

**JOINT ELECTRICITY REGULATORY COMMISSION FOR
THE STATE OF GOA AND UNION TERRITORIES**

‘Vanijya Nikunj’, 2nd Floor, Udyog Vihar, Phase V,
Gurgaon, (122016) Haryana

Coram¹

Sh. S. K. Chaturvedi, Chairperson

Petition No. 110/2013

In the matter of:

Determination of Preferential Tariff under net metering for rooftop solar photovoltaic power projects of Chandigarh Renewal Energy and Science & Technology Promotion Society (CREST) and for sale of such power to the Electricity Department of UT of Chandigarh under section 61, 62, 86 and 181 of the Electricity Act, 2003 and as per Joint Electricity Regulatory Commission for the State of Goa & Union Territories (Procurement of Renewable Energy) Regulations, 2010.

And in the matter of:

Chandigarh Renewal Energy and Science & Technology Promotion Society (CREST)Petitioner

And in the matter of:

Electricity Department, Union Territory of ChandigarhRespondent

Present on behalf of

Petitioner:

1. Sh. Ravinder Singh, P.D., CREST, Chandigarh

Respondent:

1. Sh. Sunil Sharma, Executive Engineer, ED, UT of Chandigarh

ORDER

Date: 11th April, 2014

1. INTRODUCTION

1.1. JERC Formation

In exercise of the powers conferred by Section 83 of the Electricity Act, 2003 the Central Government constituted a two member (including Chairperson) Joint Electricity Regulatory Commission for all Union Territories except Delhi to be known as “Joint Electricity Regulatory Commission for Union Territories” with Headquarters at Delhi as notified vide notification no. 23/52/2003- R&R dated 2nd May, 2005. Later with

¹ As per section 93 of the Electricity Act, 2003; No act or proceedings of the Appropriate Commission shall be questioned or shall be invalidated merely on the ground of existence of any vacancy or defect in the constitution of the Appropriate Commission. Therefore due to vacancy of the position of Hon’ble Member in the Joint Electricity Regulatory Commission for the state of Goa and the UTs, the Hon’ble Chairperson constitutes Coram.

the joining of the state of Goa, the Commission came to be known as “Joint Electricity Regulatory Commission for the State of Goa and Union Territories” as notified on 30th May, 2008. The Joint Electricity Regulatory Commission (for the State of Goa and Union Territories) started functioning with effect from August 2008 temporarily in the district town of Gurgaon, Haryana.

1.2. Chandigarh Renewal Energy and Science & Technology Promotion Society (CREST)

The Chandigarh Renewal Energy and Science & Technology Promotion Society (CREST) (hereinafter referred to as ‘Petitioner’) is a society registered under Societies Registration Act, 1860 (under the aegis of Department of Science & Technology of UT administration of Chandigarh) involved in promotion of renewable energy programme in UT of Chandigarh. It is submitted that the Ministry of New & Renewable Energy (MNRE), Govt. of India has declared Chandigarh as ‘Model Solar City’. Accordingly, Department of Science & Technology has been designated as nodal department for renewable energy projects in UT of Chandigarh. The department of Science & Technology, UT of Chandigarh has designated the petitioner as an executing agency for renewable energy projects in UT of Chandigarh. These projects with an aggregate capacity of 3060 kWp have received central financial assistance from MNRE. Accordingly, the petitioner is presently engaged in installation of rooftop based solar photovoltaic power plants on different government building and as on the date of submission of the petition i.e. September 25, 2013, eight grid interactive solar photovoltaic power plants have been commissioned.

1.3. Filing of Petition

Chandigarh Renewal Energy and Science & Technology Promotion Society (CREST) has filed the present petition vide letter no. 1298 on September 25, 2013 under section 61, 62, 86 and 181 of the Electricity Act, 2003 (herein after referred as ‘the Act’) and Joint Electricity Regulatory Commission (Procurement of Renewable Energy) Regulations 2010 (in short referred as ‘the Regulations’) for determination of preferential tariff under net metering for rooftop solar photovoltaic power project.

The petitioner in its petition has proposed to sell electricity generated from 210 kWp grid connected solar power plant on the rooftop of post graduate college, sector-46, Chandigarh to ED, UT of Chandigarh upon terms & conditions set out under draft Power Purchase Agreement (PPA). It is submitted that the draft PPA for purchase of power from 210 kWp solar photovoltaic power plant has been prepared in consultation with ED, UT of Chandigarh. It is further submitted that the electricity department is ready to purchase solar power from CREST and consent in this regard for purchase of such power has been obtained from the department.

The petitioner has prayed to the Commission to:

- a) Approve the draft power purchase agreement as a model PPA to be signed in future between CREST and ED, UT of Chandigarh for other solar photovoltaic power projects also.
- b) Fix the tariff for sale of solar energy on HT level as well as for LT level between CREST and ED, UT of Chandigarh on the basis of rates prevalent in other parts of the country. It is further requested to keep the rates valid for fixed period of time.

1.4. The petitioner submitted its second petition on October 07, 2013 in continuation with earlier petition on the same subject matter for sale of electricity from ten number rooftop solar photovoltaic projects of

CREST. The petitioner submitted that the petitioner is executing rooftop SPV projects on behalf of Department of Science & Technology, UT of Chandigarh with central financial assistance from MNRE, Government of India. The list of projects as submitted by the petitioner for determination of tariff is mentioned below.

Table 1: List of projects submitted by petitioner for tariff determination

S. No.	Project Name & Location in Chandigarh	Capacity (kWp)	Proposed Evacuation	Status as on October 07, 2013
1.	Post Graduate College, sector-46	210	HT (11 KVA)	Commissioned, ready for acquisition on HT side (11 KV)
2.	Govt. College for Girls, Sector-42	200	HT (11 KVA)	Commissioned, ready for acquisition on HT side (11 KV)
3.	Govt. College for Men, Sector-11	435	HT (11 KVA)	Likely to be commissioned on HT side by October 30, 2013
4.	Govt. College for Girls, Sector-11	495	HT (11 KVA)	Likely to be commissioned on HT side by October 30, 2013
5.	IRB complex, Sarangpur	200	HT (11 KVA)	Likely to be commissioned on HT side by December 31, 2013
6.	Punjab Engineering College, Sector – 12	1000	HT (11 KVA)	Tendered & likely to be commissioned on HT side by March 31, 2014
7.	Model Central Burail Jail, Sector-45	100	LT	Commissioned on LT side
8.	Paryavaran Bhawan, Sector-19	50	LT	Commissioned on LT side
9.	Govt. Model Sr. Sec. School. Sector-46	50	LT	Commissioned on LT side
10.	Govt. College of Commerce & Business Administration, Sector-42	50	LT	Commissioned on LT side
Total		2790		

- 1.5. The petitioner has proposed to sell the electricity generated from solar projects as listed above to ED, UT of Chandigarh upon terms & conditions set out under draft PPA placed with earlier petition dated September 27, 2013.

The petitioner has further prayed to the Commission to:

Unquote“

- a) *In view of CERC, New Delhi's order no. CERC-243/SM/2012 dated 25.10.2012, wherein generic levelised generation tariff for solar PV for the FY 2013-14 has been fixed @ Rs. 8.75 per unit (kWh), it is requested that Hon'ble JERC may also approve the same tariff for the sale of solar energy by CREST to Chandigarh Electricity Department for HT level as well as LT level for the projects listed at 'Annexure A-3' for next 30 years.*

b) *It is further prayed that Hon'ble JERC may approve the draft Power purchase agreement as at Annexure 'VI' of earlier petition as a model PPA to be signed in future between CREST and Chandigarh Electricity Department for other solar photovoltaic power plant projects also.*

"Quote

1.6. Admission of Petition

After initial scrutiny and analysis of the petition, the Commission as per its order dated October 10, 2013 admitted the petition for determination of tariff for ten number solar PV power projects. The Petition was numbered as 110/2013. The petitioner was directed to publish the summary of the petition for project specific tariff in leading newspapers of the union territory and upload the petition on the website of the petitioner. The copy of admission order is enclosed as Annexure 2 to this order.

The petitioner had published a public notices on September 24, 2013 and October 5, 2013 in the leading newspapers of UT of Chandigarh indicating therein the proposed project specific tariff and inviting suggestions/ objections from the public. The copies of the newspaper clippings wherein public notices were published for the information to the stakeholders are enclosed as Annexure 3 to this order.

1.7. Interaction with the petitioner

This Order has referred at numerous places to various actions taken by the "Commission". It is pertinent to mention for the sake of clarity, that the term "Commission" unless otherwise specified in most of the cases also refers to the Staff of the Commission for carrying out the due diligence & validation of the petitions filed by the petitioner, obtaining and analyzing information and clarifications received from the petitioner and submitting relevant issues for consideration of the 'Commission'.

The Commission's Staff held discussions with the Petitioner/Petitioner's representative, obtained information/clarifications wherever required and carried out validation with regard to the information provided.

Commission's staff interacted regularly with the Petitioner to seek clarifications and justification on various issues essential for the analysis of the tariff petition. The Commission's staff and the Petitioner also discussed key issues related to the petition, which included details of project, and funding structure, etc.

The petitioner submitted its replies, in response to the queries raised by the Commission's office, which were necessary for determination of tariff of solar power projects.

Various queries rose by the Commission; the petitioner clarified most of the queries with the last letter dated January 15, 2014. Commission has to rely on the information made available by the petitioner through emails and letters with waiting for the affidavits.

Table 2: Formal interaction with the petitioner

S. No.	Date	Action by	Subject
1.	15.01.2014	CREST	Project's financing details

S. No.	Date	Action by	Subject
2.	06.01.2014	Commission	Corrections required in the PPA , order by the Commission & project's financing details sought from Petitioner
3.	01.01.2014	CED-Respondent	Copy of initial PPA submitted by the respondent
4.	06.12.2012	Commission	One month time extension granted by the Commission during hearing
5.	05.12.2013	CED-Respondent	One month time sought for internal approvals of PPA
6.	29.11.2013	CREST	Copy of PPA submitted
7.	18.11.2011	CREST	Comments on PPAs exchanged between petitioner & respondent and copy to the Commission
8.	25.10.2013	Commission	Draft PPA duly initialed required from the Petitioner & Respondent during hearing
9.	16.10.2013	CREST	Public notice in news papers
10.	10.10.2013	Commission	Admission of petition
11.	08.10.2013	CREST	Copy of petition submitted to the respondent
12.	07.10.2013	CREST	2 nd Petition filed in continuation with 1 st petition
13.	24.09.2013	CREST- Petitioner	1 st Petition Filed

1.8. Public hearing process

A public notice was published by the petitioner for inviting objections/suggestions from its stakeholders on the petition for determination of project specific tariff in the leading newspapers as detailed below.

Table 3: Public notice published by the petitioner

S. No.	Date	Language	Name of Newspaper and Edition
1.	16.10.2013	Hindi	Dainik Jagran
2.	16.10.2013	English	The Tribune

The petitioner also uploaded the petition on website of UT administration of Chandigarh for inviting objections and suggestions on their petition.

Interested parties/stakeholders were requested to file their objections/suggestions on the petition. The copies of the newspaper cutting of public notice are attached as Annexure 3 to this order.

1.9. Notice for public hearing

Commission published public notices in the leading newspapers giving due intimation to stakeholders, consumers, objectors and the public at large about the public hearing to be conducted by the Commission on 21st March 2014 at Institute of Engineers, Sector 19A, Chandigarh from 09:30 AM onwards.

Table 4: Notices for Public hearing at Chandigarh

S. No.	Date	Language	Name of Newspaper and Edition
1.	20.03.2014	Hindi	Punjab Kesari and Chandigarh
2.	20.03.2014	English	Hindustan Times and Chandigarh

The copies of public notice published by the Commission for intimation of public hearing are attached as Annexure 4 to this order.

Commission has not received any written objection / suggestion on the petition before the date of public hearing.

During the public hearing, each participant was provided an opportunity to present his views on the petition filed by the Petitioner. All those present in the hearing, were given an opportunity to express their views. Stakeholders who raised their concerns on the spot were replied to, by the officers of the Petitioner orally on the spot. The list of all participants during public hearing is attached at Annexure 5 to this order.

The list includes the stakeholders who did not give their written objection or prior intimation, but participated in the hearing on the spot.

All these objections/suggestions were responded to by the petitioner during the hearing itself. Later petitioner submitted their written reply for all written objections/suggestions of the stakeholders. The issues and concerns expressed by stakeholders have been examined by the Commission. The issues discussed during the public hearing, the comments/replies of the petitioner and respondent along with the views of the Commission thereon, have been summarized in Annexure 6 to this order.

1.10. Adherence to Model Code of Conduct

The Commission had noted that in view of the General Elections 2014, the Model Code of Conduct has been imposed since March 5' 2014. In this context, the Principal Secretary, Secretariat of the Election Commission of India, vide its letter no. 437/6/Misc./2014-CC&BE/322 dated February 17' 2014, clarified to the CERC/FOR that the model code of conduct is applicable to the Electricity Regulatory Commissions also as had been done during the last Lok Sabha Elections and that in case any relaxation is required under model code of conduct, CERC/SERC may refer the matter to the Commission.

The FOR (Forum of Regulators) communicated the above mentioned clarification as received from the Election Commission to all SERCs vide its letter no. 15/2(39)/2013-FOR/CE dated February 24' 2014.

Accordingly, JERC, vide its D.O. No. 21/46/2014-Jerc/1876 dated March 7' 2014 to the Election Commission communicated the following:

Quote:

.....“While Public Hearings have already been held in respect of tariff petitions filed by GOA and three UTs, the Public Hearings are scheduled from second week of March '14 in respect of tariff petitions filed by Electricity Department of Puducherry (clubbed with the petition filed by State Generating Station PPCL), Dadra & Nagar Haveli and Chandigarh. Subsequently, the Commission also is to issue the Tariff Orders for the generator and all the licensees situated in Goa and six Union Territories on or before 31st March 2014.

..... As the election schedule has already been announced and Model Code of Conduct has been imposed, I earnestly request the Election Commission for grant of permission to JERC to discharge the statutory functions of holding the Public Hearings and issue of Tariff Orders as mentioned earlier and also as envisages in the Act.”

Unquote

Subsequently, the Election Commission of India vide its letter no. 437/GOA-HP/2014/800 dated March 18' 2014, communicated its consent as follows:

Quote:

“I am directed to refer your DO. No. 21/46/2014-Jerc/1876 Dated 07th March 2014, on the subject cited and to state that the Commission has ‘No Objection’ for holding meetings and for fixing the revised tariff and for taking a final decision thereon. However, before implementing the same, prior concurrence of the Election Commission of India shall be taken.”

Unquote

Further, the Principal Secretary , Secretariat of the Election Commission of India, vide its letter no. 437/6/1//2014/-CC&BE/235 Dated 29th March 2014 clarified to the CERC as follows:

Quote:

“The Commission has no objection to the continuance of the process required for the decision on the power tariff. However, tariff award shall be made only on the completion of poll in the relevant State, i.e. after the poll date/dates in that State’

Unquote

The FOR (Forum of Regulators) communicated the above mentioned clarifications as received from Election Commission to all SERCs vide its letter no.15/2 (39)/2013-FOR/CERC Dated 04.04. 2014.

The poll date Chandigarh, which was on 10th April, 2014, is over. Hence, in view of the consent and instructions received from the Election Commission of India as above, the Commission has finalized the tariff order and issued the current Tariff Order.

2. GUIDING PRINCIPLES AND APPROACH FOR DETERMINATION OF TARIFF

2.1. At the outset, it would be useful to set out the relevant provisions (in brief) of the Act, National Electricity Policy, Tariff Policy, Objectives of Jawaharlal Nehru Solar Mission and guiding principles of the Commission, while determining the tariff, which read as follows.

2.1.1. Section 86.1(e) of the Electricity Act 2003 (the Act) mandates promotion of co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid. Section 61(h) of the Act provides that, while specifying the terms and conditions of determination of tariff, the Commission shall be guided by the objective of promotion of co-generation and generation of electricity from renewable sources of energy. Section 62(1)(a) read with Section 64 of the Act provides for determination of tariff for supply of electricity by a generating company to a distribution licensee.

2.1.2. Clauses 5.12.1 & 5.12.2 of the National Electricity Policy issued by the Ministry of Power, Government of India on 12th February 2005 envisage promotion of generation of electricity from non-conventional energy sources, biomass and cogeneration.

2.1.3. Clause 6.4 of the Tariff policy issued by the Ministry of Power, Government of India on 6th January 2006 also emphasizes the need to give preferential tariff for renewable sources of energy.

2.1.4. The Commission, while determining the tariff is guided by the principles contained in Section 61 of the Act, namely

- a) The principles and methodologies specified by the Central Commission for determination of tariff applicable to generating companies and transmission licensees;*
- b) The generation, transmission, distribution and supply of electricity are conducted on commercial principles;*
- c) The factors which could encourage competition, efficiency, economical use of the resources, good performance and optimum investments;*
- d) Safeguarding of consumer's interest and at the same time, recovery of the cost of electricity in a reasonable manner;*
- e) The principles rewarding efficiency in performance;*
- f) Multi-year tariff principles;*
- g) That the tariff progressively reflects the cost of supply of electricity and also, reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;*
- h) The promotion of co-generation and generation of electricity from renewable sources of energy;*
- i) The National Electricity Policy and Tariff Policy;*
- j) The Commission is bound by the Renewable Energy purchase obligations, as specified in JERC (Procurement of Renewable Energy) Regulations, 2010 and its amendments issued from time to time.*

2.2. The Commission in its tariff order no. 39/2011 dated July 2, 2012 had determined the project specific tariff for 1 MWp Solar Power Plant at Karaikal, Puducherry. The tariff determined in the aforesaid order was valid

for a specific project to be developed at Karaikal and tariff was determined keeping in view of the project specific conditions including but not limited to the cost of land, capital structure, ownership, and interest rates on debt components.

- 2.3. The Commission is in process of issuance of regulations on determination of tariff for grid connected solar photovoltaic plants, solar thermal power plants, and small rooftop solar systems for power plants commissioned during April 1st 2014 to 31st March 2015. The tariff norms specified in this regulation shall be continued beyond 31st March 2015 till any revision is effected by the Commission in this regard. Accordingly, the provisions of the said regulations (to be notified separately), if have any bearing or impact on this order or any previous order (that may arise after notification of these regulations) will deemed be considered for revision in tariff after the approval of the Commission from the applicable date. However, this consideration is subject to the commissioning of such power plants during the aforesaid period and where the project specific tariff was not determined by the Commission.

3. SCOPE OF THE PRESENT TARIFF DETERMINATION

- 3.1. The tariff determined in this order is applicable to ten number grid connected Rooftop Solar photovoltaic projects which have been developed/are being developed under Model Solar City Programme of UT of Chandigarh and these projects have been sanctioned by the Ministry of New & Renewable Energy, Govt. of India also. In all these projects, MNRE has granted Central Financial Assistance (CFA) to the extent of 30% or 50% as the case may be and matching fund has been released by Department of Science & Technology- U.T. administration of Chandigarh for implementation of Solar City Programme which has been highlighted by MNRE, Govt. of India in its letter dated 6.2.2012 at paragraph-4. As submitted by the petitioner in its petition, It states that

Quote“

Chandigarh Administration is implementing the programme on development of Chandigarh as Solar City through Chandigarh Renewable Energy, Science and Technology Promotion Society (CREST) vide letter no. S&T/07/09/1101 dated 30.07.2009 and letter no. S&T/04/08-03 dated 02.04.2008.

“Unquote

The Commission shall separately initiate the discussion on the model PPA to be signed in future between CREST and ED, UT of Chandigarh for other solar photovoltaic power projects a separate order on the and accordingly dispose the matter separately.

4. PUBLIC HEARING

- 4.1. Before admission of the tariff petition for rooftop solar PV power projects, the petitioner had published the summary of petition and tariff proposal in the newspapers and the copies of the petition made available to the general public, posted the petition on their website duly inviting comments/objections from public as per provision of JERC (Conduct of Business) Regulations 2009.

- 4.2. The Commission published a notice for public hearing in the leading newspapers dated **March 20, 2014**. Further, the Commission held a public hearing in the matter on **March 21, 2014** at Institute of Engineers, Sector 19A, Chandigarh from 09:30 AM onwards, in which none of the stakeholders made their submissions.
- 4.3. All those present in the hearing, irrespective of whether they had given a written objection or not, were given an opportunity to express their views. Stakeholders who raised their concerns on the spot were replied to, by the officers of the utility orally on the spot. The list of all objectors is attached at Annexure E to this order.
- 4.4. **After duly considering oral submissions received during Public hearing as per Annexure 6 (no written suggestion/ comment or Objection was received on the matter), the Commission, in exercise of the powers conferred under Section 62(1)(a) read with Section 64 and Section 86(1)(e) and other enabling provisions of the Electricity Act 2003 hereby passes the following Order:**

5. DETERMINATION OF TARIFF FOR ROOFTOP SOLAR PHOTOVOLTAIC PROJECTS

5.1. Relevant clauses of CERC-RE Regulations

5.1.1. Clause (1) of Regulation 9 of the CERC RE Tariff Regulations stipulates that the tariff for RE projects shall be single part consisting of the following fixed cost components:

- a) Return on equity;*
- b) Interest on loan capital;*
- c) Depreciation;*
- d) Interest on working capital;*
- e) Operation and maintenance expenses;*

For renewable energy technologies having fuel cost component, like biomass power projects and non-fossil fuel based cogeneration, single part tariff with two components, fixed cost component and fuel cost component, is to be determined.

5.1.2. Tariff design

In terms of Regulation 10 of the CERC-RE Tariff Regulations, the tariff design for renewable energy generating stations is as under:

"(1) The generic tariff shall be determined on levlised basis for the Tariff Period.

Provided that for renewable energy technologies having single part tariff with two components, tariff shall be determined on levlised basis considering the year of commissioning of the project for fixed cost component while the fuel cost component shall be specified on year of operation basis.

(2) For the purpose of levlised tariff computation, the discount factor equivalent to Post Tax weighted average cost of capital shall be considered.

(3) Levlisation shall be carried out for the 'useful life' of the Renewable Energy project while Tariff shall be specified for the period equivalent to 'Tariff Period.'"

5.1.3. Levellised tariff

Levellised tariff is calculated by carrying out levellisation for 'useful life' of each technology considering the discount factor for time value of money.

5.1.4. Discount factor

The discount factor considered for this purpose is equal to the Post Tax weighted average cost of the capital on the basis of normative debt: equity ratio (70:30) specified in the Regulations. Considering the normative debt equity ratio and weighted average of the post tax rates for interest and equity component, the discount factor is calculated.

For example: Interest Rate considered for the loan component (i.e. 70%) of Capital Cost is 13.00%. For equity component (i.e. 30%) rate of Return on Equity (ROE) considered at Post Tax ROE of 16% considered. The discount factor derived by this method for all technologies is 10.95% $((13.0\% \times 0.70 \times (1 - 32.445\%)) + (16.0\% \times 0.30))$.

5.2. Life of the plant***Petitioner's submission***

The petitioner's submission is mentioned below.

Quote

"It is expected that the life of the Rooftop based power plants shall not be less than 30 years"

Unquote***Commission's analysis***

The Commission notes that as of now there are no grid connected solar PV/solar thermal plants of MW scale in India which have completed their assumed useful life. Further, the petitioner has not submitted any evidence to acknowledge his submission on useful life of the Rooftop Solar PV Power Plant. However, considering the life assured by the developers/manufacturers and the life considered by other Commissions in the country, **the Commission decides that the useful life of the plant shall be taken as 25 years.**

Commission approves that 'useful life' in relation to a unit of generation station for a Rooftop Solar PV including evacuation system shall be 25 years duration from date of commercial operation (COD) of such generating facility.

5.3. Capacity Utilization Factor and Auxiliary Consumption***Petitioner's submission***

The petitioner submitted that the tender document as well as work order in respect of all these SPV power plants has a condition that the Solar Power Plant should be able to generate minimum electricity of 1300 kWh (units) per annum per KWp. Accordingly, the petitioner has submitted the details of annual generation for each solar roof top.

Commission's analysis

The Commission notes that the petitioner has ensured the annual generation for project sites at the capacity utilization factor of 14.84% (derived from the estimated generation submitted for each site). This condition would ensure the installation of SPV panels of high quality by the developers. As per the detailed project report submitted by the petitioner, the minimum electrical generation is expected at CUF of 14.84% for an initial period of 10 years. As the Capacity Utilization Factor (CUF) depends on several factors such as location of the project, quality, capacity and type of panels installed, technology adopted, module conversion efficiency etc., it would be difficult to compute it specifically for each project at each site in Chandigarh.

As per the data published on the website of MNRE, the uniform capacity utilization factor for Solar PV plants considered by CERC and most of the SERCs in the country is 19%. In the case of Rooftop Solar Power Plants, the uniform CUF considered by various SERCs vary in the range of 18%-19%. Commission analyzed the solar radiation zones² and CUF data of 52 locations available in the public domain. Commission found that the U.T. of Chandigarh falls in the solar radiation zone having energy potential of 5.2-5.4 kWh/sq.m. The CUF in area having similar climatic conditions (i.e. Manali) falling in the same solar radiation zone comes out at 18.84% on thin film solar PV technology. In view of the CUFs of nearby place (having similar climatic conditions) falling in the same solar radiation zone, the Commission considers uniform CUF of 18% for Rooftop Solar Power Projects after considering the module degradation in accordance with MNRE, for the purpose of tariff determination.

Further, the Commission is of the view that some equipment in the plant shall require supply to be consumed; an auxiliary consumption of 0.25% of gross generation is considered in the determination of tariff.

Commission has approved the CUF of 18% as reasonable and approves the same for the purpose of tariff determination. Commission further directs the petitioner to maintain the monthly energy generation data including auxiliary consumption data of the power plant at each site for monitoring and evaluation purposes.

5.4. Capital Cost

Petitioner's submission

The petitioner submitted that these ten number Rooftop Solar PV Power Projects are projects of Department of Science & Technology, U.T. Administration of Chandigarh and these projects have been sanctioned by Ministry of New and Renewable Energy (MNRE), Govt. of India with Central Financial Assistance (CFA) to the extent of 30% or 50% of the project cost. Accordingly, MNRE, GOI has granted sanctioned CFA upto Rs. 9.5 Crores. The remaining amount (as the case may be) is being funded by Department of Science & Technology, U.T. administration of Chandigarh through the release of matching fund of Rs. 9.50 Crores to CREST for implementation of Solar City Programme which has been highlighted by MNRE, Govt. of India. It is submitted by the petitioner that CREST has received an initial corpus of Rs. 19 Crores for developing Chandigarh as model solar city.

² Source : TERI generated from IMD database

The petitioner also submitted that these SPV projects are being installed on the rooftop of Government buildings. These projects being Government projects itself, so there is no roof rental involved. As such, the petitioner is not paying any rental to any institutions for this project.

Commission's analysis

The Commission notes that the petitioner had issued the work order to the qualified bidders and commissioned most of the plants. Based on the analysis of the prices (based on competitive bidding conducted by the Petitioner) mentioned in the work order, the average capital cost of the rooftop solar PV plants is Rs. 0.96 lakhs per kW. It is noted that the work order issued for implementation of Rooftop solar power plants also includes operation & maintenance by the bidder for first ten years. Thus, after including operation & maintenance of initial period of ten years, the average capital cost works out at Rs. 1.034 lakhs per kW.

In this case, the projects are being implemented with 100% assistance from Central Government and MNRE for implementation of Solar City Programme; therefore the **Commission has not considered any capital cost for the purpose of calculation of return on equity, depreciation, and interest on loan capital for the purpose of tariff determination.**

5.5. Return on Equity and Interest on Loan Capital

Petitioner's submission

The petitioner submitted that these ten number Rooftop Solar PV Power Projects are projects of Department of Science & Technology, U.T. Administration of Chandigarh and these projects have been sanctioned by Ministry of New and Renewable Energy (MNRE), Govt. of India with Central Financial Assistance (CFA) to the extent of 30% or 50% of the project cost. Accordingly, MNRE, GOI has granted CFA upto Rs. 9.5 Crores. The remaining amount (as the case may be) has been funded by Department of Science & Technology, U.T. administration of Chandigarh through the release of matching fund of Rs. 9.50 Crores to CREST for implementation of Solar City Programme which has been highlighted by MNRE, Govt. of India. It is submitted by the petitioner that CREST has received an initial corpus of Rs. 19 Crores for developing Chandigarh as model solar city.

Commission's analysis

In view of the submission made by the petitioner and Commission's analysis in para 5.4 of this order, the Commissioned has not considered any return on equity and interest on loan capital for these projects, for the purpose of tariff determination.

5.6. Depreciation

Petitioner's submission

The petitioner submitted that these Rooftop Solar PV projects are funded without any loan or debt, so the factor of depreciation has not taken into account by the petitioner.

Commission's analysis

The Commission agrees with the views and contention of the petitioner.

In view of the submission made by the petitioner and Commission's analysis in para 5.4 of this order, the Commissioned therefore has not considered any depreciation on these projects, for the purpose of tariff determination.

5.7. Interest on Working Capital

Petitioner's submission

The petitioner did not submit any response under this head.

Commission's analysis

The Regulation 17 of the CERC-RE Tariff Regulations provides for the working capital requirements of the Solar PV project is as under:

*"(1) The Working Capital requirement in respect of wind energy projects, Small Hydro Power, Solar PV and Solar thermal power projects shall be computed in accordance with the following: **Wind Energy / Small Hydro Power /Solar PV / Solar thermal***

- a) Operation & Maintenance expenses for one month;*
- b) Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative CUF;*
- c) Maintenance spare @ 15% of operation and maintenance expenses*

...

...

(3) Interest on Working Capital shall be at interest rate equivalent to the average State Bank of India Base Rate prevalent during the first six months of the previous year plus 350 basis points.

"

The average State Bank Base Rate for previous year (i.e. FY 2012-13) prevalent during the first six months of previous year plus 350 basis points works out at 13.48%; **Commission approves the rate of interest on the working capital in accordance with CERC-RE Tariff regulations at 13.48% for the purpose of determination of tariff.**

5.8. Operation & Maintenance Expenses

Petitioner's submission

The petitioner submitted that these Rooftop based Solar PV projects have been tendered and the work has been allotted to the successful bidder on competitive basis which includes installation of the SPV Power Plant and its Operation & Maintenance for initial ten years after commissioning of each roof top solar project. The installer of these power plants is expected to operate and maintain the power plant for initial ten years. After this, the operation and maintenance shall be carried out by CREST.

The petitioner in its petition further submitted that after 10 years of O&M by respective bidders, the project shall be maintained by CREST and for which required funds shall be obtained from Science & Technology Department under 'Model Solar City Programme'. The petitioner has estimated O&M cost from 11th year to 30th year at different rates, as mentioned below.

Table 5: Operation & Maintenance Cost estimated by petitioner for each project

S. No.	Particulars	Cost
1.	O&M from 11 th to 15 th year	2% of project cost per annum
2.	O&M from 16 th to 20 th year	3% of project cost per annum
3.	O&M from 21 st to 25 th year	4% of project cost per annum
4.	O&M from 26 th to 30 th year	5% of project cost per annum

Commission's analysis

Regulation 18 of the CERC RE Tariff Regulations provides for Operation and Maintenance Expenses (O&M expenses) in respect of RE projects as under:

"Operation and Maintenance Expenses

- (1) 'Operation and Maintenance or O&M expenses' shall comprise repair and maintenance (R&M), establishment including employee expenses and administrative & general expenses.*
- (2) Operation and maintenance expenses shall be determined for the Tariff Period based on normative O&M expenses specified by the Commission subsequently in these Regulations for the first Year of Control Period.*
- (3) Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2012-13) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period".*

The normative O&M expenses for various RE technologies specified under the relevant provisions of the RE Tariff Regulations are as under

...

...

(e) Solar PV: *Regulation 59 of RE Tariff Regulations provides that the normative O&M expenses for solar PV projects for the year 2012-13 shall be Rs. 11 Lakh per MW which shall be escalated at the rate of 5.72% per annum over the tariff period for determination of the levelled tariff. Accordingly, O&M expense norm for solar PV power project as Rs. 11.63 Lakh/MW for FY 2013-14 has been considered.*

"

The Commission notes the submission of the petitioner and has accordingly not considered any operation & maintenance for initial period of ten years, as the cost is included in the fund received from the Central Government. The average operation and maintenance expenses of the rates mentioned in the work order for ten number rooftop solar PV power plants is worked out at Rs. 9.58 lakhs per MW.

Commission has analyzed the submissions made by the petitioner regarding operation & maintenance expenses and operation & maintenance expenses as worked out from the bids. Accordingly, Commission is of the view that besides operation & maintenance expenses, monitoring & overhead expenses are also necessary for smooth functioning of Rooftop Solar PV Power Plant and maintaining a repository of reliable database for spreading necessary awareness about the plants. **Commission has therefore has considered the operation & maintenance expenses at the rate of Rs. 11.63 lakhs per MW, in accordance with normative O&M expenses fixed by CERC for Solar PV Projects for FY 2013-14. Since there shall be no O&M expenses for initial period of ten years, therefore the Commission has accordingly escalated the O&M expenses of Rs. 11.63 lakhs per MW per annum at the rate of 5.72% per year to work out the O&M expenses for remaining period of fifteen years of the useful life plant.**

5.9. Abstract of cost parameters approved by the Commission

Based on the above decisions of the Commission, the following is the abstract of the parameters considered for determination of tariff.

Table 6: Operation & Maintenance Cost estimated by petitioner for these projects

Particulars	UoM	Approved Parameters
		Solar Rooftop PV
Capital Cost/MW	Lakhs	100% Grant
Debt : Equity Ratio	Ratio	-
Debt/MW	Lakhs	0.00
Equity/MW	Lakhs	0.00
Debt Repayment Tenure	Years	0.00
Capacity Utilization Factor	%age	18%
Return on Equity	%age	0.00
Discount Factor	%age	4.00 ³
Auxiliary Consumption	%age	0.25%
O&M Expenses per MW	Lakhs	11.63
O&M Escalation per annum	%age	5.72
Working Capital	Receivables	2 months
Interest on Working Capital	%age	13.48%
Depreciation for first 10 years	%age	0.00
Depreciation for next 15 years	%age	0.00

5.10. Other issues

5.10.1. Sharing of Clean Development Mechanism (CDM) benefits

Commission's decision

The proceeds of the carbon credit from approved CDM project (if claimed) shall be shared between CREST and concerned beneficiaries in the following manner,

- 100% of the gross proceeds on account of CDM benefit to be retained by the project developer in the first year after the date of commercial operation of the generating station;

³ Equivalent to interest rate on savings bank account

- b) In the second year, the share of the beneficiaries shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion, by the generating company and the beneficiaries.

5.10.2. Grid Connectivity

Commission's decision

The Commission decides that, the Electricity Department, U.T. of Chandigarh shall arrange facilities to evacuate power from the interconnection point. Further, the ED, UT of Chandigarh shall not collect any network augmentation charges towards system augmentation beyond the interconnection. The developer shall be responsible for providing evacuation facility upto the interconnection point.

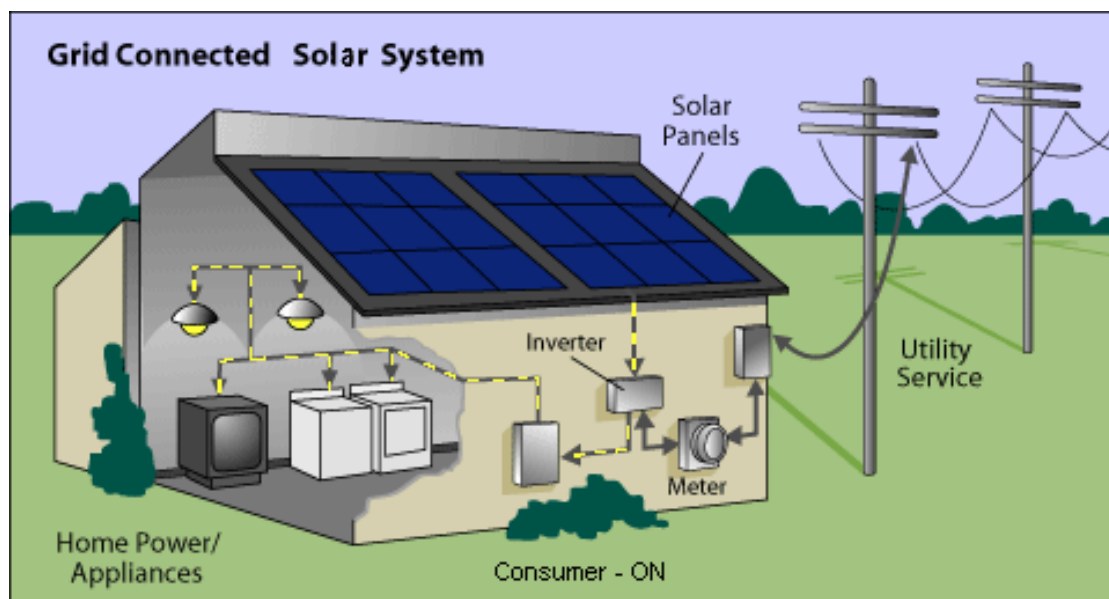
In the case of solar rooftop PV of kilowatt scale, the evacuation from 1 kW up to 5 kW installed capacity of solar rooftop PV shall be at three phase⁴ 415 volts, the evacuation from 5 kW up to 50 kW installed capacity shall be at 3 phase 415 volts level. Further, solar rooftop PV systems with installed capacity of 50 kW and above shall be connected at 11 kV distribution systems. The maximum installed capacity of solar rooftop PV plant at any single location shall be limited up to 1 MW, for the purpose of installation of the solar rooftop PV tariff.

The grid connectivity shall be arranged by the distribution licensee in accordance with the prevailing CEA (Technical Standards for Connectivity to the Grid) Regulations 2007, CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2012 to be notified by CEA and JERC grid code regulations as amended from time to time. Further, the distribution licensee shall take adequate measures to install necessary protective devices to prevent the possibility of any feedback to the grid in the event of failure of grid power supply to ensure safety of personnel working on the distribution system. Further, safety precautions as stipulated in the CEA (Measures Relating to Safety and Electricity Supply) Regulations 2010 shall be complied with.

Ideally, grid interactive systems do not require battery back-up as the grid acts as the back-up for feeding excess solar power and vice-versa. However, to enhance the performance reliability of the overall systems, a minimum battery-back of one hour of load capacity is strongly recommended.

Figure 1 : An overview of grid connected solar system

⁴ Single phase consumers are not eligible for net metering to avoid imbalances in the phases.



5.10.3. Metering Arrangement, Billing and Energy Accounting

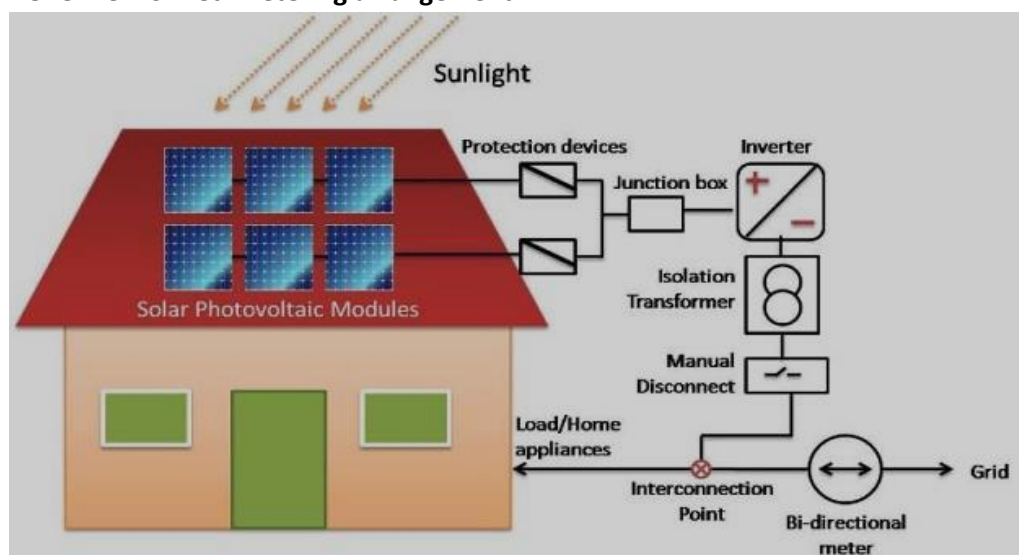
Commission's decision

- a) The metering shall be in compliance with the CEA (Installation and Operation of Meters) Regulations 2006 as amended from time to time.
- b) In case of solar rooftop PV systems connected to the LT grid of a distribution company, the concept of net metering shall be adopted and the net energy pumped into the grid shall be billed. The net metering facility shall be allowed only for three phase service consumers.
- c) The output of the panels (DC electricity) connects to the power conditioning unit /inverter which converts DC to AC. The inverter output will be connected to the control panel or distribution board of the building to utilize the power. **The inverter synchronizes with grid and also with any backup power source to produce smooth power to power the loads with preference of consuming solar power first.**
- d) If the solar power is more than the load requirement, the excess power is automatically fed to the grid. For larger capacity systems connection through step up transformer and switch yard may be required to feed the power to grid. First the DC current is converted to AC to meet the frequency of the grid. When excess power is produced is injected into the system, the meter runs backward instead of forward. Hence the meter runs in both directions and is called bi-directional meters.
- e) The specification of bi-directional meter shall be of 0.2 class accuracy, tri-vector based energy meter, with download facility along with related accessories shall have to be installed by the SPV generator. These meters including bi-directional meter and solar meter may also comply the

Time of Day (ToD) requirements so as to accommodate this type of metering in future course of time

- f) The SPV generator shall bear the entire cost of metering arrangement provided including its accessories. The installation of meters including CTs & PTs, wherever applicable, shall be carried out as per the departmental procedures in vogue with prior permission of DISCOMs. The SPV generator is required to provide an appropriate protection system on their incoming side/ consumer premises with the feature of “Islanding the SPV generator” when grid fails.

Figure 2: Overview of net- metering arrangement



- g) The SPV generator should install solar meter to record the energy generation from the solar PV panels before the bi-directional meter. Solar meter shall be installed at the delivery point of the solar energy system to measure the total solar electricity generated. The solar meter and net meter shall be compatible with meter reading instrument (MRI) or with wireless equipment for recording meter readings.
- h) Check meter shall be installed for the solar energy system having capacity more than 20kW and for the solar energy system of capacity less than or equal to 20 kW, the check meter would be optional. The meters installed shall be jointly inspected and sealed on behalf of both the parties and shall be tested and installed only in the presence of the representatives of the consumer and the distribution licensee.
- i) The meter reading taken by the distribution licensee shall form the basis of commercial settlement and a copy of the meter reading statement of the net meter and solar meter shall be handed over to the consumer as soon as meter reading is taken.
- j) Electricity generated from a solar rooftop system shall be capped cumulatively at 90% of the electricity consumption by the eligible consumer at the end of the relevant financial year. In case

of COD during the year, the 90% capping shall be on the energy drawl by the consumer from the date of COD to the end of the financial year. The excess energy generation shall be settlement on monthly basis and above capping shall apply therein to allow for seasonality in generation. Any excess generation (above 90 per cent) at the end of the financial year would be considered as free energy and not offset against the consumer's consumption.

5.10.4. Dispatch principles for electricity generated from Rooftop Solar PV power project

Commission's decision

All grid connected Rooftop Solar PV power projects shall be treated as 'MUST RUN' power plant and shall not be subjected to 'merit order dispatch' principles.

5.10.5. Applicability of wheeling and banking charges and cross-subsidy charge

Commission's decision

In view of the Section 86.1(e) of the Electricity Act 2003 (the Act) and relevant policies of the Central Government, the installation of rooftop solar PV over the roofs are primarily meant for self-consumption and sells additional power to the ED, U.T. of Chandigarh within the limited scope of solar power to be purchased to fulfill their RPOs. In no case, the system of ED, U.T. of Chandigarh shall be used to wheel the power under open access route. Therefore, Commission is of the view that the wheeling, banking charges and cross-subsidy charges are not applicable for such projects.

5.11. Update on the Status of the Roof Top Solar Projects

Updated Status of various Roof Top Solar projects submitted under petition , as on the date of hearing was furnished by the Petitioner as desired by the Commission Tops is as under:

S. No.	Project Name & Location in Chandigarh	Capacity (kWp)	Proposed Evacuation	Status as on October 07, 2013(at the time of Petition)	Status as on March 21, 2014 (date of Public hearing at Chandigarh)
1	Post Graduate College, sector-46	210	HT (11 KVA)	Commissioned, ready for acquisition on HT side (11 KV)	Running
2.	Govt. College for Girls, Sector-42	200	HT (11 KVA)	Commissioned, ready for acquisition on HT side (11 KV)	Running
3.	Govt. College for Men, Sector-11	435	HT (11 KVA)	Likely to be commissioned on HT side by October 30, 2013	Likely to be commissioned by 30 th April/14
4.	Govt. College for Girls, Sector-11	495	HT (11 KVA)	Likely to be commissioned on HT side by October 30, 2013	Running

S. No.	Project Name & Location in	Capacity (kWp)	Proposed Evacuation	Status as on October 07, 2013(at the time of	Status as on March 21, 2014
--------	----------------------------	----------------	---------------------	---	-----------------------------

	Chandigarh			Petition)	(date of Public hearing at Chandigarh)
5.	IRB complex, Sarangpur	200	HT (11 KVA)	Likely to be commissioned on HT side by December 31, 2013	Likely to be commissioned by 30 th April/14
6.	Punjab Engineering College, Sector – 12	1000	HT (11 KVA)	Tendered & likely to be commissioned on HT side by March 31, 2014	Likely to be commissioned by 31 st May/14
7.	Model Central Burail Jail, Sector-45	100	LT	Commissioned on LT side	Running
8.	Paryavaran Bhawan, Sector-19	50	LT	Commissioned on LT side	Running
9.	Govt. Model Sr. Sec. School. Sector-46	50	LT	Commissioned on LT side	Running
10.	Govt. College of Commerce & Business Administration, Sector-42	50	LT	Commissioned on LT side	Running
Total		2790			

5.12. Tariff for grid connected Rooftop Solar Photovoltaic Power Plants

On the basis of approved parameters & calculations (detailed at **Annexure 1** of this order), the following is approved tariff:

Table 7: Tariff for Rooftop Solar Power Plant

Particulars	Approved Tariff in Rs./Unit
Rooftop Solar Photovoltaic Power Plants	1.13

The above approved tariff is applicable to Rooftop solar PV Power developer implemented under central financial assistance, entering into power purchase agreements (PPA) with the Electricity Department, U.T. of Chandigarh.

With this Order, the Commission disposes of the Petition filed by CREST on September 27, 2013 seeking preferential tariff of ten rooftop solar PV power projects.

-Sd-

(Sh. S. K. Chaturvedi)
Chairperson

Certified Copy

Date: 11th April, 2014

Place: Gurgaon

(Rajeev Amit)
Secretary

Annexure-1: Details of Determination of Tariff for Rooftop Solar Power Plants at Chandigarh (ten in number)

Tariff Determination for Solar PV Power Plant (roof top) - 10 in numbers commissioned at Chandigarh					
Parameter Values for determining the Tariff for Plants commissioned during FY 13-14					
Parameters	UOM	Value	Parameters	UOM	Value
Plant Size	MW	2.79	Working Capital:		
CUF (as per petitioner)	%	18.00%	O&M	Months	1
Useful Life of Project	Years	25	Spare	%	15%
Project Cost	Lakh/MW	96	Receivables	Months	2
Tariff Period	Years	25	Interest on Wcap	%	13.48%
Debt Portion	%	0%	O&M Expenses (as per bids)	Lakh/MW	9.58
			O&M Expenses (as per CERC)	Lakh/MW	11.63
Equity Portion	%	0%	Escalation for O&M	%	5.72%
Debt	Lakh	0	Depreciation - 1st 12 Years	%	0.00%
Equity	Lakh	0	Depreciation from 13th Year	%	0.00%
Loan Repayment Period	Years	0	Income Tax Rate	%	32.45%
Interest Rate - Loan	%	0.00%	MAT Rate	%	20%
ROE - 1st 10 Years	%	0%	80 IA Benefits	Yes/No	Yes
ROE from 11th Year	%	0%	Discount Factor	%	4.00%
Module Performance (Yr 1)	%	100%	Reduction (2nd year to 10 year)	%	1.00%
Auxiliary Consumption	%	0.25%	Reduction (11th year onwards)	%	0.71%

Tariff for Solar PV Project to be commissioned during FY 13-14																										
Particulars	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
Module Performance	%	100%	99%	98%	97%	96%	95%	94%	93%	92%	91%	90%	89%	89%	88%	87%	86%	86%	85%	84%	84%	83%	82%	81%	81%	80%
Net Generation	MUs	4.39	4.34	4.30	4.26	4.21	4.17	4.12	4.08	4.04	3.99	3.95	3.92	3.89	3.86	3.82	3.79	3.76	3.73	3.70	3.67	3.64	3.60	3.57	3.54	3.51


O&M	Lakh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.59	59.83	63.25	66.87	70.69	74.74	79.01	83.53	88.31	93.36	98.70	104.35	110.32	116.63	123.30
Depreciation	Lakh	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	0.00	0.00	0.00	0.00	0.00	0.00
Interst on Loan	Lakh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00													
Interst on Wcap	Lakh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	3.30	3.49	3.69	3.90	4.12	4.36	4.61	4.87	5.15	5.45	5.76	6.09	6.43	6.80
ROE	Lakh	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	0.00	0.00	0.00	0.00	0.00	0.00
Total Fixed Cost	Lakh	0	0	0	0	0	0	0	0	0	0	60	63	67	71	75	79	83	88	93	99	104	110	116	123	130

Year wise Tariff	Rs/KWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	1.61	1.72	1.83	1.95	2.08	2.22	2.36	2.52	2.69	2.86	3.05	3.26	3.47	3.71
------------------	--------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Discount Factor		1.000	0.962	0.925	0.889	0.855	0.822	0.790	0.760	0.731	0.703	0.676	0.650	0.625	0.601	0.577	0.555	0.534	0.513	0.494	0.475	0.456	0.439	0.422	0.406	0.390
-----------------	--	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Levelised Tariff	Rs/KWh	1.13
------------------	--------	------

JERC/1345/10-10-13



JOINT ELECTRICITY REGULATORY COMMISSION
(For the state of Goa and Union territories)
2nd Floor, HSIIDC Office Complex, Vanijya Nikunj Complex,
Udyog Vihar, Phase V, Gurgaon (Haryana)
Ph: 0124-2342851, 2342852 Fax: 0124-2342853
Email: secretaryjerc@gmail.com

Petition No. 110/2013

In the matter of

Chandigarh Renewal Energy Science & Technology
Promotion Society (CREST) 1st Floor, Paryavaran Bhawan, Sector- 19, Chandigarh
: Petitioner

And in the matter of

Electricity Department,
UT, Chandigarh Respondent

To,

**Chandigarh Renewal Energy Science & Technology
Promotion Society (CREST)**


NOTICE FOR HEARING

Whereas as you have filed a Petition for seeking determination of Preferential Tariff under Net Metering for Rooftop Solar Photovoltaic Power Projects of CREST and for sale of such power to the Electricity Department of UT Chandigarh under section 61, 62, 86 and 181 of the Electricity Act, 2003 and as per Joint Electricity Regulatory Commission for State of Goa & Union Territories (Procurement of Renewable Energy) Regulations 2010. The petition has been admitted and numbered as 110/2013.

You are hereby directed to appear before the Commission in person or through an authorised representative duly instructed and who is able to answer all material questions related to the above issue on **25th October, 2013 at 11.00AM**

Take notice that, in default of appearance on the day mentioned above, the petition will be decided in your absence.

Date : 10th October, 2013


(Om-Prakash)
Bench Officer

Annexure 3 (1/2)

Chandigarh Renewal Energy, Science & Technology Promotion Society (CREST)
(under the Aegis of Department of Science & Technology, UT Chandigarh)

PUBLIC NOTICE INVITING COMMENTS/SUGGESTIONS

Notice inviting comments on the Preferential Tariff Petition for sale of Solar Power to Chandigarh Electricity Department, filed by Chandigarh Renewal Energy, Science & Technology Promotion Society (CREST) before the Hon'ble Joint Electricity Regulatory Commission [JERC] for UT and Goa.

Salient features of Petition:-

- CREST has filed a Petition before Hon'ble JERC for approval of Preferential Tariff @ Rs. 8.75 per unit (KWh) for sale of electricity generated from Rooftop based Solar Photovoltaic Power Plants installed by CREST at various Government buildings as shown below to Chandigarh Electricity Department for the Financial year 2013-14 and has requested the same rate for next 29 years of plant life.
- Details of Rooftop SPV Plants**

Sr. No.	Project Name	Capacity (KWp)	Project cost including O & M for 30 years (In Rs. lac)
Rooftop SPV Projects with Evacuation on HT Side (11 KVA)			
1.	Postgraduate College, Sector-46, Chandigarh	210	375.91
2.	Govt. College for Girls, Sector-42, Chd.	200	358.40
3.	Govt. College for Men, Sec-11, Chd.	435	814.50
4.	Govt. College for Girls, Sec-11, Chd.	495	830.15
5.	IRB Complex, Sarangpur, Chd.	200	355.66
6.	Punjab Eng College, Sec-12, Chd.	1000	Tendered
Rooftop SPV Projects with Evacuation on LT Side			
7.	Model Central Buraill Jail, Sec-45, Chd.	100	240.80
8.	Paryavaran Bhawan, Sec-19, Chd.	50	152.61
9.	Govt. Model Sr. Sec. School, Sec-46, Chd.	50	137.23
10.	Govt. College of Commerce & Business Administration, Sector-42, Chandigarh	50	87.18

- The rate of sale of electricity @ Rs.8.75 per unit (KWh) has been demanded by CREST in view of Central Electricity Regulatory Commission (CERC), New Delhi's Order No. CERC-243/SM/2012 dated 25.10.2012, wherein generic levelized generation tariff for Solar PV for the FY 2013-14 has been fixed @ Rs.8.75 per unit (KWh) by CERC.
- Detailed petition can be seen, free of cost on any working day at O/o Chief Executive Officer, CREST, Paryavaran Bhawan (1st Floor), Sector 19-B, Madhya Marg, Chandigarh. Extracts of the petition can also be obtained from the said office.
- The petition is also available at the website www.crestchd.org.in.
- Responses/suggestions, if any, are sought from the consumers and other stake holder on the petition. Response may be sent to the Secretary, JERC, Vanija-Nikunj, 2nd Floor, Udyog Vihar, Phase-V, Gurgaon or Chief Executive Officer, Chandigarh Renewal Energy, Science & Technology Promotion Society (CREST), Paryavaran Bhawan (1st Floor), Sector 19-B, Madhya Marg, Chandigarh, either by hand or through post or through email at crestchandigarh@gmail.com and secretaryjerc@gmail.com latest by 23rd October, 2013.

Any suggestions Recd?

DATED: 15.10.2013 **Santosh Kumar, IFS**
Chief Executive Officer, CREST

TRC-25090

Tribune 16th Oct/13

Annexure 3 (2/2)

चंडीगढ़ अक्षय ऊर्जा, विज्ञान व तकनीकी प्रोत्साहन समिति (सीआईएसटी)
(विज्ञान एवं तकनीकी विभाग के संरक्षण के अधीन, चंडीगढ़)

टिप्पणी/सूझाव आमंत्रण सार्वजनिक सूचना

यूरो व गोआ के लिए मानवीय संसाधन विद्युत विभागके आयोग (एनईआरसी) के अंतर्गत चंडीगढ़ अक्षय ऊर्जा विभाग व तकनीकी प्रोत्साहन (सीआईएसटी) द्वारा चंडीगढ़ विद्युत विभाग से सौर गृहों की विद्युत के लिए अधिसूचना दर सूची आवेदन पर टिप्पणी आमंत्रण सूचना।

आवेदन की मुख्य विशेषताएं -

- वित्त वर्ष 2013-14 के लिए चंडीगढ़ विद्युत विभाग के निम्नलिखित गैर अनुसूचित निम्नलिखित वित्तियत भीआरएसपी दर स्थापित सौर फोटोवोल्टिक गृहों के लिए प्रति किलोवाट घण्टा के लिए प्रति किलोवाट घण्टा के लिए अधिसूचना दर सूची @ 8.65 रु प्रति किलोवाट घण्टा (केडब्ल्यूएच) के अनुमानित के लिए आंतरगत लंबेआसपी समिति सीआईएसटी के आवेदन भरना या तथा साईट लागू के बजट 29 वर्षों के लिए नसाब दर का निर्धारण किया था।
- रूफटॉप एसपीवी प्लांट का विवरण

क्र.सं.	परियोजना का नाम	क्षमता (केडब्ल्यूपी)	30 वर्षों के लिए औ. व. एन. सहित परियोजना लागत (लाक. रु./मी.)
एनटी साईट (11 केजीए) पर विकास सहित रूफटॉप एसपीवी परियोजनाएं			
1	गोएट पोलीटेक कॉलेज, सेक्टर-46, चंडीगढ़	210	316.91
2	गोएट कॉलेज फॉर वॉमन, सेक्टर-47, चंडीगढ़	200	339.40
3	गोएट कॉलेज फॉर वॉमन, सेक्टर-11, चंडीगढ़	435	314.50
4	गोएट कॉलेज फॉर वॉमन, सेक्टर-11, चंडीगढ़	495	330.15
5	आईआईटी ब्रह्मपूर सांख्यिकी, चंडीगढ़	200	335.6
6	पंजाब इंजीनियरिंग कॉलेज, सेक्टर-12, चंडीगढ़	100	निर्दिष्ट
एनटी साईट पर विकास सहित रूफटॉप एसपीवी परियोजना			
7	गोएट पौलिस स्कूल जेता, सेक्टर-45, चंडीगढ़	100	241.80
8	परवटन शूल, सेक्टर-13, चंडीगढ़	150	157.61
9	गोएट कॉलेज ऑफ कॉमर्स एंड बिजनेस एडमिनिस्ट्रेशन, सेक्टर-42, चंडीगढ़	50	137.23
10	गोएट कॉलेज ऑफ कॉमर्स एंड बिजनेस एडमिनिस्ट्रेशन, सेक्टर-42, चंडीगढ़	50	87.18

3. एनईआरसी @ 8.65 रु प्रति किलोवाट घण्टा (केडब्ल्यूएच) की विधि की दर के अंतर्गत विद्युत विभागके आयोग (एनईआरसी) वरिष्ठि के आवेदन से सीआईएसटी (23 अक्टूबर 2012 दिनांक 23.10.2012 के विवर से सीआईएसटी) द्वारा अधिसूचना है कि सीआईएसटी द्वारा अधिसूचना 2012-14 के लिए सौर भीआरएसपी के लिए जोरिक्त लेखे लाइसेंस जबरनान टैरिफ 8.65 रु प्रति किलोवाट घण्टा (केडब्ल्यूएच) फिक्स्ड की गई है।

4. विद्युत आवेदन समीक्षा विभागों पर कार्यालय मुख्य अधिसूचना अधिसूचना, सीआईएसटी परमन भवन (फोटोवोल्टिक) सेक्टर-19, चंडीगढ़, साईट में लिखितक देना जा सकता है। आवेदन का उद्धरण कथित कार्यालय से भी प्राप्त किया जा सकता है।

5. आवेदन वेबसाइट www.cresthd.org.in पर भी उपलब्ध है।

6. प्रत्येक सूझाव यदि कोई है आवेदन पर सम्भोक्षा व अन्य दस्तावेजों से अधिसूचना से अधिसूचना है। प्रत्येक सूझाव, एनईआरसी, विभाग व तकनीकी विभाग, इसी संजिल, उद्योग विभाग, फस (V), मुद्राण व मुख्य कार्यकारी अधिकारी, चंडीगढ़ अक्षय ऊर्जा विभाग व तकनीकी प्रोत्साहन समिति (सीआईएसटी) परमन भवन (फोटोवोल्टिक), सेक्टर-19, चंडीगढ़ की हस्ती, या डाक के माध्यम से भेजी जाए या ईमेल crestchandgan@gmail.com अथवा secretaryjeat@gmail.com पर भेजी जाए। 23 अक्टूबर 2013 तक भेजी जाए।


दिनांक: 15.10.2013

सतोष कुमार आईएसएस
मुख्य कार्यकारी अधिकारी, सीआईएसटी

Dainik Jagran, 16/10/2013

Annexure 4

PUNJAB KESARI-CHANDIGARH [http://chandigarh.punjabkesari.in/chandigarh/news/20032014/page/9\\$](http://chandigarh.punjabkesari.in/chandigarh/news/20032014/page/9$)



संयुक्त विद्युत नियामक आयोग

(गोवा तथा केंद्र शासित प्रदेशों के लिए)

2रां तल, एचएसआईआईडीसी ऑफिस काम्प्लेक्स, वाणिज्य निकास काम्प्लेक्स, उद्योग विहार, फेज-V, गुडगांव-122016, हरियाणा, फोन: 0124-2875302, फेक्स: 0124-2342853, ईमेल: secy-jerc@nic.in वेबसाइट: www.jercuts.gov.in

विद्युत विभाग चंडीगढ़ ने एफवाई 2014-15 विद्युत विभाग चंडीगढ़ के लिए टैरिफ प्रस्ताव तथा एपीगेट रेवेन्यू रिक्वायरमेंट (एआरआर) की स्वीकृति के लिए संयुक्त विद्युत नियामक आयोग (गोवा राज्य तथा केंद्र शासित प्रदेशों के लिए) के समक्ष याचिका दायर की है। इसे याचिका नं. 126/2014 के रूप में दाखिल किया गया है तथा यह कमीशन की वेबसाइट www.jercuts.gov.in पर उपलब्ध है। इस संबंध में एक नोटिस 25 जनवरी 2014 को पहले से प्रकाशित किया जा चुका है। इसके अलावा विद्युत विभाग ने चंडीगढ़ विद्युत विभाग में मानव शक्ति आवश्यकता के विस्तृत अध्ययन के संबंध में याचिका दायर की है। याचिका, याचिका नं. 129/2014 के अनुरूप आयोग द्वारा दाखिल की गई है जोकि कमीशन की वेबसाइट पर उपलब्ध है।

उपरोक्त के अतिरिक्त माननीय कमीशन चंडीगढ़ रिन्यूवल एनर्जी साइंस एंड टेक्नोलॉजी (CREST) द्वारा दायर स्टेट ऑफ गोवा एंड यूनियन टैरीटरीज (प्रोक्वोरमेंट ऑफ रिन्यूवेबल एनर्जी) के लिए संयुक्त विद्युत नियामक आयोग के विद्युत अधिनियम 2003 के सेक्शन 61, 62, 86 तथा 181 के अधीन ऐसी पावर की बिक्री के लिए तथा नैट मीटरिंग फार रूफ टॉप सोलर फोटो वोल्टेक पावर CREST के प्रोजेक्टों तथा अधिमानित टैरिफ की निश्चितता प्राप्ति के लिए याचिका पर भी सुनवाई करेगा। इसे याचिका नं. 110/2014 के रूप में दाखिल किया गया है तथा यह कमीशन की वेबसाइट www.jercuts.gov.in पर उपलब्ध है।

कमीशन उपरोक्त तीनों याचिकाओं पर निम्न शैड्यूल के अनुसार सार्वजनिक सुनवाई आयोजित करेगा।

तिथि/दिबस/समय	स्थान	टिप्पणी
21 मार्च 2014 (शुक्रवार) 9.30 बजे प्रातः से आगे	मेन हाल, इंस्टीच्यूट ऑफ इंजीनियर्स (इंडिया), चंडीगढ़ सैक्टर 19सी, मध्य मार्ग, चंडीगढ़	यूटी चंडीगढ़ के सभी स्टेक होल्डर्स

इच्छुक व्यक्ति उपरोक्त शैड्यूल के अनुसार सुनवाई में हाजिर हो सकते हैं और उपरोक्त याचिकाओं पर व्यक्तिगत रूप में या पंजीकृत डाक द्वारा एतराज/परामर्श छः प्रतियों में सचिव, जेईआरसी (गोवा तथा यूटीज के लिए) एक प्रति अधिशासी अभियंता, विद्युत आप्रेशन सर्कल, कमरा नं. 511, पांचवां तल, यूटी सचिवालय, डीलक्स बिल्डिंग, सैक्टर 9-डी, यूटी चंडीगढ़-160009 को भेजें।

हस्ता/-
(राजीव अमित)
सचिव

Hindustan Times 20.03.2014

SAVE ELECTRICITY SAVE MONEY

Pay Electricity bill online 24x7 from
PSPCL website <https://e-payment.pspcl.com>

Joint Electricity Regulatory Commission
(for The State of Goa and Union Territories)
2nd Floor, HSIDC Office Complex, Vaniya Nikunj Complex, Udyog
Vihar, Phase-V, Gurgaon-122016, Haryana, Ph.: 0124-2875302
Fax: 0124-2342853, E-mail: secy-jerc@nic.in Website: www.jercuts.gov.in

Electricity Department of Chandigarh has filed a petition for approval of Aggregate Revenue Requirement (ARR) and Tariff Proposal for FY 2014-15 of Electricity Department, Chandigarh before the Joint Electricity Regulatory Commission (for Goa State and Union Territories). The same has been admitted as **Petition No. 126/2014** and is available on Commission's website www.jercuts.gov.in. A notice in this regard had already been published on **25th January, 2014**.

Further, Electricity Department has filed a petition in respect of detailed study on manpower requirement at Chandigarh Electricity Department. The petition has been admitted by the Commission as **Petition No.129/2014** and is available on Commission's website.

In additions to above, Hon'ble Commission will also hear on a petition for seeking determination of Preferential Tariff under Net Metering for Rooftop Solar Photovoltaic Power Projects of CREST and for sale of such power to the Electricity Department of UT Chandigarh under section 61, 62, 86 and 181 of the Electricity Act, 2003 and as per Joint Electricity Regulatory Commission for State of Goa & Union Territories (Procurement of Renewable Energy) Regulations 2010 filed by Chandigarh Renewal Energy Science & Technology (CREST). The same has been admitted as **Petition No. 110/2014** and is available on Commission's website www.jercuts.gov.in.

The Commission shall hold public hearing on all the above three petitions as per the schedule given below:

Date/ Day/ Time	Venue	Remarks
21st March, 2014 (Friday) 0930 Hrs. Onwards	Main Hall, Institute of Engineers (India), Chandigarh, Sector 19 C, Madhya Marg, Chandigarh	All stakeholders of UT of Chandigarh

Interested persons may attend the public hearing as per above schedule and may file objections/suggestions in six copies on the above petitions in person or through registered post addressed to The Secretary, JERC (for Goa & UTs) with a copy to, Superintending Engineer, Electricity Operation Circle, Room no. 511, 5th Floor, UT Secretariat, Deluxe Building, Sector 9-D, UT Chandigarh- 160 009.

Sd/-
(Rajeev Amit)
Secretary

<http://paper.hindustantimes.com/epaper/viewer.aspx> HT Times Chandigarh Page 15, Sheet 17, 200314

**ATTENDANCE SHEET FOR PUBLIC HEARING ON ARR & TARIFF
PETITION FY 2014-15 ON 21-03-2014**

Sr No.	Name & Address	E-mail Id / Contact No.	Signatures
1.	Air Marshal Ranधीर सिंह 2506/35C, CHD.		
2.	Maj Gen Sudeश Kumar 254/35-A, CHD		
3.	Gp Capt R.C.Goyal VSM (Retd)	9815864368 0172-2621426 raghubirgoyal@gmail.com	
4.	Er. Navinder Sheron NCAAG	9815997362	
5.	D.S. Chahal - C.R.S.W.F.	9814108497	
6.	S K KHOSLA C.R.S.W.F	9855062870	
7.	Kashmiri	9815718413	
8.	H.S. Khawer 913-A J. Araj	9988899011	
9.	Er. A.S. Gulati Sh. Rakesh Rattar Sh. Anu Manojass Joint Forum of Industries	9814016868.	
10.	S.K. NAYAR	9417367598	
11.	Raush Aggarwal PHD Chamber of Commerce.	9216110440	
12.	Rajiv Moudsik	9878622100	

one
Team

13	हरिगोविंद प्रिय अध्यक्ष	संयोजक अध्यक्ष	
14	नाथु बिरा मरुत मार्गिका पर	मार्गिका पर	
15	Joginder Singh Gen Sec Raudusafund (unillecto)	Bureau	
16	A.S. Ahuja	RWA sector 23-D CHD	
17	S.D. Badi	2140/35.E Chd.	
18	P.S. Chandra	431/44A Chd.	
19	Nameta Singh	3463/23-D Chd.	
20	Sadhu Singh Supt. Resident RWA 23-D CHD	3491/23-D CHD	
21	B.S. Seemi Gen. Secretary	Chandigarh Inell. Area Tenants Asso.	
22	Munish Raizada Member, AAP	3042/21-D, Chd	
23	Rimneet Kaur Sr Asst Secy	PHD Chamber of Commerce & Industries, Chd	
24	MANESH DIWAN YOBESH DIWAN	M-Social Welfare Ass. Sec - 19 CHD.	

		e-mail / contact no.	Signature
25	Y.K. Mahajan	Ind Asso of chd 9811116249	
26	Yograj	Sec-30b	
27	Ravi Atwal	Sec-29D	
28	Rijay Gouli	Sec-25B.	
29	Ajay Jappa	736/27A	
30	PAWAN K. RAUWAL	Ind. Asso of chd 242 I/A 9872812628	
31	Sandeep Salunke	Chamber of Ind Industries 9814712988	
32	Col PJS NEHTA	National Consumer Awareness Group 9216845456	
33	RAVI MOMAN SINHA	Chaker A Chd Ind 9888298000	
34	RAKESH AGGARWAL	Super Assoc 40 mva Ind As 9888033650	
35	Dr. V.K. Sankar	2668688 317213, mcd	
36	ARYIND JAIN.	Gen. Sec. All India Federation of Chd Relais Association President Vajpandana chd 09216511086	

		e-mail id/contact no.	Signature
37	CHARANUJ Sarda President CHD Beopar Mandal	SCO 1003 Sector 22B Chandigarh	
38	DIWAKAR SAINI Chief Partner Ph. 9876119219	CHANDIGARH BEOPAR MANDAL	
39	Jyotshaman Singh Sourinay	CHD Beopar Mandal 9814706797	
40	VINOD JOSHI	CHD Beopar Mandal	 9814007521
41	Kareem Chaudhary	Social Worker	9888703775
42	Bhaskar Aggarwal	181/41 1A-I CHD	9417038993
43	G S Sarda	74 MA A Ph I Chd	9814237424
44	Rajinder Katar	H.No 610 Sector 22A CHD	9417868976
45	Naval Verma	Executive Engineer Chd. Adm.	750 8195445
46	M.R. Bhatia	H.No-2869/40C Chandigarh	09464121851
47	P. C. Sanghvi	Chairman FOSMA 2145/21-C Chd	9872511205

		email-ID / contact No	Signature
48	P.S. Bafni	Secretary POSWAC 588 Seel8 CREO	Bafni
49	Prikshit Baul	#132 / 20-ACHD	Baul P.
50	Sanjay Sagar	President, Chd. Indl. Area Tenants Assn	S. Sagar
51	Col JS MULIYIL	Gen Secy Federation of Sector Welfare CTD	Muliyil
52	GOPALDATT JOSHI	Gen Secy UTDammam & Ind President Welfare Assn	G. Joshi
53	S.P. Kumbhar	405/30A Chauligal 9356363063	Kumbhar 2/3/14
54	Joginder Arora	President Chhatigar Business Council (Regd)	J. Arora 2/3/14

Annexure 6**Summary of Comments / Suggestions / Objections raised by the Participants at the Public Hearing
On March 21, 2014****1. Apprehensions on revision of solar tariff****Stakeholder suggestions/objections and comments**

The comments were jointly raised by Air Marshal Randhir Singh, Major General Sudesh Kumar (Retd.) and Captain Goyal about the applicability of revision in Solar Tariff by Chandigarh Electricity Department and requirement of additional revenue to maintain the downstream distribution system to off-take such power.

Petitioner's submission

The petitioner responded that the tariff that will be fixed and shall be applicable for the entire useful life of the project. Further, these projects shall provide surplus power to meet the incremental consumption in Chandigarh.

Respondent's submission

The Chandigarh Electricity Department submitted that as of now, no additional funds are required to maintain the transmission & distribution system to wheel small quantity of solar power generated by the rooftop solar PV installed on the government buildings.

Commission's views

With the decreasing trend in cost for setting up of solar PV especially rooftop solar PV in India, Commission is of the view that as of now, it is economical and advisable to utilities to purchase electricity from renewable energy sources to meet renewable purchase obligations as compared with purchase of green attribute of solar power in form of renewable energy certificates to discharge mandatory obligations under RPO regulations. It is emphasized that, In FY 2013-14, the utilities are required to purchase 0.4% of the total consumption of all the consumers in its area during a year from solar energy sources. Similarly, 0.6% of the total consumption of all the consumers in its area during a year from solar energy in FY 2014-15, which shall go up to 3% by the year FY 2021-22 as specified in latest amendment of RPO regulations.