Explanatory Memorandum for Central Electricity Regulatory Commission Regulations on Recognition and Issuance of Renewable Energy Certificate (REC) for Renewable Energy Generation

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I. BACKGROUND

1.1 India is gifted with abundant potential of Renewable Energy, which includes wind energy, biomass, small hydro, solar etc. Over the last few years India has experienced significant development in the Renewable Energy (RE) Sector. This development is precipitated by the effective national and state level policies. At present India has reached to an installed capacity of 14,914 MW (upto 31.July.2009) which is about 8.5% of the total capacity.

1.2 However, it should be noted that, in terms of actual generation from the Renewable energy Sources the share is estimated to be 3.5% of the total generation. The installed capacity of renewable energy sources in India is dominated by wind, constituting around 70% of the total RE installed capacity and the contribution of solar is very low. Though India has a huge potential in renewable energy, the gap between its gross renewable energy potential and the cumulative installed capacity is still huge. Also the distribution of these renewable sources is not uniform across the country. Some states are rich in terms of renewable potential while some others have very little potential to explore. These challenges restrict holistic development of renewable energy potential and demand suitable mitigating mechanism.

II. LEGAL AND POLICY FRAMEWORK

2.1 Legal framework in India recognizes the need of Renewable energy in overall energy mix to ensure sustainable development of India's energy sector and energy security.

2.2 Electricity Act 2003. The Electricity Act 2003, has entrusted appropriate commission the responsibility of promoting generation of electricity from renewable energy sources of energy.

- Section 61 (h) of the Act provides that:

"The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:- the promotion of co-generation and generation of electricity from renewable sources."

- Section 86(1) (e) of Electricity Act 2003 mandates the State Electricity Regulatory Commission to:

  "Promote Co-generation and generation from Renewable sources of energy by providing suitable measures for connectivity to Grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of total consumption of electricity in the area of distribution licensee."

- Section 66 of the Act provides that:

  "The Appropriate Commission shall endeavour to promote the development of a market (including trading) in power in such manner as may be specified and shall be guided by the National Electricity Policy.."

2.3 Tariff Policy. The Tariff Policy recognises that it will take some time for the non-conventional energy sources to compete with conventional sources of energy, hence its procurement shall be done at preferential tariffs to be determined by the Commissions.

Para 6.4 of the policy provides as under:

(2) Such procurement by Distribution Licensees for future requirements shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long-term, these technologies would need to compete with other sources in terms of full costs.

(3) The Central Commission should lay down guidelines within three months for pricing non-firm power, especially from non–conventional sources, to be followed in cases where such procurement is not through competitive bidding.

2.4 In line with the vision of the Act and the policy CERC has framed regulations on terms and conditions for determination of tariff for generation based on renewable energy sources. State Electricity Regulatory Commissions (SERCs) have also issued regulations and orders to promote renewable energy. Measures taken by different SERCs include determination of preferential tariffs, renewable energy purchase obligation, banking and wheeling arrangements etc.

2.5 National Action Plan of Climate Change (NAPCC). The National Action Plan of Climate Change (NAPCC) has also set the target of 5% renewable energy purchase for FY 2009-10 which will increase by 1% for next 10 years. Strong regulatory measures are required to fulfil these targets.

2.6 Forum of Regulators (FOR). Forum of Regulators (FOR), constituted under Section 166 (2) of the Act for harmonization, coordination and ensuring uniformity of approach amongst Regulatory Commissions across the country, in its report on "Policies on Renewables" has made the following recommendations.

- Mechanism for inter-state transaction of RE sources is necessary for recognising procurement of RE from one state to other state for complaisance of Renewable Purchase obligations.

- A suitable mechanism like Renewable Energy Certificate (REC) is necessary to promote RE sources on the scale envisaged in the National Action Plan on Climate Change.

Considering the above challenges and the existing framework, FOR has evolved a Renewable Energy Certificate (REC) mechanism at national level which will facilitate the inter-state transaction of RE sources and hence further accelerate the RE development in India. This mechanism entails model Regulations to be adopted by State Electricity Regulatory Commissions to recognise the REC as a valid instrument for compliance under RPO obligations and to have uniform approach over obligated entities and compliance for RPO. The model Regulations for SERCs under section 86(1)(e) of the Act evolved and approved by the FOR have been circulated to all SERCs for further action. In addition to this model regulation, central level regulation is also required to institutionalise the REC mechanism at national level. Hence the proposed regulation of CERC on implementation of REC framework.

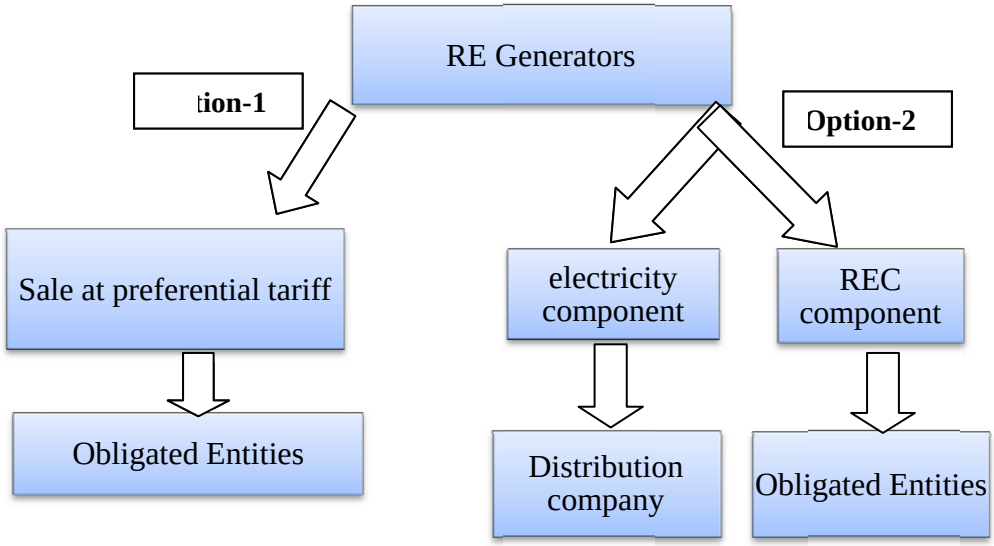
III. Renewable Energy Certificates (REC) Mechanism

3.1 Salient Features of the REC mechanism

Renewable Energy Certificate (REC) mechanism is a market based instrument to promote renewable energy and facilitate compliance for renewable purchase obligations (RPO) under inter-state transaction of RE generation. REC mechanism is aimed at addressing the mismatch between availability of RE resources in state and the requirement of the obligated entities to meet the renewable purchase obligation (RPO).

3.1.1 Under this mechanism, cost of electricity generation from renewable energy sources is classified as cost of electricity generation equivalent to conventional energy sources and the cost for environmental attributes. These environmental attributes can be exchanged in the form of Renewable Energy Certificates (REC).

3.1.2 Thus, RE generators will have two options i) either to sell the renewable energy at preferential tariff or ii) to sell electricity generation and environmental attributes associated with RE generations separately. Following figure will illustrate the mechanism:



3.2 Operational Framework of REC mechanism:

The following figure would explain the operational framework of REC mechanism at national level with some brief explanations of various steps / process involved under the Mechanism:

Step-1 Accreditation :

The proposed REC mechanism requires a procedure for accrediting generation plants which are eligible to receive RECs. Accreditation is done to assess and establish eligibility of renewable energy plants to receive RECs. The process of accreditation is largely one time activity where in plants are validated on its renewable nature and other pre-requisites to be eligible for issuance of REC. The State agency appointed by the State Electricity Regulatory Commission (SERC) shall be responsible for Accreditation. Accreditation process involves processing of application, verification of projects, transfer of information, creation and operation of accounts etc. The process of accreditation of eligible renewable energy projects would also involve verification of applications (projects) and sites and hence the accreditation agencies at state level would need to have adequate monitoring capability.

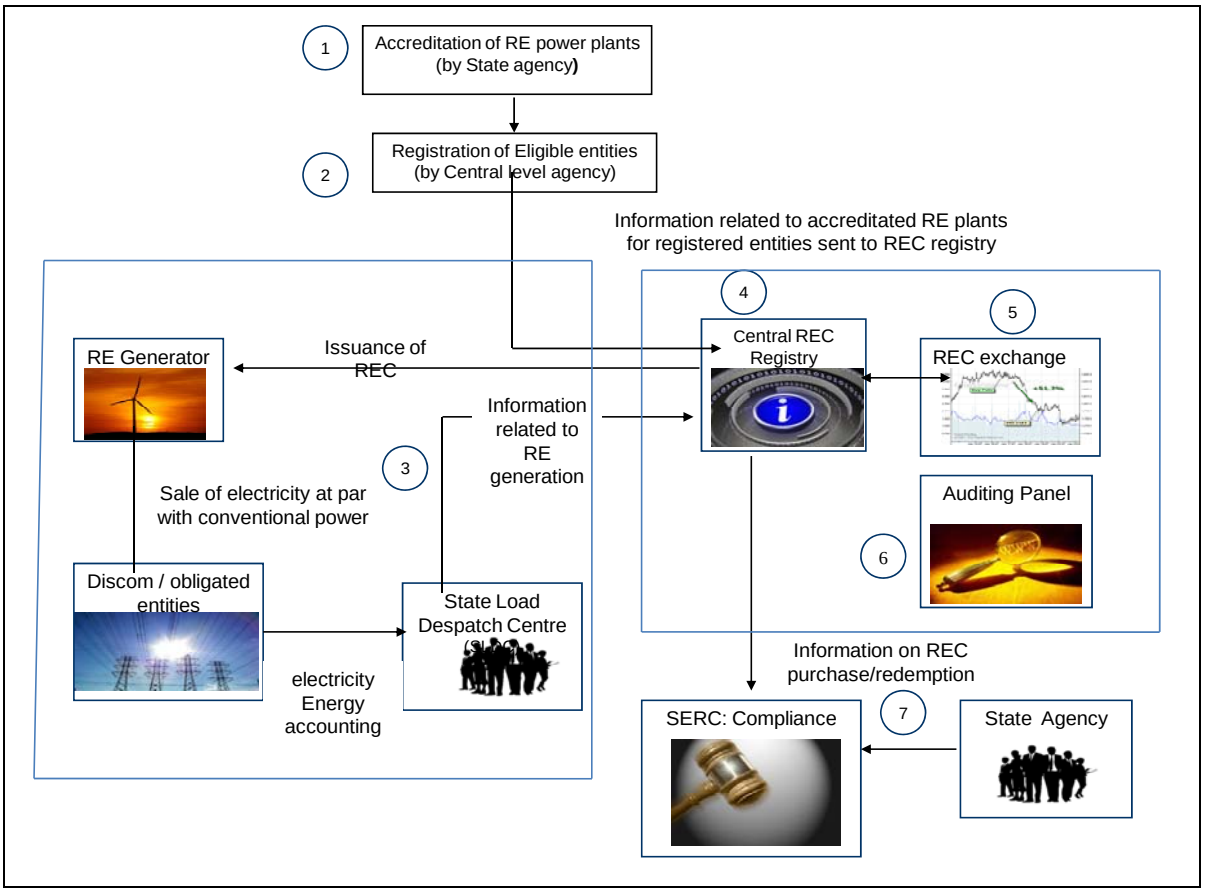


Figure: REC Framework at National Level

Step-2 Registration

Every eligible entity shall apply for registration at central level. Only one central agency at national level will be authorised to recognise attributes from renewable generation to avoid double counting. Registration will result in creation of an account for all the entities participating in the mechanism.

Step-3 Information of RE generation

Central agency would receive information about injection of RE power by the accredited RE generators through State Load Dispatch Centre (SLDC) via Regional Load Dispatch Centre (RLDC) and local distribution licensee.

Step-4 Issuance of REC by REC registry

The eligible entity shall receive a certificate for a specified quantity of electricity generated and injected into the grid. One REC will be issued for each 1 MWh of electricity generated from renewable energy plants. RECs will be created as electronic records in a register (because electronic documents are easier to track than paper documents). The issued certificates will be credited to the registered account of the plant operator/owner.

Step-5 Exchange of REC

RE generators with REC certificates can exchange their certificate at a common platform viz. the power exchange approved by CERC. Obligated entities (as defined by the SERCs in their regulations for RPO obligations) shall buy REC through power exchange. The price discovery of REC will be based on the demand and supply of the RECs in the market, subject to a forbearance price (ceiling price) to be determined by CERC. REC exchange will be connected to the central agency to keep record of all the transaction in the REC exchange.

Step-6 Monitoring Mechanism

It is proposed that a panel of auditors shall be empanelled by CERC at the central level. The remuneration charges for such panel of auditors will be met out of the funds which Central Agency may collect from eligible entities.

Step- **7 Compliance by Obligated Entities.**

Central registry will furnish details of REC purchase and redemption to respective SERCs to enable them to assess compliance by obligated entities and impose penalties on them, if applicable. As evolved by the Forum of Regulators, there is a provision for enforcement mechanism in the draft model regulation for SERCs under section 86 (1) (e) of the Act. As per this provision, in the event of default, obligated entities would be directed to deposit the amount required for purchase shortfall of REC at forbearance price (i.e. maximum price) of REC in a separate fund, which cannot be utilized without approval of the concerned State Commission. In addition to this enforcement mechanism the penalty under Section 142 of the Electricity Act 2003 would also be applicable to the obligated entity. The concerned State Commission can empower an officer of the State Agency to procure required shortfall of REC at the cost and expense of Distribution licensee.

IV. Proposed CERC Regulations for implementation of REC mechanism

4.1 Central Agency

Implementation of REC mechanism needs a central agency at national level which will act as registry for REC mechanism. A National level REC registry will ensure large number participants in the REC market, and thereby ensuring adequate liquidity in the market. It can easily facilitate the inter-state REC transactions, avoid duplication and will also minimize the transaction cost.

4.2 **Functions and Role of Central Agency.** Primary responsibility of the central agency will be to issue Renewable energy certificates to eligible RE generators. The functions of Central Agency will include :

- Registration: The eligible entities need to get registered themselves with the Central agency for participation in the REC mechanism.
- Issuance of certificates to eligible RE projects
- Maintaining accounts & settlement of the transactions related to REC
- Repository for all RECs issued in India.
- Monitoring of the transaction of REC.
- Other functions incidental to the implementation of REC mechanism

The REC Registry will be an Internet-based registry system that will support the REC mechanism by facilitating the creation, transfer and surrender of Renewable Energy Certificates. The REC registry will act like a data bank for all the REC related transactions. The Commission shall designate the central agency which will perform above mentioned tasks.

Considering the mechanism which is evolving it is proposed that the Commission may issue direction to central agency in regard to its functions and that the central agency shall always act in accordance with the directions issued by the Commission.

4.3 Categories of Certificates

As stated, though India has significant potential of RE sources, the contribution from Solar technologies is very low. The major reasons behind such low potential are nascent stage of development for solar technology and its very high cost compared to other RE technologies. At present, there is no distinction between the solar and non solar technology in so far as renewable energy source is concerned. There is no separate obligation for obligated utilities to buy power from solar. This emphasizes the need for policy and regulatory measures required to promote solar technology. In this context it is necessary to have sustainable regulatory approach for such technology.

The Forum of Regulators in its report on "Policies on Renewables" has also recommended that in order to promote different RE sources and technologies, a part of RPO may be reserved for such RE sources in a nascent stage of development.

Thus, it is proposed that there will be two categories of certificates - one for electricity generation from solar technologies called solar certificates and another for electricity from other renewable energy technologies called non- solar certificates. Both these certificates will be mutually exclusive and cannot be exchanged. The solar certificate shall be sold to the obligated entities to enable them to meet their RPO for solar and non solar certificate shall be sold to the obligated entities to enable them to meet obligation for purchase from RE sources other than solar.

4.4 Eligibility for certificates

The Ministry of New and Renewable Energy (MNRE), the nodal ministry for promotion and development of renewable energy in India, has identified and approved a number of renewable energy technologies such as Wind, small hydro, solar, biomass, bagasse based cogeneration, waste to energy etc.

The primary criteria for the entity to be eligible under this mechanism should be that the entity should be engaged in generation of electricity from MNRE approved RE sources and connected to the grid. In addition to this, the eligible entity should also fulfill specific criteria mentioned below to be eligible for registration under the REC mechanism at central agency.

- The entity should not have any power purchase agreement to sell electricity at preferential tariff determined by the appropriate commission.

- The agency should have obtained accreditation from State level agency.

- The electricity generation by such generating company 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.

The pooled cost of purchase considered under the criteria should be the weighted average pooled price at which the distribution licensee has purchased the electricity which includes the cost of self generation, if any, in the previous year from all the energy suppliers, conventional and non-conventional, long term or short term.

4.5 Denomination and issue of Certificates

As stated, the central agency would be issuing the REC certificates on the basis of units of electricity generated and injected in to the grid by the eligible entity. Injection of the electricity by such entities would be based on the information furnished by the authorities constituted under the act to oversee scheduling and dispatch and energy accounting. In case of entities which are not covered under the existing scheduling and dispatch procedures, issuance of the certificate would be based written communication of the concerned distribution licensee to the concerned State Load Dispatch Centre about the injection of electricity by the corresponding entity.

The detailed procedure for issuance of REC would be covered under the detailed procedure to be issued by the Central Agency later. The eligible entity should comply with all conditions stipulated in the detailed procedure by the Central agency for using and dealing the Certificates.

Each certificate would represent one megawatt hour of electricity generated from renewable energy sources and injected into the grid.

4.6 Dealing in the certificates

The REC certificates can be exchanged only through the power exchange which have been approved the Commission.

The certificate issued by the Central Agency would be placed in the power exchange for dealing as per the rules and bylaws of the power exchange.

4.7 Pricing of Certificates :

A "Renewable Energy Certificate" is a commodity representing the environmental attributes of a unit of renewable energy. As mentioned before, with the introduction of REC mechanism in India, RE based power projects (eligible under REC framework) will comprise of two components: Electricity component and RE attribute in the form of REC. The electricity component under the REC framework can be considered comparable to electricity generated from conventional sources. The renewable energy attribute of electricity generated from RE based projects will be valued separately in the form of REC price.

The price of REC will be as discovered in the power exchange, subject to a forbearance price (ceiling price) to be determined by CERC. CERC will determine the forbearance price after analysing the sate wise average power purchase cost and the tariff for RE sources determined by the appropriate commission. The forbearance price will not only ensure optimum incentive for the RE technologies but also save the obligated entities purchasing RECs at unrealistic high price. It is should be noted that the REC purchase expense for meeting compliance by distribution licensees should be treated as 'pass through' expense in the Annual Revenue Requirement.

Considering the two types of certificates Commission would fix the separate forbearance price for solar and non solar REC separately after consultation with Central Agency and the forum of Regulators.

4.8 Validity of Certificates

Eligible entity should apply for Certificates within three months after corresponding generation from the eligible RE projects.

Also the certificate would be valid for 365 days from the date of issuance of such certificate.

4.9 Fees and charges

Fees and Charges payable under this mechanism would include onetime registration fee and charges, annual fee and charges, the transaction fee and charges for issue of certificate and charges for dealing in the certificate. The Commission would specify such charges and fees from time to time.

The fees and charges under this mechanism would be collected by the Central Agency and utilized for the purpose of meeting the cost and expense under the mechanism including the remuneration payable to the compliance auditors, the officers, employees, consultants and representatives engaged to perform the functions under these regulations.

4.10 Funding for capacity building of State Agency

State Agency is an important institution in the process of effective implementation of REC mechanism. Considering the role envisaged for such an agency, it is necessary to build up capacity for the agency. Hence certain percentage of the proceeds from the sale of Certificates would be provided for the purpose of training and capacity building of the State Agency as designated by the concerned State Commission and for other facilitative mechanism required as per the detailed procedure by the Central Agency.

4.11 Appointment of Compliance auditors

It is proposed that the commission would appoint a panel of auditors for monitoring the REC mechanism and to inquire and report on all process and all matters under this mechanism.

The Remuneration and charges for such compliance auditors should be met out of the funds which the Central Agency would collect from eligible entities.

Considering the exercise the auditors are required to be performed, it is proposed that qualification criteria would be as follows and the same has been attached as Schedule to the regulations:

The auditor could be an individual person or a firm having persons with qualification and experience in the following areas:

a. Finance or accounts or commerce, and
b. having qualifications and experience in the field of engineering with specialisation in generation, transmission or distribution of electricity, experience that demonstrates an understanding of the electricity sector, institutions involved including Regulatory Commission, utilities, government institutions, State agencies and their roles and responsibilities.

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