Promotional Policies and Legislative Support for Grid-Connected Renewable Energy Projects

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EXECUTIVE SUMMARY

Renewable Energy Sources-Based Electricity (RES-E) plays a key role in sustainable development – of meeting current energy demands, without adding to global warming concerns. However, as of 2017, only 8.5% of the total electricity generation came from RES-E. To boost this contribution, countries rely on strong legislative and policy support/tools. This case focuses on studying the legislative or regulatory frameworks put in place by the top three developed countries, and compares it with three developing countries, each of which are forerunners in RES-E, as of 2017. The comparative study suggests that while no single policy can be credited with the success behind rising RES-E in these countries, two key incentives are most important – namely feed-in-tariffs and renewable purchase obligations. Feed-in-tariffs act as floor price guarantee to the generator and renewable purchase obligations assures the generator of quantum of sale of the RES-E generated. When combined, these two incentives remain the most trusted policy tools even today for countries starting their journey in increasing their RES-E footprints.

BACKGROUND INFORMATION

The future will either be green or not at all - Sir Jonathon Porritt, British environmentalist and writer.

The world has been and continues to be dependent on fossil fuels to meet its energy and electricity demands. Coal (30%), oil (33%) and natural gas (24%) together account for 85% (approximately) of total energy consumption in the world (World Energy Council [WEC], 2016). The resultant rise in carbon emissions, are now a matter a grave concern, the world over. Between 1990 and 2015, carbon emissions from fuel combustion have increased from 14 million tons to 32 million tons, recording an increase of 57.5%. The International Energy Agency (IEA) estimates that close to 42% of this increase has been brought about by electricity generation (based on fossil fuels) to meet lighting, heating and cooling demands, and another 24%, can be attributed to the use of fuels for transportation needs (International Energy Agency [IEA], 2017). Research dating back to the early 2000's found that higher uses of non-green energy forms which cause carbon emissions, have led to increasing temperatures, a problem now widely described as "climate change". Increased mortality and a fall in crop yields, thereby affecting food availability for humans, are some of the most common results of climate change (Usikalu, 2009). Additionally, increasing the footprints of coal fired power plants seriously damage not only adult health, but also impair the growth patterns in children (Perera, 2017). Rapidly increasing air pollution, direct and indirect effects of warmer temperatures, associated health hazards in adults and children, rising oil prices that result in higher expenditures for oil importing countries- all of these factors have led to serious considerations of adopting greener and cleaner forms of energy.

Penetration of Renewable Energy Sources (RES) has been the highest in grid connected electricity generation. The share of RES in total electricity generation has steadily increased from 1.5% in 2001 to 7.5% in 2016, globally (Statistical Review of World Energy, 2018). Of great success has been solar energy and wind energy, amongst other sources, with solar and wind capacity installations, measured in Megawatt (MW) growing at 44%, and 20% respectively, during the same period.

According to data from International Renewable Agency (IRENA), a total of 164 countries around the world had instituted renewable energy targets as of 2015. Within these, 150 countries have adopted specific goals for Renewable Energy Sources based Electricity (RES-E) generation. Due to at least in part to many such incentives, RES-E footprint has increased from 3500 Giga-watt-hours (GWh) in 2007 to 5885 GWh in 2017, globally, marking an increase of approximately 60%