

Estimate of Operation Expense for FGD System of 2 x 525 MW Unit

Estimate of Operation and Manpower Cost for FGD System of 2 x 525 MW Unit 1 &2 at MPL

Sl. No.	Estimate of Manpower Cost for Operation of FGD System	Requirement for FGD System of 2 x 525 MW		Total Cost		Remark
		No per Shift	Total No	Cost Per annum in Rs lacs	Total Cost per Annum in Lacs	
A	FGD Plant Head					
1	FGD Plant Manager / In-charge	2	2	55	110	In General Shift , 1 for main plant O&M, 1 for limestone and gypsum handling
B	Break Down & Preventive Maintenance Cost				0	
B1	FGD System - Scrubber, recirculation, milling system				0	
1	Mechanical Maintenance Engineer	2	7	18.5	129.5	Two (2) per shift + One (1) in General Shift
2	Electrical Maintenance Engineer	1	4	18.5	74	One (1) per shift + One (1) in General Shift
3	C&I Maintenance Engineer	1	4	18.5	74	One (1) per shift + One (1) in General Shift
4	Fitters	3	10	5	50	One (1) per shift + One (1) in General Shift
5	Welders	2	7	5	35	One (1) per shift + One (1) in General Shift
6	Electrician	3	10	5	50	One (1) per shift + One (1) in General Shift
7	C&I Technician	4	13	5	65	One (1) per shift + One (1) in General Shift
8	Riggers / Helpers - for mech, electrical & C&I Jobs	15	46	3	138	Eight (8) per shift + Four (4) in general shift
	Sub Total				615.5	
B2	Common System					
1	Fitters	3	9	5	45	Three (3)per shift in Limestone Handling System & Gypsum handling area
2	Welders	2	6	5	30	Two (2) per shift in Limestone Handling System & Gypsum handling area
3	Electrician	3	9	5	45	Three (3)per shift in Limestone Handling System & Gypsum handling area
4	C&I Technician	3	9	5	45	Three (3)per shift in Limestone Handling System & Gypsum handling area
5	Riggers / Helpers - for mech, electrical & C&I Jobs	10	30	3	90	Ten (10)per shift in Limestone Handling System & Gypsum handling area
	Sub Total				255	
	Total cost of Prevective& Breakdown Maintenance				980.5	
C	Operation Cost					
C1	FGD System					
1	Shift Operation Engineers	1	4	18.5	74	One (1) per shift + One (1) in General Shift
2	Skilled Operators	2	6	8	48	Two(2) Operator per shift
3	Semi Skilled labour / Unskilled labour	6	18	2.5	45	Two (2) in scrubber area and three (3) in Limestone handling, crushing & milling area One (1) per shift for sample collection. All above are per shift
	Sub Total				167	
C2	Common System					
1	Skilled Operators	2	6	8	48	Two (2) each for Truck and bulldozer management per shift
2	Semi Skilled labour / Unskilled labour	3	9	2.5	22.5	Two (2) each for Truck and bulldozer management per shift
	Sub Total				70.5	
C3	Dozers for limestone and gypsum- on lease		2	89.5	179	hiring of doser with minimum hours 200hr/month@INR1600/hr + diesel cost @30 L/hr @INR 71/L
	Loaders for gypsum- on lease		1	188	188	hiring of loader with minimum hours 420hr/month@INR1600/hr + diesel cost @30 L/hr @INR 71/L
	Subtotal				367.03	
	Total - Operation Manpower Cost				604.53	
E	Manpower for Annual shudown					
1	Manpower Cost for Annual Shutdwon				294.15	Considered 30% of Break Down / Preventive Maintenance Cost [consdering 30 days shudwon in a year, 4 times of normal maintenance manpower]
E	Total Manpower Cost				1989.18	
F	Spare Cost				2062.5	Considered 2.5% of Capex
	Total Manpower & Spare Cost				4051.7	
	Total in % of Capital Cost				4.91	say 5%