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POLICY BRIEF

Policy and Regulatory Incentive Structure for Off-grid Renewable Energy Sector in India

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Highlights

- Lack of regulatory compliance for the off-grid renewable energy sector results poor safety and security standards
- Existing incentive structure for the sector is sporadic and piecemeal in nature, often embedded with the large-scale renewable energy systems
- Coalescing incentive structures of the sector with the large sized renewable energy projects often generates disincentives
- Regional clustering approach could act as an effective solution
- Higher educational institutes have a critical role to play in understanding the complexities of instruments better

I. Introduction

Looming threats of climate change are increasingly becoming a reality and have significant growth implications for many key sectors of the economy. Given the complex and intricate nexus between the energy sector and climate change and recent efforts to decouple this nexus, energy sectors worldwide have experienced major transformations. This transformation is often echoed in the form of 'sustainability transitions' and has gained ground and effected through sustainable modes of production and consumption. One key dimension of this transition is effected through sustained efforts put up by countries to decarbonise the sector by decoupling the growth of energy from its adverse impacts on climate change. Because of this thrust on decarbonisation, the contours of energy sector are reconfigured and the sectoral growth trajectory of the energy sector is being redefined. Technological innovations, introduction of new technologies are major contributors to make this transition happen. These technological transformations, in many cases are

disruptive in nature and have significant bearings on the form of energy generation, and storage, energy consumption, use, distribution and the mode of energy deliveries. Off-grid renewable energy technologies, has heralded a new era as an emerging technological option shaping this transition and have become instrumental in defining the sustainable transition pathways for the sector. Though the idea of off-grid renewable energy is not new to India, it has received a renewed thrust and nomenclature and has become imperative in the concurrent times of transition.

To embrace this paradigm change and to transit to a more sustainable energy regime, a host of policy measures have been undertaken from time to time by the energy policy makers in the country. This is in tune with the prevailing understanding that there exist very strong nexus between policy instruments and technological change (Rogge and Reichardt, 2016). Given the constitutional recognition of energy as a 'concurrent item' in India, policy measures are spread out vertically both at federal level as well as at the provincial level, and horizontally across different provinces. This also has created a governance setting characterised by the presence of multiplicity of organisations and institutions at all the levels of governance (Mishra et al, 2016). Given the kind of federal political setting, the energy sector governance in India has become complex and intertwined. On the top it, there have been a host of policy and regulatory instruments being tried out in the country in the domain of off-grid renewable energy sector at all levels of governance. While assessing the effectiveness of these instruments present in the sector at all levels of governance is a herculean task, this brief makes a modest attempt to map the key policy instruments present at the federal scale in the domain of off-grid renewable energy sector and identifies the gaps in the prevailing regime.

I. The state of affairs

There exists a pluralistic interpretation of 'what constitutes policy instruments and how to classify it'. A standard basic approach of classification constitutes three-fold grouping of instruments such as 'regulations', which are prohibitory in nature often called as 'sticks', 'economic means' often called as 'carrots' and the third one is 'information' called as 'sermons' (Vedung, 2010). Regulatory instruments, which are prohibitory in nature, are characterised as legal, enforceable, and more of command and control types (Timilsina and Dulal, 2009). One such measure is setting standards for the sector often called regulatory standards. A detailed scrutiny of standards for the sector reveals that the technical requirements and quality standards (MNRE, 2016) are set at the federal level. For instance, MNRE from time to time spells out various technical standards for the sector. The Draft National Renewable Act 2015 speaks of technical and safety standards and quality

standards. Similarly, the Draft National Policy on RE based Mini/Micro Grids declared by MNRE also prescribes adhering to various technical standards while deploying mini-grids and micro-grids. The technical regulator of the country i.e. Central Electricity Authority (CEA) also sets technical standards for the sector (MNRE, 2016). In addition to it, specific off-grid programmes declared by the government of India spell out technical standards for various off-grid technologies. For instance, JNNSM Guideline debars use of complete imported PV systems for the off-grid solar sector (MNRE, 2010). Minimal technical requirement and quality standards with respect to off-grid SPV plants are specified in the Guideline too (MNRE, 2010). Besides, several provincial governments also make provision of standards for the sector. For instance, 'Uttar Pradesh Electricity Regulatory Commission (UPERC) Regulations for Supply and Generation of Power from Renewable Energy based Mini-grids' outlines the technical standards and safety measures for new as well as existing mini-grid projects. Another set of standards constitutes standards related to safety and security. The Indian electricity reform act i.e. the Electricity Act 2003 itself specifies several aspects of safety and security standards related to the off-grid energy sector development. Section 53 of the Act specifically talks about safety and security standards to be adhered by the project developers. The aforementioned section assigns the role of safety and security standards to the appropriate authorities and respective state governments to take care of safety and security issues associated with the generation and distribution of electricity. Apart from the above, certain other regulatory instruments such as FDI permits for the sector through automated routes, withdrawal of prior approval requirements to infuse foreign investment act as stimulants for the sector.

Under the umbrella of fiscal and financial instruments, a host of fiscal and financial incentive structures are in place to accelerate the off-grid renewable energy in India. A major type of fiscal incentives comes in the form of provision of subsidies. Subsidies come in varying forms such capital subsidies, operational subsidies, and interest subsidies. All of these serve different purposes. In most of the cases, 90 % of the benchmark capital cost is subsidised. The interest subsidies are channelled through non-banking financial institutions and scheduled commercial banks like National Bank for Agriculture and Rural Development (NABARD). Along with this, operational subsidies are designed to ensure that the projects are sustained for longer period of time. In most of the cases, operational subsidies are given for a minimum period of two years or a maximum period of five years. In addition to it, banking systems are being incentivised to consider lending to renewable energy as a priority sector lending. Soft loan schemes are designed to provide loans at cheaper rates to investors. Green field banking licensee by the Central Bank of India i.e. RBI acts as a propeller for the private investors to foray into the sector. Besides, some other fiscal incentives are also provided in the form of tax holidays, tax concessions etc. Excise

duty and VAT exemptions on equipment and solar panels have propelled the sector's growth. Most innovative latest scheme is the viability gap funding (VGF) for the off-grid energy projects. Government has earmarked separate funding under viability gap for the promotion of off-grid energy sector. Apart from the above, a certain amount of funds from the National Environmental Fund (NEF) has been earmarked for the sector benefitting the off-grid renewable sector as well. In addition, India also proposes to create Clean Energy Equity Fund (CEEF) to attract private investors into the sector.

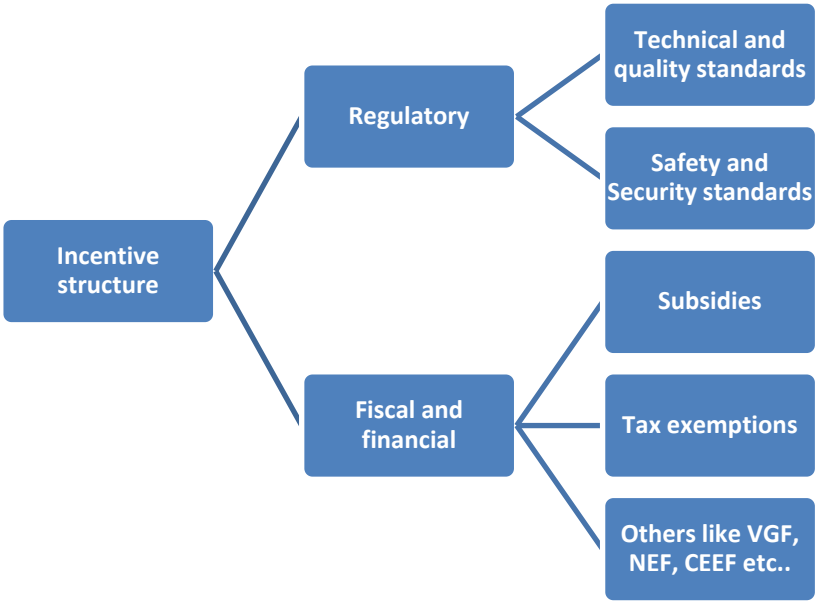

Fig.1: Incentive structure for off-grid renewable energy sector in India

II. Challenges and policy recommendations

An assessment of policy and regulatory instruments present for the sector while speaks loudly about the prevailing conducive environment for the sector, it does not reveal whether they are effective in realising the desired goals of the sector. Though, it is posited that regulatory instruments are easy to use due to its directness (Timilsina and Dulal, 2009), Indian experiences in the field of off-grid renewable energy sector unfold a different story. It has been observed that the existing regulatory instruments for the off-grid renewable energy sector are not effective and gets poorly implemented (Palit and Bandyopadhyay, 2015) due to lack of regulatory compliance (Sarangi et al., 2012). Off-grid renewable energy sector in India, being unregulated does not have a clear reporting and monitoring mechanism and system. Hence, it becomes difficult to assess the exact nature of technical, quality, safety and security standards that are being adhered by the project developers. It has been reported by studies that private project developers in India are often tempted to circumvent the prescribed standards in the name of cost minimisation (Sarangi et al, 2012).

It also emerges from the above assessment that even though there seem to be a host of incentive structures present in the sector, a clear demarcation of incentives for the off-grid energy sector is lacking. For instance, most of the incentives are for large size renewable energy projects without clear specification of whether the same are applicable for small sized off-grid renewable energy projects. Hence, the existing approach is sporadic, and piecemeal in nature and often acts as a deterrent for the private investors to consider this sector as a potential field of investment.

Given the disaggregated and patchy nature of the sector, it becomes difficult to monitor the performance of the sector. However, the existing experiences suggest that some solutions could work better. For instance, it has been observed in some cases that clustering approach could help to better organise the projects operated in a region or locality. The Chhattisgarh solar mini-grid experience suggests that clustering can go a long way in minimising the O & M costs. (Palit et al., 2014). This approach can be used to reduce the regulatory burden of the sector.

Given the complex policy and instrument regime governing the off-grid renewable energy sector, further research in the field can contribute to the better understanding of the details of the instruments and their mapping. The role of higher educational institutes like TERI University holds importance here in building the necessary skill sets to understand the complexities associated with the instruments regime governing the sector.

Acknowledgement

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