NOTE

THE EXTENDED VERSION COMPRISES A DOWNLOADABLE PDF REPORT, INCLUDING:

* THE BASIC VERSION OF THE REPORT; AND

* THE EXTENDED ANALYSIS.

THE PRESENT SAMPLE PORTRAYS SPECIFICALLY THE EXTENDED ANALYSIS - IT DOES NOT INCLUDE THE WHOLE EXTENDED VERSION.

APPENDIX D - EXTENDED ANALYSIS

UTILITIES CONSUMPTION BREAKDOWN

Utilities Consumption Figures

Find below the key utilities consumption indicators of the technology examined in the report. These indicators reflect the utilities consumption rates per metric ton of Propylene produced.

Net Utilities Consumption

UTILITY	CONSUMPTION PER MT PRODUCT
Fuel	0.5 MMBtu
Circulating cooling water	75 m3
Steam (LP)	1 metric ton
Electricity	225 kWh

It should be noted that estimation of utility requirements in the conceptual design phase is usually reasonably accurate but tends to be somewhat understated compared to real operations. Losses from vessel vents, unscheduled equipment, inerting systems, physical property inaccuracies, startup, shutdown and other process operations not typically addressed in this phase may increase raw materials consumption.

Utilities Share in Total Operating Cost

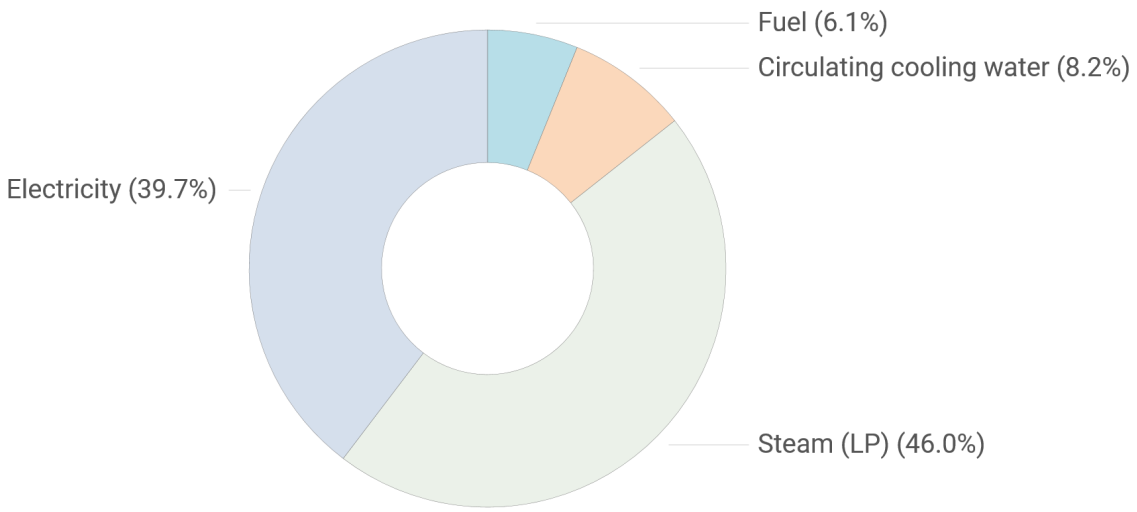
The table below summarizes utility costs share in total operating cost.

Operating Cost Summary

COMPONENT	%
Net utilities	2.9
Net raw material costs	91.6
Operating fixed costs	2.6
Operating cash costs	**97.2**
Depreciation	2.8
TOTAL OPERATING COST	100.0

The following chart indicates the utilities that impact the most on the economics of the process.

Utilities Costs Distribution



ECONOMIC ANALYSIS FOR DIFFERENT CAPACITIES

Introduction

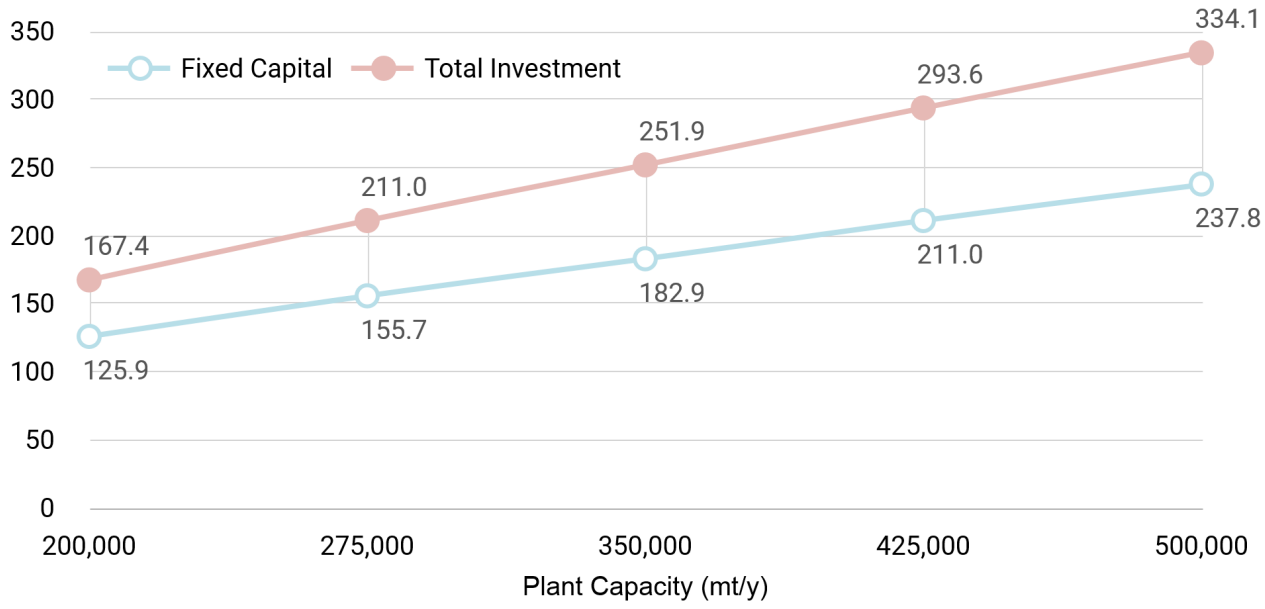
This analysis presents the impact of a plant capacity change on the economic analysis presented in this report. Additional capacity scenarios were analyzed using the same methodology and compared with the base case presented in the report.

The analysis is divided into two parts: (1) Capital Investment Comparison, approaching fixed investment, working capital and additional capital requirements; and (2) Operating Costs & Product Value Comparison.

Capital Investment Comparison

The economic analysis presented in this report was reproduced for a range of plant capacities, in such way that it could be estimated a curve representing how the capital investment varies with the plant nominal output. This curve is presented in the chart below.

Capital Investment (USD Million) Versus Plant Capacity



The following table presents further details about the capital cost figures estimated for the base case, as well as for two alternative capacity scenarios: (1) 200,000-mt/y; and (2) 500,000-mt/y.

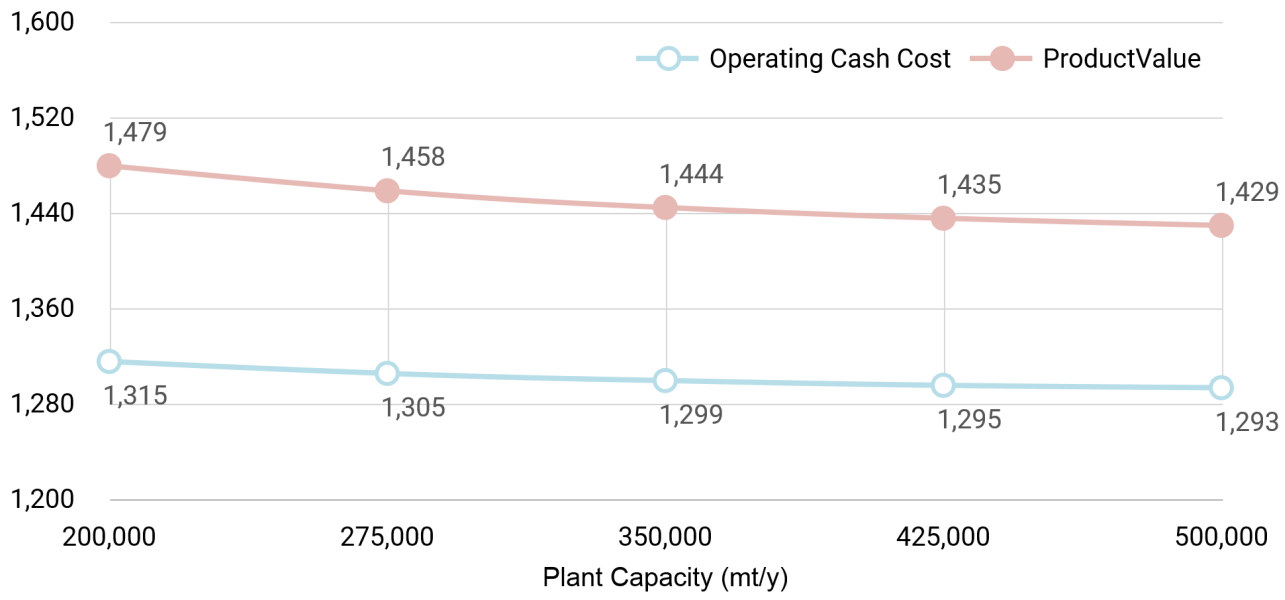
Capital Investment Analysis for Different Capacities

BASIS: UNITED STATES, Q2 2013 (IC INDEX:152.4)	SMALLER PLANT 200,000 mt/y	BASE 350,000 mt/y	LARGER PLANT 500,000 mt/y
CAPITAL COSTS (MM USD)			
Inside battery limits (ISBL)	26.4	41.0	55.9
Process contingency (5% of ISBL)	1.3	2.1	2.8
Outside battery limits (OSBL)	75.6	107.0	136.4
Total process capital (TPC)	103.3	150.1	195.1
Project contingency (15% of TPC)	15.5	22.5	29.3
PLANT COST	118.8	172.6	224.3
Owner's cost	7.1	10.4	13.5
FIXED CAPITAL	125.9	172.6	237.8
Working capital	29.7	51.0	72.2
Additional capital	11.7	18.0	24.1
TOTAL CAPITAL INVESTMENT	167.4	251.9	334.1

Operating Cost & Product Value Comparison

The operating costs and the product value were also estimated for a range of plant capacities, resulting in the chart below. A summary of the datasheet presented in the section "Process Economics Summary" is reproduced on the next page, also including the two additional scenarios evaluated in the previous section.

Operating Cost (USD/mt) Versus Plant Capacity



Operating Cost & Product Value Analysis for Different Capacities

BASIS: UNITED STATES, Q2 2013 (IC INDEX:152.4)	SMALLER PLANT 200,000 mt/y	BASE 350,000 mt/y	LARGER PLANT 500,000 mt/y
OPERATING BASIS			
Operating rate (h/y)	8,000	8,000	8,000
Annual production (mt/y)	182,648	319,600	456,621
OPERATING COSTS & PRODUCT VALUE (USD/MT)			
Ethylene	404	404	404
Raffinate-2	883	883	883
Gross raw materials cost	1,286	1,286	1,286
Fuel	-61	-61	-61
By-product credits	-61	-61	-61
Net raw materials cost	1,225	1,225	1,225
Net utilities cost	39	39	39
MANUFACTURING VARIABLE COSTS	1,264	1,264	1,264
Operating labor	12	7	5
Supervision	4	2	1
Maintenance cost	7	5	5
Operating charges	4	2	2
Plant overhead	11	7	6
Property taxes and insurance	14	11	10
MANUFACTURING FIXED COSTS	51	35	29
OPERATING CASH COST	1,315	1,299	1,293
Depreciation	45	38	35
TOTAL OPERATING COST	1,360	1,337	1,327
Corporate Overhead	55	52	50
ROCE	64	55	51
PRODUCT VALUE	1,479	1,444	1,429

(*) Excluding by-product credits

PROJECT IMPLEMENTATION & CONSTRUCTION SCHEDULE

The primary objective of this analysis is to present a preliminary project implementation schedule, encompassing the period from the decision to invest to the start of commercial production.

The schedule embraces the period from the decision to invest to the start of commercial production. It is divided in five major steps:

(1) Basic Engineering;

(2) Detailed Engineering;

(3) Procurement;

(4) Construction; and

(5) Start-up.

The duration of each project phase is detailed in the table below:

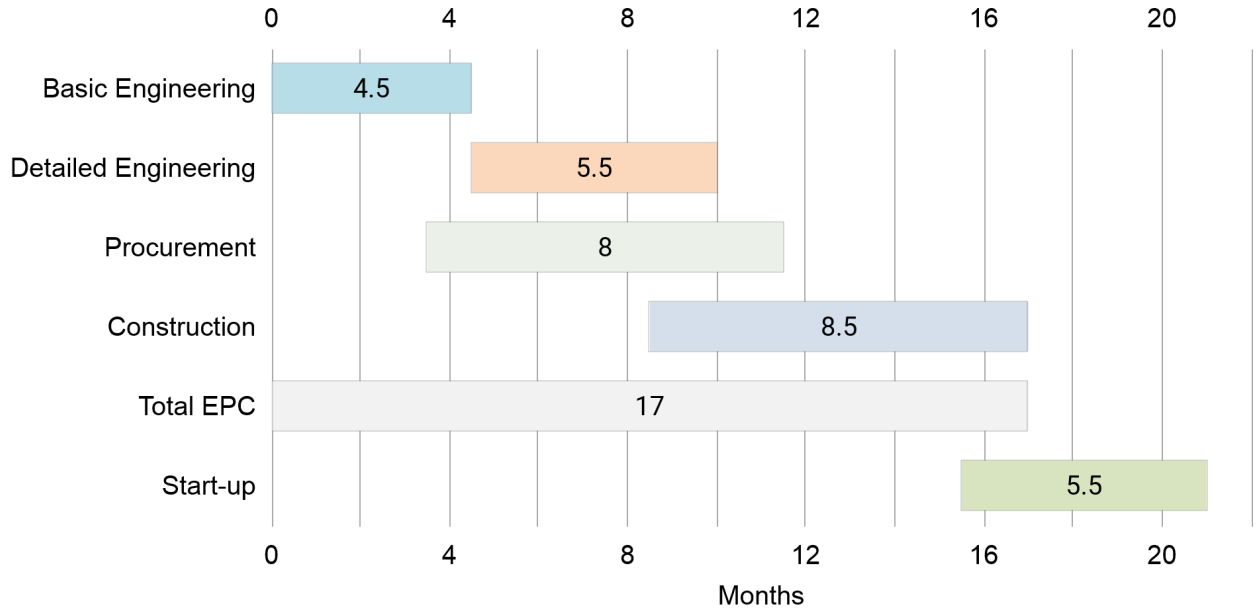
Project Phases

	PHASE START	DURATION
	MONTHS AFTER PROJECT START	MONTHS
Basic engineering	0	4.5
Detailed engineering	4.5	5.5
Procurement	3.5	8
Construction	8.5	8.5
Commissioning & start-up	15.5	5.5

Since the project phases overlap each other, the total project duration is not equal to the sum of each phase duration. The Engineering, Procurement & Construction (EPC) period - from the basic engineering start until the end of construction - is about **17 months**. The total project duration, also including commissioning and start-up, is approximately **21 months**.

The bar chart below illustrates the project implementation and construction schedule and helps to understand the overlaps among the distinct project phases.

Implementation & Construction Schedule Chart



MATERIALS & UTILITIES PRICING DATA

Analysis Pricing Basis

The economic analysis presented within this report is based on the prices presented in the table below.

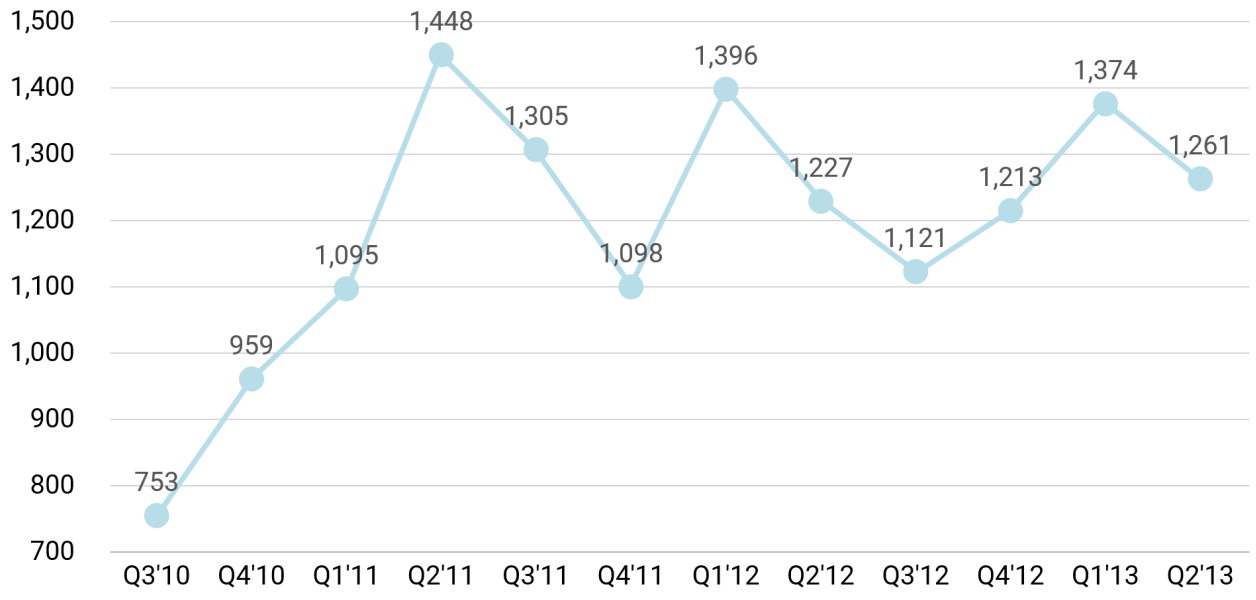
Materials & Utilities Prices (United States, Q2'13)

DESCRIPTION	UNIT	PRICE	REMARK
Raw Materials			
Ethylene	USD/mt	1,261	From Intratec database
Raffinate-2	USD/mt	910	From Intratec database
By-Products			
Fuel	USD/MMBtu	4.8	From Intratec database
Utilities			
Fuel	USD/MMBtu	4.8	From Intratec database
Circulating cooling water	USD/m3	0.04	From Intratec database
Steam (LP)	USD/mt	18.0	From Intratec database
Electricity	USD/kWh	0.07	From Intratec database

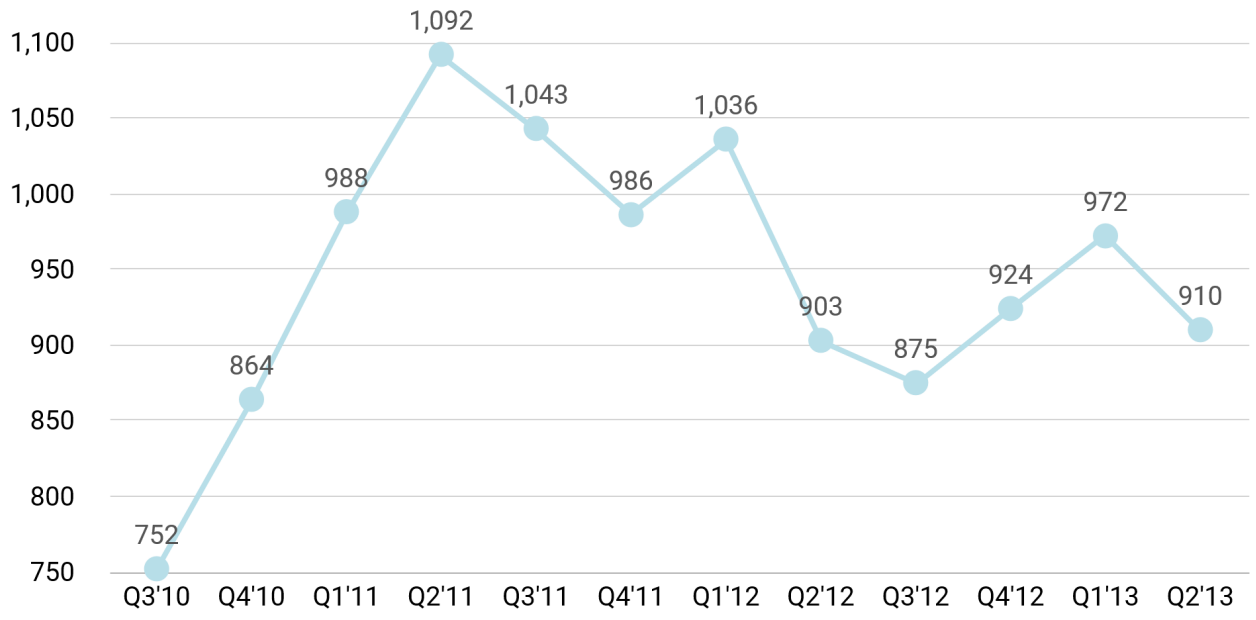
Historical Prices

The charts on the following pages depict how the price of some relevant materials have evolved during the last three years.

Ethylene Prices (USD/mt)



Raffinate-2 Prices (USD/mt)



Fuel Prices (USD/MMBtu)