RAJASTHAN ELECTRICITY REGULATORY COMMISSION, JAIPUR

Suo-Motu

In the matter of determination of benchmark capital cost for solar PV and solar thermal power projects applicable during FY 2014-15 and resultant Generic Levellised Tariff.

Coram :

Shri Vishvanath Hiremath, Chairman

Shri Vinod Pandya, Member

Date of hearing 05.08.2014

Date of order: 21.08.2014

ORDER

1. In accordance with provisions of the Electricity Act, 2003 and National Tariff Policy notified by Govt. of India (GoI), Commission has notified the RERC (Terms and Conditions for Determination of Tariff for Renewable Energy Sources- Wind and Solar Energy) Regulations, 2014 on 24.02.2014 (hereinafter called as the RERC RE Tariff Regulations, 2014).

2. As per regulation 7(1) of the RERC RE Tariff Regulations, 2014, Commission may determine generic tariff on Suo-Motu basis at the beginning of each year of the control period for solar power plants for which principles and norms have been specified under these Regulations. Further, as per regulation 26 (2) and 29(2) of the said Regulations, the normative capital cost for solar PV and solar thermal power plants shall be determined by the Commission separately for each year by a separate order.

3. Commission issued draft order on 23.06.2014 for determination of the benchmark capital cost for solar PV and solar thermal power projects applicable during FY 2014-15. Based on the proposed

benchmark capital cost considered in the draft order for solar power projects and performance parameters contained in the RERC RE Tariff Regulations, 2014, Commission had determined the generic tariff for MW scale solar power plants where PPA is signed on or before 31.03.2015 and to be commissioned on or before 31.03.2016 in the case of solar PV plants and to be commissioned on or before 31.03.2017 in the case of solar thermal plants.

4. Public notices were issued in the following news papers on the dates mentioned against each inviting comments/suggestions from the stakeholders on the draft order circulated:

Dainik Bhaskar:	24.06.2014
Dainik Navjyoti:	24.06.2014
The Times of India:	25.06.2014

5. The list of stakeholders who filed their suggestions/comments and those who have made oral submissions in the hearing held on 5.08.2014 is given at the Annexures-III & IV of this order. Summary of suggestions/comments received is available at Annexure-V.

6. Commission has considered the comments/suggestions received from the stakeholders through their written submissions as well as submissions made during the hearing along with relevant record placed before it.

7. The present regulatory exercise is limited to the determination of benchmark capital cost and determination of generic tariff for solar PV and solar thermal power plants based on the parameters specified in the RERC RE Tariff Regulations, 2014.

8. The comments of the stakeholders on the parameters such as O&M cost, auxiliary consumption, CUF, quantum of de-ration,

RoE, interest rate on long term loan, tariff period and working capital are already specified under the said Regulations and therefore, they are beyond the scope of the present proceedings as tariff determined is based on the Regulations, which are in force. Similarly, other suggestions, which are general in nature, such as imparting training to officers/officials of the Discoms and some NGO on solar roof top PV and other small solar generation projects, simplification in determination of tariff rates and Research and Development envisaged in the National Tariff Policy have also been taken note of while passing this order.

9. The other suggestions/comments received from the stakeholders which are directly on the proposed draft order have been broadly summarized as under:

(1) Capital cost;
(2) MAT/Tax Rate;
(3) Tariff Levellisation;
(4) Discount Rate;
(5) Accelerated depreciation benefit;
(6) Application of de-ration;
(7) Subsidy or incentive by the State/Central Govt.;
(8) Applicability conditions of Tariff;
(9) Tariff applicable for rooftop & small solar PV and thermal systems; and
(10) Grid connectivity of roof top PV power plants and small solar power plants.

10. The comments/suggestions of the stakeholders on the above issues and Commission's view/decision thereon have been dealt in the following paras:

(1) Capital cost

11. The following capital cost norms have been proposed in the draft order dated 23.06.2014:

Table-1: Capital cost norms proposed for solar power plants for FY 2014-15

S.No.	Particular	Capital cost (₹ Crs/MW)
1	Solar PV plants	6.65
2	Solar thermal Plants	11.95

The abovementioned capital cost norms also included connectivity charges of ₹ 2 Lakh/MW and ₹ 15 Lakh/MW towards solar energy evacuation cost.

12. M/s Welspun Renewables Energy Pvt. Ltd have suggested that in view of the research reports by various international consultants and impact of the developments like anti dumping duty on the price of foreign modules, the market prices of TIER-1 modules may be considered as US$ 0.65/W_P instead of US$ 0.59/W_P taken by the Commission. They have suggested that cost of Indian made modules and cells is 17% higher than the average of the Chinese modules costs, making cost of the Indian modules to be 0.75 US$/$W_P$. Considering antidumping duty proposed by Ministry of Commerce vide notification dated 22.05.2014, prices of foreign modules to vary between 0.75US$/$W_P$ to 1.50 US$/$W_P$. Therefore, average module price should be considered at US$ 1-1.2/W_P.

M/s Hindustan EPC Company Limited ('Hindustan Power') suggested that with module price of 0.67 US$/$W_P$ for solar PV projects with currency conversion rate of average of last six months (around ₹ 61/US$), the average module price works out to be ₹ 408.70 Lakh/MW, which may be considered. Any further

reduction in same would go in for poor quality modules whereby quality of solar plants would be severely compromised with or the efficient plants would become unviable.

13. M/s Welspun Renewables Energy Pvt. Ltd have also suggested that instead of exchange rate of ₹ 60.97/US$, which is based on daily exchange rate, the currency future market data of NSE may be taken as the basis for determination of benchmark exchange rates for future procurement as this data is used by most of the institutions/corporates for hedging their currency risk and procurement activity for bid invited by Rajasthan will happen in 1st and 2nd Quarter of 2015-16 after the financial closure of the projects.

14. M/s Rudraksh Energy suggested that in view of likely change in policy of availability of land at 10% of DLC rates in Rajasthan and private land available at much higher cost, the capital cost may be suitably modified.

M/s PEC Consultants have suggested that a minimum cost of ₹ 15 Lakh/MW may be considered for land, as in addition to 10% of DLC rates, investors have also to pay annual lease rental to the Govt. of Rajasthan and huge expenses are incurred for leveling of the Govt. land.

M/s Welspun Renewables Energy Pvt. Ltd have suggested that since land in Rajasthan is provided by Govt. of Rajasthan through the Rajasthan Solar Policy, 2011 for setting up solar project, hence land cost to be considered at ₹ 25 Lakh/MW as assumed by RERC. In case where land is not provided by Govt. of Rajasthan, the cost of land may be considered as ₹ 67.2

Lakh/MW (i.e. ₹ 13.44 Lakh/Acre) considering ground realities after implications of newly enacted Land Acquisition Act, 2013.

Shri P.N. Mandola, appearing on behalf of Committee for protection of public properties, suggested that developers/investors more often tend to retain the land allotted to them by the State Govt. even after the period of allotment is over and try to obtain undue benefit. Therefore, land cost should not be included in the capital cost norm of solar power plants.

15. M/s Rudraksh Energy suggested cost of power evacuation as ₹ 25 Lakh/MW as applicable to wind power plants, instead of proposed cost of ₹ 15 Lakh/MW. M/s Maruti Solar Power Private Limited has also requested to consider impact of evacuation on EHV level generally 15 to 30 km away from EHV Grid.

16. M/s Power & Energy Consultants(M/s PEC) have suggested that overall capital cost of ₹ 691.09 Lakh/MW, as specified by CERC, may be reduced to ₹ 681 Lakh/MW instead of capital cost for solar PV plants ₹ 665 Lakh/MW proposed by the Commission in the draft order.

M/s Maruti Solar Power Private Limited have suggested a capital cost of ₹ 900 Lakh/MW for solar PV projects in view the recommendations of Director General of Antidumping and Allied Duties (DGAD) for imposing antidumping duty.

M/s Welspun Renewables Energy Pvt. Ltd has suggested a capital cost of ₹ 11.06 Crore/MW and ₹ 9.02 Crore/MW with and without implementation of anti-dumping duty (ADD) respectively.

M/s Hind Power while suggesting module cost as ₹ 408.70 Lakh/MW and non-module cost of ₹ 3.14 Crore/MW, requested the Commission to consider capital of ₹ 7.23 Crore/MW for solar PV plants for FY 2014-15.

17. M/s Welspun Renewables Energy Pvt. Ltd have also suggested that "Change in Law" provision may also be made to accommodate any possible increase in the module price on account of imposition of anti-dumping duty in future and normative amount of the same should be computed and specified in the Tariff Order. Rudraksh Energy also made similar suggestion that in view of levy of antidumping duty, a suitable provision may be made to account for anti dumping duty (ADD), if levied by GoI.

Commission's views/decision

18. Commission notes that stakeholders have given suggestions in respect of elements of the capital cost such as module prices, land cost, evacuation transmission system cost etc. The suggestions relating to foreign currency exchange rate and levy of anti-dumping duty on solar PV modules have also been received.

19. It has been suggested by stakeholder that solar PV module price may be increased in the range from 0.67 US$/$W_P$ to 1.2 US$/$W_P$ citing the price trends of TIER-1 modules and for maintaining the quality of modules. CERC in its order dated 15.05.2014 in Suo Motu Petition No. SM/353/2013, after the detailed analysis of the market prices of modules, has specified a module price of 0.59 US$/$W_P$. Commission has also proposed solar module cost of 0.59 US$/$W_P$ in the draft order. However, in absence of any reliable data made available by the stakeholder, Commission is of the

view that module cost, as proposed in the draft order, i.e. 0.59 US$/$W_P$ may be retained for the purpose of tariff determination in the present order.

20. It has been suggested by one of the stakeholders that exchange rate based on currency future market data of NSE may be considered. It may be mentioned that the variation in exchange rate is affected by the prevailing general economic scenario, therefore, it may change either way in future course. Sometimes exchange rates also exhibit abnormal variations. Therefore, the currency future market is prone to speculations which lead to uncertainty in currency exchange rates. CERC in its order dated 15.05.2014 have considered average currency exchange rate of past six months for arriving at the module cost instead of considering the exchange rate based on currency future market data of NSE. Further, the approach of considering Exchange Rate as average for six months preceding the order has been consistently followed by the Commission in the earlier solar tariff orders. Accordingly, Commission decides to continue to take average of daily exchanges rate prevailing in the last six months immediately preceding the date of this order for determination of module cost in terms of ₹ /W_P.

CERC has considered the cost of solar PV modules as ₹ 365.80 Lakh/MW at an average exchange rate of ₹ 62/US$ prevailing for last six months immediate before issuance of its order with module price of 0.59 US$/$W_P$. Commission observes that average exchange rate for last six months works out to be ₹ 60.41/US$ (1.02.14 to 31.07.14), as against ₹ 60.97/US$ proposed in the draft order and considering the PV module cost at 0.59 US$/$W_P$, as discussed at earlier para of this order, the price of solar PV module gets reduced to ₹ 3.30 Lakh (= [{(60.41/60.97)-1}* 359.72])

from the module price of ₹ 359.72 Lakh/MW (=₹ 60.97 per US$ x 0.59US$ per W_p x $10^6/10^5$)proposed in the draft order. In light of this, total capital cost for solar PV plants has been reduced by ₹ 3.30 Lakh after rounding of.

21. Stake holders have suggested for considering higher land cost which varies in the range from ₹ 15 Lakh/MW to ₹ 25 Lakh/MW. It has also been suggested that in case land is not provided by the Govt. of Rajasthan, the cost of land be considered as ₹ 67.2 Lakh/MW (i.e. ₹ 13.44 Lakh/Acre) considering implications of newly enacted Land Acquisition Act, 2013. One of the stakeholders has even requested not to factor the land cost in the capital cost. As regards the suggestion of considering no cost for land in the capital cost norm, it may be mentioned that Rajasthan Land Revenue (Allotment of Land for setting up of Power Plant based on Renewable Energy Sources) Rules, 2007 provide that on expiry of the lease period of 30 years, the land allotted under these rules shall revert back free from all encumbrances to the State Government. Therefore, the apprehension that land would be retained by the developer/investor indefinitely and try to obtain undue benefit, is addressed by the conditions imposed by the Govt. Further, as regards the suggestion of not considering land cost in the capital cost, it may be mentioned that the generation of electricity is to be conducted on commercial principles. Therefore, Commission is of the view that presently, the land cost has to be considered as one of the elements of the capital cost norm.

Earlier, as per the Rajasthan Solar Policy, 2011, the land has been allotted to developers at concessional rate of 10% of the DLC (District Level Committee) rate to attract investments in the State, however, the State Government has recently (on 4.08.2014)

amended the Rajasthan Land Revenue (Allotment of Land for setting up of Power Plant based on Renewable Energy Sources) Rules, 2007 wherein the solar power developers will now need to pay the premium for the land equivalent to the DLC rate. If seen in the changed scenario, though different land costs have been suggested by the stakeholders, however, they have not substantiated their suggestion by any documentary evidence.

During the proceedings in the matter of RERC (Terms and Conditions for Determination of Tariff) (Fifth Amendment) Regulations, 2012, RREC, the state nodal agency, had submitted that State Govt. is providing land at concessional rates, which worked out to around ₹ 1 Lakh/MW for wind power plants. Considering land requirement of 5 Hectare/MW for Wind and 3.5 Hectare/MW for Solar respectively, as per respective State Govt. Policies of these RE technologies, the land cost for solar power plants is arrived around ₹ 0.70 Lakh/MW. However, Commission observes that cost of ₹ 0.70 Lakh/MW arrived as above, is for 2012-13, therefore, the same has been escalated @ 5% p.a. to arrive at ₹ 0.77 Lakh/MW for FY 2014-15. Commission considered the same in the draft Order. As per latest amendment in Rajasthan Land Revenue (Allotment of Land for Setting up of Power Plant based on Renewable Energy Sources)Rules, 2007 dated 4.08.2014, after considering annual rent of 5% of the amount for two years and increasing the same @ 5% for 23 years, the land cost works out around ₹ 12.00 Lakh/MW. In view of the above, Commission decides to consider land cost as ₹ 12 Lakh/MW.

22. As regards the suggestion of considering increased transmission network cost of ₹ 25 Lakh/MW similar to wind power plants, regulation 37 of the RERC RE Tariff Regulations,2014 is reproduced as under:

"31. Metering

(1) In respect of sale of energy to the Distribution Licensee, the metering for the purpose of energy accounting shall be as under:

(a) For Solar PV and solar thermal plants, the metering shall be at the line isolator on the outgoing feeder on HV side of the generator transformer.

(b) For wind power plants supplying power through pooling arrangement, the metering shall be at the grid substation of the licensee:

Provided that for the said metering at the grid substation of licensee, the following losses shall be considered for the plants commissioned during the control period:

(1) Losses of 1% for metering upto 33 kV.

(2) Losses of 2.5 % for metering at 132 kV and above.

(2)……."

From above, it apparent that for evacuation for wind power, pooling arrangement is envisaged and metering has been allowed at the grid substation of the licensee, whereas, for solar PV and solar thermal power plants, the metering is provided at the outgoing feeder on HV side of the generator transformer. Therefore, impliedly the Regulations envisage different configurations for the transmission network required for evacuation of wind and solar power. Accordingly, the evacuation transmission system cost required for evacuation of wind and solar power would also be different. In consideration of above, Commission is of the view that evacuation transmission cost of ₹ 15 Lakh/MW, proposed as part of capital cost norm in the draft order, is adequate and therefore, requires no change in the capital cost norm on this account.

23. Suggestions have been received from the stakeholders for specifying higher capital cost in view of levy of anti dumping duty (ADD).However, in absence of any reliable documentary

evidence in this respect, Commission is of the view that it would be appropriate to specify the tariff as per the presently prevailing scenario and thus, no change in capital cost norm is required on the premise of levy of ADD.

24. Commission notes that stakeholders have suggested capital cost ranging from ₹ 6.82 Crore/MW to ₹ 9.00 Crore/MW for solar PV power plants and no suggestions have been received as regards the capital cost of solar thermal power plants. CERC in its Order dated 15.05.2014 in Suo- Motu Petition No. SM/353/2013 has decided a benchmark capital cost of ₹ 6.91 Crore/MW for solar PV and ₹ 12.00 Crore/MW for solar thermal power plants. Commission has not specified the break up of capital cost norms, however, these capital cost norms are broadly based on benchmarks specified by CERC for FY 2014-15. Commission has proposed the capital cost benchmarks as ₹ 6.65 Crore/MW for solar PV and ₹ 11.95 Crore/MW for solar thermal power plants in the draft order. It may be mentioned that Commission broadly followed the Capital Cost norm of CERC for Solar PV power plants in the draft order. Commission, though has not given the detailed breakup of capital cost norm in the draft order, however, mentioned changes in elements of the capital cost namely module cost, currency exchange rate and land cost and the other items were considered as per CERC Order dated 15.05.2014. In consideration of above, Commission proposed capital cost of ₹ 665 Lakh/MW in the draft order. However, on account of changes narrated in the earlier paras of this order and available data on the capital cost, Commission considers it appropriate to specify the capital costs for solar PV power plants as ₹ 673 Lakh/MW. The detailed break up of the capital cost for solar PV power plants for FY 2014-15 is as follows:

Table-2: Break up of capital cost solar PV power plants

S. No.	Components	Capital Cost Proposed (₹ Lakh/MW)	Capital Cost Considered (₹ Lakh/MW)
1.	Cost of Module per MW at the exchange rate in ₹/USD @ average of the last six months	359.72	356.42
2.	Land Cost	0.77	12.00
3.	Civil and Ground works	60	60
4.	Mounting Structure	50	50
5.	Power Conditioning Unit	50	50
6.	Cables and Transformers	60	60
7.	Preliminary and operative expense IDC etc. (10% of total capital cost)	66.39	67.27
8.	Evacuation transmission charges	15	15
9.	Connectivity Charges	2	2
	Total capital cost	663.88	672.69

However, it may be mentioned that there would not be any change in the capital cost for solar thermal power plants as Commission has adopted the capital cost broadly as per CERC norms and also no comments have been received on this account. In light of the above discussion, Commission decides the capital cost for determination of tariff for solar power plants as follows:

Table-3: Capital cost norm for solar power plants

S.No.	Particulars	Capital cost (₹ Crs/MW)
1	Solar PV plants	6.73
2	Solar thermal Plants	11.95

(2) MAT/Tax Rate

25. Commission in the draft order for the purpose of grossing up the base rate of return on equity provided under regulation 15(3) of the RERC RE Tariff Regulations,2014, has considered the MAT rate of 20.01% (= 18.50% MAT rate+5% surcharge + 3% cess) for first year and a MAT rate of 19.06% (= 18.5% MAT rate + 3% cess) for remaining 9 years of the first 10 years. For remaining 15 years of plant life (also equal to useful life), the normal tax rate of 30.90%

(= 30% tax rate + 3% cess) has been applied for grossing up of the base rate of Return on Equity. Similarly, for determination of levellised benefit of higher depreciation also, Commission has considered tax rate of 32.45% (=30% tax rate+5% surcharge+3% cess) for the first year and 30.90% (= 30% tax rate+ 3% cess) for subsequent years.

26. Stakeholders have submitted that the abolition of surcharge has not yet materialized and considering no surcharge on Income Tax/ MAT for second and subsequent years does not appear logical and the regulation 19(3) (*sic.* should be 15(3)) does not provide for such methodology.

27. M/s Hindustan EPC Company Limited suggested that as per Rajasthan Solar Policy, 2011 dated 19.04.2011, the minimum capacity of the solar PV plant in the State would be of 5 MW., which would earn profit of more than ₹ 1 Crore in a year and surcharge of categories namely - profit more than ₹ 1 Crore or profit more than ₹ 10 Crore would be applicable. If 5% surcharge is considered in the first year, it cannot be lower for subsequent years i.e. if surcharge is payable in the first year, it will be payable in subsequent years as well

28. It is also suggested that alternatively, tax could be made a pass through on the basis of actual payment as has been provided in the Karnataka ERC Order dated 10.10.2013.

Commission's views/decision

29. As regards suggestions relating to consideration of surcharge in MAT/Income Tax for entire useful life of the projects, it is stated that Commission on 16.07.2009 had determined levellised tariff, based on the methodology of considering surcharge for the first

year only for wind power plants commissioned during FY 2009-10. Thereafter, applying the indexation mechanism stipulated at regulation 85 of the RERC Tariff Regulations 2009, Commission determined the tariff for FY 2010-11 on 31.03.2010. M/s Indian Wind Power Association & M/s Enercon (India) Limited filed petition No. RERC-220,221/10 under removal of difficulties in the tariff regulations and to review the order dated 31.03.2010 regarding wind power plants as regards applicability of surcharge. This was disposed of by the Commission vide order dated 06.08.2010 without modifying the earlier tariff determined on account of change in surcharge on MAT. This Order was challenged before the APTEL, where, among other things, the issue of surcharge on MAT was raised before the Hon'ble APTEL in the matter of *M/s Enercon (India) Limited and Indian Wind Power Association (Rajasthan State Council) vs. Rajasthan Electricity Regulatory Commission, Jaipur and Ors. reported in 2011 ELR (APTEL) 0987*. The specific issue raised before the Hon'ble APTEL was that the Commission has committed error in not taking into account the surcharge on MAT for 2nd to 10th year and on income tax for eleventh to 20th year. Similarly, it was also argued that the impact of effective rate of corporate tax on calculating accelerated depreciation benefit was to be considered with surcharge and cess from first year to twentieth year. Hon'ble APTEL was of the view that "*if surcharge on MAT is to be allowed for 2nd to 20th Year in the case of the Appellant then the project developers who commissioned wind power plants in FY 2009-10 will be discriminated against. Since the levellised Tariff is not subject to true up and the amount of surcharge varies from year to year, noticeably by decrease, it is not possible for the Commission to consider surcharge of MAT from 2nd to 20th year*". Commission considered it appropriate that no change is required as far as levy of surcharge is concerned. Accordingly, in

the Order issued on 16.07.2014 for wind power plants getting commissioned during 2014-15, Commission has considered surcharge only for the first year. On the same ground, Commission is of the view that same methodology needs to be adopted in the present order for tariff determination of solar power plants.

30. As regards the suggestion of considering tax as pass through on the basis of actual payment, the provision of ROE at regulation 15 of the RERC RE Tariff Regulations, 2014, stipulates as follows:

> ***"15. Return on Equity***
>
> (1) *The value base for the equity shall be 30% of the Capital Cost as specified under regulation 12.*
>
> (2) *The Return on Equity shall be computed at the base rate of 14.5% to be grossed up as per sub-regulation (3) of this regulation.*
>
> (3) *The rate of return on equity shall be computed by grossing up the base rate with the tax rate equivalent to Minimum Alternate Tax (MAT) for first 10 years from COD and normal tax rate for remaining years of project life."*

From above provisions, it is evident that tax is inbuilt in the grossed up RoE, where actual tax cannot be passed on year on year basis. Hence, Commission decides that suggestion of the stakeholder in this regard is not accepted.

(3) Tariff Levellisation

31. Commission in the levellised tariff computations, discounted the year wise calculated tariff. However, some of the stakeholders have submitted that levellised tariff is a uniform tariff which gives revenue stream whose NPV (Net Present Value) shall be the same as the NPV of revenue stream of year wise calculated tariff. It has been further submitted that the normative annual generation from solar power plants would not be the same

during the entire life due to de-ration and on account of this, levellised tariff shall have to be worked out by discounting of revenue stream as well as generation.

Commission's views/decision

32. Commission agrees with the suggestion of the stakeholders. The levellised tariff has been worked out by discounting the revenue stream and generation separately and now the NPV of the revenue stream with levellised tariff is same as the NPV of revenue stream of year wise calculated tariff stream.

(4) Discount Rate

33. In the draft order, Commission has proposed discounting factor as per the regulation per 9(2) of the RERC RE Tariff Regulations, 2014, which provides that for the purpose of levellised tariff computation, the latest available discount factor notified by CERC for the purpose of bid evaluation and payment at the time of issuance of the tariff order for the relevant year shall be considered.

34. Some of stakeholders submitted that CERC vide its order dated 21.02.2014 on Petition No. 002/SM/2014, has decided to discontinue the notification of escalation rates for evaluation of bids with effect from 1.04.2014. CERC in its latest Notification No. Eco-1/2014-CERC dated 7.04.2014, has not notified discount rate for evaluation of bids. There is no discount rate, which is notified by CERC and valid at present. The discount rate of 13.10%, earlier notified, does not appear to be as per regulation. It would be relevant to review the above provision of the regulation and Commission may consider specifying discount rate based on cost of capital. Till above provision is amended, the discount rate of 13.10% may be considered provisionally. It has also been

suggested that in computing the discount rate for levellising the tariff, Commission may follow the principle of weighted average cost of capital (WACC) with approved cost of equity and debt specifically stipulated by CERC for computing discount rate for Renewable Energy Sources. The principles used for bidding cannot be considered for determining cost plus tariff by the Commission under Section 62 of the Electricity Act,2003.

Commission's views/decision

35. Commission in the draft tariff order has adopted discounting rate of 13.10% in line with the approach followed by the Commission for determination of generic tariff for solar power plants for the year 2013-14 vide order dated 4.09.2013. The discounting rate of 13.10 % notified by CERC vide its notification dated 7.10.2013 is valid upto 31.03.2014 i.e. immediately before the commencement of the FY 2014-15. The tariff determined through this order would be applicable for entire FY 2014-15. In view of the above, Commission has considered a discount rate of 13.10% for determination of generic tariff for the solar power plants in this order and therefore, suggestion of the stakeholders in this regard is not accepted. However, for determination of generic tariff for solar plants beyond the period stipulated in this order, a view would be taken separately.

(5) Accelerated depreciation benefit

36. In the draft order, for determining accelerated depreciation benefit, the book depreciation rate of 5.28% has been compared with the depreciation rate as per the Income Tax Act i.e. 80% of the written down value.

37. Some of the stakeholders have submitted that for determining levellised accelerated depreciation benefit, instead of book

depreciation rate of 5.28%, the depreciation rate of 5.83% for 12 years and 1.54% thereafter, may be considered. It has been further submitted that consideration of book depreciation and depreciation as per the Income Tax Act is relevant for determining MAT but is not appropriate for determination of accelerated depreciation benefit. It has been further said that the depreciation rate considered for tariff determination is legitimate amount due to generating company as per regulations and the income tax saved due to depreciation provided higher than it, is the benefit. As such, for determination of levellised benefit of accelerated depreciation instead of taking book depreciation of 5.28%, the depreciation rate considered for determining tariff (i.e. 5.83% for 12 years and 1.54% thereafter) may be used.

Commission's views/decision

38. Commission observes that as per Schedule-II of the Companies Act, 2013, the Companies, where useful lives or residual value are prescribed by a regulatory authority constituted under an act of the Parliament or by the Central Government, shall use depreciation rates or useful lives and residual values prescribed by the relevant authority. Commission at regulation 14(2) of the RERC RE Tariff Regulations, 2014 has prescribed that:

> *"Depreciation per annum shall be based on 'Differential Depreciation Approach' over the loan period beyond the loan tenure over the useful life computed on 'Straight Line Method'. The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% of the Capital Cost per annum and the remaining depreciation shall be spread over the remaining useful life of the project from the 13th year onwards."*

In view of the above, Commission considers it appropriate that for the purpose of assessing levellised benefit of accelerated depreciation, the depreciation rate specified under the RERC RE Tariff Regulations, 2014 may be taken i.e. 5.83% of the capital

cost per annum for 12 years and the remaining depreciation spread over the remaining useful life of the project from the 13th year onwards be considered, instead of rate of depreciation of 5.28% considered in the draft order.

(6) Application of de-ration

39. Commission in the draft order has applied deration of 0.5% to the CUF of every year for working out energy generated from solar PV plants after second year. Similarly, for solar thermal plants also, deration of 0.25% has been applied to the CUF of every year for working out energy generated after fourth year.

40. Shri Shanti Prasad and M/s Rudraksh Energy have suggested that deration should be applied on the initial installed capacity instead of de-rated capacity of the previous year.

Commission's views/decision

41. The approach as adopted in the draft order has been consistently followed by the Commission in the earlier solar tariff orders. Commission is of the view that the same approach should also be continued for the present control period i.e. FY 2014-19.

(7) Subsidy or incentive by the State/Central Govt.

42. The Commission in its draft order has specified the generic tariff with and without availing the benefit of AD.

43. M/s Welspun Renewables Energy Pvt. Ltd have suggested to revisit the necessity for continuation of AD benefit to the Solar Sector to attract investor as IPPs are not in a position to avail the AD benefit since they do not have income from non-solar business. They also referred wind sector, where AD benefit did not help as much with generation as it did with enhancing

capacities and it is felt that shift from emphasis on generation rather than capacity should improve India's weighted average CUF. Solar sector should draw upon the experience from the wind sector and therefore, resource efficient generation must be encouraged where capacity addition decision is taken based on assessment of all resources. AD benefit to solar sector is creating distortion and disparities between IPPs and big corporate houses and disturbing the equilibrium against IPPs particularly when the selection of solar developer is through competitive bidding.

Commission's views/decision

44. Regulation 21 of the RERC RE Tariff Regulations, 2014 reads as under:

> ***"21. Subsidy or incentive by Central/State Government***
> *The Commission shall take into consideration any incentive or subsidy or benefit available from Central or State Government, including accelerated or higher depreciation benefit, if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations:*
> *Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated or higher depreciation, if availed, for the purpose of tariff determination:*
> .....
> "
>
> (Stress supplied)

45. The plain reading of the above provision clearly indicates that while determining the generic tariff under these Regulations, Commission has to take into consideration the benefit of accelerated or higher depreciation benefit available from Central or State Government, if availed by the generating company for renewable power plants. In consideration of above, Commission has specified two generic tariff streams namely - with and without availing AD benefit. Hence, no change is required in the tariff determination on this account.

(8) Applicability conditions of Tariff

46. In the draft order, Commission has proposed the tariff applicable to all solar power plants for which power purchase agreement (PPA) is signed on or before 31.03.2016 in case of solar PV plants and to be commissioned on or before 31.03.2017 in case of solar thermal power plants.

47. M/s Rudraksh Energy have suggested that in view of past experience of JNNSM where MNRE has allowed extension of nine months, the gestation period of three years may be considered for solar thermal power plants and applicability condition of tariff for these plants may be changed as 'PPA signed by 31.03.2015 and commissioned by 31.12.2017'.

Commission's views/decision

48. The sub regulation (3) of the regulation 7 of the RERC RE Tariff Regulations,2014 reads as under

"7. Petition and Proceedings for determination of Tariff

(1) ……
(2) ……..

(3) Notwithstanding anything contained in these Regulations,
- *(a) the generic tariff determined for Solar PV plants based on the capital cost and other norms applicable for any year of the Control Period shall also apply for such plants commissioned during the next year; and*
- *(b) the generic tariff determined for Solar thermal plants based on the capital cost and other norms for any year of the Control Period shall also apply for such plants commissioned during the next two years:*

Provided that
- *(i) the Power Purchase Agreements in respect of the Solar PV plants and Solar thermal plants are signed on or before last day of the year for which generic tariff is determined, and*
- *(ii) the entire capacity covered by the Power Purchase Agreements is commissioned on or before 31st March of the next year in respect of Solar PV plants and on or before 31st March of subsequent two years in respect of Solar thermal plants."*

49. It is mentioned that Commission has followed the same approach, as mentioned in the above provision, in the earlier solar tariff orders, and for consistency, the above provisions have also been incorporated in the RERC RE Tariff Regulations, 2014 for the next control period. This is also in consonance with approach followed by CERC in its RE Tariff Regulations, 2012. Hence, the request of the stakeholders in this respect cannot be accepted.

(9) Tariff applicable for Rooftop & small solar PV and thermal systems

50. In the draft order, Commission has extended the tariff applicable to MW scale solar power plants to small roof top as well as small solar power plants also.

51. M/s Rudraksh Energy have suggested that extension of the same generic tariff as applicable to MW scale solar power projects would place roof top PV as well as small solar power projects in hardships on account of lack of economies of scale, lower CUF, higher O&M cost and lower availability of the Discom system. They have also cited the reference of Karnataka ERC order dated 10.10.2013 whereby taking care of the abovementioned issues, a bit higher interest rate has been allowed for roof top PV as well as small solar power projects.

Commission's views/decision

52. It may be mentioned that the similar suggestions of specifying higher tariff for roof top as well as small plants were received earlier also. However, Commission took the view that for setting up of a MW scale power plant, a set of preliminary works are required to be done, which also include land acquisition and development etc. For a typical green field grid connected solar PV MW scale project, the cost components towards land, civil and general works, preliminary and preoperative expenses taken

together comes in the vicinity of 15-17%. For roof top solar PV systems such expenses would be lower. However, CUF for roof top PV systems would be lower as such systems may be located predominantly in the areas having lesser solar radiation when compared with western Rajasthan, which has better radiation potential and also due to impact of shading of trees/adjoining buildings. Commission has been consistently specifying the same tariff for roof top PV systems as applicable to the MW scale solar projects in the earlier solar tariff orders. Commission is of the view that it would be appropriate to continue with the past practice of specifying the same tariff for both roof top PV systems and small solar plants and MW scale PV projects and therefore, no change is required on account of this suggestion.

(10) Grid connectivity of roof top PV power plants and small solar power plants

53. Commission, in its draft order, has proposed to retain the guidelines laid down in its earlier solar tariff order dated 25.05.2010 as regards (i) Metering and Billing arrangement (ii) General Terms and Conditions. It has been further proposed that the grid connectivity of rooftop PV systems and small systems shall be governed by the prevailing CEA (Technical Standards for connectivity of the Distributed Generation Resources) Regulations, 2013 and Rajasthan Electricity Grid Code (REGC) as amended from time to time.

54. Shri Shanti Prasad and M/s Rudraksh Energy, in consideration of connectivity requirement of LT roof top or LT small solar PV projects, have suggested changes in the terms and conditions of connectivity specified by the Commission in its solar tariff order dated 25.05.2010 for roof top PV and small solar plants, which are proposed to be retained in the draft order also.

It has been suggested that generic tariff for roof top or small solar PV systems approaching ₹ 7.39/kWh is lower than energy charges proposed by the Discoms for LT non-domestic consumer with monthly consumption exceeding 500 kWh. This would prompt them also to partly cater their load from solar power even without GoI's subsidy.

On the similar grounds, as stated above, they have suggested that net metering may be specified with the condition that injection of power should deemed to be banked and netted against Discoms' supply. Any unadjusted injection of solar power may be settled at generic tariff of ₹ 7.39/kWh at appropriate interval, say on monthly or quarterly basis.

It has also been suggested that the conditions such as stepping up of HT, voltage imbalance, interface meters and communication interface and data acquisition specified in the Commission's earlier order dated 25.05.2010 may also be relaxed for LT roof top or LT small solar PV power plants. It has been suggested that meter installation, sealing and monthly reading arrangement for them may also be approved by Discoms.

As regards condition of execution of PPA included in the said 25.05.2010 order, it has been suggested that it would be more appropriate that instead of complying the requirement of order dated 25.05.2010 and the CEA (Technical Standards for connectivity of the Distributed Generation Resources) Regulations, 2013 separately, a standard application cum agreement form is specified by Discoms covering data required by the Discoms' for requirement of protection, safety, metering, connectivity conditions and power purchase provisions etc.

Commission's views/decision

55. Commission has taken note of the suggestions/comments received from the stakeholders as regards the connectivity of LT roof top or LT small solar PV power plants, which broadly suggest for specifying the net metering scheme. It may be mentioned that Jaipur Vidyut Vitran Nigam Limited ('JVVNL') has filed a Petition before the Commission for notification of net metering regulations and approval of feed in tariff for Roof Top solar PV grid connected system. In the given situation, Commission is of the view that it would be appropriate that the aspects brought out by the stakeholders in respect of net metering are deliberated while dealing with the petition filed by JVVNL. Therefore, at present no change is required on this account.

A. Benchmark capital cost norm for solar PV and solar thermal technologies for FY 2014-15.

56. As per regulation 26 and 29 of the RERC RE Tariff Regulations, 2014, the normative capital cost for solar PV/thermal power plants shall be inclusive of all capital works including plant and machinery, civil works, erection and commissioning, financing and interest during construction etc., and evacuation infrastructure up to the interconnection point.

57. The RERC RE Tariff Regulations, 2014 further specify that capital cost norm for solar PV and solar thermal power plants shall be determined by the Commission for each year by a separate Order.

58. Based on the discussion of the earlier paras, the benchmark capital cost for solar PV and solar thermal power plants for FY 2014-15 is determined as under:

Table-4: Capital cost norm for solar power plants

S.No.	Particular	Capital cost (₹ Crs/MW)
1	Solar PV plants	6.73
2	Solar thermal Plants	11.95

The abovementioned capital cost norms also include connectivity charges of ₹ 2 Lakh/MW and ₹ 15 Lakh/MW towards solar energy evacuation cost.

B. The proposed generic levellised generation tariff for solar power plants for 2014-15.

59. The proposed levellised generic tariff for solar power plants for FY 2014-15 has been discussed below:

Useful Life

60. The regulation 2(22) of the RERC RE Tariff Regulations, 2014 provides for a useful life of 25 years for solar PV/solar thermal power plants and accordingly, for computation of generic tariff, a useful life of 25 years has been considered.

Tariff Period

61. The RERC RE Tariff Regulations, 2014, at regulation 5, specify that the tariff determined for solar energy plants getting commissioned during the control period, shall continue to be applicable for entire duration of the tariff period as stipulated in regulation 6 of the Regulations, which is 25 years for solar power plants.

Tariff Structure, Tariff Design and Levellised Tariff

62. As per regulation 8 of the RERC RE Tariff Regulations, 2014, the tariff for solar PV and solar thermal power plants shall be a single part tariff consisting of following fixed cost components:

(a) Operation and Maintenance (O&M) Expenses;

(b) Depreciation;

(c) Interest on long-term loans;

(d) Interest on Working Capital; and

(e) Return on Equity.

63. As per regulation 9 of the RERC RE Tariff Regulations, 2014, the generic tariff for solar power plants shall be determined on levellised basis for the tariff period and for the purpose of levellised tariff determination, the latest available discount factor notified by CERC for the purpose of bid evaluation and payment at the time of issuance of the tariff order for the relevant year shall be considered. Therefore, the discount factor of 13.10% has been considered as per the notification dated 7.10.2013 of CERC.

Debt-Equity Ratio

64. The Debt-Equity ratio of 70:30 as envisaged at regulation 15 of the RERC RE Tariff Regulations, 2014 has been taken for working out the debt and equity components of normative capital cost for determination of levellised generic tariff.

Capacity Utilisation Factor (CUF) & de-ration in CUF

65. Regulation 27 of the RERC RE Tariff Regulations, 2014 provides for CUF of 20% with deration factor of 0.50% of CUF for every year after second year for solar PV power plants.

66. Further, regulation 30 of the RERC RE Tariff Regulations, 2014 provides for CUF of 23% with deration factor of 0.25% of CUF for every year after four year for solar thermal power plants.

67. Accordingly, above CUFs along with de-ration have been taken for determination of tariff for solar power plants.

Operation & Maintenance (O&M) Expenses

68. Normative O&M expenses have been taken as ₹ 12.76 Lakh/MW for solar PV power plants for FY 2014-15 in accordance with regulation 28(1) of the RERC RE Tariff Regulations, 2014 and have been escalated at the rate of 5.85% per annum over the tariff period for computation of the levellised tariff as per the regulation 28(2) of the said Regulations.

69. Similarly, in accordance with regulation 31 of the RERC RE Tariff Regulations, 2014, normative O&M expenses for solar thermal power plants have been considered as ₹ 17.24 Lakh/MW with a normative escalation of 5.85% per annum over the Tariff period.

Depreciation

70. In accordance with regulation 14 of the RERC RE Tariff Regulations, 2014, the rate of the depreciation for the first 12 years has been considered as 5.83% of the capital cost per annum and from 13th year onwards, the remaining depreciable value has been spread over the balance useful life of the solar power plants.

Interest rate on long term loan

71. In accordance with sub-regulation (1) of regulation 13 of the RERC RE Tariff Regulations, 2014, the loan tenure of 12 years has been considered for the purpose of determination of generic tariff for solar power plants. Sub-regulation (2) of regulation 13 of

the said Regulations further provides for the interest rate on long term loans as 300 basis points higher than the average State Bank of India (SBI) base rate prevalent during first six months of the year previous to the relevant year.

72. Accordingly, the average SBI base rate prevalent during first six months of the year FY 2013-14 has been considered for computation of applicable interest rate, as shown in the table below:

Table-5: Average SBI base rate during first six months of FY 2013-14

Period from	*Period to*	*Base rate*	*No. of days*
1.04.2013	*18.09.2013*	*9.70%*	*171*
19.09.2013	*30.09.2013*	*9.80%*	*12*
Average SBI Base rate for FY 2013-14		*9.71%*	*183*

(Source:http://in.reuters.com/article/2013/11/29/india-int-base-idINL4N0JE2ES20131129)

73. In terms of the above, the interest rate of 12.71% (=9.71%+3.00%) has been used for computation of interest on long term loan in generic tariff computations, treating loan as 70% of the capital cost.

Interest on working capital requirement

74. For the purpose of working capital requirement, the composition of working capital has been taken as per regulation 16(1) of the RERC RE Tariff Regulations, 2014.

75. In accordance with regulation 16(2) of the RERC RE Tariff Regulations, 2014, the interest rate on working capital for solar power plants has been taken as 250 basis points higher than the average of SBI Base rate prevalent during first six months of FY 13-14, which works out to be 12.21% (=9.71%+2.50%). Accordingly, a rate of 12.21% has been taken as interest rate on working capital requirements.

Return on Equity

76. Regulation 15(2) of the RERC RE Tariff Regulations, 2014 provides for 16% Return on Equity on Equity base of 30% determined in accordance with regulation 12 of the said Regulations. As per regulation 15(3) of the RERC RE Tariff Regulations, 2014, Return on Equity (RoE) has been computed by grossing up the base rate of 16% with tax rate equivalent to Minimum Alternate Tax (MAT) for first 10 years from COD and normal tax rate for remaining years of the project life. In line with the practice followed during the previous control period, the MAT rate of 20.01% (= 18.50% MAT rate+5% surcharge + 3% education cess) has been considered for first year and a MAT rate of 19.06% (= 18.5% MAT rate + 3% education cess) has been considered for remaining 9 years of the first 10 years. For remaining 15 years of plant life (also equal to useful life), the normal tax rate of 30.90% (= 30% tax rate + 3% education cess) has been applied for grossing up of the base rate of Return on Equity.

Subsidy or incentive by the Central Government, including Accelerated Depreciation

77. As per the regulation 21 of the RERC RE Tariff regulations 2014, the Commission shall take into consideration any incentive or subsidy or benefit available from Central or State Government, including accelerated or higher depreciation benefit, if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations. Further, the Generation Based Incentive/Tariff Subsidy, if allowed by the Central/ State Govt. would be governed by the terms and conditions of such scheme.

78. As regards impact of accelerated depreciation admissible to solar energy power plants, in addition to allowed 80%

depreciation, an additional depreciation of 20% is permitted to the new assets acquired by power generating companies in the initial year vide amendment in Section 32, sub-section(1) clause (iia) of the Income Tax Act, 1961 has also been taken into account. Both these rates have been considered in computing income tax benefit.

79. Accordingly, considering the capital cost of the solar power projects, getting commissioned during FY 2014-15, as capitalized during second half of the year (i.e. put to use for less than 180 days), and an additional depreciation of 10% has been taken in the first year and balance 10% additional depreciation has been taken in the subsequent year as given at Annexures-I and II. In this computation, the energy available in the second half of the year has been taken as 50% of annual generation, as also has been considered in the earlier tariff orders.

80. For the purpose of determining accelerated depreciation benefit, as dealt earlier, the depreciation rate as per the Regulations (i.e. 5.28% for 12 years and 3.33% for the remaining useful life)(as also allowed under the Companies Act 2013) has been compared with the depreciation rate as per Income Tax Act i.e. 80% of the written down value. The computation has been at Annexure-I and Annexure-II.

Applicable Tariff for solar power Plants

81. Considering the parameters discussed above, the generic tariff for solar PV plants is being determined as ₹ 7.50 /kWh, as per calculation sheet placed at Annexure-I. This tariff is levellised tariff for 25 years and applicable for plants commissioned without availing benefit of Accelerated Depreciation (AD). With AD

benefit, the tariff would be lower by ₹ 0.87/kWh i.e. ₹ 6.63/kWh. This tariff would be applicable for solar PV plants where PPA is signed on or before 31.03.2015 and which get commissioned on or before 31.03.2016.

82. Similarly, considering the parameters discussed above, the generic tariff for the solar thermal power plants is being determined as ₹ 11.67/kWh, as per calculation sheet given at Annexure-II. This tariff is levellised for 25 years and applicable for plants commissioned without availing benefit of accelerated depreciation. The tariff would be lower by ₹ 1.40/kWh if accelerated depreciation is availed i.e. the tariff would be ₹ 10.27/kWh. This tariff would be applicable for solar thermal plants where PPA is signed on or before 31.03.2015 and which get commissioned on or before 31.03.2017.

83. The levellised tariff has been determined for the useful life of the solar energy plants i.e. for 25 years. Therefore, PPA should be for 25 years.

C. Grid connected roof top and small solar PV and thermal systems: Applicable Tariff

84. Commission is of the considered view that the generic tariff as applicable for MW scale solar PV plants be extended to roof top and small solar power generation systems also. However, this tariff would not be applicable to roof top and small solar power generation systems which are getting support by way of capital subsidy etc., under MNRE/JNNSM schemes. The tariff for these roof top PV and small solar plants, which would get support by way of capital subsidy, would be determined separately based on terms and conditions of the relevant scheme.

Guidelines for Metering, Billing and other Requirements

85. The guidelines laid down as per order dated 25.05.2010 as regards (i) Metering and Billing arrangement; and (iii) General Terms and Conditions would be applicable. However, the grid connectivity of the rooftop PV systems and small systems shall be governed by prevailing CEA (Technical Standards for connectivity to the Grid) Regulations, 2007, CEA (Technical Standards for connectivity of the Distributed Generation Resources) Regulations, 2013 and REGC as amended from time to time.

Conclusion

86. The generic tariff levellised for 25 years for two different technologies (solar PV & solar thermal) and for roof top and small solar plants is summarized as under:

Table- 6: Summary of tariff for solar PV and solar thermal plants

S. No.	Particulars	Tariff (₹/kWh) if AD benefit is not availed	Tariff (₹/kWh) if AD benefit is availed
1	2	3	4
1	Solar Photo Voltaic (PV) Power Plants commissioned by 31.3.2016	7.50	6.63
2	Solar Thermal Power Plants commissioned by 31.3.2017	11.67	10.27
3	Roof Top Solar PV installations and other small solar PV power generation plants to be commissioned by 31.3.2016	7.50	6.63
4	Small Solar Thermal Power generation plants to be commissioned by 31.03.2017	11.67	10.27

87. Both the tariff mentioned in the above table i.e. with or without availing accelerated depreciation would be valid tariff for purchase of solar power by distribution licensees from solar generation plants set up in Rajasthan.

88. For solar power plants claiming the higher tariff worked out as above for projects not availing accelerated depreciation benefit, Commission considers it appropriate to lay down modalities as under:

(1) The PPA should include an undertaking of the solar power generator that accelerated depreciation benefit would not be availed for the generating plant/unit.

(2) The first bill raised by the solar power generator shall be accompanied by an undertaking that accelerated depreciation benefit shall not be claimed. Based on this, the applicable tariff would be allowed.

(3) The claims of energy charges as per applicable tariff may be entertained based on the said undertaking upto the due date of filing of Income Tax Return of the relevant financial year. This would mean 30th September, 2014 for payment for the financial year 13-14 and for the first six months (upto 30th September) of financial year 14-15 and so on.

(4) After filing of Income Tax Return a certificate from a Chartered Accountant (CA) that accelerated depreciation has not been claimed would have to be submitted or in the alternative a copy of Income Tax Return filed with Income Tax Department wherein accelerated depreciation has not been claimed along with verification of Tax Consultant may be furnished.

(5) As Income Tax Return is required to be filed in the next year, the payment of amount corresponding to non-availment of higher depreciation in respect of energy supplied in the month of October onwards of the financial year following the financial year of commissioning of the plant would be made only after the said certificate/copy of Income Tax Return is furnished.

(6) For the energy supplied in the months of October onwards, the methodology as given in sub-paras (4) & (5) above be followed.

89. Commission also considers it appropriate that undertaking of the solar power generator in PPA should be furnished saying that benefit of accelerated depreciation would not be claimed and should also include an undertaking that in case it is found that benefit of accelerated depreciation has been claimed, as per third proviso to regulation 21 of the RERC RE Tariff Regulations, 2014, the distribution licensee shall be entitled to recover the amount wrongly claimed by power generator along with penal charges @ 1.50% per month calculated on daily basis.

90. Similarly, annual undertaking would need to be furnished if CDM benefit is not availed. However, if CDM benefit is availed, it would have to be shared between the distribution licensee and generating company as envisaged in regulation 20 of the RERC RE Tariff Regulations, 2014.

91. The metering arrangement for MW scale solar power plants shall be as per regulation 37 of the RERC RE Tariff Regulations, 2014.

92. Commission in exercise of its power conferred under Section 62 read with Section 64 of the Electricity Act, 2003 and the RERC RE Tariff Regulations, 2014 determines the tariff for solar power plants as detailed in Annexure-I and Annexure-II.

93. The above tariff is applicable for solar power plants where PPA is signed on or before 31.03.2015 and to be commissioned on or before 31.03.2016 in the case of solar PV plants and to be commissioned on or before 31.03. 2017 in the case of solar thermal plants.

94. Copy of this order may be sent to the State Government, Central Electricity Authority (CEA), Rajasthan Renewable Energy Corporation (RREC), Distribution Licensees and stakeholders whose suggestions/ comments have been considered in the present proceedings.

(Vinod Pandya)
Member

(Vishvanath Hiremath)
Chairman

Annexure-1

TARIFF DETERMINATION FOR SOLAR PHOTO VOLTAIC POWER PLANTS LOCATED IN RAJASTHAN

Levelised Tariff (Rs/kWh) without AD	**7.50**	
Accelerated Depreciation benefit(Rs/kWh)	**0.87**	
Levelised Tariff (Rs/kWh) with AD	**6.63**	

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Base Case (SPV)
1	**Power Generation**				
		Capacity			
			Installed Power Generation Capacity	MW	1
			CUF	%	20.00%
			Deration p.a. after 2nd year	%	0.50%
			Auxiliary Consumption	%	0.25%
			Tariff Period	Years	25
			Life of Power Plant	Years	25
2	**Project Cost**				
		Capital Cost/MW	Including Land & Connectivity charges	Rs Lakh/MW	673
3	**Sources of Fund**				
		Debt: Equity			
			Debt	%	70.00%
			Equity	%	30.00%
			Total Debt Amount	Rs Lakh	471.10
			Total Equity Amout	Rs Lakh	201.90
		Funding Options-1 (Domestic Loan Source-1)			
			Loan Amount	Rs Lakh	471.10
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	12
			Intrest Rate	%	12.71%
		Funding Options-2 (Equity Finance)			
			Equity amount	Rs Lakh	201.9
			Return on Equity	% p.a	16.00%
			Discount Rate (CERC Notification 7.10.13)		13.10%
4	**Financial Assumptions**				
		Fiscal Assumptions			
			Income Tax (11th year onwards)	%	30.90%
			MAT Rate (for yr-1)	%	20.01%
			MAT Rate (for yr-2 to yr-10)		19.06%
			80 IA benefits	Yes/No	Yes
		Depreciation			
			Depreciation Rate(upto 12-yrs)	%	5.83%
			Depreciation Rate(after 12-yrs)	%	1.54%
			Years for 5.83% SLM rate	years	12
5	**Working Capital**				
		For Fixed Charges			
		O&M Charges		Months	1
		Maintenance Spare	(% of O&M expenses)	%	15.00%
		Receivables for Debtors		Months	1.5
		Intrest On Working Capital		%	12.21%
6	**Operation & Maintenance Expenses**				
		Power plant	Rs Lakh per MW	Rs Lakh/MW	12.76
		O & M Expenses Escalation		%	5.85%

TARIFF DETERMINATION FOR SOLAR PHOTO VOLTAIC POWER PLANTS LOCATED IN RAJASTHAN

			1	0.884	0.782	0.691	0.611	0.540	0.478	0.422	0.374	0.330	0.292	0.258	0.228	0.202	0.178	0.158	0.140	0.123	0.109	0.096	0.085	0.075	0.067	0.059	0.052

Units Generation	**Unit**	**Year--->**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Aux Consumption	**%**		**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**	**0.25%**
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Deration factor	%	0.50%	1	1.00	1.00	0.99	0.99	0.98	0.98	0.97	0.97	0.96	0.96	0.95	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90	0.90	0.89
Generation	MU		1.75	1.75	1.74	1.73	1.72	1.71	1.70	1.70	1.69	1.68	1.67	1.66	1.65	1.65	1.64	1.63	1.62	1.61	1.60	1.60	1.59	1.58	1.57	1.57	1.56

Cost of generation	**Unit**	**Year--->**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
O&M Expenses	Rs Lacs		12.76	13.51	14.30	15.13	16.02	16.96	17.95	19.00	20.11	21.28	22.53	23.85	25.24	26.72	28.28	29.94	31.69	33.54	35.50	37.58	39.78	42.11	44.57	47.18	49.94
Depreciation	Rs Lacs		39.26	39.26	39.26	39.26	39.26	39.26	39.26	39.26	39.26	39.26	39.26	39.26	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35
Interest on term loan	Rs Lacs		57.37	52.38	47.39	42.40	37.41	32.42	27.44	22.45	17.46	12.47	7.48	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lacs		2.69	2.64	2.60	2.56	2.52	2.48	2.45	2.42	2.39	2.37	2.45	2.43	2.01	2.07	2.14	2.21	2.29	2.37	2.46	2.55	2.65	2.76	2.86	2.98	3.10
Return on Equity	Rs Lacs		40.38	39.91	39.91	39.91	39.91	39.91	39.91	39.91	39.91	39.91	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75	46.75
Total Cost of generation	**Rs Lacs**		**152.46**	**147.69**	**143.45**	**139.26**	**135.12**	**131.03**	**127.00**	**123.03**	**119.13**	**115.29**	**118.47**	**114.78**	**84.35**	**85.89**	**87.53**	**89.26**	**91.08**	**93.02**	**95.07**	**97.24**	**99.54**	**101.97**	**104.54**	**107.26**	**110.14**
Per unit Cost of generation	**Rs/kWh**		**8.72**	**8.45**	**8.25**	**8.05**	**7.85**	**7.65**	**7.45**	**7.25**	**7.06**	**6.87**	**7.09**	**6.91**	**5.10**	**5.22**	**5.35**	**5.48**	**5.62**	**5.77**	**5.92**	**6.09**	**6.26**	**6.45**	**6.65**	**6.85**	**7.07**

Levellised cost of generation (Rs/kWh) (25 yrs) 7.50

Note(s):

1. Levellised tariff has been worked out by carrying out levelisation over 25 years and Discount Rate has been considered as 13.10% as per CERC Notification 1.04.13.
2. Figures may not tally exactly on account of rounding off.

Determination of Accelerated Depreciation Benefit for Solar PV Power Projects

Depreciation amount	90%	
Book Depreciation rate	5.83%	
Tax Depreciation rate	80%	
Additional depreciation rate applicable during first year	20%	
Income Tax	32.45%	30.90%
Capital Cost	673.0	Rs Lakh/MW

Years ---------->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	2.92%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%
Book Depreciation	Rs Lakh	19.62	39.24	39.24	39.24	39.24	39.24	39.24	39.24	39.24	39.24	39.24	39.24	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37
Accelerated Depreciation																										
Opening	%	100.00%	50.00%	5.00%	1.00%	0.20%	0.04%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Allowed during the year	%	50%	45.00%	4.00%	0.80%	0.16%	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	50.00%	5.00%	1.00%	0.20%	0.04%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Deprn.	Rs Lakh	336.50	302.85	26.92	5.38	1.08	0.22	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	316.88	263.61	(12.32)	(33.85)	(38.16)	(39.02)	(39.19)	(39.23)	(39.23)	(39.24)	(39.24)	(39.24)	(10.37)	(10.37)	(10.37)	(10.37)	(10.37)	(10.37)	####	####	(10.37)	###	####	####	###
Tax Benefit	Rs Lakh	102.81	81.46	(3.81)	(10.46)	(11.79)	(12.06)	(12.11)	(12.12)	(12.12)	(12.12)	(12.12)	(12.12)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)	(3.21)
Energy generation	MU	0.87	1.75	1.74	1.73	1.72	1.71	1.70	1.70	1.69	1.68	1.67	1.66	1.65	1.65	1.64	1.63	1.62	1.61	1.60	1.60	1.59	1.58	1.57	1.57	1.56
Per unit benefit	Rs/Unit	11.77	4.66	(0.22)	(0.60)	(0.68)	(0.70)	(0.71)	(0.71)	(0.72)	(0.72)	(0.73)	(0.73)	(0.19)	(0.19)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.21)
Discounting Factor,DF		1.00	0.88	0.78	0.69	0.61	0.54	0.48	0.42	0.37	0.33	0.29	0.26	0.23	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05
Applicable DF		1.00	0.94	0.83	0.74	0.65	0.58	0.51	0.45	0.40	0.35	0.31	0.28	0.24	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.06

Levellised AD benefit **0.87** **Rs/kWh**

Note(s):

1. In the above calculations, depreciation for the first year has been considered as 50%(=50% of (80%+20%) and for second year as 90%(=80%+50% of 20%) as per CERC methodology.
2. Generation for the first year has been considered as 50% of normative generation for second half of the financial year.
3. Figures may not tally exactly on account of rounding off.

Annexure - 2

TARIFF DETERMINATION FOR SOLAR THERMAL POWER PLANTS LOCATED IN RAJASTHAN

Levellised Tariff (Rs/kWh) without AD	**11.67**
Accelerated Depreciation benefit (Rs/kWh	**1.40**
Levellised Tariff (Rs/kWh) with AD	**10.27**

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Base Case (CSP)
1	**Power Generation**				
		Capacity			
			Installed Power Generation Capacity	MW	1
			CUF	%	23.00%
			Deration p.a. after 4th year	%	0.25%
			Auxiliary Consumption	%	6.50%
			Tariff Period	Years	25
			Life of Power Plant	Years	25
2	**Project Cost**				
		Capital Cost/MW	Including Land & Connectivity charges	Rs Lakh/MW	1195
		Connectivity Charges		Rs Lacs/MW	2
3	**Sources of Fund**				
		Debt: Equity			
			Debt	%	70.00%
			Equity	%	30.00%
			Total Debt Amount	Rs Lakh	836.5
			Total Equity Amout	Rs Lakh	358.5
		Funding Options-1 (Domestic Loan Source-1)			
			Loan Amount	Rs Lakh	836.5
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	12
			Interest Rate	%	12.71%
		Funding Options-2 (Equity Finance)			
			Equity amount	Rs Lakh	358.5
			Return on Equity	% p.a	16.00%
			Discount Rate (CERC Notification 7.10.13)		13.10%
4	**Financial Assumptions**				
		Fiscal Assumptions			
			Income Tax (11th year onwards)	%	30.90%
			MAT Rate (for yr-1)	%	20.01%
			MAT Rate (for yr-2 to yr-10)	%	19.06%
			80 IA benefits	Yes/No	Yes
		Depreciation			
			Depreciation Rate(upto 12-yrs)	%	5.83%
			Depreciation Rate(after 12-yrs)	%	1.54%
			Years for 5.83% SLM rate		12
5	**Working Capital Requirement**				
		O&M Expenses		Months	1
		Maintenance Spare	(% of O&M expenses)		15.00%
		Receivables from Debtors		Months	1.5
		Interest On Working Capital		%	12.21%
6	**Operation & Maintenance Expenses**				
		Power plant	Rs Lakh per MW	Rs Lakh/MW	17.24
		Insurance charges	% of depreciated capital cost	%	0.30%
		O & M Expenses Escalation		%	5.85%

TARIFF DETERMINATION FOR SOLAR THERMAL POWER PLANTS LOCATED IN RAJASTHAN

Units Generation	Unit	Year--->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Aux Consumption	**%**		**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**	**6.50%**
Deration factor	**%**		**1.000**	**1.000**	**1.000**	**1.000**	**0.998**	**0.995**	**0.993**	**0.990**	**0.988**	**0.985**	**0.983**	**0.980**	**0.978**	**0.975**	**0.973**	**0.970**	**0.968**	**0.966**	**0.963**	**0.961**	**0.958**	**0.956**	**0.954**	**0.951**	**0.949**
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Generation	MU		1.884	1.884	1.884	1.884	1.879	1.874	1.870	1.865	1.860	1.856	1.851	1.846	1.842	1.837	1.833	1.828	1.824	1.819	1.814	1.810	1.81	1.80	1.80	1.79	1.79

Cost of generation	Unit	Year--->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		17.24	18.25	19.32	20.45	21.64	22.91	24.25	25.67	27.17	28.76	30.44	32.22	34.11	36.10	38.21	40.45	42.81	45.32	47.97	50.78	53.75	56.89	60.22	63.74	67.47
Depreciation	Rs Lakh		69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42
Interest on term loan	Rs Lakh		101.86	93.00	84.15	75.29	66.43	57.57	48.72	39.86	31.00	22.14	13.29	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		4.53	4.43	4.34	4.25	4.17	4.09	4.01	3.94	3.86	3.80	3.92	3.87	3.09	3.18	3.27	3.37	3.47	3.58	3.70	3.83	3.96	4.10	4.25	4.40	4.57
Return on Equity	Rs Lakh		71.71	70.86	70.86	70.86	70.86	70.86	70.86	70.86	70.86	70.86	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01	83.01
Total Cost of generation	**Rs Lakh**		**265.01**	**256.21**	**248.33**	**240.52**	**232.77**	**225.10**	**217.51**	**209.99**	**202.57**	**195.23**	**200.33**	**193.19**	**138.62**	**140.71**	**142.91**	**145.25**	**147.72**	**150.34**	**153.10**	**156.04**	**159.14**	**162.42**	**165.90**	**169.58**	**173.47**
Per unit Cost of generation	**Rs/kWh**		**14.07**	**13.60**	**13.18**	**12.77**	**12.39**	**12.01**	**11.63**	**11.26**	**10.89**	**10.52**	**10.82**	**10.46**	**7.53**	**7.66**	**7.80**	**7.95**	**8.10**	**8.26**	**8.44**	**8.62**	**8.81**	**9.02**	**9.24**	**9.46**	**9.71**

Levellised Tariff (Rs/kWh) (25 yrs) **11.67**

Note(s)

1. Levellised tariff has been worked out by carrying out levelisation over 25 years and Discount Rate has been considered as 13.10% as per CERC Notification 1.04.13
2. Figures may not tally exactly on account of rounding off.

Determination of Accelerated Depreciation Benefit for Solar Thermal Power Projects

Depreciation amount	90%	
Book Depreciation rate	5.83%	
Tax Depreciation rate	80%	
Additional depreciation rate applicable during first year	20%	
Income Tax	32.45%	30.90%
Capital Cost	1195.0	Rs Lakh/MW

Years ----------->	**Unit**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Book Depreciation	%	2.92%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	5.83%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%	1.54%
Book Depreciation	Rs Lacs	34.83	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	69.67	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42	18.42
Accelerated Depreciation																										
Opening	%	100.00%	50.00%	5.00%	1.00%	0.20%	0.04%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Allowed during the year	%	50%	45.00%	4.00%	0.80%	0.16%	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	50%	5%	1.00%	0.20%	0.04%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelrated Deprn.	Rs Lakh	597.50	537.75	47.80	9.56	1.91	0.38	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	562.67	468.08	(21.87)	(60.11)	(67.76)	(69.29)	(69.59)	(69.65)	(69.67)	(69.67)	(69.67)	(69.67)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)	(18.42)
Tax Benefit	Rs Lakh	182.56	144.64	(6.76)	(18.57)	(20.94)	(21.41)	(21.50)	(21.52)	(21.53)	(21.53)	(21.53)	(21.53)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)	(5.69)
Energy generation	MU	0.94	1.88	1.88	1.88	1.88	1.87	1.87	1.87	1.86	1.86	1.85	1.85	1.84	1.84	1.83	1.83	1.82	1.82	1.81	1.81	1.81	1.80	1.80	1.79	1.79
Per unit benefit	Rs/Unit	19.38	7.68	(0.36)	(0.99)	(1.11)	(1.14)	(1.15)	(1.15)	(1.16)	(1.16)	(1.16)	(1.17)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)
Discounting Factor,DF		1.00	0.88	0.78	0.69	0.61	0.54	0.48	0.42	0.37	0.33	0.29	0.26	0.23	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05
Applicable DF		1.00	0.94	0.83	0.74	0.65	0.58	0.51	0.45	0.40	0.35	0.31	0.28	0.24	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.06

Levellised AD benefit **1.40** Rs/kWh

Note(s)

1. In the above calculations, depreciation for the first year has been considered as 50%(=50% of (80%+20%)) and for second year as 90%(=80% + 50% of 20%) as per CERC methodology.
2. Generation for the first year has been considered as 50% of normative generation for second half of the Financial Year.
3. Figures may not tally excatly on account of rounding off.

ANNEXURE-III

List of stakeholders who have furnished written comments/suggestions

S.No.	Particulars of the stakeholder
1	Shri Shanti Prasad, individual
2	Shri D.S.Agarwal, Consultant, Rudraksh Energy
3	M/s Power and Energy Consultants,
4	M/s Sri Maruti Solar Power Pvt. Ltd
5	M/s Welspun Renewables Energy Pvt. Ltd
6	Shri B.M.Sanadhya, Samata Power
7	Jaipur Vidyut Vitran Nigam Ltd
8	Shri P.N.Mandola, Committee for Protection of Public Properties
9	M/s Hindustan EPC Company Limited

ANNEXURE-IV

List of stakeholders who have participated in the public hearing on 5.08.2014

S.No.	Particulars of the stakeholder
1	Shri Ashok Tavakar, XEn, RA
2	Shri D.S.Agarwal, Consultant, Rudraksh Energy
3	Shri S.T.Hussain, AEn, JVVNL
4	Shri P.N.Mandola, Committee for Protection of Public Properties
5	Shri S.K.Goyal, Technical Manager, RREC
6	Shri Ashok Kumar Jain, Consultant, JVVNL

Annexure-V

S.No.	Name of stakeholders	Issue	Comments/suggestions
1	Shri Shanti Prasad	De-ration	De-ration should be applied on the initial installed capacity instead of de-rated capacity of the previous year.
		MAT/Tax rates	Not considering surcharge for second year and onwards does not appear logical and the regulation 19(3) does not provide for such methodology. The previous practice is not relevant with new regulations. The proposed abolition of surcharge has not materialized.
		Tariff Levellisation	Levellised tariff is a uniform tariff for tariff period which gives revenue stream whose NPV (net present value) is the same as the NPV of revenue stream of yearwise calculated tariff. As the annual generation is not the same during the entire life, the determination of levellised tariff will require discounting of revenue stream as well as generation. However, for the determination of levellisation of benefit of higher depreciation, discounting of benefit and generation has been correctly done.
		Higher depreciation benefit	Consideration of book depreciation and depreciation as per income tax act is relevant for determining MAT but is not appropriate to determine higher depreciation benefit. The depreciation rate considered for tariff determination (i.e. 5.83%) is legitimate amount due as per regulations to the generating company and only the income tax saved due to depreciation provided higher than it, is the benefit. As such for determining of levellised benefit, instead of book depreciation of 5.28%, the depreciation rate considered for determining tariff (i.e. 5.83% for 12 years and 1.54% thereafter) may be considered.
		Discount rate	CERC vide order dated 21.02.14 on Petition No. 002/SM/2014 has decided to discontinue the notification of escalation rates for evaluation of bids with effect from 1.4.2014,. Accordingly, in their latest notification No. Eco-1/2014-CERC dated April 7, 2014, no discount rate for evaluation of bids has been notified. Thus no discount rate is available as per CERC's latest notification and the discount rate of 13.10% earlier notified does not appear to be as per regulation. The above provision of the regulation be reviewed and Commission may consider specifying discount rate based on cost of capital (say by applying ROE and interest rate respectively on normative equity and debt). Till above provision in the regulations is amended, the discount rate of 13.10% may be considered provisionally.

Annexure-V

S.No.	Name of stakeholders	Issue	Comments/suggestions
		Grid connectivity conditions for Roof top and small solar PV power plants.	Changes as required in the guidelines and terms and conditions for roof top PV and small solar power plants specified in the Commission's order dated 25.05.2010 and retained in the draft order also for LT roof top or LT small solar PV power plants. (1) Requirement of covered by GOI incentive scheme: The small systems below 1 MW capacity connected to LT System without battery back up may have capital cost and cost of generation approaching the generic tariff of ₹ 7.39 per kWh, which is lower than energy charges proposed in retail tariff petitions of AVVNL, JDVVNL and JVVNL for non-domestic LT consumer with monthly consumption exceeding 500 kWh. The energy charges are subject to fuel surcharge, ED etc. and with these, energy charges will further get enhanced. The higher energy charge of tariff will prompt consumers of this category to use solar roof top PV system even without Govt. of India's subsidy to partly cater their load. In consideration to this, condition of such PV installations to be covered by GoI incentive scheme may kindly be deleted and on the same consideration, condition of the capacity of roof top solar PV system to be as envisaged in GoI scheme may also be deleted. (2) Net metering instead of feed-in tariff metering: With solar PV cost of generation approaching energy charges of Discom's supply, net metering can also be considered. Thus, in net billing, consumer (having roof top installations) will be billed monthly by Discoms for energy supplied by Discoms net of energy injection by the consumer from solar PV plant (after captive use). The net injection of solar power into the distribution system can be deemed to be banked and to be netted against utilization of Discom's supply to the consumer. For any unadjusted injection of solar power, reckoned on say quarterly basis, payment by Discom will be at generic tariff of ₹ 7.39 per kWh. Commission may specify net metering with conditions as above. (3) Condition of stepping up to HT, volatage imbalance: Small roof top LT connected systems can be grid interconnected at low voltage and stepping up of voltage will not be required. Similarly, small / roof top PV system can be grid interconnected at low voltage and as such cannot satisfy the requirement of voltage imbalance. Further, as inverters of solar PV installations operate only with grid supply, so measurement of voltage unbalance and fluctuations may not be feasible.

S.No.	Name of stakeholders	Issue	Comments/suggestions
			(4) Requirement of metering for net metering: Supply from Solar power plant interconnection on grid side of the consumer will utilise very small/practically zero length of service line but will be open access of the distribution system to the consumer for which wheeling charges, wheeling losses, cross subsidy surcharge and additional surcharge should not be specified. In net metering concept, solar power plant can be connected at any point in consumer premises and CM (consumer meter) with import and export recording will be adequate. However, for ascertain that export recording of CM is due to solar generation and not a malpractice, SM (the solar PP meter) will also be required to establish that CM(export) is not more than SM (export). Commission may specify this metering arrangement for net metering. (5) Condition of Interface type Meters: For small solar PV installation with net metering, sophisticated and costly interface type meters are not required, import and export recording type consumer energy meters (single phase or three phase, as the case may be, as per metering regulations) will be adequate. Therefore, the condition of interface meters may be relaxed for LT roof top installations. (6) Meter installation , sealing and readings by Discoms : In both cases, all meters (GM, CM and SM, as the case may be) will have to be read as such Commission may kindly specify that Discoms will approve metering installations and their testing, sealing and monthly readings . (7) Execution of PPA: For small / roof top PV installations, it would be more appropriate that instead of complying the requirements of Commission's order dated 25.05.2010 and the CEA (Technical Standards for connectivity of the Distributed Generation Resources) Regulations, 2013 separately, a standard application cum agreement form is specified by Discoms covering data required by Discoms, requirement of protection, safety, metering, connectivity conditions and power purchase provisions, etc. (8) Communication interface and data acquisition: In this respect, para 64(14)(x)of said order specifies for providing:- (a) The communication to support Real time data logging, Event logging,

S.No.	Name of stakeholders	Issue	Comments/suggestions
			Supervisory control, Operational modes and Set point editing and number of the parameters of solar system to be measured and displayed(viz. Solar system temperature, Ambient temperature, Solar irradiation/insolation, DC current and Voltages, AC injection into the grid (one time measurement at the time of installation),Efficiency of the inverter, Solar system efficiency, Display of I-V curve of the solar system) and data logging and analysis of these parameters through bar charts, curves, tables, and (b) The communication interface as an integral part of inverter and suitable for connection to local computer and also remotely via the Web. Installation by PV developer of Supervisory Control and Data Acquisition (SCADA) system including web based SCADA system which can be monitored via the web from distribution company office. (9) General Principles for Grid Connectivity: Rajasthan Electricity Regulatory Commission (Rajasthan Electricity Grid Code) Regulations 2008 and General Connectivity Conditions of the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 are applicable to interconnection with State / inter-state EHV grid and not required for LT / HT roof top installations connected to distribution system. Similarly, provisions of supply of black start and start up power supply by the solar PV plants will also be not feasible as inverters of solar PV installations operate only with grid supply.
2	M/s Rudraksh Energy	Deration in Capacity	The deration in capacity should be on the initial installed capacity instead of last year's capacity as has been done in the draft order.
		Return on Equity	The RoE is being considered by grossing up the base rate with tax, where for the first year, surcharge has been considered and for the remaining 9 years surcharge has not been considered which should be continued to be considered till it is abolished. Alternatively, Tax could be made pass through on the basis of actual payment, as has been provided in Karnataka ERC Order dated 10.10.13 at clause "k- Return on Equity".
		Applicable Tariff for Roof Top & Small PV and	Same generic tariff as applicable to MW scale Solar Projects has been proposed to be extended to small roof top as well as small solar power generation system. This may place them in hardship for the following reasons: a) Capital cost per kW/MW would be higher on account of economy of large scale

S.No.	Name of stakeholders	Issue	Comments/suggestions
		Thermal System	would not be there. b) CUF would be lower (17 to 18%) c) Operation and Maintenance cost would be definitely higher. d) Grid availability (Discom system) will be lower than RVPN's System. Karnataka ERC in its Order dated 10.10.13 has taken care of these issues, even interest on loan to them has been allowed at a bit higher rate (clauses d,g and h). In view of above, higher tariff be considered.
		Connectivity of Roof Top Solar PV plants	For rooftop PV plants (with output at LT), the net metering concept may be considered which may not require the developer to step up to HT and connect to the Grid. In net metering, the consumer will be able to feed any surplus energy to the grid after its own consumption, which can be considered as banked energy and settled at appropriate interval, say monthly or quarterly and can be paid at the generic tariff.
		Capital cost	In view of likely change in the Policy of availability of land at 10% of DLC rate and levy of anti dumping duty, the capital cost may be suitably modified. Cost of power evacuation line of ₹ 15 Lakh/MW is correct for 33 kV line whereas it should be ₹ 25 Lakh/MW for 132 kV lines as has been done in case of wind power plants.
		Applicability conditions of tariff	The date of signing of PPA for the applicability of the order may be kept as 30.06.2015 as gestation period of 9 months is sufficient for PV plants. In case of solar thermal projects, the gestation period of two years is less as in past also the plants could not be commissioned even in 28 months and 9 months extension was granted by MNRE. Therefore, it may be considered to keep a gestation period of about 3 years i.e. the PPA to be signed by 31.3.15 and commissioned by 31.12.17.
3	M/s Power Energy Consultants	Capital cost	Benchmark capital cost has been reduced to ₹ 665 Lakh/MW from ₹691.09 Lakh/MW taken by CERC. However, no detailed break has been given for this. It seems the cost of land has been taken as "zero" which is not justified. Firstly, in case of the Govt. land, investor has to pay DLC charges plus Annual lease rental to Govt. of Rajasthan which has not been considered in the expenses. Secondly, most of the Govt. land and huge expenses are required for its leveling which should also be taken into consideration.

<table>
<tr><th>S.No.</th><th>Name of stakeholders</th><th>Issue</th><th>Comments/suggestions</th></tr>
<tr><td></td><td></td><td>Degradation of Solar PV Modules</td><td>
It takes long time for Govt. land allotment and for timely implementation of the project mostly, investors have to purchase private land. Therefore, a minimum cost of land should be considered as ₹ 15 Lakh/MW and the overall cost should be reduced to ₹ 681 Lakh/MW of CERC as per the table given below:
<table>
<tr><th colspan="3">Indicative break up for capital cost projection</th></tr>
<tr><td>Sr. No.</td><td>Particulars</td><td>Proposed RERC Norms Rs. Lac/MW</td></tr>
<tr><td>1</td><td>PV Modules @ ` 60.97/US$ in place of ` 62/US$</td><td>360</td></tr>
<tr><td>2</td><td>Degradation (11.29)</td><td>0</td></tr>
<tr><td>3</td><td>Land cost (25)</td><td>15</td></tr>
<tr><td>4</td><td>Civil and General Works</td><td>60</td></tr>
<tr><td>5</td><td>Mounting Structures</td><td>50</td></tr>
<tr><td>6</td><td>Power conditioning unit</td><td>50</td></tr>
<tr><td>7</td><td>Cables and Transformers</td><td>60</td></tr>
<tr><td>8</td><td>Preliminary and pre-operative expenses, IDC etc.</td><td>69</td></tr>
<tr><td>9</td><td>Trans Line cost</td><td>15</td></tr>
<tr><td>10</td><td>Connectivity charges</td><td>2</td></tr>
<tr><td>11</td><td>Total Capital cost</td><td>681</td></tr>
</table>
The degradation @ 0.5% considered by the Commission from 2nd year till 25th year which results into energy yield of 89.1% in 25 years is much higher than the guaranteed figures offered by all the leading PV Module manufacturers including the guarantees underwritten by the renowned insurance companies world over. Presently all the leading manufacturers as well as insurance companies are extending guarantees for degradation of PV modules confirming yield of 90% at the end of 10 years and in the full life time of 25 years as 80% of the current yield. Degradation for the first year is always higher i.e. @ 2.5 to 3.0% and the following degradation figures may be taken into consideration for arriving levellised tariff for 25 years:
</td></tr>
</table>

<table>
<tr><th>S.No.</th><th>Name of stakeholders</th><th>Issue</th><th>Comments/suggestions</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td colspan="4">Annual Energy Degradation of PV Modules</td></tr>
<tr><td>Year</td><td>Annual degradation</td><td>Cummulative Degradation</td><td>Energy Yield</td></tr>
<tr><td>1</td><td>0%</td><td>0%</td><td>100.00%</td></tr>
<tr><td>2</td><td>2.50%</td><td>2.50%</td><td>97.50%</td></tr>
<tr><td>3</td><td>1.00%</td><td>3.50%</td><td>96.50%</td></tr>
<tr><td>4</td><td>1.00%</td><td>4.50%</td><td>95.50%</td></tr>
<tr><td>5</td><td>0.80%</td><td>5.30%</td><td>94.70%</td></tr>
<tr><td>6</td><td>0.80%</td><td>6.10%</td><td>93.90%</td></tr>
<tr><td>7</td><td>0.80%</td><td>6.90%</td><td>93.10%</td></tr>
<tr><td>8</td><td>0.80%</td><td>7.70%</td><td>92.30%</td></tr>
<tr><td>9</td><td>0.80%</td><td>8.50%</td><td>91.50%</td></tr>
<tr><td>10</td><td>0.80%</td><td>9.30%</td><td>90.70%</td></tr>
<tr><td>11</td><td>0.70%</td><td>10.00%</td><td>90.00%</td></tr>
<tr><td>12</td><td>0.70%</td><td>10.70%</td><td>89.30%</td></tr>
<tr><td>13</td><td>0.70%</td><td>11.40%</td><td>88.60%</td></tr>
<tr><td>14</td><td>0.70%</td><td>12.10%</td><td>87.90%</td></tr>
<tr><td>15</td><td>0.70%</td><td>12.80%</td><td>87.20%</td></tr>
<tr><td>16</td><td>0.70%</td><td>13.50%</td><td>86.50%</td></tr>
<tr><td>17</td><td>0.70%</td><td>14.20%</td><td>85.80%</td></tr>
<tr><td>18</td><td>0.70%</td><td>14.90%</td><td>85.10%</td></tr>
<tr><td>19</td><td>0.70%</td><td>15.60%</td><td>84.40%</td></tr>
<tr><td>20</td><td>0.70%</td><td>16.30%</td><td>83.70%</td></tr>
<tr><td>21</td><td>0.70%</td><td>17.00%</td><td>83.00%</td></tr>
<tr><td>22</td><td>0.70%</td><td>17.70%</td><td>82.30%</td></tr>
<tr><td>23</td><td>0.70%</td><td>18.40%</td><td>81.60%</td></tr>
<tr><td>24</td><td>0.70%</td><td>19.10%</td><td>80.90%</td></tr>
<tr><td>25</td><td>0.70%</td><td>19.80%</td><td>80.20%</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>M/s Maruti Solar Power Private Limited</td><td>Capital cost</td><td>Normative capital cost of solar PV project may be revised to ₹ 900 lakh/MW, in view of anti-dumping duty imposed on solar gear by DGAD imported from US, China, Malaysia and Taiwan and evacuation on EHV level which is generally 15-30 km from EHV grid.</td></tr>
</table>

S.No.	Name of stakeholders	Issue	Comments/suggestions
		O&M Cost for Solar PV Plant	O&M cost of ₹ 18 lakhs per MW may be considered for solar PV project with annual escalation rate should be reflective of actual price due to higher WPI and increased manpower cost. In addition, VAT and Service Tax are also applicable.
		Degradation of Solar PV Module	Solar Module requires regular maintenance to achieve higher efficiency. Historically, the module efficiency drops at the rate of 1% every year after 2nd year. Therefore, degradation of solar module will be considered at the rate of 1% every year after 2nd year.
		Auxi. Cons. for solar PV	2% may be considered as auxiliary consumption for solar PV project.
		CUF for Solar	Solar irradiation varies from 12-17% in the State, so CUF of 15% for solar PV project and 20% for solar thermal project may be considered.
		Return on Equity	Return on Equity may be considered similar as per CERC norm i.e. 20% per annum for the first 10 years, and 24% per annum from the 11th year onwards.
		Interest on Loan	Major public institutions/banks lend the solar project at high interest rate due to higher variability in solar market, and lending from foreign require hedging risk coverage too. So, Interest rate of 14.5% may be considered on Loan for solar projects.
5	M/s Welspun Renewables Energy Pvt. Limited	Module Price	As per the Research report of GTM module price in India and China, module cost will be around US$ 0.64/Wp. The study of module price by Bridge to India in their recent report also shows that the average module prices in the country for the year 2013 is around US$0.64 per Wp. Recent negotiations with Tier 1 Chinese manufacturers are indicating a price of US$0.65 per Wp. Therefore, Commission may consider US$0.65 per Wp at present as the benchmark price for foreign modules used in the country for capex calculation instead of US$0.59 per Wp taken by the RERC. Cost of Indian made modules and cells to be 17% higher than the average of the Chinese module costs; making cost of Indian modules to be US$ 0.75 per Wp. Considering the Anti Dumping Duty proposed by Ministry of Commerce vide notification dated

S.No.	Name of stakeholders	Issue	Comments/suggestions
			22nd May 2014, price of Foreign Modules to vary between 0.75 USD/Wp to 150 USD/Wp. Therefore average Module prices should be considered at US$ 1-1.2 /Wp.
		USD-INR Exchange Rate	Since most of the procurement for Rajasthan state bidding may commence from 1st or 2nd Quarter of FY 2015-16, it is suggested that the exchange rate for US$/ INR be taken as ₹ 62. The proposed exchange rate of ₹ 60.97/USUS$ taken as average doesn't reflect a true indicator for future since in the last 1 year, forex market had been highly volatile. We suggest the currency future market data from NSE be taken as the basis for determination of benchmark exchange rates for future procurement for the following reasons: 1. NSE currency market is used by most of institutions/corporate for hedging purposes to manage their currency risk. 2. Procurement activity for any bid invited by Rajasthan in 3rd Quarter of FY 2014-15 will happen in 1st or 2nd Quarter of 2015-16 after the financial closure of the projects.
		Capital Cost	The following are brought to the notice of Commission the following with respect to the Capital Cost of Solar PV Projects.: a. Price of Foreign modules is US$ 1 /Wp; considering the recent trends observed, research reports by various international consultants, market prices of Tier-1 modules and including the impact of the developments w.r.t. to the antidumping duty. b. Adjustment of cost against module degradation by reduction in PLF on yearly basis instead of additional CAPEX; considering the prescribed rate is not reflecting the market scenario as the warrantees by most manufacturers is 1% annual degradation for the first 10 years and 0.66% for the next 15 years which comes out to be ₹ 71 Lacs/MW. c. Land Requirement is 6 Acres/MW considering higher land requirement for technologies like motorized trackers, seasonal tilt and thin film. d. Since Land in Rajasthan provided by Govt. of Rajasthan through Rajasthan Solar Policy

<table>
<tr><th>S.No.</th><th>Name of stakeholders</th><th>Issue</th><th>Comments/suggestions</th></tr>
<tr><td></td><td></td><td></td><td>
2011 for setting up solar project, hence Land Cost to be considered at ₹ 25 Lacs/MW as assumed by RERC. In case where Land not provided by Govt. of Rajasthan the cost of land need to be included in the project. In that case Land Cost to be considered at ₹ 67.2 Lacs/MW (i.e. ₹ 13.44 Lacs/Acre); considering the ground realities after implications of newly enacted Land Acquisition Act 2013.

e. Power Conditioning Unit cost is ₹ 60 Lacs/MW; considering prevailing market prices of quality products from reputed manufacturers to ensure availability of the plants.

f. Civil & General Works cost is ₹ 115 Lacs/MW; considering the ground realities observed in various commissioned projects and varying geographic and climatic conditions in the Country.

g. Ground Monitoring Structures cost is ₹ 70 Lacs/MW; considering the ground realities observed in various commissioned projects and varying geographic and climatic conditions in the Country.
Cables & Transformer Costs is ₹ 126 Lacs/MW; considering various necessary components such as Earthing System for DC Plant, Early Streamer based Lightning protection, Illumination, SCADA & Telemetry, Module Cleaning, Water Sourcing & Treatment etc. Summary of the cost w.r.t various components:
<table>
<tr><th>S.No</th><th>Particulars</th><th>Suggestions</th></tr>
<tr><td>1</td><td>PV Modules</td><td>620 (considered at 1USD/Wp @ Exchange rate of 1 USD = 62 INR; 0.646/Wp considered without ADD)</td></tr>
<tr><td>2</td><td>Land Cost</td><td>25 (67 Lacs for Pvt Land)</td></tr>
<tr><td>3</td><td>Civil and General Works</td><td>115</td></tr>
<tr><td>5</td><td>Mounting Structures</td><td>70</td></tr>
<tr><td>6</td><td>Power Conditioning Unit</td><td>60</td></tr>
<tr><td>7</td><td>Electrical system Cost up to project switchyard</td><td>126</td></tr>
<tr><td>8</td><td>Prelim and Preop Expenses</td><td>90</td></tr>
<tr><td>9</td><td>Total Capital Cost</td><td>1106</td></tr>
</table>
</td></tr>
</table>

Annexure-V

S.No.	Name of stakeholders	Issue	Comments/suggestions
			Commission may consider the Capital Cost of Solar PV Projects as ₹ 9.02 Cr/MW without ADD and ₹ 11.06 Cr/MW with implementation of ADD.
		Change in Law provision	The current market price of the modules i.e. USD 0.64/Wp may be considered and a "Change in Law" provision may be made to accommodate any possible increase in the module price on account of imposition of antidumping duty in future. The normative amount of the same shall be computed and specified in the Tariff Order.
		O&M expenses for FY 14-15	The O&M costs have shot up in last two years due to escalations in the manpower costs and the general scenario of a higher inflation. The WPI inflation increased with a CAGR of more than 8.6% for the period FY09-10 to FY12-13. Hence O&M expenses for FY 14-15 should be higher i.e. ₹ 13.00 Lakh/MW.
		Interest on Term Loan	Interest Rate on Term Loan may be considered @13.50%.Apart from Interest on term loan, an upfront fee of around 1.50% of debt amount needs to be considered.PFC, REC – the lending institutions specifically meant for power sector have lending rates as high as 13.5%. While Interest rate reflects the current market scenario, Banks also charge a onetime upfront / processing fee of around 1.50% of debt amount and same may be considered as part of Financing Charges and thus part of Project Cost. It is suggested that loan tenure of 14 years may be considered in view of prevailing tight liquidity conditions and impact on cash flows.
		Annual Degradation in performance	For solar PV, annual degradation in CUF of 3% for first year and 1% thereafter for subsequent years may be considered. Module degradation is the standard OEM's specification. Most of PV module manufacturers provide a warranty of 3% degradation in first year and 1% for the subsequent years.
		Auxiliary Consumption	Auxiliary consumption of 1% of the Peak capacity may be considered as generally the auxiliary consumption in the Solar PV Plants is around 1.0% to 1.5% depending upon the size of the Project.

S.No.	Name of stakeholders	Issue	Comments/suggestions
		Debt Equity Ratio Subsidy or incentive by the Central / State Government	Based on power sector situation, tariff realization from Discoms, funds available with Public Sector Banks and foreign lending facilities; we suggest the ratio be changed to 75:25. This will reduce tariff with reduction in equity component. RERC must revisit the necessity for continuation of AD benefit to the Solar sector to attract investor. The AD benefit must be discontinued. Solar Energy sector has been seriously developed and promoted by the IPPs, however, the IPPs are not in a position to avail the accelerated depreciation (AD) since they do not have income from non-Solar business. Therefore, there are instances of use/misuse of AD benefit by the big corporate houses that are otherwise not committed to develop solar power plants and operate them for 25-year PPA tenure. The prevalence of AD benefit in the wind sector did not help as much with generation as it did with enhancing capacities. It is also felt the shift from emphasis on generation rather than capacity should help improve India's weighted average CUF which at the current levels of 21.2% is well below that found in other markets. In this regard, the solar sector can draw upon the experience from the wind sector rather than going through the experience curve all over again. The solar policy should encourage *resource efficient* generation where a capacity addition decision is taken based on proper assessment of all resources and scarce resources like land is allocated to developers who would ensure the most efficient generation for the entire tenure of the PPA. The AD benefit, in the solar sector, is creating distortion and disparities between IPPs and big corporate houses and disturbing the equilibrium against IPPs particularly when the selection of solar project developer is through competitive bidding. It is perhaps time to decide whether AD should continue to be given to attract investors in to the sector considering the fact that the sector is already around 4 years old.
6	M/s Samata Power	General comments	The subject of proposal affects wide public for which there should be widespread public education. The officers/officials from the Discoms and some NGO workers should be given training on the subject as solar roof top PV and other small solar generation projects are to be deployed on a large scale. It would be better if Commission could provide guidance as regards the cost of small solar generating pants. Looking to the fast changing technologies, the consideration of period of levellisation of 25

S.No.	Name of stakeholders	Issue	Comments/suggestions
			years for levellised tariff does not seem prudent. Therefore, justification for keeping 25 years duration may be provided. RREC based on experience of setting up of small solar PV plants as regards cost and practical difficulties in maintenance could develop a better understanding in the matter. The organization may under take developments in line with para 5.6 Technology development and R&D of National Tariff Policy. It is necessary to keep the 25 years duration as per sub para 2 of para 6.4 'Non-conventional sources of energy generation including co-generation' of National Tariff Policy. The factors such as Income Tax, Depreciation, interest rate, subsidy or incentive by the Central Govt. including Accelerated Depreciation are difficult to monitor. The incidents like Harshad Mehta should prompt for simplification in determination of tariff rates.
7	Jaipur Vidyut Vitran Nigam Limited	O&M Expenses for solar PV and solar thermal Capacity Utilisation Factor Working capital - Receivables for Debtors	The O&M expenses of ₹ 12.30 Lakh/MW and ₹ 16.77 Lakh/MW, as approved by CERC for FY 2014-15 in its order dated 15th May, 2014, may be considered for solar PV and solar thermal power plants. Further, escalation norm on the O&M Expenses may be revised from 5.85% to 5.72%, as considered by CERC and other ERCs of Gujarat, Karnataka and Maharastra. Commission should consider methodology considered by CERC and other States like Karnataka and Maharashtra and disallow any de-ration/degradation in CUF while determining tariff for solar PV power plants commissioned during FY 2014-15. In the levellised tariff computations, the receivables for debtors equivalent to one month in place of one and half months should be considered as the generators have monthly billing cycle.
8.	Committee for Protection of Public Properties	Land cost	Developers/investors more often tend to retain the land allotted to them by the State Govt. even the after the period of allotment is over. Therefore, land cost should not be included in the capital cost norm of solar power plants.
9	M/s Hindustan EPC Company Limited	Capital cost norm for Solar	Commission may consider average module price of 0.67 US$ for solar PV projects with currency conversion rate of average of last six months (around ₹ 61/US$), the module price works out to

Annexure-V

S.No.	Name of stakeholders	Issue	Comments/suggestions
	(M/s Hindustan Power)	PV Plants	be ₹ 408.70 Lakh/MW. Any further reduction would go in for poor quality modules whereby quality of solar plants would be severely compromised with or the efficient plants would become unviable. Considering non-module cost of ₹ 3.14 Crore/MW, as considered by CERC in its RE Tariff Order dated 15.05.2014 for FY 2014-15, the capital cost works to ₹ 7.227 Crore/MW, which may be considered by the Commission.
		Computation of Taxes	As per Rajasthan Solar Policy, 2011 dated 19.04.2011, the minimum capacity of the solar PV plant in the State would be of 5 MW., which would earn profit of more than ₹ 1 Crore in a year and surcharge of categories namely - profit more than ₹ 1 Crore or profit more than ₹ 10 Crore would be applicable. If 5% surcharge is considered in the first year, it cannot be lower for subsequent years i.e. if surcharge is payable in the first year, it will be payable in subsequent years as well
		Tariff Levellisation	Commission while arriving at the generic Levellised tariff for solar PV plants, may do Levellisation from the revenue stream may be done.
		Discount Rate	Commission in computing the discount rate for levellising the tariff may follow the principle of weighted average cost of capital (WACC) with approved cost of equity and debt specifically stipulated by CERC for computing discount rate for Renewable Energy Sources. The principles used for bidding cannot be considered for determining cost plus tariff by the Commission under Section 62 of the Electricity Act, 2003.