ALASKA LEGISLATURE
HOUSE and SENATE FINANCE COMMITTEE FILES, 1999 - 2000

1895

3/23/99

Cambridge Energy

...

SFIN

FILE

House and Senate Finance Committees

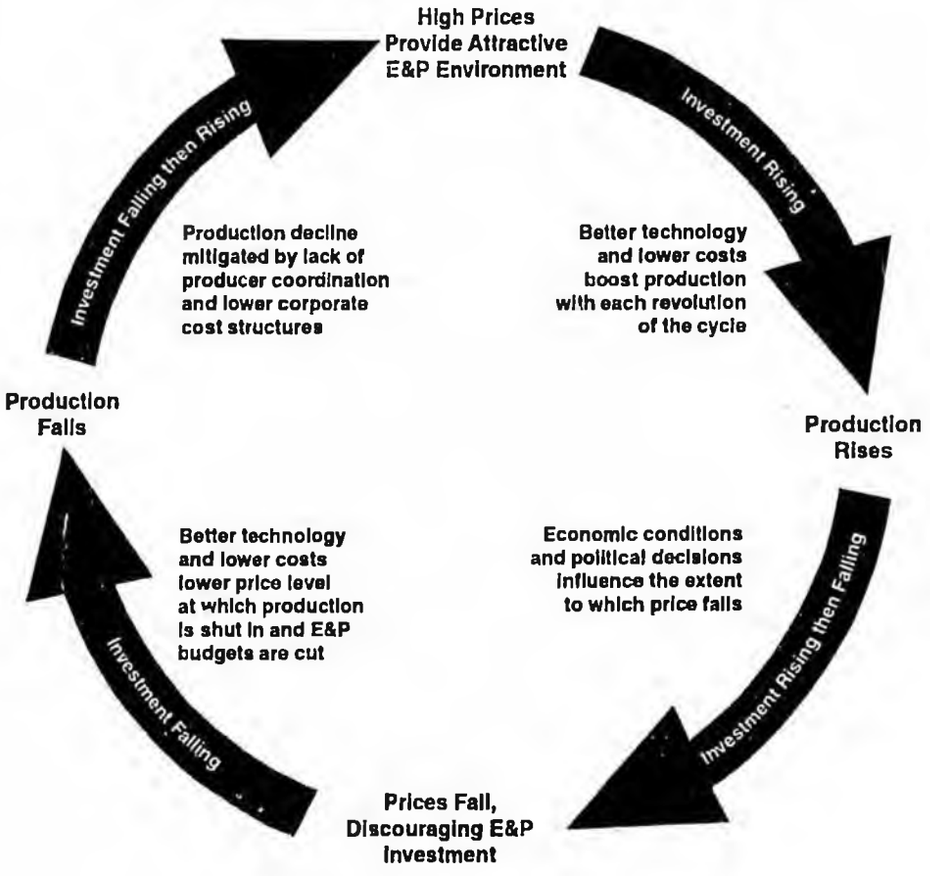
March 23, 1999

Juneau, Alaska

Cambridge Energy Research Associates, Inc.

Introduction: The New Challenges

The Oil Price and Production Cycle



The role of technology:
Reduce cycle times by lowering the price at which investment occurs

Source: Cambridge Energy Research Associates.
A1124-H9

Tomorrow's World—The Challenges

The beginning of the end: Energy market restructuring

Growth

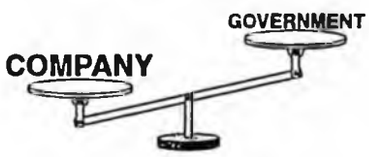
Environment

Security of Supply

Human rights

Local community responsibility

The stakeholders

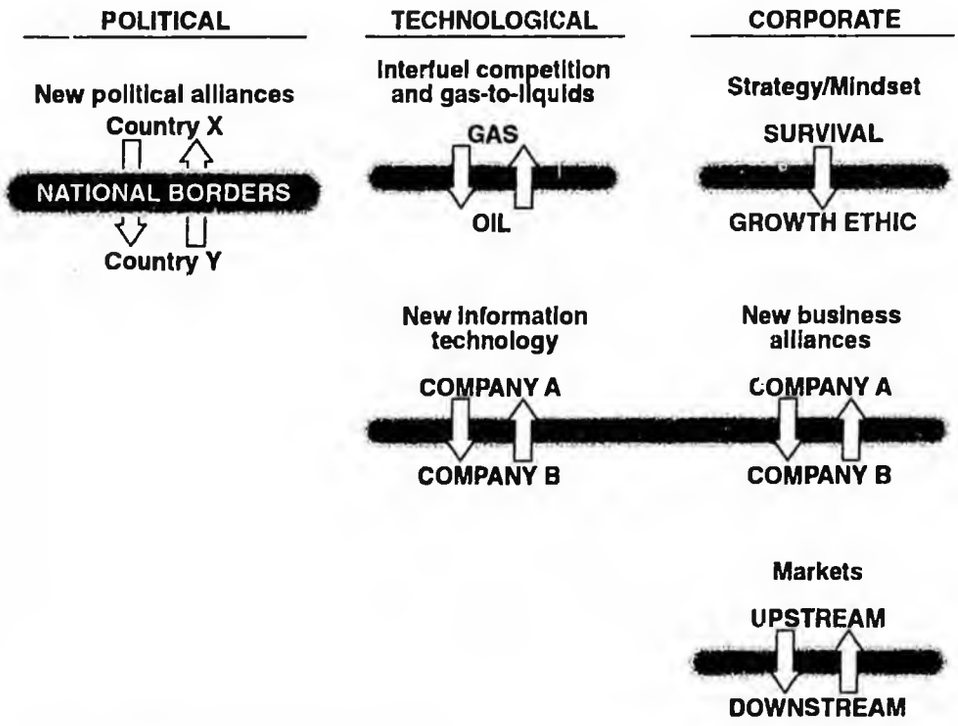


Company role versus government role

Source: Cambridge Energy Research Associates.

80321-H10

The Blurring of the Boundaries

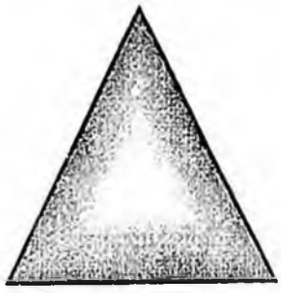


Source: Cambridge Energy Research Associates.

71003-3

The Triangle of Global Energy Supply and Demand Determination

Technology
Sets the supply and demand trend line



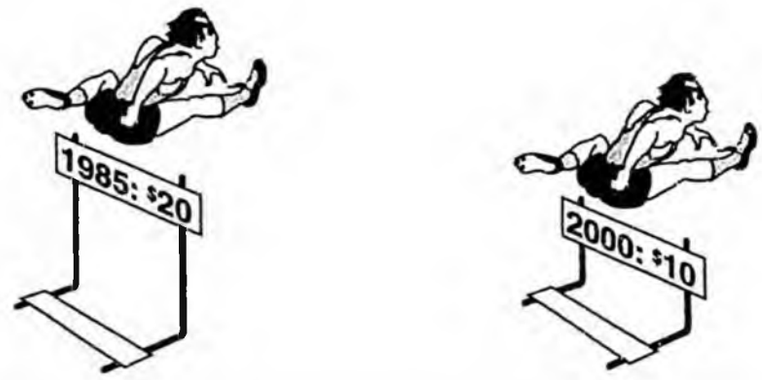
Economics
Limits or exaggerates price impact of external influences on supply and demand

Politics
Sets the tone of supply and demand availability through political decisions

Source: Cambridge Energy Research Associates.
81124-H1

Demand: The Risk and the Hope

The Falling Btu Barrier*



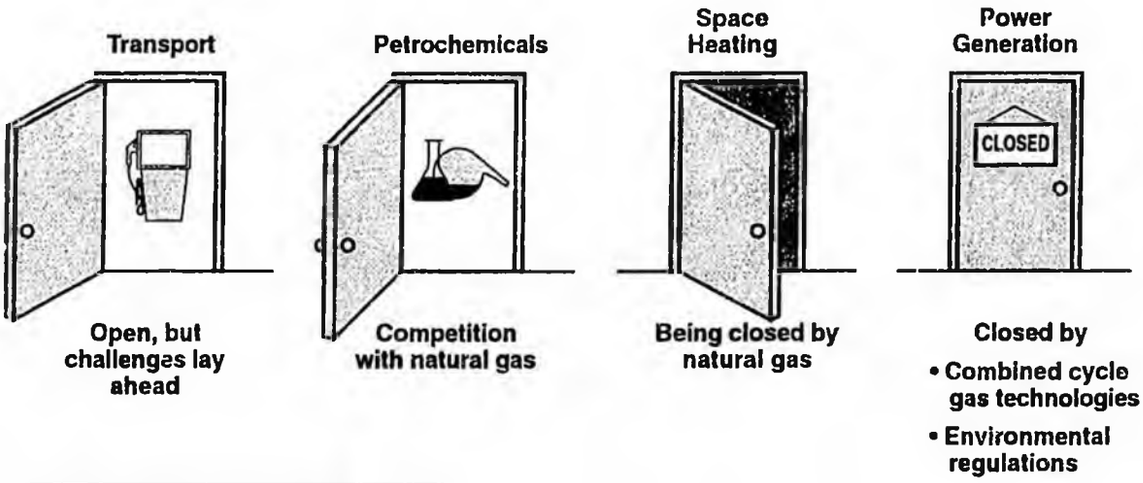
Technology has lowered the cost of all fuels, not just oil.

Source: Cambridge Energy Research Associates.

* Btu barrier: the oil price below which oil gains market share because alternatives become too expensive.

90320-3

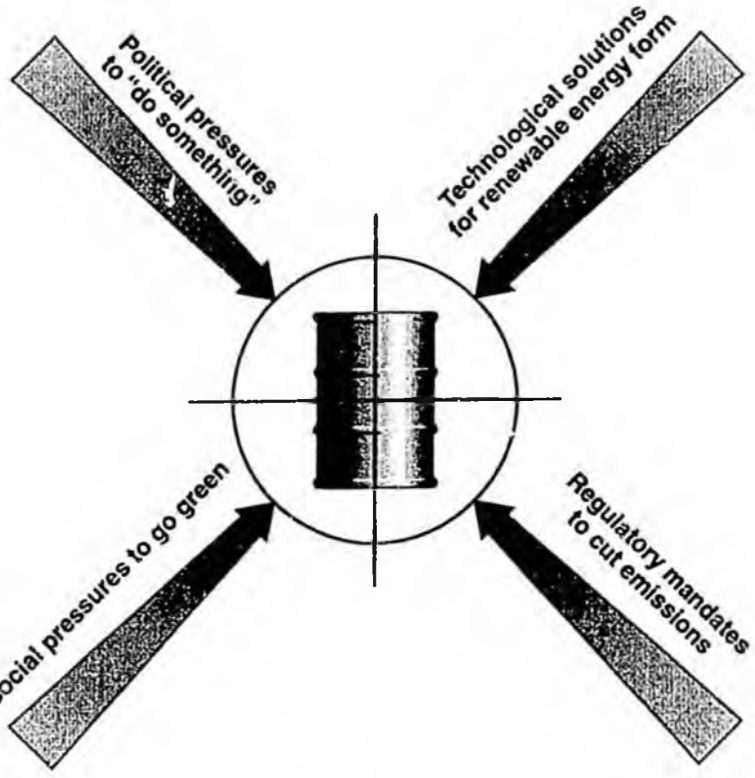
Choices for Oil Demand: The Field Narrows



Source: Cambridge Energy Research Associates.

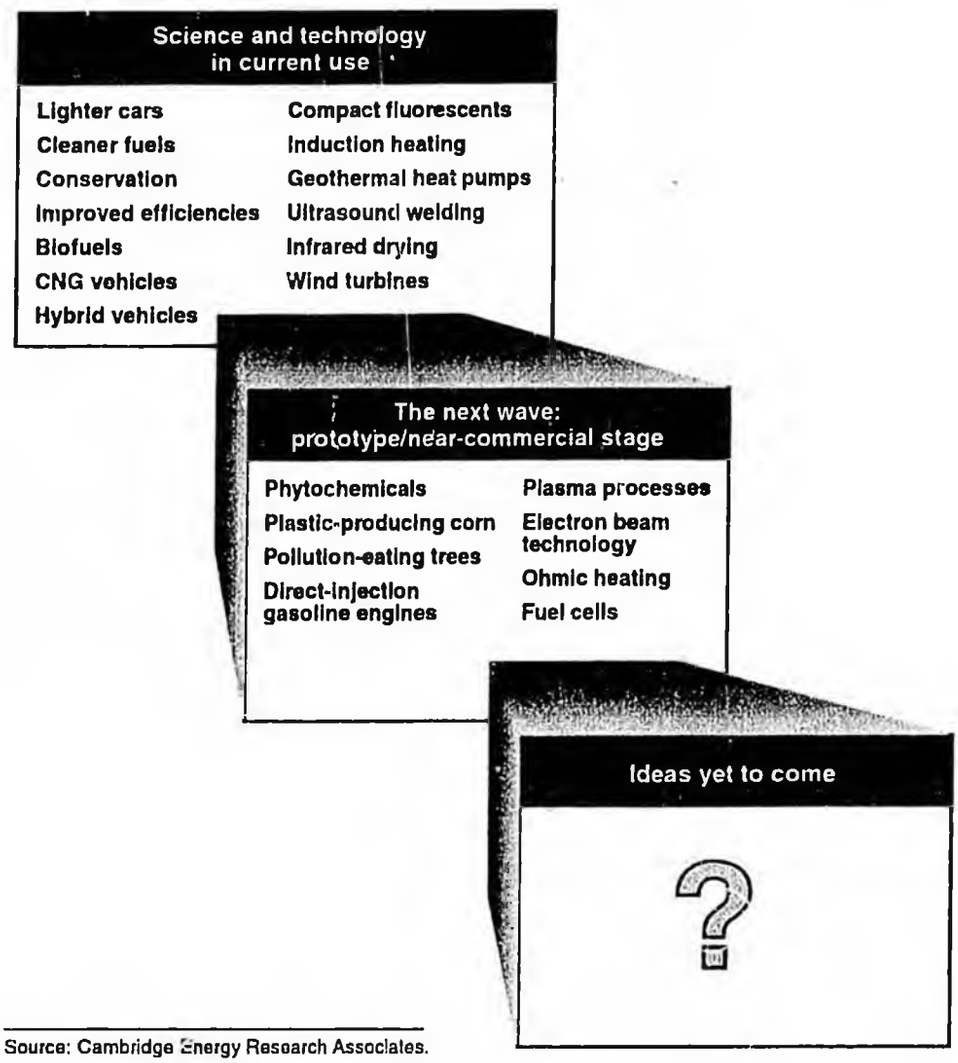
90320-4

Ground Zero:
The Challenges to Oil Demand at $0 per barrel



Source: Cambridge Energy Research Associates.
90320-5

Science and Technology:
Putting the Brakes on Hydrocarbon-based Fuel Demand



Source: Cambridge Energy Research Associates.

80422-8

Table 1

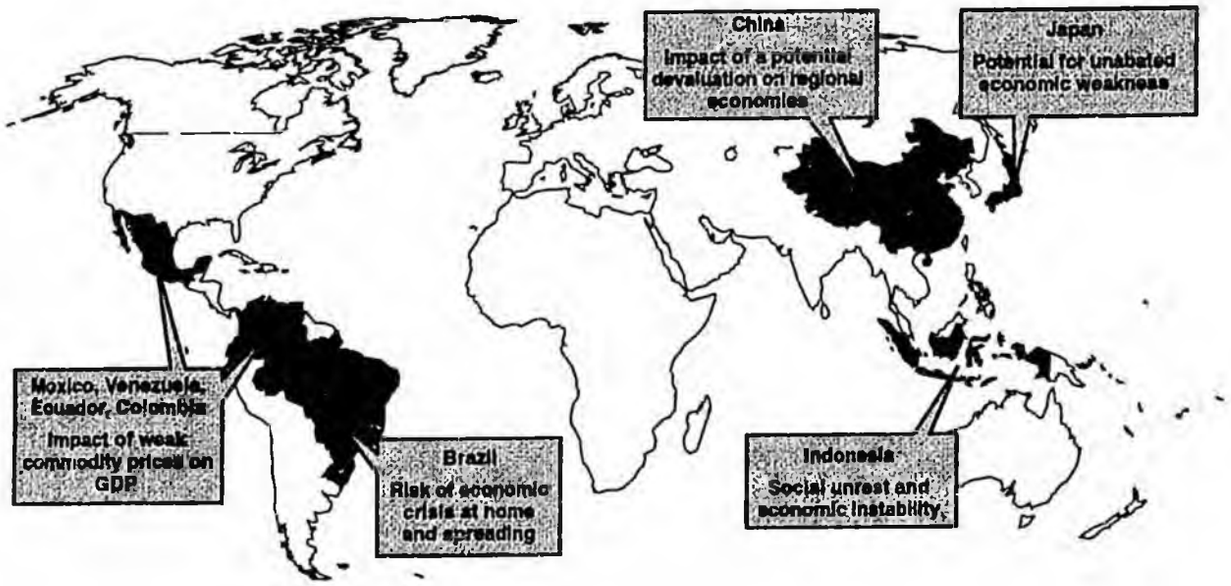
February 1999: Disappearing Demand Growth—
The Effect of the Economic Crisis on CERA's Asian Oil Demand Outlooks

Loss in Oil Demand Growth Between Precrisis and Current Demand Growth Projections
(million barrels per day)

	1997	1998	1999	2000
OECD Asia Pacific	(0.06)	(0.34)	(0.47)	(0.52)
Non-OECD Asia Pacific	0.01	(0.99)	(1.55)	(1.80)
China	0.18	0.05	(0.07)	(0.21)
Total Asia Pacific	**0.13**	**(1.28)**	**(2.09)**	**(2.52)**

Source: Cambridge Energy Research Associates.
Note: Non-OECD Asia Pacific excludes China.

Demand Side Risks in 1999

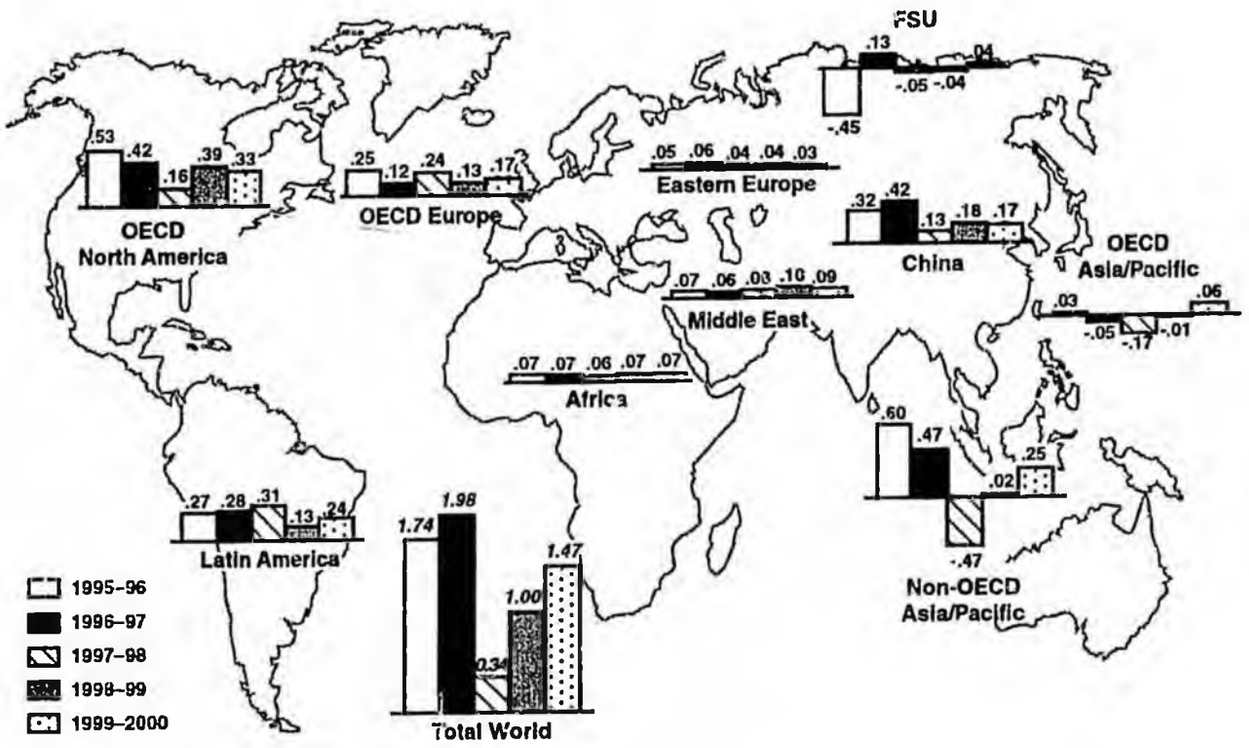


Source: Cambridge Energy Research Associates.

90320-2

Changes in Oil Demand by Region

(million barrels per day)

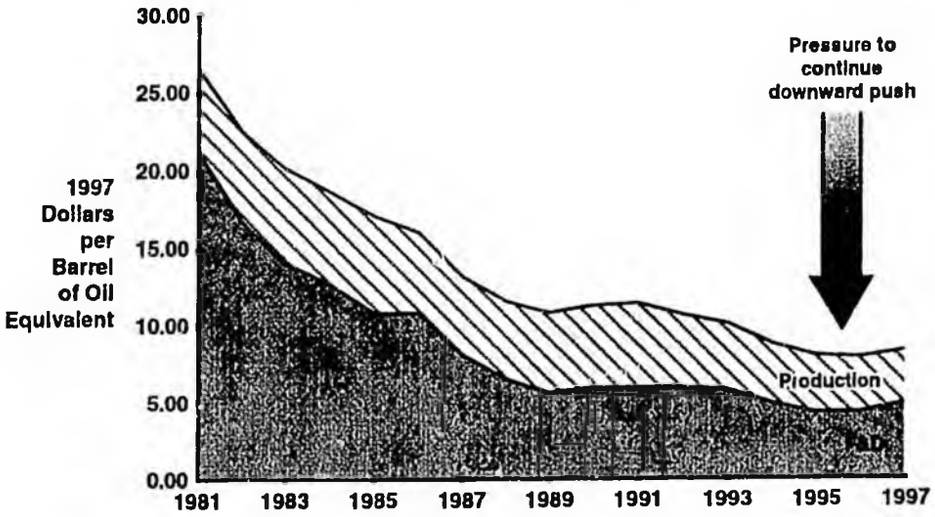


Source: Cambridge Energy Research Associates.

90323-21
0316

Supply: The Price Impact

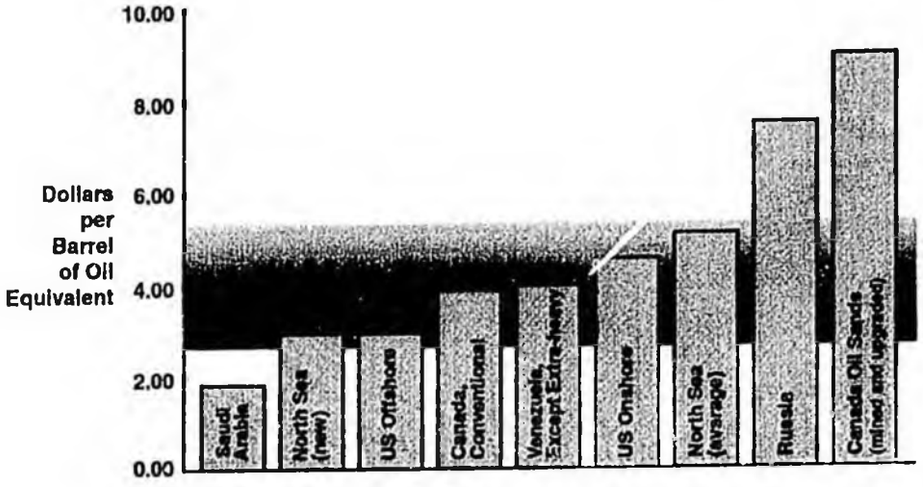
Worldwide Full-cycle Upstream Costs



Sources: Cambridge Energy Research Associates, DOE.

80323-H5

Estimated Operating Costs Around the World



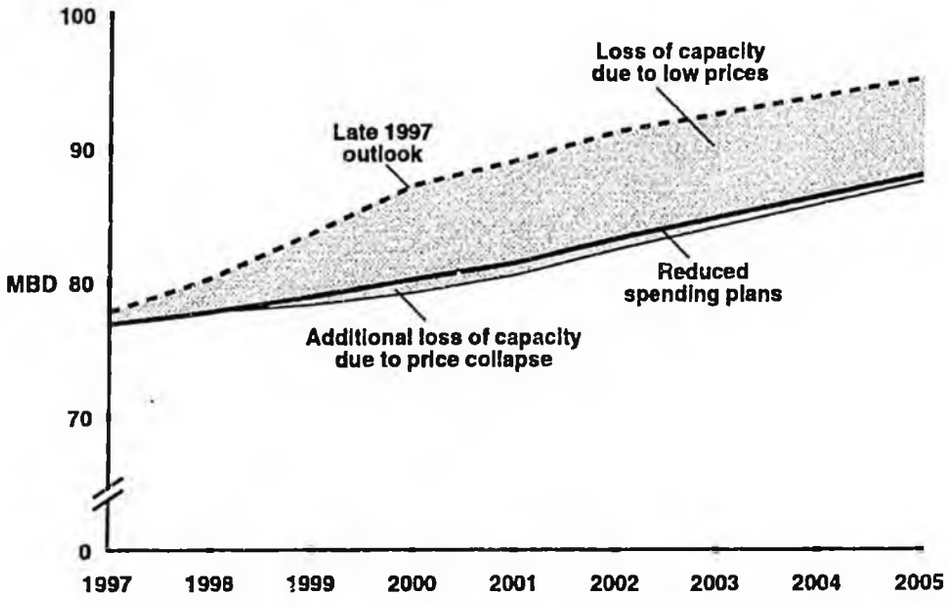
Source: Cambridge Energy Research Associates.

Note: Includes soverence taxes, where applicable, ranging from $0.30 per barrel in Canada to $2.00 per barrel in Venezuela.

80128-H1
1206

World Liquid Productive Capacity Outlooks

(million barrels per day)

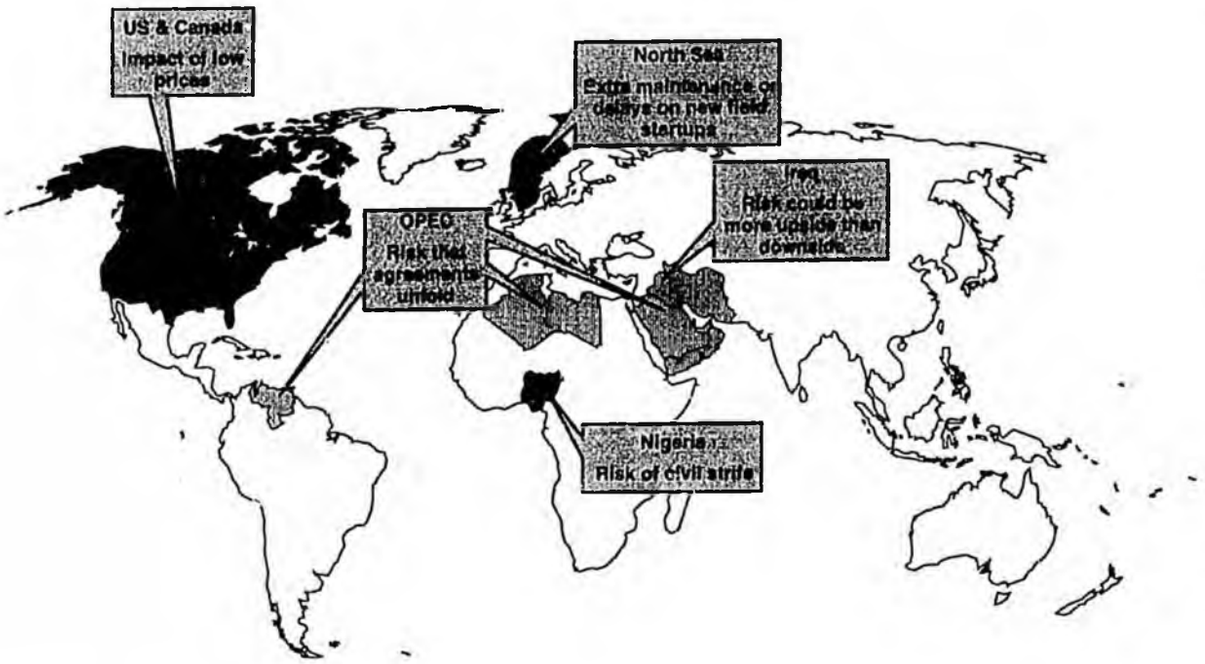


	1997	1998	1999	2000	2001	2002	2005
Late 1997 supply outlook	77.8	80.3	83.6	87.2	89.0	91.2	95.1
Reduced spending plans (1999-2000)	76.9	77.8	78.9	80.2	81.4	83.2	87.9
Change with lower spending	–0.9	–2.5	–4.7	–7.0	–7.6	–8.0	–7.2
MEMO: Demand outlook	73.8	74.1	75.1	76.6	77.9	79.5	84.3
Implied surplus	3.1	3.7	3.8	3.6	3.5	3.7	3.6

Source: Cambridge Energy Research Associates.
Updated March 1999

80332-58

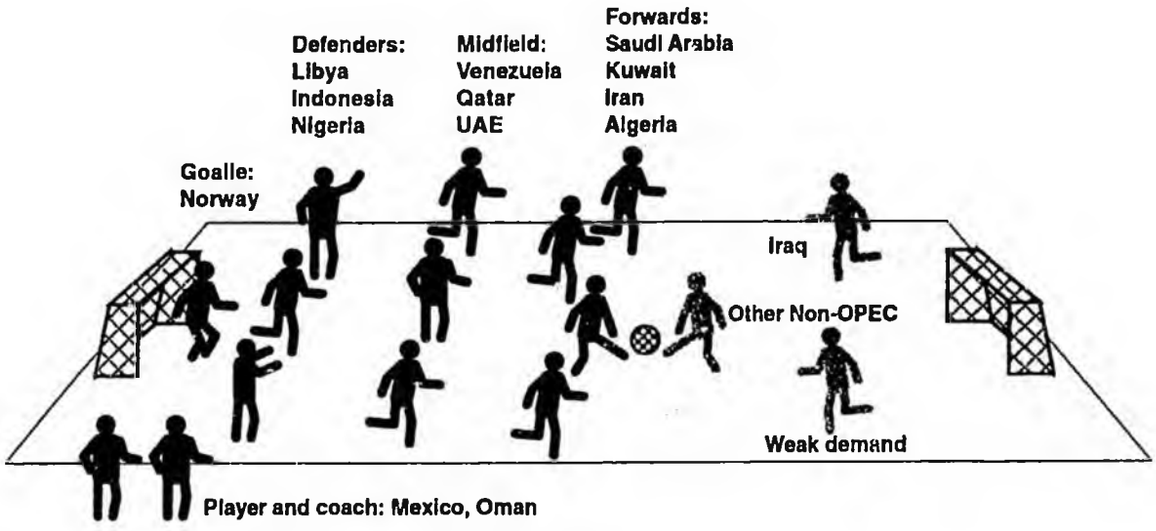
Supply Side Risks in 1999



Source: Cambridge Energy Research Associates.
00320-1

OPEC: The New Playing Field

Oil Market Regulation: The Playing Field



Posturing for the production restraint maneuver

Source: Cambridge Energy Research Associates.

90320-7

The Regulators Hold Back—For How Long?

Source: Cambridge Energy Research Associates.
80511-3

Iraq's Oil Production and Export Capability

(estimates in million barrels per day)

Capacity	Current	Facilities Recovery Time			
		Volume	Months	Volume	Months
Production	2.3*	3.0	18	3.5	36
Export Outlets:					
Turkey (Ceyhan)	1.1	1.6	6	1.6	—
Gulf: Mina al-Bakr	1.0	1.6	12	1.6	—
Khor al-Amaya	0.0	0.8	18	0.3	—
Truck and Barge	0.2	0.2	—	0.2	—
Total Exports	2.3	4.2	—	4.2	—

Source: Cambridge Energy Research Associates.

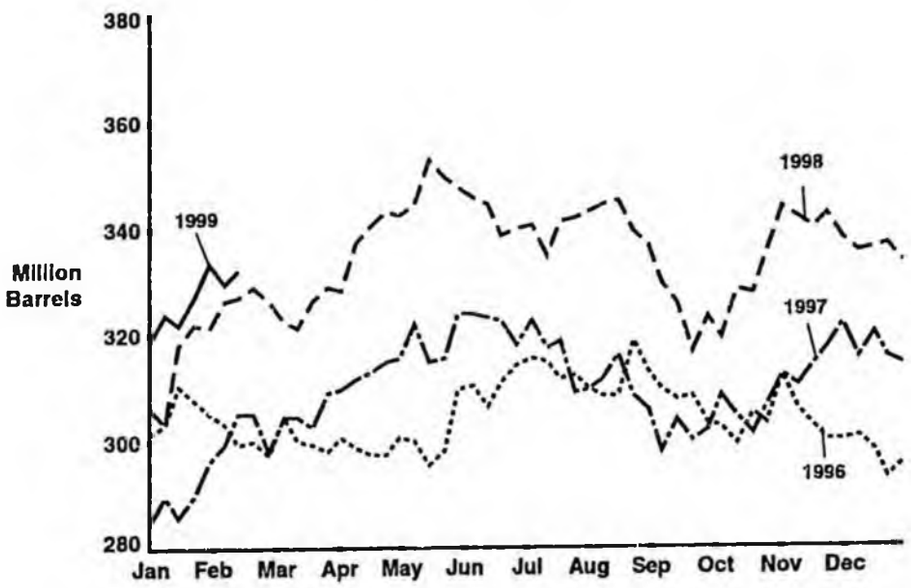
*Capacity is based upon application of good oil field practice. Since the fourth qaurter 1998, Iraq has violated good oil field practice to produce at monthly rates reaching 2.5 mbd.

Notes: These are estimates of maximum capacity and not of utilization rates.
The estimate of export potential assumes that the IPSA II pipeline across Saudi Arabia and the IPC line across Syria remained unavailable to Iraq.
The estimates of time needed to expand production and export capacity as shown assume that when work begins it proceeds without disruption.

Revised March 1999

Inventories: After the Peak

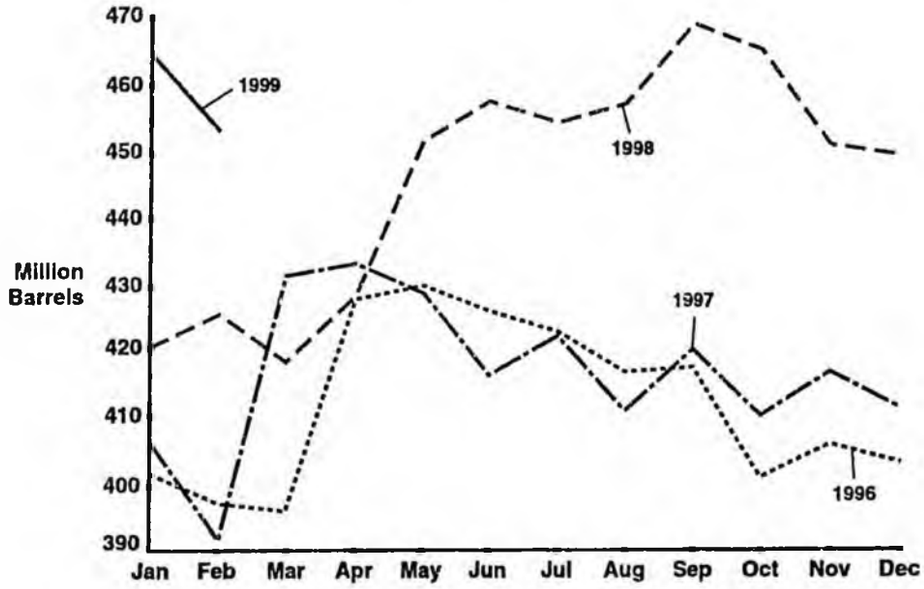
Total US Crude Stocks



Source: American Petroleum Institute.

90203-8
0318

European Crude Oil Stocks

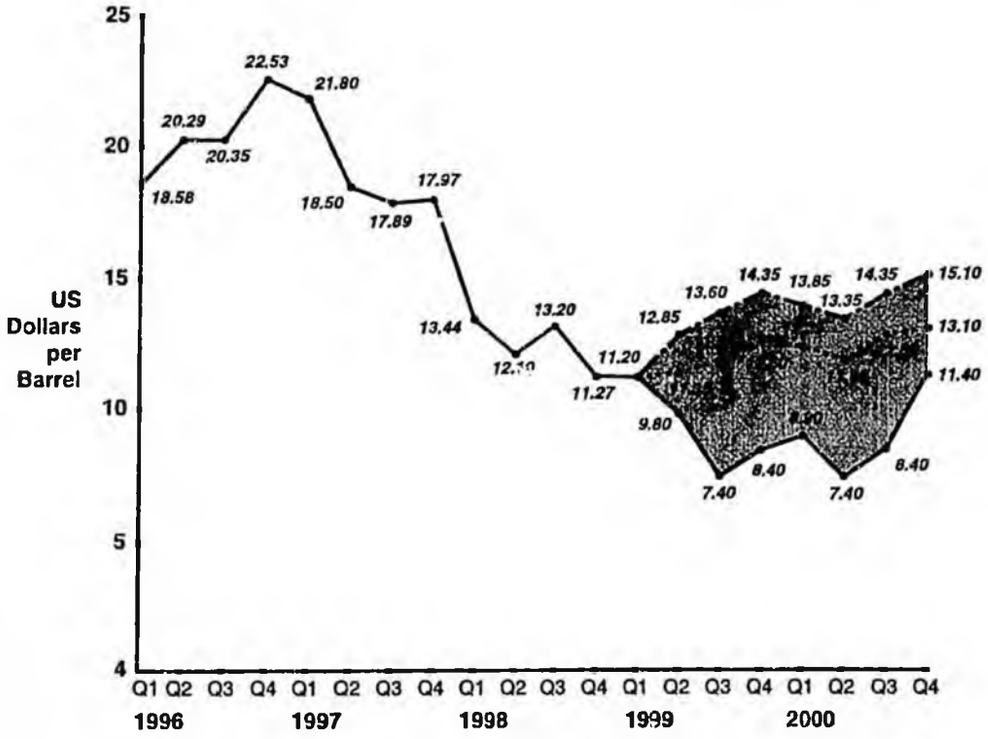


Source: Cambridge Energy Research Associates.

90203-7
0318

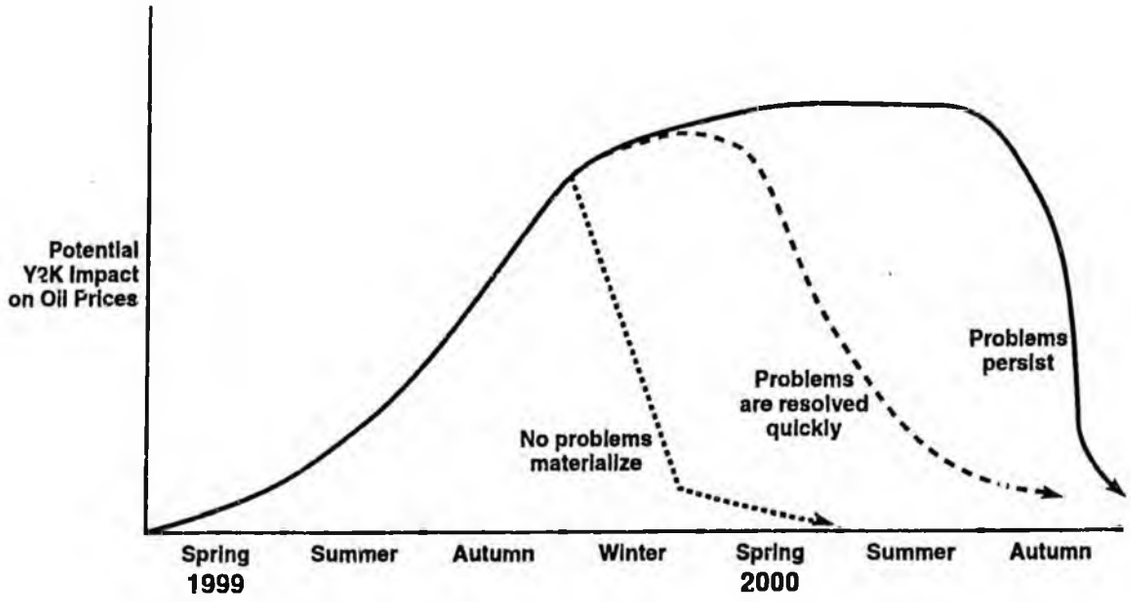
Price: OPEC's Visible Hand

The 1996–2000 Oil Price Environment: ANS



Source: Cambridge Energy Research Associates.
80332-1

Y2K: Buy the Rumor, Sell the Fact



Source: Cambridge Energy Research Associates.

The graph is schematic and is not meant to convey actual price movements.

90320-8

World Oil Price Outlook

U.S. Energy Information Administration

Douglas MacIntyre

March 23, 1999

Presentation to the

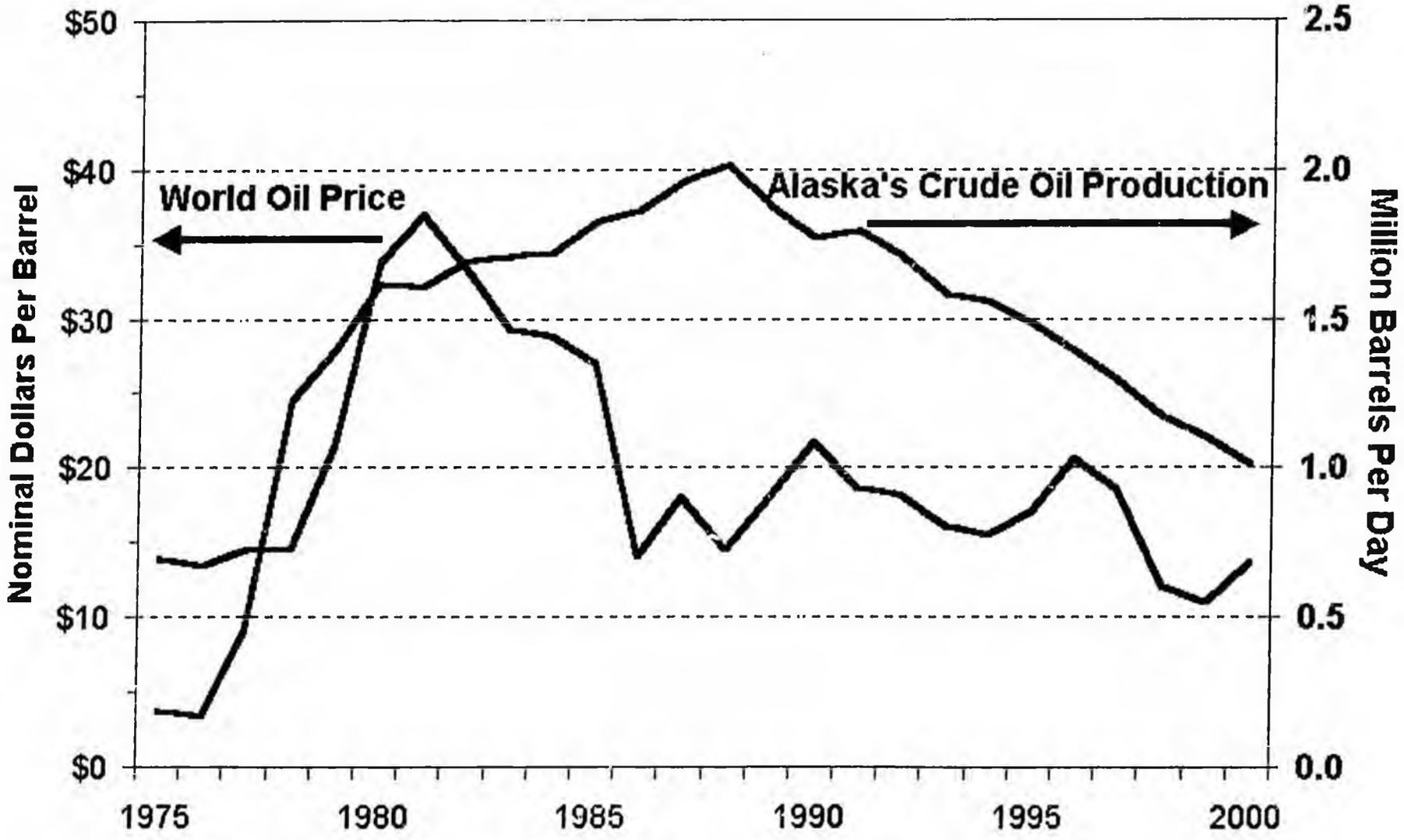
Alaska Finance Committees

Outlook for Alaskan Oil Revenues

- World oil prices in Dec. '98 - Feb. '99 are the **lowest since 1973**
- Alaskan oil production is declining
- World oil prices are expected to **increase from these historically low levels**
- Conclusion:

Alaskan oil revenues will remain low, but may increase in 2000

Oil Prices and Alaskan Oil Production



Energy Information Administration *March 23, 1999*

Outlook for Alaskan Oil Revenues

- World oil prices in Dec. '98 - Feb. '99 are the lowest since 1973
- Alaskan oil production is declining
- **World oil prices are expected to increase from these historically low levels**
- Conclusion:

Alaskan oil revenues will remain low, but may increase in 2000

Why Are World Oil Prices So Low?

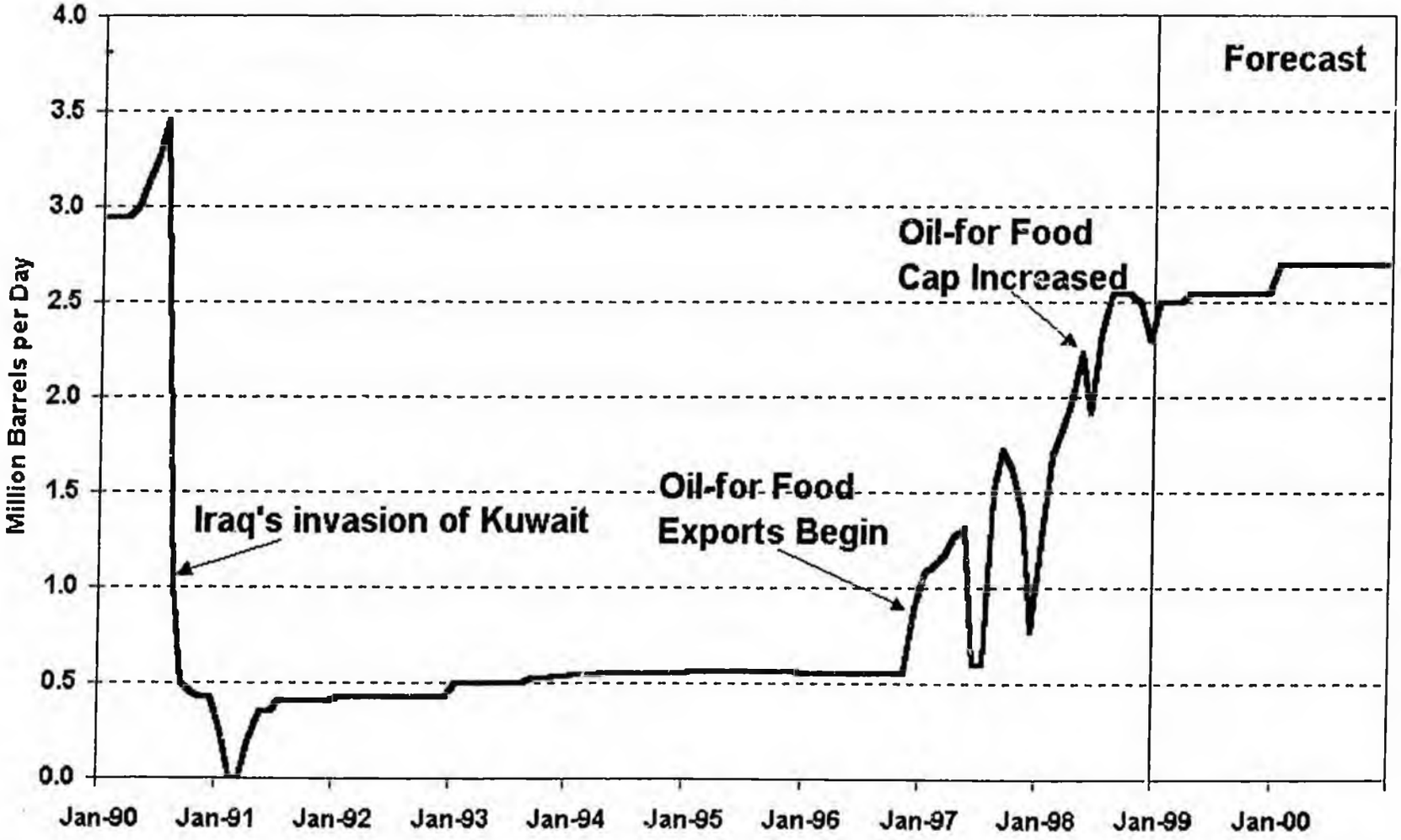
- Increases in oil production from Iraq
- Less Asian oil demand than expected due to the Asian economic crisis
- 2 (or maybe now 3?) significantly warmer than normal winters in a row
- Increases in oil supply, particularly in 1997, led to increases in inventories

Factors Influencing World Oil Market
Part 1 - Iraq

- Increased Iraqi oil exports in '97 , '98, and '99
  - Iraq resumed oil exports under UNSCR 986 in late Dec. 1996
  - Currently exporting about 2 MMBD
  - However, EIA sees limited growth for increases in Iraqi oil exports from current levels through 2000

Factors Influencing World Oil Market
Part 1 (continued)

Iraq's Crude Oil Production, 1990-2000



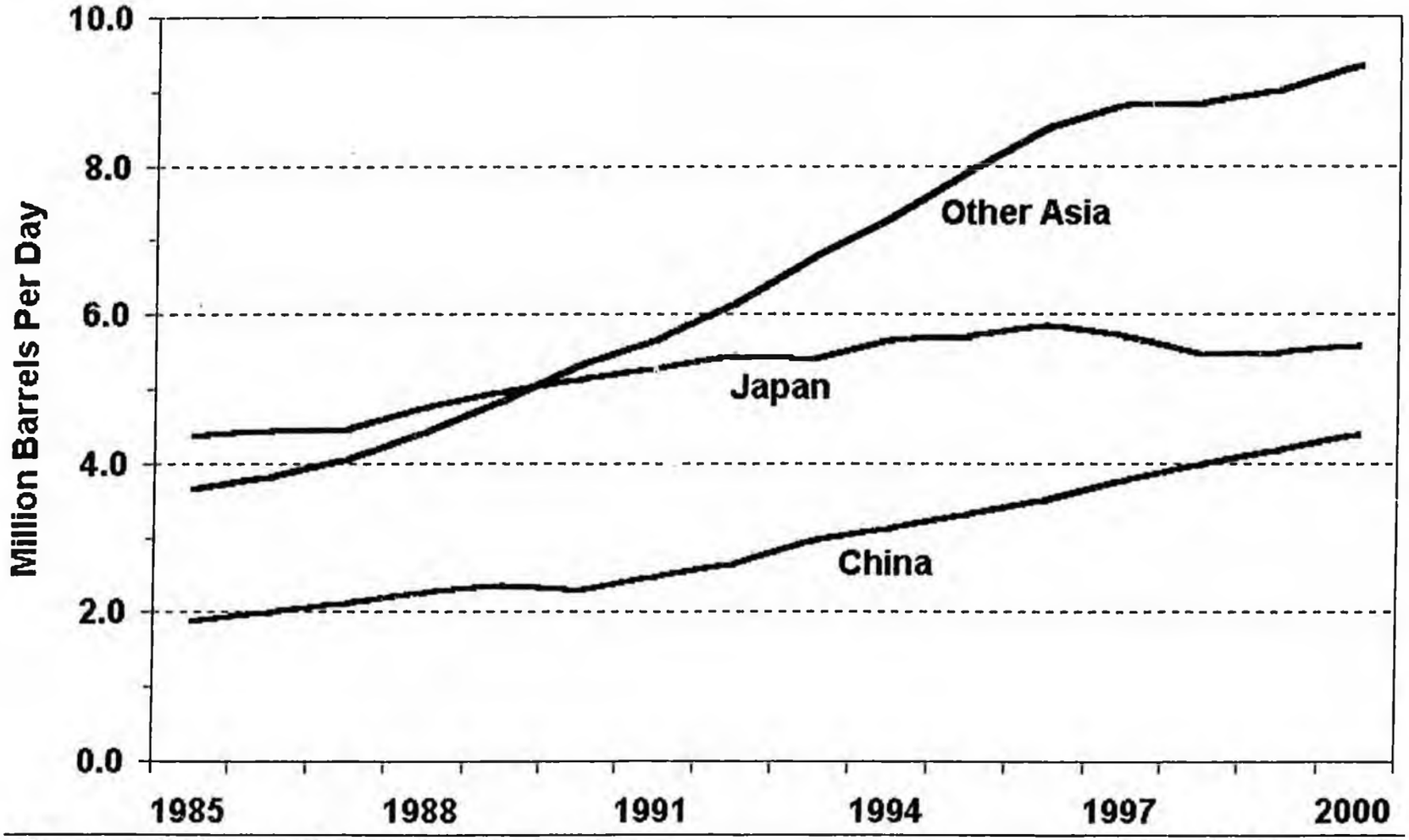
Energy Information Administration *March 23, 1999*

Factors Influencing World Oil Market
Part 2 - Asia

- Less demand growth expected from Asia
  - '91-'96 avg. oil demand increase: 0.85 MMBD
    - 1997 increase: 0.4 MMBD
    - 1998 increase: 0.0 MMBD
    - 1999 increase: 0.4 MMBD
    - 2000 increase: 0.65 MMBD
  - 4-year growth < 1.5 MMBD when 3.4 MMBD would have been expected

Factors Influencing World Oil Market
Part 2 (continued)

Asian Oil Demand, 1985-2000

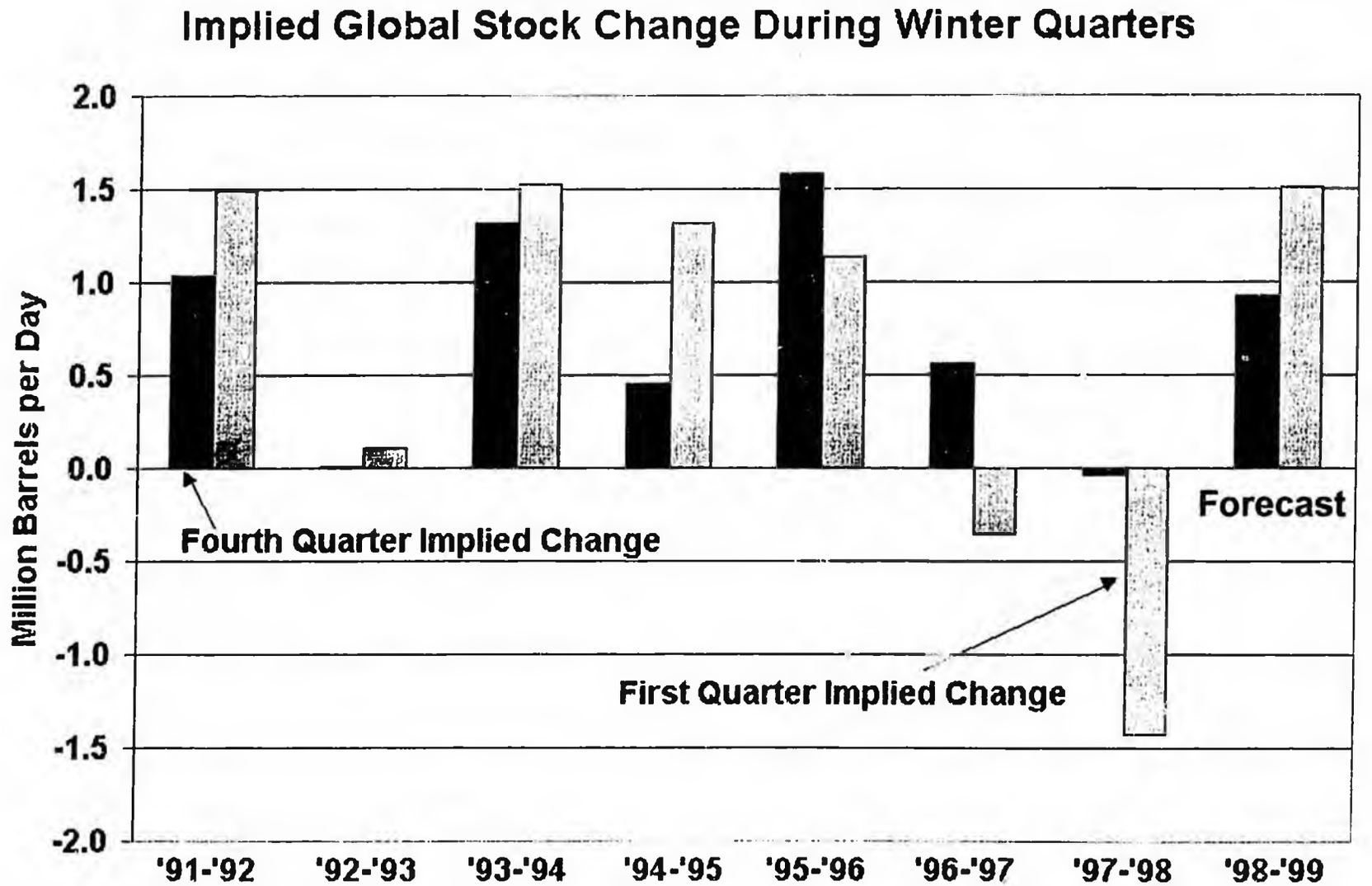


Energy Information Administration *March 23, 1999*

Factors Influencing World Oil Market
Part 3 - Warm Weather

- Warmer than normal in Northeast US and W. Europe for 2 (or 3?) consecutive winters
  - Regions where heating oil has a significant share of heating fuel market

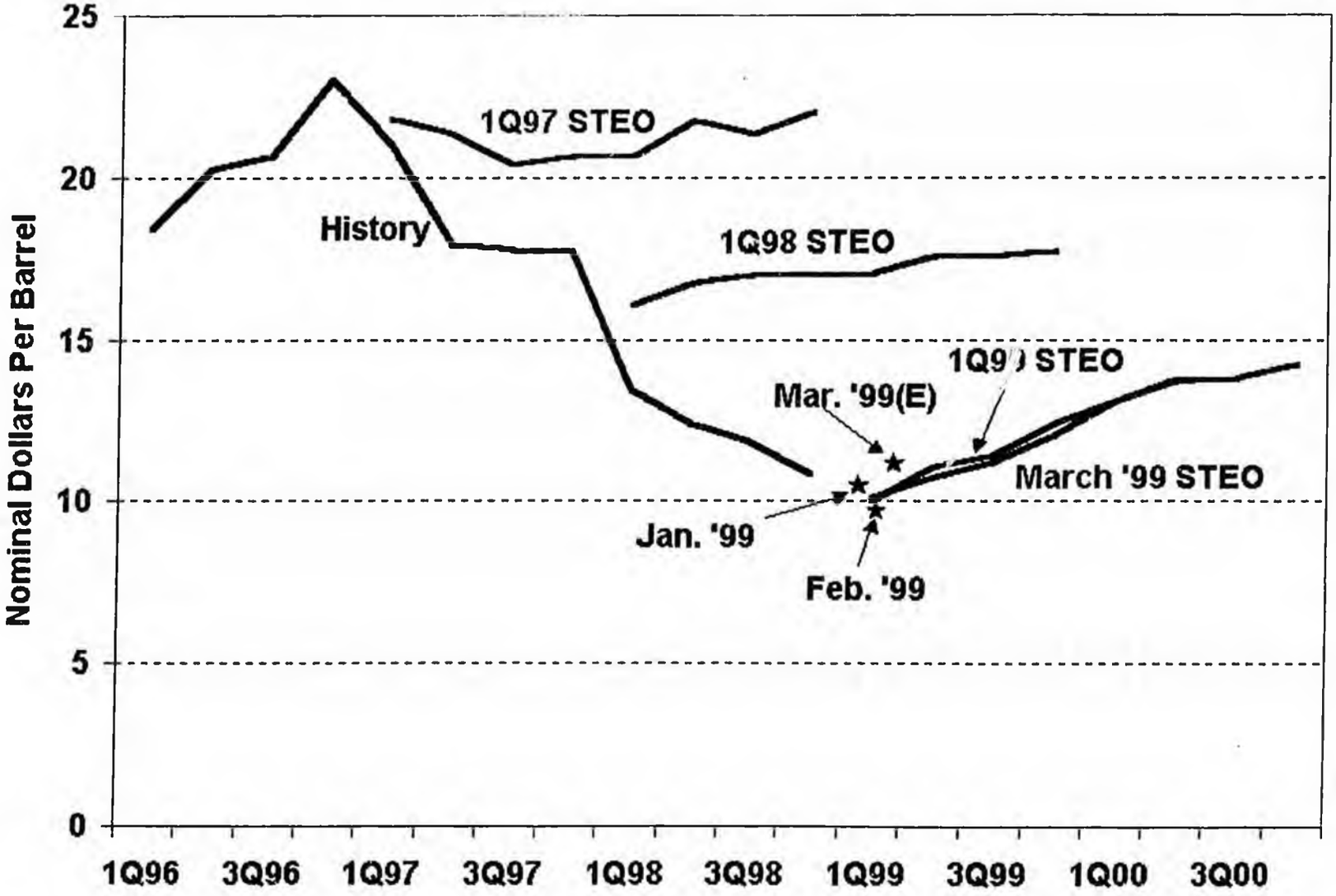
Factors Influencing World Oil Market
Part 3 (continued)



Factors Influencing World Oil Market
Part 4 - Other Supply Increases In 1997

- OPEC (ex. Iraq) '97 Increase: 977,000 b/d
  - PG OPEC: 546,000 b/d
    - Saudi Arabia: 370,000 b/d
    - Qatar: 139,000 b/d
  - Non-PG OPEC: 430,000 b/d
    - Venezuela: 227,000 b/d
    - Nigeria: 129,000 b/d
- Non-OPEC '97 Increase: 732,000 b/d
  - Americas: 516,000 b/d
  - North Sea: -83,000 b/d

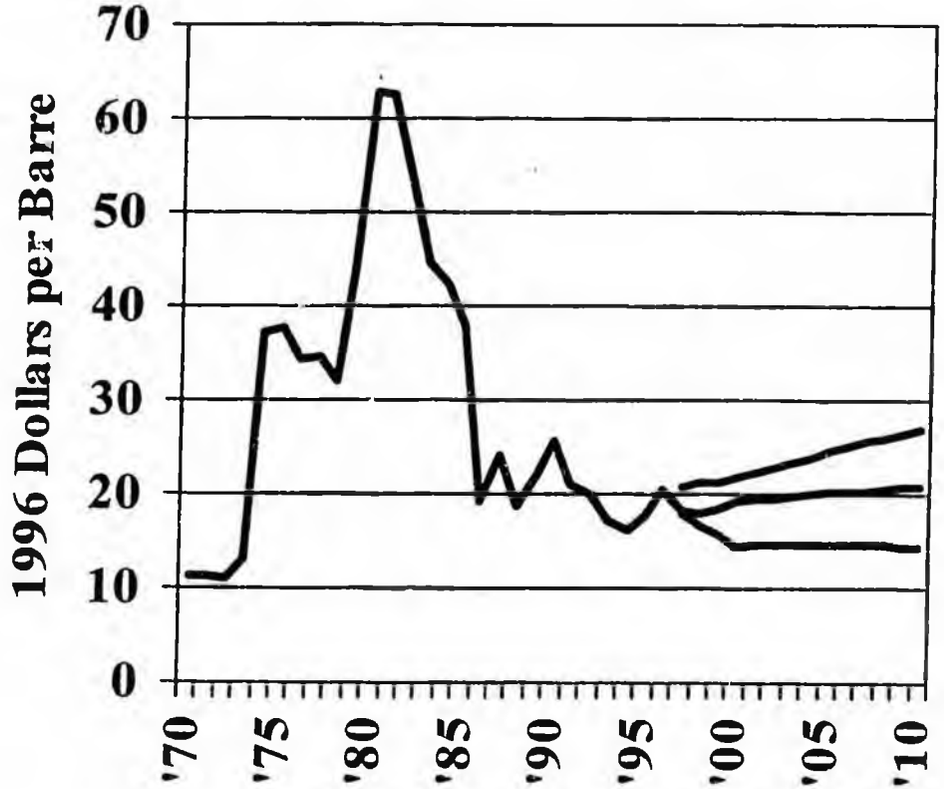
Recent EIA World Oil Price Forecasts



To Be Updated to AEO99

Long Term Outlook: No Improvement

World Oil Prices to 2010



- Long-Term Forecast
  - Less than 1% annual increase in world oil price
  - Prices could be lowest ever

Energy Information - A Click Away

www.eia.doe.gov

Energy Information - A Click Away

Energy Information Administration

Fuel Groups

- Energy Overview
- Petroleum
- Natural Gas
- Coal
- Nuclear
- Electricity
- Renewables
- Alternative Fuels

Other Energy Groups

- International
- Forecasts
- Environment
- Prices
- Finance
- State Data
- Consumption
- Historical Data and Analysis
- Quick Stats

Search Enter words or phrases, separated by commas then click the "Search" button below.

Search

Special Topic: Electricity Restructuring

What's New at EIA

Interactive Data Queries
Create Custom Tables and Graphs of Energy Statistics In a Variety of Formats

Special Features

- E-Mail Notification System
- Energy Links
- Energy Quiz
- Energy Plugs
- Conferences and Upcoming Reports
- InfoDisc(CD-ROM)
- About Us/Jobs

Customer Services

- Feedback
- Press Releases
- EIA Contacts
- Gov. Info. Locator Service (GILS)
- Freq. Asked Questions(FAQ)
- Standards, Models, and Surveys
- EIA Administrator Presentations
- EIA Analysis Agenda

EIA Publications
A comprehensive list of links to all EIA publications

http://www.eia.doe.gov

Energy Information Administration *March 23, 1999*

Alaska State Legislature

HOUSE OF REPRESENTATIVES

Committee on Finance

Official Business

State Capitol
Juneau, Alaska 99801-1182

Peter Bogin

Associate Director, World Oil
Cambridge Energy Research Associates

Peter Bogin is a Director of CERA's World Oil Team. He is also Associate Director of CERA's Forum for Information Technology Strategy (FITS). Mr. Bogin is a specialist in world oil markets, geopolitics, and . He is a coauthor of CERA's highly respected *World Oil Watch* and World Oil *Market Alerts*. Prior to joining CERA, he served at the International Energy Agency and the Organization for Economic Cooperation and Development.

Mr. Bogin is the author or coauthor of several CERA Decision Briefs, including: *Light and Sweet; Europe's Crude Oil Diet to the Year 2000; In the Driver's Seat: Fueling Europe's Passion for the Diesel Car*, and *OPEC Wrestles with the Quotas*. He is also the coauthor of the Private Reports: *Oil Prices, Industry Cycles, and Structural Change; The New Environmental Era: Testing the Market; OPEC's Quota Race: Demand versus Capacity*; and *Setting the Trend: The New Triangle of Price Determination*. He is also the editor of the FITS *Summary of Discussions* series and coeditor of the Cambridge Energy Forum *Energy and the Environment: Global Strategies*.

Mr. Bogin holds a BA from Dartmouth College and is based in CERA's office in Paris.

Alaska State Legislature

HOUSE OF REPRESENTATIVES

Committee on Finance

Official Business

State Capitol
Juneau, Alaska 99801-1182

DOUG MacINTYRE

US Energy Information Administration

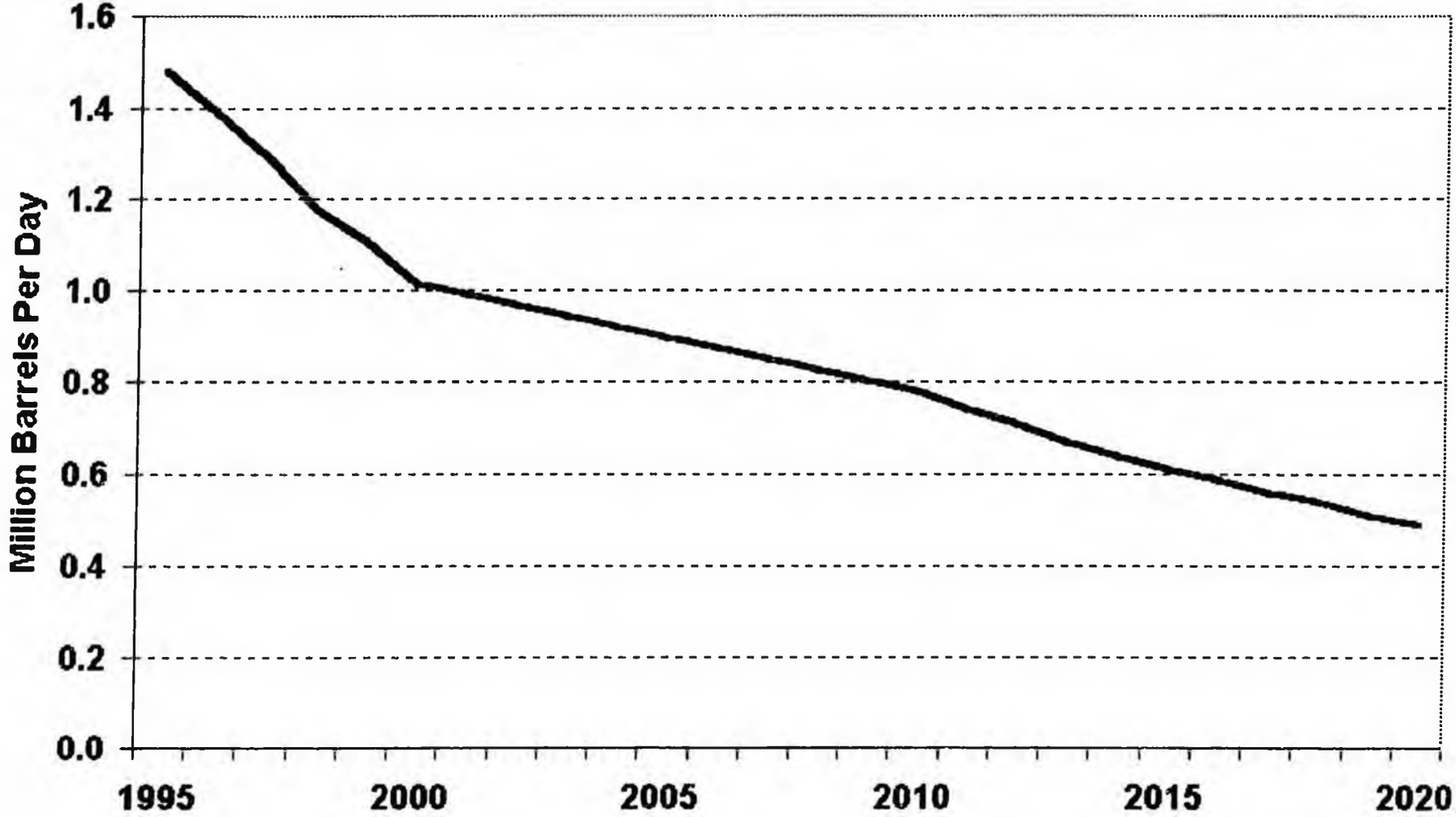
Doug MacIntyre is responsible for the Energy Information Administration's (EIA) short-term international oil market forecast (http://www.eia.doe.gov/emeu/steo/pub/contents.html). including EIA's short-term world oil price forecast which is updated monthly. In addition, he is EIA's lead analyst for international oil supply disruption issues.

Doug also helps coordinate efforts on EIA's Country Analysis Briefs (http://www.eia.doe.gov/emeu/cabs/contents.html) which provide an overview of the energy situation for all countries that are members of the Organization of Petroleum Exporting Countries (OPEC). non-OPEC countries in the politically volatile Persian Gulf region, major non-OPEC oil exporters, and other countries or regions that are of current interest to energy analysts and policy makers.

Doug has supported the EIA Administrator and Secretary of Energy in many of their appearances before Congress. Doug and his colleague, Lowell Feld. published an article on OPEC oil revenues in the September 21, 1998 issue of Oil and Gas Journal, a major industry magazine.

Doug has a B.S. in Management Science/Statistics from the University of Maryland, and an M.S. in National Resource Strategy from the Industrial College of the Armed Forces, in Washington, DC.

Long-Term Outlook for Alaskan Oil Production



Energy Information Administration *March 23, 1999*

1/11/00

Overview: Revenue Project.

SFIN

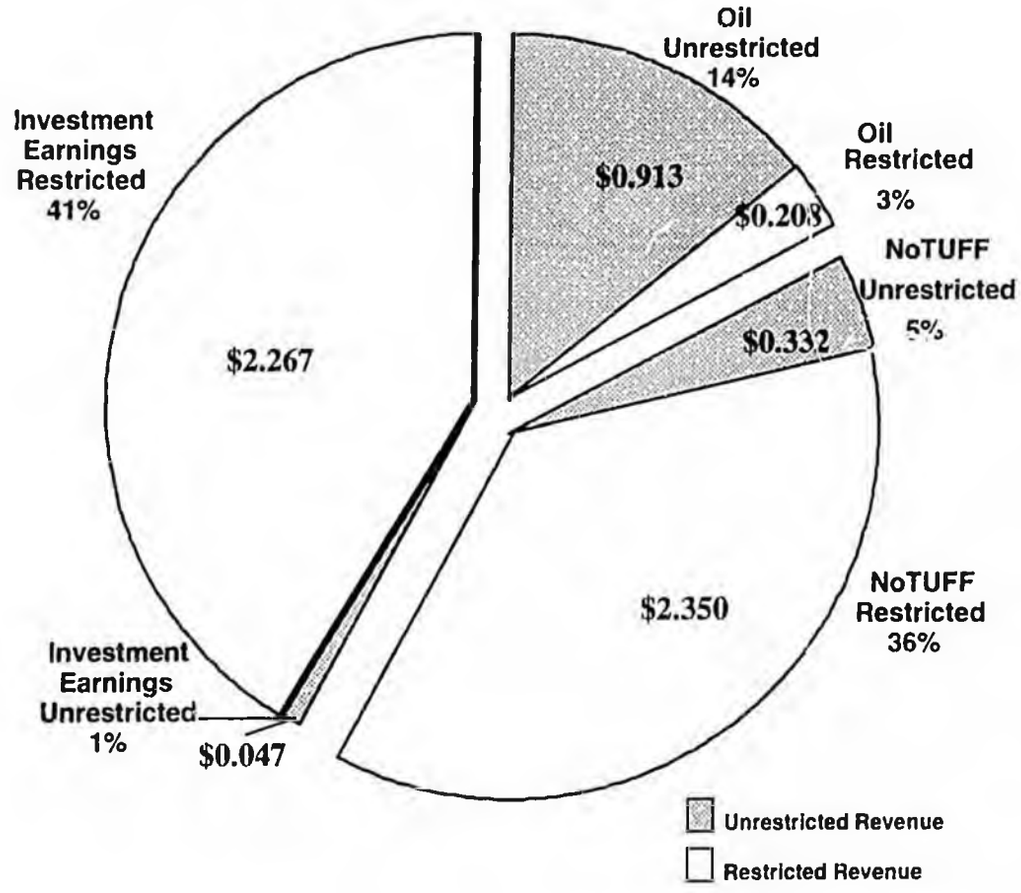
FILE

Alaska State
Revenue Outlook
Department of Revenue
Presentation to Senate
Finance January 11, 2000

The Total Revenue Picture

- The Department of Revenue continues to expand its forecast focus to include total revenues from all sources
- From this total perspective, investment revenues are the largest revenue source followed by federal revenue, then oil revenue.

The Total Revenue Picture
FY 1999



FY 1999 Total Revenue $6.116 Billion

Source: Fall 1999 Revenue Sources

Total State Revenue, Actual FY 1999 and Projected 2000-2001

	1999	2000	2001
Unrestricted			
Oil Revenue	913.2	1,386.3	1,179.5
Non-Oil Revenue	331.6	372.8	341.7
Investment Earnings	46.5	45.0	45.0
Subtotal	**1,291.3**	**1,804.1**	**1,566.2**
Restricted			
Oil Revenue	207.9	252.1	344.9
Non-Oil Revenue	2,350.1	2,450.1	2,458.1
Investment Earnings	2,267.2	1,099.7	2,079.0
Subtotal	**4,825.2**	**3,801.9**	**4,881.9**

Source: Fall 1999 Revenue Sources

The Total Revenue Picture

- The Department of Revenue will continue to refine our forecast document.
- In cooperation with the Office of Management of and Budget, Legislative Finance, and the Division of Finance we hope to continue to make the Revenue Sources Book understandable and reconcilable.

The Total Revenue Picture

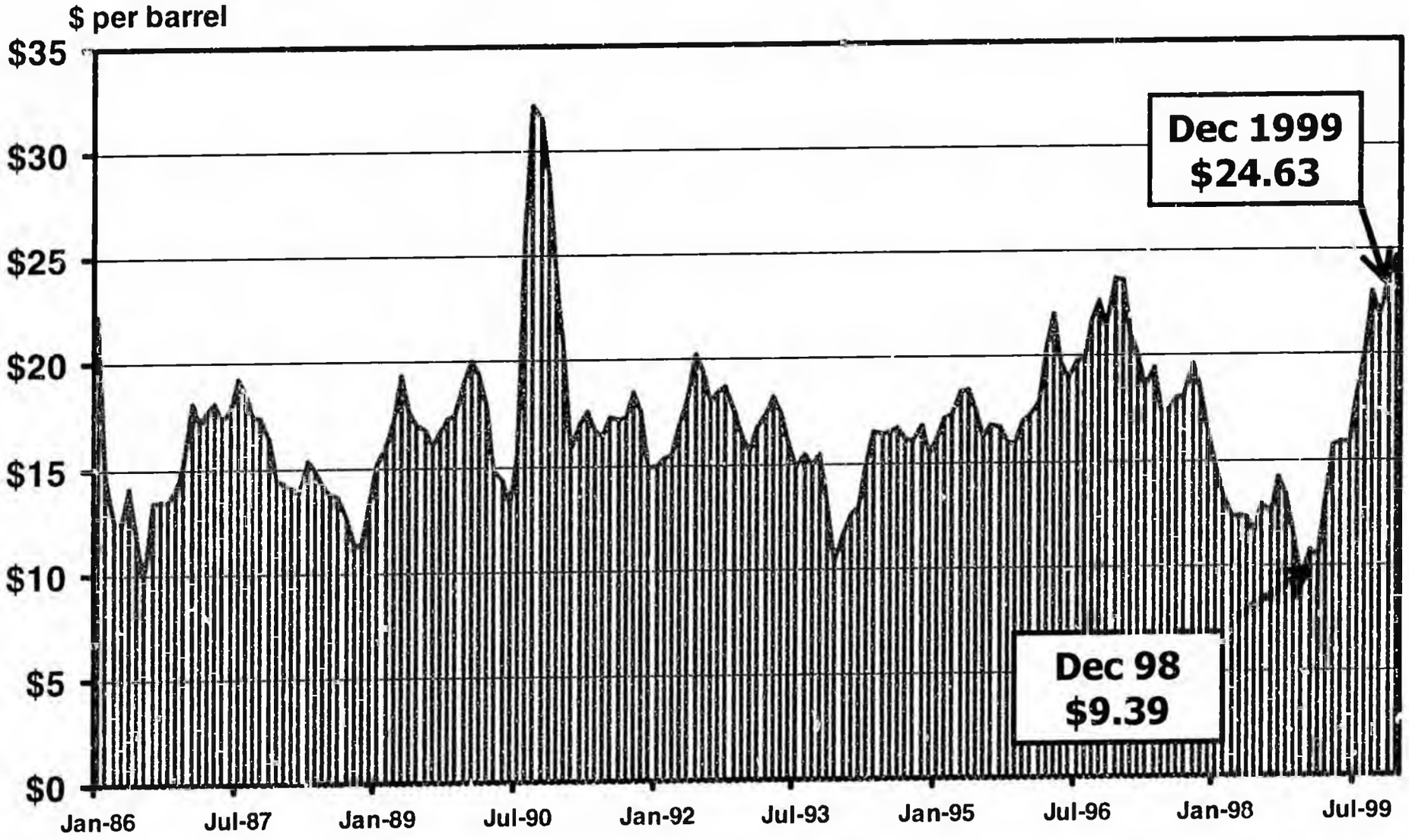
- You will hear from the Permanent fund concerning the investment earnings from our biggest savings account.
- The Office of Management and Budget will be providing you with information of Federal revenues.
- Our presentation today will focus on Oil Revenues which still provide over 70% of general purpose spendable revenue.

Alaska Oil Prices

- How high will they go and how long will they stay above $20/bbl?
- December 1999 ANS prices averaged $24.63/bbl.
- ANS West Coast spot prices have averaged nearly $21/bbl so far in FY 2000.

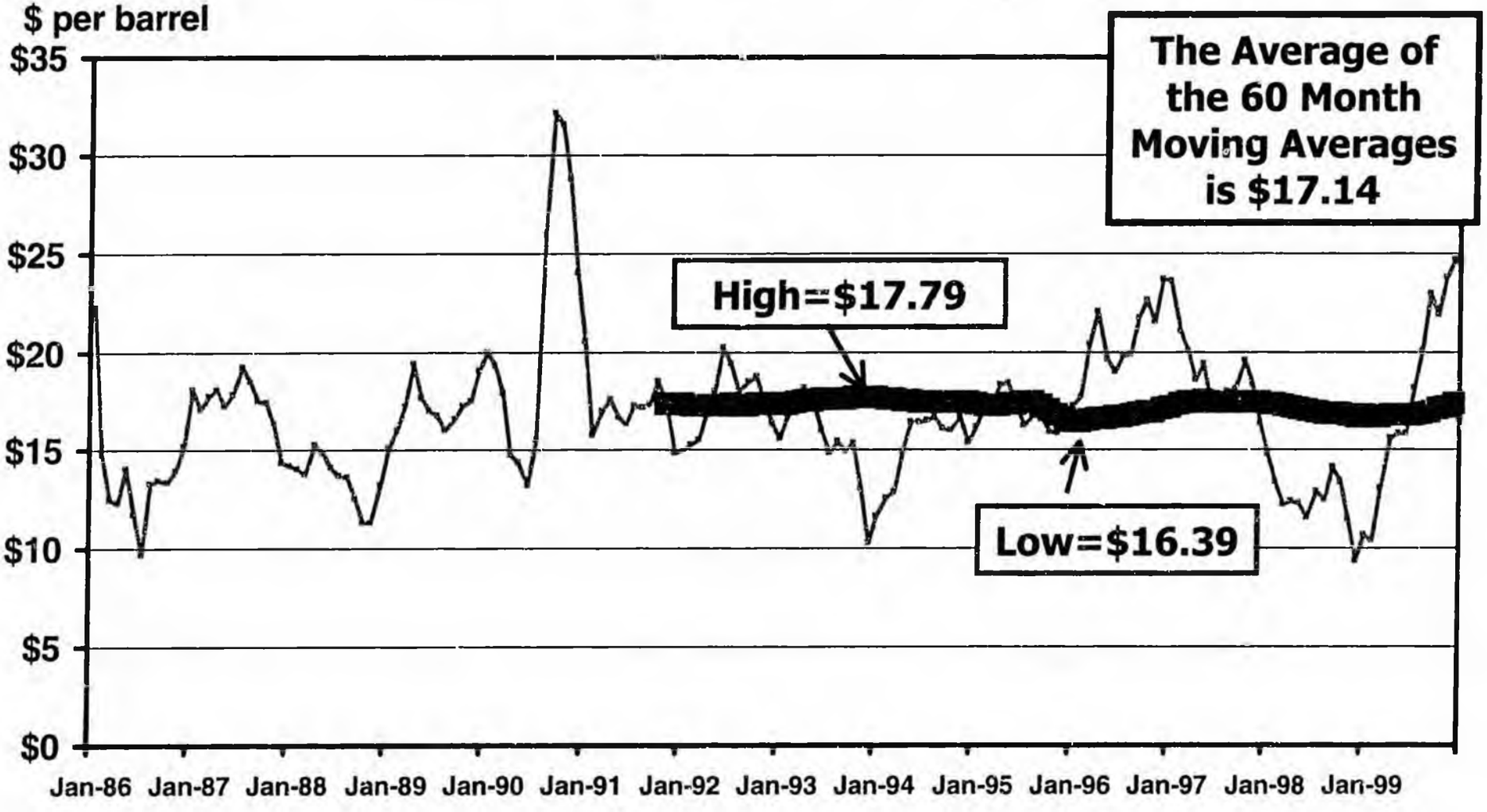
ANS Spot Price

(West Coast Delivery)



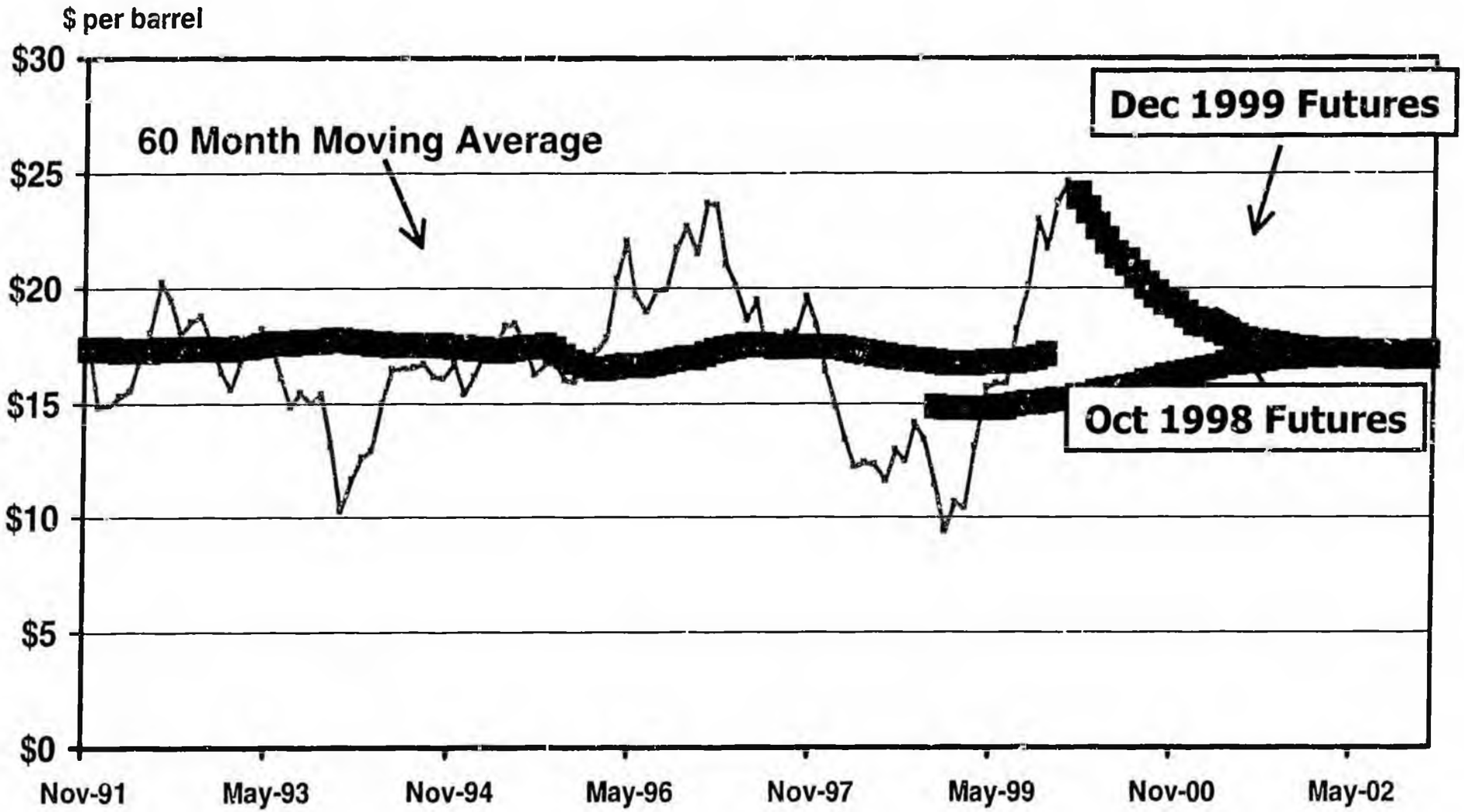
January 1986-December 1999

ANS Spot Prices
and 60-month Moving Average
(West Coast Delivery)



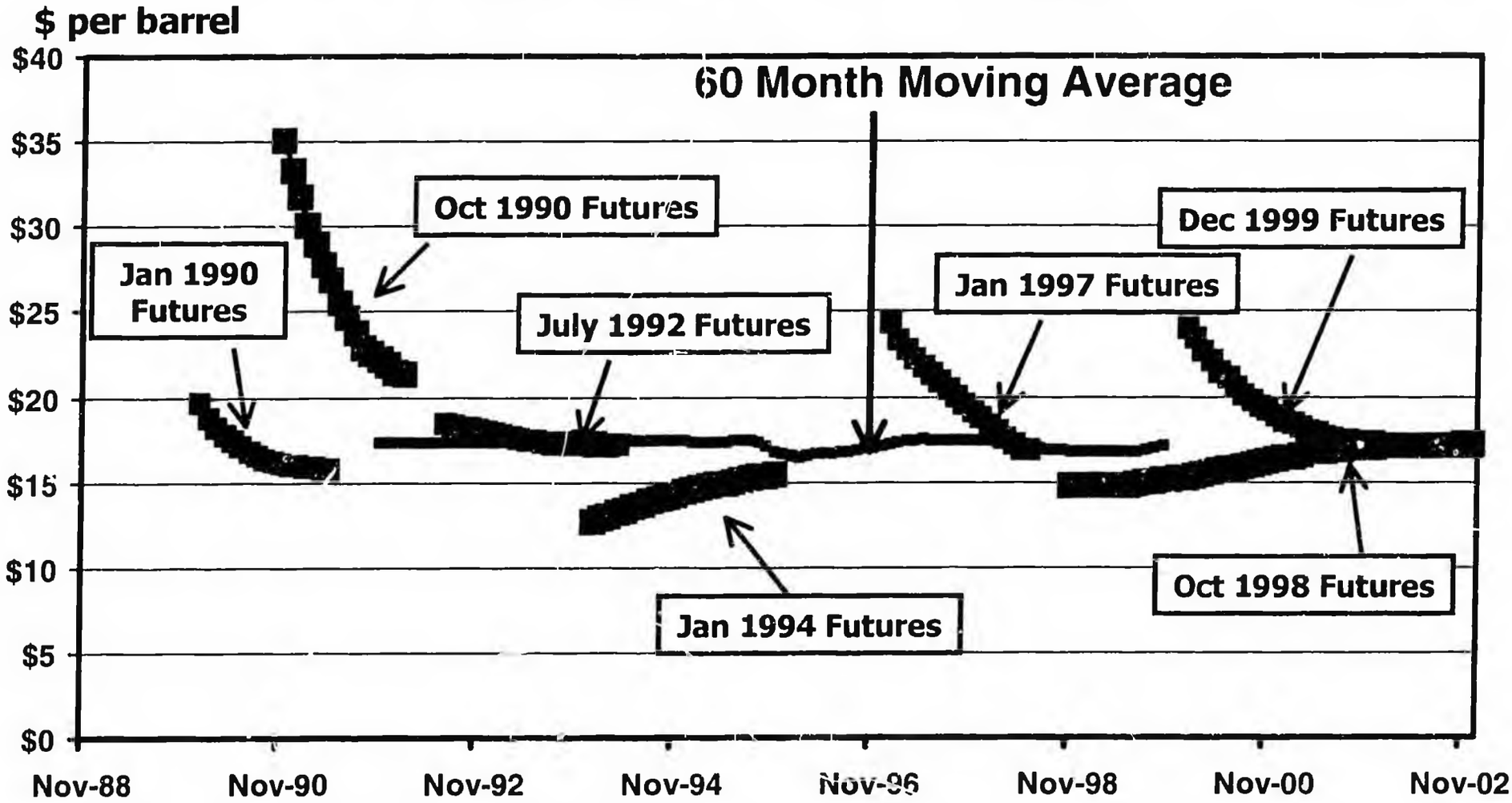
January 1986-December 1999

ANS West Coast Price and Futures Market Prices for ANS



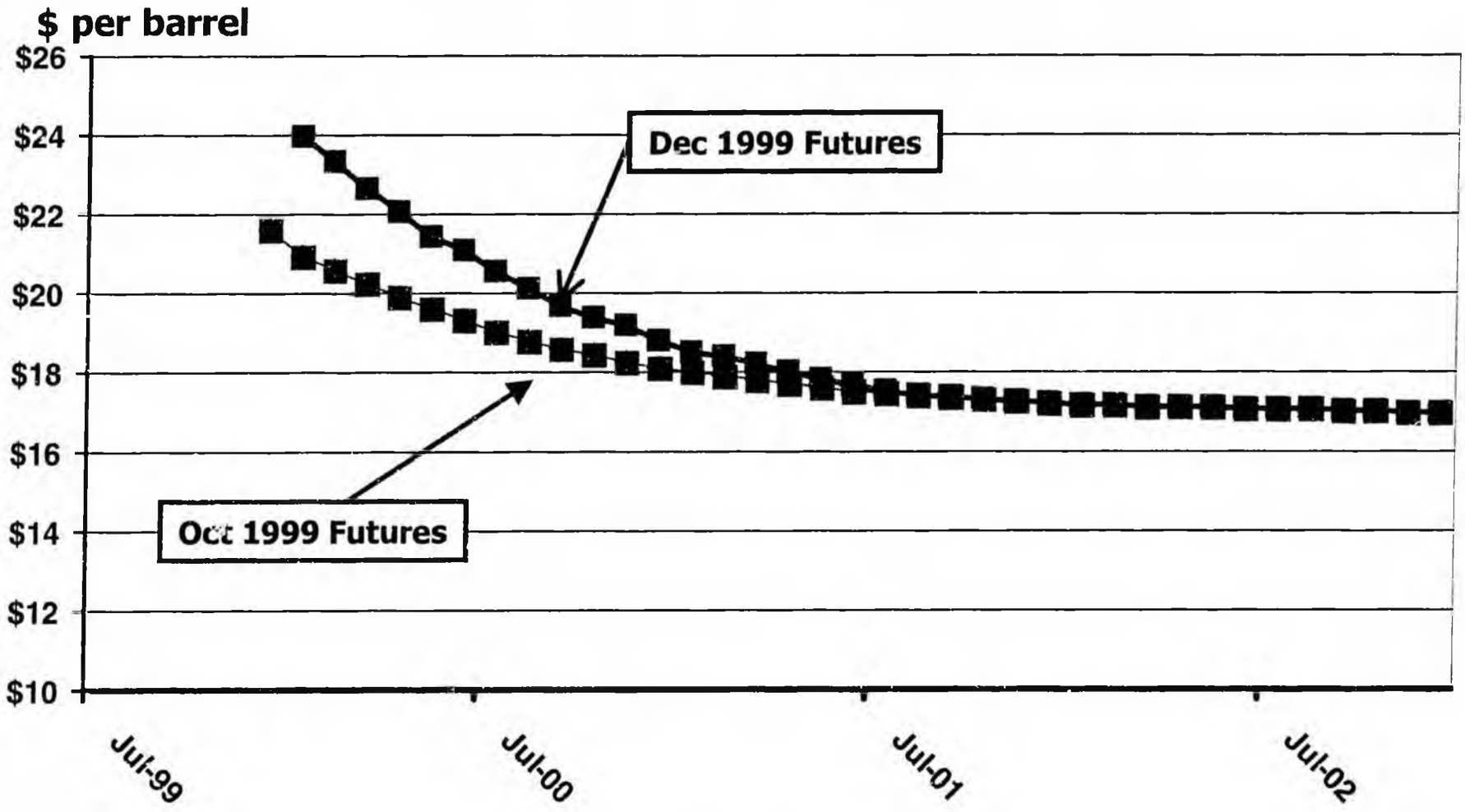
November 1991-November 2002

Historical Futures Market Prices for ANS



November 1988 - December 1999

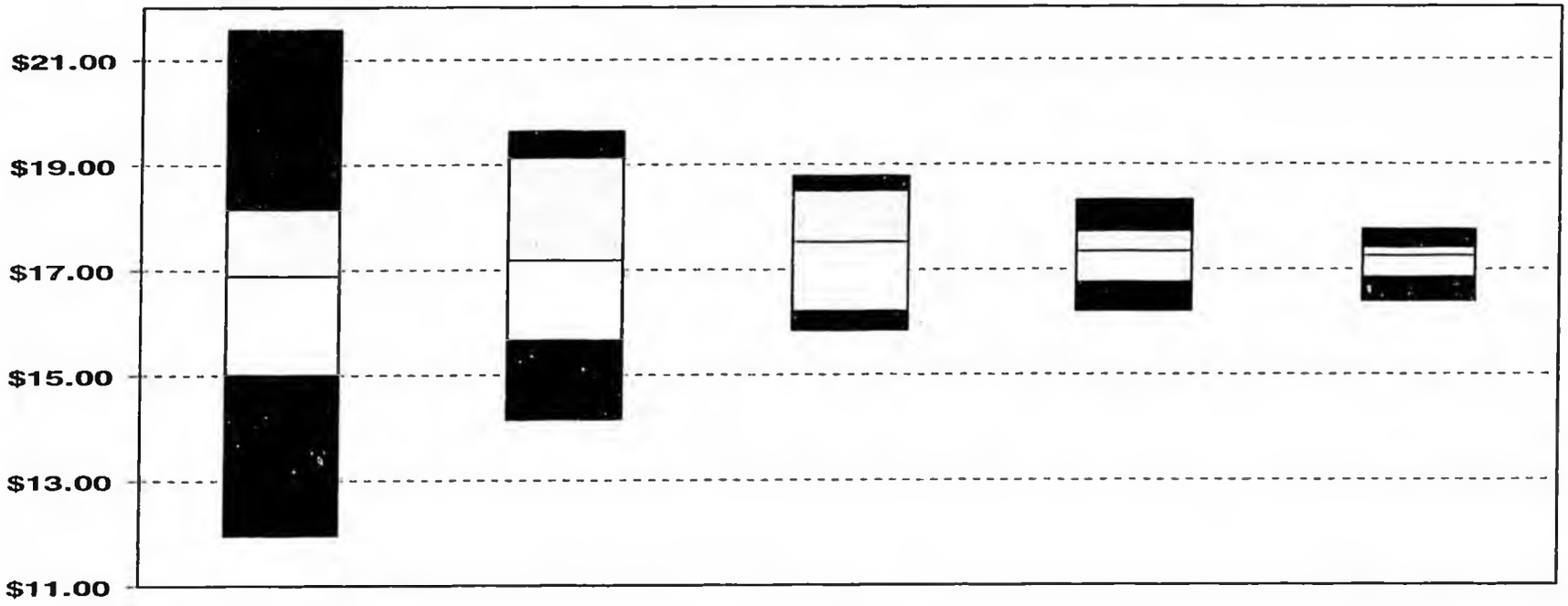
Futures Based Market Prices for ANS



November 1999 - December 2002

Cumulative Average ANS Oil Price

Moving Average and Confidence Intervals



Percentile Ranking*	12 mo.	24 mo.	36 mo.	48 mo.	60 mo.
2.5%	$21.567	$19.629	$18.782	$18.324	$17.740
25.0%	$18.168	$19.130	$18.500	$17.716	$17.408
Median	$16.878	$17.175	$17.530	$17.348	$17.252
75.0%	$15.000	$15.650	$16.200	$16.756	$16.834
97.5%	$11.957	$14.163	$15.844	$16.211	$16.391

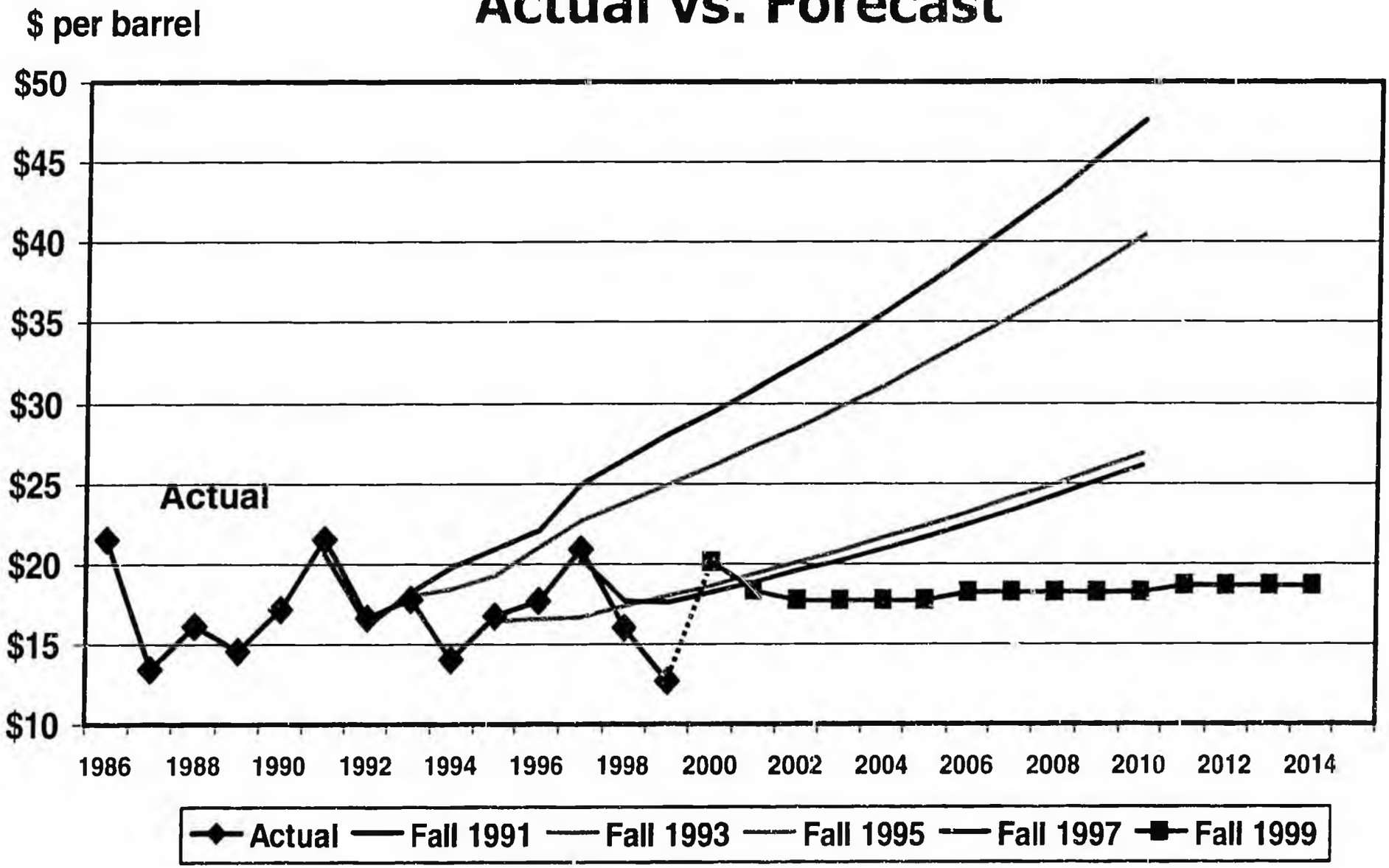
*Probability of exceeding the corresponding ANS oil price.

ANS Oil Prices--The Department of Revenue Forecast (Long Term)

- Oil prices will be volatile but will average around $17.00/bbl to $18.00/bbl for ANS over the next 10 years.
- Market forces will continue to provide production and consumption incentives that tend to move price back toward this long term average range.

ANS Destination Price

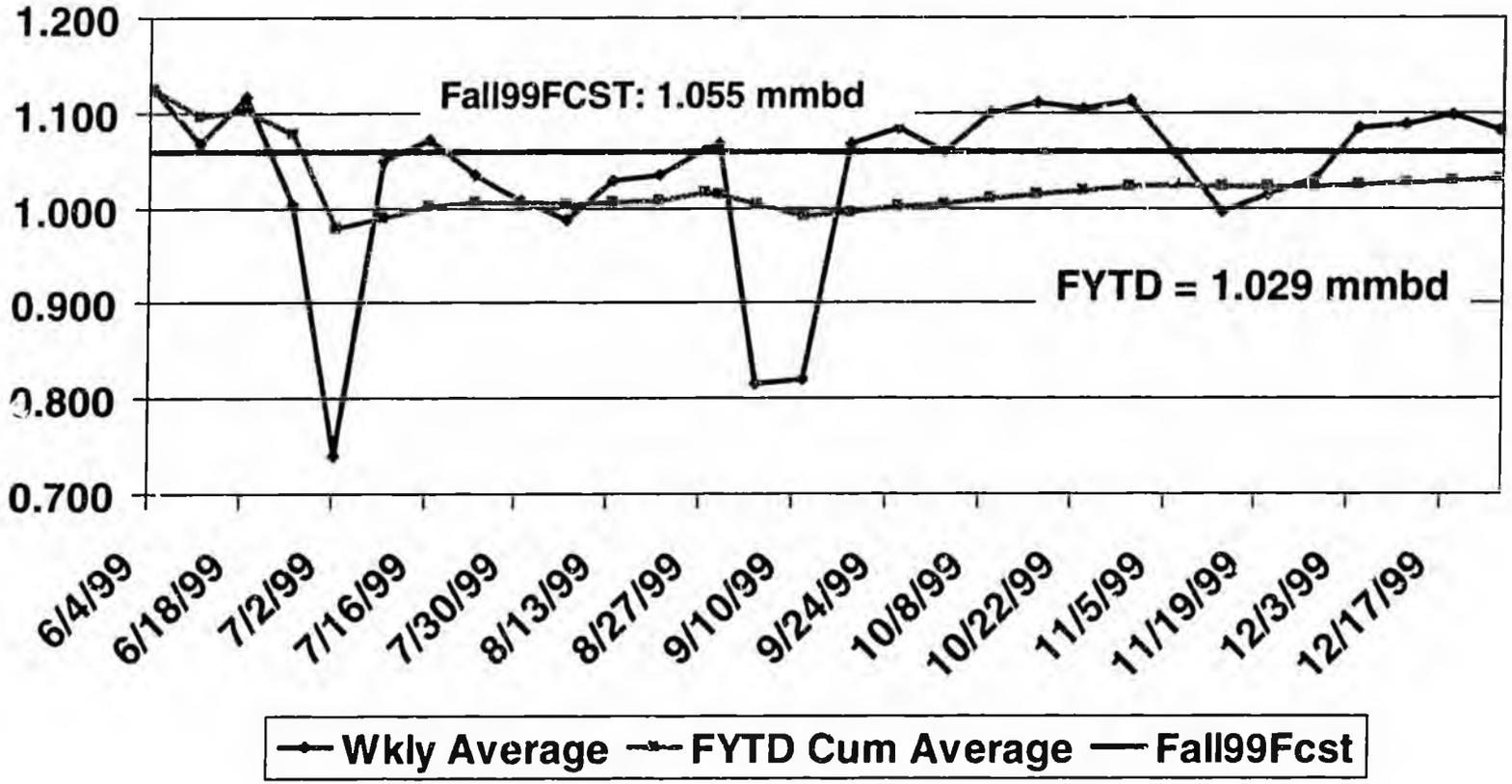
Actual vs. Forecast



Alaskan Oil Production

- ANS production in calendar 1999 averaged 1.077 million bbl/day.
- ANS production has declined by 25% or 0.358 million bbl/day since 1996.
- We are currently projecting ANS production for FY 2000 at 1.055 million bbl/day.

FY 2000
ANS Production



Alaskan Oil Production Forecast

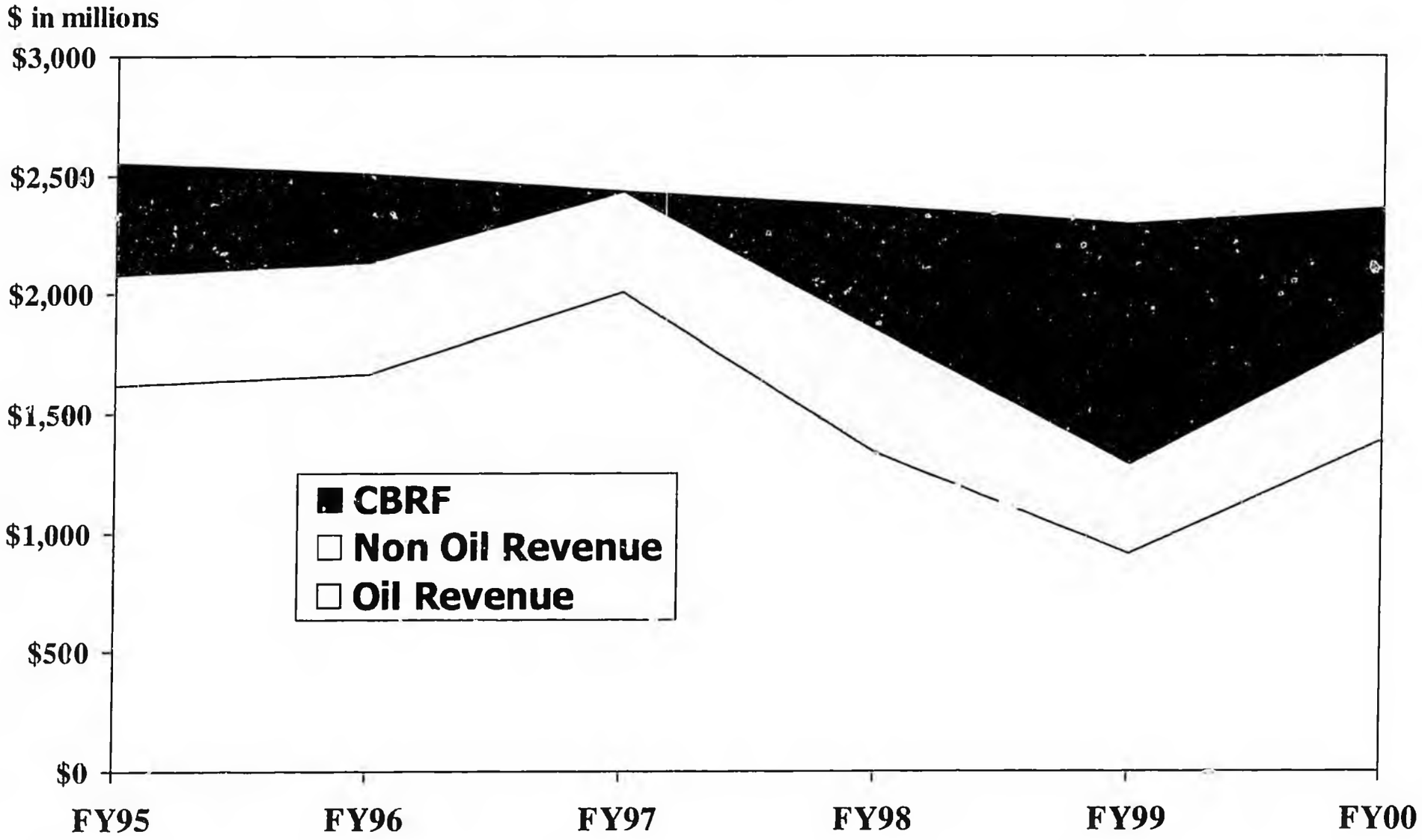
- Prudhoe Bay will decline over time by 30 to 40 thousand bbl/day annually.
- The other older fields (Kuparuk, Pt. McIntyre, and Endicott) will decline by an average of 15 to 25 thousand bbl/day.
- New fields (Alpine, Prudhoe & Kuparuk Satellites, and North Star) will offset the older field decline over the next 5 years.

Alaskan Oil Production Forecast

- Over the long term, barring new discoveries, ANS production is forecast to decline after FY 2006 at the rate of roughly 6.5% per year.

State of Alaska

Historical Sources of Revenue

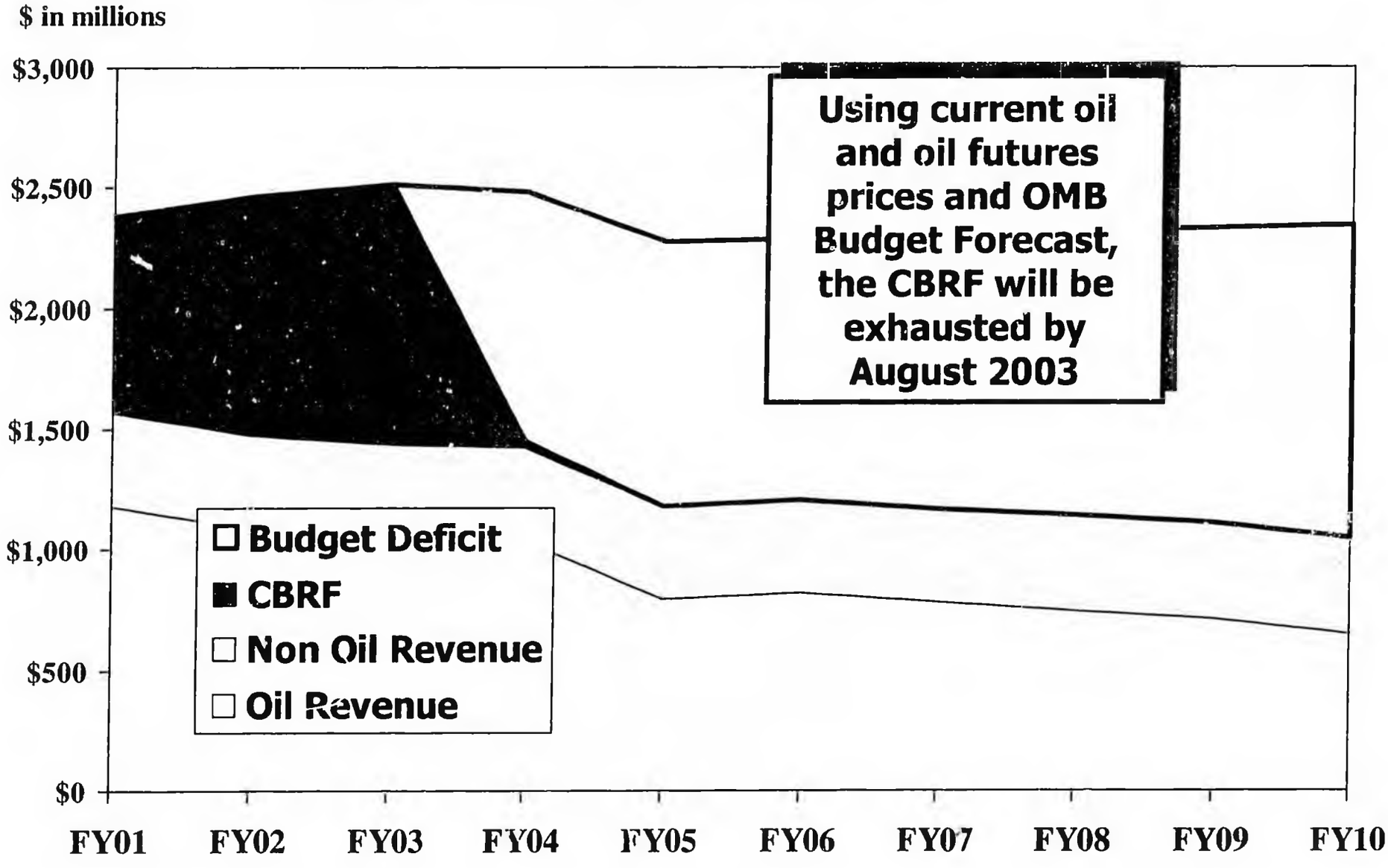


How Far Have We Come to Closing the Fiscal Gap With Higher Oil Prices?

In January of 1999, the Dept of Revenue predicted exhaustion of the CBRF in January 2003, now using OMB's budget plan we see the CBRF with a zero balance in August 2003.

State of Alaska

Sources of Revenue



Alaska State Revenue Outlook
General Fund FY00

Projected ANS Oil Price (Jan Futures)	$21.78
Projected No Slope Production Volume	1.058
Projected Oil Revenue	$1,502.8
Projected Other Non Oil Revenue	$ 417.8
General Fund Budget	$2,321.5
Projected Draw from CBRF	$ 400.9