
**BANGLADESH ENERGY REGULATORY COMMISSION (TARIFF FOR ROOF TOP SOLAR PV ELECTRICITY)
REGULATIONS, 2016 (DRAFT)**

No. S.R.O.....In exercise of the powers conferred by **section 59** of the Bangladesh Energy Regulatory Commission Act, 2003 (Act No.13 of 2003), read with **section 34** thereof, the Bangladesh Energy Regulatory Commission, after consultation with the Government, is pleased to make the following Regulations,namely:-

1. Short title and commencement

- 1.1 These Regulationss shall be called the Bangladesh Energy Regulatory Commission (Tariff for Roof Top Solar PV Electricity) Regulations, 2016.
- 1.2 These Regulations shall come into force from the date of their publication in the Official Gazette.

2. Definitions and Interpretation

- 2.1 In these Regulations, unless the context otherwise requires,-
 - (a) “Act” means the Bangladesh Energy Regulatory Commission Act, 2003 (Act No. 13 of 2003);
 - (b) “Auxiliary energy consumption” or “AUX” in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station;

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- (c) “Capacity Utilization Factor” or (CUF) is the ratio of gross annual electricity generation (in kWh) from RE generating plant divided by the product of installed nameplate capacity (in kW) of the RE generating plant, number of days in the year (365 or 366 days) and number of hours (24 hours) in a day.
i.e. Capacity utilisation factor (%) = $\frac{\text{Gross Annual Electricity Generation (kWh)}}{\text{Installed Capacity (kW)} \times 365 \times 24}$
- (d) “Capital Cost” means the capital expenditure incurred by the generating company within the original scope of the project as admitted by the Commission;
- (e) “Commission” means the Bangladesh Energy Regulatory Commission;
- (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) “Date of Commissioning” means date of **Commercial Operation** declared by Generating Company.
- (h) “Existing RE Project” means the renewable energy project whose date of commissioning falls prior to date of notification of these Regulations;
- (i) “Feed in Tariff (FIT)” means tariff for Renewable Energy Generators determined in accordance with the norms stipulated in these Regulation.
- (j) “Installed Capacity” or “IC” means the summation of the nameplate capacities of all the Units of the generating station or the capacity of the generating station (reckoned at the generator terminals on alternating current AC terms), approved by the Commission from time to time;
- (k) “Levelized Tariff” shall represent the present value of annualised tariff stream over the useful life determined in accordance with the provisions of Regulation 10 outlined under these Regulations.

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- (l) “Inter-connection Point” shall mean interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be and in relation to small scale solar photovoltaic projects, inter-connection point shall be the line isolator on outgoing feeder on LV side of the distribution sub-station;
- (m) “Must Run Power Plant” means renewable energy generating plant which would be despatched by System Operator at all times to maximise generation from such renewable energy generating plant but shall be subjected to backing down due to system emergency conditions or transmission constraints, as the case may be, at the discretion of System Operator.
- (n) “Merit Order despatch Principle” is a way of ranking available sources of electrical generating stations, based on ascending order of cost of generation. It means in case of high frequency condition where the grid cannot transmit any more power, the generating plant with the costliest cost of generation has to be backed down.
- (o) “New RE Project” means the renewable energy project whose date of commissioning shall be subsequent to the date of notification of these Regulations;
- (p) “Non-firm power” means the power generated from renewable sources, the hourly variation of which is dependent upon nature’s phenomenon like sun, cloud, wind, etc., that cannot be accurately predicted.
- (q) “Operation and maintenance expenses” or ‘O&M 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;
- (r) “Photovoltaic” or PV is a method of converting solar energy into direct current electricity using semiconductor materials that exhibit the photovoltaic effect. A Photovoltaic power system shall employ solar PV panels composed of a number of solar cells to generate and supply usable electric power harnessing solar energy.
- (s) “Project” means a generating station and the evacuation system up to inter-connection point, as the case may be,.
- (t) “Renewable Energy” means the grid quality electricity generated from the renewable energy source.
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- (u) “Renewable Energy Power Plants” or RE power plants mean the power plants other than the conventional power plants generating grid quality electricity from the renewable energy source.
 - (v) “Renewable Energy Source” means solar as recognized or approved by the SREDA Act.
 - (w) “Schedule” means the Schedule annexed to these regulations.
 - (x) “SREDA” means Sustainable and Renewable Energy Development Authority of Bangladesh formed pursuant to “Sustainable and Renewable Energy Development Act, 2012 (Act No. 48 of 2012)”;
 - (y) “System Operator” (SO) means an entity responsible for grid management, electric power system operation and day-to-day load generation balancing activity on real time basis for power system of Bangladesh.
 - (z) “Tariff” means the price rate of per unit of electricity generation cost along with the return determined in line with the norms specified under these Regulations.
 - (aa) “Tariff period” means the period for which tariff is to be determined by the Commission on the basis of norms specified under these Regulations;
 - (bb) “Consumer” means a person or organization who receives electricity distribution service as set out in the Schedule and mentioned in section 34 of the Act.
 - (cc) “Useful Life” in relation to a unit of a generating station including evacuation system shall mean 20 years duration from the date of commercial operation (COD) of such generation facility.
 - (dd) “Year” means a fiscal year commencing from July 1 and ending on June 30 of each year.

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- 2.2 Save as aforesaid and unless repugnant to the context or if the subject matter otherwise requires, words and expressions used in these Regulations and not defined, but defined in the Act, SREDA Act, or the Bangladesh Electricity Grid Code or the Bangladesh Energy Regulatory Commission (Electricity Generation Tariff) Regulations, 2008 and amendments thereof shall have the meanings assigned to them respectively in the Act, SREDA Act or the Bangladesh Electricity Grid Code or the Bangladesh Energy Regulatory Commission (Electricity Generation Tariff) Regulations, 2008 and subsequent amendments thereto.

3. Scope of Regulations and extent of application

- 3.1 These Regulations shall apply for all new RE power plants to be commissioned within Bangladesh for generation and sale of electricity from such RE power plants to any of the distribution licensee within Bangladesh subsequent to date of notification of these Regulations and where tariff, for a generating station or a unit thereof based on renewable source of energy, is to be determined by the Commission.
- 3.2 In case of existing RE power plants, applicable tariff and other terms and conditions, shall be governed by existing notifications subject to approval by the Commission.
- 3.3 The terms and conditions for requirement to avail generating license by renewable energy generator shall be governed as per provisions of this Act and Renewable Energy Policy, 2008 and amendments thereof as notified by the Government from time to time:
Provided that no licence shall be required for renewable energy power plant with installed capacity up to 5 MW and in such a case a waiver certificate shall be provided by Bangladesh Energy Regulatory Commission subject to fulfilling the conditions determined by it

4. Eligible Entities

4.1 **Solar Rooftop PV Projects:** Solar Rooftop PV projects to be commissioned subsequent to notification of these Regulations shall comprise grid connected PV systems with installed capacity from 50 kW to 5 MW (AC **capacity with a flexibility of 10%**)) and shall be based on **proven** PV technologies such as crystalline silicon or thin film, as the case may be approved by SREDA and all new solar rooftop PV projects as may be approved by SREDA shall be eligible for availing Feed-in Tariff to be determined as per these Regulations.

4.2 “Solar rooftop PV” means the Solar rooftop or other small solar Photovoltaic power projects that uses Photo Voltaic technology for generation of electricity, which are mounted on rooftop of buildings or ground mounted installations, and satisfying any other eligibility criteria as may be specified by BERC from time to time:

Provided that, the ground mounted installations shall not exceed 50% of total installation capacity where rest of the installations must be at rooftop:

Provided further that, in order to be eligible rooftop, it must be capable to withstand the solar panel, frame and associated accessories

Chapter 1: General Principles

5. Control Period or Review Period

- 5.1 The Control Period or Review Period under these Regulations shall be three (3) fiscal years. First year of the Control Period shall commence from the date of notification of these Regulations and FiT will be reviewed by the Commission at every 1 (one) year interval:
- Provided that the tariff determined as per these Regulations for the RE power plants commissioned during the Control Period, shall continue to be applicable for the RE power plants for the entire duration of the Tariff Period as specified in Regulation 6 below:
- Provided further that the revision in Regulations for next Control Period shall be notified separately and in case Regulations for the next Control Period are not notified until commencement of next Control Period, the tariff norms as per these Regulations shall continue to remain applicable until notification of the revised Regulations subject to adjustments as per revised Regulations.

6. Tariff Period

- 6.1 The Tariff Period for Renewable Energy power plants **shall be 20 years**.
- 6.2 Tariff Period under these Regulations shall be considered from the date of commercial operation of the renewable energy generating stations.
- 6.3 Tariff determined as per these Regulations shall be applicable for Renewable Energy power plants, only for the duration of the Tariff Period as stipulated under Regulation 6.1 and 6.2.

7. Procedure for determination of Generic Feed-in tariff

- 7.1 The Commission shall notify the generic preferential tariff on suo-motu basis pursuant to approval of the capital cost norm by Bangladesh Energy Regulatory Commission at the beginning of each year of the Control Period for renewable energy technologies for which norms have been specified under the Regulations.

Provided that for the first year of Control Period, (i.e. FY 2016-17), the generic tariff on suo-motu basis may be determined within a period not exceeding three months from the date of notification of these Regulations.

- 7.2 The proceedings for determination of tariff shall be in accordance with relevant clause as described in subsequent chapters.

8. Procedure for determination of Project Specific Feed-in Tariff

- 8.1 Project specific tariff, on case to case basis, shall be determined by the Commission for the Solar Power plants limited to **Renewable Energy** as approved by SREDA.

- 8.2 Determination of Project specific Tariff for generation of electricity from the renewable energy source shall be in accordance with such terms and conditions as stipulated under relevant Orders of the Commission.

Provided that the financial norms as specified under these Regulations, except for capital cost, shall be ceiling norms while determining the project specific tariff.

- 8.3 A petition for determination of project specific tariff shall be accompanied by such fee as may be determined by Regulations and shall be accompanied by
- a) information in Forms 1.1 and 1.2 as the case may be, and as appended to these Regulations;
 - a) Detailed project report outlining technical and operational details, site specific aspects, premise for capital cost and financing plan.
 - b) A Statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined.
 - c) A statement containing full details of calculation of any subsidy and incentive received, due or assumed to be due from the Government of Bangladesh and/or Local Government. This statement shall also include the proposed tariff calculated without consideration of the subsidy and incentive
 - d) Any other information that the Commission requires the Generating Company to submit.

9. Tariff Structure and key components

- 9.1 The tariff for renewable energy technologies shall be single-part tariff consisting of the following fixed cost components:

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

10. Tariff Design

- 10.1 The generic tariff shall be determined on levellised basis for the Tariff Period.
- 10.2 For the purpose of levellised tariff computation, the discount factor equivalent to normative weighted average cost of capital shall be considered.

$$T_1 = \frac{\sum T_i d_i}{\sum d_i}$$

Where,

T_1 is the levellised tariff determined in (Taka/kWh)

T_i is the tariff determined for (i)th year over the Tariff period (n) from $i = 1, 2, \dots, n$

d_i is the discount factor for (i)th year over the Tariff period (n) from $i = 1, 2, \dots, n$

$d(i) = \text{discount factor for (i)th year} = 1 / (1 + r)^i$

where r = rate of discount (in %) equivalent to weighted average cost of capital.

- 10.3 Levellisation 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’.
- 10.4 Inflation and foreign currency fluctuation may be incorporated in the Tariff design.

11. Distribution Grid Connectivity Framework

- 11.1** The renewable energy generation company will construct evacuation line from generation station to the nearest distribution system following the Electricity Grid/Distribution Code and subsequently handover the evacuation line to the local operator (Distribution Entities) for its operation & maintenance.
- 11.2** The RE generator will ensure that, there is no unnecessary interruption in the grid due to faults in Renewable Energy generating plants. Adequate protective equipment must be installed to ensure no fault developed in Licensee's equipment that connects the grid.
- 11.3** The RE Generator shall be responsible for all the repair, maintenance and replacement of the whole system comprising of the line, custody transfer meter and other ancillary equipments for transferring generated electricity to the distribution grid and Distribution Company shall be responsible for maintenance, repair and replacement of the system receiving Renewable Energy.
- 11.4** A power purchase agreement shall be executed between RE Generator and power Distribution Company.
- 11.5** Considering capacity, density of the consumers and consumer mix group, BERC may allocate or apportion the purchase quantity of Renewable Energy to each Distribution Company.
- 11.6** BERC shall raise necessary fund to compensate any higher tariff to be paid by the Distribution Company for purchasing Renewable Energy.

Chapter 2: Financial Principles

12. Capital Cost

- 12.1 The norms for the Capital Cost as specified in the subsequent technology specific chapters shall be inclusive of all capital work including plant and machinery, civil work, erection and commissioning, financing costs, preliminary and pre-operative expenses, and interest during construction, and evacuation infrastructure up to inter-connection point.
- Provided that for project specific tariff determination, the generating company shall submit the break-up of capital cost items along with its petition in the manner specified under Regulation 8.
- 12.2 The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff.
- Provided the prudence check may include scrutiny of reasonableness of the capital expenditure, financing plan, interest during construction, use of efficient technology, cost over-run, time over-run, and such other matters as may be considered appropriate by the Commission for determination of tariff.

13. Debt Equity Ratio

- 13.1 For suo-motu determination of generic tariff, the debt equity ratio shall be 70 : 30.
- 13.2 For project specific tariff, the following provisions shall apply:
- If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.
- Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff;
- Provided further that the equity invested in foreign currency shall be denominated/ designated in BDT/ USD on the date of each investment.

14. Loan and Finance Charges

14.1 **Loan Tenure:** For the purpose of determination of tariff, loan tenure of 10 years shall be considered.

14.2 Interest Rate

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 July 1st of every year shall be worked out by deducting the cumulative repayment up to June 30th of previous year from the gross normative loan.

Benchmark interest rate shall be linked to Base Rate for Long Term as published by Bangladesh Bank as prevalent on 1st July for each financial year plus 200 basis points

Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

15. Depreciation

15.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted 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.

15.2 Annual Depreciation shall be based on 'Differential Depreciation Approach' using 'Straight Line Method', over two distinct periods comprising loan tenure and period beyond loan tenure over useful life. The depreciation rate for the first 10 years of the Tariff Period shall be 7% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 11th year onwards.

15.3 Depreciation shall be chargeable from the first year of commercial operation.

Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on *pro rata* basis.

16. Return on Equity

16.1 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 13.

16.2 The normative Return on Equity shall be:

Pre-tax 20% per annum

17. Interest on Working Capital

- 17.1 The Working Capital requirement in respect of wind energy projects, utility scale solar PV and rooftop solar PV and other small solar power projects shall be computed as under:
- 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 Capacity Utilisation Factor (CUF);
 - c) Maintenance spare @ 15% of operation and maintenance expenses
- 17.2 Benchmark interest rate for working capital requirement shall be linked to Base Rate for Short Term as published by Bangladesh Bank as prevalent on 1st July for each financial year plus 100 basis points.

18. Operation and Maintenance Expenses

- 18.1 'Operation and Maintenance or O&M expenses' shall comprise repair and maintenance (R&M), establishment including employee expenses, and administrative and general expenses including insurance.
- 18.2 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.
- 18.3 Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2015-16) under these Regulations shall be escalated at the rate of 5% per annum over the Tariff Period.

19. Rebate

- 19.1 For payment of bills of the generating company through letter of credit, a rebate of 2% shall be allowed.
- 19.2 Where payments are made other than through letter of credit within a period of one month of presentation of bills by the generating company, a rebate of 1% shall be allowed.

20. Late payment surcharge

- 20.1 In case the payment of any bill for charges payable under these Regulations is delayed 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 generating company.

21. Sharing of CDM Benefits or Other Carbon Crediting Mechanism benefits

21.1 The entire proceeds of carbon credit from approved CDM project, if any, shall be retained by the generating company.

22. Subsidy or incentive by the Government

22.1 The Commission shall take into consideration any incentive or subsidy offered by the Government, if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations.

Provided further that in case any Government notification specifically provides for any Generation based Incentive over and above tariff, the same shall not be factored in while determining Tariff.

23. Taxes and Duties

Tariff determined under these Regulations shall be exclusive of taxes and duties on generation and sale of electricity from renewable energy project as may be levied by the Government, provided that the taxes and duties levied by the Government on generation and sale of electricity from renewable energy project shall be allowed as pass through on actual incurred basis.

Chapter 3: Technology specific parameters for Rooftop Solar PV and other small solar Power Project

24. Capital Cost

- 24.1 The Capital Cost for Rooftop Solar PV power projects shall include Solar PV modules, power conditioning units, mechanical works, cabling & instrumentation, battery system with limited storage (if applicable), civil & structural works, land cost, site development costs, transportation costs, power evacuation cost up to inter-connection point, financing charges and Interest During Construction (IDC).
- 24.2 The Capital Cost Norm for Rooftop solar PV power projects for the first year of the Control Period (i.e. FY 2016-17) shall be as stipulated under **Schedule-1**.
- 24.3 The Capital Cost Norm for Rooftop Solar PV power projects shall be revised for projects to be commissioned in each subsequent year as outlined under Regulation 13.

25. Capacity Utilisation Factor

- 25.1 Normative Capacity utilisation factor for Rooftop Solar PV power project in Bangladesh shall be considered as **18%**.
- Provided that the Commission may adopt region-specific CUF norm for Rooftop Solar PV power projects for different regions depending upon the solar resource assessment of various regions and shall be guided by inputs from SREDA in this respect.
- 25.2 A normative deration factor on CUF of 0.50% every year after the first ten years of the operation of Rooftop Solar PV power projects shall be considered.
- Provided that the CUF norms specified herein may be revised through appropriate Order by the Commission on the basis of adequate and appropriate data as and when available.

26. Operation and Maintenance Expenses

- 26.1 Normative O&M expenses for the first year of the Control Period (i.e. FY 2016-17)) shall be as stipulated under **Schedule-2** (which is equivalent to 1.4% of normative Capital Cost).

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- 26.2 Normative O&M expenses allowed at the commencement of the Control Period under these Regulations shall be escalated at the rate of 5% per annum over the tariff period for the purpose of determination of tariff.

27. Compliance Monitoring for Rooftop Solar PV and other small solar PV

- 27.1 SREDA shall maintain data, including technical and commercial details of rooftop solar PV power projects in the country and shall make the data available in public domain by publishing the same in its website with quaterly updation.
- 27.2 The Rooftop PV system owners
- 27.3 shall submit all the required information to SREDA.

Chapter 6: Miscellaneous

28. Deviation from norms

- 28.1 Tariff for sale of electricity by the generating company may also be determined in deviation from the norms specified in these Regulations subject to the conditions that the levellised tariff over the useful life of the project on the basis of the norms in deviation does not exceed the levellised tariff calculated on the basis of the norms specified in these Regulations.

Provided that the reasons for deviation from the norms specified under these Regulations shall be recorded in writing.

29. Dispute Resolution

- 29.1 In the event of any dispute between the RE Generating Company and the distribution licensee or the transmission licensee, as the case may be, shall be referred to BERC for arbitration.

30. Power to Relax

- 30.1 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.

31. Power to Amend

- 31.1 The Commission may, at anytime, vary, alter, modify or amend any provisions of these Regulations.

32. Power to remove difficulties

- 32.1 If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty.

Dhaka (_____)

Dated: __ September, 2016

Secretary,
Bangladesh Energy Regulatory Commission

Glossary:

Abbreviation	Detailed Description
AC	Alternating Current
BPDB	Bangladesh Power Development Board
CUF	Capacity Utilization Factor
IDC	Interest during construction
FY	Financial Year
HV	High voltage
IDC	Interest during construction
LV	Low voltage
kW	kilowatt
MW	Megawatt
PV	Photo Voltaic
SREDA	Sustainable and Renewable Energy Development Authority

Schedule -1

Benchmark Capital Cost Norm for First Year of Control Period (FY 2016-17)

Sl.	Regulation Reference	RE Technology Description	Unit	Capital Cost Norm
1	24.2	Rooftop PV projects with installed capacity between 200 kW and 5 MW	Taka / kW	80,000

Schedule -2

Benchmark O&M Cost Norm for First Year of Control Period (FY 2016-17)

Sr. No.	Regulation Reference	RE Technology Description	Unit	O&M Cost Norm
1	26.1	Rooftop PV projects with installed capacity between 200 kW and 5 MW	Taka / kW	1680

Annex 1: Form 1-1 Assumptions Parameters for Solar Rooftop PV Projects

SL. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Tariff Parameter
1	Power Generation				
		<u>Capacity</u>			
		.	Installed Power Generation Capacity	kW	1
			Capacity Utilization Factor	%	18.00%
			Deration Factor	%	0.50%
			Auxiliary Consumption	%	
			Useful Life	Years	25
2	Project Cost				
		<u>Capital Cost/MW</u>	Power Plant Cost (without battery)	Taka /kW	80000
3	Sources of Fund				
			Tariff Period	Years	
		<u>Debt: Equity</u>			
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Taka	56000
			Total Equity Amount	Taka	24000
		<u>Debt Component</u>			
		-	Percentage Soft loan offered	%	0%
			Loan Amount	Taka	0%
			Moratorium Period	years	0

			Repayment Period (include Moratorium)	years	10
			Interest Rate	%	6.00%
			Percentage loan catered by other FIs	%	70.00%
			Loan Amount	Taka	58800
			Moratorium Period	years	0
			Repayment Period (include Moratorium)	years	0.10
			Interest Rate	%	12.90%
		<u>Equity Component</u>			
			Equity amount	Million Taka	24000
			Pre Tax Return on Equity	% p.a	20.00%
		Income Tax	Corporate Tax Rate	%	0.00%
		-	Weighted average cost of capital	%	15.03%
			Tax Exemption for power projects	years	0.00
			Minimum Alternate Tax	%	0.00
		<u>Depreciation</u>			
			Depreciation Rate		
			first 10 years	%	7.00%
			11 to 25 years	%	1.33%
			Salvage value	%	10.00%

4	Operation & Maintenance				
		power plant (First year)	Percentage of capital cost	%	1%
		<u>Total O & M Expenses Escalation</u>		%	5%
5					
		Material and Supplies	1% of capital cost	Taka	1200
	Working Capital	Cash Working capital	2 month receivables	Taka	
		O&M expense	1 month O&M	Taka	137
		Interest on working capital	Interest rate on working capital	%	12.40%
					Taka conversion
				1 Taka	0.013
					0.79

Annex 2: Form 1-2 Template for Rooftof Solar PV Projects: Parameter Illustration

			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
Discount Factor			1	0.869	0.76	0.66	0.57	0.5	0.432	0.375	0.326	0.284	0.247	0.214	0.19	0.16	0.141	0.122	0.106	0.09	0.08	0.07	0.06	0.053	0.05	0.04	0.035
Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	kW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	kWh		1577	1569	1561	1553	1546	1538	1530	1522	1514.8	1507	1500	1492	1485	1477	1470	1463	1455	1448	1441	1434	1426	1419	1412	1405	1398
Aux. Consumption	kWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Generation	kWh		1577	1569	1561	1553	1546	1538	1530	1522	1514.8	1507	1500	1492	1485	1477	1470	1463	1455	1448	1441	1434	1426	1419	1412	1405	1398
Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M expn	Taka		1098	1153	1211	1271	1335	1402	1472	1545	1622.8	1704	1789	1879	1972	2071	2175	2283	2398	2517	2643	2775	2914	3060	3213	3374	3542
Depreciation	Taka		5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067	1067
Int. on term loan	Taka		6863	6140	5418	4696	3973	3251	2528	1806	1083.6	361.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Int. on working capital	Taka		551	551.6	552	553	553	554	554	555	556.	557	558	559	560	561	562	563	564	566	567	568	570	571	573	575	576
ROE	Taka		4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Total Fixed Cost	Taka		18912	18245	17581	16920	16262	15607	14955	14307	13663	13022	8214	8304	8399	8499	8603	8713	8829	8950	9077	9210	9351	9498	9652	9815	9985
Levallised tariff corresponding to Useful lif																											
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
PU O&M expn	Taka/kWh		0.7	0.73	0.77	0.81	0.85	0.89	0.93	0.98	1.03	1.08	1.13	1.19	1.25	1.31	1.38	1.45	1.52	1.6	1.68	1.76	1.85	1.94	2.04	2.14	2.25
PU Depreciation	Taka/kWh		3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
PU Int. on term loan	Taka/kWh		4.35	3.89	3.44	2.98	2.52	2.06	1.6	1.15	0.69	0.23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PU Int. on working capital	Taka/kWh		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.37
PU RoE	Taka/kWh		3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04
Total COG	Taka/kWh		11.99	11.57	11.2	10.7	10.3	9.9	9.48	9.07	8.66	8.26	5.21	5.27	5.33	5.39	5.46	5.53	5.6	5.68	5.76	5.84	5.93	6.02	6.12	6.22	6.33
Discount Factor		15.03%	1	0.869	0.76	0.66	0.57	0.5	0.432	0.375	0.326	0.284	0.247	0.214	0.19	0.16	0.141	0.122	0.106	0.09	0.08	0.07	0.06	0.053	0.05	0.04	0.035
Levellised Tariff	9.45	Taka/kWh																									
Feed-in Tariff (Small Solar) - levellised	Taka / kWh		9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45