

CENTRAL ELECTRICITY REGULATORY COMMISSION, NEW DELHI

Petition No. 142/2011 (Suo Motu)

Date of Order: 23rd August, 2011

IN THE MATTER OF

Determination of Forbearance and Floor Price for the REC framework to be applicable from
1st April 2012.

ORDER

A. BACKGROUND

1. In exercise of the power under section 66 and 178 of the Electricity Act, 2003, the Commission has notified the Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 (hereafter REC Regulations).
2. As per the first proviso to clause (1) of Regulation 9 of the REC Regulations, the Commission may in consultation with the Central Agency (Power System Operation Corporation Limited) and Forum of Regulators from time to time provide for floor price and forbearance price separately for Solar and Non-solar Renewable Energy Certificates.
3. Further, Clause (2) of Regulation 9 of the REC Regulations provides for the guiding principles for determining the forbearance and floor price for solar and non- solar Certificates. The relevant provisions are extracted as under:

“9. *Pricing of Certificate:*

(1) The price of Certificate shall be as discovered in the Power Exchange:

Provided that the Commission may, in consultation with the Central Agency and Forum of Regulators from time to time provide for the floor price and forbearance price separately for solar and non-solar Certificates.

(2) The Commission while determining the floor price and forbearance price shall be guided inter alia by the following principles:

(a) Variation in cost of generation of different renewable energy technologies falling under solar and non-solar category, across States in the country;

(b) Variation in the Pooled Cost of Purchase across States in the country;

(c) Expected electricity generation from renewable energy sources including:-

- i. expected renewable energy capacity under preferential tariff
- ii. expected renewable energy capacity under mechanism of certificates;

(d) Renewable Purchase obligation targets set by State Commissions”

4. The Commission earlier came out with an Order dated 1st June, 2010 for ‘Determination of Forbearance and Floor Price for the REC framework’ (Suo Motu Petition No.99/2010) and provided forbearance price and floor price for dealing in Certificates under the REC Regulations:

	Non solar REC (₹/ MWh)	Solar REC (₹/ MWh)
Forbearance Price	3,900	17,000
Floor Price	1,500	12,000

5. Above determined forbearance price and floor price are valid for the control period upto FY 2012. For determination of forbearance and floor Price for the REC framework for the next control period i.e. from 1st April 2012 onwards, the Commission vide its Suo Motu Order (No.142 / 2011) dated 13th June, 2011 proposed the following forbearance and floor price and invited comments and suggestions on the same:

	Non solar REC (₹/ MWh)	Solar REC (₹/ MWh)
Forbearance Price	3480	13690
Floor Price	1400	9880

6. As required under proviso to Regulation 9 (1) of REC Regulations, the Commission has also consulted the Forum of Regulators (FOR) and the Central Agency vide letter number 1/3/2009 Reg. Affairs (RE Tariff-FY-1010-11)(ii)/CERC dated 14th June, 2011.

7. 39 stakeholders have submitted their comments / suggestions in response to the Suo Motu Order (No.142 / 2011) dated 13th June, 2011 proposing forbearance & floor prices for REC to be applicable from 1st April 2012. List of such stakeholders is attached as Annexure-1.
8. A public hearing was held on 19th July, 2011. Ten participants presented their comments / suggestions during public hearing. List of such participants is attached as Annexure-2.

Consideration of the views of the stakeholders & analysis and findings of the Commission on important issues

9. The Commission considered the comments of the stakeholders, views of the participants in the public hearing on the proposed floor and forbearance prices. Analysis of the important issues and findings of the Commission thereon are discussed in the subsequent paragraphs. Other comments of the stakeholders and observations thereon are enclosed as Appendix-A.

Comments/Suggestions received and Commission's decision thereon

10. **Average Power Purchase Cost (APPC)**

- (a) Some State Electricity Regulatory Commissions (SERCs) suggested that the Average Power Purchase Cost (APPC) used for calculating the forbearance and floor prices for REC should be updated as per the recent tariff orders issued by the respective SERCs. Some of the stakeholders suggested that State to State variation in APPC should be considered instead of escalation of previous year APPC of each State with the average CAGR of the power purchase cost data of previous years, to arrive at the value of APPC for FY 2011-12. One of the stakeholders has suggested that the short term prices in India are going down, therefore, the escalation should not be considered for computation of APCC for next control period.
- (b) The Commission noted the comments related to APPC and has accordingly updated the APPC, as per the latest available ARR orders for the FY 2011-12 and

information submitted by SERCs. In the absence of latest tariff order for the FY 2011-12, in order to arrive at the APPC for FY 2011-12, the commission has considered an escalation factor which is the lowest among average CAGR, State specific CAGR (of the power purchase cost data of previous years as per PFC report), year on year escalation factor derived from APPC data of FY 2009-10 and 2010-11.

11. **Control Period**

- (a) According to the most of the stakeholders there is a need for longer term control period as RE project developers as well as lenders seek a long term visibility to make necessary decision for participating in the REC mechanism upon evaluating price risk and off take risk. Suggested trajectories are: 3 to 5 years, 5 years (to coincide with the 12th Plan Period), 7 to 10 years (to match with average loan period), 10 to 15 years and life time of the project.
- (b) The Commission noted the suggestions and has appreciated the need for longer term visibility for certainty and comfort for financial closure of the projects. The Commission has therefore, decided that the next control period starting for REC price band shall be of 5 years from 1st April 2011. In other words, the forbearance and the floor price determined under this order will remain applicable for 5 years from 1st April 2011. The Commission is of the view that 5 years control period will reduce regulatory uncertainty and provide comfort to investors and lenders. The Commission is also of the view that the control period longer than 5 years will not recognize any possible decline in renewable energy tariff due to technological improvement and likely increase in APPC due to marginal cost of power procurement from new facilities as well as increase in fuel cost of old facilities.

12. **Non Solar Floor Price**

- (a) Some of the stakeholders suggested that the REC floor price should be restored to the originally announced prices as any reduction might dent investor's confidence in

the mechanism. Some of the stakeholders requested to follow the methodology as followed in the previous order for determination of floor price i.e. as per NAPCC target instead of MNRE target, and accordingly the floor price should be increased. Some stakeholders suggested that the highest difference in the APPC and viability tariff for determination should be considered as followed in determination of solar floor price, otherwise renewable energy technologies whose difference between viability price and APPC is greater than Rs. 1.4-1.5 /kWh would make such technologies unviable under REC mechanism. Some SERCs suggested that floor and forbearance prices should be calculated also based on the RE tariff applicable to respective States.

- (b) The Commission has noted the comments, and appreciates the concern raised against lowering of floor price and its likely impact on investment in RE sector. The Commission agrees that due weightage should also be given to NAPCC RE generation target while arriving at the floor price. Therefore, the Commission has, for computing floor price, used the target RE generation based on the average of renewable energy target as per NAPCC and MNRE for non solar technology which is around 70000 MUs. As regards the reference RE tariff for computation of floor and forbearance prices, the Commission has considered, as in the past CERC RE tariff for the sake of uniformity.

13. **Non Solar Forbearance Price**

- (a) Some of the stakeholders suggested that the forbearance level should be brought down to ₹3000 per REC and floor level should be increased to ₹2120 per REC as the lower gap between the floor and forbearance would attract buyers to fulfill their obligations during initial month. Many stakeholders submitted that proposed non-solar forbearance price would effectively reduce the penalty imposed on obligated entities for non-implementation of RPOs and suggested that it should be maintained

at the price applicable for control period up to March, 2012. Some of the stakeholders have requested that the highest difference in unit price should be rounded off to the next ten's. One of the stakeholders has suggested that the forbearance price will be increased from ₹ 3.48 /kWh due to the fact that short term prices in India are going down and renewable energy tariff will be increased in future due to significant escalation in cost of materials such as steel, cement, finance cost and other direct or indirect cost.

- (b) The Commission has considered the comments received related to non solar floor price. The Commission notes that APPC of almost all States has increased during the last two years. Therefore, the Commission has decided to retain the methodology opted earlier i.e. the highest difference between the renewable energy tariff for non solar technologies and the APPC across the States for determination of the forbearance price for non-solar technologies. The Commission appreciates the concern that given the linkage between forbearance price and compliance charge (which is used as deterrent against non-compliance of RPO fixed by SERC), lowering of forbearance price might dilute the impact of deterrence. However, the Commission cannot ignore the interest of buyers as well by raising the forbearance price to a level which cannot be supported by the fundamental principle of determination of forbearance price (i.e. the principle of arriving at forbearance price based on difference between RE tariff and APPC). Providing adequate deterrence against non-compliance of RPO being the responsibility of the State Commission, the Commission would leave it to the judgement of the SERCs to address this concern.

14. Solar Floor Price and Solar Forbearance Price

- (a) Some of the solar PV developers suggested that the determination of floor and forbearance price for the next control period has been carried out meticulously and

proposed floor and forbearance price for solar REC is correctly set. While according to solar thermal developers, Solar floor price should be retained at ₹ 12000/MWh and forbearance price can be fixed at ₹ 13690/MWh. They have extended the following arguments in support of their claim:- (a) minimum requirements for solar PV and Thermal for the year 2012-13 to 2014-15 work out to ₹ 14/kWh and ₹ 13.58/kWh instead of ₹ 11.22/kWh and ₹ 11.59/kWh respectively; (b) substantially low PLF for solar thermal plants in operation; (c) cost of solar thermal has not yet gone down since no indigenization has taken place so far in India; (d) competitive bidding has presented distorted picture of solar energy costing.

(b) It is to be noted that while determining solar floor and forbearance price, the Commission has considered the solar tariff as determined by the Commission and not as derived under the NVVN competitive bidding. Further, the Commission has considered the levellised value for tariff and minimum requirement. Based on the comments received related to solar floor and forbearance price, the Commission has decided to retain the methodology opted earlier i.e. the highest difference between the renewable energy tariff for solar technologies and the APPC across the States for determination of the forbearance price for solar technologies and the highest difference in the APPC and viability tariff for determination of solar floor price. However, for the purpose of calculation of levellised repayment in ₹ per unit for arriving at minimum requirement for solar thermal, the base CUF has been corrected to 23% as against 19% used in the order proposing solar floor and forbearance price.

15. **Other Comments:**

Suggestions on issues other than above are beyond the scope of the present proposition.

16. After consideration of the comments/suggestions of stakeholders, the Commission by this order determines the forbearance price and the floor price under the REC framework for the control period starting from 1st April, 2012, based on the following principles:-

- (a) **RE target:** The target for RE generation (year 2012-13) has been taken as average of renewable energy requirement as per the NAPCC and as per the MNRE Report on “Renewable Energy in India: progress, Vision and Strategy.
- (b) **Additional RE capacity addition:** To develop scenarios for future state level RE technology specific supply, for each RE technology across select states, the growth in capacity has been projected based on the Cumulative Aggregate Growth Rate (CAGR) for that RE technology in the states based on the past 5 years performance, current achievement, MNRE/Gol's 11th and 12th Plan Targets for Capacity Addition in RE and the untapped potential available in the State. Year 2011 has been taken as a base year for projection of capacity addition from RE.
- (c) To estimate additional generation at the state level in the years 2011-12 and 2012-13, the capacity added under a specific RE technology has been multiplied by the Capacity Utilisation Factor of the RE technology, as per the CERC RE Tariff Regulations 2009, for the sake of uniformity.
- (d) **Cost of Generation/RE tariff:** Costs of Generation/ RE Tariff for different technologies for FY 2011-12 have been assumed as per the CERC RE Tariff Regulations 2009, for the sake of uniformity.
- (e) **Average Power Purchase Cost (APPC):** The APPC for a state represents the weighted average pooled power purchase by distribution licensees (without transmission charges) in the state during the financial year 2011-12.
- (f) **Forbearance Price:** The forbearance price has been derived based on the highest difference between cost of generation of RE technologies / RE tariff and the average power purchase cost of 2011-12 for the respective states.
- (g) **Floor Price:** The floor price has been determined keeping in view the basic minimum requirements for ensuring the viability of RE projects set up to meet the RE targets. This viability requirement shall cover loan repayment & interest

charges, O&M expenses and fuel expenses in case of Biomass and Cogeneration.

17. In pursuance of the provisions specified in the Regulation 9 (2) of REC Regulations, the forbearance and floor prices for Solar and Non- Solar REC have been evolved based on following assumptions.

(a) Non-solar Forbearance price:

- i. The highest difference between the Costs of Generation (RE Tariff) and the APPC has been specified as the forbearance price for non-solar technologies. The highest difference has been rounded off to the next hundred's (or next ten's in case of unit price), to arrive at the forbearance price of ₹ 3300/MWh (Annexure - 3).

(b) Non – Solar Floor Price :

- i. The difference between the project viability requirement and APPC is arranged in ascending order (Rs/kWh) for different RE technologies across states. The expected generation (MUs) from RE technology in a particular state is mapped with the respective difference between the project viability requirement and APPC.
- ii. In this case floor price has been taken as the price (difference between feasibility requirement and APPC) at which the target RE generation of 70000 MUs (average of renewable energy target as per NAPCC and MNRE vision Report 2010 for non solar technology) will be realized. The difference at this point has been rounded off to the next hundred's (or next ten's in case of unit price), to arrive at the floor price of ₹ 1500/MWh (Annexure - 4).
- iii. This approach for floor price is considered adequate as the objective is to ensure that the basic minimum requirements (in terms of recovery of cost) of the target generation are met.

(c) Solar Forbearance price

- i. This has been derived based on the highest difference between the Solar PV/Thermal tariff for 2011-12 and the APPC of 2011-12 across states. The highest difference in unit price has been rounded off to the next hundred's (or next ten's in case of unit price), to arrive at the forbearance price of ₹ 13400/MWh (Annexure - 5).

(d) Solar Floor price

- i. The floor price of solar RECs has been calculated based on the project viability approach. The project viability approach covers the cost required to meet viability parameters including O&M, interest, principal repayment etc.
- ii. The highest difference between the minimum requirement for project viability of Solar PV/Thermal and respective state APPC of previous year (2011-12) has been considered as floor price. The highest difference has been rounded off to the nearest hundred's (or next ten's in case of unit price), to arrive at the floor price of ₹ 9300/MWh (Annexure - 5).

18. Based on the above principles, the following forbearance price and floor price are prescribed for dealing in Certificates under the REC Regulations:

	Non solar REC (₹/ MWh)	Solar REC (₹/ MWh)
Forbearance Price	3300	13400
Floor Price	1500	9300

19. The above stated forbearance and floor prices shall remain valid for the control period upto financial year 2016-17.

Sd/-
(M. Deena Dayalan)
Member

Sd/-
(V.S. Verma)
Member

Sd/-
(S. Jayaraman)
Member

Sd/-
(Dr. Pramod Deo)
Chairperson

Annexure: 1

LIST OF STAKEHOLDERS SUBMITTED THEIR COMMENTS

Sl. No.	Name of the Organization
1.	Shalivahana Group
2.	Green Energy Labs Pvt. Ltd.
3.	Indian Wind Turbine Manufacturers Association (IWTMA)
4.	SunBorne Energy Services India Pvt. Ltd.
5.	SunEdison Energy India Pvt. Ltd.
6.	Power System Operation Corporation Ltd. (POSOCO)
7.	Vestas Wind Technology India Pvt. Ltd.
8.	Acme TelePower Ltd.
9.	Kotla Hydro Power Ltd.
10.	Dr. Anoop Singh, Indian Institute of Technology, Kanpur
11.	Indian Wind Power Association (IWPA)
12.	REConnect Energy Solutions Pvt. Ltd.
13.	Gensol Consultants Pvt. Ltd.
14.	Simran Wind Project Private Limited
15.	Confederation of Indian Industry
16.	Torrent Power Ltd.
17.	WAA Solar Pvt. Ltd.
18.	Tata Power Trading Company Ltd.
19.	Rajasthan Vidhyut Vikas Sansthan
20.	Swift Energy Pvt. Ltd.

21.	Indian Energy Exchange Ltd.
22.	Gujarat Fluorochemicals Limited
23.	PTC India Limited
24.	Acciona Energy India Pvt. Ltd.
25.	Independent Power Producers Association of India (IPPAI)
26.	Indian Renewable Energy Development Agency Ltd.
27.	Emergent Ventures India Pvt. Ltd.
28.	Orient Green Power Company Ltd.
29.	GMR Energy Trading Limited
30.	Tamil Nadu Electricity Regulatory Commission
31.	Joint Electricity Regulatory Commission for Manipur and Mizoram
32.	Himachal Pradesh Electricity Regulatory Commission
33.	Punjab State Electricity Regulatory Commission
34.	Jammu & Kashmir State Electricity Regulatory Commission
35.	Kerala State Electricity Regulatory Commission
36.	Chhattisgarh State Electricity Regulatory Commission
37.	Assam Electricity Regulatory Commission
38.	Jharkhand State Electricity Regulatory Commission
39.	Indian Wind Energy Association (InWEA)

Annexure: 2

LIST OF PARTICIPANTS MADE PRESENTATION DURING THE HEARING

Sl. No.	Name of the Organization
1.	Indian Wind Turbine Manufacturers Association (IWTMA)
2.	Indian Energy Exchange Ltd.
3.	Orient Green Power Company Ltd.
4.	Swift Energy Pvt. Ltd.
5.	Indian Wind Energy Association (InWEA)
6.	SunEdison Energy India Pvt. Ltd.
7.	PXIL
8.	Moser Baer
9.	Acme TelePower Ltd.
10.	Confederation of Indian Industry

ANNEXURE-3 NON SOLAR FORBEAREANCE PRICE

State/RET	APPC for 2011-12 (Rs/kWh)	Tariff as per RE Tariff Regulation (Rs/kWh)	Difference btw RE tariff and APPC (Rs/kWh)
Tamilnadu Wind	3.38	3.95	0.57
Tamil Nadu SHP	3.38	4.17	0.79
Uttaranchal SHP	2.34	3.50	1.16
Tamil Nadu Biomass	3.38	4.58	1.20
Tamil nadu Bagasse	3.38	4.6	1.22
Himachal SHP	2.23	3.5	1.27
AP Biomass	2.50	3.78	1.28
Karnataka Wind	2.66	3.95	1.29
Gujarat Biomass	2.98	4.41	1.43
UP Biomass	2.62	4.06	1.44
Punjab SHP	2.71	4.17	1.46
Karnataka SHP	2.66	4.17	1.51
Maharashtra SHP	2.62	4.17	1.54
Rajasthan SHP	2.60	4.17	1.57
Gujarat Wind	2.98	4.63	1.65
AP SHP	2.50	4.17	1.67
Rajasthan Biomass	2.60	4.28	1.68
Maharashtra Biomass	2.62	4.31	1.69
Maharashtra Cogen	2.62	4.34	1.72
West Bengal SHP	2.43	4.17	1.74
Karnataka Biomass	2.66	4.41	1.75
West Bengal Biomass	2.43	4.41	1.98
Maharashtra Wind	2.62	4.63	2.01
AP Cogen	2.50	4.51	2.01
Karnataka Bagasse	2.66	4.68	2.02
MP SHP	2.09	4.17	2.08
AP wind	2.50	4.63	2.13
UP Cogen	2.62	4.76	2.14
Kerala SHP	1.99	4.17	2.18
Haryana Biomass	2.77	4.97	2.20
Punjab Biomass	2.71	4.94	2.23
Chhatisgarh Biomass	2.05	4.41	2.36
Kerala Wind	1.99	4.63	2.64
Rajasthan Wind	2.60	5.33	2.73
WB Wind	2.43	5.33	2.90
MP Wind	2.09	5.33	3.24

ANNEXURE-4: NON -SOLAR FLOOR PRICE							
State/RET	Supply at end 2011 (MU)	Supply at end 2012 (MU)	Additional Generation in 2013 (MUs)	RE Supply in 2013 (Mus)	APPC for 2011-12 (Rs/kWh)	Viability req. (Rs/kWh)	Difference btw project viability
	53482	61637					
Tamil Nadu Wind			1758	63395	3.38	2.94	-0.44
TN SHP			2	63398	3.38	3.27	-0.11
Gujarat SHP			5	63402	2.98	3.27	0.28
Karnataka Wind			889	64291	2.66	2.94	0.28
Uttaranchal SHP			59	64350	2.34	2.74	0.40
Gujarat Wind			1463	65813	2.98	3.46	0.47
HP SHP			368	66181	2.23	2.74	0.51
Punjab SHP			18	66199	2.71	3.27	0.56
Karnataka SHP			193	66391	2.66	3.27	0.61
Maharashtra SHP			33	66424	2.62	3.27	0.64
Rajasthan SHP			0	66424	2.60	3.27	0.67
AP SHP			6	66430	2.50	3.27	0.77
TN Bagasse			364	66794	3.38	4.16	0.78
Maharashtra Wind			659	67453	2.62	3.46	0.83
WB SHP			0	67453	2.43	3.27	0.84
TN Biomass			176	67629	3.38	4.23	0.86
AP Biomass			207	67836	2.50	3.43	0.93
Andhra Pradesh Wind			45	67881	2.50	3.46	0.96
Gujarat Biomass			0	67881	2.98	4.06	1.07
Uttar Pradesh Biomass			15	67896	2.62	3.71	1.08
MP SHP			27	67923	2.09	3.27	1.18
Kerala SHP			25	67949	1.99	3.27	1.28
Maharashtra Bagasse			325	68274	2.62	3.90	1.28
Rajasthan Biomass			70	68344	2.60	3.93	1.33
Maharashtra Biomass			124	68468	2.62	3.96	1.34
Rajasthan Wind			893	69362	2.60	3.97	1.37
Karnataka Biomass			193	69554	2.66	4.06	1.40
AP Bagasse			207	69761	2.50	3.92	1.42
Kerala Wind			11	69772	1.99	3.46	1.47
Karnataka Bagasse			294	70066	2.66	4.18	1.53
Uttarpradesh Bagasse			510	70575	2.62	4.17	1.54
West Bengal Biomass			16	70591	2.43	4.06	1.63
Haryana Biomass			4	70595	2.77	4.62	1.85
Punjab Biomass			50	70645	2.71	4.59	1.88
Madhya Pradesh Wind			250	70895	2.09	3.97	1.88
Chhatisgarh Biomass			223	71118	2.05	4.06	2.01

ANNEXURE-5

Solar PV Forbearance and Floor Price

Rs/Kwh	Solar PV	Solar Thermal									
O&M expn	0.87	1.16									
Int. on term loan	3.92	3.75									
Int. on working capital	0.35	0.35									
Repayment	6.08	5.79									
Total	11.22	11.05									
State	APPC (2011-12)	CERC Tariff (PV)	Gap between tariff and APPC	Min Requirement	Gap between Min Req and APPC	State	APPC (2011-12)	CERC Tariff (Thermal)	Gap between tariff and APPC	Min Requirement	Gap between Min Req and APPC
Tamil Nadu	3.38	15.39	12.01	11.22	7.84	Tamil Nadu	3.38	15.04	11.66	11.05	7.67
Gujarat	2.98	15.39	12.41	11.22	8.24	Gujarat	2.98	15.04	12.06	11.05	8.07
Haryana	2.77	15.39	12.62	11.22	8.45	Haryana	2.77	15.04	12.27	11.05	8.28
Punjab	2.71	15.39	12.68	11.22	8.51	Punjab	2.71	15.04	12.33	11.05	8.34
Karnataka	2.66	15.39	12.73	11.22	8.57	Karnataka	2.66	15.04	12.38	11.05	8.39
Uttar Pradesh	2.62	15.39	12.77	11.22	8.60	Uttar Pradesh	2.62	15.04	12.42	11.05	8.43
Maharashtra	2.62	15.39	12.77	11.22	8.60	Maharashtra	2.62	15.04	12.42	11.05	8.43
Rajasthan	2.60	15.39	12.79	11.22	8.62	Rajasthan	2.60	15.04	12.44	11.05	8.45
Andhra Pradesh	2.50	15.39	12.89	11.22	8.72	Andhra Pradesh	2.50	15.04	12.54	11.05	8.55
West Bengal	2.43	15.39	12.96	11.22	8.79	West Bengal	2.43	15.04	12.61	11.05	8.62
Uttaranchal	2.34	15.39	13.05	11.22	8.88	Uttaranchal	2.34	15.04	12.70	11.05	8.71
HP	2.23	15.39	13.16	11.22	8.99	HP	2.23	15.04	12.81	11.05	8.82
Madhya Pradesh	2.09	15.39	13.30	11.22	9.13	Madhya Pradesh	2.08	15.04	12.96	11.05	8.97
Chattisgarh	2.05	15.39	13.34	11.22	9.17	Chattisgarh	2.05	15.04	12.99	11.05	9.00
Kerala	1.99	15.39	13.40	11.22	9.23	Kerala	1.99	15.04	13.05	11.05	9.06

APPENDIX-A

Stakeholder Suggestions/Comments

Control Period

- Since it is an evolving mechanism, the control period should be one year only. Longer control period can be considered once it is sure that mechanism is robust. **(KSERC)**
- A single-year setting of forbearance and floor price characterizes regulatory uncertainty. Even if the forbearance and floor prices are expected to decline in future their trajectory for at least 3-5 years should be declared to reduce regulatory uncertainty. With more reliable estimates of future RE tariffs and APPC, this may even be extended up to 7-8 years (the general period for loan repayment for RE projects in India). This would not provide comfort to investors, who may need debt financing for REC based projects. **(Dr. Anoop Singh)**
- The average loan period extends up to 7 years time, the prices could be fixed for a five year period as by that time, a majority of the loan would have been repaid. **(IWTMA)**
- Existing REC pricing mechanism in case of Solar projects should be continued for a period of 10 years and for non solar projects a period of 5 years or any other term the Commission may deems fit. **(IPPAI)**
- Long term certainty and clarity in terms of regulatory principles is utmost desirable for RE sector, hence, next Control Period for REC Pricing framework should be specified for 5 yrs – i.e. FY13 to FY17 which would coincide with the 12th Plan Period. **(InWEA)**
- It would be important for CERC to ensure that the floor price and forbearance price so declared for solar units to be valid for a minimum period of 6 years which would help the solar farm developers achieve bankability. **(Moser Baer)**
- Under JNNSM even with guaranteed tariff for 25 years, developers are finding it difficult to get funding their projects. 10 years rolling tariff (both floor & forbearance price can be announced for stability of REC prices) or REC multiplier for older projects should be specified. **(CII)**
- Control period should be at least of 10 -15 years, the term matching the debt taken by RE projects. This step will also make a significant impact on the bankability of REC based projects, which remains a key issue in the growth of the REC mechanism at present. **(RE Connect, Shalivahana Group, GFL, GMR, IEX)**

- Control period for non-solar REC floor prices should be atleast until 2021 for enabling project finance for IPPs as wind, biomass, small-hydro are quite mature and no significant change in cost is expected that may alter the dynamics to further lower the Floor price even with competition. **(Acciona)**
- The control period should be considered upto the life time of the project as change of REC pricing after every control period would affect the viability of the projects and also act detrimental for new and existing RE generation. **(Kotla Hydro Power Ltd.)**
- Long term control period should be specified as RE project developers/lenders seek a long term visibility to make necessary decision for participating in the REC mechanism upon evaluating price risk and off take risk. **(Warri, Sunborne)**

Average Power Purchase Cost (APPC)

- TNERC and RERC have excluded the short term power purchase from traders from their APPC working. Instead of any revision of floor price and forbearance price of the RECs, there is need to enforce Regulation with regard to APPC in the states. Commission should bring consistency in approaches in determining the APPC. **(IEX, RE Connect, Simran wind farm, InWEA, Ankur Pathak)**
- APPC as per the definitions given by the respective State Electricity Regulatory Commissions should be considered for the purpose of determining the floor and forbearance price of REC. **(IWPA)**
- It is to be clarified that electricity component should be purchased by local discom at APPC only. **(InWEA)**
- Utility should purchase electricity component at the prevailing APPC for that particular year as declared by respective SERCs. In this regard CERC may advise the SERCs to take appropriate action. **(IREDA)**
- The estimated floor & forbearance price is not a rational price for all the States because there is a huge difference prevailing in the APPC. **(GENSOL)**
- CERC has waved interstate transmission charges and losses for solar, similarly it should be waived off for wind energy also or include the transmission charges while calculating the APPC or floor and forbearance price. **(IWPA)**

- The APPC of the distribution utilities vary year on year in line to this the floor and forbearance price will also vary. Fixing a price for the next control period of 3 years, based on the assumptions for the next 3 years and taking out the average of it will be considered as floor and forbearance price. **(IWPA)**
- The Commission may seek information about trade transactions of electricity component of REC sellers. In case, predominantly the transactions were through sale of electricity to third party/trader then, the proposed approach of deriving floor price and forbearance price based on APPC itself needs review and further investigation. **(InWEA)**

Non-solar Floor Price

- The RE tariffs (feed-in-tariffs) are expected to decline for most of the renewable energy technologies particularly the solar PV, solar thermal as well as wind generation. Improvement in technology, increasing scale of production is expected to bring down cost of setting up new plants. The draft document, in fact, clearly establishes that APPC across all the states are going up. There are very few examples of assurance of a minimum price for output produced by private investors, even in the Indian context. In this background, caution is necessary to ensure that over protection / over incentive does not lead to sub-optimal outcome leading to economically inefficient investment (sometimes over investment). A REC floor price greater than the difference between FiT and APPC of electricity would be an additional support for renewable energy investors. This would be implicitly funded by the obligated entities and would ultimately be borne by the consumers. **(Dr. Anoop Singh)**
- The promotional measures envisaged in the Act are limited to providing suitable measures for connectivity with the grid and sale to any person (Open Access). It does not envisage any return more than what can be reasonably stipulated under Section 61. These factors need to be considered while determining floor and forbearance price. The present method of recovery of price higher than promotional price even at floor rates which is essentially excessive promotion. This also calls for differential treatment of various RE technologies. **(KSERC)**
- Atleast floor price should not be altered, as the market is still to establish and very few fresh investment has come up under REC. **(IPPAI)**
- The prevailing floor price and forbearance price may be continued for atleast another 3 years to enable market to rapidly grow for both solar and non-solar segment in this initial phase of development. **(PTC)**
- Commission should fix Rs 2.12/Kwh as the floor price for non solar REC which is a maximum difference between project viability requirement & APPC among all the states or at least make no deviation in the existing floor of non solar i.e. Rs 1.50/Kwh. **(GENSOL)**

- Floor and forbearance price also have to be calculated based on the RE tariff applicable to respective States. **(KSERC)**
- Bulk of RE generation will happen in the Gujarat, Karnataka, Tamil Nadu and Rajasthan. Such States have either excluded short term and liquid fuel based power cost while calculating the APPC or signed PPA at fixed rate for entire duration of the PPA. Reduction of REC pricing significantly reduces the project IRR, and may discourage investments through the REC mechanism. To ensure that project returns are not adversely impacted, the Commission may consider using the highest difference in the APPC and viability tariff should be considered for floor price determination. Based on current calculations, this would amount to Rs 2.12/ kWh. It would be fair to consider the approach considered in case of solar RECs for the non-solar as well. **(RE Connect, GFL, Shalivahana Group)**
- The Commission should follow the methodology as followed in the previous Order for determination of floor price as it affects the floor price. As per NAPCC target, the floor price falls outside the upper level (Rs 2.12/unit) of floor price. **(Ankur Pathak, IWTMA, Vestas, CII)**
- Previous trades concluded have settled only on the floor price, and any such reduction in the price will reduce the confidence of sellers and may lead to regulatory uncertainty. REC floor and ceiling price should be restored to the originally announced prices as any reduction might dent investor's confidence in the mechanism and will make the project nonviable. **(IWTMA, Warri, Sunborne, PXIL, Green energy labs.)**
- As per the MNRE, the RE Generation at the end of FY 2012 and FY 2013 works out to 60,267 MUs and 68,947 MUs same should be considered for determination of Non-Solar Floor Price. **(Torrent)**
- Various sources of RE whose difference between viability price and APPC is greater than Rs. 1.4 /kWh would make these RE sources unviable under REC mechanism. **(Tata Power)**
- The Commission should consider Base Year as FY15 (mid-year of FY13 to FY17: control period) and in the absence of specific norms for RE Tariff for next Control Period, may consider escalation factor of 5.72% p.a. to project floor price & forbearance price (and accordingly may determine floor price as Rs 1772/MWh and forbearance price as Rs 4608/MWh for Non-Solar RECs. **(InWEA)**
- Price for non solar REC for particular control period should lie within a band (say in the band of 15-20%) of the prices prevailing over the previous control period. This shall provide financial certainty with respect to projected cash flows over debt repayment period. **(IREDA)**

Non-Solar Forbearance Price

- We suggest the band within which the trading happens should be narrowed down. The forbearance level should be brought down from the

proposed 3450 to 3000 Rs. and floor level should be increased to Rs.2120 per REC. As the gap between the floor and forbearance would be low, the buyers will not wait for the last minute to fulfill their obligations and start buying each month at least some part of their annual targets. **(GFL)**

- The proposed forbearance price would effectively reduce the penalty imposed on DISCOMs for non-implementation of RPO. Therefore, the forbearance price should be maintained at the price applicable for control period up to March, 2012. **(Kotla Hydro Power)**
- Forbearance price can be made higher for enforcement as international experience has shown that the forbearance or the penalty price has amongst the biggest impact on the price at which REC's are traded in the market. **(Green Energy Lab)**
- We agree to CERC's proposal of changing the upper limit or the Forbearance price after every three years, since the prices are affected by the demand–supply mechanism and generators can be incentivized based on demand in the renewable energy market. **(GMR)**
- It is emerged that the short term prices in India are going down, therefore, the escalation should not be considered for computation of APCC for next control period. RE tariff will be increased in future due to significant escalation in cost of materials such as steel, cement, finance cost and other direct or indirect cost. In view of the above, the forbearance price will increase from Rs 3.48 /kWh. **(Kotla Hydro Power)**
- As mentioned in the order, the highest difference in unite price should be been rounded off to the next ten's. **(IWTMA, Vestas, CII)**
- There is a difference between the tariff used in Annexure 1 and the state declared preferential tariff. As an example, the MP wind tariff and Rajasthan wind tariff has been taken as Rs 5.33 – however, the tariff declared by the state commission is Rs 4.35 and Rs 4.38 (levellised), respectively. The Commission may re-look at the data source for these, and may also clarify the method/ source of the data. **(RE Connect)**
- Hon'ble Commission to consider the firm and infirm nature of the renewable energy source as a provision for determining the floor and forbearance price of solar and non-solar certificate. **(IWPA)**
- In economic terms, buyout price (penalty) should be equal to the marginal social benefit of electricity sourced from RE sources over that from non-renewable sources. The SERCs could specify State-specific buyout price that would represent the value of absence of green attributes of a unit of electricity in the given State. A buyout price would essentially function as a forbearance price for the RECs as prescribed under section 9 of the REC Regulations. **(Dr. Anoop Singh)**

Solar REC : floor and forbearance price

- The determination of floor and forbearance price for the next control period has been carried out meticulously and proposed floor and

forbearance price for solar REC is correctly set. (**SunEdison**)

- REC floor and ceiling price should be restored to the originally announced prices as any reduction might dent investor's confidence in the mechanism and will make the project nonviable. (**Warri, Sunborne**)
- Solar floor price to be retained at Rs. 12000/MWh whereas forbearance price can be fixed at Rs. 13690/MWh considering (a) minimum requirement for solar PV and Thermal for the year 2012-13 to 2014-15 works out to Rs. 14/kWh and Rs. 13.58/kWh instead of Rs. 11.22/kWh and Rs. 11.59/kWh respectively. (b) PLF for solar plants in operational are suggesting the PLF to be substantially low. (c) Cost of solar thermal has not yet gone down since no indigenization has taken place so far in India. (d) Under competitive bidding has presented distorted picture of solar energy costing. (**Acme Tele power**)

Carry forward of RPO:

- It would be desirable not to have RPO carried forward and penalties shall be imposed as per the prevailing Regulations. (**PTC India**)

Trading Platform other than Power Exchanges

- At present, REC markets suffer from low liquidity and limited options for an investor to mitigate market risks. Trading is only allowed through Power Exchanges which operates REC market once in a month. If the concept of forward sale is allowed through OTC and Market Makers, it would bring reduced Market Risk , provide certainty of cash flows for RE generators, enable projects to get cheaper finance from banks and would bring in higher liquidity and hence better price discovery. (**RE Connect**)

Frequent trading of the RECs at power exchanges:

- REC trading happens once in a month in the two energy exchanges of the country. While the issuance happens twice in a month. We feel there should be more frequent trading of the RECs for better cash flow planning. (**GFL**)

Model PPA for sale of electricity to local Discom at APPC

- In order to ensure a level playing field across all the states, there should be a model PPA for the APPC (on the pattern of Draft Model Regulations for SERCs for REC Framework by the Forum of Regulator) tariff based agreement. Such PPA can have a clause

stating that the purchase price will change depending on increase or decrease of APPC. It will ensure uniformity and stability of the tariff and the basis of its calculation across all States. **(GFL, RE Connect, Simran wind farm, Green energy Labs)**

Payment Security mechanism for sale of electricity to local Discom at APPC

- Due to poor financial health of distribution Utilities in various Indian states, payment under the APPC mechanism at State level should also be backed by a revolving fund of the nature that is created by MNRE for National Solar Mission –Phase-1. **(Acciona)**

SERCs to notify APPC every year:

- Lack of clarity on the APPC of the Discom has prevented adoption of APPC as the price of electricity for an RE project. In many cases, the Discom says a number without providing any back-up calculation or basis for such a number. Since the APPC is not declared as part of any Order/ARR of the Discoms, it is very difficult to make any financial decisions and projections on the basis of APPC. **(RE Connect)**

Information pertaining to RPO targets and achievements:

- Information pertaining to RPO targets of all the utilities and achievements may be provided on a quarterly /half yearly basis on websites of FOR, CERC and SERCs. This shall lead to greater confidence among stakeholder community. **(IREDA)**

Generation data from RE projects:

- To substantiate figures on generation from renewable energy sources in the country a mechanism need to be initiated to capture generation data from RE projects (sector wise, state wise region wise) by SERCs/SNAs in their area of jurisdiction which shall help SERCs to determine future RPO targets. **(IREDA)**

Monthly / Quarterly Compliance of RPO:

- RPO obligation should be subdivided in to 12 monthly parts and therefore the settlement and compliance happen on monthly basis. This will keep the REC rates static and both buyers and sellers would be equally matched in terms of cash flows. **(GFL)**
- The Regulations should provide for the discharge of RPO by the obligated entities on monthly basis or suitable cost should be factored in while working out the floor price / forbearance price, if the compliance period is to be kept more than monthly basis. **(Simran Wind Project Pvt. Ltd)**

- To make the REC mechanism effective in the country it is requested that the Hon'ble Commission enforce a mechanism on the DISCOMs and other obligated entities of the States to submit a quarterly report to the Hon'ble commission related to the fulfillment of renewable purchase obligations. **(IWPA)**
- RPO compliance to be ensured on quarterly basis and penalties are imposed on States for not meeting their RPO obligations. **(CII)**
- REC compliance by obligated entities should be quarterly at least to be enable a more stable REC market mechanism else trades will be skewed to year end in March as seen in the brief trading history of two power exchanges **(Acciona)**
- Quarterly review of the (RPO) progress made should be carried out so that if it so warrants, a mid-term corrective action can be implemented. **(Moser Baer)**

REC Regulations of WBERC, DERC and APERC:

- Some RE resources rich States have not even published draft regulation. CERC should resolve this issue through FOR. **(Acciona)**

Solar REC to Buyer State:

- States purchase solar energy at the preferential tariff over and above the Solar RPO specified by the concerned SERC should be become eligible for REC to the extent of solar energy purchased over and above such target specified. It will solve the problem of bankability of solar project and there would be revenue certainty to the project developer over the useful life of the project. **(Sunborne)**

Trading Arrangements:

- The existing framework allowed transaction of the RECs only at the power exchange platform. In order to have wide participation and coverage of the scheme, other mechanism for the transaction (including bilateral trade transactions of the certificates) should be explored. **(Warri, Sunborne, Moser Baer)**

Strengthening of RPO compliance:

- RPO orders of the SERCs have not been enforced strictly in most of the states. There is urgent requirement of strengthening of RPO compliance framework for distribution licensees, open access consumers and captive consumers. **(Sun Edison)**
- State Solar Policy's to mandatorily include the penalty clause in line with the FOR/CERC guidelines in toto. **(Moser Baer)**

Meeting Solar RPO through non solar resources

- Meeting Solar Purchase Obligation (SPO) by obligated entities through non solar resources should not be allowed. Otherwise, it would lead to reduction in creation of solar energy generation capacity creation. SPO of DISCOM's to be met either through captive solar power generation or through PPA with solar power developers or through procurement of solar RECs. **(Moser Baer)**

Vintage of solar energy project

- Solar floor price must give some consideration to the projects commissioned date to achieve the minimum requirement for project viability in the latter years. **(Green energy Labs)**
- Vintage Based Multiplier (VBM) may be kept for solar REC so that solar power project commissioned today will get more RECs in future when the future floor prices get reduced. It would insulate such projects from the vagaries of REC pricing in the longer term. Financial institutions will get enough confidence in the REC mechanism based cash flows. **(Warri, Sun Edison, Emergent Ventures, GFL, IEX, Moser Baer)**

Mutualization Mechanism:

Failure to pay buyout price due to insolvency of the obligated entities or other reasons can be addressed through a mutualization mechanism as in the case of the UK wherein all other entities who have met their obligations make good the shortfall, up to a prescribed limit. A solution to the problem needs to be envisioned in the Indian context as well. **(Dr. Anoop Singh)**