

Annexure 4.2

Gas-based Power Plant

The Variables									
1	Size	675	MW			300	MW		
2	Area								
3	Project cost per MW	3	Crores Rs			3	Crores Rs		
Environmental cost (Rs. Crores)		<i>PS1/AW1/L</i>	<i>PS1/AW1/L</i>	<i>PS1/AW2/L</i>	<i>PS1/AW2/LF</i>	<i>PS2/AW1/L</i>	<i>PS2/AW1/L</i>	<i>PS2/AW2/L</i>	<i>PS2/AW2/L</i>
		<i>F1</i>	<i>F2</i>	<i>F1</i>	<i>2</i>	<i>F1</i>	<i>F2</i>	<i>F1</i>	<i>F2</i>
Control / Stability measures									
Air pollution									
	Equipment to monitor environment	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Equipment to monitor ambient air quality								
	Nox Control	48.42	48.42	48.42	48.42	21.52	21.52	21.52	21.52
	Liquid Fuel Handling System	5.65	5.65	0.56	0.56	2.51	2.51	0.25	0.25
Water pollution									
	Condensate cooling water including Reservoir, Tubewells, etc. & sanitation	11.89	11.89	11.89	11.89	5.28	5.28	5.28	5.28
	DM plant waste treatment systems	3.38	3.38	1.26	1.26	1.50	1.50	0.56	1.50
	Sewerage collection, treatment & disposal system	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Land									

Rehabilitation & resettlement of displaced persons	14.04	0.30	14.04	0.30	6.24	0.13	6.24	0.13
Restoration of land in construction area								

Environmental cost (Rs. Crores)		<i>PS1/AW1/L</i>	<i>PS1/AW1/L</i>	<i>PS1/AW2/L</i>	<i>PS1/AW2/LF</i>	<i>PS2/AW1/L</i>	<i>PS2/AW1/L</i>	<i>PS2/AW2/L</i>	<i>PS2/AW2/L</i>
		<i>F1</i>	<i>F2</i>	<i>F1</i>	<i>2</i>	<i>F1</i>	<i>F2</i>	<i>F1</i>	<i>F2</i>
Fores t									
	Environmental losses (when compensatory afforestation is not done) or afforestation	4.12	0.84	4.12	0.84	1.83	0.37	1.83	0.37
Noise									
	Measures to control noise impact (ear muffs)	The noise level is maintained within limits							
Visual									
	Green belt development	2.01	0.28	2.01	0.28	0.89	0.12	0.89	0.12
Other costs									
	Control of fire & explosion hazards (safety measures)	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11
	TOTAL	94.05	75.29	86.84	68.09	44.33	35.99	41.12	33.73
	Environment cost as % of TOTAL	5%	4%	4%	3%	5%	4%	5%	4%

Impact measures	
Health	
	Morbidity
	Mortality
Displacement	
	Psychological suffering
	Health impact
	Loss in livelihood
Bio-diversity	
	Marine life
	Wildlife habitat
	Upsetting of ecological balance
Land/Material	
	Soil erosion effect
	Material erosion/soiling
	Impact of productivity loss
Noise	
	Hearing loss
	Psychological effect
Visual	
	Aesthetic loss

The valuation techniques available are mostly applicable to developed countries and hence not possible to extend to Indian conditions. The impact of air study done by Brandon and Hommann is an analysis for all air pollution from all sources and hence cannot be extended to one single power project. Thus one needs to keep in mind the additional cost associated with these impacts and the corresponding under estimation involved in environmental costing. However the impact of gas based projects are relatively lower than coal based projects.

Note. Control/Stability measures and other costs will have corresponding monetary values
For the impact measures corresponding economic valuation have to be done.