

PETROLEUM PRICE OUTLOOK

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Prepared for
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TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. CURRENT OIL MARKET CONDITIONS	2
III. SHORT-TERM MARKET OUTLOOK	4
IV. LONG-TERM MARKET OUTLOOK	8
V. PETROLEUM PRODUCT PRICES	14

FOSTER ASSOCIATES, INC.
PETROLEUM PRICE OUTLOOK

I. INTRODUCTION

Foster Associates, Inc.¹ is pleased to submit this summer 2003 petroleum price forecast to Sempra Energy (Sempra). All petroleum product prices are measured in the Los Angeles Basin and represent wholesale prices. The prices are presented on a quarterly basis for the first three years, and annually thereafter to 2020. All are expressed in 2003 dollars.

As requested by Sempra, we have covered the following types of petroleum:

Crudes:	Refiners' Acquisition Cost (RAC) West Texas Intermediate (WTI) Kern River
Products:	No. 6 Fuel Oil 0.5%, 1.0% and 2.0% Sulfur No. 2 Fuel Oil Propane Butane

Because world crude oil markets are the primary factors affecting U.S. petroleum prices, we first discuss world crude prices on both a short-term and long-term basis. The report then turns to petroleum product prices in the Los Angeles Basin area. The Appendix to this report presents the petroleum price forecasts under three price scenarios : base, high, and low. As requested, a copy of the forecast is being provided in machine-readable format using Microsoft's EXCEL spreadsheet.

¹ This forecast was prepared by Dr. William G. Foster and Mr. Scott Miller.

II. CURRENT OIL MARKET CONDITIONS

With the ending of the war in Iraq, world crude oil prices have fallen over \$5 from February of this year. Currently, WTI is about \$28.75 per barrel, down from \$36 three months ago. The fall in oil prices is due to three factors: (1) the end of war in Iraq, eliminating the “war premium”; (2) OPEC’s increased production; and (3) the prospects of greater supplies from Iraq, Nigeria, and Venezuela.

While crude oil prices have fallen, they still remain high. The world crude market remains relatively tight. Iraq has not been able to return to pre-war production levels. OPEC continues to operate under the 24.5 MMBd target production that it set in April 2003. In addition, nations are attempting to rebuild depleted stocks that had fallen to very low levels due to the war and other supply disruption problems (e.g., Nigeria and Venezuela).

Table 1 shows OPEC’s crude oil capacity, production, targets, and over-production for April 2003 (the latest available data).

Table 1 OPEC'S CRUDE OIL PRODUCTION COMPARED WITH OUTPUT TARGETS (MMBd)				
	Sustainable Capacity	April 2003 Production	Output Target	Over-Production
Algeria	1.12	1.11	0.78	0.33
Indonesia	1.10	1.05	1.27	- 0.22
Iran	3.90	3.75	3.60	0.15
Kuwait	2.40	2.39	1.97	0.42
Libya	1.50	1.40	1.31	0.09
Nigeria	2.40	1.85	2.02	-0.17
Qatar	0.83	0.77	0.64	0.13
Saudi Arabia	10.50	9.70	7.96	1.74
U.A.E.	2.50	2.29	2.14	0.15
Venezuela	<u>2.75</u>	<u>2.70</u>	<u>2.82</u>	<u>-0.12</u>
Subtotal	29.00	27.01	24.51	2.50
Iraq	<u>NA</u>	<u>0.04</u>	<u>---</u>	<u>---</u>
Total	29.00	27.05	24.51	2.50

During the Iraq war, Saudi Arabia made up for much of the lost production in the Middle East. Venezuela is now fully back to pre-strike levels. However, it may be several weeks until Nigeria can fully restore its output. As for the restoration of Iraq's production, it may take longer than anticipated. Looting of the oil facilities has caused damage that will push back full Iraqi production for up to six months.

U.S. crude stocks remain at a very low level. During the first quarter 2003, the stock reached 269 million barrels, which was just above the record low level of March 1996. The level for the same period last year was 331.4 million barrels. (Distillate fuel stocks still remain low at 115.5 million barrels compared to 122.6 million barrels last year.) Imports have been increasing over the last few months, but they will have to remain extremely high for stocks to reach normal levels. This seems unlikely given the probability of OPEC production cuts, and the expected delays in the return of Iraq to full production.

III. SHORT-TERM MARKET OUTLOOK

In our last report we assumed that the “war premium” would last into the second quarter 2003. While this has pretty much disappeared because of the short duration of the conflict, world crude prices remain relatively high due to continuing political tension and crude oil supply problems (see above). The crude oil supply issues will likely be resolved by the end of the fourth quarter of this year with the return of Iraqi production.

The following table summarizes the world supply and demand situation over the next two years.

Table 2							
WORLD OIL MARKET SUMMARY (MMBd)							
	Actual				Projected		
	1999	2000	2001	2002	2003	2004	2005
<u>DEMAND</u>							
OECD	47.7	47.9	47.7	47.6	48.2	49.2	49.8
Non-OECD	<u>28.0</u>	<u>29.0</u>	<u>28.9</u>	<u>29.4</u>	<u>29.8</u>	<u>30.5</u>	<u>31.3</u>
TOTAL	75.7	76.9	76.6	77.0	78.0	79.7	81.1
<u>SUPPLY</u>							
Non-OPEC	44.9	45.8	46.7	48.0	49.2	49.9	50.4
OPEC	29.4	30.8	30.1	28.5	28.8	29.8	30.7
Crude	26.6	27.9	27.1	25.5	25.8	26.8	27.7
NGLs	<u>2.8</u>	<u>2.8</u>	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>
TOTAL	74.3	76.6	76.8	76.5	78.0	79.7	81.1
Stock Change	(1.4)	(0.3)	0.2	(0.5)	--	--	--

World oil demand only increased by 0.4 MMBd between 2001 and 2002. Because of sluggish world economies, world political tensions, and the fear of the SARS virus, world travel and economic intercourse have decreased. Therefore, world petroleum demand will only grow an additional 1.0 MMBd in 2003. Demand growth is expected to be 1.7 MMBd and 1.4 MMBd in 2004 and 2005, respectively.

Demand for OPEC oil fell 1.6 MMBd between 2001 and 2002. It is expected to rise by only 0.3 MMBd between 2002 and 2003; 1.0 MMBd between 2003 and 2004; and 0.9 MMBd between 2004 and 2005. It will not be until 2005 that demand for OPEC

oil will reach its 2000 peak. Non-OPEC production will rise from 45.8 MMBd in 2000 to 50.4 MMBd in 2005.

The world oil market stabilized more quickly after the U.S. military action against Iraq, than when Iraq invaded Kuwait in August 1990. In both situations world crude prices flew up to about \$40 per barrel. In 1990, however, high prices remained for about four months, and it took another four months for markets to stabilize. In the current situation, OPEC was able to respond with higher production to offset the loss of Iraqi oil. Furthermore, world demand is low due to economic conditions.

One of the major issues over the short term is the level of OPEC crude production. World oil demand has yet to recover, and the Iraqi production is expected to return to the market. Both factors will contribute to an oversupply. Iraq is likely to build up production over time. If Iraq's production reaches 1 MMBd by summer's end, and the full 2.5 MMBd by year's end, it will put significant downward pressure on oil prices. Even if economic recovery occurs in the second half of 2003, the increase in world demand for this year is expected to be only 0.3 MMBd. An offsetting factor, however, will be the need to rebuild depleted crude oil and petroleum stocks that have been drawn down to dangerously low levels.

OPEC meets June 11 to discuss their output levels, as well as any allocation of output production. Algeria and Nigeria will request higher production shares to reflect their rising production capabilities. These countries, plus Venezuela, are likely to argue against any production cuts.

Since world oil prices are within the OPEC's target level range of \$22 to \$28 per barrel, we do not believe that a significant reduction in production is likely. This is supported by the fact that Iraq appears to be delayed in getting full production back online.

Table 3 shows the quarterly crude oil price forecast for our base case. The average WTI price was \$26.09 per barrel in 2002, about the same as 2001. This is expected to be \$28.89 per barrel in 2003, and \$24.38 per barrel in 2004, expressed in 2003 dollars. The base price reflects the disappearance of the threat of war. This scenario assumes that: (1) Iraq's production is restored by the end of 2003; (2) OPEC reduces production targets only slightly; and (3) the world economy fully recovers in the second half of 2003. Under the base case prices fall to a level more reflective of market fundamentals by 2004, within OPEC's target price range of \$22 to \$28 per barrel (basket price).

High and low price cases have been developed around this base case. Prices could be significantly lower if: (1) the economic recession lasts beyond 2003; (2) OPEC and non-OPEC countries raise production levels; (3) the political situation settles down in the Middle East; and (4) Iraq quickly recovers production. They would then follow our low price forecast of about 50 percent below the base price trend for the remainder of 2003, or about \$13.58 per barrel (WTI); and about 40 percent below the base price trend in 2004, or about \$14.63 per barrel.

The high price trend would result if the following scenario occurs: (1) Iraq cannot restore production in a timely manner; (2) there is political turmoil in either Venezuela or Nigeria that significantly affects exports; and, (3) oil demand increases due to early economic recovery. Under these conditions, world crude price would be 20 percent higher than the base case for the remainder of 2003, or \$32.60 per barrel; and 30 percent higher than the base case in 2004, or about \$31.69 per barrel.

Table 3		
CRUDE OIL PRICE FORECAST		
2003-2005		
(2003 Dollars per Barrel)		
	RAC	WTI
1997 Average*	19.11	20.34
1998 Average*	12.58	14.18
1999* Quarter 1	11.10	13.14
Quarter 2	15.65	17.64
Quarter 3	19.73	21.74
Quarter 4	<u>23.18</u>	<u>24.28</u>
1999 Average	17.41	19.20
2000* Quarter 1	27.11	27.78
Quarter 2	26.85	27.98
Quarter 3	29.61	30.94
Quarter 4	<u>29.27</u>	<u>31.20</u>
2000 Average	28.21	29.47
2001* Quarter 1	25.20	28.77
Quarter 2	24.70	27.86
Quarter 3	24.01	26.64
Quarter 4	<u>17.93</u>	<u>20.31</u>
2001 Average	22.96	25.89
2002* Quarter 1	19.31	21.56
Quarter 2	24.32	26.27
Quarter 3	26.33	28.32
Quarter 4	<u>26.06</u>	<u>28.20</u>
2002 Average	24.01	26.09
2003 Quarter 1	32.57	34.06
Quarter 2	25.70	28.27
Quarter 3	24.98	27.48
Quarter 4	<u>23.40</u>	<u>25.74</u>
2003 Average	26.66	28.89
2004 Quarter 1	23.40	25.74
Quarter 2	22.50	24.75
Quarter 3	21.15	23.27
Quarter 4	<u>21.60</u>	<u>23.76</u>
2004 Average	22.16	24.38
2005 Quarter 1	21.60	23.76
Quarter 2	20.70	22.77
Quarter 3	20.25	22.28
Quarter 4	<u>21.60</u>	<u>23.76</u>
2005 Average	21.04	23.14

* Actual

IV. LONG-TERM MARKET OUTLOOK

Table 4 summarizes the long-term world oil supply and demand forecast.

Table 4 WORLD PETROLEUM SUPPLY/DEMAND BALANCE (MMBd)						
Year	Demand			Supply a/		
	OECD	Non-OECD	Total	OPEC	Non-OPEC	Total
2002	47.6	29.4	77.0	28.5	48.0	76.5 b/
2005	49.8	31.3	81.1	30.7	50.4	81.1
2010	53.6	36.4	90.0	38.8	51.2	90.0
2015	57.5	41.9	99.4	45.6	53.8	99.4
2020	61.5	47.7	109.2	52.6	56.6	109.2

a/ Includes crude oil and NGLs.

b/ Includes stock change.

World oil demand is expected to grow by an average of 2.0 percent per year over the long term. However, the market growth will not be equal across all nations.¹ Oil is expected to lose market share to other energy sources, particularly to natural gas which is used to generate power in many of the industrialized and developing nations. Demand in the OECD countries will expand at only 1.5 percent per year because of their mature economies and increasing environmental considerations. In the industrialized countries, oil demand growth stems primarily from petrochemical production and increased transportation use. In other markets, growing demand for oil also comes from power generation, heating, and manufacturing. Nevertheless, these

1 The petroleum demand forecast is dependent upon several underlying economic assumptions for the U.S. and world (2002-2020) as listed below:

	<u>U.S.</u>	<u>World</u>
GDP Growth	2.5%	2.9%
Population Growth	0.8%	0.9%
Inflation	2.3%	NA
Productivity Growth	0.9%	NA
Weather	Normal	Normal
Technology	continuing growth @ a moderate level	
Environmental	Moderate tightening of environmental regulations	
Prolonged military or political unrest	None	None

nations will continue to represent the majority of the world's petroleum demand throughout the forecast period.

Petroleum demand growth will be higher (averaging 2.7 percent per year) in the developing nations, although variations are expected among these nations' energy consumption and growth patterns. Within the developing nations, China, India, and Brazil are expected to show some of the sharpest growth in oil demand. Most of the growth will come from the transportation sector.

Currently, OPEC produces about 37 percent of the world oil supply. By 2020, OPEC's market share will be about 48 percent (see Table 4). This dominance stems from: (1) OPEC's current excess producing capacity; (2) the huge crude reserves within OPEC which constitute about 78 percent of the world's total; and (3) OPEC's low cost of producing oil compared with non-OPEC countries.

OPEC's petroleum production during 2002, including natural gas liquids (NGLs), averaged about 28.5 MMBd. This level was below OPEC's estimated sustainable capacity of 35 MMBd (including NGLs and Iraq's production). As world petroleum demand increases, OPEC's excess capacity will dissipate. Around 2007, new production capacity will be necessary in order to fulfill demand. OPEC members have programs in place to expand production by 8 to 10 MMBd. The Organization will need to add a total of 18 MMBd of production capacity by 2020 in order to meet projected world requirements. This new capacity will depend upon OPEC's ability and willingness to expand production. Relevant factors which will affect OPEC's expansion are: available reserves, costs of development versus market prices, available capital, and technology. OPEC members hold a large percentage of the world petroleum. This includes 78 percent of the proven reserves and 60 percent of the total oil resource base (known reserves and undiscovered estimates). In addition, Persian Gulf production costs are less than one half the costs of production elsewhere. Over the long term, the increase in OPEC production will meet about 74 percent of world demand growth.

A significant portion of the increase in production capacity is expected to be in Iraq. Iraq has the ability to increase its production capacity to 6 MMBd. It will need substantial outside investment in order to reach this level. When the political situation within the country is stabilized, Iraq is likely to get this help. There is some question as to whether Iraq will remain a part of OPEC. In the first place, Iraq has not effectively participated in OPEC since the U.N. embargo was put in place. In addition, the U.S. appears to be putting pressure on Iraq to quit the organization.

In recent years, non-OPEC oil production has risen sharply. It has played an important role in curtailing OPEC's market power by eroding OPEC's market share and helping to moderate prices.

By 2020, non-OPEC oil production is expected to reach 56.6 MMBd, up 8.6 MMBd from 2002. We expect oil production in some non-OPEC areas to decline while other areas will grow. For example, U.S. production (including NGLs and other liquids) is expected to continue to decline in spite of some increases offered by deep offshore Gulf of Mexico production. In 2002, the U.S. produced 8.1 MMBd, compared with 10.0 MMBd in 1990.¹ By the end of the forecast period, production will be 7.5 to 8.0 MMBd. Production increases in Canada (particularly from oil sands resources) and Mexico should offset a portion of the decline in U.S. production. While resource development in the Caspian Basin will be delayed, nevertheless, production is expected to be about 3 MMBd by about 2005. Increases in deepwater resource production also offer substantial opportunities. Some of these deepwater projects outside the U.S. are in the North Sea, West Africa, the South China Sea, and the Caspian Basin.

The North Sea production is expected to reach 7 MMBd by 2007, and then gradually decline. Within five years, Brazil and Colombia are expected to become significant oil producers, with each reaching or exceeding 1 MMBd in production. Oil production in the FSU is currently over 8.0 MMBd. This level has increased over the

¹ U.S. crude oil production has fallen off sharply from 7.36 MMBd in 1990 to 5.82 MMBd in 2002. This decline was offset by increases in NGLs and other oil production, e.g., blended gasoline.

past year in response to the improved investment environment in Russia. Optimism remains high regarding long-term prospects from this area. The FSU's output is expected to be about 11 MMBd by 2010, and over 14 MMBd by 2020.

Our WTI crude oil price forecast shows \$28.89 per barrel in 2003. From 2003 until about 2005, WTI crude prices are expected to decline to \$23.14 per barrel before commencing to grow. By 2020, the WTI price will reach \$26.49 per barrel (expressed in 2003 dollars). The principal causes of the higher prices during this period will be continuing world demand growth, and renewed dominance by OPEC. These factors will result in the inability of non-OPEC production to keep pace with demand growth.

Table 5 presents Foster Associates' crude oil (WTI) forecast, expressed in real 2003 dollars for base, low, and high cases. Since the uncertainty of oil price trends increases over time, Foster Associates' price variations between the low and high cases also increase over time. Our goal in developing this range is to maintain an 80 percent probability that the actual prices will fall within the range.

Table 5				
CRUDE OIL PRICE FORECAST (WTI)				
2001-2020				
(2003 Dollars per Barrel)				
		Low	Base	High
<u>Actual</u>	1997	–	\$20.34	–
	1998	–	14.18	–
	1999	–	19.20	–
	2000	–	29.47	–
	2001	–	25.89	–
	2002	–	26.09	–
<u>Projected</u>	2005	\$13.88	\$23.14	\$30.08
	2010	14.41	24.02	31.23
	2015	15.15	25.25	32.82
	2020	15.89	26.49	34.43

The several factors that contribute to a low price forecast and those that contribute to a high price forecast are listed below, in order of importance.

Table 6	
FACTORS AFFECTING OIL PRICES	
Factors Contributing To Low Oil Price Trend	Factors Contributing To High Oil Price Trend
Lower world oil demand (caused either by economic or environmental factors)	OPEC's continuing dominance and/or ability to form new alliances
Acceleration in non-OPEC production growth/ OPEC loses alliances	Technical advances are significantly slowed
Technological advances are accelerated	Increased oil demand
No political unrest, no risk premium	Continuing political unrest with a large risk premium

Table 7 compares our crude oil price forecast to forecasts made by others for 2010 and 2020.

Table 7		
COMPARATIVE CRUDE OIL PRICE FORECASTS (2002 Dollars per Barrel)		
Forecaster	2010	2020
Foster Associates (RAC)	\$22.39	\$24.68
DOE (EIA)	23.62	24.28
EEA (RAC)	20.16	19.20
EIA (Imports)	21.14	25.17
GII (RAC)	21.75	24.70

* All prices converted to \$2002.

Sources: U.S. Dept. of Energy - Annual Energy Outlook - 2003
 EEA - Compass Service Base Case, October 2002
 EIA - World Energy Outlook 2002, September 2002
 GII (formerly DRI/WEFA) - Global Insight, Oil Market Outlook: Long-Term Focus Spring-Summer 2002

Propane and butane prices, as forecasted in this report, are influenced by natural gas prices as well as crude prices. Foster Associates' long-term price forecast for West Texas/Permian Basin natural gas production is as follows:

Table 8	
Annual Average Natural Gas Price West Texas/Permian Basin	
Year	\$/MMBtu*
2000**	\$3.77
2001**	4.20
2002**	3.01
2003	5.27
2004	4.08
2005	3.75
2010	3.35
2020	3.90

* 2003 dollars

** Actual

V. PETROLEUM PRODUCT PRICES

Prices for six specific petroleum products are projected in this report: distillate fuel oil (DFO), residual fuel oil (RFO) (.5, 1.0 and 2.0 percent sulfur), propane and butane. Although petroleum product prices will continue to be dominated by feedstock costs, changes are expected in other determining factors. For example, as facilities achieve compliance with environmental health and safety regulations refinery costs are expected to increase. These costs will add as much as 3 cents per gallon to the price of lighter petroleum products.

According to the Dept. of Energy, California consumed about 452 MBd of DFO in 2001, with local refineries supplying the vast majority of this product. Over the past 5 years, DFO demand has grown in California by about 3.4 percent per year. This pace is greater than the U.S. as a whole, which grew at 2.7 percent. Much of this growth has been in diesel fuel in the transportation sector. However, a portion of the growth has been a result of high natural gas prices which resulted in a substitution of fuel oil in the industrial and power generation sectors. The transportation sector consumes 81 percent of the total distillate in the state. Over the long term, DFO demand in California is expected to increase by about 2.5 percent per year, stemming primarily from the growth in the transportation sector. California's long-term growth in DFO demand will be greater than the rate expected for the U.S. as a whole (1.8 percent). We expect a small increase in the refinery margin for DFO over the long term.

Demand for RFO in California has fallen significantly and currently stands at 161 MBd, compared to 189 million barrels 5 years ago. Similar to DFO, RFO is also supplied to California by local refineries. The large majority of RFO consumed in California is used as bunker fuel in the transportation sector. RFO demand is not expected to grow over time. The increases in the transportation sector will be offset by declines in other sectors.

Propane is primarily consumed in the industrial and residential sectors, while butane is primarily used as refinery input. Both propane and butane are produced from gas processing (field) plants and in refineries. About 17 percent of propane comes from field production and 83 percent from refineries. About 43 percent of butane comes from field production and 57 percent from refineries. Thus, the wholesale price of these products will primarily depend upon natural gas and crude oil feedstock prices, as discussed earlier in this report.

Schedules 1 to 3 of the Appendix present the petroleum price forecasts in 2003 dollars per barrel, quarterly through 2005 and annually to 2020. Schedule 1 summarizes the crude prices and the petroleum product prices under the base case forecast scenario. The high price scenario is shown on Schedule 2, and the low price scenario is shown on Schedule 3.

APPENDIX

OIL AND PRODUCTS PRICE FORECAST (2003-2020) - BASE CASE
(2003 Dollars Per Barrel)

Schedule 1

Year / Quarter	RAC	WTI	Kern River	No. 6 Fuel Oil a/			No. 2 Fuel Oil a/	Propane a/	Butane a/
				0.5%S	1.0%S	2.0%S			
1995 (Actual)	\$17.23	\$18.31	\$13.58	\$16.49	\$15.46		\$22.87	\$17.46	\$10.99
1996 (Actual)	20.69	22.10	15.52	18.18	17.08		30.61	19.56	14.09
1997 (Actual)	19.11	20.34	14.68	17.50	16.17		28.47	18.48	15.93
1998 (Actual)	12.58	14.18	8.39	11.74	10.83		20.35	14.11	10.90
1999 (Actual)	17.41	19.20	13.33	14.64	14.32	17.68 b/	26.44	16.57	13.88
2000 (Actual)	28.21	29.47	24.04	23.37	22.55	22.27	41.05	27.04	22.01
2001 - Q1 (Actual)	25.20	28.77	19.93	27.43	22.45	21.90	37.29	40.93	30.57
2001 - Q2 (Actual)	24.70	27.86	21.47	23.30	18.30	17.35	37.29	26.10	24.30
2001 - Q3 (Actual)	24.01	26.64	19.49	23.25	18.25	17.33	35.36	20.14	15.82
2001 - Q4 (Actual)	17.93	20.31	13.39	23.25	18.25	17.25	26.76	19.29	14.42
Annual Average	22.96	25.89	18.57	24.31	19.31	18.46	34.17	26.61	21.28
2002 - Q1 (Actual)	19.31	21.56	15.25	23.25	18.25	17.33	26.89	16.22	12.77
2002 - Q2 (Actual)	24.32	26.27	21.87	24.14	22.23	21.21	30.29	14.79	12.25
2002 - Q3 (Actual)	26.33	28.32	24.68	24.97	23.98	23.21	33.68	16.40	13.08
2002 - Q4 (Actual)	26.06	28.20	22.43	26.88	26.25	25.25	33.89	24.82	21.55
Annual Average	24.01	26.09	21.06	24.81	22.68	21.75	31.19	18.06	14.91
2003 - Q1 (Actual)	32.57	34.06	28.83	31.52	29.40	26.76	40.85	30.61	26.77
2003 - Q2	25.70	28.27	20.30	23.39	21.33	21.59	34.44	26.40	20.68
2003 - Q3	24.98	27.48	20.48	22.73	20.98	19.98	35.47	26.78	21.54
2003 - Q4	23.40	25.74	18.49	23.17	21.53	18.49	35.10	29.30	24.38
Annual Average	26.66	28.89	22.02	25.20	23.31	21.70	36.46	28.27	23.34
2004 - Q1	23.40	25.74	18.02	22.46	20.12	19.66	33.23	28.81	22.55
2004 - Q2	22.50	24.75	17.78	20.48	18.68	18.90	30.15	22.51	17.02
2004 - Q3	21.15	23.27	17.34	19.25	17.77	16.92	30.03	21.02	16.36
2004 - Q4	21.60	23.76	17.06	21.38	19.87	17.06	32.40	26.38	21.80
Annual Average	22.16	24.38	17.55	20.89	19.11	18.14	31.45	24.68	19.43
2005 - Q1	21.60	23.76	16.63	20.74	18.58	18.14	30.67	26.45	20.36
2005 - Q2	20.70	22.77	16.35	18.84	17.18	17.39	27.74	21.09	15.51
2005 - Q3	20.25	22.28	16.61	18.43	17.01	16.20	28.76	20.13	15.48
2005 - Q4	21.60	23.76	17.06	21.38	19.87	17.06	32.40	25.76	21.35
Annual Average	21.04	23.14	16.66	19.85	18.16	17.20	29.89	23.36	18.18
2006	21.20	23.32	16.80	19.98	18.29	17.33	30.10	23.16	18.08
2007	21.36	23.50	16.93	20.13	18.42	17.46	30.33	22.97	17.98
2008	21.52	23.67	17.05	20.28	18.56	17.59	30.56	22.77	17.89
2009	21.68	23.85	17.18	20.43	18.70	17.72	30.79	22.58	17.79
2010	21.84	24.02	17.31	20.58	18.84	17.85	31.01	22.38	17.69
2011	22.06	24.27	17.48	20.79	19.03	19.84	31.33	22.63	17.93
2012	22.28	24.51	17.66	21.00	19.22	20.04	31.64	22.87	18.16
2013	22.51	24.76	17.84	21.22	19.41	20.24	31.96	23.11	18.40
2014	22.73	25.00	18.01	21.42	19.60	20.44	32.28	23.36	18.63
2015	22.95	25.25	18.19	21.63	19.79	20.64	32.59	23.60	18.87
2016	23.18	25.50	18.37	21.85	19.99	20.84	32.92	23.81	19.08
2017	23.40	25.74	18.54	22.05	20.18	21.04	33.23	24.03	19.29
2018	23.63	25.99	18.73	22.27	20.38	21.25	33.55	24.24	19.51
2019	23.85	26.24	18.90	22.48	20.57	21.45	33.87	24.45	19.72
2020	24.08	26.49	19.08	22.70	20.77	21.65	34.19	24.67	19.94

a/ Los Angeles Basin (wholesale prices).

b/ Prices start in June, 1999 when index was first reported.

Source: Foster Associates, Inc.

OIL AND PRODUCTS PRICE FORECAST (2003-2020) - HIGH CASE
(2003 Dollars Per Barrel)

Schedule 2

Year / Quarter	RAC	WTI	Kern River	No. 6 Fuel Oil a/			No. 2 Fuel Oil a/ Propane a/ Butane a/		
				0.5%S	1.0%S	2.0%S			
1995 (Actual)	\$17.23	\$18.31	\$13.58	\$16.49	\$15.46		\$22.87	\$17.46	\$10.99
1996 (Actual)	20.69	22.10	15.52	18.18	17.08		30.61	19.56	14.09
1997 (Actual)	19.11	20.34	14.68	17.50	16.17		28.47	18.48	15.93
1998 (Actual)	12.58	14.18	8.39	11.74	10.83		20.35	14.11	10.90
1999 (Actual)	17.41	19.20	13.33	14.64	14.32	17.68 b/	26.44	16.57	13.88
2000 (Actual)	28.21	29.47	24.04	23.37	22.55	22.27	41.05	27.04	22.01
2001 - Q1 (Actual)	25.20	28.77	19.93	27.43	22.45	21.90	37.29	40.93	30.57
2001 - Q2 (Actual)	24.70	27.86	21.47	23.30	18.30	17.35	37.29	26.10	24.30
2001 - Q3 (Actual)	24.01	26.64	19.49	23.25	18.25	17.33	35.36	20.14	15.82
2001 - Q4 (Actual)	17.93	20.31	13.39	23.25	18.25	17.25	26.76	19.29	14.42
Annual Average	22.96	25.89	18.57	24.31	19.31	18.46	34.17	26.61	21.28
2002 - Q1 (Actual)	19.31	21.56	15.25	23.25	18.25	17.33	26.89	16.22	12.77
2002 - Q2 (Actual)	24.32	26.27	21.87	24.14	22.23	21.21	30.29	14.79	12.25
2002 - Q3 (Actual)	26.33	28.32	24.68	24.97	23.98	23.21	33.68	16.40	13.08
2002 - Q4 (Actual)	26.06	28.20	22.43	26.88	26.25	25.25	33.89	24.82	21.55
Annual Average	24.01	26.09	21.06	24.81	22.68	21.75	31.19	18.06	14.91
2003 - Q1 (Actual)	32.57	34.06	28.83	31.52	29.40	26.76	40.85	30.61	26.77
2003 - Q2	30.84	33.92	24.36	28.06	25.60	25.91	41.33	33.06	27.55
2003 - Q3	29.98	32.97	24.58	27.28	25.18	23.98	42.57	33.81	28.62
2003 - Q4	28.08	30.89	22.18	27.80	25.83	22.18	42.12	35.63	30.83
Annual Average	30.37	32.96	24.99	28.67	26.50	24.71	41.71	33.28	28.44
2004 - Q1	30.42	33.46	23.42	29.20	26.16	25.55	43.20	36.79	30.81
2004 - Q2	29.25	32.18	23.11	26.62	24.28	24.57	39.20	29.82	24.70
2004 - Q3	27.50	30.24	22.55	25.02	23.10	22.00	39.04	28.08	23.72
2004 - Q4	28.08	30.89	22.18	27.80	25.83	22.18	42.12	33.65	29.36
Annual Average	28.81	31.69	22.82	27.16	24.84	23.58	40.89	32.09	27.15
2005 - Q1	28.08	30.89	21.62	26.96	24.15	23.59	39.87	33.49	27.76
2005 - Q2	26.91	29.60	21.26	24.49	22.34	22.60	36.06	27.83	22.59
2005 - Q3	26.33	28.96	21.59	23.96	22.11	21.06	37.38	26.84	22.49
2005 - Q4	28.08	30.89	22.18	27.80	25.83	22.18	42.12	32.79	28.74
Annual Average	27.35	30.08	21.66	25.80	23.61	22.36	38.86	30.24	25.40
2006	27.56	30.32	21.84	25.98	23.77	22.53	39.14	29.97	25.26
2007	27.77	30.54	22.01	26.17	23.95	22.70	39.43	29.69	25.13
2008	27.98	30.77	22.17	26.37	24.13	22.87	39.73	29.42	24.99
2009	28.18	31.00	22.34	26.56	24.31	23.04	40.02	29.15	24.85
2010	28.39	31.23	22.50	26.76	24.49	23.21	40.32	28.88	24.72
2011	28.68	31.55	22.73	27.03	24.73	25.79	40.72	29.22	25.04
2012	28.96	31.86	22.95	27.30	24.98	26.05	41.13	29.56	25.37
2013	29.26	32.19	23.19	27.58	25.24	26.31	41.55	29.90	25.71
2014	29.55	32.50	23.42	27.85	25.49	26.57	41.96	30.24	26.03
2015	29.84	32.82	23.64	28.12	25.73	26.83	42.37	30.58	26.36
2016	30.13	33.15	23.88	28.40	25.99	27.10	42.79	30.88	26.66
2017	30.42	33.46	24.11	28.67	26.24	27.36	43.20	31.18	26.96
2018	30.72	33.79	24.34	28.95	26.50	27.62	43.62	31.48	27.26
2019	31.01	34.11	24.57	29.22	26.74	27.88	44.03	31.77	27.56
2020	31.30	34.43	24.81	29.50	27.00	28.15	44.45	27.86	27.86

a/ Los Angeles Basin (wholesale prices).

b/ Prices start in June, 1999 when index was first reported.

Source: Foster Associates, Inc.

OIL AND PRODUCTS PRICE FORECAST (2003-2020) - LOW CASE
(2003 Dollars Per Barrel)

Schedule 3

Year / Quarter	RAC	WTI	Kern River	No. 6 Fuel Oil a/			No. 2 Fuel Oil a/	Propane a/	Butane a/
				0.5%S	1.0%S	2.0%S			
1995 (Actual)	\$17.23	\$18.31	\$13.58	\$16.49	\$15.46		\$22.87	\$17.46	\$10.99
1996 (Actual)	20.69	22.10	15.52	18.18	17.08		30.61	19.56	14.09
1997 (Actual)	19.11	20.34	14.68	17.50	16.17		28.47	18.48	15.93
1998 (Actual)	12.58	14.18	8.39	11.74	10.83		20.35	14.11	10.90
1999 (Actual)	17.41	19.20	13.33	14.64	14.32	17.68 b/	26.44	16.57	13.88
2000 (Actual)	28.21	29.47	24.04	23.37	22.55	22.27	41.05	27.04	22.01
2001 - Q1 (Actual)	25.20	28.77	19.93	27.43	22.45	21.90	37.29	40.93	30.57
2001 - Q2 (Actual)	24.70	27.86	21.47	23.30	18.30	17.35	37.29	26.10	24.30
2001 - Q3 (Actual)	24.01	26.64	19.49	23.25	18.25	17.33	35.36	20.14	15.82
2001 - Q4 (Actual)	17.93	20.31	13.39	23.25	18.25	17.25	26.76	19.29	14.42
Annual Average	22.96	25.89	18.57	24.31	19.31	18.46	34.17	26.61	21.28
2002 - Q1 (Actual)	19.31	21.56	15.25	23.25	18.25	17.33	26.89	16.22	12.77
2002 - Q2 (Actual)	24.32	26.27	21.87	24.14	22.23	21.21	30.29	14.79	12.25
2002 - Q3 (Actual)	26.33	28.32	24.68	24.97	23.98	23.21	33.68	16.40	13.08
2002 - Q4 (Actual)	26.06	28.20	22.43	26.88	26.25	25.25	33.89	24.82	21.55
Annual Average	24.01	26.09	21.06	24.81	22.68	21.75	31.19	18.06	14.91
2003 - Q1 (Actual)	32.57	34.06	28.83	31.52	29.40	26.76	40.85	30.61	26.77
2003 - Q2	12.85	14.14	10.15	11.69	10.67	10.79	17.22	15.31	9.24
2003 - Q3	12.49	13.74	10.24	11.37	10.49	9.99	17.74	15.07	9.75
2003 - Q4	11.70	12.87	9.24	11.58	10.76	9.24	17.55	18.74	13.64
Annual Average	17.40	18.70	14.62	16.54	15.33	14.20	23.34	19.93	14.85
2004 - Q1	14.04	15.44	10.81	13.48	12.07	11.79	19.94	20.82	14.28
2004 - Q2	13.50	14.85	10.67	12.29	11.21	11.34	18.09	15.19	9.33
2004 - Q3	12.69	13.96	10.41	11.55	10.66	10.15	18.02	13.95	9.00
2004 - Q4	12.96	14.26	10.24	12.83	11.92	10.24	19.44	19.10	14.23
Annual Average	13.30	14.63	10.53	12.54	11.47	10.88	18.87	17.27	11.71
2005 - Q1	12.96	14.26	9.98	12.44	11.15	10.89	18.40	19.41	12.97
2005 - Q2	12.42	13.66	9.81	11.30	10.31	10.43	16.64	14.34	8.42
2005 - Q3	12.15	13.37	9.96	11.06	10.21	9.72	17.25	13.42	8.47
2005 - Q4	12.96	14.26	10.24	12.83	11.92	10.24	19.44	18.73	13.97
Annual Average	12.62	13.88	10.00	11.91	10.90	10.32	17.93	16.47	10.96
2006	12.72	13.99	10.08	11.99	10.97	10.40	18.06	16.36	10.90
2007	12.82	14.10	10.16	12.08	11.05	10.48	18.20	16.24	10.84
2008	12.91	14.20	10.23	12.17	11.14	10.56	18.34	16.12	10.78
2009	13.01	14.31	10.31	12.26	11.22	10.63	18.47	16.01	10.73
2010	13.10	14.41	10.38	12.35	11.30	10.71	18.61	15.89	10.67
2011	13.24	14.56	10.49	12.47	11.42	11.90	18.80	16.04	10.81
2012	13.37	14.70	10.59	12.60	11.53	12.02	18.98	16.18	10.95
2013	13.51	14.86	10.70	12.73	11.65	12.15	19.18	16.33	11.09
2014	13.64	15.00	10.81	12.85	11.76	12.26	19.37	16.47	11.23
2015	13.77	15.15	10.91	12.98	11.88	12.38	19.55	16.62	11.37
2016	13.91	15.30	11.02	13.11	12.00	12.51	19.75	16.75	11.50
2017	14.04	15.44	11.13	13.23	12.11	12.63	19.94	16.88	11.63
2018	14.18	15.60	11.24	13.36	12.23	12.75	20.13	17.00	11.76
2019	14.31	15.74	11.34	13.49	12.34	12.87	20.32	17.13	11.89
2020	14.45	15.89	11.45	13.62	12.46	12.99	20.52	17.26	12.02

a/ Los Angeles Basin (wholesale prices).

b/ Prices start in June, 1999 when index was first reported.

Source: Foster Associates, Inc.