

Before the
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Case No. 45 of 2016

In the matter of
Determination of Generic Tariff for Renewable Energy for the second year of the
Review Period from 1 April, 2016 to 31 March, 2017.

Coram

Shri. Azeez M. Khan, Member
Shri. Deepak Lad, Member

DRAFT ORDER

Dated: 4 March, 2016

In exercise of the powers vested under Sections 61, 66 and 86 read with Section 181 of the Electricity Act (EA), 2003 and other powers enabling it in this behalf, the Maharashtra Electricity Regulatory Commission (MERC) has notified the MERC (Terms and Conditions for Determination of Renewable Energy (RE) Tariff) Regulations, 2015, (“the RE Tariff Regulations”) on 10 November, 2015. The RE Tariff Regulations specify the Terms and Conditions and the Procedure for determination of Generic Tariff by the Commission in respect of the following RE Generating Stations:

- (a) Wind Power Projects;
- (b) Biomass-based Power Projects;
- (c) Non-Fossil Fuel-based Co-Generation Projects;
- (d) Mini/Micro and other Small Hydro Power Projects;
- (e) Solar Photo Voltaic (PV)/Solar Thermal Power Projects;
- (f) Solar Roof-top PV Systems Power Projects

2. Regulation 9.1 of the RE Tariff Regulations requires the Commission to determine suo-moto the Generic Tariffs for the RE technologies for which norms have been specified in the Regulations:

“9.1 The Commission shall notify the generic tariff at the beginning of each year of the Review Period considering the norms specified by the Central Commission from time to time with regard to the respective RE technologies:

Provided that, for the first year (FY 2015-16) of the Review Period, the generic tariff may be determined by the Commission within three months from the date of notification of these Regulations.”

3. Subsequent to the notification of the RE Tariff Regulations, 2015 on 10 November, 2015 the Commission, vide its Order dated 25 January, 2016 in Case No 135 of 2015, has determined the Generic Tariff for RE Technologies for the period of FY 2015-16 from the date of publication of the RE Tariff Regulations in the Official Gazette as per Regulation 1.2 of the RE Tariff Regulations, i.e., from 10 November, 2015 to 31 March, 2016.

4. Accordingly, the Commission, in discharge of its mandate under Regulation 9.1 of RE Tariff Regulations, 2015, proposes to determine the Generic Tariff for RE Technologies for the Tariff Review Period of FY 2016-17 in accordance with this draft Order, and has invited public comments, objections and suggestions.

1. Common Parameters for determination of Generic Tariff

This Section details the applicable norms for determination of Generic levelised Tariff which are common to all types of RE technologies as specified in the RE Tariff Regulations.

1.1. REVIEW PERIOD

Regulation 6.1 of the RE Tariff Regulations specifies that the Review Period for determination of Tariff for RE Projects shall be five years, starting from the date of notification of the RE Tariff Regulations. The first year of the Review Period is FY 2015-16, and the Regulations were notified on 10 November, 2015. The second year of the Review Period is from 1 April, 2016 to 31 March, 2017.

1.2. TARIFF STRUCTURE

Regulation 10 of the RE Tariff Regulations specifies that the Tariff for RE Projects shall be a single-part Tariff 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 RE technologies with a fuel cost component, like Biomass-based Power Projects and Non-fossil fuel-based Co-Generation Projects, a single-part Tariff with two components, viz., fixed cost and fuel cost, has been determined under this Order. The relevant cost

components and basis for determination of Generic Tariff in respect of each RE technology have been elaborated under the technology-specific Sections of this Order.

1.3. TARIFF DESIGN

As per Regulation 11, the Tariff Design for RE Generating Stations is as under:

“11.1 The tariff shall be determined on a levelised basis for the Tariff Period:

Provided that, for RE Projects having a single-part tariff with two components, the tariff shall be determined on a levelised basis considering the year of commissioning of the Project for the fixed cost component, while the fuel cost component shall be specified on the basis of the year of operation.

11.2 For the purpose of computation of levelised tariff, a discount factor equivalent to the normative post-tax weighted average cost of capital shall be considered.

11.3 Levelisation shall be carried out for the ‘useful life’ of the RE Project, while tariff shall be determined for the period equivalent to the Tariff Period.”

1.4. INTEREST ON LOAN

Regulation 15.1 specifies that a loan tenure of 12 years is to be considered for determination of Generic Tariff for RE Projects. Regulation 15.2 provides for consideration of the rate of interest on loan as follows:

“The quantum of loan arrived at as specified above shall be considered as gross normative loan for calculation for interest on loan. The normative loan outstanding as on 1st April of every year shall be worked out by deducting the cumulative repayment up to 31st March of previous year from the gross normative loan.

For the purpose of computation of tariff, the Base Rate of the State Bank of India prevailing during the previous year plus 300 basis points shall be considered as the normative interest rate.

Notwithstanding any moratorium period availed, 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.”

The Base Rate as notified by State Bank of India (SBI) for the period from 1 April, 2015 to 29 February, 2016, is as below:

Period		Base Rate (%)	Period (No. of days)
05 October 2015	22 February 2016	9.3	141
08 June, 2015	04 October, 2015	9.7	119
10 April, 2015	07 June, 2015	9.85	59
01 April, 2015	09 April, 2015	10	9
Weighted Average Base Rate		9.56	

Accordingly, the weighted average of the SBI Base Rate for the period from 1 April, 2015 to 22 February, 2016 as shown in the above Table, plus 300 basis points, works out to an interest rate of 12.56% p.a. (9.56% + 300 basis points), which has been considered as the normative interest rate on long-term loans for computation of levelised Tariff for RE technologies in this draft Order.

1.5. INTEREST ON WORKING CAPITAL

Regulation 18.3 of the Regulations provides for computation of the rate of Interest on Working Capital (IoWC) as under:

"Interest on Working Capital shall be the average of the Base Rate of State Bank of India prevalent during the previous year, plus 350 basis points."

Accordingly, the weighted average SBI Base Rate for FY 2015-16 as shown in the above Table, plus 350 basis points, works out to an interest rate of 13.06 % (9.56% + 350 basis points), which has been considered as the normative interest rate on Working Capital for computation of levelised Tariff for RE technologies in this Order.

1.6. LEVELISED TARIFF

Levelised Tariff is computed by carrying out levelisation over the useful life of each technology considering a discount factor equivalent to the normative post-tax weighted average cost of capital, to represent the time value of money.

Discount Factor

The discount factor considered for this purpose is 10.55 %, which is equal to the normative post-tax weighted average cost of capital on the basis of normative debt-equity ratio of 70:30 specified in the Regulations, and weighted average rates for the debt and equity components.

Interest Rate considered for the loan component (i.e., 70%) of Capital Cost is 12.56%. For the equity component (i.e., 30%), rate of Return on Equity (RoE) shall be computed at the base rate of 16%, grossed up as per the applicable tax rate. The rate of RoE is to be computed by grossing up the base rate with the tax rate equivalent to Minimum Alternate Tax (MAT) for the first 10 years from the Commercial Operation Date (COD), and the normal tax rate for the remaining years of Project life. Based on these rates and the debt-equity ratio, the weighted average RoE has been calculated, which ranges from 22% to 23% depending on the useful life of RE technologies. The discount factor for each technology

derived by this method is detailed in the respective technology-specific Sections of this Order.

Note: The Discount Factor is computed as $10.55\% = ((12.56\% \times 0.70 \times (1 - 34.61\%)) + (16.00\% \times 0.30))$

1.7. GRANT, SUBSIDY OR INCENTIVE FROM THE CENTRAL/STATE GOVERNMENTS

Regulation 24 of the RE Tariff Regulations specifies that:

“The Commission shall take into consideration any grant, subsidy or incentive offered by the Central or State Government or their agencies, including accelerated/additional depreciation benefit, if availed, while determining the tariff under these Regulations:

Provided that the State Nodal Agency shall inform the Distribution Licensee regarding any such grant, subsidy or incentives received by a Project Entity on a quarterly basis;

Provided further that any such grant, subsidy or incentives availed by a Project Entity shall be deducted by the Distribution Licensee in subsequent bills raised by the particular Project Entity towards sale of electricity in suitable instalments or within such period as may be stipulated by the Commission;

Provided also that the following principles shall be considered for ascertaining the Income Tax benefit on account of accelerated or additional depreciation, if availed, for the purpose of tariff determination:

a. The assessment of benefit shall be based on normative Capital Cost, accelerated/additional depreciation rate as per the relevant provisions of the Income Tax Act and the Corporate Income Tax rate;

b. Capitalisation of RE Projects for the full financial year;

c. Per-unit benefit shall be derived on levelised basis at a discounting factor equivalent to the post-tax weighted average cost of capital;

Provided also that, in case the Central or State Government or their agencies provide any generation-based incentive which is specifically over and above the tariff, such incentive shall not be taken into account while determining the tariff.”

Accordingly, for Projects availing the benefit of accelerated depreciation, the applicable Corporate Income Tax rate of 34.61% (30% Income Tax rate + 12% surcharge + 3% Education Cess) has been considered. For determining the net depreciation benefits, depreciation @ 5.28% as per Straight Line Method (book depreciation as per Companies Act, 2013) has been compared with depreciation as per the Income Tax Act, i.e., 80% under Written Down Value method. Moreover, additional 20% depreciation in the initial year is proposed to be extended to new assets acquired by Generation Companies vide amendment to Section 32 (1) (ii a) of the Income Tax Act.

Depreciation for the first year has been calculated at the rate of 100% of 80%, and 100% of the additional depreciation of 20%, assuming the Project to be capitalized for the full financial year as per the second proviso to Regulation 24. The tax benefit has been worked out as per the Corporate Income Tax rate on the net depreciation benefit. The 'per unit levelised accelerated depreciation benefit' has been computed considering the weighted average cost of capital as discounting factor, as detailed in para 1.6 of this Order. The detailed computation of benefit of accelerated depreciation in respect of each RE technology has been covered under the technology-specific Sections.

Further, as per the second proviso to Regulation 24, in case the Central or State Government or their agencies provide any generation-based incentive which is specifically over and above the Tariff, such incentive shall not be taken into account while determining the Tariff. Thus, while determining the Tariffs for RE Projects in this Order, no such incentives have been considered.

1.8. SHARING OF CDM BENEFITS

As per Regulation 22, all risks, costs and efforts associated with the availing of carbon credits shall be borne by the Project Entity. Further, the entire proceeds of carbon credit from an approved Clean Development Mechanism (CDM) Project, if any, shall be retained by it.

1.9. APPLICABILITY OF TARIFF ORDER

This Tariff Order shall be applicable for New RE Projects to be commissioned during the period from 1 April, 2016 to 31 March, 2017.

In case of Biomass-based Power Projects and Non-Fossil fuel-based Co-generation Projects commissioned on or before 1 April, 2016, the Variable Charge component of the Tariff shall be determined as set out in the relevant provisions of this Order. The Fixed Charge component of the Tariff of such Projects shall continue to be governed by the relevant Orders of the Commission.

The applicable Tariff Rate, Tariff Structure and other terms and conditions for other RE Projects commissioned on or before 31 March, 2015 will be in accordance with the provisions of the relevant Generic RE Tariff Orders.

The following Sections of the Order outline the technology-wise norms and corresponding Generic Tariffs for New RE Projects to be commissioned from 1 April, 2016 to 31 March, 2017 based on various RE technologies.

2. WIND ENERGY PROJECTS

2.1. USEFUL LIFE

Regulation 2.1 (mm) of the RE Tariff Regulations defines ‘useful life’ in relation to a Unit of a Generating Station (including evacuation system) to mean the duration from the COD till such time as specified under the Regulations. Accordingly, the useful life for Wind Energy Projects as specified under Regulation 2.1 (mm) is 25 years from COD.

2.2. TARIFF PERIOD

Regulation 7 specifies the Tariff Period for various RE Projects. Accordingly, the Tariff Period for Wind Energy Projects is 13 years, considered from the COD of the Wind Project, and the Tariff determined under the Regulations shall be applicable only for the duration of the Tariff Period.

2.3. CAPACITY UTILISATION FACTOR

Under Regulation 28 of the RE Tariff Regulations, the norms for Capacity Utilization Factor (CUF) specified for Wind Energy Projects are as under:

<i>Wind Zone</i>	<i>Annual Mean Wind Power Density (W/m²)</i>	<i>CUF</i>
<i>Zone 1</i>	<i><=250</i>	<i>22%</i>
<i>Zone 2</i>	<i>>250 - <=300</i>	<i>25%</i>
<i>Zone 3</i>	<i>>300 - <=400</i>	<i>30%</i>
<i>Zone 4</i>	<i>>400</i>	<i>32%</i>

Provided that these CUF norms may be revised by the Commission through general or specific Order considering data that may become available subsequently.”

In accordance with Regulation 28.2, the annual mean wind power density is to be measured at 80 metre hub-height.

2.4. CAPITAL COST

The Capital Cost for Wind Energy Projects shall include the cost of Wind Turbine Generator (WTG), including its auxiliaries, land cost, site development charges and other civil works, transportation charges, evacuation cost up to inter-connection point, financing charges and Interest during Construction (IDC), and capital investment relating to forecasting and scheduling. Accordingly, as specified in Regulation 26.2, the Commission considers the Capital Cost for Wind Energy Projects as Rs. 600.74 lakh/MW for the first year of the Review Period. The same has been escalated considering the indexation mechanism specified in the Central Electricity Commission (CERC) RE Tariff Regulations, as stipulated in Regulation 27 of this Commission’s RE Tariff Regulations. The detailed calculation is as shown below.

Indexation Formulation

$$CC(n)=P\&M(n)*[1+F1+F2+F3]$$

$$dn = (a*(SI_{n-1}/SI_0)-1)+b*(EI_{n-1}/EI_0-1))/(a+b)$$

$$P\&M(n)=P\&M(0)*(1+dn)$$

Where: a=Weightage for Steel Index and b= Weightage for Electrical Machinery Index

Capital Cost Indexation for FY 2016-17

Technology	Variables				
	a	B	F1	F2	F3
Wind	0.6	0.4	0.8	0.7	0.1
Small Hydro	0.6	0.4	0.16	0.1	0.14
Biomass	0.7	0.3	0.1	0.09	0.14
Co-Generation	0.7	0.3	0.1	0.09	0.14

Wholesale Price Index (WPI)

	WPI of Electrical Machinery		WPI of Iron and Steel	
	2013-14	2014-15	2013-14	2014-15
April	134.5	138.4	152.3	155.1
May	135.5	138.6	151.7	155.8
June	135.6	138.6	151.0	156.2
July	135.6	138.8	150.7	156.2
August	135.7	138.4	150.4	155.3
September	136.3	138.6	151.2	155.3
October	137.1	138.7	152.7	155.9
November	137.5	138.7	152.7	154.7
December	137.8	138.6	153.2	153.7
January	137.4	139.0	154.4	153.4
February	137.8	139.0	155.5	152.2
March	138.4	138.2	155.8	151.0
Average	136.6	138.6	152.6	154.6

Variable	Year	Value
SI ₀	2013-14	152.6
SI _{n-1}	2014-15	154.6
EI ₀	2013-14	136.6
EI _{n-1}	2014-15	138.6
dn		1.35%

Parameter	Description	Cost
1+F1+F2+F3		2.6
CC ₀ (Rs. Lakh/MW)	Capital Cost for the Base Year	600.7
P&M ₀ (Rs. Lakh/MW)	Plant & Machinery Cost for the Base Year Capital Cost Escalation Factor	231.1
P&M _n (Rs. Lakh/MW)	Plant & Machinery Cost for the nth Year (FY 2016-17)	234.2
CC_n(Rs. Lakh/MW)	Capital Cost for the nth Year (FY2016-17)	608.8

2.5. DEBT-EQUITY RATIO

Regulation 14.1 of the RE Tariff Regulations, 2015 provides that the debt-equity ratio of 70:30 is to be considered for determination of Generic Tariff. In accordance with the normative debt-equity ratio and the above Capital Cost, the debt and equity components for Wind Energy Projects work out to Rs. 426.19 lakh per MW and Rs. 182.65 lakh per MW, respectively.

2.6. RETURN ON EQUITY

Regulation 17.2 stipulates the normative Return on Equity (RoE) as under:

“The Return on Equity shall be computed at the base rate of 16%, to be grossed up as per the applicable tax rate. The rate of Return on Equity shall be computed by grossing up the base rate with the tax rate equivalent to Minimum Alternate Tax (MAT) for the first 10 years from COD, and the normal tax rate for the remaining years of Project life.”

Accordingly, the RoE for the applicable period of this Order works out as under:

Opening Equity (Rs lakh / MW)	182.65
Return on Equity for first 10 years @16% grossing up with MAT rate of 21.34% (Rs lakh per MW)	37.15
Return on Equity after first 10 years @16% grossing up with Income Tax rate of 34.61% (Rs lakh per MW)	44.69

Note :- Grossing up of RoE is done as per the Formula: $RoE(\%) / [1 - Tax\ Rate(\%)]$

2.7. INTEREST ON LOAN

As explained in para. 1.4 of this Order, the interest rate of 12.56% (9.56% + 3%) has been considered for Wind Energy Projects for a loan amount of Rs. 426.19 lakh per MW.

2.8. DEPRECIATION

Regulation 16 specifies that depreciation is to be allowed up to a maximum of 90% of the Capital Cost of the asset. The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum, and the remaining depreciation shall be spread over the remaining useful life of the Project from the 13th year onwards.

Accordingly, for Wind Energy Projects, the depreciation rate is 5.83% for the first 12 years, and works out to 1.54% thereafter for the remaining useful life of 13 years.

2.9. INTEREST ON WORKING CAPITAL

Regulation 18.1 of the RE Tariff Regulations, 2015 provides for computation of the Working Capital requirements of Wind Energy Projects as under:

"(a) Operation & Maintenance expenses for one month;

(b) Receivables equivalent to Two months of tariff for sale of electricity calculated on the normative CUF;

(c) Maintenance spares @ 15% of O & M expenses."

Further, as explained earlier at para. 1.5, IoWC shall be computed at an interest rate equivalent to the average Base Rate of SBI during the previous year plus 350 basis points. Para. 1.4 of this Order shows that the average Base Rate of SBI for FY 2015-16 is 9.56%. Accordingly, the rate of IoWC for Wind Energy Projects for the period from 1 April, 2016 to 31 March, 2017 works out to 13.06% (9.56% + 350 basis points).

2.10. OPERATION AND MAINTENANCE EXPENSES

Regulation 29 of the RE Tariff Regulations specifies the normative O&M expenses for Wind Energy Projects for FY 2015-16 (Base Year) as 1.47 % of the Capital Cost, which works out to Rs. 8.83 lakh/MW for FY 2015-16. This is to be escalated at the rate specified in the Regulations of the Commission governing Multi Year Tariff (MYT) over the Tariff Period, as per Regulation 29.2 of the RE Tariff Regulations, for determination of the levelised Tariff. Regulation 45.1(d) of the MYT Regulations, 2015 specifies the norms for escalation of O&M expense in subsequent years beyond the base year:

"The O&M expenses for each subsequent year shall be determined by escalating the base expenses determined above for FY 2015-16, at the inflation factor considering 60% weightage for the actual point to point inflation over Wholesale Price Index numbers as per Office of Economic Advisor of Government of India in the previous year and 40% weightage for the actual Consumer Price Index for Industrial Workers (all India) as per Labour Bureau, Government of India in the previous year, as reduced by an efficiency factor of 1%, to arrive at permissible O and M expenses for each year of the Control Period."

Accordingly, the computation for the escalation percentage for Operation and Maintenance (O&M) expense is as presented in the Table below:

Wholesale Price Index												
Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2013	170.3	170.9	170.1	171.3	171.4	173.2	175.5	179.0	180.7	180.7	181.5	179.6
2014	179.0	179.5	180.3	180.8	182.0	183.0	185.0	185.9	185.0	183.7	181.2	178.7
2015	177.3	175.6	176.1	176.4	178.0	178.6						
<i>Source: http://www.eaindustry.nic.in/download_data_0405.asp/Financial Year Index File from 2005-06 onwards</i>												
Wholesale Price Index Growth (%)												
2014	5.1%	5.0%	6.0%	5.5%	6.2%	5.7%	5.4%	3.9%	2.4%	1.7%	-0.2%	-0.5%
2015	-0.9%	-2.2%	-2.3%	-2.4%	-2.2%	-2.4%						
Consumer Price Index Growth (%)												
2014	7.24	6.73	6.7	7.08	7.02	6.49	7.23	6.75	6.3	4.98	4.12	5.86
2015	7.17	6.3	6.28	5.79	5.74	6.10						
<i>Source: http://labourbureau.nic.in/indtab.html/III. Point to Point Rate of Inflation in CPI Numbers for Industrial Workers</i>												

	Average CPI Index Growth %	Average WPI Index Growth %	Escalation rate with 60% WPI and 40% CPI	Escalation Considering 1% Efficiency Factor
FY 2014-15	6.30%	2.05%	3.75%	2.75%

Accordingly, the Commission has considered O&M expense norm for Wind Energy Projects as Rs 9.07 lakh per MW for FY 2016-17.

2.11. LEVELISED TARIFF FOR NEW WIND ENERGY PROJECTS FROM 1 APRIL, 2016 TO 31 MARCH, 2017

Accordingly, the Generic Tariffs for Wind Energy Projects in the period from 1 April, 2016 to 31 March, 2017 have been determined as follows. The discount factor for Levelisation of Tariff for Wind Energy Projects works out to 10.55%, as computed in para 1.6 of this Order.

Tariff for New Wind Energy Projects for FY 2016-17

Wind Energy	Tariff Period	Levelised Tariff from 1 April, 2016 to 31 March, 2017 Rs/kWh	Benefits of Tax and Additional Depreciation (if availed) Rs/kWh	Net Levelised Tariff, adjusting for Tax and Additional Depreciation Benefit) (if availed) Rs/kWh
Wind Zone-1	13	5.55	0.62	4.93
Wind Zone-2	13	4.89	0.55	4.34
Wind Zone-3	13	4.07	0.46	3.61
Wind Zone-4	13	3.82	0.43	3.39

Notes:

- The above Tariff shall be valid for Projects commissioned during the period from 1 April, 2016 to 31 March, 2017.
- The above Tariff shall be valid for a Tariff Period of 13 years from the COD.
- Detailed computations of Tariffs for Wind Zones 1, 2, 3 and 4 are provided in Annexures 1A, 1B, 1C and 1D of this Order, respectively.

3. SMALL HYDRO POWER PROJECTS AND MINI/MICRO HYDRO PROJECTS

3.1. USEFUL LIFE

The useful life specified for Small Hydro Projects (SHPs) and Mini/Micro Hydro Projects under Regulation 2.1 (mm) of the RE Tariff Regulations is 35 years from COD.

3.2. TARIFF PERIOD

Regulation 7.2 of the Tariff Regulations specifies a Tariff Period of 13 years for SHPs of capacity higher than 5 MW and upto and including 25MW.

Regulation 7.3 specifies a Tariff Period of 35 years for Mini/Micro Hydro Projects and SHPs upto and including 5 MW. The Tariff Period matches the useful life in case of these Projects, reflecting a longer preferential treatment for them.

3.3. CAPITAL COST OF SMALL HYDRO PROJECTS

SHPs, for the purpose of the RE Tariff Regulations, are those Projects located at sites approved by the State Government/ State Nodal Agency using new plant and machinery and with installed power plant capacity lower than or equal to 25 MW. For specifying allowable Capital Cost, SHPs have been classified into two categories based on their installed capacities, viz., a) SHPs above 1 MW and upto and including 5 MW, and b) SHPs of capacities above 5 MW and lower than or equal to 25 MW.

Under Regulation 30.1 of the RE Tariff Regulations, the Commission has considered the normative Capital Cost for SHPs for the first year of the review period as below:

Project Size	Capital Cost (Rs. lakh/MW)
> 1 MW and upto and including 5 MW	605.28
> 5 MW and upto and including 25 MW	550.70

The above Capital Cost has been escalated considering the indexation mechanism specified in the CERC RE Tariff Regulations, as stipulated in Regulation 31 of the Commission's RE Tariff Regulations. The detailed calculation steps are as shown in para. 2.4 of this Order. The normative Capital Cost for FY 2016-17 calculated as per the mechanism specified in the CERC RE Tariff Regulations is as shown in the Table below.

Parameter	Description	SHP of > 1 MW and upto and including 5 MW	SHP of > 5 MW and upto and including 25 MW
1+F1+F2+F3		1.40	1.40
CC ₀ (Rs. Lakh/MW)	Capital Cost for the Base Year	605.28	550.70
P&M ₀ (Rs. Lakh/MW)	Plant & Machinery Cost for the Base Year Capital Cost Escalation Factor	432.34	393.36
P&M _n (Rs. Lakh/MW)	Plant & Machinery Cost for the nth Year (FY 2016-17)	438.18	398.67
CC _n (Rs. Lakh/MW)	Capital Cost for the nth Year (FY2016-17)	613.45	558.13

3.4. DEBT-EQUITY RATIO

In accordance with Regulation 14.1, the debt and equity components for SHPs with capacities above 1 MW and up to and including 5 MW work out to Rs. 429.41 lakh per MW and Rs. 184.03 lakh per MW (i.e., 70% and 30% of the Capital Cost), respectively. For Projects having capacities above 5 MW and lower than or equal to 25 MW, the debt and equity components work out to Rs. 390.69 lakh per MW and Rs. 167.44 lakh per MW, respectively.

3.5. RETURN ON EQUITY

In accordance with Regulation 17.2 of the RE Tariff Regulations, the RoE works out as shown in the Table below:

Particulars	> 1 MW and up to and including 5 MW	> 5 MW and up to and including 25 MW
Opening Equity (in Rs lakh per MW)	184.03	167.44
Return on Equity for the first 10 years @16% grossing up with MAT rate of 21.34% (Rs lakh per MW)	37.43	34.06
Return on Equity after first 10 years @16% grossing up with Income Tax rate of 34.61% (Rs lakh per MW)	45.03	40.97

Note: - Grossing up of RoE is done as per the Formula: $RoE(\%) / [1 - Tax\ Rate(\%)]$

3.6. INTEREST ON LOAN

As explained in para. 1.4 of this Order, the interest rate of 12.56% (9.56% +300 basis points) has been considered for SHPs with capacities above 1 MW and up to and including 5 MW, with a gross opening loan amount of Rs. 429.41 lakh per MW; and for SHPs with capacities above 5 MW and lower than or equal to 25 MW, with a gross opening loan amount of Rs. 390.69 lakh per MW in the applicable period of this Order.

3.7. DEPRECIATION

In accordance with Regulation 16.2, the depreciation will be charged at 5.83% for the first 12 years and at 0.87% thereafter for the remaining useful period of 23 years for SHPs.

3.8. INTEREST ON WORKING CAPITAL

Regulation 18.1 of the RE Tariff Regulations provides for computation of the working capital requirements of SHPs as under:

"(a) O & M expenses for one month;

(b) Receivables equivalent to two months of tariff for sale of electricity calculated on the normative CUF;

(c) Maintenance spares @ 15% of O & M expenses."

Further, as explained in para. 1.5 of this Order, IoWC shall be computed at an interest rate equivalent to the average Base Rate of SBI during the previous year plus 350 basis points, i.e., 13.06% (9.56% + 350 basis points).

3.9. OPERATION AND MAINTENANCE EXPENSES

Regulation 34.1 provides for the normative O&M expenses for SHPs for FY 2015-16 (Base Year). Accordingly, the following normative O&M expenses have been considered by the Commission for SHPs for the Base Year:

Project Size	O&M Expenses Norm	O&M Expenses (Rs lakh/MW)
> 1 MW and upto and including 5 MW	3.60% of the Capital Cost	21.79
> 5 MW and upto and including 25 MW	2.80% of the Capital Cost.	15.42

This O&M expense is to be escalated at the rate specified in the Regulations of the Commission governing MYT over the Tariff Period, as per Regulation 34.2 of the RE Tariff Regulations, for determination of the levelised Tariff. Regulation 45.1(d) of the MYT Regulations, 2015 specifies the norms for escalation of O&M expense in subsequent years beyond the Base Year:

"The O&M expenses for each subsequent year shall be determined by escalating the base expenses determined above for FY 2015-16, at the inflation factor considering 60% weightage for the actual point to point inflation over Wholesale Price Index numbers as per Office of Economic Advisor of Government of India in the previous year and 40% weightage for the actual Consumer Price Index for Industrial Workers (all India) as per Labour Bureau, Government of India in the previous year, as reduced by an efficiency factor of 1%, to arrive at permissible O and M expenses for each year of the Control Period."

Accordingly, the calculation for escalation percentage for O&M expense is presented in the Table below:

Wholesale Price Index												
Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2013	170.3	170.9	170.1	171.3	171.4	173.2	175.5	179.0	180.7	180.7	181.5	179.6
2014	179.0	179.5	180.3	180.8	182.0	183.0	185.0	185.9	185.0	183.7	181.2	178.7
2015	177.3	175.6	176.1	176.4	178.0	178.6						
<i>Source: http://www.eaindustry.nic.in/download_data_0405.asp/Financial Year Index File from 2005-06 onwards</i>												
Wholesale Price Index Growth (%)												
2014	5.1%	5.0%	6.0%	5.5%	6.2%	5.7%	5.4%	3.9%	2.4%	1.7%	-0.2%	-0.5%
2015	-0.9%	-2.2%	-2.3%	-2.4%	-2.2%	-2.4%						
Consumer Price Index Growth (%)												
2014	7.24	6.73	6.7	7.08	7.02	6.49	7.23	6.75	6.3	4.98	4.12	5.86
2015	7.17	6.3	6.28	5.79	5.74	6.10						
<i>Source: http://labourbureau.nic.in/indtab.html/III. Point to Point Rate of Inflation in CPI Numbers for Industrial Workers</i>												

	Average CPI Index Growth %	Average WPI Index Growth %	Escalation rate with 60% WPI and 40% CPI	Escalation Considering 1% Efficiency Factor
FY 2014-15	6.30%	2.05%	3.75%	2.75%

Accordingly, the Commission has considered O&M expense norm for SHPs for FY 2016-17 as shown in the table below:

Project Size	O&M Expenses (Rs lakh/MW)
> 1 MW and upto and including 5 MW	22.39
> 5 MW and upto and including 25 MW	15.84

3.10. CAPACITY UTILISATION FACTOR

In accordance with Regulation 32 of the RE Tariff Regulations, a CUF of 30% has been considered for determination of Tariff for SHPs.

3.11. AUXILIARY POWER CONSUMPTION

In accordance with Regulation 33, a Normative Auxiliary Consumption of 1.0% has been considered for determination of Tariff of SHPs.

3.12. INCENTIVE FOR MINI/MICRO HYDRO PROJECTS

The RE Tariff Regulations provide for a Tariff for Mini/Micro hydro Projects which is higher than for other SHP Projects, as below:

“35.1 The tariff for Mini Hydro Power Projects of capacity of 1 MW and less but more than 500 kW, shall be higher by Rs 0.50 per kWh than that applicable to Small Hydro Power Projects with installed capacity of 5 MW or less, but more than 1 MW.

35.2 The tariff for Micro Hydro Power Projects of a capacity of 500 kW and below shall be higher by Rs. 1.00 per kWh than that tariff applicable to Small Hydro Power Projects with installed capacity of 5 MW or less but more than 1 MW.”

In accordance with these principles, the Commission has allowed a higher Tariff for Mini/Micro Hydro Projects over other SHPs.

3.13. LEVELISED TARIFF FOR NEW SMALL HYDRO PROJECTS FROM 1 APRIL, 2016 TO 31 MARCH, 2017

Considering the above parameters and the discount factor worked out as 10.55% (as computed at para. 1.6 of this Order) for levelisation of Tariff for SHPs, the Generic Tariffs for SHPs during the applicable period of this Order have been determined as under:

Tariff for New RE Projects – Mini/Micro Hydro Projects and other SHPs

Type of SHP	Tariff Period	Levelised Tariff from 1 April, 2016 to 31 March, 2017	Benefit of Accelerated Depreciation (if availed)	Net Levelised Tariff (upon adjusting for accelerated depreciation benefit, if availed)
		(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Mini and Micro Hydro Projects				
500 kW and below	35	5.73	0.49	5.24
Above 500 kW and up to and including 1 MW	35	5.23	0.49	4.74
Other SHPs				
Above 1 MW and up to and including 5 MW	35	4.73	0.49	4.24
Above 5 MW and upto and including 25 MW	13	4.06	0.40	3.66

Notes:

- The above Tariffs shall be valid for Projects commissioned during the period from 1 April, 2016 to 31 March, 2017
- The above Tariffs shall be valid for a Tariff Period of 35 years from COD for SHPs less than and including 5 MW, and for 13 years for SHPs with installed capacity greater than 5 MW and up to and including 25 MW
- Detailed computations of Tariffs for SHPs of 1 MW to 5 MW, and for SHPs of 5 MW to 25 MW are provided in Annexures 2A and 2B of this Order, respectively.

4. BIOMASS-BASED POWER PROJECTS

4.1. KEY PROVISIONS OF RE TARIFF REGULATIONS

Chapter 5 of the RE Tariff Regulations provides technology-specific norms for determination of Tariff for Biomass-based Power Projects based on Rankine Cycle technology applications using water-cooled condensers, as below:

"37.1 The Capital Cost and performance norms as specified in this Chapter shall be applicable only to new Biomass-based Power Projects commissioned after notification of these Regulations.

37.2 The fuel-related aspects specified in Regulations 44 to 50 shall be applicable to both existing and new Biomass-based Power Projects;

Provided that the norms in respect of SHR and Auxiliary Consumption factor for existing Biomass-based Power Projects shall be as stipulated in the respective RE Tariff Orders referred to in Regulation 3.2."

Accordingly, Regulation 49 of the RE Tariff Regulations specifies biomass fuel price as Rs. 3987 /MT during the first year of Review Period, i.e., FY 2015-16, which is thereafter linked to the indexation mechanism specified in Regulation 50. Regulation 50.1 reads as follows:

"50.1 In the case of both existing and new Biomass-based Power Projects, the following indexing mechanism for adjustment of fuel prices for each year of operation will be applicable for determination of the variable charge component of tariff:

The Variable Charge for the nth year shall be computed as under:

$$VC_n = VC_1 \times (P_n / P_1)$$

where,

VC₁ represents the Variable Charge based on Biomass Price P₁ for FY 2015-16 as specified under Regulation 49, and shall be determined as under:

$$VC_1 = \frac{\text{Station Heat Rate (SHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{1}{(1 - \text{Auxiliary Consumption Factor})} \times \frac{P_1}{1000}$$

$P_{(n)}$ = Price per tonne of biomass for the n^{th} year to be considered for tariff determination

$P_{(n-1)}$ = Price per tonne of biomass for the $(n-1)^{th}$ year to be considered for tariff determination. P_1 shall be the Biomass price for FY 2015-16 as specified under Regulation 49.”

The Biomass fuel price shall be revised by the Commission taking into consideration the Biomass fuel price determined by the Central Commission or a normative escalation factor of 5% per annum, as it may consider appropriate”

Accordingly, in case of Biomass-based Power Projects commissioned on or before 31 March, 2016, the Variable Charge component of the Tariff shall be determined as outlined under para 4.14 of this Order. The Fixed Charge component shall continue to be governed by the relevant Orders of the Commission.

4.2. CAPITAL COST OF BIOMASS-BASED POWER PROJECTS

Regulation 38 specifies the normative Capital Cost for the Biomass-based Power Projects based on Rankine Cycle technology as Rs. 494.32 lakh per MW for FY 2015-16 (Base Year). The Base Year Capital Cost has been escalated considering the indexation mechanism specified in the CERC RE Tariff Regulations, as stipulated in Regulation 39 of the Commission’s RE Tariff Regulations. The detailed calculation steps are as shown in para. 2.4 of this Order. The normative Capital Cost for FY 2016-17 calculated as per the mechanism specified in the CERC RE Tariff Regulations is as shown in the Table below.

Parameter	Description	Cost
1+F1+F2+F3		1.33
CC ₀ (Rs. Lakh/MW)	Capital Cost for the Base Year	494.32
P&M ₀ (Rs. Lakh/MW)	Plant & Machinery Cost for the Base Year Capital Cost Escalation Factor	371.67
P&M _n (Rs. Lakh/MW)	Plant & Machinery Cost for the nth Year (FY 2016-17)	376.60
CC_n (Rs. Lakh/MW)	Capital Cost for the nth Year (FY2016-17)	500.88

4.3. DEBT-EQUITY RATIO

In accordance with Regulation 14.1, the debt and equity components for Biomass-based Power Projects to be commissioned during the applicable period of this Order work out to Rs. 350.61 lakh per MW and Rs. 150.26 lakh per MW respectively.

4.4. RETURN ON EQUITY

In accordance with Regulation 17.2 of the RE Tariff Regulations, the RoE works out as shown in the Table below:

Particulars	Biomass-based Projects
Opening Equity (in Rs lakh per MW)	150.26
Return on Equity for the first 10 years @16% grossing up with MAT rate of 21.34% (Rs lakh per MW)	30.57
Return on Equity after first 10 years @16% grossing up with Income Tax rate of 34.61% (Rs lakh per MW)	36.77

Note: - Grossing up of RoE is done as per the Formula: $RoE(\%) / [1 - Tax\ Rate(\%)]$

4.5. INTEREST ON LOAN

As explained in para. 1.4 of this Order, the interest rate of 12.56% (9.56% + 300 basis points) has been considered for Biomass-based Power Projects commissioned in the applicable period of this Order, with a gross opening loan amount of Rs. 350.61 lakh per MW.

4.6. DEPRECIATION

In accordance with Regulation 16.2, depreciation will be charged at 5.83% for the first 12 years, and at 2.50% thereafter for the remaining useful life of 8 years.

4.7. INTEREST ON WORKING CAPITAL

Regulation 18.2 of the RE Tariff Regulations provides for computation of the working capital requirements of the Biomass-based Power Projects as under:

"(a) Fuel costs for four months equivalent to normative Plant Load Factor(PLF);

(b) O & M expenses for one month;

(c) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the target PLF;

(d) Maintenance spares @ 15% of O & M expenses"

Further, as explained above in para. 1.5, IoWC shall be computed at an interest rate equivalent to the average Base Rate of SBI during the previous year plus 350 basis points, i.e., 13.06% (9.56% + 350 basis points).

4.8. PLANT LOAD FACTOR

In accordance with Regulation 40.1 of the RE Tariff Regulations, the Plant Load Factor (PLF) for determining the Fixed Charge component of the Tariff for Biomass-based Power Projects will be as follows:

- a) During stabilisation: 60%
- b) During the remaining period of the first year (after stabilisation): 70%
- c) From 2nd Year onwards: 80%.

4.9. AUXILIARY POWER CONSUMPTION

In accordance with Regulation 41, a Normative Auxiliary Consumption of 10.0% has been considered for determination of Tariff of Biomass-based Power Projects.

4.10. STATION HEAT RATE

In accordance with Regulation 42 of the RE Tariff Regulations, the Normative SHR of 4200 kcal/kWh has been considered for determination of Tariff.

4.11. OPERATION AND MAINTENANCE EXPENSES

Regulation 43.1 of the RE Tariff Regulations specifies the normative O&M expenses for Biomass-based Power Projects for FY 2015-16(Base Year) as 5.32% of the Capital Cost for Tariff determination. This works out to Rs. 26.30 lakh per MW, which is to be escalated at the rate specified in the Regulations of the Commission governing MYT over the Tariff Period, as per Regulation 43.2 of the RE Tariff Regulations, for determination of the levelised Tariff. Regulation 45.1(d) of the MYT Regulations, 2015 specifies the norms for escalation of O&M expense in subsequent years beyond the Base Year.

“The O&M expenses for each subsequent year shall be determined by escalating the base expenses determined above for FY 2015-16, at the inflation factor considering 60% weightage for the actual point to point inflation over Wholesale Price Index numbers as per Office of Economic Advisor of Government of India in the previous year and 40% weightage for the actual Consumer Price Index for Industrial Workers (all India) as per Labour Bureau, Government of India in the previous year, as reduced by an efficiency factor of 1%, to arrive at permissible O and M expenses for each year of the Control Period.”

Accordingly, the calculation for escalation percentage for O&M expense is presented in the Table below:

Wholesale Price Index												
Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2013	170.3	170.9	170.1	171.3	171.4	173.2	175.5	179.0	180.7	180.7	181.5	179.6
2014	179.0	179.5	180.3	180.8	182.0	183.0	185.0	185.9	185.0	183.7	181.2	178.7
2015	177.3	175.6	176.1	176.4	178.0	178.6						

Source: http://www.eaindustry.nic.in/download_data_0405.asp/Financial Year Index File from 2005-06 onwards

Wholesale Price Index Growth (%)												
2014	5.1%	5.0%	6.0%	5.5%	6.2%	5.7%	5.4%	3.9%	2.4%	1.7%	-0.2%	-0.5%
2015	-0.9%	-2.2%	-2.3%	-2.4%	-2.2%	-2.4%						
Consumer Price Index Growth (%)												
2014	7.24	6.73	6.7	7.08	7.02	6.49	7.23	6.75	6.3	4.98	4.12	5.86
2015	7.17	6.3	6.28	5.79	5.74	6.10						

Source: <http://labourbureau.nic.in/indtab.html/> III. Point to Point Rate of Inflation in CPI Numbers for Industrial Workers

	Average CPI Index Growth %	Average WPI Index Growth %	Escalation rate with 60% WPI and 40% CPI	Escalation Considering 1% Efficiency Factor
FY 2014-15	6.30%	2.05%	3.75%	2.75%

Accordingly, the Commission has considered O&M expense norm for Biomass Projects for FY 2016-17 as Rs. 27.02 lakh per MW.

4.12. CALORIFIC VALUE

In accordance with Regulation 48, the average Calorific Value of the Biomass Fuel (s) of 3611 kcal/kg has been considered for determination of Tariff.

4.13. FUEL COST

Regulation 49 specifies the Biomass fuel price during the first year of the Review Period, i.e., FY 2015-16, as Rs. 3987/MT, which shall be linked to the indexation mechanism specified under Regulation 50. Thus, the Fuel Cost for Biomass-based Power Projects to be commissioned during FY 2016-17 is considered as Rs 4186.35 per MT considering an escalation of 5% over the FY 2015-16 value. Considering this Fuel Cost, the Commission has computed Variable Charge as Rs. 5.41/kWh for Biomass-based Power Projects to be commissioned in FY 2016-17 in accordance with Regulation 50.1 of RE Tariff Regulations, considering Gross Calorific Value (GCV) of 3611 kcal/kg, SHR as 4200 Kcal/kWh and Auxiliary Consumption as 10%.

4.14. VARIABLE CHARGE FOR BIOMASS-BASED POWER PROJECTS COMMISSIONED PRIOR TO 1 APRIL, 2016

As per Regulation 37.2 of the RE Tariff Regulations, 2015, the fuel-related aspects specified in Regulations 44 to 50 shall be applicable to both existing and new Biomass-based Power Projects, except for the SHR and Auxiliary Consumption norms which shall be as stipulated in the respective RE Tariff Orders referred to in Regulation 3.2. Accordingly, the norms in respect of Fuel Price and GCV shall be applicable to existing Projects as per Regulations 48, 49 and 50. Further, as detailed in para. 1.18 of the Generic RE Tariff Order in Case No. 135 of 2015, the SHR for existing Projects has been taken as 4200 kcal/kWh. The Auxiliary Consumption Factor for existing Projects commissioned prior to 1 April, 2016 shall be as stipulated in the respective Tariff Orders (i.e., 10%). Based on these parameters, the variable cost of the Projects commissioned prior to 1 April, 2016 works out to Rs 5.41/kWh.

The Fixed Charge component of the Tariff for Biomass-based Power Projects commissioned prior to 1 April, 2016, shall be the levelised Fixed Charge approved under the respective RE Tariff Orders.

4.15. LEVELISED TARIFF FOR BIOMASS BASED POWER PROJECTS FROM 1 APRIL, 2016 TO 31 MARCH, 2017

Considering the above parameters and the discount factor worked out as 10.55% (as computed at para 1.6 of this Order) for levelisation of Tariff, the Generic Tariffs for Biomass-based Power Projects for the applicable period of this Order have been determined as in the Table below.

Date of Commissioning of Project	Fixed Charge (Rs/kWh)	Variable Charge (Rs/kWh)	Tariff during 1 April, 2016 to 31 March, 2017 (Rs/kWh)	Benefit of Accelerated Depreciation (if availed) (Rs/kWh)	Net Levelised Tariff (upon adjusting for accelerated depreciation benefit, if availed) (Rs/kWh)
During FY 2016-17	2.25	5.41	7.66	0.17	7.49
During FY 2015-16 (10 November, 2015 to 31 March, 2016)	2.35 [@]	5.41	7.76	0.16	7.60
During FY 2015-16 (1 April to 9 November, 2015)	2.27*	5.41	7.68	0.22*	7.46

Date of Commissioning of Project	Fixed Charge (Rs/kWh)	Variable Charge (Rs/kWh)	Tariff during 1 April, 2016 to 31 March, 2017 (Rs/kWh)	Benefit of Accelerated Depreciation (if availed) (Rs/kWh)	Net Levelised Tariff (upon adjusting for accelerated depreciation benefit, if availed) (Rs/kWh)
During FY 2014-15	2.27*	5.41	7.68	0.22*	7.46
During FY 2013-14	2.17#	5.41	7.58	0.21#	7.37
Prior to FY 2013-14	1.70**	5.41	7.11	NA	7.11

@ As per Order dt 25 January, 2016 in Case No 135 of 2015 (from 10 November, 2015 to 31 March, 2016)

* As per Order dt 7 July, 2014 in Case No. 100 of 2014 (extended till 31 Dec 2015)

As per Order dt 22 March, 2013 in Case No. 6 of 2013

** Considering first year of operation as per Order dt 8 August, 2005 in Case Nos. 37 of 2003 and 83 of 2008)

Note :- Detailed computations of Tariff for the period in FY 2016-17 from 1 April, 2016, to 31 March, 2017 for Biomass based Power Projects are provided in Annexure 3 of this Order.

The Tariff Rate comprises two parts, viz., (i) Fixed Charge component, and (ii) Variable Charge component, and shall be applicable for sale of power by Rankine Cycle-based Projects to Distribution Licensees in Maharashtra during the applicable period of this Order.

5. NON-FOSSIL FUEL-BASED CO-GENERATION PROJECTS

5.1. KEY PROVISIONS OF RE TARIFF REGULATIONS

Chapter 6 of the RE Tariff Regulations provides technology-specific norms for determination of Tariff for Non-fossil fuel-based Co-Generation Projects. Regulations 50.1 and 50.2 read as follows:

"52.1 The Capital Cost and performance norms specified in this Chapter shall be applicable only to Non-Fossil Fuel-based Co-Generation Projects commissioned after notification of these Regulations.

52.2 The fuel-related aspects specified under Regulations 59 to 66 shall be applicable to both existing and new Non-Fossil Fuel-based Co-Generation Projects:

Provided that the norms in respect of specific fuel consumption and Auxiliary Consumption factor for existing Non-Fossil Fuel-based Co-Generation Projects shall be as stipulated in the respective RE Tariff Orders referred to in Regulation

3.2.”

The Regulations also specify that the fuel price for each year of operation, in respect of both existing and new Non-fossil fuel-based Co-Generation Projects, shall be adjusted based on an indexation mechanism:

“61.1 In the case of both existing and new non-fossil fuel-based Co-Generation Projects, the following indexing mechanism for adjustment of fuel prices for each year of operation will be applicable for determination of the variable charge component of tariff:

The Variable Charge for the nth year shall be computed as under:

$$VC_n = VC_1 \times (P_n / P_1)$$

where,

VC₁ represents the Variable Charge based on Bagasse Price P₁ for FY 2015-16 as specified under Regulation 60, and shall be determined as under:

$$VC_1 = \frac{\text{Station Heat Rate (SHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{1}{(1 - \text{Auxiliary Consumption Factor})} \times \frac{P_1}{1000}$$

P_(n) = Price per tonne of Bagasse for the nth year to be considered for tariff determination

P_(n-1) = Price per tonne of Bagasse for the (n-1)th year to be considered for tariff determination. P₁ shall be the Bagasse price for FY 2015-16 as specified under Regulation 60.

The Bagasse fuel price shall be revised by the Commission taking into consideration the Bagasse fuel price determined by the Central Commission for each year or a normative escalation factor of 5% per annum, as it may consider appropriate..”

Accordingly, in case of Non-fossil fuel-based Co-generation Power Projects commissioned on or prior to 31 March, 2016, the Variable Charge component of the Tariff shall be determined as per para. 5.15 of this Order. The Fixed Charge component shall continue to be governed by the relevant Orders issued by the Commission.

5.2. CAPITAL COST OF NON-FOSSIL FUEL-BASED CO-GENERATION PROJECTS

The normative Capital Cost for Non-fossil fuel-based Co-Generation Projects for the first year of the Review Period has been specified by the Commission under Regulation 53 of RE Tariff Regulations. Hence, the normative Capital Cost for the period of FY 2015-16 (Base Year) is considered as Rs. 489.02 lakh per MW. The Base Year Capital Cost has been escalated considering the indexation mechanism specified in the CERC RE Tariff Regulations, as stipulated in Regulation 54 of the Commission’s RE Tariff Regulations. The

detailed calculation steps are as shown in para. 2.4 of this Order. The normative Capital Cost for FY 2016-17 calculated as per mechanism specified in the CERC RE Tariff Regulations is as shown in the Table below.

Parameter	Description	Cost
1+F1+F2+F3		1.33
CC ₀ (Rs. Lakh/MW)	Capital Cost for the Base Year	489.02
P&M ₀ (Rs. Lakh/MW)	Plant & Machinery Cost for the Base Year Capital Cost Escalation Factor	367.68
P&M _n (Rs. Lakh/MW)	Plant & Machinery Cost for the nth Year (FY 2016-17)	372.56
CC_n(Rs. Lakh/MW)	Capital Cost for the nth Year (FY2016-17)	495.51

5.3. DEBT-EQUITY RATIO

In accordance with Regulation 14.1, the debt and equity components for the applicable period of this Order work out to Rs. 346.85 lakh per MW and Rs. 148.65 lakh per MW, respectively.

5.4. RETURN ON EQUITY

In accordance with Regulation 17, the RoE works out as shown in the Table below:

Particulars	Non-fossil fuel-based Co-generation Project
Opening Equity (in Rs lakh per MW)	148.65
Return on Equity for the first 10 years @16% grossing up with MAT rate of 21.34% (Rs lakh per MW)	30.24
Return on Equity after first 10 years @16% grossing up with Income Tax rate of 34.61% (Rs lakh per MW)	36.37

Note: - Grossing up of RoE is done as per the Formula: $RoE(\%) / [1 - Tax\ Rate(\%)]$

5.5. INTEREST ON LOAN

As explained in para. 1.4 of this Order, an interest rate of 12.56% (9.56% + 300 basis points) has been considered, with a gross opening loan amount of Rs. 346.85 lakh per MW in FY 2016-17.

5.6. DEPRECIATION

In accordance with Regulation 16 of the RE Tariff Regulations, the depreciation will be charged at 5.83% for the first 12 years, and at 2.50% thereafter for the remaining useful life of 8 years.

5.7. INTEREST ON WORKING CAPITAL

Regulation 18 of the RE Tariff Regulations provides for computation of the working capital requirements of Non-fossil fuel-based Co-Generation Projects as under:

“

- a) *Fuel costs for four months equivalent to normative Plant Load Factor ('PLF');*
- b) *O&M expenses for one month;*
- c) *Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the target PLF;*
- d) *Maintenance spares @ 15% of O&M expenses.”*

Further, as explained above in para. 1.5, IoWC shall be computed at an interest rate equivalent to the average Base Rate of SBI during the previous year plus 350 basis points, i.e., 13.06% (9.56% + 350 basis points).

5.8. OPERATION AND MAINTENANCE EXPENSES

Regulation 58.1 of the RE Tariff Regulations specifies the normative O&M expenses for Non-Fossil fuel-based Co-Generation Projects for FY 2015-16 (Base Year) as 3.54% of the Capital Cost, which works out to Rs. 17.31 lakh per MW. The Base Year O&M expense is to be escalated at the rate specified in the Regulations of the Commission governing MYT over the Tariff Period, as per Regulation 58.2 of the RE Tariff Regulations, for determination of the levelised Tariff. Regulation 45.1(d) of the MYT Regulations, 2015 specifies the norms for escalation of O&M expense in subsequent years beyond the Base Year:

“The O&M expenses for each subsequent year shall be determined by escalating the base expenses determined above for FY 2015-16, at the inflation factor considering 60% weightage for the actual point to point inflation over Wholesale Price Index numbers as per Office of Economic Advisor of Government of India in the previous year and 40% weightage for the actual Consumer Price Index for Industrial Workers (all India) as per Labour Bureau, Government of India in the previous year, as reduced by an efficiency factor of 1%, to arrive at permissible O and M expenses for each year of the Control Period.”

Accordingly, the calculation for escalation percentage for O&M expense is as presented in the Table below

Wholesale Price Index												
Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2013	170.3	170.9	170.1	171.3	171.4	173.2	175.5	179.0	180.7	180.7	181.5	179.6
2014	179.0	179.5	180.3	180.8	182.0	183.0	185.0	185.9	185.0	183.7	181.2	178.7
2015	177.3	175.6	176.1	176.4	178.0	178.6						
<i>Source: http://www.eaindustry.nic.in/download_data_0405.asp/Financial Year Index File from 2005-06 onwards</i>												
Wholesale Price Index Growth (%)												
2014	5.1%	5.0%	6.0%	5.5%	6.2%	5.7%	5.4%	3.9%	2.4%	1.7%	-0.2%	-0.5%
2015	-0.9%	-2.2%	-2.3%	-2.4%	-2.2%	-2.4%						
Consumer Price Index Growth (%)												
2014	7.24	6.73	6.7	7.08	7.02	6.49	7.23	6.75	6.3	4.98	4.12	5.86
2015	7.17	6.3	6.28	5.79	5.74	6.10						
<i>Source: http://labourbureau.nic.in/indtab.html/III. Point to Point Rate of Inflation in CPI Numbers for Industrial Workers</i>												

	Average CPI Index Growth %	Average WPI Index Growth %	Escalation rate with 60% WPI and 40% CPI	Escalation Considering 1% Efficiency Factor
FY 2014-15	6.30%	2.05%	3.75%	2.75%

Accordingly, the Commission has considered O&M expense norm for Non-Fossil fuel-based Co-Generation Projects for FY 2016-17 as Rs. 17.79 lakh per MW

5.9. PLANT LOAD FACTOR

In accordance with Regulation 55.2, PLF of 60% has been considered for determination of Tariff for Non-Fossil fuel-based Co-Generation Projects.

5.10. AUXILIARY POWER CONSUMPTION

In accordance with Regulation 56, the Auxiliary Consumption of 8.5% has been considered for determination of Tariff.

5.11. STATION HEAT RATE

In accordance with Regulation 57, the Normative SHR of 3600 kcal/kWh has been considered for determination of Tariff.

5.12. CALORIFIC VALUE

In accordance with Regulation 59, the average Calorific Value of Bagasse fuel is considered as 2250 kcal/kg for determination of Tariff of such Projects.

5.13. FUEL COST

Regulation 60.1 specifies the Bagasse fuel price during the first year of the Review Period, i.e., FY 2015-16, as Rs. 2326.84/MT, which is linked to the indexation mechanism specified under Regulation 61. Thus, the Fuel Cost for Non-Fossil fuel-based Co-Generation Projects to be commissioned in FY 2016-17 is considered as Rs. 2443.18 per MT considering an escalation of 5% over FY 2015-16 value. Considering this Fuel Cost, the Commission has computed the Variable Charge as Rs. 4.27/kWh for Projects to be commissioned during this period, in accordance with Regulation 61.1 of the RE Tariff Regulations, considering GCV as 2250 kcal/kg, SHR as 3600 Kcal/kWh and Auxiliary Consumption as 8.5%.

5.14. VARIABLE CHARGE FOR BAGASSE-BASED CO-GENERATION POWER PROJECTS COMMISSIONED PRIOR TO 1 APRIL, 2016

As per Regulation 55.2 of the RE Tariff Regulations, 2015, the fuel-related aspects specified in Regulations 59 to 66 shall be applicable to both existing and new Non-Fossil Fuel-based Co-Generation Projects, except for the SHR and Auxiliary Consumption norms which shall be as stipulated in the respective RE Tariff Orders referred to in Regulation 3.2. Accordingly, the norms in respect of Fuel Price and GCV shall be applicable to existing projects as per Regulations 59, 60 and 61. The Auxiliary Consumption Factor for existing Projects commissioned prior to 1 April, 2016 shall be as stipulated in the respective Tariff Orders (i.e., 8.5%). Based on these parameters, the variable cost of the Projects commissioned prior to 1 April, 2016 works out to Rs 4.27/kWh.

The Fixed Charge component of the Tariff for Co-Generation Power Projects commissioned prior to 1 April, 2016, shall be the levelised Fixed Charge approved under the respective RE Tariff Orders.

5.15. LEVELISED TARIFF FOR NON-FOSSIL FUEL-BASED CO-GENERATION PROJECTS FROM 1 APRIL, 2016 TO 31 MARCH, 2017

Considering the above parameters and the discount factor as 10.55% (as computed at para 1.6 of this Order) for levelisation of Tariff of Non-Fossil fuel-based Co-Generation Projects commissioned in FY 2016-17, the Generic Tariffs for such Projects for FY 2016-17 have been determined as under:

**TARIFF FOR NON-FOSSIL FUEL-BASED CO-GENERATION PROJECTS FROM
1 APRIL, 2016 TO 31 MARCH, 2017**

Date of Commissioning	Fixed Charge (Rs/kWh)	Variable Charge (Rs/kWh)	Tariff (Rs/kWh)	Benefit of Accelerated Depreciation (if availed) (Rs/kWh)	Net Levelised Tariff (upon adjusting for accelerated depreciation benefit, if availed) (Rs/kWh)
During FY 2016-17	2.43	4.27	6.70	0.22	6.48
During FY 2015-16 (10 November, 2015 to 31 March, 2016)	2.52 [@]	4.27	6.79	0.21	6.58
During FY 2015-16 (1 April to 9 November, 2015)	2.46*	4.27	6.73	0.28	6.45
During FY 2014-15	2.46*	4.27	6.73	0.28	6.45
During FY 2013-14	2.38#	4.27	6.65	0.27	6.38
Prior to FY 2013-14	2.26**	4.27	6.53		6.53

@ As per Order dt 25 January, 2016 in Case No 135 of 2015 (from 10 November, 2015 to 31 March, 2016)

** As per Order dt 7 July, 2014 in Case No. 100 of 2014 (extended till 31 Dec 2015)*

#As per Order dt 22 March, 2013 in Case No. 6 of 2013

*** As per Order dt 11 January, 2010 in Case No. 123 of 2008*

Note :- Detailed computations of Tariff for the Tariff Review Period FY 2016-17 for Non-fossil fuel-based Co-generation Projects are provided in Annexure 4 of this Order.

The Fixed Charge component of the Tariff for Bagasse-based Co-Generation Power Projects commissioned prior to 1 April, 2016 shall be the levelised Fixed Charge approved under the respective RE Tariff Orders.

The Tariff Rate comprises two parts, viz., (i) Fixed Charge component, and (ii) Variable Charge component, and shall be applicable for sale of power by Non-Fossil fuel-based Co-Generation Projects to Distribution Licensees in Maharashtra from 1 April, 2016 to 31 March, 2017.

5.16. TARIFF FOR NON-FOSSIL FUEL-BASED CO-GENERATION PLANTS USING BIOMASS

Regulation 60.2 of RE Tariff Regulations, specifies that the fuel price for Non-Fossil Fuel-Based Co-Generation Projects using biomass other than bagasse, will be the biomass prices as specified under Regulation 49. Accordingly, fuel cost for Non-Fossil Fuel-Based Co-Generation Projects using biomass other than Bagasse is considered as Rs. 4186.35 per MT as specified in para. 4.13 of this Draft Order. Further, corresponding Calorific Value of biomass fuel (3611 kcal/kg) has been considered as specified in para 4.12 of this Draft Order. Considering this Fuel Cost and Calorific Value and considering Auxiliary Consumption and SHR applicable for Non-Fossil Fuel-Based Co-Generation Projects as specified in para 5.10 and 5.11 respectively, the Commission has computed the Variable Charge as Rs. 4.56/kWh Non-Fossil Fuel-Based Co-Generation Projects using biomass for FY 2016-17, for the period for which such projects are using biomass.

The Project Entity shall, along with its monthly energy bill, furnish a monthly fuel procurement and fuel usage statement certified by a Chartered Accountant to the Distribution Licensee with whom an EPA has been entered into and to State Nodal Agency, for the purpose of monitoring the fossil and non-fossil fuel consumption as per provisions of regulation 46 of RE Tariff Regulations. The State Nodal Agency shall verify the use of biomass other than bagasse for applicability of biomass fuel tariff for Non-Fossil Fuel-Based Co-Generation Projects using biomass. Before making payment for monthly energy bills, the Distribution Licensees shall satisfy themselves about the monthly fuel procurement and fuel usage as per statement certified by a Chartered Accountant and verified by State Nodal Agency. Further, the Distribution Licensees shall submit an annual consolidated report to the Commission, giving details of monthly fuel bills and fuel uses statement for Non-Fossil Fuel-Based Co-Generation Projects having EPA with them.

5.17. TARIFF FOR NON-QUALIFYING NON-FOSSIL FUEL-BASED CO-GENERATION PLANTS

The Tariff of Non-Qualifying Non-Fossil fuel-based Co-Generation (NQNFCC) Projects will be equivalent to the Average Power Purchase Cost (APPC) of the respective Distribution Licensees for FY 2016-17 in accordance with the provisions of Regulations 67 of the RE Tariff Regulations, 2015.

6. SOLAR PHOTO VOLTAIC PROJECTS

6.1. USEFUL LIFE

Regulation 2.1 (mm) of the RE Tariff Regulations defines ‘useful life’ in relation to a Unit of a Generating Station (including evacuation system) to mean the duration from the COD till such time as specified under the Regulations for such generation facility. Accordingly, the useful life specified for Solar Photo Voltaic (PV) Projects is 25 years.

6.2. CONTROL PERIOD

The Control Period for Solar PV Projects shall be in accordance with the relevant stipulations at para 1.1 of this Order.

6.3. TARIFF PERIOD

Regulation 7 of the RE Tariff Regulations specifies the Tariff Period for Solar PV Projects as 13 years. In terms of Regulation 7.5, the Tariff Period specified shall be reckoned from the COD of the RE Projects and the Tariff determined under the Regulations shall be applicable only for the duration of the Tariff Period.

6.4. CAPITAL COST OF SOLAR PV PROJECTS

Regulation 69 of the RE Tariff Regulations specifies the normative Capital Cost of a Solar PV Power Project for FY 2015-16 (Base Year) as Rs. 605.85 Lakh/MW. The Commission proposes to consider the same Capital Cost for the Projects to be commissioned in the period from 1 April, 2016 to 31 March, 2017.

6.5. DEBT-EQUITY RATIO

In accordance with Regulation 14.1, the normative debt and equity components for Solar PV Projects shall be Rs. 424.10 Lakh per MW and Rs. 181.76 Lakh per MW, respectively.

6.6. RETURN ON EQUITY

In accordance with Regulation 17.1, the RoE for Solar PV Projects works out as shown in the Table below:

Particulars	Solar PV Projects
Opening Equity (in Rs lakh per MW)	181.76
Return on Equity for the first 10 years @16% grossing up with MAT rate of 21.34% (Rs lakh per MW)	36.97
Return on Equity after first 10 years @16% grossing up with Income Tax rate of 34.61% (Rs lakh per MW)	44.47

Note: - Grossing up of RoE is done as per the Formula: $\text{RoE}(\%) / [1 - \text{Tax Rate}(\%)]$

6.7. INTEREST ON LOAN

As explained in Para. 1.4 of this Order, the interest rate of 12.56% (9.56% + 300 basis points) has been considered for Solar PV Projects for a loan amount of Rs. 424.10 lakh per MW in FY 2016-17.

6.8. DEPRECIATION

In accordance with Regulation 16, the depreciation will be charged at 5.83% for the first 12 years, and at 1.54% thereafter for the remaining useful period of 13 years for Solar PV Projects.

6.9. INTEREST ON WORKING CAPITAL

Regulation 18.1 provides for computation of the working capital requirements for Solar PV Projects as under:

“

- a) *O&M expenses for one month;*
- b) *Receivables equivalent to two months of tariff for sale of electricity calculated on the normative CUF;*
- c) *Maintenance spares @ 15% of O&M expenses.”*

Further, as explained in Para. 1.5 of this Order, IoWC shall be computed at an interest rate equivalent to the average Base Rate of SBI during the previous year plus 350 basis points, i.e., 13.06% (9.56% + 350 basis points).

6.10. OPERATION AND MAINTENANCE EXPENSES

Regulation 71.1 specifies the normative O&M expenses for Solar PV Projects for FY 2015-16 (Base Year) as Rs. 13 lakh per MW. The Base Year O&M expense is to be escalated at the rate specified in the Regulations of the Commission governing MYT over the Tariff Period, as per Regulation 71.2 of the RE Tariff Regulations, for determination of the levelised Tariff. Regulation 45.1(d) of the MYT Regulations specifies the norms for escalation of O&M expense in subsequent years beyond the Base Year:

“The O&M expenses for each subsequent year shall be determined by escalating the base expenses determined above for FY 2015-16, at the inflation factor considering 60% weightage for the actual point to point inflation over Wholesale Price Index numbers as per Office of Economic Advisor of Government of India in the previous year and 40% weightage for the actual Consumer Price Index for

Industrial Workers (all India) as per Labour Bureau, Government of India in the previous year, as reduced by an efficiency factor of 1%, to arrive at permissible O and M expenses for each year of the Control Period..”

Accordingly, the calculation for escalation percentage for O&M expense is presented in the Table below

Wholesale Price Index												
Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2013	170.3	170.9	170.1	171.3	171.4	173.2	175.5	179.0	180.7	180.7	181.5	179.6
2014	179.0	179.5	180.3	180.8	182.0	183.0	185.0	185.9	185.0	183.7	181.2	178.7
2015	177.3	175.6	176.1	176.4	178.0	178.6						
Source: http://www.eaindustry.nic.in/download_data_0405.asp/Financial Year Index File from 2005-06 onwards												
Wholesale Price Index Growth (%)												
2014	5.1%	5.0%	6.0%	5.5%	6.2%	5.7%	5.4%	3.9%	2.4%	1.7%	-0.2%	-0.5%
2015	-0.9%	-2.2%	-2.3%	-2.4%	-	-						
					2.2%	2.4%						
Consumer Price Index Growth (%)												
2014	7.24	6.73	6.7	7.08	7.02	6.49	7.23	6.75	6.3	4.98	4.12	5.86
2015	7.17	6.3	6.28	5.79	5.74	6.10						
Source: http://labourbureau.nic.in/indtab.html/ III. Point to Point Rate of Inflation in CPI Numbers for Industrial Workers												

	Average CPI Index Growth %	Average WPI Index Growth %	Escalation rate with 60% WPI and 40% CPI	Escalation Considering 1% Efficiency Factor
FY 2014-15	6.30%	2.05%	3.75%	2.75%

Accordingly, the Commission has considered O&M expense norm for Solar PV Projects for FY 2016-17 as Rs. 13.36 lakh per MW

6.11. CAPACITY UTILISATION FACTOR

In accordance with Regulation 70, CUF of 19% has been considered for determination of Tariff.

6.12. LEVELISED TARIFF FOR SOLAR PV POWER PROJECTS COMMISSIONED BETWEEN 1 APRIL, 2016 TO 31 MARCH, 2017

Considering the parameters discussed in the preceding paras. and with respect to the discount factor of 10.55% derived based on the methodology at para. 1.6 of this Order, the Generic Tariffs for Solar PV Projects commissioned during FY 2016-17 have been determined as under:

Tariff for New Solar PV Power Projects				
Particulars	Tariff Period	Levelised Tariff	Benefit of Accelerated Depreciation (if availed)	Net Levelised Tariff (upon adjusting for Accelerated Depreciation benefit, if availed)
		(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Solar PV Projects	13	6.74	0.72	6.02

Note :- Detailed computations of Tariff for the Tariff Review Period FY 2016-17 for new Solar Power PV Projects are provided in Annexure 5A of this Order.

6.13. LEVELISED TARIFF FOR SOLAR ROOF-TOP PV PROJECTS FROM 1 APRIL, 2016 TO 31 MARCH, 2017

Solar Roof-top PV Projects considered in this Order under the RE Tariff Regulations, 2015 are distinct and separate from those covered under the MERC (Net Metering for Roof-top Solar Photo Voltaic Systems) Regulations, 2015.

Regulation 72 of the RE Tariff Regulations specifies that the Tariff for Solar Roof-top PV Projects shall be Rs 0.50 per kWh higher than the Tariff specified for other Solar PV Projects in the Regulations. Accordingly, the Tariff for such Projects during FY 2016-17 shall be as follows:

Tariff for New Solar Roof-top PV Power Projects

Particulars	Tariff Period	Levelised Total Tariff	Benefit of Accelerated Depreciation (if availed)	Net Levelised Tariff (upon adjusting for Accelerated Depreciation benefit, if availed)
		(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Solar Roof-top PV and other small Solar Power Projects	13	7.24	0.72	6.52

7. SOLAR THERMAL POWER PROJECTS

7.1. USEFUL LIFE

Regulation 2.1 (mm) of the RE Tariff Regulations defines 'useful life' in relation to a Unit of a Generating Station (including evacuation system) to mean the duration from the COD till such time as specified under the RE Tariff Regulations for such generation facility. Accordingly, the useful life specified for Solar Thermal Power Projects is 25 years.

7.2. CONTROL PERIOD

The Control Period for Solar Thermal Power Projects shall be in accordance with the relevant stipulations in para 1.1 of this Order.

7.3. TARIFF PERIOD

Regulation 7 specifies the Tariff Period for Solar PV Projects as 25 years. In terms of Regulation 7.5, the Tariff Period specified shall be reckoned from the COD of the RE Projects, and the Tariff determined under the Regulations shall be applicable only for the duration of the Tariff Period.

7.4. CAPITAL COST OF SOLAR THERMAL POWER PROJECTS

Regulation 74 of the RE Tariff Regulations specifies the normative Capital Cost of a Solar Thermal Power Project for FY 2015-16 (Base Year) as Rs. 1200 lakh/MW. The Commission has considered this normative Capital Cost for Projects to be commissioned in during FY 2016-17 also.

7.5. DEBT-EQUITY RATIO

In accordance with Regulation 14.1, the normative debt and equity components for Solar Thermal Projects shall be Rs. 840 Lakh per MW and Rs. 360 Lakh per MW, respectively.

7.6. RETURN ON EQUITY

In accordance with Regulation 17.1, the RoE for such Projects works out as shown in the Table below:

Particulars	Solar Thermal Projects
Opening Equity (in Rs lakh per MW)	360.00
Return on Equity for the first 10 years @16% grossing up with MAT rate of 21.34% (Rs lakh per MW)	73.23
Return on Equity after first 10 years @16% grossing up with Income Tax rate of 34.61% (Rs lakh per MW)	88.08

Note :- Grossing up of RoE is done as per the Formula: $RoE (\%) / [1 - Tax Rate(\%)]$

7.7. INTEREST ON LOAN

As explained in para. 2.4 of this Order, the interest rate of 12.56% (9.56% + 300 basis points) has been considered for Solar Thermal Power Projects for a loan amount of Rs. 840.00 lakh per MW for the period FY 2016-17.

7.8. DEPRECIATION

In accordance with Regulation 16, the Depreciation will be charged at 5.83% for the first 12 years, and at 1.54% thereafter for the remaining useful period of 13 years.

7.9. INTEREST ON WORKING CAPITAL

Regulation 18.1 provides for computation of the working capital requirements for Solar Thermal Power Projects as under:

“

- d) *O&M expenses for one month;*
- e) *Receivables equivalent to two months of tariff for sale of electricity calculated on the normative CUF;*
- f) *Maintenance spares @ 15% of O&M expenses.”*

Further, as explained above in para. 1.5, IoWC shall be computed at an interest rate equivalent to the average Base Rate of SBI during the previous year plus 350 basis points, i.e., 13.06% (9.56% + 350 basis points).

7.10. OPERATION AND MAINTENANCE EXPENSES

Regulation 76.1 specifies the normative O&M expenses for Solar Thermal Power Projects for FY 2015-16 (Base Year) as Rs. 15 Lakh per MW. The Base Year O&M expense is to be escalated at the rate specified in the Regulations of the Commission governing MYT over the Tariff Period, as per Regulation 76.2 of the RE Tariff Regulations, for determination of the levelised Tariff. Regulation 45.1(d) of the MYT Regulations, 2015 specifies the norms for escalation of O&M expense in subsequent years beyond the Base Year:

“The O&M expenses for each subsequent year shall be determined by escalating the base expenses determined above for FY 2015-16, at the inflation factor considering 60% weightage for the actual point to point inflation over Wholesale Price Index numbers as per Office of Economic Advisor of Government of India in the previous year and 40% weightage for the actual Consumer Price Index for Industrial Workers (all India) as per Labour Bureau, Government of India in the previous year, as reduced by an efficiency factor of 1%, to arrive at permissible O and M expenses for each year of the Control Period..”

Accordingly, the calculation for escalation percentage for O&M cost is presented in the Table below:

Wholesale Price Index												
Year	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2013	170.3	170.9	170.1	171.3	171.4	173.2	175.5	179.0	180.7	180.7	181.5	179.6
2014	179.0	179.5	180.3	180.8	182.0	183.0	185.0	185.9	185.0	183.7	181.2	178.7
2015	177.3	175.6	176.1	176.4	178.0	178.6						
<i>Source: http://www.eaindustry.nic.in/download_data_0405.asp/Financial Year Index File from 2005-06 onwards</i>												
Wholesale Price Index Growth (%)												
2014	5.1%	5.0%	6.0%	5.5%	6.2%	5.7%	5.4%	3.9%	2.4%	1.7%	-0.2%	-0.5%
2015	-0.9%	-2.2%	-2.3%	-2.4%	-	-						
					2.2%	2.4%						
Consumer Price Index Growth (%)												
2014	7.24	6.73	6.7	7.08	7.02	6.49	7.23	6.75	6.3	4.98	4.12	5.86
2015	7.17	6.3	6.28	5.79	5.74	6.10						
<i>Source: http://labourbureau.nic.in/indtab.html/ III. Point to Point Rate of Inflation in CPI Numbers for Industrial Workers</i>												

	Average CPI Index Growth %	Average WPI Index Growth %	Escalation rate with 60% WPI and 40% CPI	Escalation Considering 1% Efficiency Factor
FY 2014-15	6.30%	2.05%	3.75%	2.75%

Accordingly, the Commission has considered O&M expense norm for Solar Thermal Power Projects for FY 2016-17 as Rs. 15.41 lakh per MW

7.11. CAPACITY UTILISATION FACTOR

In accordance with Regulation 75, CUF of 23% has been considered for determination of Tariff for such Projects.

7.12. LEVELISED TARIFF FOR SOLAR THERMAL POWER PROJECTS COMMISSIONED BETWEEN 1 APRIL, 2016 TO 31 MARCH, 2017

Considering the parameters discussed in the preceding paras. and with respect to the discount factor of 10.55% derived based on the methodology in para. 1.6 of this Order, the Generic Tariff for Solar Thermal Power Projects commissioned in FY 2016-17 has been determined as under:

Tariff for New Solar Thermal Power Projects				
Particulars	Tariff Period (Years)	Levelised Tariff	Benefit of Accelerated Depreciation (if availed)	Net Levelised Tariff (upon adjusting for Accelerated Depreciation benefit, if availed)
		(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Solar Thermal Power Projects	25	11.46	1.30	10.16

Note :- Detailed computations of Tariff for the period from 1 April, 2016 to 31 March, 2017 for new Solar Power PV Projects are provided in Annexure 5B of this Order.

8. The detailed computations of the Generic Tariff for various RE technologies are set out in the following Annexures to this Order:

S No	Renewable Energy Projects	Annexure
1	Wind Power Projects	
	Wind Zone-I	Annexure 1A
	Wind Zone-II	Annexure 1B
	Wind Zone III	Annexure 1C
	Wind Zone IV	Annexure 1D
2	Small Hydro Power Projects	
	SHP above 1MW and upto and including 5 MW	Annexure 2A
	SHP above 5 MW and upto and including 25 MW	Annexure 2B
3	Biomass Power Projects	Annexure 3
4	Non-Fossil Fuel-based Co-Generation Projects	Annexure 4
5	Solar Projects	
	Solar PV Projects	Annexure 5A
	Solar Thermal Power Projects	Annexure 5B

Sd/-
(Deepak Lad)
Member

Sd/-
(Azeez M. Khan)
Member

Annexure – 1A
(Wind Zone-1)

Form 1.1 Assumptions Parameters				Wind Zone	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	1
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	22.0%
			Auxilliary Consumption		0%
			Useful Life	Years	25
			Tariff Period	Years	13
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	608.85
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	426.19
			Total Equity Amout	Rs Lacs	182.65
		Debt Component	Loan Amount	Rs Lacs	426.19
			Moratorium Period	years	0.00
			Repayment Period(incld Moratorium)	years	12.00
			Interest Rate	%	12.56%
		Equity Component	Equity amount	Rs Lacs	182.65
			Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
			RoE Period	Year	10.00
			Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
			Weighted average of ROE		22.82%
			Discount Rate (equiv. to WACC)		10.55%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	21.34%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	5.83%
			Depreciation Rate 13th year onwards	%	1.54%
			Years for 5.83% depreciation rate		12
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	2
		Interest On Working Capital	%	13.06%	
6	Operation & Maintenance	power plant (FY 2015-16)	Rs Lakh	8.83	
		Total O & M Expenses Escalation	%	2.75%	
		power plant (FY 2016-17)	Rs Lakh	9.07	

2.2 Form Template for (Wind Power Projects) : Determination of Tariff Component

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	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93
Auxiliary Consumption	MU		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
Net Generation	MU		1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93

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 Expenses	Rs Lakh		9.07	9.32	9.58	9.84	10.11	10.39	10.68	10.97	11.27	11.58	11.90	12.23	12.56	12.91	13.26	13.63	14.00	14.39	14.78	15.19	15.61	16.03	16.47	16.93	17.39
Depreciation	Rs Lakh		35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37
Interest on term loan	Rs Lakh		51.31	46.85	42.39	37.93	33.46	29.00	24.54	20.08	15.62	11.15	6.69	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		2.61	2.61	2.62	2.63	2.64	2.65	2.65	2.66	2.67	2.68	2.69	2.70	2.71	2.72	2.73	2.74	2.76	2.77	2.78	2.79	2.80	2.82	2.83	2.84	2.86
Return on Equity	Rs Lakh		37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69
Total Fixed Cost	Rs Lakh		135.66	131.46	127.26	123.07	118.88	114.71	110.54	106.38	102.23	98.09	101.49	97.37	69.33	69.69	70.05	70.43	70.82	71.21	71.62	72.04	72.47	72.91	73.36	73.83	74.31
Per unit Fixed Cost	Rs/kWh		7.04	6.82	6.60	6.39	6.17	5.95	5.74	5.52	5.30	5.09	5.27	5.05	3.60	3.62	3.63	3.65	3.67	3.70	3.72	3.74	3.76	3.78	3.81	3.83	3.86

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	Rs/kWh	0.58	0.47	0.48	0.50	0.51	0.52	0.54	0.55	0.57	0.58	0.60	0.62	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.77	0.79	0.81	0.83	0.85	0.88	0.90
Depreciation	Rs/kWh	1.52	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Int. on term loan	Rs/kWh	1.26	2.66	2.43	2.20	1.97	1.74	1.50	1.27	1.04	0.81	0.58	0.35	0.12	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
Int. on working capital	Rs/kWh	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15
RoE	Rs/kWh	2.05	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32
Total COG	Rs/kWh	5.55	7.04	6.82	6.60	6.39	6.17	5.95	5.74	5.52	5.30	5.09	5.27	5.05	3.60	3.62	3.63	3.65	3.67	3.70	3.72	3.74	3.76	3.78	3.81	3.83	3.86

Levillised Tariff	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
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090
Fixed Cost			107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0

Levillised Tariff (Rs/Unit)	5.55
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Determination of Accelerated Depreciation for Wind Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	608.8

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		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
Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	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%
Accelerated Depn.	Rs Lakh	608.85	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

Net Depreciation Benefit	Rs Lakh	576.70	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	199.58	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93
Per unit benefit	Rs/Unit	10.36	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09

Levellised benefit **0.62 (Rs/kWh)**

Annexure – 1B
(Wind Zone-2)

Form 1.1 Assumptions Parameters				Wind Zone		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	2	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	25.0%	
			Auxilliary Consumption		0%	
			Useful Life	Years	25	
			Tariff Period	Years	13	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	608.85	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	426.19	
			Total Equity Amout	Rs Lacs	182.65	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	426.19
				Moratorium Period	years	0.00
				Repayment Period(incld Moratorium)	years	12.00
				Interest Rate	%	12.56%
			<u>Equity Component</u>	Equity amount	Rs Lacs	182.65
				Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
				RoE Period	Year	10.00
				Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
				Weighted average of ROE		22.82%
				Discount Rate (equiv. to WACC)		10.55%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%	
			MAT Rate (for first 10 years)	%	21.34%	
			80 IA benefits	Yes/No	Yes	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.83%
				Depreciation Rate 13th year onwards	%	1.54%
				Years for 5.83% depreciation rate		12
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M expenses)	15.00%	
			Receivables for Debtors	Months	2	
			Interest On Working Capital	%	13.06%	
6	Operation & Maintenance	<u>power plant (FY 2015-16)</u>		Rs Lakh	8.83	
			<u>Total O & M Expenses Escalation</u>	%	2.75%	
			<u>power plant (FY 2016-17)</u>	Rs Lakh	9.07	

2.2 Form Template for (Wind Power Projects) : Determination of Tariff Component

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	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19
Auxiliary Consumption	MU		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
Net Generation	MU		2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19

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 Expenses	Rs Lakh		9.07	9.32	9.58	9.84	10.11	10.39	10.68	10.97	11.27	11.58	11.90	12.23	12.56	12.91	13.26	13.63	14.00	14.39	14.78	15.19	15.61	16.03	16.47	16.93	17.39
Depreciation	Rs Lakh		35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37
Interest on term loan	Rs Lakh		51.31	46.85	42.39	37.93	33.46	29.00	24.54	20.08	15.62	11.15	6.69	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		2.61	2.62	2.62	2.63	2.64	2.65	2.66	2.67	2.68	2.68	2.69	2.70	2.71	2.73	2.74	2.75	2.76	2.77	2.78	2.79	2.81	2.82	2.83	2.85	2.86
Return on Equity	Rs Lakh		37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69
Total Fixed Cost	Rs Lakh		135.66	131.46	127.26	123.07	118.89	114.71	110.54	106.38	102.23	98.09	101.49	97.37	69.34	69.69	70.06	70.43	70.82	71.21	71.62	72.04	72.47	72.91	73.37	73.83	74.31
Per unit Fixed Cost	Rs/kWh		6.19	6.00	5.81	5.62	5.43	5.24	5.05	4.86	4.67	4.48	4.63	4.45	3.17	3.18	3.20	3.22	3.23	3.25	3.27	3.29	3.31	3.33	3.35	3.37	3.39

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	Rs/kWh	0.51	0.41	0.43	0.44	0.45	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.56	0.57	0.59	0.61	0.62	0.64	0.66	0.67	0.69	0.71	0.73	0.75	0.77	0.79
Depreciation	Rs/kWh	1.34	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Int. on term loan	Rs/kWh	1.11	2.34	2.14	1.94	1.73	1.53	1.32	1.12	0.92	0.71	0.51	0.31	0.10	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
Int. on working capital	Rs/kWh	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
RoE	Rs/kWh	1.80	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04
Total COG	Rs/kWh	4.89	6.19	6.00	5.81	5.62	5.43	5.24	5.05	4.86	4.67	4.48	4.63	4.45	3.17	3.18	3.20	3.22	3.23	3.25	3.27	3.29	3.31	3.33	3.35	3.37	3.39

Levillised Tariff	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
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090
Fixed Cost			107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1

Levillised Tariff (Rs/Unit) 4.89

Determination of Accelerated Depreciation for Wind Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	608.8

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation																										
Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	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%
Accelerated Depm.	Rs Lakh	608.85	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

Net Depreciation Benefit	Rs Lakh	576.70	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	199.58	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19
Per unit benefit	Rs/Unit	9.11	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.51	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09

Levellised benefit	0.55	(Rs/kWh)
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Annexure – 1C
(Wind Zone-3)

Form 1.1 Assumptions Parameters				Wind Zone		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	3	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	30.0%	
			Auxilliary Consumption		0%	
			Useful Life	Years	25	
			Tariff Period	Years	13	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	608.85	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	426.19	
			Total Equity Amount	Rs Lacs	182.65	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	426.19
				Moratorium Period	years	0.00
				Repayment Period(incl'd Moratorium)	years	12.00
				Interest Rate	%	12.56%
			<u>Equity Component</u>	Equity amount	Rs Lacs	182.65
				Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
				RoE Period	Year	10.00
				Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
				Weighted average of ROE		22.82%
		Discount Rate (equiv. to WACC)		10.55%		
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%	
			MAT Rate (for first 10 years)	%	21.34%	
			80 IA benefits	Yes/No	Yes	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.83%
				Depreciation Rate 13th year onwards	%	1.54%
		Years for 5.83% depreciation rate		12		
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15.00%	
			Receivables for Debtors		Months	2
			Interest On Working Capital	%	13.06%	
6	Operation & Maintenance		power plant (FY 2015-16)	Rs Lakh	8.83	
			Total O & M Expenses Escalation	%	2.75%	
			power plant (FY 2016-17)	Rs Lakh	9.07	

2.2 Form Template for (Wind Power Projects) : Determination of Tariff Component

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	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Auxiliary Consumption	MU		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
Net Generation	MU		2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63

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 Expenses	Rs Lakh		9.07	9.32	9.58	9.84	10.11	10.39	10.68	10.97	11.27	11.58	11.90	12.23	12.56	12.91	13.26	13.63	14.00	14.39	14.78	15.19	15.61	16.03	16.47	16.93	17.39
Depreciation	Rs Lakh		35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37
Interest on term loan	Rs Lakh		51.31	46.85	42.39	37.93	33.46	29.00	24.54	20.08	15.62	11.15	6.69	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		2.61	2.61	2.62	2.63	2.64	2.65	2.65	2.66	2.67	2.68	2.69	2.70	2.71	2.72	2.73	2.74	2.76	2.77	2.78	2.79	2.80	2.82	2.83	2.84	2.86
Return on Equity	Rs Lakh		37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69
Total Fixed Cost	Rs Lakh		135.66	131.46	127.26	123.07	118.88	114.71	110.54	106.38	102.23	98.09	101.49	97.37	69.33	69.69	70.05	70.43	70.82	71.21	71.62	72.04	72.47	72.91	73.36	73.83	74.31
Per unit Fixed Cost	Rs/kWh		5.16	5.00	4.84	4.68	4.52	4.36	4.21	4.05	3.89	3.73	3.86	3.70	2.64	2.65	2.67	2.68	2.69	2.71	2.73	2.74	2.76	2.77	2.79	2.81	2.83

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	Rs/kWh	0.43	0.35	0.35	0.36	0.37	0.38	0.40	0.41	0.42	0.43	0.44	0.45	0.47	0.48	0.49	0.50	0.52	0.53	0.55	0.56	0.58	0.59	0.61	0.63	0.64	0.66
Depreciation	Rs/kWh	1.11	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Int. on term loan	Rs/kWh	0.93	1.95	1.78	1.61	1.44	1.27	1.10	0.93	0.76	0.59	0.42	0.25	0.08	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
Int. on working capital	Rs/kWh	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
RoE	Rs/kWh	1.50	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Total COG	Rs/kWh	4.07	5.16	5.00	4.84	4.68	4.52	4.36	4.21	4.05	3.89	3.73	3.86	3.70	2.64	2.65	2.67	2.68	2.69	2.71	2.73	2.74	2.76	2.77	2.79	2.81	2.83

Levillised Tariff	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
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090
Fixed Cost			107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0

Levillised Tariff (Rs/Unit)	4.07
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Determination of Accelerated Depreciation for Wind Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	608.8

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation

Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	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%
Accelerated Deprn.	Rs Lakh	608.85	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

Net Depreciation Benefit	Rs Lakh	576.70	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	199.58	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Per unit benefit	Rs/Unit	7.59	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.42	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09

Levellised benefit	0.46	(Rs/kWh)
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Annexure – 1D
(Wind Zone-4)

Form 1.1 Assumptions Parameters				Wind Zone	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	4
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	32.0%
			Auxilliary Consumption		0%
			Useful Life	Years	25
			Tariff Period	Years	13
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	608.85
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	426.19
			Total Equity Amout	Rs Lacs	182.65
		Debt Component	Loan Amount	Rs Lacs	426.19
			Moratorium Period	years	0.00
			Repayment Period(incld Moratorium)	years	12.00
			Interest Rate	%	12.56%
		Equity Component	Equity amount	Rs Lacs	182.65
			Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
			RoE Period	Year	10.00
			Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
			Weighted average of ROE		22.82%
			Discount Rate (equiv. to WACC)		10.55%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	21.34%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	5.83%
			Depreciation Rate 13th year onwards	%	1.54%
			Years for 5.83% depreciation rate		12
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	2
		Interest On Working Capital	%	13.06%	
6	Operation & Maintenance	power plant (FY 2015-16)	Rs Lakh	8.83	
		Total O & M Expenses Escalation	%	2.75%	
		power plant (FY 2016-17)	Rs Lakh	9.07	

2.2 Form Template for (Wind Power Projects) : Determination of Tariff Component

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	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Auxiliary Consumption	MU		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
Net Generation	MU		2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80

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 Expenses	Rs Lakh		9.07	9.32	9.58	9.84	10.11	10.39	10.68	10.97	11.27	11.58	11.90	12.23	12.56	12.91	13.26	13.63	14.00	14.39	14.78	15.19	15.61	16.03	16.47	16.93	17.39
Depreciation	Rs Lakh		35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	35.52	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37	9.37
Interest on term loan	Rs Lakh		51.31	46.85	42.39	37.93	33.46	29.00	24.54	20.08	15.62	11.15	6.69	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		2.61	2.62	2.62	2.63	2.64	2.65	2.66	2.67	2.67	2.68	2.69	2.70	2.71	2.72	2.74	2.75	2.76	2.77	2.78	2.79	2.81	2.82	2.83	2.85	2.86
Return on Equity	Rs Lakh		37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	37.15	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69	44.69
Total Fixed Cost	Rs Lakh		135.66	131.46	127.26	123.07	118.89	114.71	110.54	106.38	102.23	98.09	101.49	97.37	69.33	69.69	70.06	70.43	70.82	71.21	71.62	72.04	72.47	72.91	73.37	73.83	74.31
Per unit Fixed Cost	Rs/kWh		4.84	4.69	4.54	4.39	4.24	4.09	3.94	3.80	3.65	3.50	3.62	3.47	2.47	2.49	2.50	2.51	2.53	2.54	2.55	2.57	2.59	2.60	2.62	2.63	2.65

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	Rs/kWh	0.40	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.44	0.45	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.56	0.57	0.59	0.60	0.62
Depreciation	Rs/kWh	1.04	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Int. on term loan	Rs/kWh	0.87	1.83	1.67	1.51	1.35	1.19	1.03	0.88	0.72	0.56	0.40	0.24	0.08	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
Int. on working capital	Rs/kWh	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
RoE	Rs/kWh	1.41	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Total COG	Rs/kWh	3.82	4.84	4.69	4.54	4.39	4.24	4.09	3.94	3.80	3.65	3.50	3.62	3.47	2.47	2.49	2.50	2.51	2.53	2.54	2.55	2.57	2.59	2.60	2.62	2.63	2.65

Levillised Tariff	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
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090
Fixed Cost			107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1	107.1

Levillised Tariff (Rs/Unit) **3.82**

Determination of Accelerated Depreciation for Wind Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	608.8

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	32.15	1.46	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation		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
Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	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%
Accelerated Depn.	Rs Lakh	608.85	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

Net Depreciation Benefit	Rs Lakh	576.70	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-32.15	-1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	199.58	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-11.13	-0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Per unit benefit	Rs/Unit	7.12	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09

Levellised benefit	0.43	(Rs/kWh)
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(SHP above 1 MW and up to and including 5 MW)

Form 1.1 Assumptions Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	30%
			Auxilliary Consumption		1%
			Useful Life	Years	35
			Tariff Period	Years	35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	613.45
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	429.41
			Total Equity Amout	Rs Lacs	184.03
		<u>Debt Component</u>	Loan Amount	Rs Lacs	429.41
			Moratorium Period	years	0.00
			Repayment Period(incl Moratorium)	years	12.00
			Interest Rate	%	12.56%
			<u>Equity Component</u>	Equity amount	Rs Lacs
		Return on Equity for first 10 years (16% gross up with MAT rate)		% p.a	20.34%
		RoE Period		Year	10.00
		Return on Equity 11th year onwards (16% gross up with Income tax rate)			24.47%
		Weighted average of ROE			23.29%
					Discount Rate (equiv. to WACC)
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	21.34%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.83%
			Depreciation Rate 13th year onwards	%	0.87%
			Years for 5.83% depreciation rate		12
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	2
		<u>Interest On Working Capital</u>	%	13.06%	
6	Operation & Maintenance	power plant (FY 2015-16)	Rs Lakh	21.79	
		<u>Total O & M Expenses Escalation</u>	%	2.75%	
		power plant (FY 2016-17)	Rs Lakh	22.39	

2.2 Form Template for (Small Hydro Power Projects) : Determination of Tariff Component

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	26	27	28	29	30	31	32	33	34	35	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Auxiliary Consumption	MU		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Net Generation	MU		2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60

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	26	27	28	29	30	31	32	33	34	35	
O&M Expenses	Rs Lakh		22.39	23.00	23.64	24.29	24.95	25.64	26.34	27.07	27.81	28.58	29.36	30.17	31.00	31.85	32.72	33.62	34.55	35.50	36.47	37.48	38.51	39.56	40.65	41.77	42.92	44.10	45.31	46.55	47.83	49.15	50.50	51.88	53.31	54.78	56.28	
Depreciation	Rs Lakh		35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78	35.78
Interest on term loan	Rs Lakh		51.70	47.20	42.71	38.21	33.72	29.22	24.73	20.23	15.73	11.24	6.74	2.25	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	
Interest on working Capital	Rs Lakh		3.36	3.38	3.40	3.42	3.44	3.46	3.48	3.50	3.53	3.55	3.57	3.60	3.62	3.65	3.68	3.70	3.73	3.76	3.79	3.82	3.85	3.89	3.92	3.95	3.99	4.02	4.06	4.10	4.14	4.18	4.22	4.26	4.30	4.35	4.39	
Return on Equity	Rs Lakh		37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	37.43	
Total Fixed Cost	Rs Lakh		150.67	146.81	142.96	139.14	135.33	131.54	127.77	124.02	120.29	116.58	120.49	116.83	84.99	85.86	86.76	87.69	88.64	89.62	90.63	91.66	92.72	93.81	94.93	96.08	97.27	98.48	99.73	101.01	102.33	103.69	105.08	106.51	107.98	109.49	111.04	
Per unit Fixed Cost	RskWh		5.79	5.64	5.49	5.35	5.20	5.06	4.91	4.77	4.62	4.48	4.63	4.49	3.27	3.30	3.33	3.37	3.41	3.44	3.48	3.52	3.56	3.61	3.65	3.69	3.74	3.79	3.83	3.88	3.93	3.99	4.04	4.09	4.15	4.21	4.27	

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	26	27	28	29	30	31	32	33	34	35
O&M expn	Rs/kWh	1.11	0.86	0.88	0.91	0.93	0.96	0.99	1.01	1.04	1.07	1.10	1.13	1.16	1.19	1.22	1.26	1.29	1.33	1.36	1.40	1.44	1.48	1.52	1.56	1.61	1.65	1.69	1.74	1.79	1.84	1.89	1.94	1.99	2.05	2.11	2.16
Depreciation	Rs/kWh	1.05	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Int. on term loan	Rs/kWh	0.89	1.99	1.81	1.64	1.47	1.30	1.12	0.95	0.78	0.60	0.43	0.26	0.09	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
Int. on working capital	Rs/kWh	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17
RoE	Rs/kWh	1.54	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
Total COG	RskWh	4.73	5.79	5.64	5.49	5.35	5.20	5.06	4.91	4.77	4.62	4.48	4.63	4.49	3.27	3.30	3.33	3.37	3.41	3.44	3.48	3.52	3.56	3.61	3.65	3.69	3.74	3.79	3.83	3.88	3.93	3.99	4.04	4.09	4.15	4.21	4.27

Levillised Tariff	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	26	27	28	29	30	31	32	33	34	35	
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090	0.081	0.074	0.067	0.060	0.055	0.049	0.045	0.040	0.037	0.033	
Fixed Cost			123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1	123.1

Levillised Tariff (Rs/Unit)	4.73
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Determination of Accelerated Depreciation for Small Hydro Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	613.4

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	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%
Book Depreciation	Rs Lakh	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	32.39	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation																																					
Opening	%	100%	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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	0%	0%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depm.	Rs Lakh	613.45	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	581.06	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-32.39	-1.47	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	
Tax Benefit	Rs Lakh	201.09	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-11.21	-0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
Per unit benefit	Rs/Unit	7.73	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.07	0.06	0.05	0.05	0.04	0.04	0.04	0.03	

Levelised benefit	0.49	(Rs/kWh)
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(SHP above 5 MW and upto and including 25 MW)

Form 1.1 Assumptions Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	30%	
			Auxilliary Consumption		1%	
			Useful Life	Years	35	
			Tariff Period	Years	13	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	558.13	
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	390.69	
			Total Equity Amout	Rs Lacs	167.44	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	390.69
				Moratorium Period	years	0.00
				Repayment Period(incl Moratorium)	years	12.00
				Interest Rate	%	12.56%
				<u>Equity Component</u>	Equity amount	Rs Lacs
			Return on Equity for first 10 years (16% gross up with MAT rate)		% p.a	20.34%
			RoE Period		Year	10.00
			Return on Equity 11th year onwards (16% gross up with Income tax rate)			24.47%
			Weighted average of ROE			23.29%
						Discount Rate (equiv. to WACC)
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%	
			MAT Rate (for first 10 years)	%	21.34%	
			80 IA benefits	Yes/No	Yes	
			<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.83%
				Depreciation Rate 13th year onwards	%	0.87%
				Years for 5.83% depreciation rate		12
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15.00%	
			Receivables for Debtors	Months	2	
			Interest On Working Capital	%	13.06%	
6	Operation & Maintenance		power plant (FY 2015-16)	Rs Lakh	15.42	
			Total O & M Expenses Escalation	%	2.75%	
			power plant (FY 2016-17)	Rs Lakh	15.84	

2.2 Form Template for (Small Hydro Power Projects) : Determination of Tariff Component

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	26	27	28	29	30	31	32	33	34	35	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Auxiliary Consumption	MU		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Net Generation	MU		2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60

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	26	27	28	29	30	31	32	33	34	35	
O&M Expenses	Rs Lakh		15.84	16.28	16.73	17.19	17.66	18.14	18.64	19.15	19.68	20.22	20.78	21.35	21.94	22.54	23.16	23.79	24.45	25.12	25.81	26.52	27.25	28.00	28.77	29.56	30.37	31.20	32.06	32.94	33.85	34.78	35.73	36.72	37.72	38.76	39.83	
Depreciation	Rs Lakh		32.56	32.56	32.56	32.56	32.56	32.56	32.56	32.56	32.56	32.56	32.56	32.56	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85
Interest on term loan	Rs Lakh		47.04	42.95	38.86	34.77	30.68	26.59	22.50	18.41	14.32	10.23	6.14	2.05	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	
Interest on working Capital	Rs Lakh		2.78	2.80	2.81	2.82	2.84	2.85	2.87	2.88	2.90	2.92	2.93	2.95	2.97	2.99	3.01	3.03	3.04	3.07	3.09	3.11	3.13	3.15	3.18	3.20	3.23	3.25	3.28	3.30	3.33	3.36	3.39	3.42	3.45	3.48	3.51	
Return on Equity	Rs Lakh		34.06	34.06	34.06	34.06	34.06	34.06	34.06	34.06	34.06	34.06	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	40.97	
Total Fixed Cost	Rs Lakh		132.28	128.64	125.01	121.39	117.79	114.20	110.62	107.06	103.51	99.98	103.37	99.87	70.73	71.35	71.99	72.64	73.31	74.01	74.72	75.45	76.20	76.97	77.76	78.58	79.42	80.28	81.16	82.07	83.00	83.96	84.94	85.96	87.00	88.06	89.16	
Per unit Fixed Cost	RskWh		5.08	4.94	4.80	4.67	4.53	4.39	4.25	4.12	3.98	3.84	3.97	3.84	2.72	2.74	2.77	2.79	2.82	2.84	2.87	2.90	2.93	2.96	2.99	3.02	3.05	3.09	3.12	3.15	3.19	3.23	3.26	3.30	3.34	3.38	3.43	

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	26	27	28	29	30	31	32	33	34	35	
O&M expn	Rs/kWh	0.78	0.61	0.63	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84	0.87	0.89	0.91	0.94	0.97	0.99	1.02	1.05	1.08	1.11	1.14	1.17	1.20	1.23	1.27	1.30	1.34	1.37	1.41	1.45	1.49	1.53	
Depreciation	Rs/kWh	0.95	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Int. on term loan	Rs/kWh	0.81	1.81	1.65	1.49	1.34	1.18	1.02	0.86	0.71	0.55	0.39	0.24	0.08	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	
Int. on working capital	Rs/kWh	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14
RoE	Rs/kWh	1.40	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	
Total COG	RskWh	4.06	5.08	4.94	4.80	4.67	4.53	4.39	4.25	4.12	3.98	3.84	3.97	3.84	2.72	2.74	2.77	2.79	2.82	2.84	2.87	2.90	2.93	2.96	2.99	3.02	3.05	3.09	3.12	3.15	3.19	3.23	3.26	3.30	3.34	3.38	3.43	

Levillised Tariff	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	26	27	28	29	30	31	32	33	34	35	
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090	0.081	0.074	0.067	0.060	0.055	0.049	0.045	0.040	0.037	0.033	
Fixed Cost			105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6	105.6

Levillised Tariff (Rs/Unit)	4.06
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Determination of Accelerated Depreciation for Small Hydro Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	558.1

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	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%
Book Depreciation	Rs Lakh	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation

Opening	%	100%	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%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	0%	0%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depm.	Rs Lakh	558.13	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	528.66	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-29.47	-1.34	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
Tax Benefit	Rs Lakh	182.96	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-10.20	-0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
Per unit benefit	Rs/Unit	7.03	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.07	0.06	0.05	0.05	0.04	0.04	0.04

Levelised benefit	0.40	(Rs/kWh)
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Annexure – 3
(Biomass Power Project)

2.1 Form Template for Biomass Power Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	10%
			Auxillary Consumption after stabilisation	%	10%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			Tariff Period	Years	13
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	500.88
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	350.61
			Total Equity Amount	Rs Lacs	150.26
		Debt Component	Loan Amount	Rs Lacs	350.61
			Moratorium Period	years	0.00
			Repayment Period(incl. Moratorium)	years	12.00
			Interest Rate	%	12.56%
		Equity Component	Equity amount	Rs Lacs	150.26
			Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
			RoE Period	Year	10.00
			Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
			Weighted average of ROE		22.40%
			Discount Rate (equiv. to WACC)		10.55%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	21.34%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	5.83%
Depreciation Rate 13th year onwards	%		2.50%		
			Years for 5.83% depreciation rate		12
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
		Receivables for Debtors	Months	2	
		For Variable Charges			
		Biomass Stock	Months	4	
	Interest On Working Capital	%	13.06%		
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	4,200
			During Stablization Period	Kcal/kwh	4,200
		Biomass	Base Price - Biomass (FY15-16)	Rs/T	3,987.00
			Price - Biomass (FY16-17)	Rs/T	4,186.35
	GCV - Bagasse	Kcal/kg	3,611		
7	Operation & Maintenance		power plant (FY 2015-16)		26.30
			Total O & M Expenses Escalation	%	2.75%
			power plant (FY 2016-17)		27.02

2.2 Form Template for (Biomass based Power Projects) : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.69	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01
Auxiliary Consumption	MU		0.57	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Net Generation	MU		5.12	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31

Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh		277.25	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23	341.23
Per unit Var Cost	Rs/kWh		5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		27.02	27.76	28.53	29.31	30.12	30.94	31.79	32.67	33.57	34.49	35.44	36.41	37.41	38.44	39.49	40.58	41.69	42.84	44.02	45.23
Depreciation	Rs Lakh		29.22	29.22	29.22	29.22	29.22	29.22	29.22	29.22	29.22	29.22	29.22	29.22	12.52	12.52	12.52	12.52	12.52	12.52	12.52	12.52
Interest on term loan	Rs Lakh		42.21	38.54	34.87	31.20	27.53	23.86	20.19	16.52	12.85	9.18	5.51	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		21.44	26.22	26.25	26.27	26.30	26.32	26.35	26.37	26.40	26.43	26.46	26.49	26.52	26.55	26.58	26.61	26.65	26.68	26.72	26.76
Return on Equity	Rs Lakh		30.57	30.57	30.57	30.57	30.57	30.57	30.57	30.57	30.57	30.57	36.77	36.77	36.77	36.77	36.77	36.77	36.77	36.77	36.77	36.77
Total Fixed Cost	Rs Lakh		150.46	152.31	149.43	146.56	143.72	140.91	138.11	135.34	132.60	129.88	133.38	130.72	113.22	114.28	115.36	116.48	117.63	118.81	120.03	121.27
Per unit Fixed Cost	Rs/kWh		2.94	2.41	2.37	2.32	2.28	2.23	2.19	2.15	2.10	2.06	2.11	2.07	1.80	1.81	1.83	1.85	1.87	1.88	1.90	1.92

Levellised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levellised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41
O&M expn	Rs/kWh	0.53	0.53	0.44	0.45	0.46	0.48	0.49	0.50	0.52	0.53	0.55	0.56	0.58	0.59	0.61	0.63	0.64	0.66	0.68	0.70	0.72
Depreciation	Rs/kWh	0.42	0.57	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Int. on term loan	Rs/kWh	0.35	0.82	0.61	0.55	0.49	0.44	0.38	0.32	0.26	0.20	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
RoE	Rs/kWh	0.52	0.60	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Total COG	Rs/kWh	7.66	8.35	7.83	7.78	7.73	7.69	7.64	7.60	7.56	7.51	7.47	7.52	7.48	7.21	7.22	7.24	7.26	7.28	7.29	7.31	7.33

Levellised Tariff	Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149
Variable Cost			277.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2	341.2
Fixed Cost			115.3	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9	141.9

Levellised Tariff (Variable)	5.41
Levellised Tariff (Fixed)	2.25
Levellised Tariff (Rs/Unit)	7.66

Determination of Accelerated Depreciation for Biomass based Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	500.9

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%
Book Depreciation	Rs Lakh	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	26.45	1.20	0.00	0.00

Accelerated Depreciation																					
Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelrated Depm.	Rs Lakh	500.88	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

Net Depreciation Benefit	Rs Lakh	474.43	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-26.45	-1.20	0.00	0.00
Tax Benefit	Rs Lakh	164.19	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-9.15	-0.42	0.00	0.00
Net Energy generation	MU	5.12	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
Per unit benefit	Rs/Unit	3.20	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.01	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15

Levellised benefit	0.17	(Rs/kWh)
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Annexure – 4
(Co-gen. Power Projects)

2.1 Form Template for Cogen Power Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxillary Consumption during stabilisation	%	8.5%
			Auxillary Consumption after stabilisation	%	8.5%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	60%
			PLF(second year onwards)	%	60%
			Useful Life	Years	20
			Tariff Period	Years	13
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	495.51
		3	Financial Assumptions	<u>Debt: Equity</u>	
Debt	%			70%	
Equity	%			30%	
Total Debt Amount	Rs Lacs			346.85	
Total Equity Amout	Rs Lacs			148.65	
<u>Debt Component</u>					
Loan Amount	Rs Lacs			346.85	
Moratorium Period	years			0	
Repayment Period(incld Moratorium)	years			12	
Interest Rate	%			12.56%	
<u>Equity Component</u>					
Equity amount	Rs Lacs			148.65	
Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a			20.34%	
RoE Period	Year			10.00	
Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%			
Weighted average of ROE		22.40%			
Discount Rate (equiv. to WACC)		10.55%			
4	Financial Assumptions	<u>Fiscal Assumptions</u>			
		Income Tax	%	34.61%	
		MAT Rate (for first 10 years)	%	21.34%	
		80 IA benefits	Yes/No	Yes	
		<u>Depreciation</u>			
		Depreciation Rate(power plant)	%	5.83%	
Depreciation Rate 13th year onwards	%	2.50%			
Years for 5.83% depreciation rate		12.00			
5	Working Capital	<u>For Fixed Charges</u>			
		O&M Charges	Months	1	
		Maintenance Spare	(% of O&M exepenses)	15%	
		Receivables for Debtors	Months	2	
		<u>For Variable Charges</u>			
		Biomass Stock	Months	4	
Interest On Working Capital	%	13.06%			
6	Fuel Related Assumptions	<u>Heat Rate</u>			
		After Stabilisation period	Kcal/kwh	3600	
		During Stablization Period	Kcal/kwh	3600	
		<u>Biomass</u>			
		Base Price - Bagasse (FY15-16)	Rs/T	2326.84	
		Price - Bagasse (FY16-17)	Rs/T	2443.18	
GCV - Bagasse	Kcal/kg	2250			
Biomass Price Escalation Factor		0%			
7	Operation & Maintenance	power plant (FY 2015-16)		17.31	
		<u>Total O & M Expenses Escalation</u>	%	2.75%	
		power plant (FY 2016-17)		17.79	

2.2 Form Template for (Cogen and Bagasse based Power Projects) : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26
Auxiliary Consumption	MU		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Net Generation	MU		4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81

Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh		205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46	205.46
Per unit Var Cost	Rs/kWh		4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27

Fixed Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
O&M Expenses	Rs Lakh		17.79	18.28	18.78	19.29	19.82	20.37	20.93	21.50	22.10	22.70	23.33	23.97	24.63	25.30	26.00	26.71	27.45	28.20	28.98	29.77
Depreciation	Rs Lakh		28.90	28.90	28.90	28.90	28.90	28.90	28.90	28.90	28.90	28.90	28.90	28.90	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39
Interest on term loan	Rs Lakh		41.76	38.13	34.50	30.87	27.24	23.60	19.97	16.34	12.71	9.08	5.45	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		16.50	16.52	16.53	16.55	16.57	16.58	16.60	16.62	16.64	16.65	16.67	16.69	16.71	16.73	16.75	16.78	16.80	16.82	16.85	16.87
Return on Equity	Rs Lakh		30.24	30.24	30.24	30.24	30.24	30.24	30.24	30.24	30.24	30.24	36.37	36.37	36.37	36.37	36.37	36.37	36.37	36.37	36.37	36.37
Total Fixed Cost	Rs Lakh		135.19	132.07	128.95	125.85	122.77	119.70	116.64	113.60	110.58	107.58	110.72	107.75	90.10	90.80	91.51	92.25	93.01	93.78	94.58	95.40
Per unit Fixed Cost	Rs/kWh		2.81	2.75	2.68	2.62	2.55	2.49	2.43	2.36	2.30	2.24	2.30	2.24	1.87	1.89	1.90	1.92	1.93	1.95	1.97	1.98

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27
O&M expn	Rs/kWh	0.44	0.37	0.38	0.39	0.40	0.41	0.42	0.44	0.45	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.56	0.57	0.59	0.60	0.62
Depreciation	Rs/kWh	0.54	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Int. on term loan	Rs/kWh	0.44	0.87	0.79	0.72	0.64	0.57	0.49	0.42	0.34	0.26	0.19	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.35	0.34	0.34	0.34	0.34	0.34	0.34	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
RoE	Rs/kWh	0.66	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Total COG	Rs/kWh	6.70	7.08	7.02	6.95	6.89	6.82	6.76	6.70	6.63	6.57	6.51	6.57	6.51	6.15	6.16	6.18	6.19	6.21	6.22	6.24	6.26

Levillised Tariff	Unit	Year ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149
Variable Cost			205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4	205.4
Fixed Cost			116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9	116.9

Levillised Tariff (Variable)	4.27
Levillised Tariff (Fixed)	2.43
Levillised Tariff (Rs/Unit)	6.70

Determination of Accelerated Depreciation for Cogen and Bagasse based Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	495.5

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%
Book Depreciation	Rs Lakh	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	26.16	1.19	0.00	0.00

Accelerated Depreciation																					
Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelrated Deprn.	Rs Lakh	495.51	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

Net Depreciation Benefit	Rs Lakh	469.34	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-26.16	-1.19	0.00	0.00
Tax Benefit	Rs Lakh	162.43	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-9.05	-0.41	0.00	0.00
Net Energy generation	MU	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81
Per unit benefit	Rs/Unit	3.38	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.01	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15

Levellised benefit	0.22	(Rs/kWh)
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Annexure – 5A
(Solar PV)

Form 1.1 Assumptions Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	19%
			Auxilliary Consumption		0%
			Useful Life	Years	25
			Tariff Period	Years	13
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	605.85
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	424.10
			Total Equity Amount	Rs Lacs	181.76
		Debt Component	Loan Amount	Rs Lacs	424.10
			Moratorium Period	years	0.00
			Repayment Period(incld Moratorium)	years	12.00
			Interest Rate	%	12.56%
		Equity Component	Equity amount	Rs Lacs	181.76
			Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
			RoE Period	Year	10.00
			Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
			Weighted average of ROE		21.29%
		Discount Rate (equiv. to WACC)		10.55%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	21.34%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	5.83%
			Depreciation Rate 13th year onwards	%	1.54%
		Years for 5.83% depreciation rate		12	
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	2
		Interest On Working Capital	%	13.06%	
6	Operation & Maintenance	power plant (FY 2015-16)	Rs Lakh	13.00	
		Total O & M Expenses Escalation	%	2.75%	
		power plant (FY 2016-17)	Rs Lakh	13.36	

2.2 Form Template for (Solar PV Power Projects) : Determination of Tariff Component

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	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
Auxiliary Consumption	MU		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	0.00
Net Generation	MU		1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66

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 Expenses	Rs Lakh		13.36	13.72	14.10	14.49	14.89	15.30	15.72	16.15	16.59	17.05	17.52	18.00	18.49	19.00	19.52	20.06	20.61	21.18	21.76	22.36	22.97	23.60	24.25	24.92	25.60	
Depreciation	Rs Lakh		35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32
Interest on term loan	Rs Lakh		51.06	46.62	42.18	37.74	33.30	28.86	24.42	19.98	15.54	11.10	6.66	2.22	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
Interest on working Capital	Rs Lakh		2.85	2.86	2.87	2.88	2.90	2.91	2.92	2.93	2.95	2.96	2.98	2.99	3.01	3.02	3.04	3.05	3.07	3.09	3.11	3.12	3.14	3.16	3.18	3.20	3.22	
Return on Equity	Rs Lakh		36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47	44.47
Total Fixed Cost	Rs Lakh		139.58	135.52	131.47	127.43	123.40	119.38	115.37	111.38	107.39	103.42	106.97	103.02	75.29	75.82	76.35	76.91	77.47	78.06	78.66	79.27	79.91	80.56	81.23	81.91	82.62	
Per unit Fixed Cost	Rs/kWh		8.39	8.14	7.90	7.66	7.41	7.17	6.93	6.69	6.45	6.21	6.43	6.19	4.52	4.56	4.59	4.62	4.65	4.69	4.73	4.76	4.80	4.84	4.88	4.92	4.96	

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	Rs/kWh	0.99	0.80	0.82	0.85	0.87	0.89	0.92	0.94	0.97	1.00	1.02	1.05	1.08	1.11	1.14	1.17	1.21	1.24	1.27	1.31	1.34	1.38	1.42	1.46	1.50	1.54	
Depreciation	Rs/kWh	1.75	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Int. on term loan	Rs/kWh	1.46	3.07	2.80	2.53	2.27	2.00	1.73	1.47	1.20	0.93	0.67	0.40	0.13	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
Int. on working capital	Rs/kWh	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
RoE	Rs/kWh	2.36	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67
Total COG	Rs/kWh	6.74	8.39	8.14	7.90	7.66	7.41	7.17	6.93	6.69	6.45	6.21	6.43	6.19	4.52	4.56	4.59	4.62	4.65	4.69	4.73	4.76	4.80	4.84	4.88	4.92	4.96	

Levillised Tariff	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
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090
Fixed Cost			112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2

Levillised Tariff (Rs/Unit)	6.74
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Determination of Accelerated Depreciation for Solar PV Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	605.9

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	31.99	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation

Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	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%
Accelerated Depm.	Rs Lakh	605.85	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

Net Depreciation Benefit	Rs Lakh	573.86	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-31.99	-1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	198.60	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-11.07	-0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
Per unit benefit	Rs/Unit	11.93	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09

Levellised benefit	0.72	(Rs/kWh)
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Annexure – 5B
(Solar Thermal Projects)

Form 1.1 Assumptions Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	23%
			Auxilliary Consumption		10%
			Useful Life	Years	25
			Tariff Period	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	1200.00
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	840.00
			Total Equity Amout	Rs Lacs	360.00
		<u>Debt Component</u>	Loan Amount	Rs Lacs	840.00
			Moratorium Period	years	0.00
			Repayment Period(incld Moratorium)	years	12.00
			Interest Rate	%	12.56%
		<u>Equity Component</u>	Equity amount	Rs Lacs	360.00
			Return on Equity for first 10 years (16% gross up with MAT rate)	% p.a	20.34%
			RoE Period	Year	10.00
			Return on Equity 11th year onwards (16% gross up with Income tax rate)		24.47%
			Weighted average of ROE		22.82%
			Discount Rate (equiv. to WACC)		10.55%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	34.61%
			MAT Rate (for first 10 years)	%	21.34%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	5.83%
			Depreciation Rate 13th year onwards	%	1.54%
			Years for 5.83% depreciation rate		12
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15.00%
			Receivables for Debtors	Months	2
		Interest On Working Capital	%	13.06%	
6	Operation & Maintenance		power plant (FY 2015-16)	Rs Lakh	15.00
			Total O & M Expenses Escalation	%	2.75%
			power plant (FY 2016-17)	Rs Lakh	15.41

2.2 Form Template for (Solar Thermal Power Projects) : Determination of Tariff Component

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	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Auxiliary Consumption	MU		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Net Generation	MU		1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81

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 Expenses	Rs Lakh		15.41	15.84	16.27	16.72	17.18	17.65	18.13	18.63	19.15	19.67	20.21	20.77	21.34	21.92	22.53	23.15	23.78	24.44	25.11	25.80	26.51	27.23	27.98	28.75	29.54
Depreciation	Rs Lakh		70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46
Interest on term loan	Rs Lakh		101.13	92.34	83.55	74.75	65.96	57.16	48.37	39.57	30.78	21.99	13.19	4.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		4.99	5.01	5.02	5.03	5.05	5.06	5.08	5.09	5.11	5.12	5.14	5.16	5.17	5.19	5.21	5.23	5.25	5.27	5.29	5.31	5.33	5.35	5.38	5.40	5.42
Return on Equity	Rs Lakh		73.23	73.23	73.23	73.23	73.23	73.23	73.23	73.23	73.23	73.23	73.23	73.23	88.08	88.08	88.08	88.08	88.08	88.08	88.08	88.08	88.08	88.08	88.08	88.08	88.08
Total Fixed Cost	Rs Lakh		264.77	256.41	248.07	239.73	231.41	223.10	214.81	206.53	198.26	190.01	196.63	188.41	133.06	133.66	134.28	134.92	135.58	136.25	136.94	137.65	138.38	139.14	139.91	140.70	141.51
Per unit Fixed Cost	Rs/kWh		14.60	14.14	13.68	13.22	12.76	12.30	11.85	11.39	10.93	10.48	10.84	10.39	7.34	7.37	7.41	7.44	7.48	7.51	7.55	7.59	7.63	7.67	7.72	7.76	7.80

Levillised tariff corresponding to Useful life

Per Unit Cost of Generation	Unit	Levillised	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	Rs/kWh	1.05	0.85	0.87	0.90	0.92	0.95	0.97	1.00	1.03	1.06	1.08	1.11	1.15	1.18	1.21	1.24	1.28	1.31	1.35	1.38	1.42	1.46	1.50	1.54	1.59	1.63
Depreciation	Rs/kWh	3.18	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Int. on term loan	Rs/kWh	2.65	5.58	5.09	4.61	4.12	3.64	3.15	2.67	2.18	1.70	1.21	0.73	0.24	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
Int. on working capital	Rs/kWh	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.30	0.30	0.30	0.30
RoE	Rs/kWh	4.29	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86
Total COG	Rs/kWh	11.46	14.60	14.14	13.68	13.22	12.76	12.30	11.85	11.39	10.93	10.48	10.84	10.39	7.34	7.37	7.41	7.44	7.48	7.51	7.55	7.59	7.63	7.67	7.72	7.76	7.80

Levillised Tariff	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
Discount Factor			1	0.905	0.818	0.740	0.670	0.606	0.548	0.496	0.448	0.405	0.367	0.332	0.300	0.271	0.246	0.222	0.201	0.182	0.164	0.149	0.135	0.122	0.110	0.100	0.090
Fixed Cost			207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8	207.8

Levillised Tariff (Rs/Unit)	11.46
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Determination of Accelerated Depreciation for Solar Thermal Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Additional Depreciation	20%
Income Tax (MAT)	21.342%
Income Tax (Normal Rates)	34.61%
Capital Cost	1200.0

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	63.36	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation

Opening	%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	100%	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%
Closing	%	0%	0%	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%
Accelerated Depn.	Rs Lakh	1200.00	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

Net Depreciation Benefit	Rs Lakh	1136.64	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-63.36	-2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	393.37	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-21.93	-1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Energy generation	MU	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
Per unit benefit	Rs/Unit	21.69	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-1.21	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09

Levelised benefit	1.30	(Rs/kWh)
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