

## **CAPITAL COST ESTIMATE OF A TYPICAL CONDENSATE REFINERY**

The capital cost estimate for A TYPICAL Condensate Refinery as fully defined in this report has been carried out for 120,000 BPD process train based on the recommended configuration and also include pre-investment for the potential expansion of the refinery to eventual capacity of 360,000 BPD as described hereinbefore.

The cost estimates are of an accuracy of +/- 20% and reflect 2006 prices for project completion in Iran in south of Iran.

The scope of the estimation include: 1) Process Units 2) Utilities 3) Flare System 4) Tankage and 5) Import/Export Facilities.

The cost estimate also includes the forward escalation for the project execution period as detailed in the Project Schedule which is issued as a separate document.

The cost estimate for the first charge of catalysts and chemicals as well as spare parts for the first two years of operation of the refinery is included in the OPEX.

### **CAPEX SUMMARY - \$US million**

#### **1. PROCESS UNITS:**

A. Condensate Distillation Unit (CDU)	75.6
B. Isomerisation (ISOM)	32.2
C. Naphtha Hydrotreater (NHT)	42
D. Continuous Catalytic Reformer (CCR)	85

E. Kerosene Treater Unit (KTU)	1.7
F. Diesel Hydrotreater (DHT)	37
G. Saturated Gas Plant (SGP)	11.5
H. LPG Treater Unit (LTU)	4.9
I. Amine Scrubbers and Regeneration	7.9
J. Sour Water Stripper	6.9
K. Caustic Neutralisation Unit (CNU)	4.2
L. Sulphur Recovery Unit (SRU)	8.9
M. Pressure Swing Absorption Unit (PSA)	2.8
N. Waste water Treatment	6.5
<b>Process Units – Total</b>	<b>327.1</b>

## 2. UTILITIES:

A. Electricals including Power Generation	19.9
B. Sea Water Intake sized for 3 Trains	19.5
C. Desalination Plant	17.8
D. MP Steam	12
E. LP Steam	8.5
F. Cooling Water System	3.2
<b>Utilities – Total</b>	<b>80.9</b>

### **3. FLARES & TANKAGE:**

A. Flares	3.7
B. Tankage	114.7
<b>Flare &amp; Tankage – Total</b>	<b>118.4</b>

### **4. IMPORT & EXPORT FACILITIES:**

A. SBM	32
B. On – Shore Pipelines	12
C. Pumping	1.5
D. LPG Terminal	18.5
<b>Import &amp; Export Facilities - Total</b>	<b>64.0</b>

### **5. LAND ACQUISITION, CIVIL WORKS & BUILDINGS:**

A. Land Acquisition	12.6
B Land Related Costs	1.3
C. Civil Works& Buildings	53.5
<b>Land Acquisition, Civil Works &amp; Buildings – Total</b>	<b>67.4</b>

<b>TOTAL CAPEX</b>	<b>657.8</b>
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**OPEX SUMMARY IN US\$ MILLION PER ANNUM**

<b>Personnel</b>	<b>3.2</b>
<b>Natural Gas</b>	<b>2.5</b>
<b>Catalysts &amp; chemicals</b>	<b>1.4</b>
<b>Maintenance</b>	<b>1.5</b>
<b>Insurance</b>	<b>2.1</b>
<b>Shipping costs</b>	<b>15</b>
<b>TOTAL OPEX</b>	<b>25.7</b>