

**OPTION-I**  
**TECHNICAL DETAILS OF OFFERED TECHNOLOGIES FOR COAL GASIFICATION ISLAND\***

Sl.No	Particulars	Unit	Quantity
1.0	No of Gasifiers proposed	Nos. (operating + Standby)	
2.0	Coal Feed to each gasifiers	MT/hr	
3.0	Oxygen/Air requirement to Gasification	Nm <sup>3</sup> /hr, O <sub>2</sub> Purity in Vol.%	
4.0	Total raw gas generation at exit of gasifiers	1000 Nm <sup>3</sup> /hr	
5.0	Total clean gas (H <sub>2</sub> +CO) generation after purification	1000 Nm <sup>3</sup> /hr	
6.0	Total Ammonia Syn. gas (3H <sub>2</sub> +N <sub>2</sub> ) generation after purification	1000 Nm <sup>3</sup> /hr	
7.0	Ash % considered in gasifiers feed for above estimation	%	
8.0	Process condition of (3H <sub>2</sub> +N <sub>2</sub> ) Temp., press.	deg C, kg/cm <sup>2</sup>	
9.0	Details of each By-product		
10.0	Any other, details		

\* Battery limit starts at the receipt of coal from ROM and up to production of Ammonia Synthesis Gas which also includes storage, and handling of raw material, product and by-products

## OPTION-I

## PART-A

## CAPEX DETAILS OF OFFERED TECHNOLOGIES FOR COAL GASIFICATION ISLAND\*

Sl. No	Particulars	Capacity	Currency	
			USD** Currency (INR/USD)	INR
1.0	Coal handling/coal preparation			
2.0	Air separation Unit			
3.0	Gassifiers and accessories			
4.0	Raw gas purification (CO + H <sub>2</sub> )			
5.0	CO conversion			
6.0	CO <sub>2</sub> Removal			
7.0	Other purification units up to preparation of (3H <sub>2</sub> +N <sub>2</sub> ) gas			
8.0	Each By - Product Purification			
9.0	Ash handling and disposal (Considering Ash Storage for 15 Days)			
10.0	Storage & Handling			
	- Raw Coal (Considering Storage for 3 Days)			
	- Product (Considering storage for 15 Days)			
	- Each By-Product (Considering storage for 15 Days)			
11.0	Effluent Treatment Plant (ETP)			
12.0	Spares	in %		

## NOTES:

- 1.0 \*CAPEX shall cover cost of all units/sections, duly erected & commissioned at Talcher, Odisha, India, from the receipt of coal from ROM and up to production of approx. 24300 Nm<sup>3</sup>/hr. Ammonia Syn. Gas which also includes storage, and handling of raw material, product and by-products.
- 2.0 \*\*For comparison purpose in INR, 1USD= Rs 67 shall be considered.
- 3.0 Cost of 1st fill of Catalyst, chemicals, Tower packing, etc. to be included in each section.

## OPTION-I

## PART-B

## OPEX DETAILS OF OFFERED TECHNOLOGIES FOR COAL GASIFICATION ISLAND\*

Sl. No.	Particulars	Unit	Quantity
<b>VARIABLE COST</b>			
1.0	Coal Feed	MT/hr	
2.0	Power	Kwh	
3.0	Steam	MT/hr	
4.0	DM Water	m3/hr	
5.0	Plant Air	Nm3/hr	
6.0	Instrument Air	Nm3/hr	
7.0	Details of each Chemical/Consumable	Bidder to specify/hr	
8.0	Steam Export	MT/hr	
9.0	Details of each By-product	MT/hr	
<b>FIXED COST</b>			
1.0	<b>Gasifier maintenance cycle</b>		
A)	Nos. per year	Bidder to indicate	
B)	Cost of each maintenance	Bidder to indicate in INR/USD	
2.0	Annual maintenance cost of other items ,% of CAPEX considering S.No.1, Sl. No. 2, S.No.4 to 11 of FORM-4a Part-A	Bidder to indicate	
3.0	Annual replacement cost of Catalyst & packings	Bidder to indicate in INR/USD	
4.0	Annual consumption cost of Chemical/Consumable	Bidder to indicate in INR/USD	

\* Battery limit starts at the receipt of coal from Run of Mine (ROM) and up to production of Ammonia Synthesis Gas which also includes storage, and handling of raw material, product and by-products

**OPTION-II**  
**TECHNICAL DETAILS OF OFFERED TECHNOLOGIES FOR COAL GASIFICATION ISLAND\***

Sl. No	Particulars	Unit	Quantity
1	No of Gasifiers proposed	Nos. (operating + Standby)	
2	Coal Feed to each gasifiers	MT/hr	
3	Pet coke Feed to each gasifiers	MT/hr	
4	Oxygen/Air requirement to Gasification	Nm <sup>3</sup> /hr, O <sub>2</sub> Purity in Vol.%	
5	Total raw gas generation at exit of gasifiers	1000 Nm <sup>3</sup> /hr	
6	Total clean gas (H <sub>2</sub> +CO) generation after purification	1000 Nm <sup>3</sup> /hr	
7	Total Ammonia Syn. gas (3H <sub>2</sub> +N <sub>2</sub> ) generation after purification	1000 Nm <sup>3</sup> /hr	
8	Ash % considered in gasifiers feed for above estimation	%	
9	Process condition of (3H <sub>2</sub> +N <sub>2</sub> ) Temp, press	deg C, kg/cm <sup>2</sup>	
10	Details of each By-product		
11	Any other, details		

\* Battery limit starts at the receipt of coal from ROM/Petcoke and up to production of Ammonia Synthesis Gas which also includes storage, and handling of raw material, product and by-products

## OPTION-II

## PART-A

## CAPEX DETAILS OF OFFERED TECHNOLOGIES FOR COAL GASIFICATION ISLAND\*

Sl. No	Particulars	Capacity	Currency	
			USD** Currency (INR/USD)	INR
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2.0	Pet coke handling			
3.0	Air separation Unit			
4.0	Gassifiers and accessories			
5.0	Raw gas purification (CO + H <sub>2</sub> )			
6.0	CO conversion			
7.0	CO <sub>2</sub> Removal			
8.0	Other purification units up to preparation of (3H <sub>2</sub> +N <sub>2</sub> ) gas			
9.0	Each By - Product Purification			
10.0	Ash handling and disposal (Considering Ash Storage for 15 Days)			
11.0	Storage & Handling			
	- Raw Coal (Considering Storage for 3 Days)			
	- Petcoke (Considering Storage for 3 Days)			
	- Product (Considering storage for 15 Days)			
	- Each By-Product (Considering storage for 15 Days)			
12.0	Effluent Treatment Plant (ETP)			
13.0	Spares	in %		

## NOTES:

- 1.0 \*CAPEX shall cover cost of all units/sections, duly erected & commissioned at Talcher, Odisha, India, from the receipt of coal from ROM/Petcoke and up to production of approx. 24300 Nm<sup>3</sup>/hr. Ammonia Syn. Gas which also includes storage, and handling of raw material, product and by-products.
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## OPTION-II

## PART-B

## OPEX DETAILS OF OFFERED TECHNOLOGIES FOR COAL GASIFICATION ISLAND\*

Sl. No.	Particulars	Unit	Quantity
<b>VARIABLE COST</b>			
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7.0	Instrument Air	Nm3/hr	
8.0	Details of each Chemical/Consumable	Bidder to specify/hr	
12.0	Steam Export	MT/hr	
13.0	Details of each By-product	MT/hr	
<b>FIXED COST</b>			
1.0	Gasifier maintenance cycle		
A)	Nos. per year	Bidder to indicate	
B)	Cost of each maintenance	Bidder to indicate in INR/USD	
2.0	Annual maintenance cost of other items ,% of CAPEX considering S.No.1 to 3, S.No.5 to 12 of FORM-4b Part-A	Bidder to indicate	
3.0	Annual replacement cost of Catalyst & packings	Bidder to indicate in INR/USD	
4.0	Annual consumption cost of Chemical/Consumable	Bidder to indicate in INR/USD	

\* Battery limit starts at the receipt of coal from ROM/Petcoke and up to production of Ammonia Synthesis Gas which also includes storage, and handling of raw material, product and by-products