

Explanatory Memorandum for Draft DERC (Renewable Purchase Obligation and REC Framework Implementation) Regulations, 2011

1. Background

1.1 As India is in deficit of electricity and there is scarcity in supply of conventional fuels such as coal, diesel and natural gas, renewable energy can make a substantial contribution for electricity generation. The positive attributes of generating electricity from Renewable Energy Sources (RES) are widely accepted, although many of them may not be currently commercially competitive with the conventional energy sources. Contribution of renewable energy sources in the total installed electricity generation capacity is still very low. As on 30th June, 2011, the renewable energy sources constituted only about 10.42 % of the total generation capacity in the country. The available potential for solar and non-solar renewable potential together works out to be more than 185 GW; and against this only 18454.52 MW (approx) capacities have been installed by January 2011. The gap between the available potential and the installed capacity is huge and provides an excellent opportunity to harness more RE based power. In view of the fast changing energy scenario both domestically and internationally, and the important role expected to be played by renewable energy sources, it is imperative to adopt a focused approach for accelerated growth of the renewable energy sector over the short, medium and long term.

1.2 Over the last few years, NCT of Delhi (hereinafter referred to as “the State”) has experienced considerable development in the generation of electricity based on conventional sources. At present, the State has high demand of electricity, which is mostly getting fulfilled through conventional sources. Although, small capacity solar based plants have been added to State in the last few years, still the potential of the RES to fulfill the energy requirements, needs to be explored. The opportunity of power generation through solar, biomass and cogeneration is expected to gear up in near future. Generation based on urban or municipal waste is in nascent stage. Therefore, in order to achieve holistic development of renewable energy potential, renewable energy may need special attention.

2. Legal and Policy Framework

2.1 Integrated Energy Policy of Planning Commission, Government of India recognizes the need of renewable energy mix to ensure sustainable development of India’s energy sector and energy security.

2.2 The Electricity Act, 2003 entrusts on the appropriate Commission the responsibility of promotion of co-generation and generation based on renewable energy sources. The policy framework of the Government of India also stresses on the encouragement of renewable energy sources keeping in view the need for energy security of the country. Relevant provisions of the Act are reproduced as below:

Section 3(1):

3. National Electricity Policy and Plan

(1) *The Central Government shall, from time to time, prepare the National Electricity Policy and Tariff Policy, in consultation with the State Governments and the Authority for development of the power systems based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.*

Section 61 (h):

61. Tariff regulations

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:-

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.....

(h) *the promotion of co-generation and generation of electricity from renewable sources of energy;*

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Section 86(1)(e):

86. Functions of State Commission

(1) *The State Commission shall discharge the following functions, namely:-*

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(e) *promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;*

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Section 66:

66. Development of market

The Appropriate Commission shall endeavor 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 The National Electricity Policy provides that purchase obligation from RES would be made applicable by SERCs at the earliest and progressively the share of electricity from non-conventional sources needs to be increased. The relevant text of Para 5.12 is reproduced in **Annexure-1**.
- 2.4 The Tariff Policy provides that appropriate Commission shall fix a minimum percentage for purchase of energy from RES taking into account availability of such resources in the region and its impact on retail tariffs. The relevant text of Clause 6.4 is reproduced in **Annexure-2**.
- 2.5 National Action Plan of Climate Change (NAPCC), 2008 aims to enable the Country to adapt the climate change and enhances the ecological sustainability of India’s development. It suggests RPO to be 5% starting from the year 2009-10 and to increase by 1% each year for 10 years. The NAPCC envisages transaction of renewable energy from surplus regions to deficit regions through Renewable Energy Certificate (REC) Mechanism which would enable large number of stakeholders to purchase renewable energy in a cost effective manner. The NAPCC further recommends strong regulatory measures to fulfill these targets.
- 2.6 The Jawaharlal Nehru National Solar Mission (JNNSM) is a major initiative of the Government of India and State Governments to promote ecologically sustainable growth while addressing India’s energy security challenge. It is one of the 8 National Missions outlined in the NAPCC. The objective of the JNNSM is to establish India as global leader in solar energy, by creating the policy conditions for its diffusion across the country. JNNSM sets path for providing policy and environment, which provides incentive structure that:
- enable rapid and large scale capital investment
 - encourages technical innovation and lowering of costs.
- JNNSM also sets path for separate Solar RPO starting with 0.25% which would go up to 3% by 2022. This could be complemented with solar specific Renewable Energy Certificates (RECs).

- 2.7 From the above, it is clear that promotional aspect of renewable is needed to address various associated issues that influences growth/ harnessing of renewable energy such as:
- a) sale of electricity to any person,
 - b) promotion of REC mechanism,
 - c) actual energy generated as opposed to installed RE capacity.

3. Need for Renewable Energy Certificates

- 3.1 The Electricity Act, 2003, the policies framed under the Act and the NAPCC provides a roadmap for specifying Renewable Purchase Obligation (RPO) as a percentage of total consumption of electricity. As there are constraints in terms of availability of RE sources evenly across different parts of the country, the concept of Renewable Energy Certificate (REC) assumes significance. This concept seeks to address the mismatch between availability of RE sources and the requirement of the obligated entities to meet their renewable purchase obligation.
- 3.2 The Forum of Regulators (FOR) constituted under section 166 of the Act, has published a report 'Policies on Renewables' in 2008, with the objective of evolving a common approach for the promotion of RES in the country. The report recommends that each State Commission may specify a minimum RPO in line with the NAPCC and emphasizes to develop REC mechanism for achieving RPO targets. FOR came out with Model Regulations on Renewable Purchase Obligation and its compliance for SERCs in October, 2009 to evolve a framework for implementation of REC mechanism which necessitated both Central Commission and State Commissions to frame suitable regulations for giving effect to the REC framework. The framework of REC is expected to give push to renewable energy capacity addition in the country. The salient features of the REC framework are enclosed as **Annexure-3**.
- 3.4 In exercise of the mandate in section 66 of the Act, the Central Commission has notified Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 to facilitate development of renewable energy market at national level. Salient features of the CERC Regulations are enclosed as **Annexure-4**.
- 3.5 The RPO and REC framework for the State has been put forth with the key consideration of legal and policy framework for RPO alongwith the necessity of REC for the State. As suggested by Forum of Regulators in their report "Assessment of Various Renewable

Energy Resources Potential in Different States, Determination of RPO Trajectory and its Impact on Tariff” in June 2010, the solar RPO for the State is best assessed with 0.10 % in the year 2011-12, which uniformly increases to 0.35% by 2017. The impact on tariff with the proposed trajectory is minimal and at the same time covers the feasible targets of JNNSM. The total RPO for the State has been initiated with 2.00% for the year 2011-12 and will follow the incremental trajectory of 1.40% every year till 2017 in order to achieve proximity of the NAPCC target.

4. Draft DERC (Renewable Purchase Obligation and REC Framework Implementation) Regulations, 2011.

4.1 In exercise of powers conferred under sections 61, 62(1), 66, 86(1)(e) and 181 of the Electricity Act, 2003 and all other powers enabling it in this behalf, and after previous publication, the Delhi Electricity Regulatory Commission hereby makes the following draft regulations for the Renewable Purchase Obligation and REC Framework Implementation.

4.2 The draft DERC (Renewable Purchase Obligation and REC Framework Implementation) Regulations, 2011 is categorized broadly as under:

- (a) Compliance of RPO by the Distribution licensee(s), Captive user(s) and Open access consumer(s) in the area of the distribution licensee;
- (b) REC Mechanism;
- (c) State agency and its functions;
- (d) Miscellaneous.

4.2.1 RPO and its Compliance

- (a) **Renewable Purchase Obligation** – Although India is abundantly gifted with variety of RES, not all States are endowed with same level of RES. While some States have very high renewable energy potential, some States have very little renewable energy potential. Under EA 2003, the SERCs are required to fix targets for distribution companies to purchase certain percentage of their total power requirement from RES, termed as **Renewable Purchase Obligation**. Generation from grid connected RE projects based on RES, as approved by the Ministry of New and Renewable Energy (MNRE) Govt. of India or State Government, shall be considered for the purpose of compliance of **‘RPO percentage target’**. In this regard, the Commission has specified combined targets for all RE technologies except for solar. Keeping in view that solar energy can become a major energy source in future, specifying some percentage of RPO to be met through solar

energy will help in developing the market for large scale solar projects and reduction in capital cost and cost of generation thereof. Further it, either on its own motion or on recommendation of the State Agency, by order, may revise or carry forward the RPO targets in case of genuine difficulty in complying with RPO.

- (b) Obligated Entities – RPO percentages shall be applicable not only to the Distribution licensee(s) but also to the Captive user(s) above 5 MW and Open access consumers above 1 MW. Every Obligated Entity would be required to submit necessary details regarding total consumption of electricity and purchase of energy from renewable sources for fulfillment of RPO on yearly basis to the State Agency. The incremental trajectory for RPO percentages has been specified considering the renewable energy growth on annual basis. The RPO percentage specified would be minimum percentage and would not be construed as ceiling percentage.
- (c) Renewable Energy Pricing – The options available for the new renewable energy project commissioned during the operative period would be either the tariff pricing structure, or the REC mechanism for pricing of the electricity generated from the project. The projects, which opt for preferential tariff, may be allowed to participate in REC scheme, only after the expiry of the Power Purchase Agreement. However the prior termination of the Power Purchase Agreement would not entitle the project to participate in the REC mechanism. The open access consumer receiving electricity from RES would be exempted from the cross-subsidy surcharge determined by the Commission from time to time. However, no banking facility would be provided for supply of electricity from RES through open access.
- (d) RPO Regulatory Fund – In case of shortfall in RE procurement in any year, the Commission may direct the obligated entity to deposit into a separate fund, such amount as the Commission may determine on the basis of the shortfall in units of RPO and the forbearance price decided by the Central Commission. The Commission may outline conditions for utilization of such funds for purchase of RECs and/or addressing concerns/constraints related to renewable energy development within the State. The penalty enforced by the Commission on the obligated entity, in case of non-compliance, would not be a pass through in the Aggregate Revenue Requirement.

4.2.2 REC Mechanism

- (a) Certificates under the Regulations of the Central Commission – Two categories of renewable energy certificates have been specified in the CERC Regulations viz., Solar REC and Non-Solar REC. Purchase of certificates issued for renewable energy generation would be considered as a valid instrument for the discharge of the mandatory RPO compliance by obligated entities within the State. The obligated entities shall comply with the CERC Regulations in regard to the procurement of certificates.

4.2.3 State Agency and its Functions

- (a) The State Agency would be responsible for accreditation and recommending RE projects for registration under REC mechanism, monitoring of RPO compliance, collection of information and submission of status reports along with its recommendations to the Commission.
- (c) The State Agency would function in accordance with the directions issued by the Commission and act in consistent with the procedures/rules laid by Central Agency for discharge of its functions.
- (d) If the Commission is satisfied that the State Agency is not able to discharge its functions satisfactorily, it may by Order, and after recording reasons in writing, designate another agency to function as State Agency as it considers appropriate.

4.2.4 Miscellaneous

- (a) Priority for Open Access – Any entity generating electricity from RES, irrespective of installed capacity, would have non-discriminatory open access to any licensee's transmission system or distribution system or grid, as the case may be. Such interconnection facilities would follow the grid connectivity standards as specified in the Indian Electricity Grid Code/State Grid Code.
- (b) Appointment of Compliance Auditors – Compliance Auditors may be appointed by the Commission to inquire into and report on compliance of these Regulations. The Auditor shall also certify the RPO regulatory fund created.

Extract of Para 5.12 of National Electricity Policy

5.12 Cogeneration and Non-Conventional Energy Sources

5.12.1 Non-conventional sources of energy being the most environment friendly there is an urgent need to promote generation of electricity based on such sources of energy. For this purpose, efforts need to be made to reduce the capital cost of projects based on non-conventional and renewable sources of energy. Cost of energy can also be reduced by promoting competition within such projects. At the same time, adequate promotional measures would also have to be taken for development of technologies and a sustained growth of these sources.

5.12.2 The Electricity Act 2003 provides that co-generation and generation of electricity from non-conventional sources would be promoted by the SERCs by providing suitable measures for connectivity with grid and sale of electricity to any person and also by specifying, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. Such percentage for purchase of power from non-conventional sources should be made applicable for the tariffs to be determined by the SERCs at the earliest. Progressively the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies.

5.12.3 Industries in which both process heat and electricity are needed are well suited for cogeneration of electricity. A significant potential for cogeneration exists in the country, particularly in the sugar industry. SERCs may promote arrangements between the co-generator and the concerned distribution licensee for purchase of surplus power from such plants. Cogeneration system also needs to be encouraged in the overall interest of energy efficiency and also grid stability.

Extract of Clause 6.4 of Tariff Policy

Non-conventional sources of energy generation including Co-generation:

- (1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006.
It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission.
- (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.

Salient features of the National level REC Framework

- REC mechanism is a market based instrument to promote renewable energy and facilitate renewable purchase obligations (RPO).
- REC mechanism is aimed at addressing the mismatch between availability of RE resources in state and the requirement of obligated entities to meet RPO.
- RE generators will have two options i) either to sell renewable energy at preferential tariff or ii) to sell electricity generation and environmental attributes associated with RE generations separately.
- Price of electricity component will be equivalent to weighted average pooled power purchase cost of the distribution company in previous year from all long-term and short-term energy suppliers but excluding those based on RES.
- SERC to designate State Agency for accreditation and monitoring RPO compliance and REC mechanism at State level. Only accredited project can register for REC at Central Agency. CERC to designate Central Agency for registration, monitoring and repository settlements and other functions for implementation of REC framework at national level.
- Central Agency will issue REC to RE generators only.
- The value of REC will equivalent to 1 MWh of electricity injected into grid from RES.
- REC will be exchanged only through CERC approved power exchange. REC will be exchanged within the forbearance price and floor price. This forbearance and floor price will be determined by CERC in consultation with Central agency and FOR from time to time.
- REC shall remain valid for 365 days from the date of issuance of such certificate.
- Grid connected RE Technologies with minimum capacity of 250 kW and approved by MNRE will be eligible under this scheme.
- RE generations with existing PPAs are not eligible for REC mechanism.
- SERC will define open access consumer(s), captive user(s) as obligated entities along with distribution companies.
- The obligated entities will have option of purchasing REC to meet their RPO under section 86(1) (e) of the Act.
- In case of default in compliance of RPO by obligated entity, SERC may direct obligated entity to deposit amount into a separate fund.
- REC shall be issued for specified quantity of electricity injected into the State grid within three months after corresponding generation;

Salient features of the CERC Regulations for REC Mechanism

- CERC to designate any agency as Central Agency.
- Functions of Central agency shall include registration, maintaining account, repository settlement and such other functions as designated by CERC.
- Detailed procedures, bye laws to be prepared by Central Agency and shall be approved by CERC.
- Power exchanges approved by CERC shall be eligible exchange platforms for REC exchange.
- Fees and charges payable under this mechanism shall be specified by CERC.
- 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 are mutually exclusive and cannot be exchanged.
- The certificates will be valid for 365 days after issuance.
- CERC to determine forbearance price and floor price within which REC can be exchanged.
- CERC shall appoint Compliance Auditor for post monitoring of the REC Transactions. Remuneration charges payable to such auditors shall be met by Central Agency.