

Comments on Draft CERC regulation for REC Framework Implementation 2009

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Renewable Energy Credits / Certificates (REC) are a market based instrument. It aims to bring greater efficiency in choice of cost effective technology, provides incentives for cost reduction and could facilitate greater support for development of renewable energy (RE) sources in the country.

I am also enclosing herein one of my papers on “A market for renewable energy credits in the Indian power sector”, which was originally written in 2007 and is now published in an academic journal as well. The paper outlines the role of renewable energy credits/certificates in the Indian context and also lays out an implementation strategy for the same

1. Regulation #4 - Categories of Certificates:

The proposal for defining two category of certificates may need to be re-looked in the light of following arguments. Separation of the RECs market into solar and non-solar RECs could be avoided due to the following reasons,

- Loss of liquidity in the market for RECs and hence less efficient price discovery for RECs
- Loss of competition amongst the renewable energy sources (solar and non-solar energy in this case) to reduce costs and improve efficiency would be lost by artificial splitting of the RECs market.

The objective of such a split could be,

- Separate renewable portfolio obligation (RPO)
- Better support for solar energy

Both of these objectives can be met by adopting following solution.

Solution: A Common Market for RECs with multiplier for different RE sources

Various renewable energy sources could be provided with a different multiplier forequivalent number of RECs. For e.g.

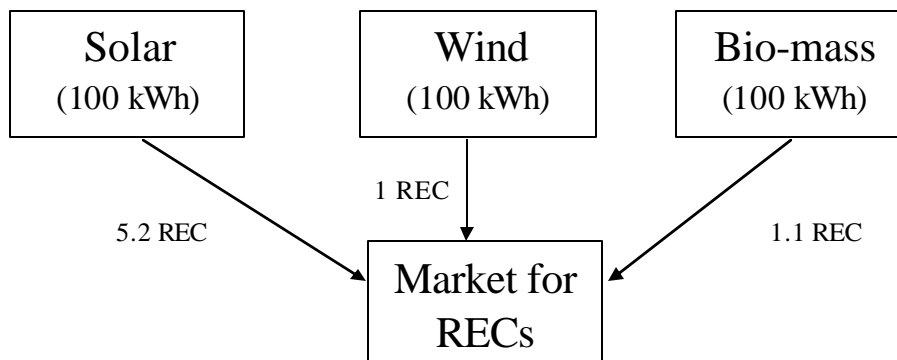
Table 1: Tariff for Renewable Energy Source and REC multiplier

S. No.	Renewable Energy Source	Tariff (Tamil Nadu) (Rs./kWh)	REC Multiplier (Approx.)
1	Wind	2.75 and 2.90	1
2	Biomass	3.15	1.1
3	Solar	15 (MNRE)	5.2

So: Based on Singh, Anoop (2009), “A Market for Renewable Energy Credits in the Indian Power Sector”, *Renewable and Sustainable Energy Reviews*, Elsevier

Further, if it is desired that solar energy needs greater impetus in the beginning. A higher multiplier can be specified for initial couple of years and then it can be tapered down. Defining a higher multiple for solar energy can provide greater impetus to the same. This multiple can be decided separately by the respective RECs for plants located in the respective states or centrally by the CERC. This could be taken up as a separate exercise by the Commission.

The following example further illustrates the proposed solution.



The need to promote solar energy can be addressed by setting higher multiplier for solar energy.

2. Regulation #5 - ‘Eligibility for Certificates’:

“Provided further that Certificates may be used or dealt by such generating companies when the electricity generated is sold either (i) to a distribution licensee at a price not exceeding the pooled cost of power purchase of such distribution licensee, or (ii) to any other licensee or through power exchange or to an open access consumer at a mutually agreed price.” (emphasis added)

the prices determined through a market mechanism such as a PX are not “mutually agreed” price. Hence, the last two lines of the above para can be modified as

“.....other licensee or through power exchange or to an open access consumer at a market determined or a mutually agreed price.”

3. Regulation #5 - ‘Denomination and issue of Certificates’:

In order to provide greater reach and liquidity¹ in the market for RECs, the denomination of a single REC should be smaller than one Megawatt hour (MWh). It can perhaps be set in ‘units’ of 100 kWh. Higher denomination for RECs would be unfavourable to small RE facilities. This would allow greater reach of the market for REC to individuals, philanthropic organizations and corporations willing to buy RECs under their Social Corporate Responsibility etc. (It is expected that the regulations would allow such participation in the near future). This should be explored under a long term vision under the solar energy mission.

Given that measurement of the energy generated through ‘green’ sources is done in the units of kWh, such a smaller denomination should not pose any operational or implementation problem. The following example illustrates the same

A 100 kW RE facility with 20% CUF may generate an equivalent of 175.2 MWh of electricity per year. Setting a higher denomination for RECs would be unfavourable to small RE plants from the market. It could be noted that there are a number of such small solar PV installations in the country.

Further, the Solar Energy Mission aims to promote widespread deployment of solar technologies. A higher denomination would be unfavourable to small RE facilities such as rooftop solar PV plants. For e.g. a 3 kWp solar PV facility (with similar features as the above) may just produce only 5.256 MWh. With the absence of banking (suggested below), a higher ‘denomination’ size may also result in ‘non-tradability’ of 0.256 MWh equivalent of RECs in the above case.

Further a higher denomination for REC would also mean that small individuals who may wish to contribute to the cause of RE may find the ‘trading lot’ of RECs to be expensive. In case the price discovered for a unit REC (of 1 MWh) is Rs. 1000, participation by individuals may be very limited. However, in case of smaller units of RECs, greater participation of the retail individuals could be expected in future.

4. **Accreditation – Linking with CDM Process:** A number of renewable energy projects in the country often seek benefits under the Clean Development Mechanism of the Kyoto Protocol. This includes a similar exercise for accreditation/validation. The regulations may, perhaps, some way of synchronising such an exercise
5. **Conditions for De-accreditation:** In order to discourage potential violations of regulations and other terms and conditions, the regulations can specify conditions for de-accreditation of renewable energy sources and also disallow its sale to discom based on remunerative RE tariffs without REC accruals.

¹ It is also mentioned here that to increase liquidity in the equity markets equity stocks are often split to enhance liquidity and increase the reach of individual investors.

- 6. Regulation #6 Avoiding ghost RECs:** The RECs should accrue only on the net renewable energy injected into the grid (in the case of grid integrated facilities). This is required to avoid 'ghost RECs' by either purchasing excess grid electricity for processes and injecting 'inflated' renewable energy into the grid. This should be an integrated part of the detailed procedures to be issued by the Central Agency.
- 7. Introduce Sunset Clause to Drive Cost Reduction and Innovation :** The REC multiplier (suggested above) can be gradually reduced gradually. A falling trajectory of multiplier would provide incentives for cost reduction and innovation to improve technology. For e.g. with development of efficient and cost effective Wind/ solar PV technology, multiplier for the same can be gradually reduced. Setting up such a trajectory for the REC multiplier would provide a cost benchmark for technology developers to be achieved in the near future.

The REC multiplier can also be used to set a 'sunset clause' for RE sources / technologies that would achieve commercial viability comparable with conventional energy sources or need lower support over time. The multiplier can be reduced gradually.

- 8. Qualification / Criteria for Central / State Agencies:** For the sake of uniformity across states, the regulations may spell out a generic qualification / criteria for appointment of Central / State Agencies. This should be done to ensure that appropriate skills are available with such agencies and, efficient and foolproof processes can be implemented without any conflict of interest.
- 9. Regulation #10 (3) - Fees and charges:** The proposed regulations allow for collection of fees and charges by the Central Agency only. Certain types of fee/charges be allowed to be recovered by /shared with the respective State Agencies so that cost of operation of such entities can be covered, at least partially. For e.g. annual fee and charges, the transaction fee and charges for issue of certificate can be partially or fully recovered / shared by the respective state agencies.
- 10. Regulation #3 – Registration of non-REC Generators:** The proposed regulations aim to cover registration of RE generators only. It is feasible that some of the generators who currently sell electricity under a power purchase agreement (PPA) may wish to be registered for participation in the REC market in future.

The registration may be open to 'non-REC' generators on a voluntary basis by payment of a nominal fee. This process may also require submission of certain basic data at the time of registration and annual reporting regarding generation and sale of electricity. This information would facilitate registration of such generators with the central agency and would also facilitate validation in future. This would also provide a significant benefit by creating a database of RE generators in the country.

- 11. Regulation # 5 – Inclusion of Stand-alone RE generators:** The proposed regulations exclude stand-alone RE generation facilities under the eligibility criteria. This significantly undermines the role of RE based remote/rural electrification schemes. While such an exclusion seems to stem from operational considerations which involve the load dispatch entities, the proposed regulations allow for entities not covered under scheduling and dispatch procedures and would be granted certificates based on 'written communication'. A similar

procedure involving written communication from an appropriate local administrative authority or energy agency. In the initial phase, stand-alone RE projects developed by NGOs/ government agencies/local bodies and those registered under the CDM process may be included under eligibility.

Renewable energy based distributed decentralized generation projects are serving the needs of the communities in rural and remote areas. Due to high cost electricity generation, such projects need greater assistance to be viable. By allowing participation of such projects under the REC mechanism, the current high costs of energy access in such locations can be partly supported. This would also encourage new RE based rural electrification projects on stand-alone basis as envisioned under the Electricity Act 2003. It should also be highlighted here that, in principle, the CDM process also does not exclude stand-alone projects of such nature.

This would also ensure effective implementation of government policies to support stand alone projects. The amount of support available from such agencies may be linked to the RECs generated by such projects.

- 12. REC certificates for Programmatic Application of Renewable Energy(PARE):** The Programmatic Application of Renewable Energy (PARE) can be referred to the program based activities involving a number of users and involving deployment of RE to replace electricity requirement. For e.g. the solar lantern programme, rooftop solar water heaters etc. While the scope of existing regulations is limited to 'electricity generated' from RE sources, in the near future, the REC regulations may provide for eligibility for such applications with adequate criteria for usage and measurement of electricity replaced with renewable energy. i
- 13. Allow Double Dividends: CDM and REC:** The regulations should clarify about sharing of benefits to accrue to RE developers on account of RECs with the discoms, who would purchase electricity on pooled cost basis. This would reduce uncertainty for project developers. The regulations may provide for full benefit of RECs to RE developers so that it supports development of RE sources in the country.
- 14. Regulation # 5 - Pooled Cost of Power Purchase:** Pooled Cost of Power Purchase should exclude cost on account of procurement of renewable energy. This pooled cost of power purchase would be already on a higher side for utilities which are already obliged to buy higher share of power procurement from renewable energy sources. This would essentially penalise state utilities which were already honouring higher share of RE sources
Pooled Cost of Power Purchase would be much lower as compared to the cost of electricity generated from solar energy. This would essentially result in much higher 'market price' for solar RECs, if defined separately. In case the commission would look into the suggestion for a multiplier based REC for solar energy, criteria for 'pooled cost of power purchase' should be replaced appropriately to take into account higher tariff for power purchase determined under MNRE scheme or a similar scheme promoted by Energy Development Agencies in respective states.
- 15. Banking for RECs and Rolling over the RPO:** The regulations should allow for banking of RECs credited in a financial year up to the end of the 'next' financial year. This would be required due to following reasons

- a. Renewable energy sources are prone to natural vagaries and hence energy generation and accrual of RECs can not be reliability projected. Further, some of the SERCs also allow for accumulation of Renewable Portfolio Obligation (RPO) beyond a year for a similar reason.
- b. Banking of RECs would be supported well through futures market in RECs and hence would ensure more efficient price discovery in the futures market.
- c. This would allow for better planning by a RE generator / discom in case there is over accumulation or shortage of RECs in a given Financial Year. Such a flexibility would be desirable from the perspective of RE developers as well as discoms.