Renewable Energy Certificates in India

The Renewable Energy Certificate (REC) platform was formally launched by the Central Electricity Regulatory Commission (CERC) on 18 November 2010. This article focuses on the REC mechanism, and the issues and challenges involved for India.

By **Anita Khuller**

The power sector in India is rapidly growing in size and complexity with factors such as growth of short term power, trading instruments such as renewable energy certificates (RECs), injection of renewable power into the grid, wider participation in open access, and increasing contribution of independent power plants. Policy and regulatory changes are more frequent than before, reflecting the dynamic nature of the industry. Major developments in the power sector are being driven by issues such as the demand-supply gap, losses in state utilities, ageing infrastructure, private participation, and environmental impact among others.

Grid-connected renewable power is the key route through which the energy fuel mix can be brought in line with the desired objectives of reducing carbon emissions as well as improving the country's energy security. Renewable energy accounts for about 10 per cent share of total installed grid capacity. In energy terms, this share is about 3.5 per cent of the grid. By the end of June 2010, the cumulative achievement in grid-connected renewable power stood at 17,173.90 MW. The leading renewables include wind power, small hydropower and bagasse-based cogeneration. Wind energy corners the predominant share of about 70 per

cent of total grid-connected renewable capacity.

According to the Ministry of New and Renewable Energy (MNRE), there is a potential of 84,776 MW (excluding solar) in grid-connected renewable power. Barely 18 per cent of this has been achieved so far.

The capacity share of grid connected renewables increased from 5.15 per cent in 2004-05 to 10 percent in 2009-10, i.e. from 6,099 MW in 2004-05 to 16,817 MW in 2009-10. The key driver for this has been the policy support provided by the government for such projects. The National Action Plan for Climate Change (NAPCC) has presently set a target of 5 per cent of power purchase from renewables,

Source	Installed capacity (MW) as of June 2010
Wind Power	12,009.48
Biomass	901.1
Small Hydro Power	2,767.05
Cogeneration - Bagasse	1,411.53
Waste to Energy	72.46
Solar Power	12.28

which will be increased by 1 per cent each year to reach 15 per cent by 2020. The renewable purchase obligations (RPOs), or the percentage of power that the distribution utilities are expected to procure from renewable generators, are set by the State Electricity Regulatory Commissions (SERCs) for their respective states.

MNRE, through ABPS Infrastructure Advisory (P) Limited, came out with a report for circulation in June 2009, on the 'Development of Conceptual Framework for the Renewable Energy Certificates (REC) Mechanism in India'. Based on comments received, RECs were launched this year to provide a mechanism for states that do not have sufficient renewable potential to meet their RPOs.

What are RECs?

To realize the objectives identified in the NAPCC and to facilitate transactions in the renewable energy market, the Central Electricity Regulatory Commission (CERC), in consultation with the Forum of Regulators (FoR), notified regulations (CERC Notification on RECs on 14.01.2010). Salient points of the regulation and FoR's recommendations are:

- Each SERC to develop RPO framework for its respective state (as per Sec 86 (1)(e) of the Act)
- Under the RPO framework, obligatory entities like distribution licensees, open-access consumers and captive consumers would require to consume certain percentage of their energy from renewable sources of energy (both solar and non solar)
- Obligatory entities can purchase RECs to discharge their RPOs

Under an REC framework, utilities can inject a high share of renewable energy in their power mix by purchasing such certificates on an exchange. The REC mechanism classifies the cost of electricity generated into an energy cost equivalent to conventional energy and a cost for environmental attributes of such energy. The latter gets exchanged through the means of RECs. A renewable energy generator can either sell at preferential tariffs or sell the energy and environmental attributes separately. Solar power has a separate category of RECs, known as solar certificates to ensure greater support for solar power generators.

Terms and Conditions for Issuance of RECs

Some features of the CERC regulations on RECs are summarized as under:

Categories There are two categories of RECs, namely solar and non-solar. Solar RECs reflect the regulatory support for the higher cost of solar power generation as compared to other renewable energy modes.

Eligibility All grid-connected renewable generators having installed capacities of 250 kVA and above are eligible. The entity seeking an REC has to be accredited by the respective state agency (such as TEDA in Tamil Nadu) etc. Also, it should not have any power purchase agreement (PPA) with the state regulatory commission for selling the generation on preferential tariffs on offer. Further, the price of electricity sold by the entities to the local distribution utilities should not be more than the latter's 'pooled cost of power purchase'. The pooled cost of power purchase means weighted average pooled price at which the distribution licensee has purchased electricity the previous year—this includes the purchase of self generation, long term and short term purchase, but excludes purchase of RE generation. The generator could also be selling power to any other licensee or open access consumer at a mutually agreed price or through a power exchange at a market determined price.

Central agency for REC The regulations provide for a central agency entrusted with all operational functions related to RECs such as registration of entities, issuance of certificates, maintaining and settling REC accounts, transaction repository and others. Taking specific note of procedural delays, REC regulations provide that the central agency will issue certificates to eligible entities within 15 days of application. CERC designated the National Load Despatch Centre (NLDC was constituted

by the Ministry of Power in March 2005 for optimum scheduling and dispatch of electricity) as the 'central agency' for the purpose of REC Regulations, 2010.

Denomination of certificates Each REC would represent one-megawatt hour of electricity generated by the renewable energy entity and injected into the grid.

Transaction Certificates will be traded only through the power exchanges. The latter are required to get prior approval of CERC on rules and byelaws related to the price discovery process of RECs.

Table 2: Price Band of RECs (Rs/MWh)

Price	Non-solar REC	Solar REC
Forbearance price	3,900	17,000
Floor price	1,500	12,000

Price Price determination of RECs will be within the limits set by CERC in terms of forbearance and floor price. As a follow up to its regulation on issuance of RECs, CERC notified the prices in suo moto order dated June 1, 2010.

Validity REC will remain valid for up to a year from the date of issuance. The validity will stand even if the entity's accreditation is revoked at a later date.

Compliance auditors CERC can appoint compliance auditors for verification of regulatory processes related to RECs. Auditing will be done on a sample basis to ensure compliance of regulations at central and state level.

The procedure to participate in the REC mechanism is as follows:

Accreditation

- One REC for each MWh of electricity generation
- Solar & non-solar certificates
- RE generator not having PPA with Discom at preferential tariff and not selling to Discom at price more than Discom's pooled cost
- Required to get accredited from its respective State Nodal Agency (SNA)

Registration with the Central Agency

- Generator to get registered with NLDC (Central Agency)
- Generator will approach NLDC for issuance of certificates with certified injection
- NLDC to issue and maintain accounts and repository

Issuance of REC

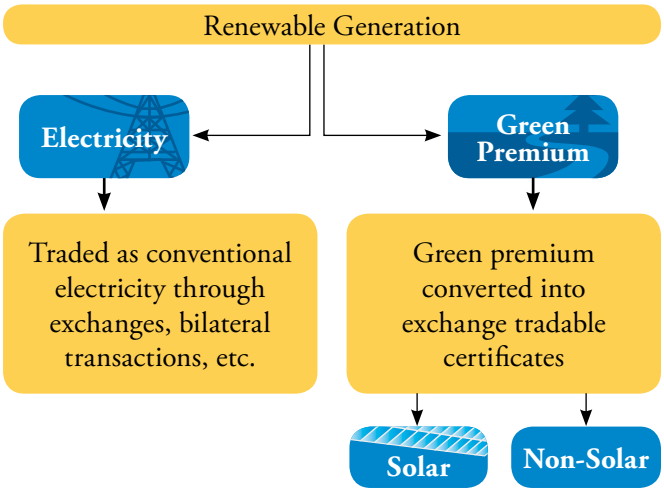
- RE generator to apply for REC within three months from generation
- NLDC to issue REC to the applicant within 15 days (Post verification of actual electricity generation from respective SLDC)

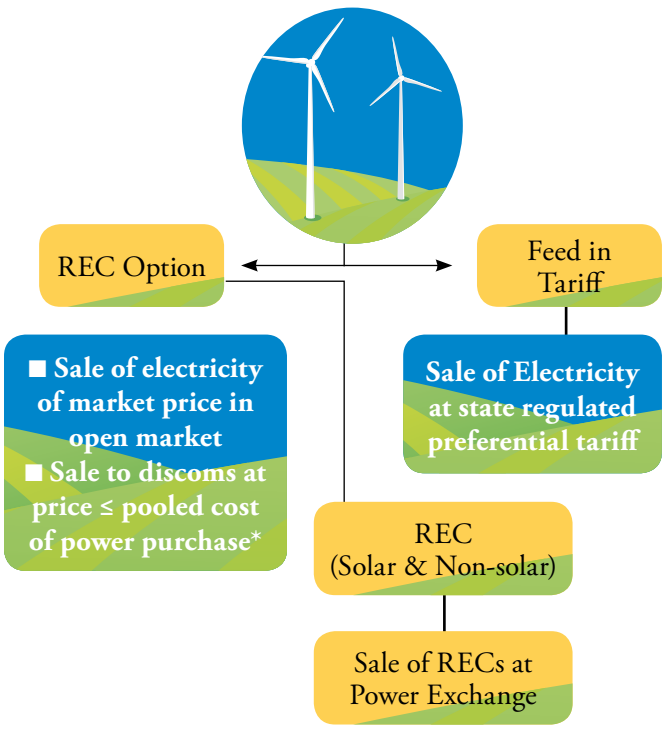
Trading of RECs through power exchanges

- RE generator can sell only through power exchanges
- Sell within 365 days of issuance
- Obligated entities (Discom/captive power plant-CPP/ open access-OA consumer) to buy to meet RPO

Recent Developments

The REC framework requires uniform regulatory structure across the states. In this regard, the FoR has devised model REC regulations for uniform formulation by SERCs, who are required to notify their regulations to complete the envisaged framework. As of 5 August 2010, 3 SERCs—Gujarat, Himachal Pradesh and Maharashtra and JERC for Mizoram and Manipur passed the final REC regulations. Eight other states have notified draft REC regulations and are waiting for state commission approvals.





On 29 September 2010, the regulator passed an amendment to its REC Regulations, 2010. These amendments clarified the regulatory position for two scenarios:–

- Participation in case of premature termination of PPA: If an order or ruling has been passed against a generating company regarding breach of terms under the PPA, the company cannot participate in the REC market till three years from the date of termination or till expiry of the PPA, whichever is earlier.
- Eligibility of captive power producers based on renewable energy source: A CPP based on renewable energy will be eligible to participate in the REC market using the entire energy generated, provided that the entity has not availed any concessional benefits. If the plant forgoes such benefits on its own, it can join the market only after three years from the date of forgoing the benefits. This facility however does not hold if the benefits were withdrawn by regulatory authorities or state governments.

As things stand, CERC has already granted approval to the two power exchanges (IEX and PXIL) for introducing RECs as trading products. The regulator has mandated that a double-sided closed bid auction with uniform price solutions should be utilized as the price discovery mechanism for REC contracts. RECs were launched collectively by the Ministry of Power and MNRE on 18 November 2010. Reports indicate that the exchanges have also completed the mandatory mock trading sessions at the NLDC.

Sources at CERC told Business Standard, "The SERCs have been asked to provide an update on REC regulations from time to time. This, we believe, would facilitate implementation of the REC mechanism. Also, MNRE has already agreed to provide financial assistance of Rs 9 crore over the next 3 years towards implementation of the mechanism. This financial support would be provided for developing relevant software and hardware and for providing manpower to both central and state agencies."

Challenges Ahead

Selected states such as Tamil Nadu, Karnataka, Gujarat, Andhra Pradesh and Maharashtra known for high wind power potential, or others such as Rajasthan, Gujarat, West Bengal and Orissa for high solar potential will be expected to drive capacities in the coming years catalysed by the RECs. There is an uneven distribution of renewable energy potential in the country; certain states are generating a high percentage of electricity from renewable sources while others are not procuring even a minimum percentage; resulting in uneven tariff burdens on consumers across the country. An REC system could help offset, to a certain extent, this anomaly.

RECs would help make the renewable electricity market stable and predictable by maximizing the benefits of renewable generation while reducing costs. Besides, introduction of tradable RECs would provide an additional source of revenue to the renewable energy-based power generators and these could also be used by those states, which do not have substantial renewable resources, to meet their RPOs.

The REC mechanism enables market growth and improves the commercial viability and provides a greater push to renewable electricity by way of removing bottlenecks like higher costs, uneven distribution of renewable resources across India, and scheduling or dispatchability of renewable electricity; and thus helps in procurement by utilities. The REC has been used extensively as a successful market based policy instrument to promote renewables in many countries, and which would be relevant in the current legal and regulatory set up of the Indian power sector for facilitating compliance with RPOs/the RPS5 (Renewable Portfolio Standard).

The REC mechanism assures a guaranteed return of at least Rs 12,000 and Rs 1,500 per certificate to solar power and non-solar generators, respectively, proving that RECs will give monetary returns to developers by compensating them for loss of preferential tariff.

But though the RECs have been launched, there are concerns about their adoption. The procedural stipulations between the accreditation and registration of the eligible entities and the final trading session could translate into a gap of over a month. There are several infrastructural and systemic challenges at the state agency level. Another reason for delay from generators could be that REC participation will be outside the current preferential tariff, implying that new entrants have to be attracted to this market. This will take time to materialize.

There are several primary and secondary activities, especially related to regulatory processes such as approval of the rules and bye-laws of the REC registry/rxchange platform, standard amendments to the existing grid code to enable energy accounting, etc., which may have to be undertaken at the CERC and SERC level.

Also, regarding several other activities such as development of hardware and software by the REC registry and REC exchange platform, the Regulator may have to approve the specifications as well as audit the system. Similarly, a monitoring committee will have to be set up to develop database of all renewable energy installations in the State. This activity would require significant upfront effort. In addition, significant capacity building activity will have to be undertaken at the State and Central levels to ensure successful implementation of this mechanism.

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