

**DELHI ELECTRICITY REGULATORY COMMISSION**  
**DRAFT REGULATIONS**  
**FOR**  
**‘TERMS & CONDITIONS FOR DETERMINATION OF TARIFF**  
**FOR PROCUREMENT OF POWER FROM GRID-CONNECTED**  
**SOLAR PHOTO VOLTAIC POWER PROJECTS’**

No.: .....DERC

Dated: .....

**NOTIFICATION (DRAFT)**

In exercise of the powers vested under subsection (zd), (ze) and (zf) of Section 181(2) read with Sections 61, 62 and 86 of the Electricity Act, 2003 (36 of 2003) and all other powers enabling it in that behalf and after previous publication, Delhi Electricity Regulatory Commission hereby makes the following Regulations, for specifying the terms and conditions of tariff for procurement of power from Grid-connected Solar Photo Voltaic Projects namely:

**1. Short Title and Commencement**

- 1.1 These Regulations shall be called the “Delhi Electricity Regulatory Commission (Terms & Conditions for Determination of Tariff for Procurement of Power from Grid-connected Solar Photo Voltaic Project) Regulations, 2012”.
- 1.2 These Regulations shall extend to the whole of National Capital Territory of Delhi.
- 1.3 These Regulations shall come into force from the date of their publication in the Delhi Gazette.

**2. Definitions and Interpretations**

- 2.1 In these Regulations, unless the context otherwise requires:-
  - (a) ‘**Act**’ means the Electricity Act, 2003 (36 of 2003);
  - (b) ‘**Capital Cost**’ means the Capital cost as defined in Regulation 13;
  - (c) ‘**Central Commission**’ means the Central Electricity Regulatory Commission referred to in subsection (1) of section 76 of the Act;
  - (d) ‘**Authority**’ means the Central Electricity Authority referred to in sub-section (1) of Section 70 of the Act;

- (e) **'Conduct of Business Regulations'** means the Delhi Electricity Regulatory Commission Comprehensive (Conduct of Business) Regulations, 2001 , as amended from time to time;
- (f) **'Control Period or Review Period'** means the period during which the norms for determination of tariff specified in these Regulations shall remain valid;
- (g) **'Commission means'** the Delhi Electricity Regulatory Commission referred to in sub-section (1) of Section 82 of the Act;
- (h) **'Distribution Licensee'** means a Licensee authorised to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply;
- (i) **'Grid'** means the high voltage backbone system of inter-connected transmission lines, sub-stations and generating plants;
- (j) **'Installed Capacity'** means the summation of the KW peak rating of the installed PV modules in the array or the capacity of the Project reckoned at the output terminals of the solar project as approved by the Commission from time to time;
- (k) **'Inter-connection Point'** shall mean the interface point of the Solar PV power projects with the network of Distribution Licensees;
- (l) **'Operation and Maintenance Expenses'** means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance, and overheads;
- (m) **'Project Developer'** shall mean developer of the solar PV power project, who shall own and operate such project;
- (n) **'Salvage Value'** means the estimated value of an asset at the end of its useful life;
- (o) **'Solar PV Power Project'** means a Solar Photo Voltaic Power project that uses sunlight for direct conversion into electricity through Photo Voltaic technology and includes the evacuation system upto interconnection point;
- (p) **'Solar Meter'** means a meter used for measuring the units generated for the purpose of accounting and billing of electricity generated by the Solar PV Power Projects;
- (q) **'State Agency'** means the agency in the concerned State as may be designated by the State Commission to act as the agency for accreditation and recommending the renewable energy projects for registration and to undertake such functions as may be specified under clause (e) of subsection (1) of section 86 of the Act;
- (r) **'Tariff Period'** means the period for which tariff is to be determined by the State Commission on the basis of norms specified under these Regulations;
- (s) **'Useful Life'** in relation to a Solar PV power project shall mean a period of 25 years from the date of commercial operation (COD) of such generation facility;

(t) **'Weighted Average Cost of Capital (WACC)'** means the average of the costs of various sources of financing including debt and equity, each of which is weighted by its respective ratio in the total capital employed in the project.

(u) **'Year'** means a financial year;

2.2 All other words and expressions used in these Regulations although not specifically defined hereinabove, but defined in the Act, shall have the meaning assigned to them in the Act. The other words and expressions used herein but not specifically defined in these Regulations or in the Act but defined under any law passed by the Parliament applicable to the electricity industry in the State shall have the meaning assigned to them in such law..

### 3. Scope and Extent of Application

These Regulations shall be applicable to all the grid connected solar PV projects where tariff for electricity generated from such project/(s) is determined by the Commission under Section 62 read with Section 86 of the Act.

Provided that these Regulations shall apply subject to the fulfilment of eligibility criteria specified in Regulation 4 below.

### 4. Eligibility Criteria

Grid connected Solar PV power projects based on the solar Photo Voltaic technologies approved by Ministry of New & Renewable Energy of the Government of India.

## CHAPTER 1: GENERAL PRINCIPLES

### 5. Control Period or Review Period

- 5.1 These Regulations shall come into force from the date of notification, and unless reviewed earlier or extended by the Commission, shall remain in force for a period of three (3) years from the date of commencement thereof.

Provided that the tariff determined under these Regulations, for Solar PV Power projects which are commissioned during this control period, shall continue to be applicable for the entire duration of the Tariff Period as specified in Regulation 7 below;

Provided further that the ceiling limit in respect of the capital cost and the interest rate for Solar PV power projects may be reviewed annually by the Commission.

- 5.2 Notwithstanding anything contained in these Regulations, the norms for tariff determination in respect of Solar PV power projects set up prior to notification of these Regulations shall be governed by the norms/benchmarks specified in the CERC (Terms & conditions for determination of tariff from Renewable Energy Sources) Regulations, 2009 as applicable to Solar Photo Voltaic Power Projects, as amended from time to time, for the respective period of commissioning of such Solar PV Projects, which shall be considered as the ceiling limit in determining the Solar tariff for such Solar PV power projects.

### 6. Petition and Proceedings for Determination of Tariff

- 6.1 The Commission shall determine the Project Specific tariff based on the Petition filed by the Project developer for solar PV power Projects for which norms have been specified in these Regulations.
- 6.2 A petition for determination of project specific tariff shall be accompanied by-
- a) such fee as may be determined by Regulations and shall be accompanied by information in such forms as may be, specified by the Commission;
  - b) Detailed project report outlining technical and operational details, site-specific aspects, premise for capital cost and financing plan etc.
  - c) A Statement of expected expenditure for the period for which tariff is to be determined.
  - d) A statement containing full details of calculation of any subsidy and incentive received, due or assumed to be due from the Central Government and/or State Government. This statement shall also include the proposed tariff calculated without consideration of the subsidy and incentive
  - e) Any other information that the Commission requires the petitioner to submit.
- 6.3 The proceedings for determination of tariff shall be in accordance with the Conduct of Business Regulations.

## 7. Tariff Period

Tariff period under these Regulations for solar PV power projects shall be twenty five (25) years and shall be reckoned from the date of commercial operation of the solar PV power projects; ;

## 8. Project Specific Tariff

The Commission shall determine the Project specific tariff, on case to case basis, for solar PV power projects set up in the NCT of Delhi.

Provided that the Commission while determining the project specific tariff for such projects shall be guided by the provisions of Chapter- 2 of these Regulations.

## 9. Tariff Structure

The tariff for grid-connected solar PV power projects shall be single part tariff consisting of following cost components:

- (a) Return on Equity,
- (b) Interest on loan capital,
- (c) Depreciation,
- (d) Interest on working capital and
- (e) Operation and maintenance expenses.

## 10. Tariff Design

10.1 The tariff shall be determined on the levelised basis for the tariff period; and, for the purpose of levelised tariff computation, discount factor equivalent to weighted average cost of capital (WACC) shall be considered.

10.2 Levelised tariff shall be worked out into two phases over the 'useful life' of the project. First phase shall be for 10 years and second phase be for the next 15 years.

## 11. Dispatch Principles

All grid-connected solar PV power projects shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order dispatch' principles.

## 12. Quantum of Purchase of Electricity from Solar Energy

The quantum of purchase of power from solar PV power projects shall be as specified in the Delhi Electricity Regulatory Commission (Renewable Purchase Obligation and Renewable Energy Certificate Framework Implementation) Regulations, 2012.

## CHAPTER 2: FINANCIAL PRINCIPLES & TECHNICAL PARAMETERS

### 13. Capital Cost

- 13.1 The capital cost shall be inclusive of all capital work including plant and machinery, civil work, erection and commissioning, financing costs, interest during construction, and evacuation infrastructure up to interconnection point.
- 13.2 The normative Capital cost ceiling limit for setting up of Solar Photo Voltaic Power projects shall be Rs. 1000 lakh/MW for the FY 2012-13.  
Provided that the capital cost ceiling limit for Solar PV power projects may be reviewed annually by the Commission.
- 13.3 The Project developer shall submit the break-up of capital cost items along with its petition in the manner specified under Regulation 6.

### 14. Debt Equity Ratio

- 14.1 For the purpose of determination of tariff, the following provisions shall apply:
- (a) If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.
  - (b) Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff.
  - (c) Provided further that the equity invested in the foreign currency shall be designated in Indian rupees on the date of each investment.

### 15. Loan and Finance Charges

- 15.1 **Loan Tenure** - For the purpose of determination of tariff, loan tenure of 10 years shall be considered.
- 15.2 **Interest Rate** –
- (a) The loans arrived at in the manner indicated above shall be considered as gross normative loan for calculation of interest on loan. The normative loan outstanding as on April 1<sup>st</sup> of every year shall be worked out by deducting the cumulative repayment up to March 31<sup>st</sup> of previous year from gross normative loan
  - (b) For the purpose of computation of tariff, the normative interest rate shall be considered as an average State Bank of India (SBI) Base rate prevalent during the first six months of the previous year plus 300 basis points.
  - (c) Notwithstanding any moratorium period availed by the project developer, the

repayment of loan shall be considered from the first year of commercial operation of the project.

Provided that the ceiling limit of the interest rate for Solar PV power projects may be reviewed annually by the Commission.

## 16. Depreciation

- 16.1 The value base for the purpose of depreciation shall be the capital cost of the asset approved by the Commission. The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.
- 16.2 Depreciation per annum shall be based on "Differential Depreciation Approach" over the loan tenure and period beyond loan tenure over the useful life computed on 'Straight Line Method'. The depreciation rate for first 10 years of the tariff period shall be 7% per annum and the remaining depreciation shall be spread over the useful life of the project from 11th year onwards.
- 16.3 Depreciation shall be chargeable from first year of commercial operation.
- Provided that in case of the commercial operation of the asset for part of the year, depreciation shall be charged on pro-rata basis.

## 17. Return on Equity

- 17.1 The value base for the equity shall be 30% of the capital cost or actual equity (in case of project specific tariff determination) as determined under Regulation 14.
- 17.2 The normative return on equity shall be:
- (a) Pre-tax 19% per annum for first 10 years.
  - (b) Pre-tax 24% per annum 11<sup>th</sup> year onwards.

## 18. Interest on Working Capital

- 18.1 The Working Capital requirement in respect of solar PV power projects shall be computed in accordance with the following:
- a) Operation & Maintenance expenses for one month;
  - b) Receivables equivalent to Two (2) months of energy charges for sale of electricity calculated on the normative Capacity Utilisation Factor;
  - c) Maintenance spares @ 15% of operation and maintenance expenses;
- 18.2 Interest on Working Capital shall be at interest rate equivalent to an average State Bank of India Base Rate prevalent during the first six months of the previous year plus 350 basis points.
- Provided that the ceiling limit of the interest rate for Solar PV power projects may be reviewed annually by the Commission.

## 19. Operation and Maintenance Expenses

- 19.1 'Operation and Maintenance or O&M expenses' shall comprise of repair and maintenance (R&M), establishment including employee expenses, and administrative and general expenses including insurance as specifically defined under Regulation 2.1(l).
- 19.2 The normative Operation & Maintenance Expenses shall be Rs 11 Lakhs/MW for the 1st year of operation.
- 19.3 Normative Operation & Maintenance expenses allowed at the commencement of the Control Period under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period (from the 2<sup>nd</sup> year onwards).

## 20. Technology

- 20.1 Norms for Solar PV power projects under these Regulations shall be applicable for grid connected PV system that directly convert solar energy into electricity and are based on technologies such as crystalline Silicon or thin film etc. as may be approved by the Ministry of New and Renewable energy of the Government of India.
- 20.2 Under these Regulations, the solar PV power projects with installed capacity below 1MWp shall be connected to the grid at LT/HT network; and, Solar PV power projects with installed capacity of 1 MWp and above shall be connected to HT network.

## 21. Life of Plant and Machinery

The normative useful life of solar PV power projects has been considered 25 years.

## 22. Capacity Utilization Factor (CUF)

The Capacity Utilization Factor for estimation of electricity generation from solar PV power projects in NCT of Delhi shall be 19%.



## CHAPTER 3: METERING, BILLING and PAYMENT

### 23. Metering Arrangement

- 23.1 Metering arrangement for all grid-connected solar PV power projects shall be in accordance with:
- (a) Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time;
  - (b) Delhi Electricity Regulatory Commission (State Grid Code) Regulations 2008 as amended from time to time; and
  - (c) DERC (Supply Code and Performance Standards) Regulations, 2007 as amended from time to time.
- 23.2 Solar energy exported by the Solar PV power project developer shall be metered for billing purpose through the meter designated as 'Solar Meter'. Such a Solar Meter shall meet the technical requirements/specifications of applicable category of an 'interface meter' defined in Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.
- 23.3 It shall be the responsibility of the Distribution Licensee, Project Developer and SLDC to take down the joint meter reading and record the metered data. SLDC shall maintain database of all the information associated with the Solar Meter and verify the metered data and furnish the same to various agencies as per the procedure laid down by the Commission.
- 23.4 Periodicity of testing, checking, calibration etc., shall be governed by the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

### 24. Billing and Payment

- 24.1 Billing of the energy shall be carried out on a monthly basis.
- 25.2 Solar Project developer shall raise the bill to the distribution licensee every month for the energy supplied.
- 26.3 The payments to the project developers in respect of the energy supplied shall be made by the Distribution Licensee within 60 days from the date of the bill.

### 25. Late Payment Surcharge

For any delayed payment beyond a period of 60 days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the project developer, calculated on daily basis.

### 26. Rebate

- 26.1 For payment of bills of the Solar PV power projects through letter of credit, a rebate of 2% shall be allowed.
- 26.2 Where payments are made other than through letter of credit within a period of one month of presentation of bills by the Project Developer, a rebate of 1% shall be allowed.

## CHAPTER 4: MISCELLANEOUS

### 27. Subsidy/Incentive by the Central/State Government

27.1 The Commission shall take into consideration any incentive or subsidy offered by the Central or the Government of NCT of Delhi, including Generation Based Incentive (GBI) or accelerated depreciation benefit if availed by the project developers for such projects while determining the tariff under these Regulations.

Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated depreciation, if availed, for the purpose of tariff determination:

- (a) Assessment of benefit shall be based on normative capital cost, accelerated depreciation rate as per relevant provisions under Income Tax Act and corporate income tax rate.
- (b) Capitalisation of solar PV projects during second half of the fiscal year.
- (c) Per unit benefit shall be derived on levelised basis at discount factor equivalent to weighted average cost of capital.

### 28. Taxes and Duties

Tariff determined under these Regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government. Provided that the taxes and duties levied by the appropriate Government shall be allowed as pass through on actual incurred basis.

### 29. Sharing of CDM Benefits

29.1 All risks, costs and efforts in developing such projects as CDM projects shall remain with the Project Developer/lead entity as the case may be, who is responsible for developing and registering these projects as CDM projects.

29.2 The proceeds of the carbon credit from approved CDM Project shall be shared between the project developers and concerned Distribution Licensee in following manner, namely-

- (a) 100% of the gross proceeds on account of CDM benefit to be retained by the developer in first year after the date of commercial operation of the generating station.
- (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 generating company and the beneficiaries.

Provided that the entire benefits obtained by the Distribution Licensee shall be fully passed on to the consumers.

### 30. Investment in the Grid Augmentation

The cost of any augmentation required after the interconnection point in the system of the distribution licensee shall be borne by the concerned Distribution Licensee.

Provided that such investments as may be approved by the Commission, shall be a pass through in the Annual Revenue Requirement of such distribution licensee.

### 31. Procedures for Interconnectivity with the Grid

31.1 The Project developers desirous of setting up solar PV power projects shall apply to the distribution licensee for connectivity with the distribution network system in the format/(s) as may be specified by the Commission.

31.2 The timelines for grant of connectivity shall be as under:

- (a) Distribution Licensee shall within 30 days of receipt of application from the Project developer, intimate (to Project developer and the Commission) whether the project developer can be connected to the grid without further system strengthening and take steps to allow connectivity within 30 days of such intimation.
- (b) If system strengthening or grid augmentation is required, the Distribution Licensee shall intimate the same to the project developer and the Commission within 60 days of receipt of application of the Project developer. In such a case, interconnection of the project developer to the grid shall be established within 4-6 months of such intimation.
- (c) The Distribution Licensee shall not be liable to pay any compensation to the project developer for deemed generation benefits in case the Distribution Licensee is unable to absorb the power due to the reasons which are beyond his control.

### 32. Communication Facilities

All grid connected solar PV power projects shall have meters with features to record energy for 45 days data storage for injection into the grid through solar meter as provided under Regulation 23. All projects with capacity 1 MWp and above shall have communication Port for exchanging real time information with the SLDC and Distribution Licensee.

### 33. Power Quality & Protection and Controls

Power Quality & Protection and Controls shall conform to the standards specified in the CEA (Technical Standards for connectivity to the grid) Regulations, 2007 applicable to the distribution system as amended from time to time.

### 34. Third Party Sale

The Commission does not allow third party sale of the energy generated through the solar PV sources whose tariff is determined under these Regulations.

### 35. Power to Remove Difficulties

35.1 In case of any difficulty in giving effect to any of the provisions of these Regulations, the Commission may by general or special order, issue appropriate directions to the Project Developers, Distribution Licensee(s) etc., to take suitable action, not being inconsistent with the provisions of the Act, which appear to the Commission to be necessary or expedient for the purpose of removing the difficulty.

35.2 The Project Developer or/and the Distribution Licensees may make an application to the Commission and seek suitable orders to remove any difficulties that may arise in implementation of these Regulations.

### 36. Power to Relax

The Commission may by general or special order, for reasons to be recorded in writing, and after giving an opportunity of hearing to the parties likely to be affected may relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

### 37. Interpretation

If a question arises relating to the interpretation of any provision of these Regulations, the decision of the Commission shall be final.

### 38. Power to Amend

The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provisions of these Regulations.