

2.1 Form Template for Non-Fossil Fueled Based Cogeneration Power Projects

Madhya Pradesh

S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Assumptions
1	Power Generation	<u>Capacity</u>	Installed Power Generation Capacity	MW	1
			Auxillary Consumption	%	8.5%
			Plant Load Factor	%	53%
			Life of Power Plant	Years	20
2	Project Cost	Capital Cost/MW	Power Plant Cost	Rs Lacs/MW	445
3	Financial Assumptions	<u>Debt: Equity</u>	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lacs	311.5
			Total Equity Amount	Rs Lacs	133.5
		<u>Debt Component</u>	Loan Amount	Rs Lacs	311.5
			Moratorium Period	years	0
			Repayment Period(inclد Moratorium)	years	10
			Interest Rate	%	14.29%
		<u>Equity Component</u>	Equity amount	Rs Lacs	133.5
			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)		16.45%
4	Financial Assumptions	<u>Depreciation</u>	Depreciation Rate(power plant)	%	7.00%
			Depreciation Rate 11th year onwards	%	2.00%
			Years for 7% depreciation rate		10.00
			MAT Rate	%	16.995%
			Corporate Tax Rate	%	33.99%
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>		
			Bagasse Stock	Months	4
			Interest On Working Capital	%	13.79%
6	Fuel Related Assumptions	<u>Heat Rate</u>	After Stabilisation period	Kcal/kwh	3600
			During Stabilization Period	Kcal/kwh	3600
		<u>Bagasse</u>	Base Price(FY09-10)	Rs/T	809
			GCV - Bagasse	Kcal/kg	2250
			Bagasse Price Escalation Factor		5%
7	Allocation of Bagasse to Power and Steam	Power	As a % of fuel cost		100%
		Steam	As a % of fuel cost		0%
8	Operation & Maintenance	power plant		Rs Lakh	13.35
		Total O & M Expenses Escalation		%	5.72%
9	Generation and Sale Of Energy	<u>No. of Days</u>		Days	365
		Total No. of Hours		Hrs	8760

2.2 Form Template for (Non fossil Fueled Based Cogeneration Power Projects- Madhya Pradesh) : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gross Generation	MU		4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84
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

Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Biomass Cost	Rs Lakh		60.10	63.10	66.26	69.67	73.05	76.70	80.53	84.56	88.79	93.23	97.89	102.79	107.92	113.32	118.99	124.94	131.18	137.74	144.63	151.86

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 Expenditure	Rs Lakh		13.35	14.11	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
Depreciation	Rs Lakh		31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15	31.15
Interest on term loan	Rs Lakh		42.29	37.84	33.38	28.93	24.48	20.03	15.58	11.13	6.68	2.23	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		7.32	7.47	7.63	7.81	8.00	8.21	8.43	8.67	8.93	9.20	9.49	9.81	10.05	10.31	11.00	11.52	12.06	12.62	13.22	13.85
Return on Equity	Rs Lakh		25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37
Total Fixed Cost	Rs Lakh		119.47	115.93	112.45	109.03	105.68	102.38	99.17	96.02	92.85	89.87	87.41	85.16	83.01	81.03	79.21	77.51	75.92	74.43	73.04	71.74

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		1.41	1.49	1.56	1.64	1.72	1.81	1.90	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
O&M expn	Rs/kWh		0.31	0.33	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
Depreciation	Rs/kWh		0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Int. on term loan	Rs/kWh		1.00	0.89	0.79	0.68	0.58	0.47	0.37	0.26	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		0.17	0.18	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	0.27	0.28	0.30	0.31	0.33
RoE	Rs/kWh		0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Total COG	Rs/kWh		4.23	4.21	4.21	4.20	4.21	4.22	4.23	4.25	4.28	4.31	4.35	4.39	4.43	4.47	4.50	4.54	4.59	4.63	4.68	4.72

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	0.859	0.737	0.633	0.544	0.467	0.401	0.344	0.296	0.254	0.218	0.187	0.161	0.138	0.119	0.102	0.087	0.075	0.064	0.055
Variable Cost			79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2
Fixed Cost			103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2

Levillised Tariff Variable	1.90
Levillised Tariff Fixed	2.43
Levillised Tariff	4.29

Determination of Accelerated Depreciation for Non fossil Fueled Based Cogeneration Power Projects- Madhya Pradesh

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	80%
Income Tax(MAT)	16.995%
Income Tax (Normal Rates)	33.99%
Capital Cost	445.0

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Book Depreciation	%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	0.24%	0.00%	0.00%
Book Depreciation	Rs Lakh	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	1.07	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 Deprn.	Rs Lakh	178.00	213.60	42.72	8.54	1.71	0.34	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	0.00

Net Depreciation Benefit	Rs Lakh	154.50	190.10	19.22	-14.95	-21.79	-23.15	-23.43	-23.48	-23.49	-23.50	-23.50	-23.50	-23.50	-23.50	-23.50	-23.50	-23.50	-23.50	-1.07	0.00	0.00
Tax Benefit	Rs Lakh	26.26	32.31	3.27	-2.54	-3.70	-3.94	-3.98	-3.99	-3.99	-3.99	-3.99	-3.99	-3.99	-3.99	-3.99	-3.99	-3.99	-3.99	-0.36	0.00	0.00
Energy 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	4.25
Per unit benefit	Rs/Unit	0.62	0.76	0.08	-0.06	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.01	0.00	0.00
Discounting Factor		1.00	0.86	0.74	0.63	0.54	0.47	0.40	0.34	0.30	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08	0.08	0.06

Levelised benefit 0.13 Rs/Unit