

CERC RE Tariff Order FY 2020-21

Assumption for Bagasse based Cogeneration Project Parameters				State	Annexure 3G	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Uttar Pradesh	
					Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	45.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	24.52	
			O&M expenses p.a	Rs. Lakh	24.52	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	0.15
			Receivables	Days	1.5	
			Bagasse Stock	Months	4	
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	2095.00	
			GCV Bagasse	kcal/kg	2250.00	
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%	5.00%	
				Hours	8766.00	

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																										
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		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU		3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
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	
Bagasse Cost	Rs. Lakh		132.23	138.84	145.78	153.07	160.72	168.76	177.20	186.06	195.36	205.13	215.38	226.15	237.46	249.33	261.80	274.89	288.63	303.07	318.22	334.13	350.84	368.38	386.80	406.14	426.44	
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		24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53	
Depreciation	Rs Lakh		21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	
Interest on term loan	Rs Lakh		30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		8.94	9.29	9.66	10.05	10.46	10.90	11.35	11.83	12.33	12.86	13.42	14.00	14.62	15.27	15.95	16.60	17.28	18.00	18.76	19.56	20.40	21.29	22.23	23.21	24.23	
Return on Equity	Rs Lakh		23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	
Total Fixed Cost	Rs Lakh		109.59	108.78	108.02	107.31	106.67	106.09	105.57	105.12	104.74	104.43	104.20	104.04	103.97	103.99	104.10	92.74	96.17	97.71	100.36	103.11	112.45	115.44	118.56	121.81	125.19	

Levelised tariff corresponding to Useful life		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		RskWh	5.71	3.66	3.85	4.04	4.24	4.45	4.68	4.91	5.15	5.41	5.68	5.97	6.27	6.58	6.91	7.25	7.62	8.00	8.40	8.82	9.26	9.72	10.21	10.72	11.25	11.81
O&M expn		RskWh	0.95	0.68	0.71	0.73	0.76	0.79	0.82	0.85	0.88	0.92	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.24	1.29	1.34	1.39	1.44	1.50	1.56	1.62	1.68
Depreciation		RskWh	0.54	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Int. on term loan		RskWh	0.43	0.85	0.79	0.73	0.67	0.61	0.55	0.50	0.44	0.38	0.32	0.26	0.20	0.15	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital		RskWh	0.36	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.61	0.64	0.67	0.70
RoE		RskWh	0.67	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Total COG	RskWh		8.65	6.70	6.86	7.03	7.21	7.41	7.61	7.83	8.07	8.31	8.58	8.85	9.15	9.46	9.79	10.14	10.19	10.63	11.10	11.60	12.11	12.84	13.40	14.00	14.63	15.28

Variable Cost for FY 2020-21	3.66	Rs/kWh
Levelised Tariff (Fixed)	2.94	Rs/kWh
Levelised Tariff -FY 2020-21	6.61	Rs/kWh

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	467.00

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	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation		1 <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> <th>13</th> <th>14</th> <th>15</th> <th>16</th> <th>17</th> <th>18</th> <th>19</th> <th>20</th> <th>21</th> <th>22</th> <th>23</th> <th>24</th> <th>25</th>	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Opening	%	100%	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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	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%	0%
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.54	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	1.80	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
Per unit benefit	Rs/Unit	2.47	1.34	0.39	0.14	-0.01	-0.10	-0.16	-0.19	-0.21	-0.22	-0.23	-0.23	-0.23	-0.24	-0.24	-0.24	-0.24	-0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.16	0.16

Tax Benefit Levelised	5.84	Rs/kWh
Electricity Generation (Levelised)	3.45	Rs/kWh
Levelised benefit	0.17	Rs/kWh

CERC RE Tariff Order FY 2020-21

Assumption for Bagasse based Cogeneration Project Parameters				State	Annexure 3C Other States	
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter	
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1	
			Aux Consumption	%	8.50%	
			Plant Load Factor	%	53.00%	
			Useful Life	Years	25	
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	467.00	
			Capital Cost	Rs. Lakh	467	
			Capital Subsidy	Rs. Lakh	0	
			Net Capital Cost	Rs. Lakh	467.00	
3	Financial Assumption	Debt Equity	Tariff Period	Years	25	
			Debt	%	70%	
			Equity	%	30%	
		Debt Component	Total Debt Amount	Rs. Lakh	326.90	
			Total Equity Amount	Rs. Lakh	140.10	
			Loan Amount	Rs. Lakh	326.90	
			Moratorium Period	Years	0	
			Repayment Period (including Moratorium)	Years	15	
		Equity Component	Interest Rate	%	9.67%	
			Equity Amount	Rs. Lakh	140.10	
			Return on Equity for First 20 years	% p.a	16.96%	
			Return on Equity after 20 years	% p.a	21.52%	
		Tax Rate	Discount Rate	%	8.61%	
			Corporate Tax Rate	%	34.94%	
Depreciation	MAT Rate	%	17.47%			
	Depreciation Rate for 1st 15 years	%	4.67%			
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%	
			Normative O&M expense	Rs. Lakh/MW	24.52	
			O&M expenses p.a	Rs. Lakh	24.52	
5	Working Capital		Escalation factor	%	3.84%	
			O&M expenses p.a	Month	1	
			Maintenance Spares	% of O&M exepenses	%	0.15
			Receivables	Days	1.5	
			Bagasse Stock	Months	4	
6	Fuel Related Assumptions	Bagasse Stock	Interest on Working Capital	% per annum	11.17%	
			Heat Rate	kcal/kWh	3600.00	
			Fuel Price	Rs./T	2274.00	
			GCV Bagasse	kcal/kg	2250.00	
7	Generation and Sale of Power	Number of Hours	Bagasse price escalation factor	%	5.00%	
				Hours	8766.00	

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Bagasse Based Cogeneration Power Project																															
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			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	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	21	22	23	24	25
Bagasse Cost	Rs. Lakh			169.04	177.49	186.37	195.68	205.47	215.74	226.53	237.86	249.75	262.24	275.35	289.11	303.57	318.75	334.69	351.42	368.99	387.44	406.81	427.15	448.51	470.94	494.48	519.21	545.17

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			24.52	25.46	26.44	27.45	28.51	29.60	30.74	31.91	33.14	34.41	35.73	37.10	38.53	40.00	41.54	43.13	44.79	46.51	48.29	50.14	52.07	54.06	56.14	58.29	60.53						
Depreciation	Rs Lakh			21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79	21.79
Interest on term loan	Rs Lakh			30.57	28.46	26.36	24.25	22.14	20.03	17.92	15.81	13.70	11.60	9.49	7.38	5.27	3.16	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh			10.85	11.30	11.77	12.27	12.79	13.34	13.91	14.52	15.16	15.83	16.53	17.27	18.05	18.87	19.73	20.67	21.65	22.68	23.76	24.89	26.07	27.30	28.58	29.90	31.33						
Return on Equity	Rs Lakh			23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77	23.77
Total Fixed Cost	Rs Lakh			111.51	110.79	110.13	109.53	108.99	108.53	108.13	107.81	107.56	107.39	107.31	107.31	107.41	107.60	107.88	96.71	99.35	102.09	104.96	107.94	111.53	120.77	124.15	127.68	131.35						

Levilled tariff corresponding to Useful life		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						
Per Unit Variable Cost	RskWh			6.20	3.98	4.18	4.38	4.60	4.83	5.07	5.33	5.60	5.87	6.17	6.48	6.80	7.14	7.50	7.87	8.27	8.68	9.11	9.57	10.05	11.08	11.63	12.21	12.82						
O&M expn	RskWh			0.80	0.58	0.60	0.62	0.65	0.67	0.70	0.72	0.75	0.78	0.81	0.84	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.14	1.19	1.22	1.27	1.32	1.37	1.42					
Depreciation	RskWh			0.46	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Int. on term loan	RskWh			0.36	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Int. on working capital	RskWh			0.37	0.26	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.50	0.53	0.55	0.58	0.61	0.64	0.67	0.70	0.74					
RoE	RskWh			0.57	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Total COG	RskWh			8.77	6.60	6.78	6.97	7.18	7.40	7.63	7.87	8.13	8.41	8.69	9.00	9.33	9.67	10.03	10.41	10.54	11.02	11.52	12.04	12.59	13.32	13.92	14.55	15.22	15.91					
Variable Cost for FY 2020-21		3.98	Rs/kWh																															
Levilled Tariff (Fixed)		2.57	Rs/kWh																															
Levilled Tariff -FY 2020-21		6.55	Rs/kWh																															

Determination of AD for Bagasse based Cogeneration Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capitol Cost (Rs./Lakh)	467.00

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	12.33	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	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%	0%
Accelerated Depreciation	Rs Lakh	140.10	163.45	65.38	39.23	23.94	14.12	8.47	5.08	3.05	1.83	1.10	0.66	0.40	0.24	0.14	0.09	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	
Net Depreciation Benefit	Rs Lakh	127.77	138.79	40.72	14.57	-1.12	-10.54	-16.18	-19.57	-21.61	-22.83	-23.56	-24.00	-24.26	-24.42	-24.52	-24.57	-24.61	-13.42	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	44.65	48.50	14.23	5.09	-0.39	-3.68	-5.66	-6.84	-7.55	-7.98	-8.23	-8.39	-8.48	-8.53	-8.57	-8.59	-8.60	-4.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	2.13	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	4.25	4.25	4.25	4.25
Per unit benefit	Rs/Unit	2.10	1.14	0.33	0.12	-0.01	-0.09	-0.13	-0.16	-0.18	-0.19	-0.19	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levilled		5.84	Rs/kWh
Electricity Generation (Levilled)		4.07	Rs/kWh
Levilled benefit		0.14	Rs/kWh

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Andhra Pradesh Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3326.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																											
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
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		309.78	325.27	341.53	358.61	376.54	395.37	415.13	435.89	457.69	480.57	504.60	529.83	556.32	584.14	613.34	644.01	676.21	710.02	745.52	782.80	821.94	863.03	906.19	951.50	999.07		
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35		
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69		
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Interest on working Capital	Rs Lakh		19.60	20.48	21.39	22.35	23.36	24.42	25.54	26.71	27.93	29.22	30.58	32.00	33.49	35.06	36.70	38.28	40.12	42.05	44.07	46.20	48.51	50.85	53.30	55.87	58.57		
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55		
Total Fixed Cost	Rs Lakh		153.15	154.37	155.73	157.22	158.87	160.66	162.61	164.73	167.02	169.48	172.14	174.99	178.04	181.30	184.78	177.53	183.51	189.74	196.22	202.98	216.16	223.49	231.13	239.09	247.38		
Levilled 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	21	22	23	24	25		
Per unit Variable Cost	Rs/kWh		7.20	4.62	4.85	5.09	5.35	5.61	5.90	6.19	6.50	6.83	7.17	7.52	7.90	8.30	8.71	9.15	9.60	10.08	10.59	11.12	11.67	12.26	12.87	13.51	14.19	14.90	
O&M expn	Rs/kWh		1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26	
Depreciation	Rs/kWh		0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
Int. on term loan	Rs/kWh		0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh		0.44	0.29	0.31	0.32	0.33	0.35	0.36	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	
RoE	Rs/kWh		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
Total COG	Rs/kWh		9.75	6.90	7.15	7.42	7.69	7.98	8.29	8.62	8.96	9.32	9.69	10.09	10.51	10.95	11.41	11.90	12.25	12.82	13.42	14.04	14.70	15.48	16.20	16.96	17.75	18.59	
Variable Cost for FY 2020-21			4.62																										
Levilled Tariff (Fixed)			2.55																										
Levilled Tariff -FY 2020-21			7.17																										
Determination of AD for Biomass Gasifier based Power Project																													
Depreciation amount			90%																										
Book Depreciation rate			5%																										
Tax Depreciation rate			40%																										
Additional Depreciation			20%																										
Income Tax (MAT)			17%																										
Income Tax (Normal Rates)			35%																										
Capital Cost (Rs./Lakh)			443.00																										
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%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	
Accelerated Depreciation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
Opening	%	100%	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%	0%	
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Closing	%	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%	0%	0%	
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	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	
Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
Per unit benefit	Rs/Unit	1.26	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14		
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14		
Tax Benefit Levilled			5.54																										
Electricity Generation (Levilled)			6.41																										
Levilled benefit			0.09																										

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4B
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Haryana Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3786.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
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		352.62	370.25	388.77	408.21	428.62	450.05	472.55	496.18	520.99	547.03	574.39	603.11	633.26	664.92	698.17	733.08	769.73	808.22	848.63	891.06	935.61	982.40	1031.52	1083.09	1137.25
Fixed Cost	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M Expenses	Rs Lakh		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		21.83	22.81	23.84	24.93	26.07	27.26	28.52	29.84	31.22	32.68	34.20	35.81	37.49	39.25	41.11	42.90	44.97	47.15	49.43	51.82	54.42	57.05	59.81	62.71	65.75
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
Total Fixed Cost	Rs Lakh		155.37	156.71	158.18	159.80	161.57	163.50	165.59	167.86	170.30	172.94	175.76	178.79	182.03	185.49	189.18	182.16	188.37	194.84	201.58	208.60	222.06	229.69	237.64	245.93	254.56

Levilled 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	21	22	23	24	25	
Per unit Variable Cost	Rs/kWh		8.19	5.26	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	12.65	13.29	13.95	14.65	15.38	16.15	16.96
O&M expn	Rs/kWh		1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh		0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
Int. on term loan	Rs/kWh		0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh		0.49	0.33	0.34	0.36	0.37	0.39	0.41	0.43	0.44	0.47	0.49	0.51	0.53	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
RoE	Rs/kWh		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
Total COG	Rs/kWh		10.80	7.58	7.86	8.16	8.47	8.80	9.15	9.52	9.90	10.31	10.74	11.19	11.66	12.16	12.68	13.23	13.65	14.29	14.96	15.66	16.40	17.26	18.07	18.93	19.82	20.75

Variable Cost for FY 2020-21	5.26	Rs/kWh
Levilled Tariff (Fixed)	2.60	Rs/kWh
Levilled Tariff -FY 2020-21	7.86	Rs/kWh

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

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%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	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
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
Levilled benefit	0.09	Rs/kWh

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4C
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	61.31	
		O&M expenses p.a	Rs. Lakh	61.31	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	15.00%	
		Receivables	Days	1.5	
		Biomass Stock	Months	4	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Fuel Price	Rs./T	3872.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
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		360.63	378.66	397.60	417.48	438.35	460.27	483.28	507.45	532.82	559.46	587.43	616.81	647.65	680.03	714.03	749.73	787.22	826.58	867.91	911.30	956.87	1004.71	1054.95	1107.69	1163.08
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.25	23.25	24.30	25.41	26.57	27.79	29.08	30.42	31.84	33.32	34.88	36.52	38.24	40.04	41.93	43.77	45.88	48.10	50.43	52.87	55.52	58.21	61.03	63.99	67.09
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
Total Fixed Cost	Rs Lakh		155.79	157.14	158.64	160.28	162.08	164.03	166.15	168.45	170.92	173.58	176.44	179.50	182.78	186.28	190.01	183.02	189.27	195.79	202.58	209.65	223.17	230.85	238.86	247.20	255.90

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	8.38	5.38	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	17.34
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	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	0.50	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.60	0.63	0.65	0.68	0.72	0.75	0.79	0.83	0.87	0.91	0.95	1.00
RoE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total COG	Rs/kWh	10.99	7.70	7.99	8.29	8.62	8.95	9.31	9.68	10.08	10.49	10.93	11.39	11.87	12.38	12.92	13.48	13.91	14.56	15.25	15.96	16.72	17.60	18.42	19.29	20.20	21.16

Variable Cost for FY 2020-21	5.38	Rs/kWh
Levilled Tariff (Fixed)	2.61	Rs/kWh
Levilled Tariff -FY 2020-21	7.99	Rs/kWh

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

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	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	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
Opening	%	100%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Allowed during the year	%	30%	35%	14%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	70%	35%	21%	13%	8%	5%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
Levilled benefit	0.09	Rs/kWh

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4D
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Punjab Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3960.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
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		368.83	387.27	406.63	426.97	448.31	470.73	494.27	518.98	544.93	572.18	600.78	630.82	662.36	695.48	730.26	766.77	805.11	845.36	887.63	932.01	978.61	1027.55	1078.92	1132.87	1189.51
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		22.67	23.70	24.77	25.90	27.09	28.34	29.65	31.02	32.47	33.98	35.57	37.25	39.00	40.84	42.78	44.85	46.81	49.08	51.45	53.95	56.65	59.39	62.27	65.29	68.46
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
Total Fixed Cost	Rs Lakh		196.21	157.59	159.11	160.77	162.59	164.57	166.72	169.04	171.55	174.24	177.13	180.23	183.54	187.08	190.85	183.91	190.20	196.77	203.60	210.73	224.30	232.04	240.10	248.51	257.27

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	8.57	5.50	5.78	6.06	6.37	6.69	7.02	7.37	7.74	8.13	8.53	8.96	9.41	9.88	10.37	10.89	11.43	12.01	12.61	13.24	13.90	14.59	15.32	16.09	16.89	17.74
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	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	0.51	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.64	0.67	0.70	0.73	0.77	0.80	0.84	0.89	0.93	0.97	1.02
RoE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total COG	Rs/kWh	11.19	7.83	8.12	8.44	8.76	9.11	9.47	9.86	10.26	10.68	11.13	11.60	12.09	12.61	13.16	13.74	14.18	14.84	15.54	16.27	17.04	17.94	18.78	19.67	20.60	21.57

Variable Cost for FY 2020-21	5.50	Rs/kWh
Levilled Tariff (Fixed)	2.62	Rs/kWh
Levilled Tariff -FY 2020-21	8.12	Rs/kWh

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

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%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	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
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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	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%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
Levilled benefit	0.09	Rs/kWh

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4E
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Rajasthan Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3305.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																										
Units Generation	Unit	Year→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Installed Capacity	MW		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net Generation	MU		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
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		307.82	323.21	339.38	356.34	374.16	392.87	412.51	433.14	454.80	477.54	501.41	526.48	552.81	580.45	609.47	639.94	671.94	705.54	740.81	777.85	816.75	857.58	900.46	945.49	992.76	
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.50	20.37	21.28	22.24	23.24	24.29	25.40	26.56	27.78	29.07	30.41	31.83	33.31	34.87	36.50	38.06	39.89	41.81	43.83	45.94	48.24	50.57	53.00	55.56	58.24	
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
Total Fixed Cost	Rs Lakh		153.05	154.26	155.61	157.11	158.74	160.53	162.48	164.59	166.87	169.33	171.97	174.81	177.85	181.11	184.58	177.32	183.29	189.50	195.98	202.72	215.89	223.21	230.83	238.78	247.05	

Levelised 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	21	22	23	24	25
Per unit Variable Cost	Rs/kWh	7.15	4.59	4.82	5.06	5.31	5.58	5.86	6.15	6.46	6.78	7.12	7.48	7.85	8.24	8.66	9.09	9.54	10.02	10.52	11.05	11.60	12.18	12.79	13.43	14.10	14.80
O&M exn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.44	0.29	0.30	0.32	0.33	0.35	0.36	0.38	0.40	0.41	0.43	0.45	0.47	0.50	0.52	0.54	0.57	0.59	0.62	0.65	0.69	0.72	0.75	0.79	0.83	0.87
RoE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total COG	Rs/kWh	9.70	6.87	7.12	7.38	7.66	7.95	8.25	8.57	8.91	9.27	9.65	10.04	10.46	10.90	11.36	11.84	12.19	12.75	13.35	13.97	14.62	15.40	16.12	16.87	17.66	18.49

Variable Cost for FY 2020-21	4.59	Rs/kWh
Levelised Tariff (Fixed)	2.55	Rs/kWh
Levelised Tariff -FY 2020-21	7.14	Rs/kWh

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

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%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	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	
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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	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%	0%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor	1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14	
Applicable Discounting Factor	1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.14	

Tax Benefit Levelised	5.54	Rs/kWh
Electricity Generation (Levelised)	6.41	Rs/kWh
Levelised benefit	0.09	Rs/kWh

CERC RE Tariff Order FY 2020-21

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4F
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Tamil Nadu Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3272.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																										
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
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		304.75	319.99	335.99	352.79	370.43	388.95	408.39	428.81	450.25	472.77	496.41	521.23	547.29	574.65	603.38	633.55	665.23	698.49	733.42	770.09	808.59	849.02	891.47	936.05	982.85	
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.34	20.20	21.10	22.05	23.05	24.09	25.19	26.34	27.55	28.82	30.15	31.55	33.02	34.57	36.19	37.73	39.55	41.45	43.44	45.54	47.82	50.12	52.54	55.07	57.73	
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
Total Fixed Cost	Rs Lakh		152.89	154.10	155.44	156.92	158.55	160.33	162.26	164.36	166.63	169.08	171.71	174.54	177.57	180.80	184.26	176.99	182.94	189.14	195.59	202.32	215.47	222.76	230.37	238.29	246.54	

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	7.08	4.54	4.77	5.01	5.26	5.52	5.80	6.09	6.39	6.71	7.05	7.40	7.77	8.16	8.57	9.00	9.45	9.92	10.42	10.94	11.48	12.06	12.66	13.29	13.96	14.66
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh	0.43	0.29	0.30	0.31	0.33	0.34	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
RoE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total COG	Rs/kWh	9.63	6.82	7.07	7.33	7.60	7.89	8.19	8.51	8.85	9.20	9.57	9.96	10.38	10.81	11.27	11.75	12.09	12.65	13.24	13.85	14.50	15.27	15.98	16.73	17.51	18.33

Variable Cost for FY 2020-21	4.54	Rs/kWh
Levilled Tariff (Fixed)	2.54	Rs/kWh
Levilled Tariff -FY 2020-21	7.09	Rs/kWh

Determination of AD for Biomass Gasifier based Power Project

Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

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	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Opening	%	100%	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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	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%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
Levilled benefit	0.09	Rs/kWh

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4G
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Telangana Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3326.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																										
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
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		309.78	325.27	341.53	358.61	376.54	395.37	415.13	435.89	457.69	480.57	504.60	529.83	556.32	584.14	613.34	644.01	676.21	710.02	745.52	782.80	821.94	863.03	906.19	951.50	999.07	
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.60	20.48	21.39	22.35	23.36	24.42	25.54	26.71	27.93	29.22	30.58	32.00	33.49	35.06	36.70	38.28	40.12	42.05	44.07	46.20	48.51	50.85	53.30	55.87	58.57	
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
Total Fixed Cost	Rs Lakh		153.15	154.37	155.73	157.22	158.87	160.66	162.61	164.73	167.02	169.48	172.14	174.99	178.04	181.30	184.78	177.53	183.51	189.74	196.22	202.98	216.16	223.49	231.13	239.09	247.38	
Levelised tariff corresponding to Useful life		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
Per Unit Variable Cost	Rs/kWh		7.20	4.62	4.85	5.09	5.35	5.61	5.90	6.19	6.50	6.83	7.17	7.52	7.90	8.30	8.71	9.15	9.60	10.08	10.59	11.12	11.67	12.26	12.87	13.51	14.19	14.90
O&M expn	Rs/kWh		1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh		0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Int. on term loan	Rs/kWh		0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Int. on working capital	Rs/kWh		0.44	0.29	0.31	0.32	0.33	0.35	0.36	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
RoE	Rs/kWh		0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total COG	Rs/kWh		9.75	6.90	7.15	7.42	7.69	7.98	8.29	8.62	8.96	9.32	9.69	10.09	10.51	10.95	11.41	11.90	12.25	12.82	13.42	14.04	14.70	15.48	16.20	16.96	17.75	18.59
Variable Cost for FY 2020-21		Rs/kWh	4.62																									
Levelised Tariff (Fixed)		Rs/kWh	2.55																									
Levelised Tariff -FY 2020-21		Rs/kWh	7.17																									
Determination of AD for Biomass Gasifier based Power Project		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
Depreciation amount		%	90%																									
Book Depreciation rate		%	5%																									
Tax Depreciation rate		%	40%																									
Additional Depreciation		%	20%																									
Income Tax (MAT)		%	17%																									
Income Tax (Normal Rates)		%	35%																									
Capital Cost (Rs./Lakh)		Rs./Lakh	443.00																									
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%	5.28%	2.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Book Depreciation	Rs Lakh		11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accelerated Depreciation		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
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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%		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%	0%
Accelerated Depreciation	Rs Lakh		132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Net Depreciation Benefit	Rs Lakh		121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh		42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU		3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit		1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor			1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14	0.14
Applicable Discounting Factor			1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.14
Tax Benefit Levelised		Rs/kWh	5.54																									
Electricity Generation (Levelised)		Rs/kWh	6.41																									
Levelised benefit		Rs/kWh	0.09																									

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4H
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Uttar Pradesh Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
4	O&M Expenses		Depreciation Rate 16th years onwards	%	2.00%
			Normative O&M expense	Rs. Lakh/MW	61.31
			O&M expenses p.a	Rs. Lakh	61.31
5	Working Capital		Escalation factor	%	3.84%
			O&M expenses p.a	Month	1
			Maintenance Spares	% of O&M exepenses	15.00%
			Receivables	Days	1.5
			Biomass Stock	Months	4
6	Fuel Related Assumptions	Biomass	Interest on Working Capital	% per annum	11.17%
			Fuel Price	Rs./T	3384.00
			Specific Fuel Consumption	kg/kWh	1.25
7	Generation and Sale of Power	Number of Hours	Biomass price escalation factor	%	5.00%
				Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																										
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	
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		315.18	330.94	347.49	364.86	383.11	402.26	422.37	443.49	465.67	488.95	513.40	539.07	566.02	594.32	624.04	655.24	688.00	722.40	758.52	796.45	836.27	878.08	921.99	968.09	1016.49	
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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35	
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		19.88	20.77	21.70	22.68	23.70	24.78	25.91	27.10	28.35	29.66	31.03	32.48	34.00	35.59	37.26	38.86	40.73	42.69	44.75	46.91	49.26	51.63	54.12	56.73	59.48	
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
Total Fixed Cost	Rs Lakh		153.43	154.66	156.04	157.55	159.21	161.02	162.99	165.12	167.43	169.92	172.59	175.47	178.54	181.83	185.33	178.11	184.12	190.38	196.90	203.69	216.90	224.27	231.95	239.95	248.29	
Levelised tariff corresponding to Useful life		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
Per Unit Variable Cost	Rs/kWh	7.32	4.70	4.94	5.18	5.44	5.71	6.00	6.30	6.61	6.94	7.29	7.66	8.04	8.44	8.86	9.31	9.77	10.26	10.77	11.31	11.88	12.47	13.09	13.75	14.44	15.16	
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26	
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Int. on working capital	Rs/kWh	0.44	0.30	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	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	
ROE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
Total COG	Rs/kWh	9.88	6.99	7.24	7.51	7.79	8.09	8.40	8.73	9.08	9.44	9.83	10.23	10.66	11.10	11.57	12.07	12.43	13.01	13.61	14.25	14.91	15.70	16.44	17.21	18.01	18.86	
Variable Cost for FY 2020-21		4.70																										
Levelised Tariff (Fixed)		2.56																										
Levelised Tariff -FY 2020-21	Rs/kWh	7.26																										
Determination of AD for Biomass Gasifier based Power Project																												
Depreciation amount		90%																										
Book Depreciation rate		5%																										
Tax Depreciation rate		40%																										
Additional Depreciation		20%																										
Income Tax (MAT)		17%																										
Income Tax (Normal Rates)		35%																										
Capital Cost (Rs./Lakh)		443.00																										
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%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	5.28%	
Book Depreciation	Rs Lakh	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	
Accelerated Depreciation		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Opening	%	100%	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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Closing	%	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%		
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00		
Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00		
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71		
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14		
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14		
Tax Benefit Levelised		5.54																										
Electricity Generation (Levelised)		6.41																										
Levelised benefit	Rs/kWh	0.09																										

Assumption for Biomass Gasifier based Project Parameters				State	Annexure 4I Other States
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	10%
			Plant Load Factor	%	85%
			Useful Life	Years	25
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	443.00
			Capital Cost	Rs. Lakh	443
			Capital Subsidy	Rs. Lakh	0
			Net Capital Cost	Rs. Lakh	443.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	310.10
			Total Equity Amount	Rs. Lakh	132.90
			Loan Amount	Rs. Lakh	310.10
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15.00
			Interest Rate	%	9.67%
		Equity Component	Equity Amount	Rs. Lakh	132.90
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
			Discount Rate	%	8.61%
		Tax Rate	Corporate Tax Rate	%	34.94%
MAT Rate	%		17.47%		
Depreciation	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	61.31	
		O&M expenses p.a	Rs. Lakh	61.31	
		Escalation factor	%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	15.00%	
		Receivables	Days	1.5	
		Biomass Stock	Months	4	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biomass	Fuel Price	Rs./T	3557.00
			Specific Fuel Consumption	kg/kWh	1.25
			Biomass price escalation factor	%	5.00%
7	Generation and Sale of Power	Number of Hours		Hours	8766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biomass Gasifier Based Power Project																									
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		6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71

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		331.29	347.86	365.25	383.51	402.69	422.83	443.97	466.16	489.47	513.95	539.64	566.63	594.96	624.71	655.94	688.74	723.17	759.33	797.30	837.16	879.02	922.97	969.12	1017.58	1068.46

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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86	8.86
Interest on term loan	Rs Lakh		29.00	27.00	25.00	23.00	20.99	18.99	16.99	14.99	12.99	10.99	8.99	6.98	4.98	2.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working Capital	Rs Lakh		20.72	21.65	22.62	23.65	24.72	25.85	27.03	28.28	29.59	30.96	32.40	33.91	35.50	37.17	38.92	40.60	42.56	44.61	46.76	49.02	51.48	53.96	56.57	59.31	62.18
Return on Equity	Rs Lakh		22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55
Total Fixed Cost	Rs Lakh		154.26	155.54	156.96	158.52	160.22	162.09	164.11	166.30	168.67	171.22	173.96	176.90	180.04	183.40	186.99	179.85	185.95	192.30	198.91	205.80	219.13	226.61	234.40	242.52	250.99

Levilled 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	21	22	23	24	25
Per unit Variable Cost	Rs/kWh	7.70	4.94	5.19	5.45	5.72	6.00	6.31	6.62	6.95	7.30	7.66	8.05	8.45	8.87	9.32	9.78	10.27	10.78	11.32	11.89	12.48	13.11	13.76	14.45	15.17	15.93
O&M expn	Rs/kWh	1.27	0.91	0.95	0.99	1.02	1.06	1.10	1.15	1.19	1.24	1.28	1.33	1.38	1.44	1.49	1.55	1.61	1.67	1.73	1.80	1.87	1.94	2.02	2.09	2.17	2.26
Depreciation	Rs/kWh	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Int. on term loan	Rs/kWh	0.22	0.43	0.40	0.37	0.34	0.31	0.28	0.25	0.22	0.19	0.16	0.13	0.10	0.07	0.04	0.01	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	0.46	0.31	0.32	0.34	0.35	0.37	0.39	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.61	0.63	0.67	0.70	0.73	0.77	0.80	0.84	0.88	0.93
ROE	Rs/kWh	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total COG	Rs/kWh	10.27	7.24	7.51	7.79	8.08	8.39	8.72	9.07	9.43	9.81	10.22	10.64	11.09	11.56	12.05	12.57	12.95	13.56	14.19	14.86	15.55	16.38	17.14	17.95	18.79	19.68

Variable Cost for FY 2020-21	4.94	Rs/kWh
Levilled Tariff (Fixed)	2.58	Rs/kWh
Levilled Tariff -FY 2020-21	7.52	Rs/kWh

Determination of AD for Biomass Gasifier based Power Project	
Depreciation amount	90%
Book Depreciation rate	5%
Tax Depreciation rate	40%
Additional Depreciation	20%
Income Tax (MAT)	17%
Income Tax (Normal Rates)	35%
Capital Cost (Rs./Lakh)	443.00

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	11.70	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Accelerated Depreciation	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
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%	35%	14%	8%	5%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Closing	%	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%
Accelerated Depreciation	Rs Lakh	132.90	155.05	62.02	37.21	22.33	13.40	8.04	4.82	2.89	1.74	1.04	0.63	0.38	0.23	0.14	0.08	0.05	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	121.20	131.66	38.63	13.82	-1.06	-9.99	-15.35	-18.57	-20.50	-21.65	-22.35	-22.77	-23.02	-23.17	-23.26	-23.31	-23.34	-12.73	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Tax Benefit	Rs Lakh	42.35	46.01	13.50	4.83	-0.37	-3.49	-5.36	-6.49	-7.16	-7.57	-7.81	-7.96	-8.04	-8.09	-8.13	-8.15	-8.16	-4.45	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.35	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Per unit benefit	Rs/Unit	1.28	0.69	0.20	0.07	-0.01	-0.05	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levilled	5.54	Rs/kWh
Electricity Generation (Levilled)	6.41	Rs/kWh
Levilled benefit	0.09	Rs/kWh

CERC RE Tariff Order FY 2020-21

Assumption for Biogas based Project Parameters					Annexure 5A
S. No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	1
			Aux Consumption	%	12%
			Plant Load Factor	%	90%
			Useful Life	Years	25.00
2	Project Cost	Capital Cost	Normative Capital Cost	Rs. Lakh/MW	1,186.00
			Capital Cost	Rs. Lakh	1,186.00
			Capital Subsidy	Rs. Lakh	300.00
			Net Capital Cost	Rs. Lakh	886.00
3	Financial Assumption	Debt Equity	Tariff Period	Years	25.00
			Debt	%	70%
			Equity	%	30%
		Debt Component	Total Debt Amount	Rs. Lakh	620.20
			Total Equity Amount	Rs. Lakh	265.80
			Loan Amount	Rs. Lakh	620.20
			Moratorium Period	Years	0
			Repayment Period (including Moratorium)	Years	15
		Equity Component	Interest Rate	%	9.67%
			Equity Amount	Rs. Lakh	265.80
			Return on Equity for First 20 years	% p.a	16.96%
			Return on Equity after 20 years	% p.a	21.52%
		Tax Rate	Discount Rate	%	8.61%
			Corporate Tax Rate	%	34.94%
Depreciation	MAT Rate	%	17.47%		
	Depreciation Rate for 1st 15 years	%	4.67%		
	Depreciation Rate 16th years onwards	%	2.00%		
	4	O&M Expenses	Normative O&M expense	Rs. Lakh/MW	61.31
O&M expenses p.a			Rs. Lakh	61.31	
Escalation factor			%	3.84%	
5	Working Capital	O&M expenses p.a	Month	1	
		Maintenance Spares	% of O&M exepenses	15%	
		Receivables	Days	45	
		Interest on Working Capital	% per annum	11.17%	
6	Fuel Related Assumptions	Biogas	Fuel Price	Rs./T	1422.00
			Specific Fuel Consumption	kg/kWh	3.00
			Substrates price escalation factor	%	5%
7	Generation and Sale of Power	Number of Hours		Hours	8,766.00

CERC RE Tariff Order FY 2020-21

Determination of Tariff Components		Biogas Based Power Project																									
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		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Generation	MU		6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94

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		336.56	353.39	371.06	389.61	409.09	429.55	451.03	473.58	497.26	522.12	548.22	575.63	604.42	634.64	666.37	699.69	734.67	771.41	809.98	850.47	893.00	937.65	984.53	1,033.76	1,085.45

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		61.31	63.66	66.11	68.64	71.28	74.01	76.85	79.80	82.86	86.04	89.34	92.77	96.33	100.03	103.86	107.85	111.99	116.28	120.75	125.38	130.19	135.18	140.37	145.76	151.35
Depreciation	Rs Lakh		41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35	41.35
Interest on term loan	Rs Lakh		58.00	54.00	50.00	46.00	42.00	38.00	34.00	30.00	26.00	22.00	18.00	14.00	10.00	6.00	2.00	-	-	-	-	-	-	-	-	-	-
Interest on working Capital	Rs Lakh		22.02	22.93	23.89	24.90	25.96	27.08	28.25	29.49	30.79	32.15	33.58	35.09	36.67	38.34	40.08	41.61	43.60	45.68	47.87	50.16	52.73	55.25	57.90	60.68	63.59
Return on Equity	Rs Lakh		45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09	45.09
Total Fixed Cost	Rs Lakh		227.77	227.03	226.43	225.98	225.68	225.53	225.54	225.73	226.08	226.63	227.36	228.30	229.44	230.80	232.38	212.27	218.39	224.77	231.42	238.35	257.84	265.36	273.19	281.35	289.86

Levelised 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	21	22	23	24	25
Per unit Variable Cost	Rs/kWh		4.85	5.09	5.34	5.61	5.89	6.19	6.50	6.82	7.16	7.52	7.90	8.29	8.71	9.14	9.60	10.08	10.58	11.11	11.67	12.25	12.86	13.51	14.18	14.89	15.63
O&M expn	Rs/kWh	1.23	0.88	0.92	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.24	1.29	1.34	1.39	1.44	1.50	1.55	1.61	1.67	1.74	1.81	1.88	1.95	2.02	2.10	2.18
Depreciation	Rs/kWh	0.53	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	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Int. on term loan	Rs/kWh	0.42	0.84	0.78	0.72	0.66	0.60	0.55	0.49	0.43	0.37	0.32	0.26	0.20	0.14	0.09	0.03	-	-	-	-	-	-	-	-	-	-
Int. on working capital	Rs/kWh	0.47	0.32	0.33	0.34	0.36	0.37	0.39	0.41	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.58	0.60	0.63	0.66	0.69	0.72	0.76	0.80	0.83	0.87	0.92
RoE	Rs/kWh	0.66	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Total COG	Rs/kWh	3.31	8.13	8.36	8.61	8.87	9.14	9.44	9.75	10.07	10.42	10.78	11.17	11.58	12.01	12.47	12.95	13.14	13.73	14.35	15.00	15.68	16.58	17.33	18.12	18.94	19.81

Variable Cost for FY 2020-21	4.85	Rs/kWh
Levelised Tariff (Fixed)	3.31	Rs/kWh
Levelised Tariff -FY 2020-21	8.16	Rs/kWh

Determination of AD for Biogas based Power Project

Depreciation amount	90.00%
Book Depreciation rate	5.28%
Tax Depreciation rate	40.00%
Additional Depreciation	20.00%
Income Tax (MAT)	17.47%
Income Tax (Normal Rates)	34.94%
Capital Cost (Rs./Lakh)	886.00

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	23.39	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	46.78	25.52	-	-	-	-	-	-	-

Accelerated Depreciation	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
Opening	%	100.00%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
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%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Closing	%	70.00%	35.00%	21.00%	12.60%	7.56%	4.54%	2.72%	1.63%	0.98%	0.59%	0.35%	0.21%	0.13%	0.08%	0.05%	0.03%	0.02%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Accelerated Depreciation	Rs Lakh	265.80	310.10	124.04	74.42	44.65	26.79	16.08	9.65	5.79	3.47	2.08	1.25	0.75	0.45	0.27	0.16	0.10	0.06	0.03	0.02	0.01	0.01	0.00	0.00	0.00

Net Depreciation Benefit	Rs Lakh	242.41	263.32	77.26	27.64	- 2.13	- 19.99	- 30.71	- 37.14	- 40.99	- 43.31	- 44.70	- 45.53	- 46.03	- 46.33	- 46.51	- 46.62	- 46.68	- 25.46	0.03	0.02	0.01	0.01	0.00	0.00	0.00
Tax Benefit	Rs Lakh	84.71	92.01	27.00	9.66	- 0.74	- 6.98	- 10.73	- 12.98	- 14.32	- 15.13	- 15.62	- 15.91	- 16.08	- 16.19	- 16.25	- 16.29	- 16.31	- 8.90	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Energy generation	MU	3.47	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94
Per unit benefit	Rs/Unit	2.44	1.33	0.39	0.14	- 0.01	- 0.10	- 0.15	- 0.19	- 0.21	- 0.22	- 0.22	- 0.23	- 0.23	- 0.23	- 0.23	- 0.23	- 0.23	- 0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discounting Factor		1.00	0.92	0.85	0.78	0.72	0.66	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16	0.15	0.14
Applicable Discounting Factor		1.00	0.96	0.88	0.81	0.75	0.69	0.64	0.58	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14

Tax Benefit Levelised	11.09	Rs/kWh
Electricity Generation (Levelised)	6.64	Rs/kWh
Levelised benefit	0.17	Rs/kWh