Discussion paper on redesigning the Renewable Energy Certificate (REC) Mechanism

Ministry of Power has issued a discussion paper on redesigning the Renewable Energy Certificate (REC) Mechanism on 07th June, 2021.

Some of the highlights are:

Key objectives:

- To increase the share of non-fossil fuel based electricity energy to meet the international target of 175 GW by 2022.
- To maintain the future energy security by promoting the new RE technologies such as offshore wind, Hydrogen, Pumped storage hydro plant etc.

Proposal for redesign of REC Mechanism:

- Validity period of RECs; Floor & Forbearance Price:
  - The REC validity period may be removed i.e. perpetual validity till it is sold
  - The floor and forbearance prices are not required to be specified as RECs holders would have the complete freedom to decide the timings to sell
  - CERC may intervene in cases of malpractices observed in the REC trading.

- Period for which the RECs are to be issued to RE generators:
  - Eligible RE generator will be eligible for issuance of RECs for 15 years from the date of commissioning of the projects and 25 years for existing RE project.

- Promotion of new and high cost technologies in RE and the provision of multiplier for issuance of RECs:
  - The concept of multiplier, negative list and sunset clause can be introduced for various technologies depending upon their maturity level.
  - For RE projects that need to be promoted will be provided at least 15 years policy visibility to attract investments and promotion

Subject to the policy thrust to be given to specific RE technology, the multiplier can also be varied for specific RE Technology. These conditions would be applicable only to the new RE projects. Also, once a multiplier is given to a project, same would continue for 15 years for that project.

- Incentivizing Obligated Entities for procurement of RE Power beyond RPO:
  - Option 1: Only DISCOMs to be issued RECs for quantum beyond RPO compliance (additional benefit of REC need not to be given to OA and CPP consumers)
  - Option 2: RECs can be issued to the obligated entities that purchase RE Power beyond their RPO compliance. This would facilitate and promote REC market.
  - No REC to be issued to the beneficiary of the concessional charges or waiver of any other charges.

The discussion paper can be accessed here

CER Opinion

1. **Floor and Forbearance prices (Section 5.1):** In its earlier comments to CERC[1], relevance (or rather irrelevance) of the floor and the forbearance price was highlighted. Given an efficient market, artificial and rather arbitrary fixation of floor price introduces avoidable (Singh (2010) highlighted the anomaly in fixation of floor price and how it would give windfall gain to existing payers under the regulated tariff contacts, i.e. Feed in Tariff (FiT) contracts, to exit and sign another one under the REC framework[2].
   With the RECs having a perpetual validity, the relevance of floor price is further diminished. Furthermore, compliance penalty for RPO shortfall (as applicable in respective states, if any) indirectly translates into a forbearance price (See Singh (2010) for further discussion on the same).

2. **REC as Unified framework for "Guarantee of Origin"[3]:** The REC framework should be expanded as a unified framework for "Guarantee of Origin". Non-REC projects do not have a guarantee of origin certification at present. This currently serves the purpose as the system operator and the distribution utility can identify the energy injected through the metering infrastructure. However, there is such certification to allow this 'green energy' to be identified and traded further in the market. By issuing RECs to all RE projects (including those under FiT framework, captive as well as merchant RE capacity) in the country would have following advantages

   - Ensure full **visibility of RE energy footprint** across the country.
   - **Unified 'Guarantee of Origin' c**ertification across all RE technologies
   - **Enable the obligated entities (Discoms+) to offload, in the form of RECs, excess RE procurement beyond their RPO**, particularly that on account of contracts signed under the FiT framework.
   - **Develop a retail market for 'green electricity'**, wherein distribution utilities can sell a 'green electricity product' to willing consumers.

3. **Banking of RECs and roll over of RPO generators / obligated entities (Section 5.1):** With the perpetual extension of period of validity of RECs, need for allowing banking of RECs by the REC project developers themselves is obviated. However, the obligated entities (distribution licensees, and OA and captive consumers), having over-achieved their RPO target (through procurement from projects under FiT framework), should get an option to offload the same. This can be achieved with greater flexibility if all RES based electricity generation in the country is issued RECs to certify their origin.

---

[1] Singh, A. 2010 "Setting a Floor and Forbearance Price for Renewable energy Certificates (RECs)", Submitted to Central Electricity Regulatory Commission, April 2010. https://www.iitk.ac.in/ime/anoops/policypapers/Anoop%20Singh%20-%20CERC%20-%20Comments%20on%20Floor%20and%20Forbearance%20Price%20for%20RECs%20-%202010.pdf

[2] An amendment to address this anomaly was introduced within a couple of months or so (not to address the anomaly as such) but to lock-in existing projects under FiT regime for a period of 3 years and thus avoid their exit from such contracts so as to allow signing in more lucrative contract under the REC regime with high floor price

[3] Singh A. 2009. A market for renewable energy credits in the Indian power sector, Renewable and Sustainable Energy Reviews; 13(3): 643-652. https://doi.org/10.1016/j.rser.2007.10.011

4. **Secondary Market for RECs:** It is important to note that excess procurement of equivalent RECs can be avoided to some extent but cannot be overruled. A provision for the secondary market for RECs by allowing its open re-trading would provide additional liquidity and efficiency in the market with proper regulatory oversight. This would also generate interest of common investors as this would also facilitate more regular trading in RECs.

5. **REC Derivatives:** Introduction of derivatives market for electricity is under discussion for some time. Derivatives for the REC market would open up risk mitigation strategy for the obligated entities as well as investors in REC based projects. In combination with the secondary market for RECs, REC based derivatives open up a new vista for further improving the efficiency of the REC market.

6. **Issuance of RECs for 15 / 25 years (Section 5.2):** It is discussed in the paper that the RE generators will be eligible for RECs till 15 and 25 years for new projects and existing projects, respectively. This does not provide a level playing field for a REC based projects in comparison to the projects under Feed in Tariff (FiT) regime or those who can participate in GTAM / GDAM market till the end of PPA / project life, as applicable.

   To address the anxiety of the investors in REC based projects, a clarification about eligibility of such projects to freely participate in the green market platform, beyond the 15-year REC issuance period as well.

7. **Multiplier and Sunset clause[4] (Section 5.3):** The application of multiplier and sunset clause would promote and provide upfront support to the new high-cost RE technology in its initial stages. This was one of the key suggestions ever since the discussion on introduction of the REC market began in India[5].

   The concept of multiplier and sunset clause should be appropriately applied in their respective context as discussed below.

   The concept of sunset clause is to be applied for a technology over a 'period of time'. This can be implemented by adopting a reducing REC multiplier for the identified technology. To ensure that the technology developers, suppliers, investors as well as financial institutions work towards reducing the overall capital and operation cost, the multiplier associated with the sunset clause should be predefined for a period of 5- 7 years. This may be subject to a mid-term review after a 3-4 year. This would provide better regulatory certainty for a technology.

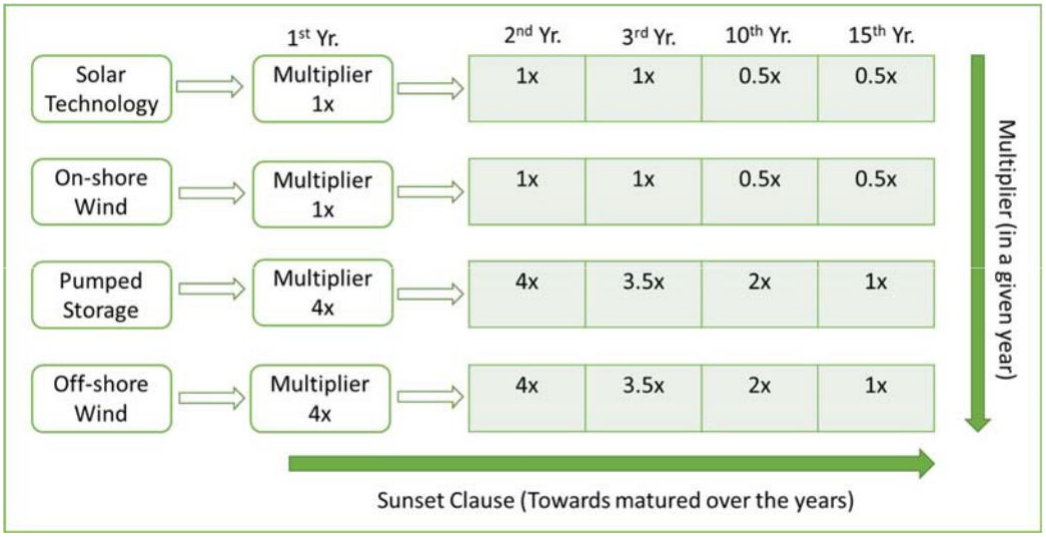
   The relative REC multiplier across technologies should be tuned to the relative cost differentiation across the technologies. A periodic adjustment should only be applied after considering the LCOE

[4] Singh, A. 2010. "Economics, Regulation and Implementation Strategy for Renewable Energy Certificates in India" in India Infrastructure Report 2010, Oxford Univ. Press. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3440253

5 See the list of comments/interventions that were shared with CERC as well as respective ministries in the context of various regulatory, policy and legislative developments/proposals.

of RE electricity discovered primarily through a competitive basis, and also taking into account the ongoing technological developments, and international cost benchmarks for projects setup through competitive basis.

Setting up a proper trajectory for the multipliers would provide a cost benchmark targets for RE technology developers and investors. Figure below explains the two concepts. It should also be noted that the multipliers are to be linked to the identified base year and should be reduced over a period of time.



Note: Further debate is required to differentiate the 'energy' and the 'storage' value of pumped storage based hydro plants.
Therefore, if a new project starts at 3rd year, the multiplier should be 3.5x and not 4x as the particular may have gained some maturity over 3 years.

Given that REC based projects, particularly solar projects, would effectively face a negative REC price (as APPC >> LCOE of solar PV, as competitive price benchmark for solar have declined significantly below the APPC), the REC multiplier for solar should be pegged much lower in comparison to other technologies to promote the later.

8. **Section 5.4 – Option 1: Only DISCOMs to be issued RECs for quantum beyond RPO compliance:** RPO compliance would be established only after the completion of a (financial) year for all the obligated entities including DISCOMs. In such cases, decision to allot REC for excess RE procurement on ex post basis would be procedurally difficult as quantum of such RE procurement would not be known. Furthermore, it would not be feasible to uniquely identify (non-REC) projects from which such REC would need to be allocated and apportioned.

   In contrast, the above-mentioned suggestion for using RECs as guarantee of origin would avoid all such concerns and make the process much simpler.

9. **Section 5.5 – No REC to be issued to the beneficiary of the concessional charges or waiver of any other charges:** The process to find out all the beneficiaries (RE generators) those may have been provided concessions of various sorts, i.e. waiver of transmission charges or preferential banking charges etc, would be a time consuming and tedious task. This will raise significant cost

of administrating it also raise a number of legal disputes as value of a number of concessions may vary across projects but all of which may be denied the REC benefit.

As per the current order issued by MoP, dated 21st June, 2021, the waiver of Inter-State Transmission system (ISTS) charges on transmission of electricity generated from Solar and Wind sources is extended for projects to be commissioned up to 30th June, 2025. Implications of such policy and regulatory changes cannot be predicted beforehand and hence raise the concerns for regulatory and policy uncertainty.

10. **Merging the REC and Ecerts market under the PAT scheme:** Singh (2009) proposed merger of an energy efficiency certificate scheme that may be launched in future (This was later launched under the PAT scheme) with the then suggested REC market. Given the common decarbonization attribute of the REC and the Ecerts, merger of the later market in the former would provide numerous benefits for the both. This would not only enhance the overall cost effectiveness of cost of compliance by the obligated entities (for RPO as well as energy efficiency target under the respective framework) but also enhance the footprint of the REC+Ecerts market, provide missing liquidity and efficiency to the Ecerts market.

    Implementation of this suggestion would require adoption of a conversion multiplier (i.e. finding the number of REC equivalent for each Ecert), which can be determinate on the basis of the relative decarbonation under the two schemes.

Further readings:

Relevant suggestions highlighted above have been highlighted in scholarly articles and, submissions in response to various regulatory and policy documents issued from time to time.

1. Singh A. 2009. A market for renewable energy credits in the Indian power sector, Renewable and Sustainable Energy Reviews; 13(3): 643-652. https://doi.org/10.1016/j.rser.2007.10.011

2. Singh, A. 2010. “Economics, Regulation and Implementation Strategy for Renewable Energy Certificates in India” in India Infrastructure Report 2010, Oxford Univ. Press. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3440253
3. #Comments on “National Electricity Policy, 2021 (Draft)”

4. #Comments on “Electricity Act, 2003 (Amendment 2020) (Draft)”

5. #Comments on “CERC's Proposal for Determination of Forbearance Price and Floor Price for the REC Framework” – March, 2020 https://cer.iitk.ac.in/blog

6. @Comments on "Draft Terms and Conditions for Exchange of Energy Savings Certificates Regulations", CERC, 2016

7. @Comments on “Draft Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation (Second Amendment) Regulations, 2013”

8. @Comments on “Determination of Forbearance and Floor Price for REC framework, Central Electricity Regulatory Commission, July 2011”
9. @Comments on “Setting a Floor and Forbearance Price for Renewable energy Certificates (RECs), Central Electricity Regulatory Commission, April 2010”
10. @Comments on “Draft CERC regulation for REC Framework Implementation 2009, issued by Central Electricity Regulatory Commission, Nov. 2009”

Above regulatory submissions can be accessed from

- https://cer.iitk.ac.in/blog

@ - https://www.iitk.ac.in/ime/anoops/regulatorypolicy/index.php