutions can be pursued simultaneously.

**The private sector also should plan for a decentralised energy landscape,** as the rapid and exponential growth of renewable power generation and distributed resources comes with both opportunities and challenges, resulting in both winners and losers. In response to new competition and the disruption of traditional business models, some utilities and electricity suppliers are resisting change. Others, however, are repositioning themselves and taking advantage of the renewables opportunity by shifting more towards renewable assets and new markets and embracing the idea of a much more decentralised future power system, with less emphasis on fossil fuels.

## ADAPT TO THE NEW, COMPLEX ENERGY SYSTEM

**Systemic, cross-cutting approaches are needed for scaling up renewables.** Policies often have focused on a single sector, source or technology and were envisioned in the context of centralised power (infra)structures, which no longer reflects the reality of an increasingly complex energy system with increasing crossover and decentralisation. Planning should occur across sectors and across government departments and ministries; policy design should be performed in close dialogue between the public and private sectors; and policies at different levels of government should be complementary and reinforcing.

Scaling up renewables is often less a problem of finance, and more one of political will and of capacity; however, in many developing countries, policies and government support still are necessary to establish stable conditions, to ensure that finance can reach projects and to enable private investors to engage. In addition to robust policies that are adapted to the complexity of the new energy system, **strong leadership is necessary to advance the energy transition,** as ambitious policies require political support, skilled direction and a vision for the future.

To support systemic, cross-cutting approaches to energy, capacity needs to be built at both the political and the technical levels. **Training has to be made available for both current and future decision makers, but also to build up the technical workforce** to expand technological and economic solutions and to remove barriers that are standing in the way of the energy transition. Such training could include streamlining energy efficiency and renewable energy courses into university curricula, and interdisciplinary/intersectoral internships that link research, markets, business and the public sector.

**Additionally, renewables should be considered alongside energy efficiency and energy access.** Just as the energy transition cannot occur if all focus is on a single sector, it likewise cannot be achieved without increases in both renewables and energy efficiency. Greater synergies between the two are possible in all sectors, and strengthening measures for one often will, in turn, strengthen the other. To expand energy access, decision makers also must make use of both renewable energy and energy efficiency across all sectors. By building both renewables and efficiency into energy access policies and programmes from the beginning, available energy supply effectively can be increased, and more-reliable supply can be provided at a lower cost.

- i Richard Bridle and Lucy Kitson, *The Impact of Fossil-Fuel Subsidies on Renewable Electricity Generation* (Winnipeg, Canada: International Institute for Sustainable Development, December 2014), [https://www.iisd.org/gsi/sites/default/files/ffs\\_rens\\_impacts.pdf](https://www.iisd.org/gsi/sites/default/files/ffs_rens_impacts.pdf).
- ii International Energy Agency (IEA) estimates include subsidies to fossil fuels consumed by end-users and subsidies to consumption of electricity generated by fossil fuels. IEA, *World Energy Outlook 2015* (Paris: 2015), p. 96.
- iii The value of fossil fuel subsidies fluctuates from year to year depending on reform efforts, the consumption level of subsidised fuels, international fossil fuel prices, exchange rates and general price inflation, from *ibid*. See also "OECD-IEA analysis of fossil fuels and other support," <http://www.oecd.org/site/tadffss/>, viewed 3 March 2016. Subsidies for renewables in 2014 included USD 112 billion in the power sector and USD 23 billion for biofuels, from IEA, *op. cit.* this note, p. 27.