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Policy Brief

Virtual Parliamentary Roundtables 2020

1. Mini-Grids

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Executive Summary

In a world where **renewables are now the most affordable energy source**, reliable electricity and fuel without the negative effects of pollution and emission of greenhouse gases is available to all. Familes and children can have light in their homes to study, access to medicines requiring refrigeration and mobile telephone recharging, and communities have the opportunity to create small businesses to provide income generation. Many countries have started to implement policies and adopt legislation to harness renewable resources; water, sun, wind, geothermal and biomass — to produce electricity, heat and fuel. As the world moves towards adoption of renewable energy as a key source of energy production, **the role of parliamentarians has been and will remain critical in developing legislation required to create and deliver access to energy from renewable sources**.

Developing a country's national renewable resources will create access to energy that is inexhaustible, thereby reducing a country's reliance on foreign resources and strengthening its energy security. Moreover, whether used on a mass scale to power a city, or on a small scale to run a village mini-grid, renewables bring considerable health benefits by providing clean, safe energy without the negative impacts of fossil fuels.

Energy is central to the achievement of both 2030 Agenda for Sustainable Development and the Paris Agreement on climate change. **SDG 7 is within reach**, advances in technologies, rapid cost declines and policy shifts towards achieving SDG 7 will catalyse actions to combat climate change and reach other SDGs. The cost to produce renewable energy has fallen dramatically in recent years thanks to technological breakthroughs and economies of scale, and continues to do so. The greatest barrier to renewable energy development in many countries is the policy framework that regulates electricity, heating and transport fuel markets. It is common for an electricity market to be operated by a monopoly, often a state-owned utility, which is in full control of generation, distribution and the sale of electricity to consumers. This provides very little incentive for the development of alternative technologies. A related challenge is the bureaucracy that must regulate and approve the development of electricity generation (or heating or transport fuel). **The development of on-grid renewable energy can be substantially accelerated by ensuring the policy and legal framework is fully coherent and the decision process transparent**

Impacts of COVID 19

The ongoing COVID 19 outbreak is having widesrpead impact across the world including the energy sector. Parliamentarians and utilities are facing gaps in technical & funding requirements in order to keep essential services running, functional utilities are critical to reducing the imapact of the virus providing cold chain and light in health centers and laboratories, essential communicaitons for government employess and logistics. A reliable supply of electricity underpins these essential services.

As MPs are currently in the process of drawing up their requirements to counter the economic damage to the sector, this also presents **a valuable opportunity for parliamentarians to ensure clean technologies and sustainable energy transition are integrated into the planning process and sustainable energy policy.**

Key Messages to Policymakers

1. Firm high-level political commitments are Governments should set clear targets backed up by investment from all stakeholders, to ensure private sector involvement in energy access, the policy and regulatory framework should provide the right set of incentives, **an agreed price of electricity to provide return on investment**, risk coverage to private investors and alleviate barriers to unlock financing. Policies are needed to enable decentralised business models to flourish, including VAT removal on components and the creation of a clear regulatory framework, including for enabling mini-grid operators to create viable business cases.

2. To ensure effective implementation of energy-access plans, institutional and legal frameworks at the national level should clearly define the roles and responsibilities of public sector institutions, **streamline licensing procedures for mini-grids** and ensure adequate capacities. National electrification strategies and plans should mainstream off-grid renewable energy solutions and facilitate cooperation among actors.

3. Regulations are particularly important for renewable energy mini-grids in areas where governments have the dual role of ensuring economic viability while ensuring that tariffs are not too high for underserved communities. **With the right set of regulations in place and a guaranteed continued return on investment,** the arrival of the main grid, which is often seen as a major risk for mini-grid developers, can become an opportunity for developers and utilities alike. Off-grid renewable energy should be viewed as a job-creating opportunity, as it has the potential to create millions of jobs

Action Orientated Policy for Mini-Grids

Mini-grids play a particularly important role in providing the transformational energy access that is central to reaping the full development benefits of electrification in Least Developed Countries, however, the circumstances of LDCs also give rise to particular obstacles to decentralized generation that are often overlooked, the following project selection criteria are often critical to project success;

- Revenue for the mini-grid
- Ability and willingness to pay bills
- Community participation
- Regulatory framework
- Local capacity building

While many of these issues also apply, to some degree, to centralized systems, they are accentuated in the case of decentralized systems. If the immense developmental potential of electrification through decentralized systems in LDCs is to be unleashed, measures to address these challenges will be a high priority however critically the challenges and the solutions vary greatly from region to region. The following points are particularly relevant in the African context:

Mainstreaming off-grid solutions: Kenya's national rural electrification strategy

In December 2018, the Kenya National Electrification Strategy was launched to provide a roadmap to universal access to electricity by 2022. Based on a geospatial analysis, the strategy identifies least-cost options to expand electricity access to the remaining 14 unelectrified counties. In this effort, off-grid renewable energy solutions will play an important role, leveraging in part the pay-as-you-go revolution that is underway in Kenya for the deployment of stand-alone solar home systems. Universal access to electricity is a key requirement to meet Kenya's goal, expressed in Vision 2030, Source: Willuhn, 2018,

- The importance of putting in place coherent policies and an enabling environment to leverage limited public resources, and sound policy framework: cost-covering tariffs, permits, concessions
- Addressing data gaps and reliability
- Developing in-country human and institutional capacities, particulalry tendering & procurement
- Ensure that climate resilience is fully integrated into the planning and implementation of energy infrastructure and investments
- Promote sharing of good practices and experiences with off-grid systems
- Systematically prioritise energy efficiency across all sectors
- Promote investments in strengthening the grid for greater efficiency and increased penetration of variable renewable power, and promote cross-border interconnections to accelerate access to electricity
- Promote local content enhancement across the full renewable energy value chain

More than half the population in rural Nigeria lacks access to electricity.

The Rural Electrification Strategy and Implementation Plan aims to utilize both on- and off-grid solutions to redress this situation. The plan highlights the importance of community and privately owned mini-grids for expanding electrification. A set of regulations for mini-grids was released by the Nigeria Electricity Regulatory Commission (NERC), providing tailored regulatory guidance for systems under 100 kW, between 100 kW and 1 MW, and interconnected mini-grids. **Some key design features of the regulation are as follows:**

Establishing dedicated mini-grid policy and regulatory frameworks: **The case of Nigeria**

1. **Licensing and legal provisions**. For mini-grids with a distributed capacity above 100 kW and an installed capacity of less than 1 MW, obtaining a permit is mandatory. For mini-grids with a distributed capacity below 100 kW, registration with NERC is sufficient. Meanwhile, interconnected mini-grids (up to 1 MW generation capacity) are eligible for permits in underserved areas.

2. **Tariff setting.** Registered mini-grid companies with a distribution capacity under 100 kW are allowed to set their own tariffs. Mini-grid operators that apply for a permit must use a standardized tariff calculation tool approved by the NERC. For interconnected mini-grids, the developer, distribution company and the community must reach agreement on the retail tariff, rights to use the network infrastructure and the tariff for electricity generated by the mini grid and fed into the distribution companies' network.

3. **Arrival of the main grid.** Mini-grid operators holding a permit are guaranteed compensation on arrival of the main grid. They may either convert to an interconnected mini-grid or sell their assets at the depreciated price, plus 12 months of revenue. Nigeria was one of the eight jurisdictions analysed in IRENA's Policies and Regulations for Renewable Energy Mini-grids (November 2018). Others include Cambodia, Indonesia, Peru, Rwanda, Sierra Leone, the United Republic of Tanzania and Uttar Pradesh (India). The report captures the evolution of the mini-grid policy and regulatory landscape, highlights emerging trends and draws lessons. Source: IRENA (2018d); NERC (2016).

Asking the Right Questions,

How Parliamentarians Can Make a Difference

To what extent are we meeting the population's energy needs? What percentage of the population remains without secure energy access? What do projections indicate with regards to future energy demands? Will we be able to meet growing energy needs with our current generation capacity? Is an action plan in place for development of renewable energy technologies, have official renewable energy targets been adopted and can these targets be met on time? How much added capacity do we expect to need, and what strategies are in place to secure this?

Such questions require technical expertise beyond the scope of your work as a parliamentarian, but parliamentarians can push forward this process by taking a number of actions:

1. What research has been done to explore the potential of renewable energy development? What does this research project in terms of potential generation capacity, costs and so on? Commissioning research and impact studies can go a long way towards convincing your fellow parliamentarians, and relevant government officials, of the potential of renewable energy development.

2. Considering best practices. With renewable energy development significantly on the rise, countless examples exist for governments to draw on. With the assistance of CSOs, experts and parliamentary networks, parliamentarians can collect pilot projects and best practices that might be replicated in their own countries and constituencies.

3. Initiating cross-party cooperation. Parliamentarians achieve more when working together than when working independently. Beyond working on a dedicated Energy or Development Committee, you could join forces with like-minded peers to facilitate parliamentary support for renewable energy development

4. Organizing committee hearings. If you sit on the Energy or Development committee, consider organizing a hearing that allows for experts, civil society organizations and citizens to speak to the potential of developing renewable energy sources.

5. Directly introducing draft legislation that promotes a clear set of policy recommendations. This may or may not result in the adoption of the proposed law, but it will, at the very least, present a concrete option that will spur debate and discussion on the issue of renewable energy

Links to associated documents

The mini-grid sector: benefits and challenges

https://fbcc4b02-f80e-4ea5-a2c3-7340d3d786b2.filesusr.com/ugd/67825b_586c5213d22744b98ca7f1fd2224bc1b.pdf

Benefits of Renewable energy based Mini-grids

- Affordability
- Income-Generation and job creation
- Environmental and social benefits

Challenges faced by investors in renewable energy mini-grid development

- Technology choices and technical capacity
- Policy and Regulatory framework
- System financing and risk management

Business Models utilized for rural mini-grids