

Coal Power Generation Plant

Plant Capacity 10000 KW

FIXED CAPITAL					Sub-Total Rs	Total Rs
	Description		Rs/Unit			
Plant capacity kw		10,000				
Plant & Machinery (@US\$ 1000/kWh)	1200			1,224,000,000		
Land, Land development and civil works				50,000,000		
Contingency (Laying of transmission lines)				61,200,000		
Development of 3000 acre land @ Rs 10,000				30,000,000		
					1,365,200,000	
WORKING CAPITAL					Sub-Total Rs	Total Rs
	No. of Units		Rs/Unit			
Stocks:						
Coal	3,600	3 Month	6,000	64,800,000		
Water Treatment (Chemicals)		Two Month		636,364		
Machinery Spares				1,500,000		
					66,936,364	
Debtors :						
Electricity (kWh)	1,440,000	Two Month	8.50	12,240,000		
					12,240,000	
Total Capital Costs					1,444,376,364	
CAPITAL					Sub-Total Rs	Total Rs
Equity (30%)						
Investor				100,000,000		
					100,000,000	
Loans (70%)						
Long Term Loans (World Bank ESD II finance)		10.00%		866,625,818		
Overdraft		12.00%		477,750,545		
					1,344,376,364	
Total Capital					1,444,376,364	
REVENUE					Sub-Total Rs	Total Rs
	Units		Rs/Unit			
No of days Run/Yr	330					
Electricity (kWh) day <i>(90% of that Generated as 10% used for running power plant)</i>	71,280,000		8.50	605,880,000		
Total Revenue					605,880,000	
VARIABLE COST					Sub-Total Rs	Total Rs
	Units		Rs/Unit			
Coal Consumption kg/kwh						
Coal	0.5					
Coal	39,600		6000	237,600,000		
Water Treatment (Chemicals)				3,500,000		
					241,100,000	
FIXED PRODUCTION COST					Sub-Total Rs	Total Rs
	Units		Rs/Unit			
Wages	18		120,000	2,160,000		
Machinery O&M (4.0% of P&M)				51,408,000		
Depreciation				128,520,000		
					182,088,000	
OVERHEADS					Sub-Total Rs	Total Rs
	Units		Rs/Unit			
Remuneration	4		420,000	1,680,000		
Admin & Other Expenses				1,500,000		
Interest -Long Term Loan	866,625,818	10.0%		86,662,582		
-Overdraft	477,750,545	12.0%		57,330,065		
					147,172,647	
Total Operating Costs					570,360,647	
PROFIT					Sub-Total Rs	Total Rs
Profit after Interest and before tax					35,519,353	

SUMMARY					
Equity			100,000,000	Plant capacity	10000
Loans			1,344,376,364	Dollar Parity	102
Income			605,880,000	Cost of coal /kg dry	6000
Total Costs Excluding Interest			426,368,000	Interest rate	10.00%
Interest			143,992,647	O D Rate	12.00%
Costs before interest			426,368,000	Capital Cost US\$/KW	1200
Profit before Interest and Tax			179,512,000	Tariff Rs /KWh	8.50
Profit after Interest before Tax			35,519,353	Internal consumption %	0.1
Capital Employed (FA + Tot. WC)			1,444,376,364	No of days Run/Yr	330
ROC (Return On Capital)			12%	coal kg/kwh	0.5
ROSE			36%	Caloric value K cal/kg	6000
Tax at 30%			10,655,806	Overall efficiency %	28.71
Profit after Interest and Tax			24,863,547		
IRR over 7 years			8%		
IRR over 20 years			15%		
Payback Period (Yrs)			8.0		

Cash Flow Estimates																					
Year ---->	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Avoided cost tariff		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tariff with Capacity charge		8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50
Capital Cost	-1,365,200,000																				
Income		302,940,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000	605,880,000
Op. Costs		-241,100,000	-241,100,000	-253,156,000	-253,156,000	-278,470,500	-285,812,750	-285,812,750	-279,103,388	-279,103,388	-307,013,726	-293,068,557	-293,068,557	-307,711,485	-307,711,485	-389,263,782	-323,097,069	-323,097,069	-339,251,912	-339,251,912	-339,251,912
Fixed costs		-63,568,000	-63,568,000	-55,246,400	-59,050,720	-62,011,656	-65,112,239	-68,267,851	-71,798,243	-75,375,555	-79,144,333	-83,101,550	-87,256,637	-91,619,469	-96,200,432	-101,010,453	-106,060,876	-111,364,025	-116,932,226	-122,778,637	-128,917,779
O/H		-3,100,000	-3,100,000	-3,339,000	-3,339,000	-3,505,850	-3,505,950	-3,681,247	-3,681,247	-3,865,310	-3,865,310	-4,059,575	-4,059,575	-4,261,504	-4,261,504	-4,474,579	-4,474,579	-4,696,300	-4,696,300	-4,933,224	-4,933,224
Interest		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Income	-1,365,200,000	5,092,000	309,032,000	293,139,600	290,327,280	261,691,694	271,449,061	268,016,152	251,309,122	247,535,747	215,856,631	225,661,318	221,506,240	202,287,552	197,706,679	131,141,186	172,247,386	166,720,608	144,997,654	138,916,027	132,777,085
Loan pay back on equal instalments over 7 years			123,803,688	123,803,688	123,803,688	123,803,688	123,803,688	123,803,688	123,803,688	123,803,688											
Net cash after loan repayment	-1,365,200,000	5,092,000	184,228,312	169,336,912	166,523,592	138,088,206	147,645,373	144,214,463	127,505,433	247,535,747	215,856,631	225,661,318	221,506,240	202,287,552	197,706,679	131,141,186	172,247,386	166,720,608	144,997,654	138,916,027	132,777,085
IRR for tariff over 8 years		8%																			
IRR @ Rs. 8.5 for 20 years		15%																			
Weighted Avg Cost of Capital		10.69%																			

Assumptions for cash flow calculations

Price of Coal delivered assumed as Rs 6000.00 per ton

- 5% increase in O & M costs every two years
- 10 % increase in year 5 , 10 and 20% on year 15 for Overhaul
- Tariff of Rs. 8.5 is used
- Tariff remains unchanged.**
- Fixed costs increase 5% per year
- Fixed costs are less Depreciation
- O/H less Interest increase by 5% every 2 years
- Repayment of loan over 7 years
- 2 year grace on repayment of loans
- 330 day operation through the project period
- All generation net of internal accepted by the grid
- For Weighted Avg Cost of Capital, return on equity assumed at 20%, and loan interest 10%
- Vat and Import duties not included in the costing