

MARKET POWER AND GENERATION FROM RENEWABLES; THE CASE OF WIND AND SOLAR IN INDIA

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Overview

India views renewable energy as a critical resource for the nation's energy security and energy access, and has set a target for 15 percent of power consumption to be generated from renewable energy sources by 2022.. To meet this it needs about USD39 billion. Government interventions and policy support remain the backbone of renewable energy investment, be it in the form of fiscal support or favourable access to the grid. Several market-based instruments are being introduced in India to develop renewable energy projects. These have positively impacted the investment in solar and wind power capacity. Some of the instruments stimulated demands, by providing guaranteed markets. The Renewable Energy Certificate (REC) mechanism was introduced with a lot of promise for promotion of both wind and solar energy. But today, this mechanism faces real challenges that seem to be vitiating the investment climate in renewable energy sector in general and wind and solar segments in particular. In this research we seek to identify various institutional, pricing and regulatory issues and options to enable market-based mechanisms to facilitate large scale renewable energy capacity addition, particularly wind and solar, in the long run. It also seeks to review the experiences gained by other countries with the tradable renewable energy certificate system, especially the Renewable Obligation Certificate (ROC). This when combined with Renewable Obligation (RO), they played a major role in harnessing renewable energy sources in UK. It has contributed effectively to widen energy and climate change goals of UK.. The ROC mechanism has unique features like Banding, Banking, Buyout price as a penalty for non-fulfilment, inbuilt incentive mechanism for the obligated entities for fulfilment of Renewable Portfolio Obligation, secondary and forward market mechanism, and others. These features are not available in the current market-based mechanisms in India, inhibiting further investments. This paper therefore recommends innovative steps to put forward an effective policy for REC system in Asia in general and India in particular

Methods

Market analysis, interview survey

Results

The contrast between the United Kingdom's ROC model and India's REC framework underscores the need for an innovative approaches to take care of the concerns of buyers as well as sellers. As the first level of intervention,

incentives should be provided to induce buyers to come to the REC market. The previous analyses have revealed that one of the reasons for buyers' reluctance to come forward is that the REC in its present form is not a viable proposition for them. As mentioned earlier, in the case of the United Kingdom, the obligated suppliers meet their renewables obligation by either presenting ROCs or paying an equivalent amount into the buyout fund as penalty. All such buyout payments are redistributed to suppliers who have presented ROCs against their obligation, in proportion to their number of ROCs. This serves as incentive for those who have fulfilled the RPO targets. In a decentralised diverse Indian context, there should be an incentive to encourage states to set and fulfil higher RPO target. The incentive level for renewable energy resource-deficit states should differ from that for renewable energy resource-rich states. The incentive for resource-deficit states should be designed to take care of the higher cost of compliance, while that for resource-rich states should aim to help create transmission infrastructure and to set up a flexible energy generation so as to balance the variability of renewable energy resources such as solar and wind zones.

Traditionally, incentives in India have been targeted towards investors only. It does not imply that incentives are not required by investors, but it suggests that the irritants from the buyers' point of view should be recognised and corrective policy decisions taken to address these. Incentivising and inducing the buyers would, in turn, also help investors in the long run. For example, renewable energy generation facility can come up only in the states rich in RE resources. But higher penetration of renewable energy generation, especially in wind and solar, which are variable and uncertain in nature, brings with it challenges for the host state in terms of managing grids and arranging balancing power to match the variability of the inter firm renewable sources. This causes operational and financial stress on the distribution companies i.e., the buyers of the host state. Such stress, on top of their present weak financial health, leads them to develop a resistance against RE generation. Unless these issues are addressed through suitable policy interventions such as incentive schemes, the promotion of renewable energy in general, and sustainability of the REC framework as well as the wind and solar industry in particular, would not be attained.

Incentives are short-term measures; in the long run, there is a need for a policy framework to make REC a win-win proposition for buyers as well as sellers. A framework should be designed whereby REC is credited to every unit of RE generation irrespective of whether the said generation has been sold through preferential tariff /regulated tariff or otherwise. Buyers of RE generation through preferential tariff could earn REC credit along with the energy. The RECs earned by the buyers in this manner can be used to meet RPO and any of their surplus RECs can be sold in the market to mitigate their high RE purchase cost. This framework would, however, imply a paradigm shift in the existing policy design for the promotion of RE in general and REC in particular.

In the United Kingdom, RE generators participate in the power market for the sale of electricity components and then get credit in the form of ROCs for every one megawatt hour of electricity generated. For India, the first part is not recommended that is, it is not suggested that the wind and solar plants be made to compete with conventional sources such as coal in the power market for the sale of electricity components. Long-term contracting, either through cost plus regulated regime or through competitive bidding, can continue as at present for these renewable energy sources. This is considered necessary for investment certainty in such infirm sources of power over the longer term. However, the second component of the UK ROC system is recommended for India. All RE generation should get the REC credit and in the event that a buyer contracts such renewable energy generation, the REC credit, along with the energy, should be transferred to the buyer. At the same time, the energy generation company shall have the liberty to sell its electricity in either bundled or unbundled form.

Once an REC framework that presents a win-win proposition for buyers as well as sellers has been developed, it would be desirable to set appropriate levels of RPO to generate the demand for RE generation and consumption. At

the same time, regulators should ensure that all obligated entities comply with the RPO. It should be made clear to all that non-compliance of RPO will entail penalties. In addition, compliance should also be ensured through appropriate commercial mechanisms such as imposing non-compliance charges on an obligated entity that fails to meet the desired level of RPO. In the UK, the compliance with the RPO is strictly monitored by the regulator, and the penalty framework of buyout price has turned out to be an effective deterrent against non-compliance of RPO.

It is equally important that there is clarity and policy certainty over the long-term sustainability of the REC framework and visibility of revenue. In UK, the Renewable Obligation (RO) Order initially set the RPO target at 3 percent for the period 2002-2003, with the aim to further raise it to 15.4 percent by 2015-2016. The scheme's time period was extended from 2027 to 2037. Similarly, in India, the Electricity Act of 2003 and National Electricity Policy and the Tariff Policy should clearly stipulate that they are empowering the CERC to decide the time frame for the continuation of REC. The CERC should specify in its regulations that the REC will be issued to eligible RE generators for at least 15 years.

Conclusions

The promotion of grid connected renewable energy projects through market based policies are grounded on three variables, viz resources – the type of resources used and their availability, technology – type and maturity of technology used and the power sales – the power take off arrangements. Though renewable energy has been for past several years, several challenges still exist, which are limiting the capital inflow and the scale up of investments in renewable energy. Renewable energy certificates could be an effective market based policy instrument nationally for promoting private capital investment. However, such schemes have to be designed carefully, keeping in view the prevailing market conditions, state of technology development and availability of resources.. Multiple institutions that work without targets and non-standardised approaches can find their cost increasing and effectiveness falling. Thus, to streamline the certification process, monitoring is a must. Correcting existing institutional flaws and providing policy and programme support through legislations can make new renewable energy projects to succeed. There is a need for adoption of more robust process and methodologies for determining RECs that include detailed due diligence on costs and parameters of various technologies as well as identifying new revenue streams, so as to make these attractive for new renewable energy project investors.