

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC Boiler- Other States					Annexure-2.5I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	559.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	391.30
			Total Equity Amount	Rs Lakh	167.70
		Debt Component	Loan Amount	Rs Lakh	391.30
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	167.70
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		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	6.31	6.31	6.31	6.31	6.31	6.31
Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		348.52	365.95	384.24	403.45	423.63	444.81	467.05	490.40	514.92	540.67	567.70	596.09	625.89	657.19	690.04	724.55	760.77	798.81	838.75	880.69	924.73	970.96	1,019.51	1,070.49	1,124.01
Per unit Variable Cost	Rs/kWh		5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	8.99	9.44	9.92	10.41	10.93	11.48	12.05	12.66	13.29	13.95	14.65	15.38	16.15	16.96	17.81
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	26.09	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18	11.18
Interest on term loan	Rs Lakh		34.04	31.70	29.35	27.00	24.65	22.30	19.96	17.61	15.26	12.91	10.57	8.22	5.87	3.52	1.17	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		20.01	20.90	21.83	22.82	23.85	24.93	26.07	27.27	28.52	29.84	31.23	32.68	34.21	35.82	37.51	39.09	40.98	42.97	45.05	47.23	49.63	52.03	54.56	57.20	59.98
Return on Equity	Rs Lakh		28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	28.45	36.09	36.09	36.09	36.09	36.09
Total Fixed Cost	Rs Lakh		156.79	157.18	157.69	158.32	159.08	159.97	160.99	162.16	163.48	164.95	166.59	168.40	170.38	172.55	174.91	163.55	168.70	174.06	179.66	185.49	199.31	205.65	212.26	219.14	226.33
Per unit Fixed Cost	Rs/kWh	2.65	2.48	2.49	2.50	2.51	2.52	2.53	2.55	2.57	2.59	2.61	2.64	2.67	2.70	2.73	2.77	2.59	2.67	2.76	2.85	2.94	3.16	3.26	3.36	3.47	3.59

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
Per unit Variable Cost	Rs/kWh	8.66	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	8.99	9.44	9.92	10.41	10.93	11.48	12.05	12.66	13.29	13.95	14.65	15.38	16.15	16.96	17.81
O&M expn	Rs/kWh	1.07	0.76	0.79	0.82	0.86	0.89	0.92	0.96	0.99	1.03	1.07	1.11	1.16	1.20	1.25	1.29	1.34	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Int. on term loan	Rs/kWh	0.27	0.54	0.50	0.46	0.43	0.39	0.35	0.32	0.28	0.24	0.20	0.17	0.13	0.09	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.48	0.32	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.71	0.75	0.79	0.82	0.86	0.91	0.95
RoE	Rs/kWh	0.46	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	0.57	0.57	0.57	0.57	0.57
Total COG	Rs/kWh	11.31	8.01	8.29	8.59	8.90	9.23	9.58	9.95	10.34	10.75	11.18	11.63	12.11	12.62	13.15	13.70	14.07	14.73	15.41	16.14	16.89	17.81	18.64	19.52	20.43	21.39
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.52																										
Levillised Tariff (Fixed)	2.65																										
Levillised Tariff	8.17	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	559.00																										
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	14.76	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	29.52	16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	167.70	195.65	78.26	46.96	28.17	16.90	10.14	6.09	3.65	2.19	1.31	0.79	0.47	0.28	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	152.94	166.13	48.74	17.44	-1.34	-12.61	-19.37	-23.43	-25.86	-27.32	-28.20	-28.73	-29.04	-29.23	-29.34	-29.41	-29.45	-16.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	53.44	58.05	17.03	6.09	-0.47	-4.41	-6.77	-8.19	-9.04	-9.55	-9.85	-10.04	-10.15	-10.21	-10.25	-10.28	-10.29	-5.61	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.16	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	6.31	6.31	6.31	6.31	6.31	6.31
Per unit benefit	Rs/Unit	1.69	0.92	0.27	0.10	-0.01	-0.07	-0.11	-0.13	-0.14	-0.15	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	6.74																										
Electricity Generation (Levellised)	6.04																										
Levellised benefit	0.11	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Andhra Pradesh					Annexure-2.6A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
		Debt Component	Total Equity Amount	Rs Lakh	180.00
			Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	Interest On Working Capital	%	10.50%
		Biomass	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
			Base Price	Rs/T	3492.30
05	Operation & Maintenance		GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
06	Generation & Sale of Energy		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01
Per unit Variable Cost	Rs/kWh		5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.99	19.83	20.70	21.62	22.58	23.60	24.66	25.78	26.96	28.20	29.49	30.86	32.29	33.79	35.37	36.84	38.61	40.48	42.43	44.48	46.75	49.00	51.37	53.86	56.47
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	38.74	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		162.27	162.43	162.71	163.10	163.62	164.27	165.05	165.97	167.04	168.25	169.63	171.17	172.89	174.78	176.86	164.20	169.23	174.48	179.95	185.65	199.90	206.09	212.54	219.27	226.28
Per unit Fixed Cost	Rs/kWh	2.76	2.63	2.63	2.64	2.64	2.65	2.66	2.67	2.69	2.71	2.73	2.75	2.77	2.80	2.83	2.87	2.66	2.74	2.83	2.92	3.01	3.24	3.34	3.44	3.55	3.67

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
Per unit Variable Cost	Rs/kWh	8.28	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.45	0.45	0.45	0.45	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.83	0.87	0.92
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.04	7.91	8.18	8.46	8.76	9.07	9.40	9.75	10.12	10.51	10.92	11.35	11.81	12.28	12.79	13.32	13.64	14.27	14.93	15.62	16.35	17.25	18.05	18.89	19.77	20.70
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.28																										
Levllised Tariff (Fixed)	2.76																										
Levllised Tariff	8.04	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		600.00																									
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depm.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.24																										
Electricity Generation (Levillised)	5.91																										
Levillised benefit	0.12	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Haryana					Annexure-2.6B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3975.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		370.96	389.50	408.98	429.43	450.90	473.45	497.12	521.97	548.07	575.48	604.25	634.46	666.19	699.49	734.47	771.19	809.75	850.24	892.75	937.39	984.26	1,033.47	1,085.15	1,139.40	1,196.37
Per unit Variable Cost	Rs/kWh		6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		21.19	22.13	23.12	24.16	25.26	26.40	27.61	28.88	30.21	31.61	33.07	34.62	36.24	37.94	39.73	41.41	43.41	45.51	47.72	50.04	52.58	55.13	57.80	60.61	63.56
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54
Total Fixed Cost	Rs Lakh		164.47	164.74	165.13	165.65	166.29	167.07	168.00	169.06	170.28	171.66	173.21	174.93	176.83	178.92	181.21	168.77	174.03	179.52	185.24	191.20	205.73	212.21	218.97	226.02	233.37
Per unit Fixed Cost	Rs/kWh	2.82	2.67	2.67	2.68	2.68	2.69	2.71	2.72	2.74	2.76	2.78	2.81	2.83	2.87	2.90	2.94	2.73	2.82	2.91	3.00	3.10	3.33	3.44	3.55	3.66	3.78

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
Per unit Variable Cost	Rs/kWh	9.43	6.01	6.31	6.63	6.96	7.31	7.67	8.06	8.46	8.88	9.33	9.79	10.28	10.79	11.33	11.90	12.50	13.12	13.78	14.47	15.19	15.95	16.75	17.58	18.46	19.39
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.52	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.67	0.70	0.74	0.77	0.81	0.85	0.89	0.94	0.98	1.03
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	RskWh	12.25	8.68	8.98	9.30	9.64	10.00	10.38	10.78	11.20	11.64	12.11	12.60	13.12	13.66	14.23	14.84	15.23	15.94	16.69	17.47	18.29	19.28	20.19	21.13	22.13	23.17
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	6.01																										
Levllised Tariff (Fixed)	2.82																										
Levllised Tariff	8.83	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	600.00																										
Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.24																										
Electricity Generation (Levellised)	5.91																										
Levellised benefit	0.12	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Maharashtra					Annexure-2.6C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)		%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	Interest On Working Capital	%	10.50%
		Biomass	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
			Base Price	Rs/T	4065.60
05	Operation & Maintenance		GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
06	Generation & Sale of Energy		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		379.38	398.35	418.27	439.18	461.14	484.20	508.41	533.83	560.52	588.55	617.98	648.87	681.32	715.38	751.15	788.71	828.15	869.55	913.03	958.68	1,006.62	1,056.95	1,109.80	1,165.29	1,223.55
Per unit Variable Cost	Rs/kWh		6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		21.60	22.56	23.58	24.64	25.75	26.93	28.16	29.45	30.81	32.24	33.74	35.32	36.98	38.71	40.54	42.46	44.31	46.46	48.71	51.08	53.67	56.27	59.00	61.87	64.88
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	38.74	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		164.88	165.17	165.59	166.12	166.79	167.60	168.55	169.64	170.89	172.30	173.88	175.63	177.57	179.70	182.03	184.62	187.43	190.46	193.73	197.24	200.98	204.95	209.16	213.61	218.30
Per unit Fixed Cost	Rs/kWh	2.83	2.67	2.68	2.68	2.69	2.70	2.72	2.73	2.75	2.77	2.79	2.82	2.85	2.88	2.91	2.95	2.97	2.99	3.02	3.12	3.35	3.46	3.57	3.68	3.80	3.92

Levilled 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
Per unit Variable Cost	Rs/kWh	9.64	6.15	6.45	6.78	7.12	7.47	7.85	8.24	8.65	9.08	9.54	10.01	10.51	11.04	11.59	12.17	12.78	13.42	14.09	14.79	15.53	16.31	17.13	17.98	18.88	19.83
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.53	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.68	0.72	0.75	0.79	0.83	0.87	0.91	0.96	1.00	1.05
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	12.47	8.82	9.13	9.46	9.81	10.18	10.56	10.97	11.40	11.85	12.33	12.83	13.36	13.92	14.50	15.12	15.53	16.25	17.01	17.81	18.65	19.66	20.58	21.55	22.57	23.63
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	6.15																										
Int. on working capital	2.83																										
Levilled Tariff	8.97	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	600.00																										
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.00%	35.00%	21.00%	12.60%	7.60%	4.50%	2.70%	1.60%	1.00%	0.60%	0.40%	0.20%	0.10%	0.10%	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	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.24																										
Electricity Generation (Levellised)	5.91																										
Levellised benefit	0.12	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Punjab					Annexure-2.6D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)		8.30%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	4158
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		388.01	407.41	427.78	449.17	471.62	495.20	519.96	545.96	573.26	601.92	632.02	663.62	696.80	731.64	768.22	806.64	846.97	889.32	933.78	980.47	1,029.49	1,080.97	1,135.02	1,191.77	1,251.36
Per unit Variable Cost	Rs/kWh		6.29	6.60	6.93	7.28	7.64	8.02	8.43	8.85	9.29	9.75	10.24	10.75	11.29	11.86	12.45	13.07	13.72	14.41	15.13	15.89	16.68	17.52	18.39	19.31	20.28
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		22.02	23.01	24.04	25.13	26.27	27.46	28.72	30.05	31.44	32.90	34.43	36.04	37.73	39.51	41.37	43.14	45.23	47.42	49.72	52.14	54.78	57.44	60.23	63.16	66.24
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	38.74	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		165.30	165.62	166.05	166.61	167.30	168.14	169.11	170.23	171.51	172.95	174.57	176.35	178.33	180.49	182.86	170.50	175.85	181.42	187.24	193.30	207.93	214.53	221.40	228.57	236.05
Per unit Fixed Cost	Rs/kWh	2.84	2.68	2.68	2.69	2.70	2.71	2.72	2.74	2.76	2.78	2.80	2.83	2.86	2.89	2.92	2.96	2.76	2.85	2.94	3.03	3.13	3.37	3.48	3.59	3.70	3.82

Levilled 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
Per unit Variable Cost	Rs/kWh	9.86	6.29	6.60	6.93	7.28	7.64	8.02	8.43	8.85	9.29	9.75	10.24	10.75	11.29	11.86	12.45	13.07	13.72	14.41	15.13	15.89	16.68	17.52	18.39	19.31	20.28
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.45	0.45	0.45	0.45	0.45
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.54	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.84	0.89	0.93	0.98	1.02	1.07
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	12.70	8.97	9.29	9.62	9.98	10.35	10.75	11.17	11.61	12.07	12.56	13.07	13.61	14.18	14.78	15.41	15.83	16.57	17.35	18.17	19.02	20.05	20.99	21.98	23.02	24.10
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost		6.29																									
Levilled Tariff (Fixed)		2.84																									
Levilled Tariff		9.12	Rs/Unit																								

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																									
Book Depreciation rate	5.28%																									
Tax Depreciation rate	40%																									
Additional Depreciation	20%																									
Income Tax (MAT)	17.472%																									
Income Tax (Normal Rates)	34.944%																									
Capital Cost	600.00																									
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																										
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levellised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Rajasthan					Annexure-2.6E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3470.25
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation			6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		323.83	340.02	357.02	374.87	393.62	413.30	433.96	455.66	478.44	502.36	527.48	553.86	581.55	610.63	641.16	673.22	706.88	742.22	779.33	818.30	859.21	902.17	947.28	994.65	1,044.38
Per unit Variable Cost	Rs/kWh		5.25	5.51	5.79	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91	11.45	12.03	12.63	13.26	13.92	14.62	15.35	16.12	16.92
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.89	19.72	20.59	21.50	22.46	23.47	24.53	25.64	26.81	28.04	29.33	30.69	32.11	33.61	35.18	36.63	38.39	40.25	42.19	44.23	46.48	48.72	51.08	53.55	56.14
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54
Total Fixed Cost	Rs Lakh		162.17	162.33	162.60	162.99	163.50	164.14	164.92	165.83	166.89	168.10	169.47	171.00	172.71	174.59	176.66	163.99	169.02	174.25	179.71	185.39	199.63	205.81	212.25	218.96	225.95
Per unit Fixed Cost	Rs/kWh	2.76	2.63	2.63	2.63	2.64	2.65	2.66	2.67	2.69	2.70	2.72	2.75	2.77	2.80	2.83	2.86	2.66	2.74	2.82	2.91	3.00	3.23	3.33	3.44	3.55	3.66

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
Per unit Variable Cost	Rs/kWh	8.23	5.25	5.51	5.79	6.07	6.38	6.70	7.03	7.38	7.75	8.14	8.55	8.97	9.42	9.89	10.39	10.91	11.45	12.03	12.63	13.26	13.92	14.62	15.35	16.12	16.92
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.48	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	10.99	7.88	8.14	8.42	8.72	9.03	9.36	9.70	10.07	10.46	10.86	11.29	11.75	12.22	12.72	13.25	13.57	14.19	14.85	15.54	16.26	17.16	17.95	18.79	19.67	20.58
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.25																										
Levllised Tariff (Fixed)	2.76																										
Levllised Tariff	8.01	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		600.00																									
Years ----->	Unit		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%		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%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh		15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%		100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%		30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%		70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Accelerated Depm.	Rs Lakh		180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	
Net Depreciation Benefit	Rs Lakh		164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	
Tax Benefit	Rs Lakh		57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU		3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Per unit benefit	Rs/Unit		1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor			1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.15	
Applicable Discounting Factor			1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	
Tax Benefit Levellised		7.24																									
Electricity Generation (Levellised)		5.91																									
Levellised benefit	0.12	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Tamil Nadu					Annexure-2.6F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)		8.30%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3435.60
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		320.59	336.62	353.46	371.13	389.68	409.17	429.63	451.11	473.66	497.35	522.21	548.33	575.74	604.53	634.76	666.49	699.82	734.81	771.55	810.13	850.63	893.16	937.82	984.71	1,033.95
Per unit Variable Cost	Rs/kWh		5.19	5.45	5.73	6.01	6.31	6.63	6.96	7.31	7.68	8.06	8.46	8.89	9.33	9.80	10.29	10.80	11.34	11.91	12.50	13.13	13.78	14.47	15.20	15.96	16.75
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.74	19.55	20.42	21.32	22.27	23.27	24.32	25.42	26.58	27.80	29.07	30.42	31.83	33.31	34.86	36.30	38.05	39.89	41.81	43.83	46.06	48.28	50.62	53.07	55.64
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	38.74	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		162.01	162.16	162.43	162.81	163.31	163.94	164.70	165.61	166.65	167.85	169.21	170.73	172.42	174.29	176.35	163.66	168.67	173.89	179.33	184.99	199.21	205.37	211.79	218.47	225.45
Per unit Fixed Cost	Rs/kWh	2.75	2.63	2.63	2.63	2.64	2.65	2.66	2.67	2.68	2.70	2.72	2.74	2.77	2.79	2.82	2.86	2.65	2.73	2.82	2.91	3.00	3.23	3.33	3.43	3.54	3.65

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
Per unit Variable Cost	Rs/kWh	8.15	5.19	5.45	5.73	6.01	6.31	6.63	6.96	7.31	7.68	8.06	8.46	8.89	9.33	9.80	10.29	10.80	11.34	11.91	12.50	13.13	13.78	14.47	15.20	15.96	16.75
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.30	0.32	0.33	0.35	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.52	0.54	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.78	0.82	0.86	0.90
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	10.90	7.82	8.08	8.36	8.65	8.96	9.29	9.63	9.99	10.38	10.78	11.20	11.65	12.12	12.62	13.14	13.45	14.07	14.72	15.41	16.13	17.01	17.80	18.63	19.50	20.41
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.19																										
Levllised Tariff (Fixed)	2.75																										
Levllised Tariff	7.95	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	600.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																										
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15
Tax Benefit Levillised	7.24																									
Electricity Generation (Levillised)	5.91																									
Levillised benefit	0.12	Rs/Unit																								

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Telangana					Annexure-2.6G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)		%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01
Per unit Variable Cost	Rs/kWh		5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		18.99	19.83	20.70	21.62	22.58	23.60	24.66	25.78	26.96	28.20	29.49	30.86	32.29	33.79	35.37	36.84	38.61	40.48	42.43	44.48	46.75	49.00	51.37	53.86	56.47
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	38.74	38.74	38.74	38.74	38.74
Total Fixed Cost	Rs Lakh		162.27	162.43	162.71	163.10	163.62	164.27	165.05	165.97	167.04	168.25	169.63	171.17	172.89	174.78	176.86	164.20	169.23	174.48	179.95	185.65	199.90	206.09	212.54	219.27	226.28
Per unit Fixed Cost	Rs/kWh	2.76	2.63	2.63	2.64	2.64	2.65	2.66	2.67	2.69	2.71	2.73	2.75	2.77	2.80	2.83	2.87	2.66	2.74	2.83	2.92	3.01	3.24	3.34	3.44	3.55	3.67

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
Per unit Variable Cost	Rs/kWh	8.28	5.28	5.54	5.82	6.11	6.42	6.74	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.96	10.46	10.98	11.53	12.10	12.71	13.34	14.01	14.71	15.45	16.22	17.03
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.46	0.31	0.32	0.34	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.55	0.57	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.83	0.87	0.92
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.04	7.91	8.18	8.46	8.76	9.07	9.40	9.75	10.12	10.51	10.92	11.35	11.81	12.28	12.79	13.32	13.64	14.27	14.93	15.62	16.35	17.25	18.05	18.89	19.77	20.70
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.28																										
Levillised Tariff (Fixed)	2.76																										
Levillised Tariff	8.04	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	600.00																										
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.24																										
Electricity Generation (Levellised)	5.91																										
Levellised benefit	0.12	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Uttar Pradesh					Annexure-2.6H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)		8.30%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3553.20
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		331.57	348.15	365.55	383.83	403.02	423.17	444.33	466.55	489.88	514.37	540.09	567.09	595.45	625.22	656.48	689.31	723.77	759.96	797.96	837.86	879.75	923.74	969.92	1,018.42	1,069.34
Per unit Variable Cost	Rs/kWh		5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17	11.73	12.31	12.93	13.58	14.26	14.97	15.72	16.50	17.33
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		19.27	20.12	21.01	21.94	22.92	23.95	25.04	26.17	27.37	28.63	29.95	31.33	32.79	34.32	35.92	37.41	38.92	41.11	43.10	45.18	47.48	49.78	52.18	54.71	57.36
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54
Total Fixed Cost	Rs Lakh		162.55	162.73	163.02	163.43	163.96	164.62	165.42	166.36	167.45	168.68	170.08	171.65	173.38	175.30	177.41	164.78	169.84	175.12	180.61	186.35	200.63	206.86	213.35	220.12	227.17
Per unit Fixed Cost	Rs/kWh	2.77	2.63	2.64	2.64	2.65	2.66	2.67	2.68	2.70	2.71	2.73	2.76	2.78	2.81	2.84	2.87	2.67	2.75	2.84	2.93	3.02	3.25	3.35	3.46	3.57	3.68

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
Per unit Variable Cost	Rs/kWh	8.43	5.37	5.64	5.92	6.22	6.53	6.86	7.20	7.56	7.94	8.33	8.75	9.19	9.65	10.13	10.64	11.17	11.73	12.31	12.93	13.58	14.26	14.97	15.72	16.50	17.33
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.49	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.81	0.85	0.89	0.93
RoE	Rs/kWh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.20	8.01	8.28	8.57	8.87	9.19	9.52	9.88	10.26	10.65	11.07	11.51	11.97	12.46	12.97	13.51	13.84	14.48	15.15	15.86	16.60	17.51	18.32	19.17	20.07	21.01
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.37																										
Levllised Tariff (Fixed)	2.77																										
Levllised Tariff	8.14	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%																										
Book Depreciation rate	5.28%																										
Tax Depreciation rate	40%																										
Additional Depreciation	20%																										
Income Tax (MAT)	17.472%																										
Income Tax (Normal Rates)	34.944%																										
Capital Cost	600.00																										
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depn.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.24																										
Electricity Generation (Levellised)	5.91																										
Levellised benefit	0.12	Rs/Unit																									

Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with Air Cooled Condenser and using AFBC Boiler- Other Sates					Annexure-2.6I
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	12.00%
			Auxiliary Consumption after stabilization	%	12.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	600.00
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	420.00
			Total Equity Amount	Rs Lakh	180.00
		Debt Component	Loan Amount	Rs Lakh	420.00
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	180.00
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions		Fiscal Assumptions	Income Tax	%
		MAT Rate		%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
			Receivables for Debtors	Months	1.5
		For Variable Charges	Biomass Stock	Months	4
Interest On Working Capital	%		10.50%		
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3734.85
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17
Variable 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
Biomass Cost	Rs. Lakh		348.52	365.95	384.24	403.45	423.63	444.81	467.05	490.40	514.92	540.67	567.70	596.09	625.89	657.19	690.04	724.55	760.77	798.81	838.75	880.69	924.73	970.96	1,019.51	1,070.49	1,124.01
Per unit Variable Cost	Rs/kWh		5.65	5.93	6.23	6.54	6.86	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.33	12.94	13.59	14.27	14.98	15.73	16.52	17.35	18.21
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Interest on term loan	Rs Lakh		36.54	34.02	31.50	28.98	26.46	23.94	21.42	18.90	16.38	13.86	11.34	8.82	6.30	3.78	1.26	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		20.10	20.98	21.92	22.90	23.93	25.01	26.14	27.34	28.59	29.91	31.29	32.75	34.27	35.88	37.56	39.33	41.02	43.01	45.09	47.27	49.67	52.08	54.60	57.25	60.03
Return on Equity	Rs Lakh		30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54	30.54
Total Fixed Cost	Rs Lakh		163.38	163.59	163.93	164.38	164.96	165.68	166.53	167.52	168.67	169.97	171.43	173.06	174.87	176.86	179.05	186.50	171.64	177.01	182.60	188.44	202.82	209.16	215.77	222.66	229.84
Per unit Fixed Cost	Rs/kWh	2.79	2.65	2.65	2.66	2.66	2.67	2.68	2.70	2.71	2.73	2.75	2.78	2.80	2.83	2.87	2.90	2.70	2.78	2.87	2.96	3.05	3.29	3.39	3.50	3.61	3.72

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
Per unit Variable Cost	Rs/kWh	8.86	5.65	5.93	6.23	6.54	6.86	7.21	7.57	7.95	8.34	8.76	9.20	9.66	10.14	10.65	11.18	11.74	12.33	12.94	13.59	14.27	14.98	15.73	16.52	17.35	18.21
O&M expn	Rs/kWh	1.09	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.23	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.66	1.72	1.79	1.86	1.93
Depreciation	Rs/k/Wh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.30	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.31	0.27	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.49	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.63	0.66	0.70	0.73	0.77	0.80	0.84	0.88	0.93	0.97
RoE	Rs/k/Wh	0.51	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.63	0.63	0.63	0.63	0.63
Total COG	Rs/kWh	11.65	8.29	8.58	8.88	9.20	9.54	9.89	10.27	10.66	11.08	11.52	11.98	12.46	12.98	13.51	14.08	14.44	15.11	15.81	16.55	17.32	18.27	19.12	20.02	20.95	21.94
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.65																										
Levllised Tariff (Fixed)	2.79																										
Levllised Tariff	8.44	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount	90%
Book Depreciation rate	5.28%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17.472%
Income Tax (Normal Rates)	34.944%
Capital Cost	600.00

Years	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	
Book Depreciation	Rs Lakh	15.84	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	31.68	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Accelerated Depm.	Rs Lakh	180.00	210.00	84.00	50.40	30.24	18.14	10.89	6.53	3.92	2.35	1.41	0.85	0.51	0.30	0.18	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	164.16	178.32	52.32	18.72	-1.44	-13.54	-20.79	-25.15	-27.76	-29.33	-30.27	-30.83	-31.17	-31.38	-31.50	-31.57	-31.61	-17.24	0.02	0.01	0.01	0.01	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	57.36	62.31	18.28	6.54	-0.50	-4.73	-7.27	-8.79	-9.70	-10.25	-10.58	-10.77	-10.89	-10.96	-11.01	-11.03	-11.05	-6.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	3.09	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	6.17	
Per unit benefit	Rs/Unit	1.86	1.01	0.30	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised	7.24																										
Electricity Generation (Levellised)	5.91																										
Levellised benefit	0.12	Rs/Unit																									

Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with Water Cooled Condenser and using AFBC boiler - Andhra Pradesh					Annexure-2.7A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameters
01	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Auxiliary Consumption during stabilization	%	10.00%
			Auxiliary Consumption after stabilization	%	10.00%
			PLF(Stabilization for 6 months)	%	80.00%
			PLF(during first year after Stabilization)	%	80.00%
			PLF(second year onwards)	%	80.00%
			Useful Life	Years	25
02	Sources of Fund	Capital Cost/MW	Power Plant Cost	Rs Lakh/MW	611
		Debt: Equity	Debt	%	70%
			Equity	%	30%
			Total Debt Amount	Rs Lakh	427.70
			Total Equity Amount	Rs Lakh	183.30
		Debt Component	Loan Amount	Rs Lakh	427.70
			Moratorium Period	years	0
			Repayment Period(incld Moratorium)	years	15
			Interest Rate	%	9.00%
		Equity Component	Equity amount	Rs Lakh	183.30
			Return on Equity (upto 20 years)	% p.a	16.96%
			Return on Equity (After 20 years)		21.52%
			Discount Rate (equiv. to WACC)	%	8.30%
03	Financial Assumptions	Fiscal Assumptions	Income Tax	%	34.94%
			MAT Rate	%	17.47%
		Depreciation	Depreciation Rate(Power Plant)	%	4.67%
			Depreciation Rate 16th year onwards	%	2.00%
		For Fixed Charges	O&M Charges	Months	1
			Maintenance Spare		15.00%
		For Variable Charges	Receivables for Debtors	Months	1.5
			Biomass Stock	Months	4
04	Fuel Related Assumptions	Heat Rate	After stabilization period	Kcal/kWh	4125.00
			During stabilization period	Kcal/kWh	4125.00
		Biomass	Base Price	Rs/T	3492.30
			GCV-Biomass	Kcal/kg	3100.00
			Biomass Price Escalation Factor	%	5.00%
05	Operation & Maintenance		O&M Expenses	Rs Lakh	48.20
			O & M Expenses Escalation	%	3.84%
06	Generation & Sale of Energy		Total No .Of Hours	Hrs	8766.00

CERC RE Tariff Order FY 2020-21

Biomass Projects : Determination of Tariff Component

Units Generation	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		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	6.31	6.31	6.31	6.31	6.31	6.31
Variable Cost	Unit	Year-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Biomass Cost	Rs. Lakh		325.89	342.18	359.29	377.25	396.12	415.92	436.72	458.55	481.48	505.56	530.83	557.38	585.24	614.51	645.23	677.49	711.37	746.94	784.28	823.50	864.67	907.91	953.30	1,000.97	1,051.01
Per unit Variable Cost	Rs/kWh		5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65
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		48.20	50.05	51.98	53.97	56.04	58.20	60.43	62.75	65.16	67.66	70.26	72.96	75.76	78.67	81.69	84.83	88.09	91.47	94.98	98.63	102.41	106.35	110.43	114.67	119.08
Depreciation	Rs Lakh		28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51
Interest on term loan	Rs Lakh		37.21	34.64	32.08	29.51	26.95	24.38	21.81	19.25	16.68	14.11	11.55	8.98	6.42	3.85	1.28	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		19.02	19.85	20.72	21.64	22.60	23.62	24.68	25.80	26.98	28.21	29.51	30.87	32.31	33.81	35.39	36.85	38.62	40.49	42.44	44.49	46.76	49.02	51.39	53.87	56.48
Return on Equity	Rs Lakh		31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09	31.09
Total Fixed Cost	Rs Lakh		164.04	164.15	164.38	164.73	165.20	165.80	166.54	167.41	168.43	169.60	170.93	172.42	174.09	175.94	177.97	164.99	170.02	175.27	180.74	186.44	200.84	207.03	213.48	220.21	227.22
Per unit Fixed Cost	Rs/kWh	2.72	2.60	2.60	2.60	2.61	2.62	2.63	2.64	2.65	2.67	2.69	2.71	2.73	2.76	2.79	2.82	2.61	2.69	2.78	2.86	2.95	3.18	3.28	3.38	3.49	3.60

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
Per unit Variable Cost	Rs/kWh	8.10	5.16	5.42	5.69	5.98	6.28	6.59	6.92	7.27	7.63	8.01	8.41	8.83	9.27	9.74	10.22	10.73	11.27	11.83	12.43	13.05	13.70	14.38	15.10	15.86	16.65
O&M expn	Rs/kWh	1.07	0.76	0.79	0.82	0.86	0.89	0.92	0.96	0.99	1.03	1.07	1.11	1.16	1.20	1.25	1.29	1.34	1.40	1.45	1.50	1.56	1.62	1.68	1.75	1.82	1.89
Depreciation	Rs/kWh	0.40	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	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Int. on term loan	Rs/kWh	0.29	0.59	0.55	0.51	0.47	0.43	0.39	0.35	0.30	0.26	0.22	0.18	0.14	0.10	0.06	0.02	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.45	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54	0.56	0.58	0.61	0.64	0.67	0.70	0.74	0.78	0.81	0.85	0.89
RoE	Rs/kWh	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.62	0.62	0.62	0.62	0.62
Total COG	Rs/kWh	10.82	7.76	8.02	8.30	8.59	8.89	9.22	9.56	9.92	10.30	10.70	11.12	11.56	12.03	12.52	13.04	13.35	13.96	14.61	15.29	16.00	16.88	17.67	18.49	19.35	20.25
Discount Factor			1	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
Variable Cost	5.16																										
Levillised Tariff (Fixed)	2.72																										
Levillised Tariff	7.88	Rs/Unit																									

Determination of Additional Depreciation for BIOMASS Projects

Depreciation amount		90%																									
Book Depreciation rate		5.28%																									
Tax Depreciation rate		40%																									
Additional Depreciation		20%																									
Income Tax (MAT)		17.472%																									
Income Tax (Normal Rates)		34.944%																									
Capital Cost		611.00																									
Years ----->	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Book Depreciation	%	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%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	16.13	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	32.26	17.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation																											
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30.00%	35.00%	14.00%	8.40%	5.04%	3.02%	1.81%	1.09%	0.65%	0.39%	0.24%	0.14%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.0%	35.0%	21.0%	12.6%	7.6%	4.5%	2.7%	1.6%	1.0%	0.6%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accelerated Depmn.	Rs Lakh	183.30	213.85	85.54	51.32	30.79	18.48	11.09	6.65	3.99	2.39	1.44	0.86	0.52	0.31	0.19	0.11	0.07	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	167.17	181.59	53.28	19.06	-1.47	-13.78	-21.17	-25.61	-28.27	-29.87	-30.82	-31.40	-31.74	-31.95	-32.07	-32.15	-32.19	-17.56	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	58.42	63.45	18.62	6.66	-0.51	-4.82	-7.40	-8.95	-9.88	-10.44	-10.77	-10.97	-11.09	-11.16	-11.21	-11.23	-11.25	-6.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.16	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	6.31	6.31	6.31	6.31	6.31	6.31
Per unit benefit	Rs/Unit	1.85	1.01	0.29	0.11	-0.01	-0.08	-0.12	-0.14	-0.16	-0.17	-0.17	-0.17	-0.18	-0.18	-0.18	-0.18	-0.18	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.79	0.73	0.67	0.62	0.57	0.53	0.49	0.45	0.42	0.38	0.35	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	
Applicable Discounting Factor		1.00	0.96	0.89	0.82	0.76	0.70	0.65	0.60	0.55	0.51	0.47	0.43	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.15	
Tax Benefit Levellised		7.37																									
Electricity Generation (Levellised)		6.04																									
Levellised benefit	0.12	Rs/Unit																									