

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 256/2010 (Suo-Motu)

**Coram: 1. Dr. Pramod Deo, Chairperson
2. Shri S.Jayaraman, Member
3. Shri V.S.Verma, Member
4. Shri Deena Dayalan, Member**

Date of hearing: Suo-Motu

Date of order: 15th September, 2010

IN THE MATTER OF

Determination of generic levelled generation tariff under Regulation 8 of the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009 and Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) (First Amendment) Regulations, 2010.

ORDER

1. The Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009, (hereinafter referred to as “the RE Regulations”) provide for terms and conditions and the procedure for determination of tariff of the following categories of renewable energy generating stations:
 - (a) Wind Power Project;
 - (b) Small Hydro Projects;
 - (c) Biomass Power Projects;
 - (d) Non-fossil fuel-based co-generation Plants;
 - (e) Solar Photo voltaic (PV) and Solar Thermal Power Projects.

2. The Regulations enjoins upon the Commission to determine the generic tariff on the basis of the *suo motu* petition, for the RE technologies for which norms have been provided in the Regulations. Generic Tariff is different from the project specific tariff for which a project developer has to file petition before the commission as per the format provided in the RE regulations. Pertinently, project specific tariff has been envisaged for the new RE technologies

and the technologies which are still at the nascent stage of development, and the Commission shall determine the project specific tariff for such technologies on a case to case basis.

3. Clause (1) of Regulation 8 of the RE Regulations provides that “the Commission shall determine the generic tariff on the basis of suo *motu* petition at least six months in advance at the beginning of each year of the Control period for renewable energy technologies for which norms have been specified under the Regulations.” The Commission has notified the RE Tariff Regulations on 16.9.2009 and subsequently issued two generic suo-motu tariff orders, which were applicable for the renewable energy projects to be commissioned during first year of the control period (i.e. FY2009-10) and second year of the control period (i.e. FY2010-11). The Commission, in due discharge of the mandate under Regulation 8(1) of RE Regulations proposes to determine the generic tariff of the RE projects for the third year of control period (i.e. FY 2011-12) through this order.
4. The Commission has made the following provision in regulation 8 through the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) (First Amendment) Regulations, 2010, as under:

“(2) Notwithstanding anything contained in these regulations,

a) the generic tariff determined for Solar PV projects based on the capital cost and other norms applicable for the year 2010-11 shall also apply for such projects during the year 2011-12; and

b) the generic tariff determined for Solar thermal projects based on the capital cost and other norms for the year 2010-11 shall also apply for such projects during the years 2011-12 and 2012-13,

provided that (i) the Power Purchase Agreements in respect of the Solar PV projects and Solar thermal projects as mentioned in this clause are signed on or before 31st March, 2011; and (ii) the entire capacity covered by the Power Purchase Agreements is commissioned on or before 31st March, 2012 in respect of Solar PV projects and on or before 31st March, 2013 in respect of Solar thermal projects.”

5. In pursuance of First Amendment to the RE Tariff Regulations, the Commission, through its Suo Motu order (Petition No. 53/2010 based on the financial principles and technology specific parameters, determined tariff for FY 2010-11 and FY 2011-12 in case of solar photovoltaic power projects and for FY 2010-11, FY 2011-12 and FY 2012-13 in case of solar thermal power projects, subject to the condition that power purchase agreement (PPA) for such Solar PV and Solar thermal power projects shall be signed before 31.03.2011 and entire capacity shall be commissioned on or before 31.03.2012, in case of solar PV projects and on or before March 31, 2013 in case of thermal projects.
6. As specified in Regulation 6 of RE Regulations, the benchmark cost for Solar PV and Solar thermal may be reviewed by the Commission annually. The Tariff for the Solar photovoltaic power projects and Solar thermal power projects for FY 2011-12, whose PPAs are to be signed after March 31, 2011 would be based on the benchmark capital cost norm for Solar PV and Solar thermal projects for the FY 2011-12.
7. The Commission proposes to determine the generic tariff for renewable energy technologies for the year 2011-12, as per the proposal enclosed as Annexure- 1.
8. Comments /suggestions of the stakeholders on the above proposal are invited by 10th October, 2010.

Sd/-	Sd/-	Sd/-	Sd/-
[DEENA DAYALAN]	[V.S.VERMA]	[S. JAYARAMAN]	[Dr. PRAMOD DEO]
MEMBER	MEMBER	MEMBER	CHAIRPERSON

New Delhi

Dated the 15th September, 2010

Annexure-1

The proposed generic levellised generation tariff for various renewable energy technologies, for FY 2011-12

1. The proposed generic levellised generation tariff for various renewable energy technologies, for FY 2011-12 are discussed below:

USEFUL LIFE

2. Sub-clause (y) of clause(1) of Regulation 2 of the RE Regulations defines 'useful life' in relation to a unit of a generating station (including evacuation system) to mean the following duration from the date of commercial operation of such generation facility:

Renewable Energy Projects	Years
Wind energy	25
Small Hydro	35
Biomass	20
Non-fossil fuel co-generation	20
Solar PV	25
Solar Thermal	25

CONTROL PERIOD

3. Regulation 5 of the RE Regulations provides that the control period for determination of tariff for renewable energy projects (RE projects) shall be three years. The first year of the control period was from the date of notification of the RE Regulations till 31.3.2010, the second year of the control period shall be FY 2010-11 and third year of the control period shall be FY 2011-12. The Proviso to the said regulation stipulates that the tariff determined for the RE projects commissioned during the control period shall continue to be applicable for the entire duration of the tariff period as specified in Regulation 6 of the RE Regulations.

TARIFF PERIOD

4. In terms of Regulation 6 of the RE Regulations, the tariff period in respect of the RE projects is as under:

Renewable Energy Projects	Years
Wind energy	13
Small Hydro below 5 MW	35
Small Hydro 5-25 MW	13
Biomass	13
Non-fossil fuel co-generation	13
Solar PV and Solar Thermal	25

In terms of clauses (4) and (5) of the said regulation, the tariff period specified above shall be reckoned from the date of commercial operation of the RE projects and the tariff determined under the regulations shall be applicable for the duration of the tariff period.

TARIFF STRUCTURE

5. Clause (1) of Regulation 9 of the RE Regulations stipulates that the tariff for RE projects shall be 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 renewable energy technologies having fuel cost component, like biomass power projects and non-fossil fuel based cogeneration, single part tariff with two components, fixed cost component and fuel cost component, is to be determined.

TARIFF DESIGN

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

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

Provided that for renewable energy technologies having single part tariff with two components, tariff shall be determined on levellised basis considering

the year of commissioning of the project for fixed cost component while the fuel cost component shall be specified on year of operation basis.

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

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

LEVELLISED TARIFF

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

Discount Factor

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

Interest Rate considered for the loan component (i.e. 70%) of Capital Cost is 13.25% (as explained later). For equity component (i.e. 30%) rate of Return on Equity (ROE) for the first ten (10) years is 19% and for 11th year onward till useful life of the RE project the rate is 24%. Based on these rates, the weighted average of rate of ROE has been calculated which is around 22% (ranging from 21.5% to 22.5% depending on useful life of RE technologies).

The discount factor derived by this method for each technology is as shown in the following table:

Details	Wind Energy	Small Hydro				Biomass	Non-fossil fuel co-generation	Solar PV	Solar Thermal
		Less than 5 MW (Himachal Pradesh, Uttarakhand and North Eastern States)	Between 5 MW to 25 MW (Himachal Pradesh, Uttarakhand and North Eastern States)	Other States (below 5 MW)	Other states (5 MW to 25 MW)				
Discount Rate (%)	15.88%	16.05%	16.05%	16.05%	16.05%	15.73%	15.73%	15.88%	15.88%

CAPITAL COST

8. Regulation 12 of the RE Regulations stipulates that the norms for the capital cost as specified in the technology specific chapter shall be inclusive of all capital works like plant and machinery, civil works, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point. The Commission has specified the normative capital cost, applicable for the first year of control period i.e. FY 2009-10, for various RE technologies viz Wind Energy, Small Hydro Power, Biomass Power, Non-Fossil Fuel based Cogeneration Solar PV and Solar Thermal Projects.

In order to determine the normative capital cost for the remaining years of the control period, the regulations stipulate the indexation mechanism, for Wind Energy, Small Hydro Power, Biomass Power and Non-Fossil Fuel based Cogeneration. However, the Capital Cost norms for Solar PV and Solar Thermal Power Projects shall be reviewed on annual basis. The indexation mechanism shall take into account adjustments in capital cost with the changes in Wholesale Price Index of Steel and Wholesale Price Index of Electrical Machinery as per formulation stipulated under the RE Tariff Regulations, which is reproduced below.

$$CC_{(n)} = P\&M_{(n)} * (1+F_1+F_2+F_3)$$

$$P\&M_{(n)} = P\&M_{(0)} * (1+d_{(n)})$$

$$d_{(n)} = [a * \{(SI_{(n-1)}/SI_{(0)}) - 1\} + b * \{(EI_{(n-1)}/EI_{(0)}) - 1\}] / (a+b)$$

Where,

$CC_{(n)}$ = Capital Cost for nth year

$P\&M_{(n)}$ = Plant and Machinery Cost for nth year

$P\&M_{(0)}$ = Plant and Machinery Cost for the base year

Note: $P\&M_{(0)}$ is to be computed by dividing the base capital cost (for the first year of the control period) by $(1+F_1+F_2+F_3)$. Factors F_1, F_2, F_3 for each RE technology has been specified separately, as summarized in following table.

$d_{(n)}$ = Capital Cost escalation factor for year (n) of Control Period

$SI_{(n-1)}$ = Average WPI Steel Index prevalent for calendar year (n-1) of the Control Period

$SI_{(0)}$ = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2008 to December 2008

$EI_{(n-1)}$ = Average WPI Electrical Machinery Index prevalent for calendar year (n-1) of the Control Period

$EI_{(0)}$ = Average WPI Electrical and Machinery Index prevalent for calendar year (0) at the beginning of the Control Period i.e. January 2008 to December 2008

a = Constant to be determined by Commission from time to time,
(for weightage to Steel Index)

b = Constant to be determined by Commission from time to time,
(for weightage to Electrical Machinery Index)

F_1 = Factor for Land and Civil Works

F_2 = Factor for Erection and Commissioning

F_3 = Factor for IDC and Financing Cost

The default values of the factors for various RE technologies as stipulated under the said RE Regulations, is summarized in the table below,

Parameters	Wind Energy	Small Hydro Projects	Biomass Power	Non-Fossil Fuel Based Cogeneration
a	0.6	0.6	0.7	0.7
b	0.4	0.4	0.3	0.3
F1	0.08	0.16	0.10	0.10
F2	0.07	0.10	0.09	0.09
F3	0.10	0.14	0.14	0.14

The Commission has relied on the following sources for relevant information on various indices:

- Source for WPI (electrical & machinery and iron and steel), WPI (all commodities), WPI (Price of HSD): Office of Economic Advisor, Ministry of Commerce & Industry (www.eaindustry.nic.in)
- Source for IRC (Average Annual Inflation rate for indexed energy charge component in case of captive coal mine source): CERC (www.cercind.gov.in)

Technology specific capital cost of RE projects is discussed hereinunder:

(A) Capital Cost of Wind Energy for FY 2011-12

9. Wind Power projects located at the wind sites having minimum annual Wind Power Density(WPD) of 200 Watt/m² measured at hub height of 50 meters and using new wind turbine generators are eligible for tariff determination under the RE Regulations. Regulation 24 provides that the capital cost for wind energy project shall include wind turbine generator including its auxiliaries, land cost, site development charges and other civil works, transportation charges, evacuation cost up to inter-connection point, financing charges and IDC.

The Commission under Regulation 24 (2) has specified the normative capital cost for wind energy projects as Rs. 515Lakh/MW for FY 2009-10 which shall be linked to the indexation mechanism specified under Regulation 25 of the RE Tariff Regulations. In line with the indexation mechanism specified in Regulation 25 of the RE Regulations, the Commission determined the normative capital cost of the Wind Energy Projects as Rs.467.13 Lakh/MW for FY 2010-11 vide Order No. 53/2010 dated 26th February 2010. In accordance with the above referred Regulation, the normative capital cost of the Wind energy Projects shall be Rs. 492.52 Lakh/MW for FY 2011-12. The detailed

computations of the indexation mechanism and determination of the capital cost for FY 2011-12 thereof, has been enclosed as **Appendix-1** of this Order.

(B) Capital cost of Small Hydro Projects for FY 2011-12

10. Small Hydro Projects for the purpose of the RE Regulations cover those projects which are located at the sites approved by the State Nodal Agencies/State Governments using new plant and machinery and with installed power plant capacity lower than or equal to 25 MW.

11. The Commission under Regulation 28 (1) has specified the normative capital cost for small hydro projects for FY 2009-10 which shall be linked to the indexation mechanism specified under Regulation 29 of the RE Regulations.

Region	Project Size	Capital Cost (FY 2009-10) (RsLakh/ MW)
Himachal Pradesh, Uttarakhand and North Eastern States	Below 5 MW	700
	5 MW to 25 MW	630
Other States	Below 5 MW	550
	5 MW to 25 MW	500

12. In line with the indexation mechanism, specified in Regulation 29 of the RE Tariff Regulations, the Commission determined the normative capital cost for FY 2010-11 for Small Hydro Projects, vide Order No. 53/2010 dated 26th February 2010, as under,

Region	Project Size	Capital Cost (FY 2010-11) (RsLakh/ MW)
Himachal Pradesh, Uttarakhand and North Eastern States	Below 5 MW	634.94
	5 MW to 25 MW	571.44
Other States	Below 5 MW	498.88
	5 MW to 25 MW	453.53

13. In line with the indexation mechanism, specified in Regulation 29 of the RE Tariff Regulations, the normative capital cost for FY 2011-12 for Small Hydro Projects shall be as under,

Region	Project Size	Capital Cost (FY 2011-12) (Rs. Lakh/ MW)
Himachal Pradesh, Uttarakhand and North Eastern States	Below 5 MW	669.42
	5 MW to 25 MW	602.48
Other States	Below 5 MW	525.97
	5 MW to 25 MW	478.16

The detailed computations of the indexation mechanism and the determination of the capital cost for FY 2011-12 thereof, has been enclosed as **Appendix-2** of this Order.

(C) Capital Cost of Biomass based Power Projects for FY 2011-12

14. Biomass power project for the purpose of these regulations covers the projects using new plant and machinery based on Rankine cycle technology application using water cooled condenser and biomass fuel sources where use of fossil fuel is limited to 15% of total fuel consumption on annual basis.

15. The Commission under Regulation 34 has specified the normative capital cost for the biomass power projects based on Rankine cycle technology application using water cooled condenser as Rs.450 Lakh/MW for FY 2009-10 which shall be linked to the indexation mechanism specified under Regulation 35 of the RE Tariff Regulations. In line with the indexation mechanism specified in Regulation 35 of the RE Regulations, the Commission vide Order No. 53/2010 dated 26th February 2010 determined the normative capital cost of the biomass power projects based on Rankine cycle technology application using water cooled condenser as Rs.402.54Lakh/MW for FY 2010-11. In accordance to the above referred Regulation, the normative capital cost of biomass power projects based on Rankine cycle technology application using water cooled condenser shall be Rs. 426.03 Lakh/MW for FY 2011-12. The detailed calculations of the indexation mechanism and determination of the capital cost for FY 2011-12 thereof, has been enclosed as **Appendix -3** of this Order.

(D) Capital Cost of Non-fossil fuel based Cogeneration Projects for FY 2011-12

16. Non-fossil based cogeneration has been defined as the process in which more than one form of energy is produced in a sequential manner by using biomass. As per Regulation 4(4) of the RE Regulations, a project to qualify as the non-fossil based co-generation project must be using new plant and machinery with topping cycle mode of operation which uses the non-fossil fuel input for power generation and utilizes the thermal energy generated for useful heat applications in other industrial activities simultaneously, and where the sum of useful power output and half of useful thermal output is greater than 45% of the plant's energy consumption during the season.
17. The Commission under Regulation 47 has specified the normative capital cost for the Non-Fossil Fuel Based Cogeneration Projects as Rs.445 Lakh/MW for FY 2009-10 which shall be linked to the indexation mechanism specified under Regulation 48 of the RE Tariff Regulations. In line with the indexation mechanism specified in Regulation 48 of the RE Regulations, the Commission vide Order No. 53/2010 dated 26th February 2010 determined the normative capital cost of the Non-Fossil Fuel based Cogeneration power projects as Rs.398.07Lakh/MW for FY 2010-11. In accordance to the above referred Regulation, the normative capital cost of Non-Fossil Fuel based Cogeneration power projects shall be Rs. 421.30 Lakh/MW for FY 2011-12. The detailed computations of the indexation mechanism and determination of the capital cost for FY 2011-12 thereof, has been enclosed as Appendix-4 of this Order.

(E) Capital Cost of Solar PV based Power Projects for FY 2011-12

18. Solar Photo Voltaic (PV) power projects which directly convert solar energy into electricity using the crystalline silicon or thin film technology or any other technology as approved by the Ministry of New and Renewable Energy and are connected to the grid qualify for the purpose of tariff determination under the RE Regulations.
19. As per Regulation 5, the Commission has reviewed the benchmark capital cost for Solar PV power projects by the Order dated 15th September, 2010 in the Petition No. 255/2010 and it shall be Rs.1442 Lakh/MW for the FY 2011-12.

(F) Capital Cost of Solar Thermal based Power Projects for FY 2011-12

20. In order to qualify for tariff determination under the RE Regulations, Solar Thermal Power Project shall be based on concentrated solar power technologies with line focusing or point focusing as may be approved by the Ministry of New and Renewable Energy and which uses direct sunlight to generate sufficient heat to operate a conventional power cycle to generate electricity.
21. As per Regulation 5, the Commission has reviewed the benchmark capital cost for Solar Thermal Power projects by the Order dated 15th September, 2010 in the Petition No.255 /2010 and it shall be Rs.1500 Lakh/MW for the FY 2011-12.
22. The capital cost for the second year (FY 2011-12) of the control period in respect of the renewable energy power generating stations is summarized as under:

Renewable Energy Projects	Capital Cost Norm for FY 2011-12 (Rs. Lakh/MW)
(1) Wind Energy	492.52
(2) Small Hydro	
(a) Himachal Pradesh, Uttarakhand and North Eastern States (less than 5 MW)	669.42
(b) Himachal Pradesh, Uttarakhand and North Eastern States (5MW to 25 MW)	602.48
(c) Other States (below 5 MW)	525.97
(d) Other States (5MW to 25 MW)	478.16
(3) Biomass power projects	426.03
(4) Non-fossil fuel based co-generation projects	421.30
(5) Solar PV Projects	1442.00
(6) Solar Thermal Projects	1500.00

DEBT-EQUITY RATIO

23. Clause (1) of Regulation 13 of the RE Regulations provides that the debt-equity ratio of 70:30 is to be considered for determination of generic tariff based on suo motu petition.

24. Based on the debt equity ratio of 70:30, the debt and equity components of the normative capital cost for determination of tariff for the RE projects have been worked out as under:

Renewable Energy Projects	Debt (Rs Lakh)	Equity (Rs Lakh)
(1) Wind Energy (for all zones)	344.77	147.76
(2) Small Hydro		
Himachal Pradesh, Uttarakhand and North Eastern States (below 5 MW)	468.59	200.83
Himachal Pradesh, Uttarakhand and North Eastern States (5 MW to 25 MW)	421.73	180.74
Other States (below 5 MW)	368.18	157.79
Other States (5MW to 25 MW)	334.71	143.45
(3) Biomass	298.22	127.81
(4) Non-fossil fuel co-generation	294.91	126.39
(5) Solar PV	1009.40	432.60
(6) Solar Thermal	1050.00	450.00

RETURN ON EQUITY

25. Clause (1) of Regulation 16 of the RE Regulations provides that the value base for the equity shall be 30% of the capital cost for generic tariff determination. Clause (2) of the said regulation stipulates the normative return on equity as under:

- (a) Pre-tax 19% per annum for the first 10 years, and
- (b) Pre-tax 24% per annum from the 11th year onwards.

26. In accordance with the above regulations, return on equity has been worked out in respect of the RE generating technologies taking the value base of equity as 30% of the capital cost as under:

Details	Wind Energy	Small Hydro				Biomass	Non-fossil fuel co-generation	Solar PV	Solar Thermal
		Less than 5 MW (Himachal Pradesh, Uttarakhand and North Eastern States)	Between 5 MW to 25 MW (Himachal Pradesh, Uttarakhand and North Eastern States)	Other States (below 5 MW)	Other states (5 MW to 25 MW)				
Equity opening (Rs in lakh)	147.76	200.83	157.79	157.79	143.45	127.81	126.39	432.60	450.00
Return on Equity for the first 10 years (%)	19	19	19	19	19	19	19	19	19
Return on Equity after first 10 years (%)	24	24	24	24	24	24	24	24	24
Weighted average rate on ROE (%)	22	22.57	22.57	22.57	22.57	21.50	21.50	22	22

INTEREST ON LOAN

27. Clause (1) of Regulation 14 of the RE Regulations provides that the loan tenure of 10 years is to be considered for the purpose of determination of tariff for RE projects. Clause (2) of the said regulation provides for computation of the rate of interest on loan as under:

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

(b) For the purpose of computation of tariff, the normative interest rate shall be considered as average long term prime lending rate (LTPLR) of State Bank of India (SBI) prevalent during the previous year plus 150 basis points.

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

28. It is to be noted that the State bank of India has, with effect on 1 July replaced its Benchmark Prime Lending Rate, or BPLR, of 11.75% by the new regime of base rate which is fixed at 7.5%. Therefore, the weighted average SBI prime lending rate available up to 30th June 2010 has been considered for the determination of tariff, as shown in the table below:

Period	SBI PLR
1-Apr- 2010 to 1-July 2010	11.75%
Avg. SBI PLR	11.75%

Source: State Bank of India (www.statebankofindia.com)

29. In terms of the above, the computations of interest on loan for determination of tariff in respect of the RE projects treating the value base of loan as 70% of the capital cost and the weighted average of SBI prime lending rate for the financial year 2011-12 (i.e. 11.75%) plus 150 basis points (equivalent to interest rate of 13.25%), are as under:

Details	Wind Energy	Small Hydro				Biomass	Non-fossil fuel co-generation	Solar PV	Solar Thermal
		Less than 5 MW (HP, Uttarakhand & North Eastern States)	Between 5 MW to 25MW (HP, Uttarakhand & North Eastern States)	Other States (below 5 MW)	Other states (5 MW to 25 MW)				
Gross loan opening (Rs in lakh)	344.77	468.59	421.73	368.18	334.71	298.22	294.91	1009.4	1050.0
Period of repayment	10	10	10	10	10	10	10	10	10
Rate of interest (%)	13.25%	13.25%	13.25%	13.25%	13.25%	13.25%	13.25%	13.25%	13.25%

DEPRECIATION

30. Regulation 15 of the RE Regulations provides for computation of depreciation in the following manner:

“(1) The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission. The Salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset.

(2) Depreciation per annum shall be based on ‘Differential Depreciation Approach’ over loan tenure and period beyond loan tenure over useful life computed on ‘Straight Line Method’. The depreciation rate for the first 10 years of the Tariff Period shall be 7% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 11th year onwards.

(3) Depreciation shall be chargeable from the first year of commercial operation.

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

31. In accordance with the above, the rate of depreciation for the first 10 years has been considered as 7% and the rate of depreciation from the 11th year onwards has been spread over the balance useful life of the RE project as under:

Details	Wind Energy	Small Hydro	Biomass	Non-fossil fuel co-generation	Solar PV	Solar Thermal
Useful Life (in years)	25	35	20	20	25	25
Rate of depreciation for 10 years (%)	7.00	7.00	7.00	7.00	7.00	7.00
Rate of depreciation after first 10 years (%)	1.33	0.80	2.00	2.00	1.33	1.33

INTEREST ON WORKING CAPITAL

32. Regulation 17 of the RE Regulations provides for the working capital requirements of the RE projects as under:

“(1) The Working Capital requirement in respect of wind energy projects, small hydro power, solar PV and Solar thermal power projects shall be computed in accordance with the following :

Wind Energy / Small Hydro Power /Solar PV / Solar thermal

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

(2) The Working Capital requirement in respect of biomass power projects and non-fossil fuel based co-generation projects shall be computed in accordance with the following clause:

Biomass Power and Non-fossil fuel Co-generation

- (a) Fuel costs for four months equivalent to normative PLF;*
- (b) Operation & Maintenance expense for one month;*
- (c) Receivables equivalent to 2 (Two) months of fixed and variable charges for sale of electricity calculated on the target PLF;*
- (d) Maintenance spare @ 15% of operation and maintenance expenses*

(3) Interest on Working Capital shall be at interest rate equivalent to average State Bank of India short term PLR during the previous year plus 100 basis points”

33. Receivables equivalent to two months of actual fixed cost and variable cost, (as applicable for biomass power and non-fossil fuel based co-generation) have been considered. As mentioned in the Para No. 34, interest rate considered as weighted average of SBI prime lending rate for the financial

year 2011-12 (i.e. 11.75%) plus 100 basis points (equivalent to interest rate of 12.75%). The interest on working capital has been worked out as specified below for determination of tariff of the RE projects:

Details	Wind Energy	Small Hydro	Biomass	Non-fossil fuel co-generation	Solar PV	Solar Thermal
(A) For Fixed charges						
(i) O&M expenses (month)	1	1	1	1	1	1
(ii) Maintenance spares (%) of O&M expenses	15	15	15	15	15	15
(iii) Receivables (months)	2	2	2	2	2	2
(B) For Variable Charges						
Biomass/Bagasse stock (months)	-	-	4	4	-	-
(C) Interest On Working Capital (%)	12.75	12.75	12.75	12.75	12.75	12.75

Source for interest on working capital: State Bank of India (www.statebankofindia.com)

OPERATION AND MAINTENANCE EXPENSES

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

“Operation and Maintenance Expenses

- (1) *Operation and Maintenance or O&M expenses’ shall comprise repair and maintenance (R&M), establishment including employee expenses, and administrative and general expenses.*
- (2) *Operation and maintenance expenses shall be determined for the Tariff Period based on normative O&M expenses specified by the Commission subsequently in these Regulations for the first Year of Control Period.*
- (3) *Normative O&M expenses allowed during first year of the Control Period (i.e.FY 2009-10) under these Regulations shall be escalated at the rate of 5.72% per annum over the Tariff Period.”*

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

(a) Wind Energy: Regulation 27 of RE Regulations provided that the normative O&M expenses for the first year of the control period (i.e. 2009-10) as Rs 6.50 lakh per MW and shall be escalated at the rate of 5.72% per annum over the tariff period for determination of the levellised tariff. Accordingly, the Commission has considered O&M cost norm for wind energy as Rs 7.26 Lakh/MW for FY 2011-12.

(b) Small Hydro: Regulation 32 of RE Regulations provided for the normative O& M expenses for small hydro projects for the year 2009-10 which shall be escalated at the rate of 5.72% per annum over the tariff period for determination of the levellised tariff. Accordingly, the table below presents the normative O&M Expenses considered by the Commission for small hydro power for FY 2011-12,

Region	Project Size	O&M expenses (Rs Lakh/MW)
Himachal Pradesh, Uttarakhand and North Eastern States	Below 5 MW	23.47
	5 MW to 25 MW	16.77
Other States	Below 5 MW	19.00
	5 MW to 25 MW	13.41

(c) Biomass: Regulation 39 of RE Regulations provided that the normative O& M expenses for biomass based projects for the year 2009-10 to be Rs 20.25 lakh/MW and which shall be escalated at the rate of 5.72% per annum over the tariff period for determination of the levellised tariff. Accordingly, the Commission has considered O&M cost norm for biomass power as Rs 22.63 Lakh/MW for FY 2011-12.

(d) Non-fossil fuel co-generation: As per Regulation 55 of RE Regulations, the normative O&M Expenses for non-fossil fuel co-generation projects for the year 2009-10 has been specified as Rs 13.35 lakh per MW which shall be escalated at the rate of 5.72% per annum over the tariff period for determination of the levellised tariff. Accordingly, the Commission has considered O&M cost norm for non-fossil fuel based co-generation as Rs 14.92 Lakh/MW for FY 2011-12.

(e) Solar PV: Regulation 59 of RE Regulations provided that the normative O&M expenses for solar PV projects for the year 2009-10 to be Rs 9.00 lakh/MW which shall be escalated at the

rate of 5.72% per annum over the tariff period for determination of the levellised tariff. Accordingly, O&M expense norm for solar PV power project as Rs 10.06 Lakh/MW for FY 2011-12 has been considered.

(f) Solar Thermal: Regulation 63 of the RE Regulations specified the normative O&M expenses for solar thermal power projects during the first year of operation as Rs 13.00 Lakh/MW to be escalated at the rate of 5.72% per annum over the tariff period for determination of the levellised tariff. Accordingly, O&M expense norm for solar thermal power project as Rs 14.53 Lakh/MW for FY 2011-12, has been considered.

36. The normative O&M expenses have been worked out as specified above for determination of tariff for the renewable energy generating stations.

CAPACITY UTILISATION FACTOR

37. Regulations 26, 30, 58 and 62 of the RE Regulations specify the norms for Capacity Utilization Factor (CUF) in respect of the wind energy and small hydro power generating stations as per the details given in the table below which has been considered for determination of tariff.

Renewable Energy Projects	CUF
(A) Wind Energy	
Annual Mean Wind Power Density (W/m ²)	
Wind zone-1 (200-250)	20%
Wind zone-2 (250-300)	23%
Wind zone-3 (300-400)	27%
Wind zone-4 (above 400)	30%
(B) Small Hydro	
(i) Himachal Pradesh, Uttarakhand and North Eastern States	45%
(ii) Other States	30%
(C) Solar PV	19%
(D) Solar Thermal	23%

38. In terms of clause (2) of Regulation 26 of the RE Regulations, the annual mean wind power density specified above is to be measured at 50 meter hub-height and as per clause (3), for the purpose of classification of wind energy project into particular wind zone class, the State-wise wind power density map prepared by Centre for Wind Energy Technology (C-WET) annexed as schedule to the said regulations, is to be considered.

PLANT LOAD FACTOR (PLF)

39. Regulation 36 of the RE Regulations specifies the plant load factor for biomass based renewable energy generating stations as given in the table below which has been considered for determination of fixed charges component of tariff.

Renewable Energy Projects	PLF (%)
Biomass	
(a) During stabilization (6 months)	60%
(b) During remaining period of the first year (after stabilization)	70%
(c) Second year onwards	80%

40.

R

Regulation 49 of the RE Regulations stipulates the plant load factor for non-fossil fuel based co-generation projects as under, computed on the basis of plant availability for number of operating days considering the operations during crushing season and off-season and load factor of 92%. The number of operating days for different States as specified in the regulations is as under:

41.

States	Operating days	PLF (%)
Uttar Pradesh and Andhra Pradesh	120 days (crushing)+ 60 days (off-season) = 180 days	45%
Tamil Nadu and Maharashtra	180 days (crushing)+ 60 days (off-season) = 240 days	60%
Other States	150 days (crushing) + 60 days (off-season) = 210 days	53%

AUXILIARY POWER CONSUMPTION

42. Regulations 31, 37, 50 and 64 of the RE Regulations stipulate the auxiliary power consumption factor as under which has been considered for determination of tariff of the RE projects :

Renewable Energy Projects	Auxiliary Consumption factor
Small Hydro	1.0%
Biomass	10.0%
Non-fossil fuel co-generation	8.5%
Solar Thermal	10.0%

STATION HEAT RATE

43. The Station Heat Rates (SHR) specified under Regulations 38 and 51 of the RE Regulations for biomass and non-fossil fuel based co-generation projects are as under:

44.

Renewable Energy Projects	SHR (kCal / kWh)
Biomass	3800
Non-fossil fuel co-generation (for power component)	3600

FUEL

(a) Fuel Mix

45. Clause (1) of Regulation 40 of the RE Regulations stipulates that the biomass based power generating stations are to be designed in a way that it uses different types of non-fossil fuels available within the vicinity of biomass power project such as crop residues, agro-industrial residues, forest residues etc. and other biomass fuels as may be approved by the Ministry of Non-Renewable Energy (MNRE). Clause (2) of the said regulations stipulates that the biomass power generating companies are to ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

(b) Use of fossil fuel

46. In terms of Regulation 41 of the RE Regulations, the use of fossil fuel is to be limited to the extent of 15% of total fuel consumption on annual basis and in terms of Regulation 42 of the said regulations the mechanism for monitoring the use of fossil fuel is as under:

“(1) The Project developer shall furnish a monthly fuel usage statement and monthly fuel procurement statement duly certified by Chartered Accountant to the beneficiary (with a copy to appropriate agency appointed by the Commission for the purpose of monitoring the fossil and non-fossil fuel consumption) for each month, along with the monthly energy bill. The statement shall cover details such as;

- (a) Quantity of fuel (in tonnes) for each fuel type (biomass fuels and fossil fuels) consumed and procured during the month for power generation purposes;*
- (b) Cumulative quantity (in tonnes) of each fuel type consumed and procured till the end of that month during the year;*
- (c) Actual (gross and net) energy generation (denominated in units) during the month;*
- (d) Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year;*
- (e) Opening fuel stock quantity (in tonnes);*
- (f) Receipt of fuel quantity (in tonnes) at the power plant site; and*

- (g) Closing fuel stock quantity (in tonnes) for each fuel type (biomass fuels and fossil fuels) available at the power plant site.*

(2) Non-compliance with the condition of fossil fuel usage by the project developer, during any financial year, shall result in withdrawal of applicability of tariff as per these Regulations for such biomass based power project.”

(c) Calorific value

47. In terms of Regulation 43 of the RE Regulations the calorific value of biomass fuel(s) for determination of tariff is as under:

State	Calorific Value(kCal/kg)
Andhra Pradesh	3275
Haryana	3458
Maharashtra	3611
Madhya Pradesh	3612
Punjab	3368
Rajasthan	3689
Tamil Nadu	3300
Uttar Pradesh	3371
Other States	3467

48. In terms of Regulation 52 of the said regulations, the gross calorific value for bagasse to be considered in case of non-fossil fuel co-generation projects is 2250 kCal/kg and for the use of biomass fuels other than bagasse, the calorific value as specified above shall be applicable.

(d) Fuel cost

49. The Commission, in terms of Regulation 44 of the RE Regulations, has specified the biomass fuel price applicable during the period 2009-10 and has specified fuel price indexation mechanism, in case developer wishes to opt, for the remaining years of the control period. The data for Pd and WPI, as per regulations, latest figures for April, 2010 and April, 2009 corresponding to nth and (n-1)th year has been considered while calculating the fuel price indexation for biomass and also non-fossil fuel based co-generation power projects. The detailed computations of the fuel price indexation mechanism and the determination of the biomass fuel prices for FY 2011-12 thereof, has been enclosed as Appendix-5 to this order. Accordingly, the biomass fuel price applicable for FY 2011-12 is as under:

50.

State	Biomass price (Rs/MT)
Andhra Pradesh	1,460.75
Haryana	2,434.21
Maharashtra	2,022.14
Madhya Pradesh	1,458.50
Punjab	2,348.88
Rajasthan	2,045.72
Tamil Nadu	2,046.84
Uttar Pradesh	1,704.39
Other States	2,017.65

51. The Commission, in terms of Regulation 53 of the RE Regulations, has specified the price of bagasse applicable during the period 2009-10 and has specified fuel price indexation mechanism, in case developer wishes to opt, for the remaining years of the control period. The detailed computations of the fuel price indexation mechanism and the determination of the bagasse fuel prices for FY 2011-12 thereof, has been enclosed as **Appendix-6** of this Order. Accordingly, the price of bagasse (for non-fossil fuel based co-generation projects) applicable for FY 2011-12 shall be as in the table below,

State	Bagasse Price (Rs/MT)
Andhra Pradesh	1,009.39
Haryana	1,584.26
Maharashtra	1,260.89
Madhya Pradesh	908.34
Punjab	1,569.66
Tamil Nadu	1,395.63
Uttar Pradesh	1,137.39
Other States	1,305.80

52. In case of Biomass Power Projects and non-fossil fuel based co generation projects, the variable component of tariff is calculated based on the fuel cost for FY 2011-12. This variable component will change each year based on whether a Renewable Energy Power Project developer opts for fuel price indexation or escalation factor of 5%. Hence, while calculating the total applicable tariff for biomass based power projects, and non-fossil fuel based co generation projects levellisation of only fixed component is considered and the variable component for the first year of operation (i.e. 2011-12) is specified.

Subsidy or incentive by the Central / State Government

53. Regulation 22 of the RE Regulations provides as under:

“The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations.

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

- i. Assessment of benefit shall be based on normative capital cost, accelerated depreciation rate as per relevant provisions under Income Tax Act and corporate income tax rate.*
- ii. Capitalisation of RE projects during second half of the fiscal year. Per unit benefit shall be derived on levellised basis at discount factor equivalent to weighted average cost of capital.”*

54. In terms of the above regulation, for the projects availing the benefit of accelerated depreciation as per applicable Income tax rate @ 33.2175% (30% IT rate+ 7.5% surcharge +3% Education cess) has been considered. For the purpose of determining net depreciation benefits, depreciation @ 5.28% as per straight line method (Book depreciation as per Companies Act, 1956) has been compared with depreciation as per Income Tax rate i.e. 80% of the written down value method and depreciation for the first year has been calculated at the rate of 50% of 80% i.e. 40%, as project is capitalized during the second half of the financial year as per proviso (ii) to Regulation 22. Income tax benefits of accelerated depreciation, has been worked out as per normal tax rate on the net depreciation benefit. Per unit levellised accelerated depreciation benefit has been computed considering the weighted average cost of capital as discount factor.

55. In the light of the discussion made in the preceding paragraphs, the generic tariffs of the following RE projects for the financial year 2011-12 have been determined as under:

RE Technologies as per CERC RE Tariff Regulations Norms for FY 2011-12

Particular	Levelling Total Tariff (FY2011-12)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs / kWh)	(Rs/kWh)	(Rs/kWh)
Wind Energy			
Wind Zone -1 (CUF 20%)	5.33	0.80	4.53
Wind Zone -2 (CUF 23%)	4.63	0.69	3.94
Wind Zone -3 (CUF 27%)	3.95	0.59	3.36
Wind Zone -4 (CUF 30%)	3.55	0.53	3.02
Small Hydro Power Project			
HP, Uttarakhand and NE States (Below 5MW)	3.78	0.47	3.31
HP, Uttarakhand and NE States (5MW to 25 MW)	3.22	0.42	2.80
Other States (Below 5 MW)	4.49	0.55	3.94
Other States (5 MW to 25 MW)	3.84	0.50	3.34

State	Levelling Fixed Cost	Variable Cost (FY 2011-12)	Applicable Tariff Rate (FY 2011-12)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Biomass Power Project					
Andhra Pradesh	1.90	1.88	3.78	0.19	3.59
Haryana	1.99	2.97	4.97	0.19	4.77
Madhya Pradesh	1.88	1.70	3.59	0.19	3.40
Maharashtra	1.94	2.36	4.31	0.19	4.11
Punjab	1.99	2.94	4.94	0.19	4.74
Rajasthan	1.94	2.34	4.28	0.19	4.09
Tamil Nadu	1.96	2.62	4.58	0.19	4.39

State	Levellised Fixed Cost	Variable Cost (FY 2011-12)	Applicable Tariff Rate (FY 2011-12)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Uttar Pradesh	1.92	2.13	4.06	0.19	3.86
Others	1.95	2.46	4.41	0.19	4.21
Non-Fossil Fuel based Cogeneration					
Andhra Pradesh	2.75	1.77	4.51	0.33	4.19
Haryana	2.44	2.77	5.21	0.28	4.94
Maharashtra	2.14	2.20	4.34	0.25	4.10
Madhya Pradesh	2.34	1.59	3.93	0.28	3.65
Punjab	2.44	2.74	5.19	0.28	4.91
Tamil Nadu	2.16	2.44	4.60	0.25	4.35
Uttar Pradesh	2.77	1.99	4.76	0.33	4.43
Others	2.40	2.28	4.68	0.28	4.41
Solar Power Projects whose PPA signed on or before 31st March 2011 Tariff determined for the year FY 10-11 shall be applicable during the FY 2011-12					
Particular	Levellised Total Tariff (FY2010-11)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)		
	(Rs / kWh)	(Rs/kWh)	(Rs/kWh)		
Solar PV	17.91	(2.96)	14.95		
Solar Thermal	15.31	(2.46)	12.85		

Solar Power Projects whose PPA signed after 31st March 2011 Tariff determined for the year FY 11-12 shall be applicable			
Particular	Levelling Total Tariff (FY2011-12)	Benefit of Accelerated Depreciation (if availed)	Net Levellised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed)
	(Rs / kWh)	(Rs/kWh)	(Rs/kWh)
Solar PV	15.39	(2.45)	12.94
Solar Thermal	15.04	(2.34)	12.69

56. The detailed computations of the normative Capital Cost in respect of various RE technologies for FY 2011-12, in line with the indexation mechanism stipulated under RE Tariff Regulations, have been enclosed to this Order as per the details given hereunder:

S No	Renewable Energy Projects	Appendix
A	Wind Power Projects	Appendix 1
B	Small Hydro Power Projects	Appendix 2
C	Biomass Power Projects	Appendix 3
D	Non-Fossil Fuel Based Cogeneration	Appendix 4
E	Biomass Fuel Price for FY 11-12	Appendix 5
F	Bagasse Fuel Price FY 11-12	Appendix 6

57. The detailed computations for the generic tariff for various RE technologies have been enclosed to this Order as per the details given hereunder:

S No	Renewable Energy Projects	Annexure
A	Wind Power Projects	
	Wind Zone-I	Annexure 1A
	Wind Zone-II	Annexure 1B
	Wind Zone III	Annexure 1C
	Wind Zone IV	Annexure 1D

S No	Renewable Energy Projects	Annexure
B	Small Hydro Power Projects	
	Projects Less than 5 MW for HP, Uttarakhand and NE States	Annexure 2A
	Projects between 5 MW and 25 MW for HP, Uttarakhand and NE States	Annexure 2B
	Projects less than 5 MW for other States	Annexure 2C
	Projects between 5 MW and 25 MW for other States	Annexure 2D
C	Biomass Power Projects	
	Andhra Pradesh	Annexure 3A
	Haryana	Annexure 3B
	Maharashtra	Annexure 3C
	Punjab	Annexure 3D
	Madhya Pradesh	Annexure 3E
	Rajasthan	Annexure 3F
	Uttar Pradesh	Annexure 3G
	Tamil Nadu	Annexure 3H
	Other	Annexure 3I
D	Non-Fossil Fuel Based Cogeneration	
	Andhra Pradesh	Annexure 4A
	Haryana	Annexure 4B
	Maharashtra	Annexure 4C
	Madhya Pradesh	Annexure 4D
	Punjab	Annexure 4E
	Uttar Pradesh	Annexure 4F
	Tamil Nadu	Annexure 4G
	Other	Annexure 4H
E	Solar Projects	
	Solar PV Projects	Annexure 5A
	Solar Thermal Projects	Annexure 6A

58. Above generic tariff has been determined for the RE power projects (other than solar projects) commissioned during the FY 2011-12. For the solar PV projects and for solar thermal power projects tariff determined for the year FY 2010-11 shall be applicable during FY 2011-12 subject to the conditions that such projects PPAs for such Solar PV and Solar thermal power projects shall be signed before 31.03.2011 and entire capacity shall be commissioned on or before 31.03.2012 in case of solar PV projects and on or before March 31, 2013 in case of thermal projects.

59. For the solar PV projects and for solar thermal power projects's PPA to be signed after 31.03.2012, tariff determined for the year FY 2011-12 shall be applicable.

Capital cost of Indexation for Wind Power Projects (FY 2011-12)

Indexation Formulation
$CC(n) = P\&M(n) * [1 + F1 + F2 + F3]$
$dn = (a * (SIn-1/SIO)-1) + b * (EIn-1/EIO)-1) / (a+b)$
$P\&M(n) = P\&M(0) * (1+dn)$

Variable	Description	Value
a	Weightage for Steel Index	0.6
b	Weightage for Electrical Machinery Index	0.4
F1	Factor for Land and Civil Work	0.08
F2	Factor for Erection and Commissioning	0.07
F3	Factor for IDC and Financing	0.1

Month/Year	Electrical & Machinery		Iron & Steel	
	2010	2008	2010	2008
January	154.60	145.20	293.40	279.90
February	150.40	145.20	294.80	281.70
March	151.60	145.70	293.90	337.70
April	152.30	147.30	327.40	359.00
May	151.80	149.50	343.50	353.30
June		152.80		357.60
July		153.20		362.60
August		153.20		362.80
September		152.90		360.40
October		152.90		355.10
November		153.40		329.20
December		149.10		321.30
Average	152.140	150.03	310.600	338.38

Parameters	Description	Value
CC(0)(RsL/MW)	Capital Cost for the Base Year	515.00
P&M(0) (RsL/MW)	Plant & Machinery Cost for the Base Year	412.000
dn	Capital Cost escalation Factor	-4.365%
P&M(n) (RsL/MW)	Plant & Machinery Cost for the nth Year (FY 2011-12)	394.02
CC(n) (RsL/MW)	Capital Cost for the nth Year (FY2011-12)	492.52

Source of WPI (Iron & Steel and Electrical and Machinery): Office of Economic Advisor, Ministry of Commerce and Industry (www.eaindustry.nic.in)

Capital cost of Indexation for Small Hydro Power Projects (FY 2011-12)

Indexation Formulation $CC(n) = P\&M(n) * [1 + F1 + F2 + F3]$ $dn = (a * (SI_n - 1/SI_0) - 1) + b * (EI_n - 1/EI_0) - 1) / (a+b)$ $P\&M(n) = P\&M(0) * (1+dn)$

Variable	Description	Value
a	Weightage for Steel Index	0.6
b	Weightage for Electrical Machinery Index	0.4
F1	Factor for Land and Civil Work	0.16
F2	Factor for Erection and Commissioning	0.1
F3	Factor for IDC and Financing	0.14

Month/Year	Electrical & Machinery		Iron & Steel	
	2010	2008	2010	2008
January	154.60	145.20	293.40	279.90
February	150.40	145.20	294.80	281.70
March	151.60	145.70	293.90	337.70
April	152.30	147.30	327.40	359.00
May	151.80	149.50	343.38	353.30
June		152.80		357.60
July		153.20		362.60
August		153.20		362.80
September		152.90		360.40
October		152.90		355.10
November		153.40		329.20
December		149.10		321.30
Average	152.140	150.03	310.60	338.38

Description	HP/Uttrakhand/NE		Other States	
	SHP < 5 MW	5MW-25 MW	SHP < 5 MW	5MW-25 MW
Capital Cost for the Base Year	700.00	630.00	550.00	500.00
Plant & Machinery Cost for the Base Year	500.00	450.00	392.86	357.14
Capital Cost escalation Factor	-4.37%	-4.37%	-4.37%	-4.37%
Plant & Machinery Cost for the nth Year (FY 2011-12)	478.16	430.34	375.70	341.54
Capital Cost for the nth Year (FY2011-12)	669.42	602.48	525.97	478.16

Capital cost of Indexation for Biomass Power Projects (FY 2011-12)

Indexation Formulation $CC(n) = P\&M(n) * [1 + F1 + F2 + F3]$ $dn = (a * (SIn-1/SI0)-1) + b * (EIn-1/EI0)-1) / (a+b)$ $P\&M(n) = P\&M(0) * (1+dn)$

Variable	Description	Value
a	Weightage for Steel Index	0.7
b	Weightage for Electrical Machinery Index	0.3
F1	Factor for Land and Civil Work	0.1
F2	Factor for Erection and Commissioning	0.09
F3	Factor for IDC and Financing	0.14

Month/Year	Electrical & Machinery		Iron & Steel	
	2010	2008	2010	2008
January	154.60	145.20	293.40	279.90
February	150.40	145.20	294.80	281.70
March	151.60	145.70	293.90	337.70
April	152.30	147.30	327.40	359.00
May	151.80	149.50	343.50	353.30
June		152.80		357.60
July		153.20		362.60
August		153.20		362.80
September		152.90		360.40
October		152.90		355.10
November		153.40		329.20
December		149.10		321.30
Average	152.14	150.03	310.60	338.38

Parameters	Description	Value
CC(0)(RsL/MW)	Capital Cost for the Base Year	450.00
P&M(0) (RsL/MW)	Plant & Machinery Cost for the Base Year	338.346
dn	Capital Cost escalation Factor	-5.326%
P&M(n) (RsL/MW)	Plant & Machinery Cost for the nth Year (FY 2011-12)	320.325
CC(n) (RsL/MW)	Capital Cost for the nth Year (FY2011-12)	426.03

Source of WPI (Iron & Steel and Electrical and Machinery): Office of Economic Advisor, Ministry of Commerce and Industry (www.eaindustry.nic.in)

Capital cost of Indexation for Non-fossil fuel based Cogeneration Power Projects (FY 2011-12)

<p>Indexation Formulation</p> $CC(n) = P\&M(n) * [1 + F1 + F2 + F3]$ $dn = (a * (SI_n-1/SI_0)-1) + b * (EI_n-1/EI_0-1) / (a+b)$ $P\&M(n) = P\&M(0) * (1+dn)$
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Variable	Description	Value
a	Weightage for Steel Index	0.7
b	Weightage for Electrical Machinery Index	0.3
F1	Factor for Land and Civil Work	0.1
F2	Factor for Erection and Commissioning	0.09
F3	Factor for IDC and Financing	0.14

Month/Year	Electrical & Machinery		Iron & Steel	
	2010	2008	2010	2008
January	154.60	145.20	293.40	279.90
February	150.40	145.20	294.80	281.70
March	151.60	145.70	293.90	337.70
April	152.30	147.30	327.40	359.00
May	151.80	149.50	343.50	353.30
June		152.80		357.60
July		153.20		362.60
August		153.20		362.80
September		152.90		360.40
October		152.90		355.10
November		153.40		329.20
December		149.10		321.30
Average	152.140	150.03	310.60	338.38

Parameters	Description	Value
CC(0)(RsL/MW)	Capital Cost for the Base Year	445.00
P&M(0) (RsL/MW)	Plant & Machinery Cost for the Base Year	334.59
dn	Capital Cost escalation Factor	-5.33%
P&M(n) (RsL/MW)	Plant & Machinery Cost for the nth Year (FY 2011-12)	316.77
CC(n) (RsL/MW)	Capital Cost for the nth Year (FY2011-12)	421.30

Source of WPI (Iron & Steel and Electrical and Machinery): Office of Economic Advisor, Ministry of Commerce and Industry (www.eaindustry.nic.in)

Biomass Fuel Price across States for FY 2011-12

As per fuel price Index Mechanism outlined under Regulation 45

Indexation Formulation

$$P_n = P_{n-1} \{ a \cdot (WPI_n / WPI_{n-1}) + b \cdot (1 + IRC_{n-1}) + c \cdot (Pd_n / Pd_{n-1}) \}$$

Parameter	Value
WPI n-1	231.5
WPI n	253.7
IRC n-1	8.66%
Pd n-1	468.7
Pd n	507.82
a	0.2
b	0.6
c	0.2

State	Biomass price (Rs/MT) (2010-11)	Biomass price (Rs/MT) (2011-12)
Andhra Pradesh	1342.81	1,460.75
Haryana	2237.67	2,434.21
Maharashtra	1858.87	2,022.14
Madhya Pradesh	1340.74	1,458.50
Punjab	2159.23	2,348.88
Rajasthan	1880.55	2,045.72
Tamil Nadu	1881.58	2,046.84
Uttar Pradesh	1566.78	1,704.39
Other States	1854.75	2,017.65

Note:

The Calculation WPI is based on the figures available on April 2010 and 2009 as nth and (n-1)th year. The Calculation Pd 2010 is based on weighted average price of HSD available for the year 2010 from January to May 2010. The calculation of Pd 2009 is based on weighted average price of HSD for the year 2009.

Source of WPI and WPI (Price of HSD): Office of Economic Advisor, Ministry of Commerce and Industry (www.eaindustry.nic.in),

Source of IRC: CERC (www.cercind.gov.in)

Bagasse Fuel Price across States for FY 2011-12

As per fuel price Index Mechanism outlined under Regulation 54

Indexation Formulation

$$P_n = P_{n-1} \{a \cdot (WPI_n / WPI_{n-1}) + b \cdot (1 + IRC_{n-1}) + c \cdot (Pd_n / Pd_{n-1})\}$$

Parameter	Value
WPI n-1	231.5
WPI n	253.7
IRC n-1	8.66%
Pd n-1	468.7
Pd n	507.82
a	0.2
b	0.6
c	0.2

State	Bagasse price (Rs/MT) (2010-11)	Bagasse price (Rs/MT) (2011-12)
Andhra Pradesh	928	1,009.39
Haryana	1456	1,584.26
Maharashtra	1159	1,260.89
Madhya Pradesh	835	908.34
Punjab	1443	1,569.66
Tamil Nadu	1283	1,395.63
Uttar Pradesh	1046	1,137.39
Other States	1200	1,305.80

Note:

The Calculation WPI is based on the figures available on April 2010 and 2009 as nth and (n-1)th year. The Calculation Pd 2010 is based on weighted average price of HSD available for the year 2010 from January to May 2010. The calculation of Pd 2009 is based on weighted average price of HSD for the year 2009.

Source of WPI and WPI (Price of HSD): Office of Economic Advisor, Ministry of Commerce and Industry www.eaindustry.nic.in,

Source of IRC: CERC (www.cercind.gov.in)

Assumptions: Wind Energy Projects				Annexure: 1 A		
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Wind Zone 1	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	20%	
			Deration Factor	%	0.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.52	
3	Sources of Fund	Debt: Equity	Tariff Period	Years	13	
			Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	345	
			Total Equity Amount	Rs Lacs	147.76	
			Debt Component	Loan Amount	Rs Lacs	344.77
				Moratorium Period	years	0
				Repayment Period(incld Moratorium)	years	10
				Interest Rate	%	13.25%
			Equity Component	Equity amount	Rs Lacs	147.76
				Return on Equity for first 10 years	% p.a	19.00%
				RoE Period	Year	10
Return on Equity 11th year onwards	% p.a	24.00%				
Weighted average of ROE		22.00%				
Discount Rate		15.88%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.2175%	
			MAT Rate (for first 10 years)	%	19.9305%	
			80 IA benefits	Yes/No	Yes	
			Depreciation	Depreciation Rate for first 10 years	%	0.0%
				Depreciation Rate 11th year onwards	%	7.00%
				Years for 7% rate		1.33%
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges	Interest On Working Capital	%	12.75%
6	Operation & Maintenance	power plant (FY09-10)		Rs Lakh	6.5	
			power plant (FY11-12)		7.26	
			Total O & M Expenses Escalation	%	5.72%	

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/Net Generation	MU		1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Fixed Cost																											
O&M Expenses	Rs Lakh		7.26	7.68	8.12	8.58	9.08	9.59	10.14	10.72	11.34	11.99	12.67	13.40	14.16	14.97	15.83	16.73	17.69	18.70	19.77	20.90	22.10	23.36	24.70	26.11	27.61
Depreciation	Rs Lakh		34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48
Interest on term loan	Rs Lakh		43.40	38.83	34.26	29.69	25.12	20.56	15.99	11.42	6.85	2.28	0.00	0.00	0.00	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		2.68	2.60	2.53	2.45	2.38	2.30	2.23	2.16	2.10	2.03	1.97	1.91	1.85	1.79	1.74	1.78	1.83	1.89	1.94	2.00	2.06	2.13	2.20	2.27	2.35
Return on Equity	Rs Lakh		28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07
Total Fixed Cost	Rs Lakh		115.89	111.66	107.46	103.28	99.13	95.01	90.92	86.86	82.84	78.85	74.87	70.93	67.03	63.17	59.35	55.57	51.83	48.13	44.47	40.85	37.27	33.73	30.23	26.77	23.35
Levillised tariff corresponding to Useful life																											
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M expn	Rs/kWh		0.41	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.76	0.81	0.85	0.90	0.96	1.01	1.07	1.13	1.19	1.26	1.33	1.41	1.49	1.58
Depreciation	Rs/kWh		1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97
Int. on term loan	Rs/kWh		2.48	2.22	1.96	1.69	1.43	1.17	0.91	0.65	0.39	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	0.00
Int. on working capital	Rs/kWh		0.15	0.15	0.14	0.14	0.14	0.13	0.13	0.12	0.12	0.12	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.13	0.13	0.13
RoE	Rs/kWh		1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02
Total COG	Rs/kWh		6.61	6.37	6.13	5.89	5.66	5.42	5.19	4.96	4.73	4.50	4.21	3.96	3.73	3.51	3.30	3.10	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.86	1.75
Discount Factor			1	0.863	0.745	0.643	0.555	0.479	0.413	0.357	0.308	0.266	0.229	0.198	0.171	0.147	0.127	0.110	0.095	0.082	0.070	0.061	0.053	0.045	0.039	0.034	0.029
Levillised Tariff	5.33	Rs/Unit																									

Determination of Accelerated Depreciation for Wind Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	492.5

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	13.00	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	14.18	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Deprn.	Rs Lakh	197.01	236.41	47.28	9.46	1.89	0.38	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	184.01	210.41	21.28	-16.55	-24.11	-25.63	-25.93	-25.99	-26.00	-26.00	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-14.18	0.00	0.00
Tax Benefit	Rs Lakh	61.12	69.89	7.07	-5.50	-8.01	-8.51	-8.61	-8.63	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-4.71	0.00	0.00
Energy generation	MU	0.88	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.44	0.38	0.33	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit	0.80	Rs/Unit
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Assumptions: Wind Energy Projects				Annexure: 1 B	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Wind Zone 2
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	23%
			Deration Factor	%	0.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.52
3	Sources of Fund		Tariff Period	Years	13
			Debt: Equity		
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	345
			Total Equity Amout	Rs Lacs	147.76
			Debt Component		
			Loan Amount	Rs Lacs	344.77
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	10
			Interest Rate	%	13.25%
			Equity Component		
			Equity amount	Rs Lacs	147.76
Return on Equity for first 10 years	% p.a	19.00%			
RoE Period	Year	10			
Return on Equity 11th year onwards	% p.a	24.00%			
Weighted average of ROE		22.00%			
Discount Rate		15.88%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.2175%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
					0.0%
			Depreciation Rate for first 10 years	%	7.00%
			Depreciation Rate 11th year onwards	%	1.33%
		10			
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
			Receivables for Debtors	Months	2
			For Variable Charges		
			Interest On Working Capital	%	12.75%
6	Operation & Maintenance		power plant (FY09-10)	Rs Lakh	6.5
			power plant (FY11-12)		7.26
			Total O & M Expenses Escalation	%	5.72%

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/Net 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	
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		7.26	7.68	8.12	8.58	9.08	9.59	10.14	10.72	11.34	11.99	12.67	13.40	14.16	14.97	15.83	16.73	17.69	18.70	19.77	20.90	22.10	23.36	24.70	26.11	27.61	
Depreciation	Rs Lakh		34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48
Interest on term loan	Rs Lakh		43.40	38.83	34.26	29.69	25.12	20.56	15.99	11.42	6.85	2.28	0.00	0.00	0.00	0.00	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		2.68	2.60	2.53	2.45	2.38	2.30	2.23	2.16	2.10	2.03	1.97	1.91	1.85	1.79	1.74	1.78	1.83	1.89	1.94	2.00	2.06	2.13	2.20	2.27	2.35	
Return on Equity	Rs Lakh		28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07
Total Fixed Cost	Rs Lakh		115.89	111.66	107.46	103.28	99.13	95.01	90.92	86.86	82.84	78.85	74.87	70.93	67.03	63.17	59.35	55.57	51.84	48.16	44.53	40.95	37.42	33.94	30.51	27.13	23.80	
Levillised tariff corresponding to Useful life																												
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M expn	Rs/kWh		0.36	0.38	0.40	0.43	0.45	0.48	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.79	0.83	0.88	0.93	0.98	1.04	1.10	1.16	1.23	1.30	1.37	
Depreciation	Rs/kWh		1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
Int. on term loan	Rs/kWh		2.15	1.93	1.70	1.47	1.25	1.02	0.79	0.57	0.34	0.11	0.00	0.00	0.00	0.00	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		0.13	0.13	0.13	0.12	0.12	0.11	0.11	0.11	0.10	0.10	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.11	0.12	
RoE	Rs/kWh		1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	
Total COG	Rs/kWh		5.75	5.54	5.33	5.13	4.92	4.72	4.51	4.31	4.11	3.91	3.71	3.51	3.31	3.11	2.91	2.71	2.51	2.31	2.11	1.91	1.71	1.51	1.31	1.11	0.91	
Discount Factor			1	0.863	0.745	0.643	0.555	0.479	0.413	0.357	0.308	0.266	0.229	0.198	0.171	0.147	0.127	0.110	0.095	0.082	0.070	0.061	0.053	0.045	0.039	0.034	0.029	
Levillised Tariff	4.63	Rs/Unit																										

Determination of Accelerated Depreciation for Wind Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	492.5

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	13.00	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	14.18	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Deprn.	Rs Lakh	197.01	236.41	47.28	9.46	1.89	0.38	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	184.01	210.41	21.28	-16.55	-24.11	-25.63	-25.93	-25.99	-26.00	-26.00	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-14.18	0.00	0.00
Tax Benefit	Rs Lakh	61.12	69.89	7.07	-5.50	-8.01	-8.51	-8.61	-8.63	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-4.71	0.00	0.00
Energy generation	MU	1.01	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
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.44	0.38	0.33	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit	0.69	Rs/Unit
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Assumptions: Wind Energy Projects

Annexure: 1 C

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Wind Zone 3	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	27%	
			Deration Factor	%	0.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.52	
3	Sources of Fund	Debt: Equity	Tariff Period	Years	13	
			Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	345	
			Total Equity Amout	Rs Lacs	147.76	
			Debt Component	Loan Amount	Rs Lacs	344.77
				Moratorium Period	years	0
				Repayment Period(inclد Moratorium)	years	10
				Interest Rate	%	13.25%
			Equity Component	Equity amount	Rs Lacs	147.76
				Return on Equity for first 10 years	% p.a	19.00%
				RoE Period	Year	10
				Return on Equity 11th year onwards	% p.a	24.00%
Weighted average of ROE		22.00%				
Discount Rate		15.88%				
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.2175%	
			MAT Rate (for first 10 years)	%	19.9305%	
			80 IA benefits	Yes/No	Yes	
			Depreciation	Depreciation Rate for first 10 years	%	7.00%
				Depreciation Rate 11th year onwards	%	1.33%
				Years for 7% rate		10
5	Working Capital	For Fixed Charges	O&M Charges	Months	1	
			Maintenance Spare	(% of O&M exepenses)	15%	
			Receivables for Debtors	Months	2	
			For Variable Charges			
			Interest On Working Capital	%	12.75%	
6	Operation & Maintenance	power plant (FY09-10)		Rs Lakh	6.5	
			power plant (FY11-12)		7.26	
			Total O & M Expenses Escalation	%	5.72%	

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/Net Generation	MU		2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	
Fixed Cost																												
O&M Expenses	Rs Lakh		7.26	7.68	8.12	8.58	9.08	9.59	10.14	10.72	11.34	11.99	12.67	13.40	14.16	14.97	15.83	16.73	17.69	18.70	19.77	20.90	22.10	23.36	24.70	26.11	27.61	
Depreciation	Rs Lakh		34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48
Interest on term loan	Rs Lakh		43.40	38.83	34.26	29.69	25.12	20.56	15.99	11.42	6.85	2.28	0.00	0.00	0.00	0.00	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		2.68	2.60	2.53	2.45	2.38	2.30	2.23	2.16	2.10	2.03	1.97	1.91	1.85	1.79	1.74	1.69	1.64	1.59	1.54	1.49	1.44	1.39	1.34	1.29	1.24	1.19
Return on Equity	Rs Lakh		28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07
Total Fixed Cost	Rs Lakh		115.89	111.66	107.46	103.28	99.13	95.01	90.92	86.86	82.84	78.85	74.90	71.00	67.14	63.32	59.54	55.80	52.10	48.44	44.82	41.24	37.70	34.20	30.74	27.32	23.94	
Levillised tariff corresponding to Useful life																												
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M expn	Rs/kWh		0.31	0.32	0.34	0.36	0.38	0.41	0.43	0.45	0.48	0.51	0.54	0.57	0.60	0.63	0.67	0.71	0.75	0.79	0.84	0.88	0.93	0.99	1.04	1.10	1.17	
Depreciation	Rs/kWh		1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Int. on term loan	Rs/kWh		1.83	1.64	1.45	1.26	1.06	0.87	0.68	0.48	0.29	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	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10
RoE	Rs/kWh		1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Total COG	Rs/kWh		4.90	4.72	4.54	4.37	4.19	4.02	3.84	3.67	3.50	3.33	3.18	3.04	2.91	2.79	2.68	2.58	2.49	2.41	2.34	2.27	2.21	2.15	2.10	2.05	2.00	
Discount Factor			1	0.863	0.745	0.643	0.555	0.479	0.413	0.357	0.308	0.266	0.229	0.198	0.171	0.147	0.127	0.110	0.095	0.082	0.070	0.061	0.053	0.045	0.039	0.034	0.029	
Levillised Tariff	3.95	Rs/Unit																										

Determination of Accelerated Depreciation for Wind Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	492.5

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	13.00	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	14.18	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Deprn.	Rs Lakh	197.01	236.41	47.28	9.46	1.89	0.38	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	184.01	210.41	21.28	-16.55	-24.11	-25.63	-25.93	-25.99	-26.00	-26.00	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-14.18	0.00	0.00
Tax Benefit	Rs Lakh	61.12	69.89	7.07	-5.50	-8.01	-8.51	-8.61	-8.63	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-4.71	0.00	0.00
Energy generation	MU	1.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.44	0.38	0.33	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit	0.59	Rs/Unit
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Assumptions: Wind Energy Projects				Annexure: 1 D	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Wind Zone 4
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	30%
			Deration Factor	%	0.00%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	492.52
3	Sources of Fund		Tariff Period	Years	13
			<u>Debt: Equity</u>		
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	345
			Total Equity Amout	Rs Lacs	147.76
			<u>Debt Component</u>		
			Loan Amount	Rs Lacs	344.77
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	10
			Interest Rate	%	13.25%
			<u>Equity Component</u>		
			Equity amount	Rs Lacs	147.76
Return on Equity for first 10 years	% p.a	19.00%			
RoE Period	Year	10			
Return on Equity 11th year onwards	% p.a	24.00%			
Weighted average of ROE		22.00%			
Discount Rate		15.88%			
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	33.2175%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
			Depreciation Rate for first 10 years	%	7.00%
			Depreciation Rate 11th year onwards	%	1.33%
			Years for 7% rate		10
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>		
Interest On Working Capital	%	12.75%			
6	Operation & Maintenance		power plant (FY09-10)	Rs Lakh	6.5
			power plant (FY11-12)		7.26
			<u>Total O & M Expenses Escalation</u>	%	5.72%

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/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																												
O&M Expenses	Rs Lakh		7.26	7.68	8.12	8.58	9.08	9.59	10.14	10.72	11.34	11.99	12.67	13.40	14.16	14.97	15.83	16.73	17.69	18.70	19.77	20.90	22.10	23.36	24.70	26.11	27.61	
Depreciation	Rs Lakh		34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48	34.48
Interest on term loan	Rs Lakh		43.40	38.63	34.26	29.69	25.12	20.56	15.99	11.42	6.85	2.28	0.00	0.00	0.00	0.00	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		2.68	2.60	2.53	2.45	2.38	2.30	2.23	2.16	2.10	2.03	1.97	1.91	1.85	1.79	1.74	1.70	1.65	1.61	1.57	1.53	1.49	1.45	1.41	1.37	1.33	1.29
Return on Equity	Rs Lakh		28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07	28.07
Total Fixed Cost	Rs Lakh		115.89	111.66	107.46	103.28	99.13	95.01	90.92	86.86	82.84	78.85	74.87	70.93	67.04	63.20	59.41	55.67	52.00	48.39	44.84	41.35	37.92	34.55	31.24	28.00	24.83	
Levallised tariff corresponding to Useful life																												
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M expn	Rs/kWh		0.28	0.29	0.31	0.33	0.35	0.37	0.39	0.41	0.43	0.46	0.48	0.51	0.54	0.57	0.60	0.64	0.67	0.71	0.75	0.80	0.84	0.89	0.94	0.99	1.05	
Depreciation	Rs/kWh		1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Int. on term loan	Rs/kWh		1.65	1.48	1.30	1.13	0.96	0.78	0.61	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
Int. on working capital	Rs/kWh		0.10	0.10	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09
RoE	Rs/kWh		1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Total COG	Rs/kWh		4.41	4.25	4.09	3.93	3.77	3.62	3.46	3.31	3.15	3.00	2.84	2.69	2.54	2.39	2.24	2.09	1.94	1.79	1.64	1.49	1.34	1.19	1.04	0.89	0.74	
Discount Factor			1	0.863	0.745	0.643	0.555	0.479	0.413	0.357	0.308	0.266	0.229	0.198	0.171	0.147	0.127	0.110	0.095	0.082	0.070	0.061	0.053	0.045	0.039	0.034	0.029	
Levallised Tariff	3.55	Rs/Unit																										

Determination of Accelerated Depreciation for Wind Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	492.5

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	13.00	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	26.01	14.18	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Deprn.	Rs Lakh	197.01	236.41	47.28	9.46	1.89	0.38	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	184.01	210.41	21.28	-16.55	-24.11	-25.63	-25.93	-25.99	-26.00	-26.00	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-26.01	-14.18	0.00	0.00
Tax Benefit	Rs Lakh	61.12	69.89	7.07	-5.50	-8.01	-8.51	-8.61	-8.63	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-8.64	-4.71	0.00	0.00
Energy generation	MU	1.31	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
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.44	0.38	0.33	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit	0.53	Rs/Unit
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Assumptions: Small Hydro Power Plant (Other States 5MW to 25MW) Parameters					Annexure 2A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	HP, Uttarakhand, NE States
					Less than 5 MW
1	Power Generation	Capacity	Installed Power Generation Capacity Capacity Utilization Factor Auxiliary Consumption Deration Factor Useful Life	MW % % % Years	1 45% 1% 0.00% 35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	669
3	Financial Assumption	Debt: Equity Debt Component Equity Component	Tariff Period Debt Equity Total Debt Amount Total Equity Amout Loan Amount Moratorium Period Repayment Period(incl Moratorium) Intrest Rate Equity amount Normative ROE (Post-tax) Return on Equity for first 10 years RoE Period Return on Equity 11th year onwards Weighted average of ROE Discount Rate (equiv. to WACC) 11th year onwards	Years % % Rs Lacs Rs Lacs Rs Lacs years years % Rs Lacs % % p.a Year % p.a % %	35 70% 30% 469 201 468.59 0 10 13.25% 200.83 16% 19% 10 24.00% 22.57% 16.05%
4	Financial Assumptions	Economic Assumptions Fiscal Assumptions Depreciation	Income Tax MAT Rate (for first 10 years) 80 IA benefits Depreciation Rate for first 10 years Depreciation Rate 11th year onwards Years for 7% rate	% % Yes/No % % %	0 33.2175% 19.9305% Yes 0.0% 7.00% 0.80% 10
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Intrest On Working Capital	(% of O&M exepenses)	Months Months %	1 15% 2 12.75%
6	Operation & Maintenance	O&M Expense power plant (FY 09-10) power plant (FY 11-12) Total O & M Expenses	% of base capital cost Escalation	Lakh %	0% 21 23.47 5.72%

Determination of Tariff																																							
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	
Net Generation		MU		3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	
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		23.47	24.81	26.23	27.73	29.32	31.00	32.77	34.64	36.63	38.72	40.94	43.28	45.75	48.37	51.14	54.06	57.15	60.42	63.88	67.53	71.40	75.48	79.80	84.36	89.19	94.29	99.68	105.38	111.41	117.79	124.52	131.65	139.18	147.14	155.55	
Depreciation		Rs Lakh		46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86	46.86
Interest on term loan		Rs Lakh		58.98	52.78	46.57	40.36	34.15	27.94	21.73	15.52	9.31	3.10	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	0.00	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		4.35	4.28	4.22	4.17	4.12	4.07	4.03	3.99	3.96	3.93	3.90	3.82	3.55	3.68	3.83	3.98	4.14	4.31	4.49	4.68	4.88	5.10	5.32	5.56	5.81	6.08	6.36	6.65	6.97	7.30	7.65	8.02	8.41	8.83	9.27	
Return on Equity		Rs Lakh		38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16	38.16
Total Fixed Cost		Rs Lakh		171.82	166.89	162.04	157.27	152.60	148.02	143.54	139.17	134.91	130.77	97.79	100.25	102.85	105.61	108.52	111.59	114.85	118.29	121.92	125.77	129.83	134.13	138.67	143.47	148.55	153.92	159.59	165.59	171.93	178.64	185.73	193.22	201.14	209.52	218.37	
Levelised tariff corresponding to Useful life																																							
Per Unit Cost of Generation		Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M expn		Rs/kWh		0.60	0.64	0.67	0.71	0.75	0.79	0.84	0.89	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.39	1.46	1.55	1.64	1.73	1.83	1.93	2.04	2.16	2.29	2.42	2.55	2.70	2.85	3.02	3.19	3.37	3.57	3.77	3.99	
Depreciation		Rs/kWh		1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
Int on term loan		Rs/kWh		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	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	0.10	0.10	0.10	0.10	0.10	0.08	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24		
ROE		Rs/kWh		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Total OGD		Rs/kWh		4.40	4.28	4.16	4.03	3.91	3.79	3.68	3.57	3.46	3.35	2.81	2.87	2.84	2.71	2.78	2.86	2.94	3.03	3.12	3.22	3.33	3.44	3.55	3.68	3.81	3.94	4.09	4.24	4.41	4.58	4.76	4.95	5.15	5.37	5.60	
Discount Factor				1	0.862	0.743	0.640	0.551	0.475	0.409	0.353	0.304	0.262	0.226	0.195	0.168	0.144	0.124	0.107	0.092	0.080	0.069	0.059	0.051	0.044	0.038	0.033	0.028	0.024	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.007	0.006	
Levelised Tariff			3.78	Rs/Unit																																			

Determination of Accelerated Depreciation

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	669.4

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	17.67	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	19.28	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	267.77	321.32	64.26	12.85	2.57	0.51	0.10	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

Net Depreciation Benefit	Rs Lakh	250.09	285.98	28.92	-22.49	-32.77	-34.83	-35.24	-35.32	-35.34	-35.34	-35.35	-35.35	-35.35	-35.35	-35.35	-35.35	-35.35	-19.28	0.00	0.00	
Tax Benefit	Rs Lakh	83.08	94.99	9.61	-7.47	-10.89	-11.57	-11.71	-11.73	-11.74	-11.74	-11.74	-11.74	-11.74	-11.74	-11.74	-11.74	-11.74	-6.40	0.00	0.00	
Energy generation	MU	1.95	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	
Per unit benefit	Rs/Unit	4.26	2.43	0.25	-0.19	-0.28	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.16	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.59	0.51	0.44	0.38	0.33	0.28	0.24	0.21	0.18	0.16	0.13	0.12	0.10	0.09	0.07	0.06	

Tax Benefit Levellised	17.04
Electricity Generation (Levellised)	3.65

Levellised benefit	0.47	Rs/Unit
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Assumptions: Small Hydro Power Plant (Other States 5MW to 25MW) Parameters					Annexure 2B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	HP, Uttarakhand, NE States
					5 MW to 25 MW
1	Power Generation	Capacity	Installed Power Generation Capacity Capacity Utilization Factor Auxiliary Consumption Deration Factor Useful Life	MW % % % Years	1 45% 1% 0.00% 35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	602
3	Financial Assumption	Debt: Equity	Tariff Period Debt Equity Total Debt Amount Total Equity Amout	Years % % Rs Lacs Rs Lacs	13 70% 30% 422 181
		Debt Component	Loan Amount Moratorium Period Repayment Period(incl Moratorium) Intrest Rate	Rs Lacs years years %	421.73 0 10 13.25%
		Equity Component	Equity amount Normative ROE (Post-tax) Return on Equity for first 10 years RoE Period Return on Equity 11th year onwards Weighted average of ROE Discount Rate (equiv. to WACC) 11th year onwards	Rs Lacs % % p.a Year % p.a % %	180.74 16% 19% 10 24.00% 22.57% 16.05%
4	Financial Assumptions	Economic Assumptions Fiscal Assumptions	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	0 33.2175% 19.9305% Yes
		Depreciation	Depreciation Rate for first 10 years Depreciation Rate 11th year onwards Years for 7% rate	% % %	0.0% 7.00% 0.80% 10
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Intrest On Working Capital	(% of O&M exepenses)	Months Months %	1 15% 2 12.75%
6	Operation & Maintenance	O&M Expense power plant (FY 09-10) power plant (FY 11-12) Total O & M Expenses	% of base capital cost Escalation	Lakh %	0% 15 16.77 5.72%

Determination of Tariff																																						
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	
Net Generation	MU		3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	
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		16.77	17.72	18.74	19.81	20.94	22.14	23.41	24.75	26.16	27.66	29.24	30.91	32.68	34.55	36.53	38.62	40.82	43.16	45.63	48.24	51.00	53.91	57.00	60.26	63.71	67.35	71.20	75.27	79.58	84.13	88.94	94.03	99.41	105.10	111.11	
Depreciation	Rs Lakh		42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17	42.17
Interest on term loan	Rs Lakh		53.09	47.50	41.91	36.32	30.73	25.15	19.56	13.97	8.38	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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		3.69	3.62	3.55	3.48	3.42	3.36	3.31	3.25	3.21	3.16	2.57	2.66	2.75	2.85	2.95	3.06	3.17	3.30	3.42	3.56	3.70	3.86	4.02	4.19	4.37	4.56	4.76	4.97	5.19	5.43	5.68	5.95	6.23	6.52	6.84	
Return on Equity	Rs Lakh		34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	34.34	
Total Fixed Cost	Rs Lakh		150.05	145.35	140.71	136.13	131.61	127.16	122.78	118.48	114.26	110.13	80.01	81.77	83.63	85.59	87.67	89.87	92.20	94.65	97.25	100.00	102.90	105.97	109.21	112.64	116.27	120.10	124.10	128.44	132.97	137.76	142.82	148.18	153.84	159.82	166.14	
Levelled tariff corresponding to Useful life																																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M expn	Rs/kWh		0.43	0.45	0.48	0.51	0.54	0.57	0.60	0.63	0.67	0.71	0.75	0.79	0.84	0.89	0.94	0.99	1.05	1.11	1.17	1.24	1.31	1.38	1.46	1.54	1.63	1.73	1.82	1.93	2.04	2.16	2.28	2.41	2.55	2.69	2.85	
Depreciation	Rs/kWh		1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	
Int.on term loan	Rs/kWh		1.36	1.22	1.07	0.93	0.79	0.64	0.50	0.36	0.21	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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		0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.15	0.16	0.17	0.18			
ROE	Rs/kWh		0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11		
Total O&G	Rs/kWh		3.84	3.72	3.61	3.49	3.37	3.26	3.15	3.04	2.93	2.82	2.05	2.10	2.14	2.19	2.25	2.30	2.36	2.43	2.49	2.56	2.64	2.72	2.80	2.89	2.98	3.08	3.18	3.29	3.41	3.53	3.66	3.80	3.94	4.10	4.26	
Discount Factor			1	0.862	0.743	0.640	0.551	0.475	0.409	0.353	0.304	0.262	0.226	0.195	0.168	0.144	0.124	0.107	0.092	0.080	0.069	0.059	0.051	0.044	0.038	0.033	0.028	0.024	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.007	0.006	
Levelled Tariff	Rs/kWh		3.22																																			

Determination of Accelerated Depreciation

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	602.5

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.91	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	31.81	17.35	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	240.99	289.19	57.84	11.57	2.31	0.46	0.09	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
Net Depreciation Benefit	Rs Lakh	225.08	257.38	26.03	-20.24	-29.50	-31.35	-31.72	-31.79	-31.81	-31.81	-31.81	-31.81	-31.81	-31.81	-31.81	-31.81	-31.81	-17.35	0.00	0.00
Tax Benefit	Rs Lakh	74.77	85.49	8.65	-6.72	-9.80	-10.41	-10.54	-10.56	-10.57	-10.57	-10.57	-10.57	-10.57	-10.57	-10.57	-10.57	-10.57	-5.76	0.00	0.00
Energy generation	MU	1.95	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90
Per unit benefit	Rs/Unit	3.83	2.19	0.22	-0.17	-0.25	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.15	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.59	0.51	0.44	0.38	0.33	0.28	0.24	0.21	0.18	0.16	0.13	0.12	0.10	0.09	0.07	0.06

Tax Benefit Levellised	15.34
Electricity Generation (Levellised)	3.65
Levellised benefit	0.42 Rs/Unit

Assumptions: Small Hydro Power Plant (Other States 5MW to 25MW) Parameters					Annexure 2C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	HP, Uttarakhand, NE States
					Less than 5 MW
1	Power Generation	Capacity	Installed Power Generation Capacity Capacity Utilization Factor Auxiliary Consumption Deration Factor Useful Life	MW % % % Years	1 30% 1% 0.00% 35
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	526
3	Financial Assumption	Debt: Equity Debt Component Equity Component	Tariff Period Debt Equity Total Debt Amount Total Equity Amount Loan Amount Moratorium Period Repayment Period(incl Moratorium) Intrest Rate Equity amount Normative ROE (Post-tax) Return on Equity for first 10 years RoE Period Return on Equity 11th year onwards Weighted average of ROE Discount Rate (equiv. to WACC) 11th year onwards	Years % % Rs Lacs Rs Lacs Rs Lacs years years % Rs Lacs % % p.a Year % p.a % %	35 70% 30% 368 158 368.18 0 10 13.25% 157.79 16% 19% 10 24.00% 22.57% 16.05%
4	Financial Assumptions	Economic Assumptions Fiscal Assumptions Depreciation	Income Tax MAT Rate (for first 10 years) 80 IA benefits Depreciation Rate for first 10 years Depreciation Rate 11th year onwards Years for 7% rate	% % Yes/No % % %	0 33.2175% 19.9305% Yes 0.0% 7.00% 0.80% 10
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Intrest On Working Capital	(% of O&M exepenses)	Months Months %	1 15% 2 12.75%
6	Operation & Maintenance	O&M Expense power plant (FY 09-10) power plant (FY 11-12) Total O & M Expenses	% of base capital cost Escalation	Lakh %	0% 17 19.00 5.72%

Determination of Tariff																																						
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		
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	
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		19.00	20.09	21.24	22.45	23.74	25.09	26.53	28.05	29.65	31.35	33.14	35.03	37.04	39.16	41.40	43.76	46.27	48.91	51.71	54.67	57.80	61.10	64.60	68.29	72.20	76.33	80.70	85.31	90.19	95.35	100.80	106.57	112.67	119.11	125.92	
Depreciation	Rs Lakh		36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82	36.82
Interest on term loan	Rs Lakh		46.34	41.47	36.59	31.71	26.83	21.95	17.07	12.20	7.32	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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		3.45	3.40	3.35	3.31	3.27	3.23	3.20	3.18	3.15	3.14	2.84	2.74	2.84	2.95	3.07	3.19	3.32	3.46	3.61	3.76	3.93	4.10	4.28	4.47	4.68	4.89	5.12	5.36	5.61	5.88	6.17	6.47	6.78	7.12	7.48	
Return on Equity	Rs Lakh		29.98	29.86	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98	29.98
Total Fixed Cost	Rs Lakh		135.59	131.75	127.97	124.27	120.63	117.08	113.60	110.22	106.92	103.72	77.86	79.85	81.96	84.19	86.54	89.04	91.67	94.45	97.40	100.51	103.80	107.28	110.96	114.84	118.95	123.30	127.89	132.75	137.88	143.31	149.05	155.11	161.53	168.31	175.48	
Levillized tariff corresponding to Useful life																																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M expn	Rs/KWh		0.73	0.77	0.82	0.86	0.91	0.96	1.02	1.08	1.14	1.20	1.27	1.35	1.42	1.51	1.59	1.68	1.78	1.89	1.99	2.10	2.22	2.35	2.48	2.62	2.78	2.93	3.10	3.28	3.47	3.66	3.87	4.10	4.33	4.58	4.84	
Depreciation	Rs/KWh		1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	
Int.on term loan	Rs/KWh		1.78	1.59	1.41	1.22	1.03	0.84	0.66	0.47	0.28	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	0.00	0.00	0.00
Int.on working capital	Rs/KWh		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	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	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
ROE	Rs/KWh		1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Total O&G	Rs/KWh		5.21	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	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	
Discount Factor			1	0.862	0.743	0.640	0.551	0.475	0.409	0.353	0.304	0.262	0.226	0.195	0.168	0.144	0.124	0.107	0.092	0.080	0.069	0.059	0.051	0.044	0.038	0.033	0.028	0.024	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.007	0.006	
Levillized Tariff	Rs/KWh		4.49																																			

Determination of Accelerated Depreciation

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	526.0

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	13.89	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	27.77	15.15	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	210.39	252.47	50.49	10.10	2.02	0.40	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	196.50	224.69	22.72	-17.67	-25.75	-27.37	-27.69	-27.76	-27.77	-27.77	-27.77	-27.77	-27.77	-27.77	-27.77	-27.77	-27.77	-15.15	0.00	0.00
Tax Benefit	Rs Lakh	65.27	74.64	7.55	-5.87	-8.55	-9.09	-9.20	-9.22	-9.22	-9.22	-9.22	-9.22	-9.22	-9.22	-9.22	-9.22	-9.22	-5.03	0.00	0.00
Energy generation	MU	1.30	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	5.02	2.87	0.29	-0.23	-0.33	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.35	-0.19	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.59	0.51	0.44	0.38	0.33	0.28	0.24	0.21	0.18	0.16	0.13	0.12	0.10	0.09	0.07	0.06

Tax Benefit Levellised	13.39
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Electricity Generation (Levellised)	2.43
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Levellised benefit	0.55	Rs/Unit
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Assumptions: Small Hydro Power Plant (Other States 5MW to 25MW) Parameters					Annexure 2D	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	HP, Uttarakhand, NE States	
					5 MW to 25 MW	
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1	
			Capacity Utilization Factor	%	30%	
			Auxiliary Consumption		1%	
			Deration Factor	%	0.00%	
			Useful Life	Years	35	
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	478	
3	Financial Assumption	<u>Debt: Equity</u>	Tariff Period	Years	13	
			Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	335	
			Total Equity Amount	Rs Lacs	143	
			<u>Debt Component</u>	Loan Amount	Rs Lacs	334.71
				Moratorium Period	years	0
				Repayment Period(incl Moratorium)	years	10
				Intrest Rate	%	13.25%
			<u>Equity Component</u>	Equity amount	Rs Lacs	143.45
				Normative ROE (Post-tax)		16%
				Return on Equity for first 10 years	% p.a	19%
				RoE Period	Year	10
Return on Equity 11th year onwards	% p.a	24.00%				
Weighted average of ROE		22.57%				
Discount Rate (equiv. to WACC) 11th year onwards		16.05%				
4	Financial Assumptions	<u>Economic Assumptions</u> <u>Fiscal Assumptions</u>	Income Tax	%	33.2175%	
			MAT Rate (for first 10 years)	%	19.9305%	
			80 IA benefits	Yes/No	Yes	
			<u>Depreciation</u>	Depreciation Rate for first 10 years	%	0.0%
				Depreciation Rate 11th year onwards	%	7.00%
				Years for 7% rate		0.80%
						10
5	Working Capital	<u>For Fixed Charges</u> <u>O&M Charges</u> <u>Maintenance Spare</u> <u>Receivables for Debtors</u> <u>For Variable Charges</u> <u>Intrest On Working Capital</u>	(% of O&M exepenses)	Months	1	
				Months	15%	
				Months	2	
				%	12.75%	
6	Operation & Maintenance	O&M Expense power plant (FY 09-10) power plant (FY 11-12) <u>Total O & M Expenses</u>	% of base capital cost		0%	
				Lakh	12	
					13.41	
			Escalation	%	5.72%	

Determination of Tariff																																						
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		
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	
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		13.41	14.18	14.99	15.85	16.75	17.71	18.73	19.80	20.93	22.13	23.39	24.73	26.14	27.61	29.22	30.89	32.66	34.53	36.50	38.59	40.80	43.13	45.60	48.21	50.96	53.86	56.90	60.22	63.86	67.81	71.16	75.23	79.53	84.06	88.89	
Depreciation	Rs Lakh		33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47	33.47
Interest on term loan	Rs Lakh		42.13	37.70	33.26	28.83	24.39	19.96	15.52	11.09	6.65	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	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		2.83	2.86	2.82	2.77	2.72	2.67	2.63	2.59	2.55	2.52	2.05	2.12	2.19	2.27	2.35	2.44	2.53	2.62	2.73	2.84	2.96	3.08	3.21	3.34	3.49	3.64	3.80	3.97	4.15	4.34	4.54	4.75	4.97	5.21	5.46	
Return on Equity	Rs Lakh		27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	27.25	
Total Fixed Cost	Rs Lakh		119.20	115.48	111.80	108.17	104.59	101.07	97.60	94.20	90.86	87.59	83.69	80.10	76.59	73.44	70.44	67.44	64.44	61.44	58.44	55.44	52.44	49.44	46.44	43.44	40.44	37.44	34.44	31.44	28.44	25.44	22.44	19.44	16.44	13.44	10.44	
Levelised tariff corresponding to Useful life																																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
O&M expn	Rs/kWh		0.52	0.54	0.58	0.61	0.64	0.68	0.72	0.76	0.80	0.85	0.90	0.95	1.00	1.06	1.12	1.19	1.26	1.33	1.40	1.48	1.57	1.66	1.75	1.85	1.96	2.07	2.19	2.31	2.45	2.59	2.73	2.89	3.06	3.23	3.42	
Depreciation	Rs/kWh		1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29		
Int on term loan	Rs/kWh		1.62	1.45	1.28	1.11	0.94	0.77	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	0.00	0.00	
Int on working capital	Rs/kWh		0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21				
RoE	Rs/kWh		1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	
Total COG	Rs/kWh		4.58	4.44	4.30	4.16	4.02	3.88	3.75	3.62	3.49	3.37	3.25	3.12	2.99	2.86	2.75	2.62	2.48	2.35	2.22	2.09	1.96	1.82	1.69	1.56	1.43	1.30	1.17	1.04	0.92	0.80	0.68	0.56	0.44	0.32	0.20	
Discount Factor			1	0.862	0.743	0.640	0.551	0.475	0.409	0.353	0.304	0.262	0.228	0.195	0.166	0.144	0.124	0.107	0.092	0.080	0.069	0.059	0.051	0.044	0.038	0.033	0.028	0.024	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.007	0.006	
Levelised Tariff	Rs/kWh		3.84																																			

Determination of Accelerated Depreciation

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	478.2

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	12.62	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	13.77	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	191.26	229.51	45.90	9.18	1.84	0.37	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	178.64	204.27	20.66	-16.07	-23.41	-24.88	-25.17	-25.23	-25.24	-25.25	-25.25	-25.25	-25.25	-25.25	-25.25	-25.25	-25.25	-13.77	0.00	0.00
Tax Benefit	Rs Lakh	59.34	67.85	6.86	-5.34	-7.78	-8.26	-8.36	-8.38	-8.39	-8.39	-8.39	-8.39	-8.39	-8.39	-8.39	-8.39	-8.39	-4.57	0.00	0.00
Energy generation	MU	1.30	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	4.56	2.61	0.26	-0.21	-0.30	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.18	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.59	0.51	0.44	0.38	0.33	0.28	0.24	0.21	0.18	0.16	0.13	0.12	0.10	0.09	0.07	0.06

Tax Benefit Levellised	12.17
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Electricity Generation (Levellised)	2.43
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Levellised benefit	0.50	Rs/Unit
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Select State

AP

Assumption for Biomass Power Project Parameters

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	
			2	Project Cost	Capital Cost/MW	Power Plant Cost
3	Financial Assumptions	Debt: Equity	Debt	%	70%	
			Equity	%	30%	
			Total Debt Amount	Rs Lacs	298.22	
			Total Equity Amout	Rs Lacs	127.81	
			Debt Component	Loan Amount	Rs Lacs	298.22
				Moratorium Period	years	0
				Repayment Period(incl'd Moratorium)	years	10
				Interest Rate	%	13.25%
			Equity Component	Equity amount	Rs Lacs	127.81
				Return on Equity for first 10 years	% p.a	19.00%
				RoE Period	Year	10.00
				Return on Equity after 10 years		24.00%
				Weighted average of ROE		21.50%
				Discount Rate (equiv. to WACC)		15.73%
4	Financial Assumptions	Economic Assumptions Fiscal Assumptions	Income Tax	%	33.21750%	
			MAT Rate (for first 10 years)	%	19.9305%	
			80 IA benefits	Yes/No	Yes	
			Depreciation	Depreciation Rate(power plant)	%	7.00%
				Depreciation Rate 11th year onwards	%	2.00%
				Years for 7% depreciation rate		10.00
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months	1	
					15%	
				Months	2	
				Months	4	
				%	12.75%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3800	
			During Stablization Period	Kcal/kwh	3800	
			Biomass	Base Price(FY11-12)	Rs/T	1461
				GCV - Biomass	Kcal/kg	3275
				Biomass Price Escalation Factor		5%
7	Operation & Maintenance	power plant (FY 2011-12) Total O & M Expenses Escalation			22.63	
				%	5.72%	

Determination of Tariff Component: Biomass Power Projects																							
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	
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	
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	
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12
Depreciation		Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan		Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		9.46	11.27	11.67	12.08	12.52	12.99	13.49	14.02	14.57	15.17	15.51	16.26	17.04	17.87	18.74	19.65	20.61	21.62	22.68	23.79
Return on Equity		Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost		Rs Lakh		123.73	122.90	120.70	118.62	116.64	114.77	113.03	111.41	109.93	108.59	94.18	97.18	100.36	103.71	107.24	110.98	114.92	119.08	123.47	128.11
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG		Rs/kWh		1.88	1.98	2.08	2.18	2.29	2.40	2.52	2.65	2.78	2.92	3.07	3.22	3.38	3.55	3.73	3.92	4.11	4.32	4.53	4.76
O&M expn		Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03
Depreciation		Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Int. on term loan		Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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	0.18	0.18	0.19	0.20	0.21	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.30	0.31	0.33	0.34	0.36	0.38
RoE		Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Total COG		Rs/kWh		4.30	3.93	3.99	4.06	4.14	4.22	4.32	4.42	4.53	4.64	4.56	4.76	4.97	5.20	5.43	5.67	5.93	6.20	6.49	6.79
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2010-11)		1.88	Rs/Kwh																				
Levillised Tariff (Fixed)		1.90	Rs/Kwh																				
Applicable Tariff (FY2010-11)		3.78	Rs/Kwh																				

Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		80%																				
Income Tax (MAT)		19.931%																				
Income Tax (Normal Rates)		33.22%																				
Capital Cost		426.0																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Deprn.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	0.19 (Rs/kWh)																					

Select State

Harayana

Assumption for Biomass Power Project Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 10% 10% 60% 70% 80% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	426.03
3	Financial Assumptions	Debt: Equity	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 298.22 127.81
		Debt Component	Loan Amount Moratorium Period Repayment Period(inclld Moratorium) Interest Rate	Rs Lacs years years %	298.22 0 10 13.25%
		Equity Component	Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	Rs Lacs % p.a Year %	127.81 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	Fiscal Assumptions	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.21750% 19.9305% Yes
		Depreciation	Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % %	7.00% 2.00% 10.00
5	Working Capital	For Fixed Charges O&M Charges Maintenance Spare Receivables for Debtors For Variable Charges Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period During Stablization Period	Kcal/kwh Kcal/kwh	3800 3800
		Biomass	Base Price(FY11-12) GCV - Biomass Biomass Price Escalation Factor	Rs/T Kcal/kg %	2434 3458 5%
7	Operation & Maintenance	power plant (FY 2011-12) Total O & M Expenses Escalation			22.63 5.72%

Determination of Tariff Component: Biomass Power Projects																								
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12	
Depreciation		Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan		Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		13.09	15.97	16.60	17.26	17.96	18.70	19.48	20.31	21.18	22.11	22.80	23.91	25.08	26.31	27.60	28.95	30.38	31.87	33.45	35.10	36.10
Return on Equity		Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost		Rs Lakh		127.37	127.59	125.64	123.79	122.07	120.48	119.02	117.70	116.53	115.53	101.47	104.84	108.39	112.14	116.10	120.28	124.68	129.33	134.24	139.42	
Levillised tariff corresponding to Useful life																								
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG		Rs/kWh		2.97	3.12	3.28	3.44	3.61	3.79	3.98	4.18	4.39	4.61	4.84	5.08	5.34	5.60	5.88	6.18	6.49	6.81	7.15	7.51	
O&M expn		Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	
Depreciation		Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Int. on term loan		Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.26	0.25	0.26	0.27	0.28	0.30	0.31	0.32	0.34	0.35	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	
RoE		Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Total COG		Rs/kWh		5.46	5.14	5.27	5.40	5.55	5.70	5.87	6.05	6.24	6.44	6.45	6.75	7.06	7.38	7.73	8.09	8.46	8.86	9.28	9.72	
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062	
Variable Cost (FY2010-11)		2.97	Rs/Kwh																					
Levillised Tariff (Fixed)		1.99	Rs/Kwh																					
Applicable Tariff (FY2010-11)		4.97	Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		80%																				
Income Tax (MAT)		19.931%																				
Income Tax (Normal Rates)		33.22%																				
Capital Cost		426.0																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Depm.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	0.19 (Rs/kWh)																					

Select State

Maharashtra

Assumption for Biomass Power Project Parameters

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
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	426.03
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
			Total Equity Amout	Rs Lacs	127.81
		Debt Component	Loan Amount	Rs Lacs	298.22
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	10
			Interest Rate	%	13.25%
		Equity Component	Equity amount	Rs Lacs	127.81
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
Discount Rate (equiv. to WACC)		15.73%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
Years for 7% depreciation rate		10.00			
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4
			Interest On Working Capital	%	12.75%
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3800
			During Stablization Period	Kcal/kwh	3800
		Biomass	Base Price(FY11-12)	Rs/T	2022
			GCV - Biomass	Kcal/kg	3611
			Biomass Price Escalation Factor		5%
7	Operation & Maintenance		power plant (FY 2011-12)		22.63
			Total O & M Expenses Escalation	%	5.72%

Determination of Tariff Component: Biomass Power Projects																							
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12	
Depreciation	Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan	Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		11.06	13.35	13.85	14.37	14.93	15.52	16.14	16.80	17.49	18.23	18.73	19.64	20.59	21.60	22.65	23.76	24.93	26.15	27.44	28.79	
Return on Equity	Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost	Rs Lakh		125.34	124.97	122.88	120.90	119.04	117.29	115.67	114.19	112.85	111.65	97.40	100.57	103.91	107.43	111.16	115.09	119.23	123.61	128.23	133.11	
Levallised tariff corresponding to Useful life																							
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh		2.36	2.48	2.61	2.74	2.87	3.02	3.17	3.33	3.49	3.67	3.85	4.04	4.25	4.46	4.68	4.92	5.16	5.42	5.69	5.97	
O&M expn	Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	
Depreciation	Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Int. on term loan	Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.22	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.38	0.40	0.41	0.44	0.46	
RoE	Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Total COG	Rs/kWh		4.81	4.46	4.56	4.65	4.76	4.88	5.00	5.14	5.28	5.44	5.40	5.64	5.89	6.16	6.44	6.74	7.05	7.38	7.72	8.09	
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062	
Variable Cost (FY2010-11)	2.36	Rs/Kwh																					
Levillised Tariff (Fixed)	1.94	Rs/Kwh																					
Applicable Tariff (FY2010-11)	4.31	Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	426.0

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Deprn.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit **0.19 (Rs/kWh)**

Select State

Punjab

Assumption for Biomass Power Project Parameters

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
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	426.03
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
		Debt Component	Total Equity Amout	Rs Lacs	127.81
			Loan Amount	Rs Lacs	298.22
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	10
		Equity Component	Interest Rate	%	13.25%
			Equity amount	Rs Lacs	127.81
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
Discount Rate (equiv. to WACC)		15.73%			
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
Years for 7% depreciation rate		10.00			
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		Receivables for Debtors	Months	2	
		For Variable Charges	Biomass Stock	Months	4
		Interest On Working Capital	%	12.75%	
6	Fuel Related Assumptions	Heat Rate	After Stabilisation period	Kcal/kwh	3800
			During Stablization Period	Kcal/kwh	3800
		Biomass	Base Price(FY11-12)	Rs/T	2349
			GCV - Biomass	Kcal/kg	3368
			Biomass Price Escalation Factor		5%
7	Operation & Maintenance	power plant (FY 2011-12)	Total O & M Expenses Escalation	%	22.63
					5.72%

Determination of Tariff Component: Biomass Power Projects																								
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12	
Depreciation		Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan		Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		13.00	15.85	16.47	17.13	17.82	18.56	19.33	20.15	21.02	21.93	22.61	23.72	24.87	26.09	27.37	28.72	30.13	31.61	33.17	34.81	36.51
Return on Equity		Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost		Rs Lakh		127.28	127.47	125.51	123.66	121.94	120.33	118.87	117.54	116.37	115.35	101.28	104.64	108.19	111.93	115.88	120.04	124.44	129.07	133.97	139.13	
Levillised tariff corresponding to Useful life																								
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG		Rs/kWh		2.94	3.09	3.25	3.41	3.58	3.76	3.95	4.14	4.35	4.57	4.80	5.04	5.29	5.55	5.83	6.12	6.43	6.75	7.09	7.44	
O&M expn		Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	
Depreciation		Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Int. on term loan		Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.25	0.25	0.26	0.27	0.28	0.29	0.31	0.32	0.33	0.35	0.36	0.38	0.39	0.41	0.43	0.46	0.48	0.50	0.53	0.55	
RoE		Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Total COG		Rs/kWh		5.43	5.11	5.24	5.37	5.51	5.67	5.83	6.01	6.20	6.40	6.40	6.70	7.00	7.33	7.67	8.02	8.40	8.80	9.21	9.65	
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Discount Factor				1	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062	
Variable Cost (FY2010-11)		2.94	Rs/Kwh																					
Levillised Tariff (Fixed)		1.99	Rs/Kwh																					
Applicable Tariff (FY2010-11)		4.94	Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	426.0

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Deprn.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	

Levellised benefit **0.19 (Rs/kWh)**

Select State

MP

Assumption for Biomass Power Project Parameters

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 Stabilization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
			Total Equity Amount	Rs Lacs	127.81
		<u>Debt Component</u>	Loan Amount	Rs Lacs	298.22
			Moratorium Period	years	0
			Repayment Period(inclcd Moratorium)	years	10
			Interest Rate	%	13.25%
		<u>Equity Component</u>	Equity amount	Rs Lacs	127.81
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
			Discount Rate (equiv. to WACC)		15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		<u>For Variable Charges</u>	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	12.75%	
		6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period
During Stablization Period	Kcal/kwh				3800
<u>Biomass</u>	Base Price(FY11-12)			Rs/T	1459
	GCV - Biomass			Kcal/kg	3612
	Biomass Price Escalation Factor				5%
7	Operation & Maintenance	power plant (FY 2011-12)			22.63
		Total O & M Expenses Escalation	%		5.72%

Determination of Tariff Component: Biomass Power Projects																								
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12	
Depreciation		Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan		Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		8.86	10.50	10.86	11.23	11.63	12.06	12.51	12.99	13.49	14.03	14.32	15.00	15.73	16.49	17.29	18.13	19.01	19.94	20.92	21.94	21.94
Return on Equity		Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost		Rs Lakh		123.14	122.13	119.90	117.77	115.74	113.83	112.04	110.38	108.84	107.45	92.99	95.93	99.04	102.33	105.79	109.45	113.32	117.40	121.71	126.26	
Levallised tariff corresponding to Useful life																								
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG		Rs/kWh		1.70	1.79	1.88	1.97	2.07	2.18	2.28	2.40	2.52	2.64	2.78	2.92	3.06	3.21	3.38	3.54	3.72	3.91	4.10	4.31	
O&M expn		Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	
Depreciation		Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Int. on term loan		Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.17	0.17	0.17	0.18	0.18	0.19	0.20	0.21	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	
RoE		Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Total COG		Rs/kWh		4.11	3.73	3.78	3.84	3.91	3.98	4.06	4.15	4.24	4.35	4.25	4.44	4.63	4.84	5.05	5.28	5.52	5.77	6.03	6.31	
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062	
Variable Cost (FY2010-11)		1.70	Rs/Kwh																					
Levillised Tariff (Fixed)		1.88	Rs/Kwh																					
Applicable Tariff (FY2010-11)		3.59	Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		80%																				
Income Tax (MAT)		19.931%																				
Income Tax (Normal Rates)		33.22%																				
Capital Cost		426.0																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Deprn.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	0.19 (Rs/kWh)																					

Select State

Rajasthan

Assumption for Biomass Power Project Parameters

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 Stabilization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
			Total Equity Amount	Rs Lacs	127.81
		<u>Debt Component</u>	Loan Amount	Rs Lacs	298.22
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	10
			Interest Rate	%	13.25%
		<u>Equity Component</u>	Equity amount	Rs Lacs	127.81
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
			Discount Rate (equiv. to WACC)		15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
5	Working Capital	<u>For Fixed Charges</u>	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		<u>For Variable Charges</u>	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	12.75%	
		6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period
During Stablization Period	Kcal/kwh				3800
<u>Biomass</u>	Base Price(FY11-12)			Rs/T	2046
	GCV - Biomass			Kcal/kg	3689
	Biomass Price Escalation Factor				5%
7	Operation & Maintenance	power plant (FY 2011-12)			22.63
		Total O & M Expenses Escalation	%		5.72%

Determination of Tariff Component: Biomass Power Projects																							
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12	
Depreciation	Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	
Interest on term loan	Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		10.98	13.25	13.74	14.26	14.81	15.39	16.01	16.66	17.36	18.09	18.88	19.48	20.42	21.42	22.47	23.56	24.72	25.93	27.21	28.55	
Return on Equity	Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	
Total Fixed Cost	Rs Lakh		125.26	124.87	122.78	120.79	118.92	117.17	115.55	114.06	112.71	111.51	97.24	100.40	103.74	107.26	110.97	114.89	119.03	123.39	128.00	132.87	
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Variable COG	Rs/kWh		2.34	2.46	2.58	2.71	2.85	2.99	3.14	3.29	3.46	3.63	3.81	4.00	4.20	4.42	4.64	4.87	5.11	5.37	5.63	5.92	
O&M expn	Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03	
Depreciation	Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Int. on term loan	Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.21	0.21	0.22	0.23	0.23	0.24	0.25	0.26	0.28	0.29	0.29	0.31	0.32	0.34	0.36	0.37	0.39	0.41	0.43	0.45	
RoE	Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Total COG	Rs/kWh		4.79	4.44	4.53	4.63	4.73	4.85	4.97	5.10	5.25	5.40	5.36	5.60	5.85	6.12	6.40	6.69	7.00	7.32	7.66	8.02	
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062	
Variable Cost (FY2010-11)	2.34	Rs/Kwh																					
Levillised Tariff (Fixed)	1.94	Rs/Kwh																					
Applicable Tariff (FY2010-11)	4.28	Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		80%																				
Income Tax (MAT)		19.931%																				
Income Tax (Normal Rates)		33.22%																				
Capital Cost		426.0																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Depm.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	0.19 (Rs/kWh)																					

Select State

UP

Assumption for Biomass Power Project Parameters

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 Stabilization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
			Total Equity Amount	Rs Lacs	127.81
		Debt Component	Loan Amount	Rs Lacs	298.22
			Moratorium Period	years	0
			Repayment Period(inclcd Moratorium)	years	10
			Interest Rate	%	13.25%
		Equity Component	Equity amount	Rs Lacs	127.81
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
			Discount Rate (equiv. to WACC)		15.73%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	12.75%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stablization Period	Kcal/kwh				3800
Biomass	Base Price(FY11-12)			Rs/T	1704
	GCV - Biomass			Kcal/kg	3371
	Biomass Price Escalation Factor				5%
7	Operation & Maintenance	power plant (FY 2011-12)			22.63
		Total O & M Expenses Escalation	%		5.72%

Determination of Tariff Component: Biomass Power Projects																							
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	
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	
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	
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12
Depreciation		Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan		Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		10.29	12.36	12.81	13.28	13.78	14.31	14.87	15.47	16.10	16.77	17.19	18.03	18.90	19.82	20.78	21.80	22.87	23.99	25.17	26.41
Return on Equity		Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost		Rs Lakh		124.57	123.98	121.84	119.81	117.89	116.09	114.41	112.86	111.45	110.19	95.86	98.95	102.21	105.66	109.29	113.13	117.17	121.45	125.96	130.72
Levallised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG		Rs/kWh		2.13	2.24	2.35	2.47	2.59	2.72	2.86	3.00	3.15	3.31	3.48	3.65	3.83	4.03	4.23	4.44	4.66	4.89	5.14	5.39
O&M expn		Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03
Depreciation		Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Int. on term loan		Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.20	0.20	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.27	0.29	0.30	0.31	0.33	0.35	0.36	0.38	0.40	0.42
RoE		Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Total COG		Rs/kWh		4.57	4.21	4.29	4.37	4.46	4.57	4.67	4.79	4.92	5.06	5.00	5.22	5.45	5.70	5.96	6.23	6.52	6.82	7.13	7.47
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2010-11)		2.13 Rs/Kwh																					
Levillised Tariff (Fixed)		1.92 Rs/Kwh																					
Applicable Tariff (FY2010-11)		4.06 Rs/Kwh																					

Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		80%																				
Income Tax (MAT)		19.931%																				
Income Tax (Normal Rates)		33.22%																				
Capital Cost		426.0																				
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Deprn.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.46	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	0.19 (Rs/kWh)																					

Select State

TN

Assumption for Biomass Power Project Parameters

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 Stabilization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
			Total Equity Amount	Rs Lacs	127.81
		Debt Component	Loan Amount	Rs Lacs	298.22
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	10
			Interest Rate	%	13.25%
		Equity Component	Equity amount	Rs Lacs	127.81
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
			Discount Rate (equiv. to WACC)		15.73%
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	12.75%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				3800
Biomass	Base Price(FY11-12)			Rs/T	2047
	GCV - Biomass			Kcal/kg	3300
	Biomass Price Escalation Factor				5%
7	Operation & Maintenance		power plant (FY 2011-12)		22.63
			Total O & M Expenses Escalation	%	5.72%

Determination of Tariff Component: Biomass Power Projects																							
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	
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	
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	
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12
Depreciation		Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan		Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		11.91	14.45	15.00	15.58	16.20	16.85	17.54	18.27	19.04	19.85	20.43	21.43	22.47	23.57	24.72	25.93	27.21	28.55	29.95	31.43
Return on Equity		Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost		Rs Lakh		126.19	126.07	124.04	122.11	120.31	118.63	117.07	115.66	114.39	113.27	99.10	102.35	105.78	109.41	113.23	117.26	121.52	126.01	130.75	135.75
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG		Rs/kWh		2.62	2.75	2.89	3.03	3.18	3.34	3.51	3.68	3.87	4.06	4.27	4.48	4.70	4.94	5.19	5.44	5.72	6.00	6.30	6.62
O&M expn		Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03
Depreciation		Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Int. on term loan		Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.23	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.50
RoE		Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Total COG		Rs/kWh		5.08	4.75	4.85	4.97	5.09	5.22	5.37	5.52	5.68	5.86	5.84	6.10	6.38	6.67	6.98	7.30	7.64	8.00	8.38	8.77
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2010-11)		2.62	Rs/Kwh																				
Levillised Tariff (Fixed)		1.96	Rs/Kwh																				
Applicable Tariff (FY2010-11)		4.58	Rs/Kwh																				

Determination of Accelerated Depreciation for Biomass Power Project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.931%
Income Tax (Normal Rates)	33.22%
Capital Cost	426.0

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Deprn.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.46	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	

Levellised benefit **0.19 (Rs/kWh)**

Select State

Others

Assumption for Biomass Power Project Parameters

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 Stabilization)	%	70%
			PLF(second year onwards)	%	80%
			Useful Life	Years	20
			2	Project Cost	Capital Cost/MW
3	Financial Assumptions	Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	298.22
			Total Equity Amount	Rs Lacs	127.81
			Debt Component	Loan Amount	Rs Lacs
		Moratorium Period	years	0	
		Repayment Period(incl'd Moratorium)	years	10	
		Interest Rate	%	13.25%	
		Equity Component	Equity amount	Rs Lacs	127.81
		Return on Equity for first 10 years	% p.a	19.00%	
		RoE Period	Year	10.00	
		Return on Equity after 10 years		24.00%	
		Weighted average of ROE		21.50%	
		Discount Rate (equiv. to WACC)		15.73%	
4	Financial Assumptions	Fiscal Assumptions	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		Depreciation	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
5	Working Capital	For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare	(% of O&M exepenses)	15%
		For Variable Charges	Receivables for Debtors	Months	2
			Biomass Stock	Months	4
		Interest On Working Capital	%	12.75%	
		6	Fuel Related Assumptions	Heat Rate	After Stabilisation period
During Stabilization Period	Kcal/kwh				3800
Biomass	Base Price(FY11-12)			Rs/T	2018
	GCV - Biomass			Kcal/kg	3467
	Biomass Price Escalation Factor				5%
7	Operation & Maintenance		power plant (FY 2011-12)		22.63
			Total O & M Expenses Escalation	%	5.72%

Determination of Tariff Component: Biomass Power Projects																						
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	
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	
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	
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	
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		22.63	23.93	25.30	26.74	28.27	29.89	31.60	33.41	35.32	37.34	39.47	41.73	44.12	46.64	49.31	52.13	55.11	58.27	61.60	65.12
Depreciation	Rs Lakh		29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	29.82	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Interest on term loan	Rs Lakh		37.54	33.59	29.64	25.68	21.73	17.78	13.83	9.88	5.93	1.98	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		11.37	13.75	14.27	14.81	15.39	16.00	16.65	17.33	18.06	18.82	19.35	20.29	21.28	22.32	23.41	24.55	25.76	27.02	28.35	29.75
Return on Equity	Rs Lakh		24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	24.28	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
Total Fixed Cost	Rs Lakh		125.65	125.37	123.30	121.34	119.50	117.78	116.18	114.73	113.41	112.24	98.02	101.22	104.59	108.15	111.91	115.88	120.07	124.48	129.15	134.07
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		2.46	2.58	2.71	2.84	2.99	3.14	3.29	3.46	3.63	3.81	4.00	4.20	4.41	4.63	4.87	5.11	5.36	5.63	5.91	6.21
O&M expn	Rs/kWh		0.44	0.38	0.40	0.42	0.45	0.47	0.50	0.53	0.56	0.59	0.63	0.66	0.70	0.74	0.78	0.83	0.87	0.92	0.98	1.03
Depreciation	Rs/kWh		0.58	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Int. on term loan	Rs/kWh		0.73	0.53	0.47	0.41	0.34	0.28	0.22	0.16	0.09	0.03	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		0.22	0.22	0.23	0.23	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.41	0.43	0.45	0.47
RoE	Rs/kWh		0.47	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Total COG	Rs/kWh		4.91	4.57	4.66	4.77	4.88	5.00	5.13	5.28	5.43	5.59	5.56	5.81	6.07	6.35	6.64	6.95	7.27	7.61	7.96	8.33
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2010-11)	2.46	Rs/Kwh																				
Levillised Tariff (Fixed)	1.95	Rs/Kwh																				
Applicable Tariff (FY2010-11)	4.41	Rs/Kwh																				

Determination of Accelerated Depreciation for Biomass Power Project																						
Depreciation amount		90%																				
Book Depreciation rate		5.28%																				
Tax Depreciation rate		80%																				
Income Tax (MAT)		19.931%																				
Income Tax (Normal Rates)		33.22%																				
Capital Cost		426.0																				
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	11.25	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	12.27	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Depm.	Rs Lakh	170.41	204.50	40.90	8.18	1.64	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	159.17	182.00	18.40	-14.31	-20.86	-22.17	-22.43	-22.48	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-22.49	-12.27	0.00	0.00	
Tax Benefit	Rs Lakh	52.87	60.46	6.11	-4.75	-6.93	-7.36	-7.45	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-7.47	-4.08	0.00	0.00	
Net Energy generation	MU	2.56	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	2.06	0.96	0.10	-0.08	-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	-0.12	-0.06	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	0.19 (Rs/kWh)																					

Select State

AP

Assumption: Non Fossil Fuel based co-generation 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	%	9%
			Auxillary Consumption after stabilisation	%	9%
			PLF(Stablization for 6 months)	%	45%
			PLF(during first year after Stablization)	%	45%
			PLF(second year onwards)	%	45%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	294.91
			Total Equity Amout	Rs Lacs	126.39
			<u>Debt Component</u>	Loan Amount	Rs Lacs
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	10
			Interest Rate	%	13.25%
		<u>Equity Component</u>	Equity amount	Rs Lacs	126.39
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10.00
			Return on Equity after 10 years		24.00%
			Weighted average of ROE		21.50%
			Discount Rate (equiv. to WACC)		15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
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		%	12.75%	
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(FY11-12)	Rs/T	1009
			GCV - Biomass	Kcal/kg	2250
			Biomass Price Escalation Factor		5%
7	Operation & Maintenance		power plant (FY 2009-10)	Rs Lakh	13.35
			power plant (FY 2011-12)		14.92
			Total O & M Expenses Escalation	%	5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects																							
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	
Gross Generation	MU			3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	
Auxiliary Consumption	MU			0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
Net Generation	MU			3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			6.89	7.06	7.24	7.43	7.64	7.86	8.10	8.36	8.63	8.92	8.95	9.37	9.80	10.26	10.75	11.25	11.79	12.35	12.94	13.56
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh			112.44	109.55	106.73	103.97	101.28	98.66	96.11	93.65	91.28	88.99	73.74	75.64	77.65	79.77	82.01	84.38	86.88	89.52	92.31	95.25
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			1.77	1.85	1.95	2.04	2.15	2.25	2.37	2.48	2.61	2.74	2.88	3.02	3.17	3.33	3.49	3.67	3.85	4.05	4.25	4.46
O&M expn	Rs/kWh			0.41	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.76	0.81	0.85	0.90	0.95	1.01	1.06	1.13	1.19
Depreciation	Rs/kWh			0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Int. on term loan	Rs/kWh			1.03	0.92	0.81	0.70	0.60	0.49	0.38	0.27	0.16	0.05	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			0.19	0.20	0.20	0.21	0.21	0.22	0.22	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.30	0.31	0.33	0.34	0.36	0.38
RoE	Rs/kWh			0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Total COG	Rs/kWh			4.88	4.89	4.90	4.93	4.95	4.99	5.03	5.08	5.14	5.21	4.92	5.12	5.32	5.54	5.77	6.01	6.26	6.53	6.81	7.10
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	1.77	Rs/Kwh																					
Levillised Tariff (Fixed)	2.75	Rs/Kwh																					
Applicable Tariff (FY2010-11)	4.51	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
Per unit benefit	Rs/Unit	2.90	1.66	0.17	-0.13	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit **0.33** (Rs/kWh)

Select State

Harayana

Assumption: Non Fossil Fuel based co-generation Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 9% 9% 53% 53% 53% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 294.91 126.39
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period(inclnd Moratorium) Interest Rate	Rs Lacs years years %	294.91 0 10 13.25%
		<u>Equity Component</u>	Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	Rs Lacs % p.a Year Year %	126.39 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.21750% 19.9305% Yes
		<u>Depreciation</u>	Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % %	7.00% 2.00% 10.00
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors <u>For Variable Charges</u> Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period During Stablization Period	Kcal/kwh Kcal/kwh	3600 3600
		<u>Biomass</u>	Base Price(FY11-12) GCV - Biomass Biomass Price Escalation Factor	Rs/T Kcal/kg %	1584 2250 5%
7	Operation & Maintenance	power plant (FY 2009-10) power plant (FY 2011-12) <u>Total O & M Expenses Escalation</u>		Rs Lakh Rs Lakh %	13.35 14.92 5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects

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			4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64
Auxiliary Consumption	MU			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	0.39	0.39	0.39
Net Generation	MU			4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43	8.43
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			10.41	10.75	11.12	11.51	11.92	12.35	12.82	13.31	13.83	14.38	14.68	15.39	16.12	16.90	17.71	18.57	19.47	20.41	21.41	22.45
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh			115.96	113.25	110.61	108.04	105.55	103.15	100.83	98.61	96.48	94.45	79.47	81.66	83.97	86.41	88.98	91.70	94.56	97.58	100.77	104.14
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			2.77	2.91	3.05	3.21	3.37	3.54	3.71	3.90	4.09	4.30	4.51	4.74	4.98	5.22	5.48	5.76	6.05	6.35	6.67	7.00
O&M expn	Rs/kWh			0.35	0.37	0.39	0.42	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.77	0.81	0.86	0.90	0.96	1.01
Depreciation	Rs/kWh			0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Int. on term loan	Rs/kWh			0.87	0.78	0.69	0.60	0.51	0.41	0.32	0.23	0.14	0.05	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			0.25	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.53
RoE	Rs/kWh			0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Total COG	Rs/kWh			5.50	5.57	5.66	5.75	5.85	5.96	6.09	6.22	6.36	6.52	6.38	6.66	6.95	7.26	7.58	7.92	8.27	8.65	9.04	9.45
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	2.77	Rs/Kwh																					
Levillised Tariff (Fixed)	2.44	Rs/Kwh																					
Applicable Tariff (FY2010-11)	5.21	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	2.12	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.46	1.41	0.14	-0.11	-0.16	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.09	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levillised benefit **0.28** (Rs/kWh)

Select State

Maharashtra

Assumption: Non Fossil Fuel based co-generation 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	%	9%
			Auxillary Consumption after stabilisation	%	9%
			PLF(Stablization for 6 months)	%	60%
			PLF(during first year after Stablization)	%	60%
			PLF(second year onwards)	%	60%
			Useful Life	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	294.91
			Total Equity Amount	Rs Lacs	126.39
			<u>Debt Component</u>	Loan Amount	Rs Lacs
		Moratorium Period	years	0	
		Repayment Period(incl'd Moratorium)	years	10	
		Interest Rate	%	13.25%	
		<u>Equity Component</u>	Equity amount	Rs Lacs	126.39
		Return on Equity for first 10 years	% p.a	19.00%	
		RoE Period	Year	10.00	
		Return on Equity after 10 years		24.00%	
		Weighted average of ROE		21.50%	
Discount Rate (equiv. to WACC)		15.73%			
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
		<u>Depreciation</u>	Depreciation Rate(power plant)	%	7.00%
		Depreciation Rate 11th year onwards	%	2.00%	
Years for 7% depreciation rate		10.00			
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	%	12.75%	
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(FY11-12)	Rs/T	1261
			GCV - Biomass	Kcal/kg	2250
			Biomass Price Escalation Factor		5%
7	Operation & Maintenance	power plant (FY 2009-10)	Rs Lakh	13.35	
		power plant (FY 2011-12)		14.92	
		<u>Total O & M Expenses Escalation</u>	%	5.72%	

Determination of Tariff for non-fossil fuel based co-generation Projects

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
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			9.65	9.96	10.28	10.63	10.99	11.38	11.80	12.24	12.71	13.20	13.45	14.09	14.76	15.47	16.21	16.99	17.81	18.67	19.58	20.53
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh			115.20	112.45	109.77	107.16	104.63	102.18	99.81	97.54	95.36	93.28	78.23	80.36	82.61	84.98	87.48	90.12	92.90	95.84	98.95	102.22
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			2.20	2.32	2.43	2.55	2.68	2.81	2.95	3.10	3.26	3.42	3.59	3.77	3.96	4.16	4.37	4.58	4.81	5.05	5.31	5.57
O&M expn	Rs/kWh			0.31	0.33	0.35	0.37	0.39	0.41	0.43	0.46	0.48	0.51	0.54	0.57	0.60	0.64	0.68	0.71	0.76	0.80	0.84	0.89
Depreciation	Rs/kWh			0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Int. on term loan	Rs/kWh			0.77	0.69	0.61	0.53	0.45	0.37	0.28	0.20	0.12	0.04	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			0.20	0.21	0.21	0.22	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.29	0.31	0.32	0.34	0.35	0.37	0.39	0.41	0.43
RoE	Rs/kWh			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh			4.60	4.65	4.71	4.78	4.86	4.94	5.03	5.13	5.24	5.36	5.22	5.44	5.68	5.92	6.18	6.46	6.74	7.05	7.36	7.70
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	2.20	Rs/Kwh																					
Levillised Tariff (Fixed)	2.14	Rs/Kwh																					
Applicable Tariff (FY2010-11)	4.34	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	2.40	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	2.17	1.24	0.13	-0.10	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit **0.25** (Rs/kWh)

Select State

MP

Assumption: Non Fossil Fuel based co-generation Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 9% 9% 53% 53% 53% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 294.91 126.39
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period(incld Moratorium) Interest Rate	Rs Lacs years years %	294.91 0 10 13.25%
		<u>Equity Component</u>	Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	Rs Lacs % p.a Year %	126.39 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.21750% 19.9305% Yes
		<u>Depreciation</u>	Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % %	7.00% 2.00% 10.00
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors <u>For Variable Charges</u> Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months % Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	<u>Heat Rate</u> <u>Biomass</u>	After Stabilisation period During Stablization Period Base Price(FY11-12) GCV - Biomass Biomass Price Escalation Factor	Kcal/kwh Kcal/kwh Rs/T Kcal/kg %	3600 3600 908 2250 5%
7	Operation & Maintenance	power plant (FY 2009-10) power plant (FY 2011-12) <u>Total O & M Expenses Escalation</u>		Rs Lakh % %	13.35 14.92 5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects

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			4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64
Auxiliary Consumption	MU			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	0.39	0.39	0.39
Net Generation	MU			4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			7.14	7.32	7.51	7.72	7.94	8.18	8.43	8.71	9.00	9.30	9.36	9.79	10.25	10.73	11.24	11.77	12.33	12.92	13.53	14.18
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh			112.69	109.81	107.00	104.25	101.58	98.97	96.45	94.00	91.65	89.38	74.14	76.06	78.10	80.24	82.51	84.90	87.42	90.09	92.90	95.88
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			1.59	1.67	1.75	1.84	1.93	2.03	2.13	2.23	2.35	2.46	2.59	2.72	2.85	3.00	3.14	3.30	3.47	3.64	3.82	4.01
O&M expn	Rs/kWh			0.35	0.37	0.39	0.42	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.77	0.81	0.86	0.90	0.96	1.01
Depreciation	Rs/kWh			0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Int. on term loan	Rs/kWh			0.87	0.78	0.69	0.60	0.51	0.41	0.32	0.23	0.14	0.05	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			0.17	0.17	0.18	0.18	0.19	0.19	0.20	0.20	0.21	0.22	0.22	0.23	0.24	0.25	0.26	0.28	0.29	0.30	0.32	0.33
RoE	Rs/kWh			0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Total COG	Rs/kWh			4.24	4.25	4.27	4.29	4.32	4.36	4.40	4.45	4.50	4.57	4.33	4.51	4.69	4.88	5.09	5.30	5.53	5.76	6.01	6.27
Levillised Tariff		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Discount Factor				1	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	1.59	Rs/Kwh																					
Levillised Tariff (Fixed)	2.34	Rs/Kwh																					
Applicable Tariff (FY2010-11)	3.93	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	2.12	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.46	1.41	0.14	-0.11	-0.16	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.09	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levillised benefit **0.28** (Rs/kWh)

Select State

Punjab

Assumption: Non Fossil Fuel based co-generation Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 9% 9% 53% 53% 53% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u> <u>Debt Component</u> <u>Equity Component</u>	Debt Equity Total Debt Amount Total Equity Amout Loan Amount Moratorium Period Repayment Period(incld Moratorium) Interest Rate Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	% % Rs Lacs Rs Lacs Rs Lacs years years % Rs Lacs % p.a Year % %	70% 30% 294.91 126.39 294.91 0 10 13.25% 126.39 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u> <u>Depreciation</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % Yes/No % % %	33.21750% 19.9305% Yes 7.00% 2.00% 10.00
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors <u>For Variable Charges</u> Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	<u>Heat Rate</u> <u>Biomass</u>	After Stabilisation period During Stablization Period Base Price(FY11-12) GCV - Biomass Biomass Price Escalation Factor	Kcal/kwh Kcal/kwh Rs/T Kcal/kg %	3600 3600 1570 2250 5%
7	Operation & Maintenance	power plant (FY 2009-10) power plant (FY 2011-12) Total O & M Expenses Escalation		Rs Lakh %	13.35 14.92 5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects

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			4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64
Auxiliary Consumption	MU			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	0.39	0.39	0.39
Net Generation	MU			4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			10.34	10.68	11.04	11.42	11.83	12.26	12.72	13.21	13.72	14.27	14.87	15.26	16.00	16.76	17.57	18.42	19.31	20.25	21.24	22.27
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh			115.89	113.17	110.53	107.96	105.47	103.06	100.74	98.51	96.37	94.34	79.35	81.54	83.84	86.27	88.84	91.55	94.41	97.42	100.60	103.96
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			2.74	2.88	3.03	3.18	3.34	3.50	3.68	3.86	4.06	4.26	4.47	4.69	4.93	5.18	5.43	5.71	5.99	6.29	6.61	6.94
O&M expn	Rs/kWh			0.35	0.37	0.39	0.42	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.77	0.81	0.86	0.90	0.96	1.01
Depreciation	Rs/kWh			0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Int. on term loan	Rs/kWh			0.87	0.78	0.69	0.60	0.51	0.41	0.32	0.23	0.14	0.05	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			0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.34	0.34	0.36	0.38	0.39	0.41	0.43	0.45	0.48	0.50	0.52
RoE	Rs/kWh			0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Total COG	Rs/kWh			5.47	5.55	5.63	5.72	5.82	5.93	6.05	6.18	6.32	6.48	6.34	6.61	6.90	7.21	7.53	7.86	8.21	8.58	8.97	9.38
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	2.74	Rs/Kwh																					
Levillised Tariff (Fixed)	2.44	Rs/Kwh																					
Applicable Tariff (FY2010-11)	5.19	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	2.12	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.46	1.41	0.14	-0.11	-0.16	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.09	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	

Levillised benefit **0.28** (Rs/kWh)

Select State

TN

Assumption: Non Fossil Fuel based co-generation Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 9% 9% 60% 60% 60% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 294.91 126.39
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period(incld Moratorium) Interest Rate	Rs Lacs years years %	294.91 0 10 13.25%
		<u>Equity Component</u>	Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	Rs Lacs % p.a Year % %	126.39 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.21750% 19.9305% Yes
		<u>Depreciation</u>	Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % %	7.00% 2.00% 10.00
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors <u>For Variable Charges</u> Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	<u>Heat Rate</u> <u>Biomass</u>	After Stabilisation period During Stablization Period Base Price(FY11-12) GCV - Biomass Biomass Price Escalation Factor	Kcal/kwh Kcal/kwh Rs/T Kcal/kg %	3600 3600 1396 2250 5%
7	Operation & Maintenance	power plant (FY 2009-10) power plant (FY 2011-12) <u>Total O & M Expenses Escalation</u>		Rs Lakh %	13.35 14.92 5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects

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
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			10.39	10.73	11.10	11.48	11.89	12.33	12.79	13.28	13.80	14.35	14.65	15.35	16.09	16.86	17.67	18.52	19.42	20.36	21.36	22.40
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh			115.94	113.22	110.58	108.02	105.53	103.12	100.80	98.58	96.45	94.42	79.43	81.62	83.93	86.37	88.94	91.65	94.52	97.54	100.72	104.09
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit	Year -->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			2.44	2.56	2.69	2.83	2.97	3.11	3.27	3.43	3.61	3.79	3.98	4.17	4.38	4.60	4.83	5.07	5.33	5.59	5.87	6.17
O&M expn	Rs/kWh			0.31	0.33	0.35	0.37	0.39	0.41	0.43	0.46	0.48	0.51	0.54	0.57	0.60	0.64	0.68	0.71	0.76	0.80	0.84	0.89
Depreciation	Rs/kWh			0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh			0.77	0.69	0.61	0.53	0.45	0.37	0.28	0.20	0.12	0.04	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			0.22	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.30	0.32	0.33	0.35	0.37	0.39	0.40	0.42	0.44	0.47
RoE	Rs/kWh			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh			4.85	4.92	4.99	5.07	5.16	5.26	5.37	5.48	5.61	5.75	5.63	5.87	6.13	6.40	6.68	6.98	7.29	7.62	7.97	8.33
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	2.44	Rs/Kwh																					
Levillised Tariff (Fixed)	2.16	Rs/Kwh																					
Applicable Tariff (FY2010-11)	4.60	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	2.40	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	2.17	1.24	0.13	-0.10	-0.14	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.08	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit **0.25** (Rs/kWh)

Select State

UP

Assumption: Non Fossil Fuel based co-generation Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 9% 9% 45% 45% 45% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 294.91 126.39
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period(inclid Moratorium) Interest Rate	Rs Lacs years years %	294.91 0 10 13.25%
		<u>Equity Component</u>	Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	Rs Lacs % p.a Year % % %	126.39 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.21750% 19.9305% Yes
		<u>Depreciation</u>	Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % %	7.00% 2.00% 10.00
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors <u>For Variable Charges</u> Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	<u>Heat Rate</u> <u>Biomass</u>	After Stabilisation period During Stablization Period Base Price(FY11-12) GCV - Bagasse Bagasse Price Escalation Factor	Kcal/kwh Kcal/kwh Rs/T Kcal/kg %	3600 3600 1137 2250 5%
7	Operation & Maintenance	power plant (FY 2009-10) power plant (FY 2011-12) Total O & M Expenses Escalation		Rs Lakh % %	13.35 14.92 5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects

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		3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94
Auxiliary Consumption	MU		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Net Generation	MU		3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
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		14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh		29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh		37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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		7.42	7.61	7.82	8.04	8.28	8.53	8.81	9.10	9.41	9.74	9.81	10.27	10.75	11.25	11.79	12.35	12.93	13.55	14.20	14.89
Return on Equity	Rs Lakh		24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33	30.33
Total Fixed Cost	Rs Lakh		112.97	110.10	107.31	104.58	101.91	99.33	96.82	94.39	92.06	89.81	74.59	76.54	78.59	80.76	83.05	85.47	88.03	90.72	93.57	96.58
Levillised tariff corresponding to Useful life																						
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh		1.99	2.09	2.19	2.30	2.42	2.54	2.67	2.80	2.94	3.09	3.24	3.40	3.57	3.75	3.94	4.13	4.34	4.56	4.79	5.03
O&M expn	Rs/kWh		0.41	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.76	0.81	0.85	0.90	0.95	1.01	1.06	1.13	1.19
Depreciation	Rs/kWh		0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Int. on term loan	Rs/kWh		1.03	0.92	0.81	0.70	0.60	0.49	0.38	0.27	0.16	0.05	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		0.21	0.21	0.22	0.22	0.23	0.24	0.24	0.25	0.26	0.27	0.27	0.28	0.30	0.31	0.33	0.34	0.36	0.38	0.39	0.41
RoE	Rs/kWh		0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Total COG	Rs/kWh		5.12	5.14	5.17	5.20	5.24	5.29	5.35	5.42	5.49	5.58	5.31	5.52	5.75	5.99	6.24	6.50	6.78	7.07	7.38	7.70
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	1.99	Rs/Kwh																				
Levillised Tariff (Fixed)	2.77	Rs/Kwh																				
Applicable Tariff (FY2010-11)	4.76	Rs/Kwh																				

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
Per unit benefit	Rs/Unit	2.90	1.66	0.17	-0.13	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07

Levellised benefit **0.33** (Rs/kWh)

Select State

Others

Asumption: Non Fossil Fuel based co-generation Projects

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	Capacity	Installed Power Generation Capacity Auxillary Consumption during stabilisation Auxillary Consumption after stabilisation PLF(Stablization for 6 months) PLF(during first year after Stablization) PLF(second year onwards) Useful Life	MW % % % % % Years	1 9% 9% 53% 53% 53% 20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	421.30
3	Financial Assumptions	<u>Debt: Equity</u>	Debt Equity Total Debt Amount Total Equity Amout	% % Rs Lacs Rs Lacs	70% 30% 294.91 126.39
		<u>Debt Component</u>	Loan Amount Moratorium Period Repayment Period(incld Moratorium) Interest Rate	Rs Lacs years years %	294.91 0 10 13.25%
		<u>Equity Component</u>	Equity amount Return on Equity for first 10 years RoE Period Return on Equity after 10 years Weighted average of ROE Discount Rate (equiv. to WACC)	Rs Lacs % p.a Year %	126.39 19.00% 10.00 24.00% 21.50% 15.73%
4	Financial Assumptions	<u>Fiscal Assumptions</u>	Income Tax MAT Rate (for first 10 years) 80 IA benefits	% % Yes/No	33.21750% 19.9305% Yes
		<u>Depreciation</u>	Depreciation Rate(power plant) Depreciation Rate 11th year onwards Years for 7% depreciation rate	% % %	7.00% 2.00% 10.00
5	Working Capital	<u>For Fixed Charges</u> O&M Charges Maintenance Spare Receivables for Debtors <u>For Variable Charges</u> Biomass Stock Interest On Working Capital	(% of O&M exepenses)	Months Months Months %	1 15% 2 4 12.75%
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period During Stablization Period	Kcal/kwh Kcal/kwh	3600 3600
		<u>Biomass</u>	Base Price(FY11-12) GCV - Bagasse Bagasse Price Escalation Factor	Rs/T Kcal/kg %	1306 2250 5%
7	Operation & Maintenance	power plant (FY 2009-10) power plant (FY 2011-12) <u>Total O & M Expenses Escalation</u>		Rs Lakh %	13.35 14.92 5.72%

Determination of Tariff for non-fossil fuel based co-generation Projects

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			4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64
Auxiliary Consumption	MU			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	0.39	0.39	0.39
Net Generation	MU			4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
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			14.92	15.77	16.68	17.63	18.64	19.71	20.83	22.02	23.28	24.62	26.02	27.51	29.09	30.75	32.51	34.37	36.33	38.41	40.61	42.93
Depreciation	Rs Lakh			29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49	29.49
Interest on term loan	Rs Lakh			37.12	33.21	29.31	25.40	21.49	17.58	13.68	9.77	5.86	1.95	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			9.06	9.34	9.63	9.95	10.28	10.63	11.01	11.41	11.84	12.29	12.49	13.08	13.70	14.36	15.04	15.77	16.53	17.32	18.16	19.04
Return on Equity	Rs Lakh			24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01	24.01
Total Fixed Cost	Rs Lakh			114.61	111.83	109.12	106.48	103.91	101.43	99.02	96.71	94.49	92.36	77.27	79.35	81.55	83.87	86.31	88.89	91.62	94.50	97.53	100.74
Levillised tariff corresponding to Useful life																							
Per Unit Cost of Generation		Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Variable COG	Rs/kWh			2.28	2.40	2.52	2.64	2.78	2.91	3.06	3.21	3.37	3.54	3.72	3.91	4.10	4.31	4.52	4.75	4.98	5.23	5.50	5.77
O&M expn	Rs/kWh			0.35	0.37	0.39	0.42	0.44	0.46	0.49	0.52	0.55	0.58	0.61	0.65	0.68	0.72	0.77	0.81	0.86	0.90	0.96	1.01
Depreciation	Rs/kWh			0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Int. on term loan	Rs/kWh			0.87	0.78	0.69	0.60	0.51	0.41	0.32	0.23	0.14	0.05	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			0.21	0.22	0.23	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.29	0.31	0.32	0.34	0.35	0.37	0.39	0.41	0.43	0.45
RoE	Rs/kWh			0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Total COG	Rs/kWh			4.98	5.03	5.09	5.15	5.22	5.30	5.39	5.49	5.60	5.72	5.84	5.97	6.12	6.28	6.45	6.64	6.84	7.06	7.29	7.54
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	0.864	0.747	0.645	0.558	0.482	0.416	0.360	0.311	0.269	0.232	0.201	0.173	0.150	0.129	0.112	0.097	0.084	0.072	0.062
Variable Cost (FY2011-12)	2.28	Rs/Kwh																					
Levillised Tariff (Fixed)	2.40	Rs/Kwh																					
Applicable Tariff (FY2010-11)	4.68	Rs/Kwh																					

Determination of Accelerated Depreciation for non-fossil fuel based co-generation project

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	421.3

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.12	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	22.24	12.13	0.00	0.00

Accelerated Depreciation

Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depn.	Rs Lakh	168.52	202.22	40.44	8.09	1.62	0.32	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	157.40	179.98	18.20	-14.16	-20.63	-21.92	-22.18	-22.23	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-22.24	-12.13	0.00	0.00
Tax Benefit	Rs Lakh	52.28	59.78	6.05	-4.70	-6.85	-7.28	-7.37	-7.38	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-4.03	0.00	0.00
Net Energy generation	MU	2.12	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.46	1.41	0.14	-0.11	-0.16	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.09	0.00	0.00
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.45	0.39	0.33	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	

Levellised benefit	0.28	(Rs/kWh)
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Assumption for Solar PV Power Projects Parameters

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Asumptions
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Capacity Utilization Factor	%	19.0%
			Deration Factor	%	0.0%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	1442
3	Financial Assumptions		Tariff Period	Years	25
			<u>Debt: Equity</u>		
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	1009.40
			Total Equity Amount	Rs Lacs	432.60
			<u>Debt Component</u>		
			Loan Amount	Rs Lacs	1009.40
			Moratorium Period	years	0
			Repayment Period (incl'd Moratorium)	years	10
			Interest Rate	%	13.25%
			<u>Equity Component</u>		
			Equity amount	Rs Lacs	432.60
			Return on Equity for first 10 years	% p.a	19.00%
RoE Period	Year	10			
Return on Equity 11th year onwards	% p.a	24.00%			
Weighted average of ROE		22.00%			
		Discount Rate			15.88%
4	Financial Assumptions		<u>Fiscal Assumptions</u>		
			Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
			<u>Depreciation</u>		
			Depreciation Rate for first 10 years	%	7.00%
Depreciation Rate 11th year onwards	%	1.33%			
		Years for 7% rate			10
5	Working Capital		<u>For Fixed Charges</u>		
			O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	15%
			Receivables for Debtors	Months	2
			<u>For Variable Charges</u>		
Interest On Working Capital	%	12.75%			
6	Operation & Maintenance		power plant (FY 09-10)	Rs Lakh	9
			power plant (FY 11-12)		10.06
			<u>Total O & M Expenses Escalation</u>	%	5.72%

Determination of Tariff for Solar PV

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		1.66	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		10.06	10.63	11.24	11.89	12.57	13.28	14.04	14.85	15.70	16.59	17.54	18.55	19.61	20.73	21.92	23.17	24.49	25.90	27.38	28.94	30.60	32.35	34.20	36.16	38.22
Depreciation	Rs Lakh		100.94	100.94	100.94	100.94	100.94	100.94	100.94	100.94	100.94	100.94	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23	19.23
Interest on term loan	Rs Lakh		127.06	113.68	100.31	86.93	73.56	60.19	46.81	33.44	20.06	6.69	0.00	0.00	0.00	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		7.26	7.00	6.74	6.48	6.23	5.98	5.72	5.48	5.23	4.99	3.59	3.64	3.69	3.75	3.81	3.88	3.95	4.02	4.10	4.18	4.27	4.36	4.45	4.56	4.66
Return on Equity	Rs Lakh		82.19	82.19	82.19	82.19	82.19	82.19	82.19	82.19	82.19	82.19	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82	103.82
Total Fixed Cost	Rs Lakh		327.51	314.45	301.43	288.44	275.49	262.58	249.71	236.89	224.12	211.40	144.18	145.24	146.35	147.53	148.78	150.10	151.49	152.97	154.53	156.17	157.92	159.76	161.70	163.76	165.94
Levellised COG																											
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M expn	Rs/kWh		0.60	0.64	0.68	0.71	0.75	0.80	0.84	0.89	0.94	1.00	1.05	1.11	1.18	1.25	1.32	1.39	1.47	1.56	1.64	1.74	1.84	1.94	2.05	2.17	2.30
Depreciation	Rs/kWh		6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Int. on term loan	Rs/kWh		7.63	6.83	6.03	5.22	4.42	3.62	2.81	2.01	1.21	0.40	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	0.00	0.00
Int. on working capital	Rs/kWh		0.44	0.42	0.40	0.39	0.37	0.36	0.34	0.33	0.31	0.30	0.22	0.22	0.22	0.23	0.23	0.23	0.24	0.24	0.25	0.25	0.26	0.26	0.27	0.27	0.28
RoE	Rs/kWh		4.94	4.94	4.94	4.94	4.94	4.94	4.94	4.94	4.94	4.94	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24	6.24
Total COG	Rs/kWh		19.68	18.89	18.11	17.33	16.55	15.78	15.00	14.23	13.47	12.70	8.66	8.73	8.79	8.86	8.94	9.02	9.10	9.19	9.28	9.38	9.49	9.60	9.72	9.84	9.97
Discount Factor			1	0.863	0.745	0.643	0.555	0.479	0.413	0.357	0.308	0.266	0.229	0.198	0.171	0.147	0.127	0.110	0.095	0.082	0.070	0.061	0.053	0.045	0.039	0.034	0.029
Levellised Tariff	15.39	Rs/Unit																									

Determination of Accelerated Depreciation Benefit for Solar PV Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	1442.0

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Book Depreciation		2.64%	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%	2.88%	0.00%	0.00%
Book Depreciation	Rs Lakh	38.07	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	76.14	41.53	0.00	0.00
Accelerated Depreciation																					
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%
Accelerated Depm.	Rs Lakh	576.80	692.16	138.43	27.69	5.54	1.11	0.22	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	538.73	616.02	62.29	-48.45	-70.60	-75.03	-75.92	-76.09	-76.13	-76.14	-76.14	-76.14	-76.14	-76.14	-76.14	-76.14	-76.14	-41.53	0.00	0.00
Tax Benefit	Rs Lakh	178.95	204.63	20.69	-16.09	-23.45	-24.92	-25.22	-25.28	-25.29	-25.29	-25.29	-25.29	-25.29	-25.29	-25.29	-25.29	-25.29	-13.80	0.00	0.00
Energy generation	MU	0.83	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
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.44	0.38	0.33	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07
Levellised benefit	2.45	Rs/Unit																			

Assumptions for Solar Thermal Power Projects 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	%	23.0%
			Auxiliary Consumption Factor	%	10.0%
			Useful Life	Years	25
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	1500
3	Sources of Fund		Tariff Period	Years	25
			<u>Debt: Equity</u>		
			Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	1050
			Total Equity Amount	Rs Lacs	450
			<u>Debt Component</u>		
			Loan Amount	Rs Lacs	1050.00
			Moratorium Period	years	0
			Repayment Period(incl'd Moratorium)	years	10
			Interest Rate	%	13.25%
			<u>Equity Component</u>		
			Equity amount	Rs Lacs	450.00
			Return on Equity for first 10 years	% p.a	19.00%
			RoE Period	Year	10
Return on Equity 11th year onwards	% p.a	24.00%			
Weighted average of ROE		22.00%			
Discount Rate		15.88%			
4	Financial Assumptions		<u>Fiscal Assumptions</u>		
			Income Tax	%	33.21750%
			MAT Rate (for first 10 years)	%	19.9305%
			80 IA benefits	Yes/No	Yes
			<u>Depreciation</u>		
			Depreciation Rate for first 10 years	%	7.00%
			Depreciation Rate 11th year onwards	%	1.33%
Years for 7% rate		10			
5	Working Capital		<u>For Fixed Charges</u>		
			O&M Charges	Months	1
			Maintenance Spare	(% of O&M expenses)	15%
			Receivables for Debtors	Months	2
			<u>For Variable Charges</u>		
Interest On Working Capital	%	12.75%			
6	Operation & Maintenance		power plant (FY11-12)		14.53
			Total O & M Expenses Escalation	%	5.72%

Determination of Tariff Component - (Solar Thermal)																												
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	
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		14.53	15.36	16.24	17.17	18.15	19.19	20.29	21.45	22.67	23.97	25.34	26.79	28.32	29.94	31.66	33.47	35.38	37.40	39.54	41.81	44.20	46.73	49.40	52.22	55.21	
Depreciation	Rs Lakh		105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Interest on term loan	Rs Lakh		132.17	118.26	104.34	90.43	76.52	62.61	48.69	34.78	20.87	6.96	0.00	0.00	0.00	0.00	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		7.76	7.50	7.25	6.99	6.74	6.50	6.25	6.01	5.77	5.54	4.10	4.18	4.25	4.34	4.43	4.52	4.62	4.73	4.84	4.96	5.08	5.21	5.35	5.50	5.66	
Return on Equity	Rs Lakh		85.50	85.50	85.50	85.50	85.50	85.50	85.50	85.50	85.50	85.50	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	108.00	
Total Fixed Cost	Rs Lakh		344.96	331.62	318.33	305.09	291.91	278.79	265.73	252.74	239.81	226.96	157.44	158.97	160.58	162.28	164.08	165.99	168.00	170.13	172.38	174.76	177.28	179.94	182.75	185.72	188.87	
Levellised COG																												
Per Unit Cost of Generation	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
O&M expn	Rs/kWh		0.80	0.85	0.90	0.95	1.00	1.06	1.12	1.18	1.25	1.32	1.40	1.48	1.56	1.65	1.75	1.85	1.95	2.06	2.18	2.31	2.44	2.58	2.72	2.88	3.04	
Depreciation	Rs/kWh		5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
Int. on term loan	Rs/kWh		7.29	6.52	5.75	4.99	4.22	3.45	2.69	1.92	1.15	0.38	0.00	0.00	0.00	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		0.43	0.41	0.40	0.39	0.37	0.36	0.34	0.33	0.32	0.31	0.23	0.23	0.23	0.24	0.24	0.25	0.25	0.26	0.27	0.27	0.28	0.29	0.30	0.30	0.31	
RoE	Rs/kWh		4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	4.72	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	
Total COG	Rs/kWh		19.02	18.29	17.56	16.83	16.10	15.37	14.65	13.94	13.23	12.52	8.68	8.77	8.86	8.95	9.05	9.15	9.26	9.38	9.51	9.64	9.78	9.92	10.08	10.24	10.42	
Levellised Tariff	15.04	Rs/Unit																										

Determination of Accelerated Depreciation Benefit for Solar Thermal Power Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax (MAT)	19.9305%
Income Tax (Normal Rates)	33.2175%
Capital Cost	1500.0

Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	2.64%	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%	2.88%	0.00%	0.00%	
Book Depreciation	Rs Lakh	39.60	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	79.20	43.20	0.00	0.00	
Accelerated Depreciation																						
Opening	%	100%	60%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	40%	48.00%	9.60%	1.92%	0.38%	0.08%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	60%	12%	2.40%	0.48%	0.10%	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%	
Accelerated Deprn.	Rs Lakh	600.00	720.00	144.00	28.80	5.76	1.15	0.23	0.05	0.01	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	560.40	640.80	64.80	-50.40	-73.44	-78.05	-78.97	-79.15	-79.19	-79.20	-79.20	-79.20	-79.20	-79.20	-79.20	-79.20	-79.20	-79.20	-43.20	0.00	0.00
Tax Benefit	Rs Lakh	186.15	212.86	21.52	-16.74	-24.39	-25.93	-26.23	-26.29	-26.31	-26.31	-26.31	-26.31	-26.31	-26.31	-26.31	-26.31	-26.31	-26.31	-14.35	0.00	0.00
Energy generation	MU	0.91	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
Discounting Factor		1.00	0.93	0.80	0.69	0.60	0.52	0.44	0.38	0.33	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07	
Levellised benefit	2.34	Rs/Unit																				