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# House and Senate Finance Committees

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March 23, 1999

Juneau, Alaska

**Cambridge Energy Research Associates, Inc.**

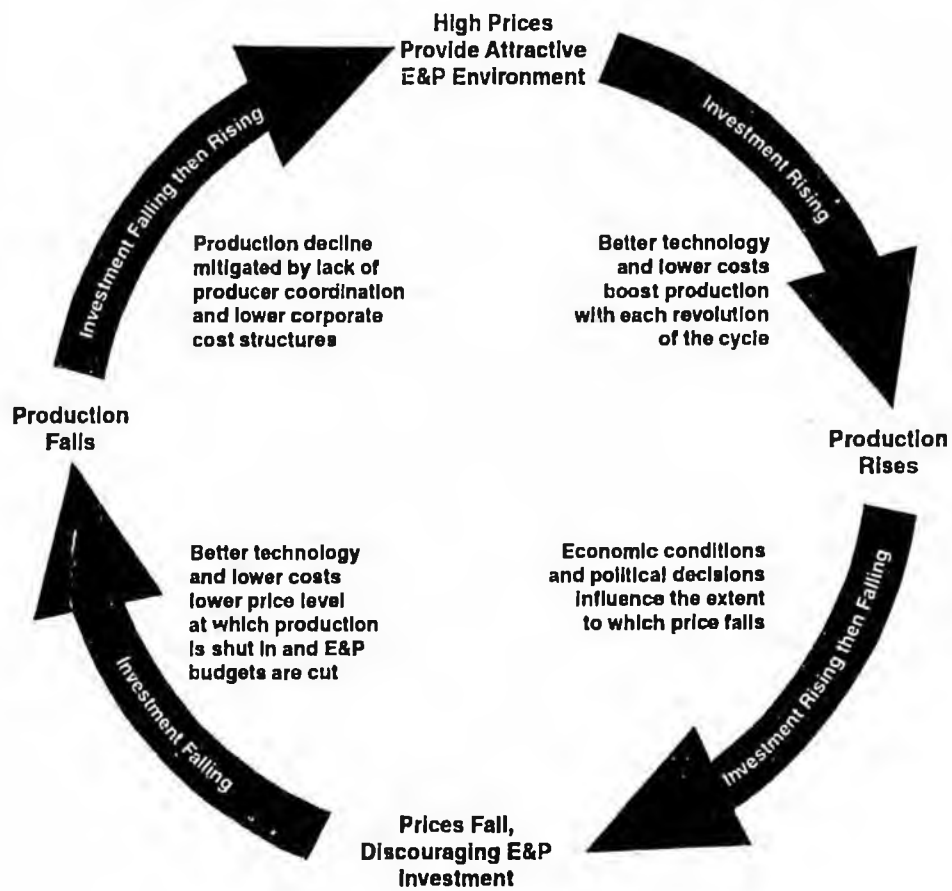
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## **Introduction: The New Challenges**

## 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.  
#1124-119

## Tomorrow's World—The Challenges



**The beginning of the end:  
Energy market restructuring**



**Growth**



**Environment**



**Security of Supply**



**Human rights**



**Local community responsibility**



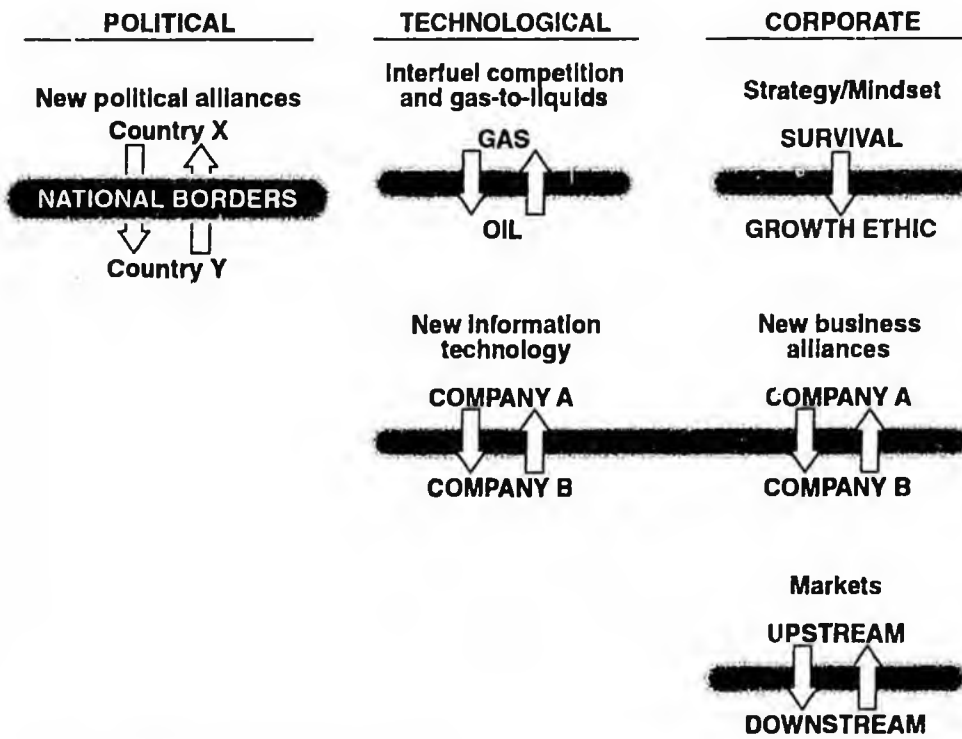
**The stakeholders**



**Company role versus government role**

Source: Cambridge Energy Research Associates.  
80321-H10

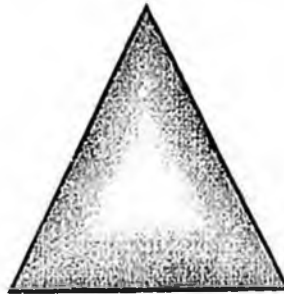
## The Blurring of the Boundaries



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

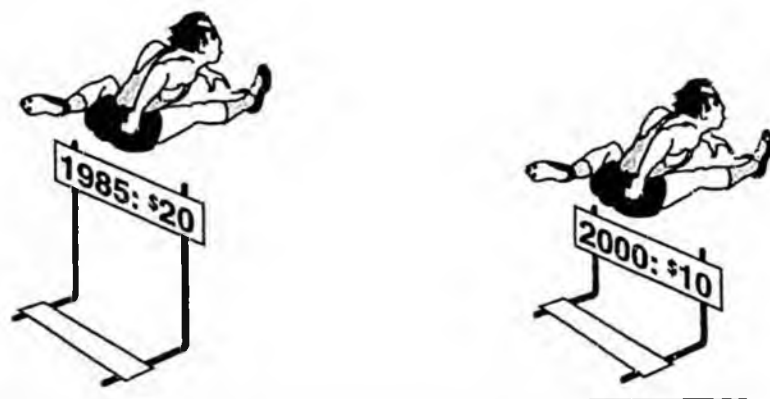
**Politics**  
Sets the tone of supply and demand availability through political decisions

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Source: Cambridge Energy Research Associates.  
01124-H1

## **Demand: The Risk and the Hope**

## The Falling Btu Barrier\*



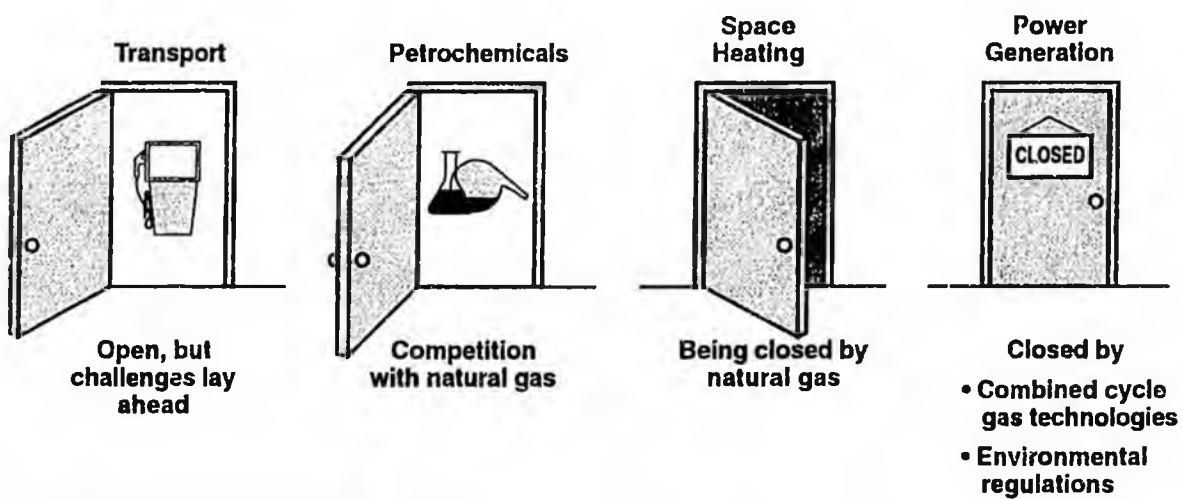
**Technology has lowered the cost of all fuels, not just oil.**

Source: Cambridge Energy Research Associates.

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

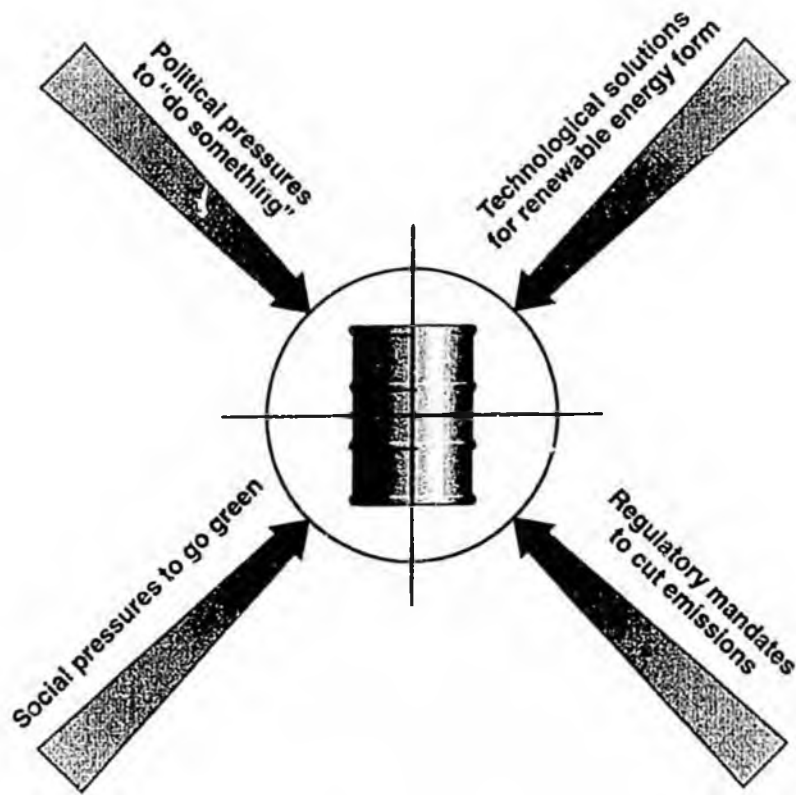
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## Choices for Oil Demand: The Field Narrows



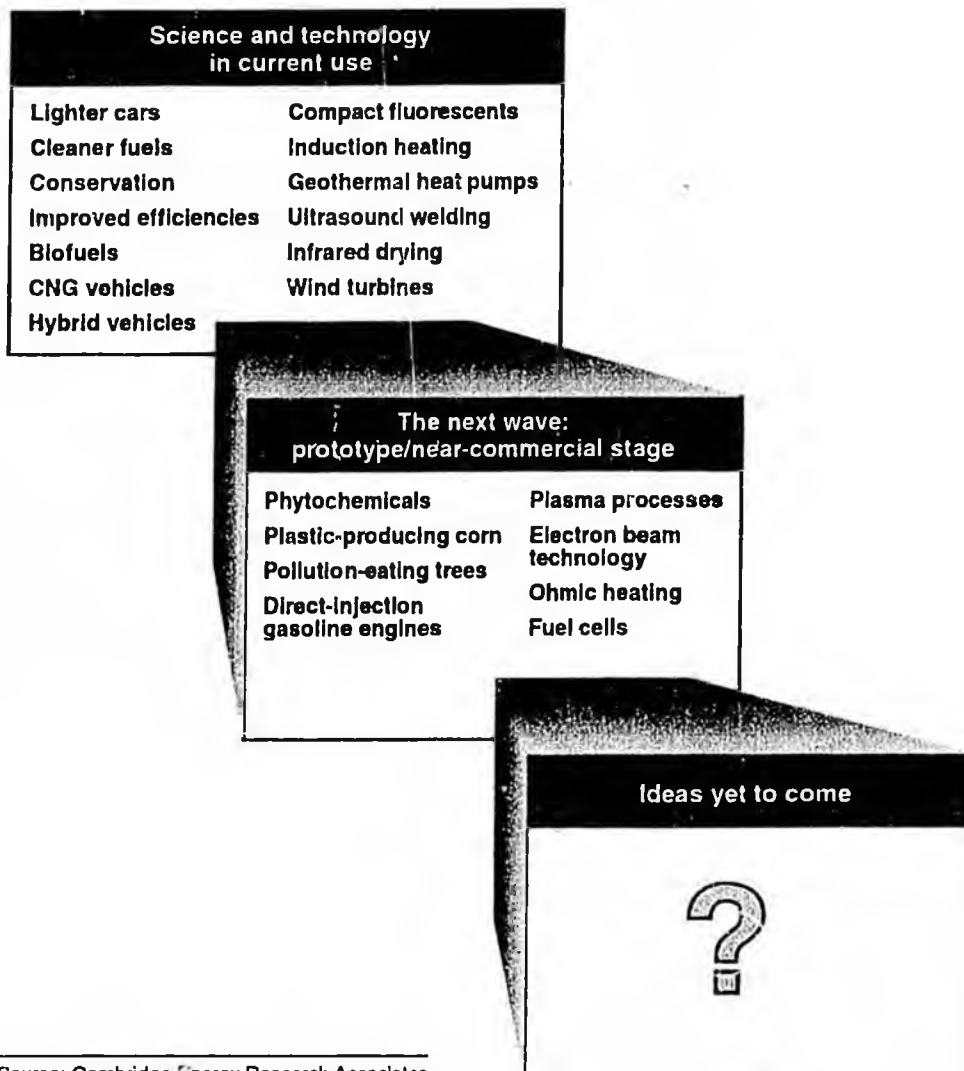
Source: Cambridge Energy Research Associates.  
90320-4

**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.  
80422-9

**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**

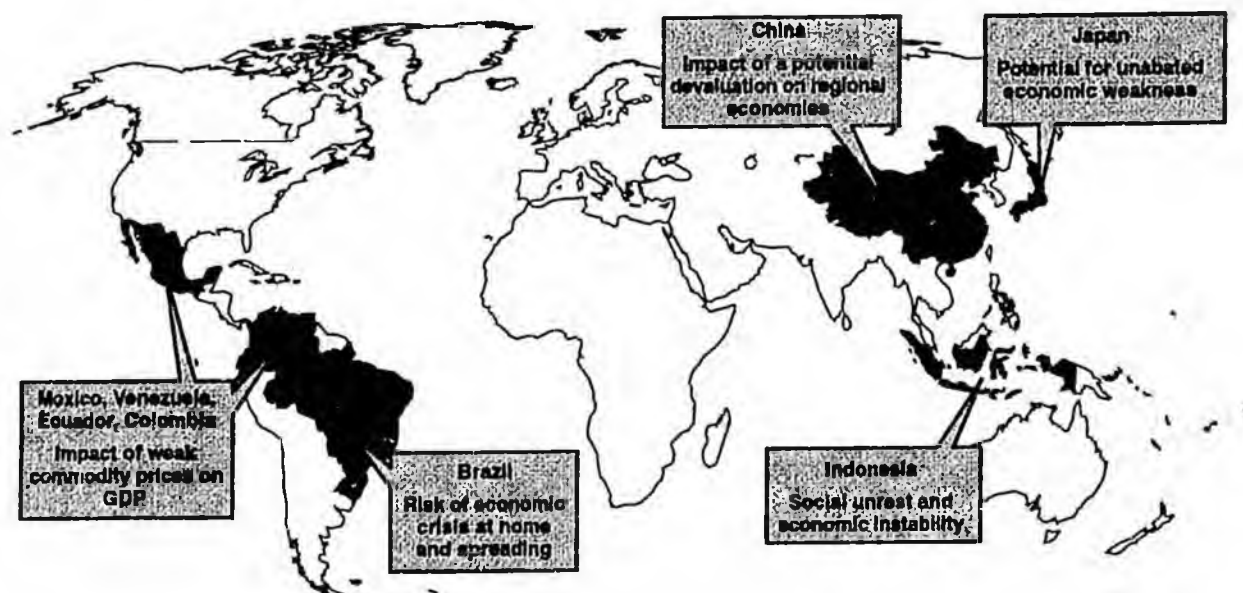
(million barrels per day)

	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
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)
<b>Total Asia Pacific</b>	<b>0.13</b>	<b>(1.28)</b>	<b>(2.09)</b>	<b>(2.52)</b>

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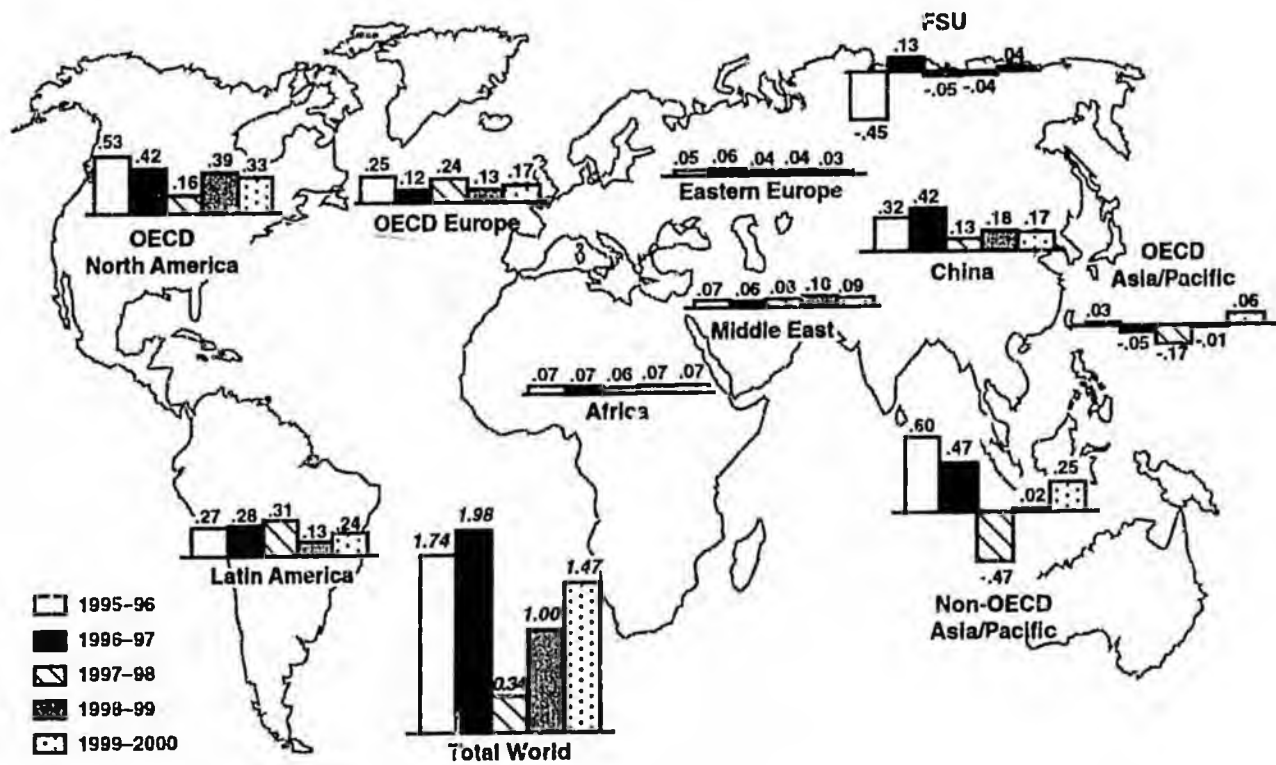
Source: Cambridge Energy Research Associates.  
Note: Non-OECD Asia Pacific excludes China.

## Demand Side Risks in 1999



Source: Cambridge Energy Research Associates.  
90020-2

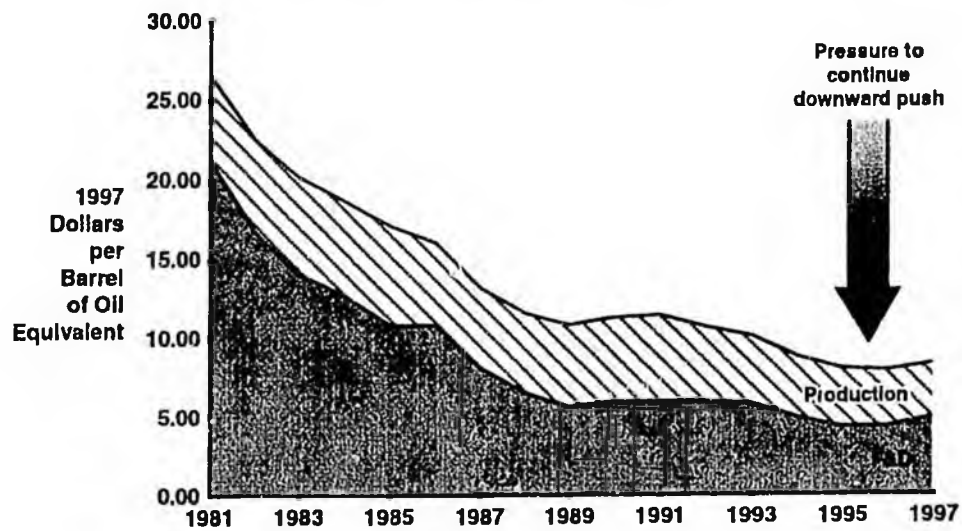
### Changes in Oil Demand by Region (million barrels per day)



Source: Cambridge Energy Research Associates.  
90323-21  
0316

## **Supply: The Price Impact**

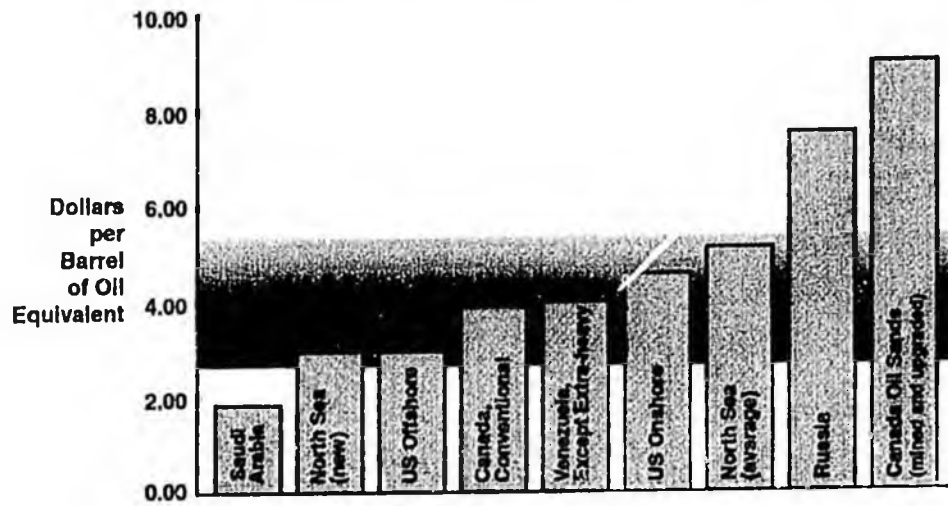
### Worldwide Full-cycle Upstream Costs



Sources: Cambridge Energy Research Associates, DOE.

#0023-H5

## Estimated Operating Costs Around the World



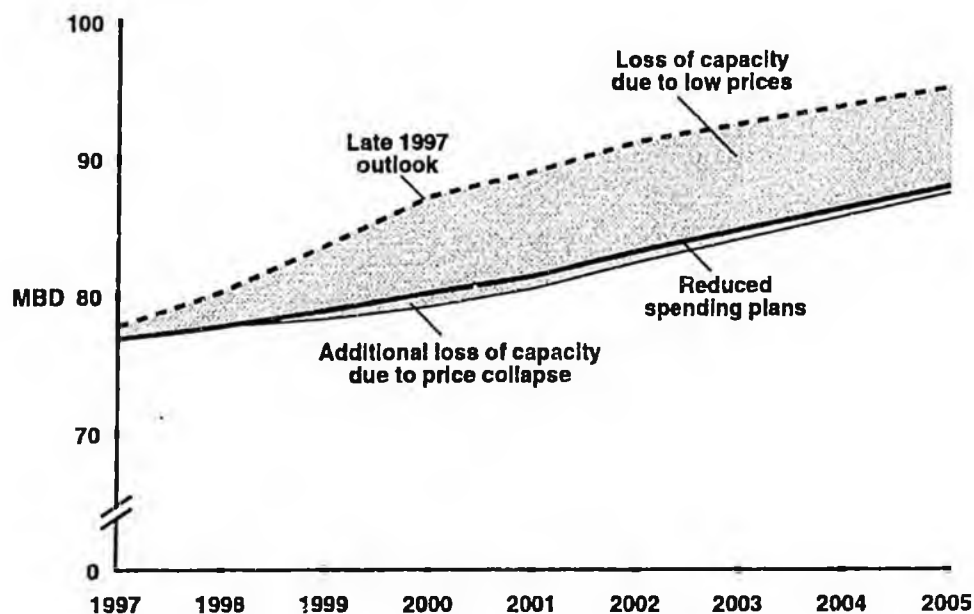
Source: Cambridge Energy Research Associates.

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

80128-H1  
1208

## World Liquid Productive Capacity Outlooks

(million barrels per day)

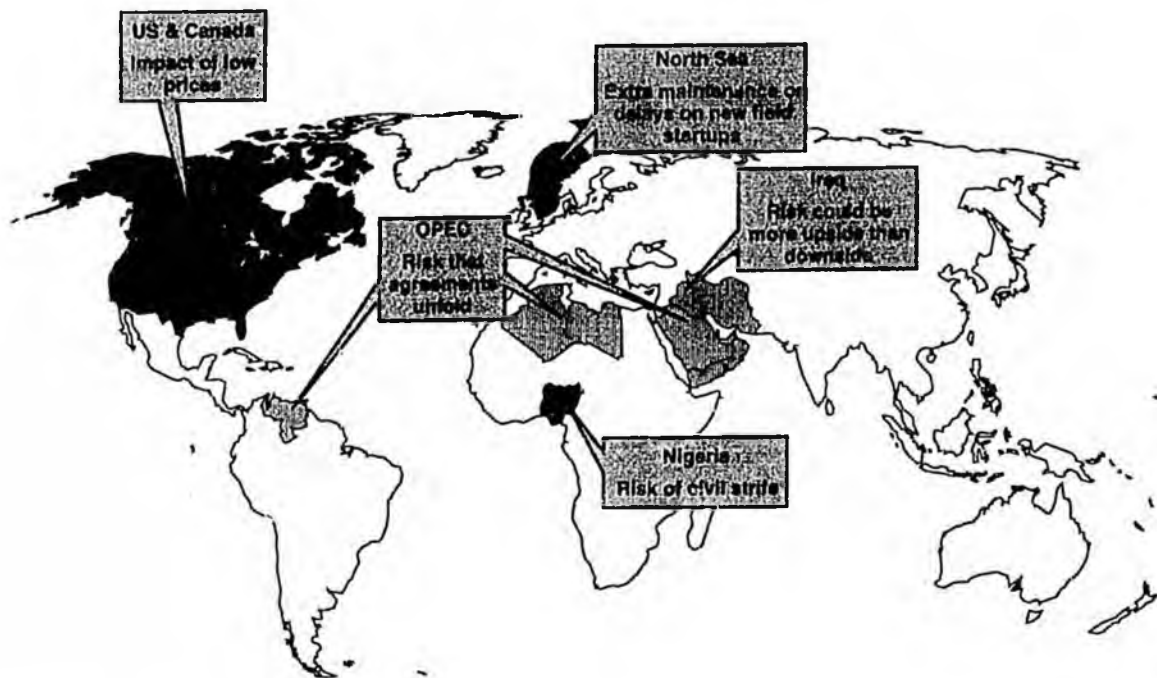


	1997	1998	1999	2000	2001	2002	2005
<b>Late 1997 supply outlook</b>	77.8	80.3	83.6	87.2	89.0	91.2	95.1
<b>Reduced spending plans (1999-2000)</b>	76.9	77.8	78.9	80.2	81.4	83.2	87.9
<b>Change with lower spending</b>	-0.9	-2.5	-4.7	-7.0	-7.6	-8.0	-7.2
<b>MEMO: Demand outlook</b>	73.8	74.1	75.1	76.6	77.9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

Source: Cambridge Energy Research Associates.  
Updated March 1999

80332-58

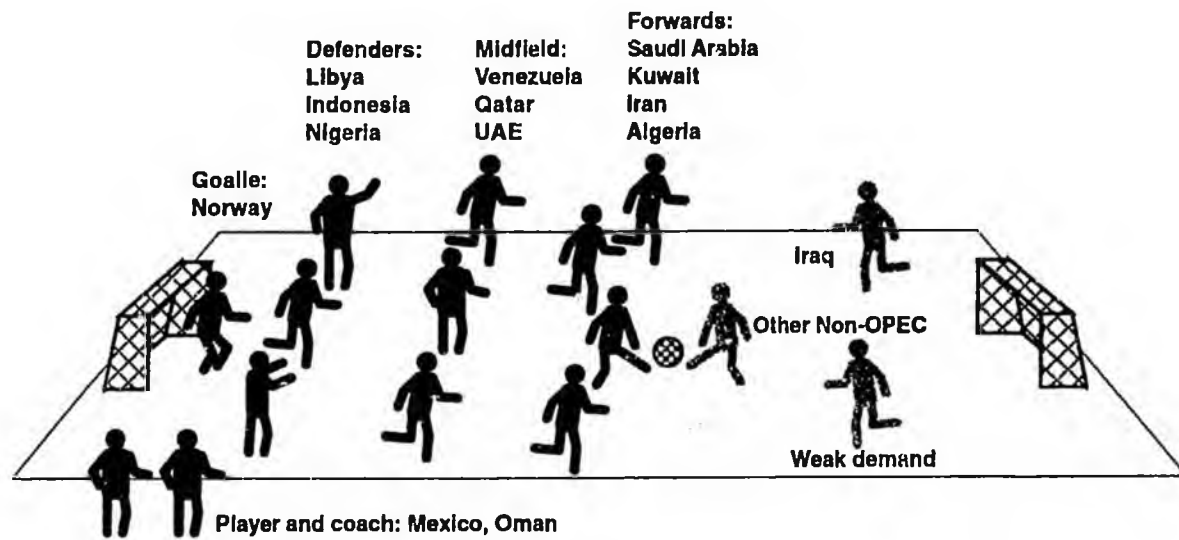
## Supply Side Risks In 1999



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.

90.320-7

## The Regulators Hold Back—For How Long?



Source: Cambridge Energy Research Associates.  
803183

## Iraq's Oil Production and Export Capability

(estimates in million barrels per day)

<u>Capacity</u>	<u>Current</u>	<u>Facilities Recovery Time</u>			
		<u>Volume</u>	<u>Months</u>	<u>Volume</u>	<u>Months</u>
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 quarter 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.

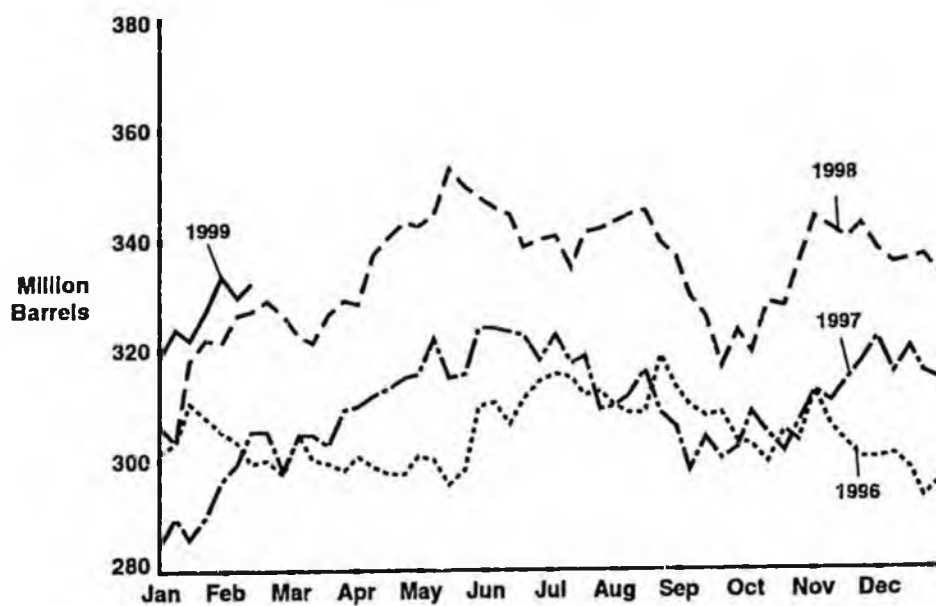
The estimate of export potential assumes that the IPSA II pipeline across Saudi Arabia and the IPC line across Syria remained unavailable to Iraq.

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

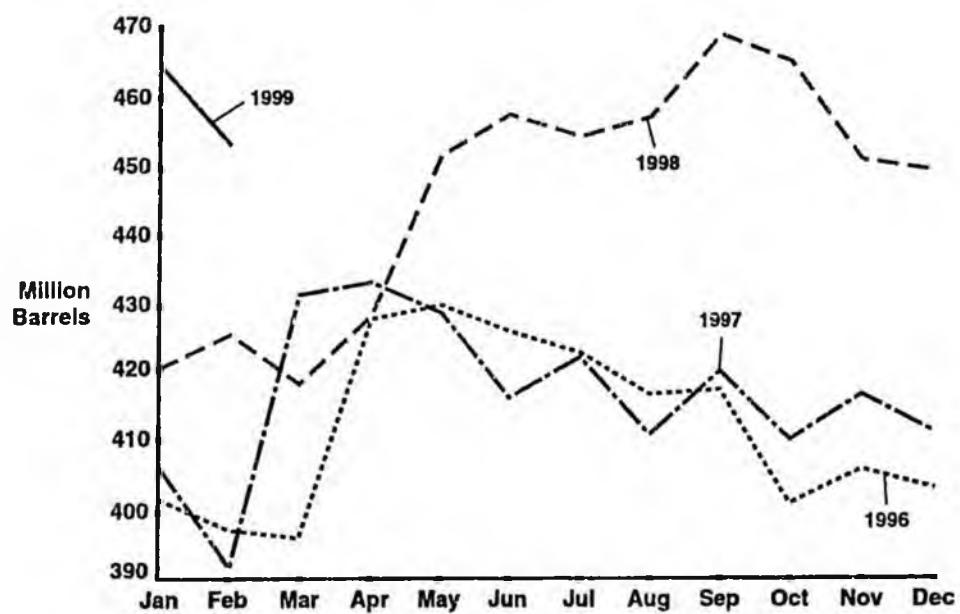
## **Inventories: After the Peak**

### Total US Crude Stocks



Source: American Petroleum Institute.  
00203-4  
0318

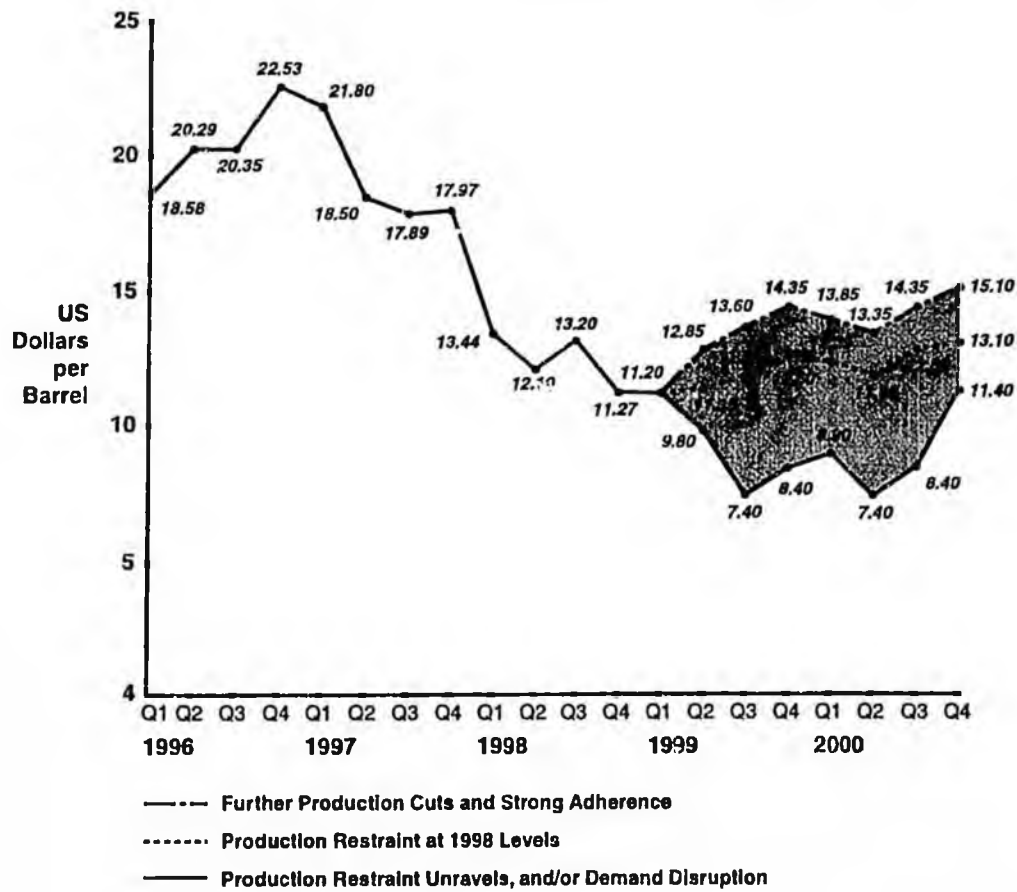
### European Crude Oil Stocks



Source: Cambridge Energy Research Associates.  
90203-7  
0318

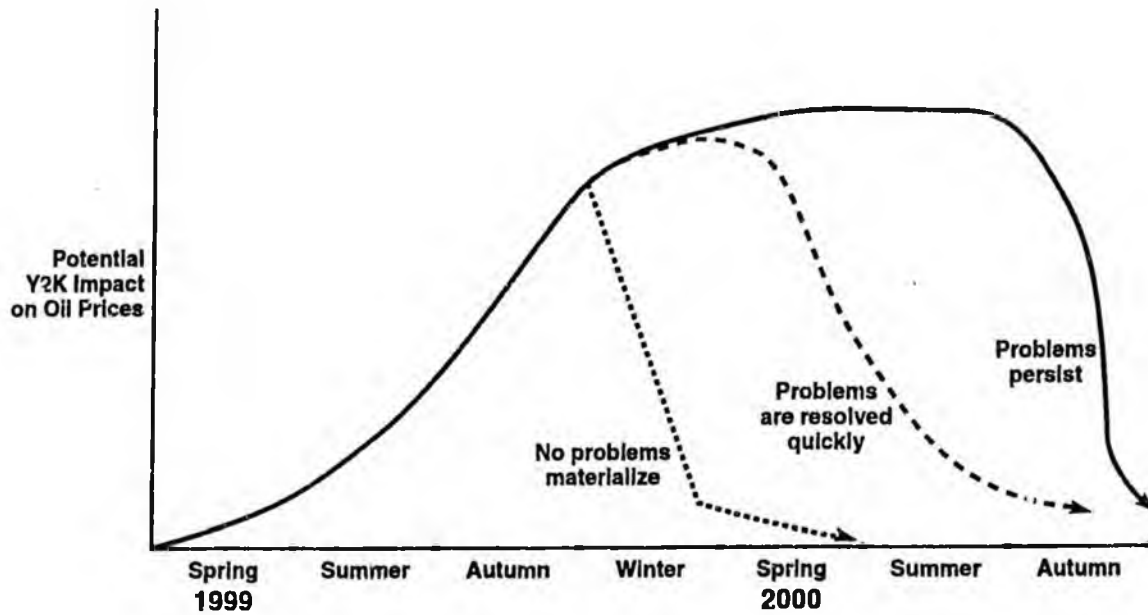
**Price: OPEC's Visible Hand**

### The 1996–2000 Oil Price Environment: ANS



Source: Cambridge Energy Research Associates.  
 00332-1

## 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*

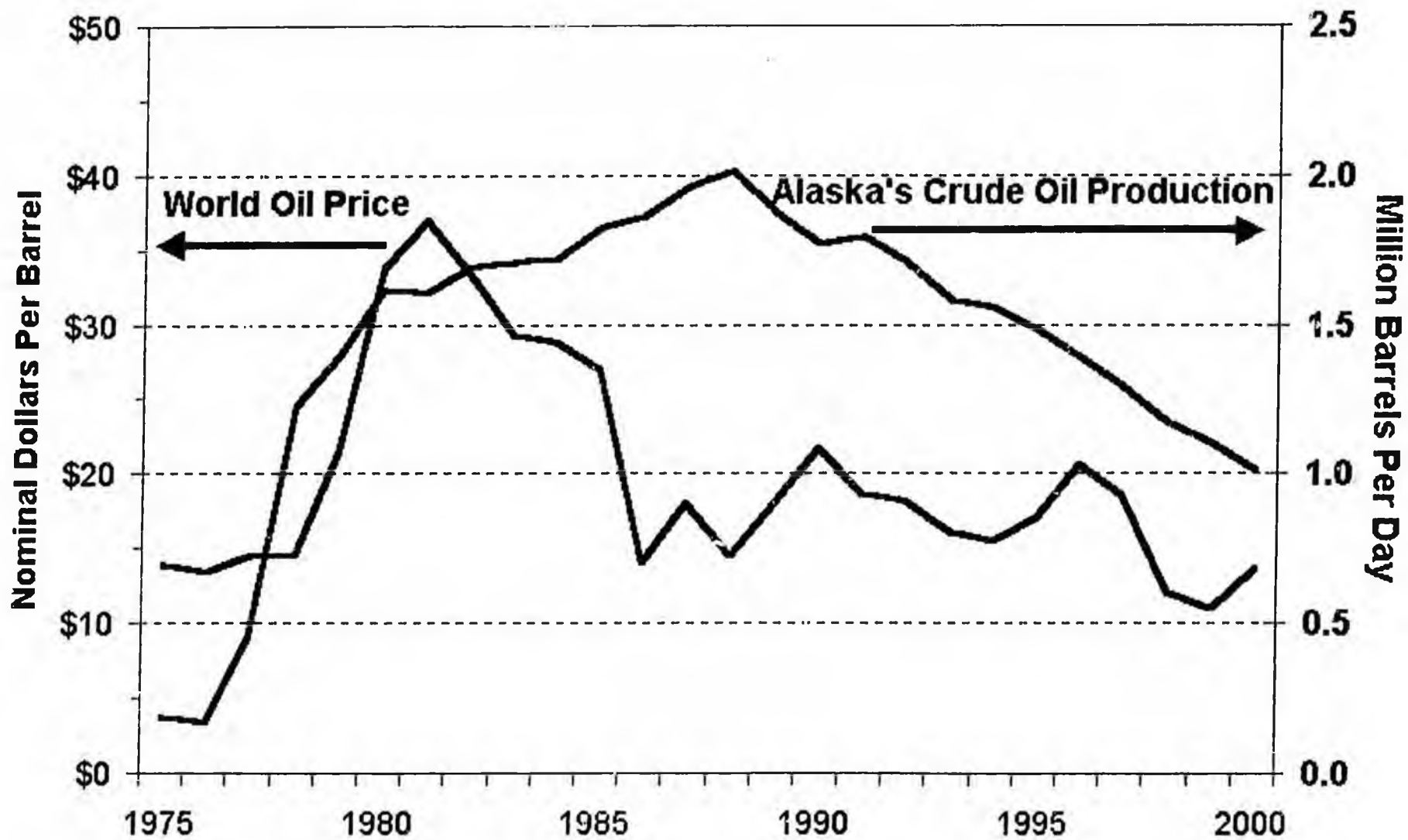
*Presentation to the  
Alaska Finance Committees*

# **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**

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**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

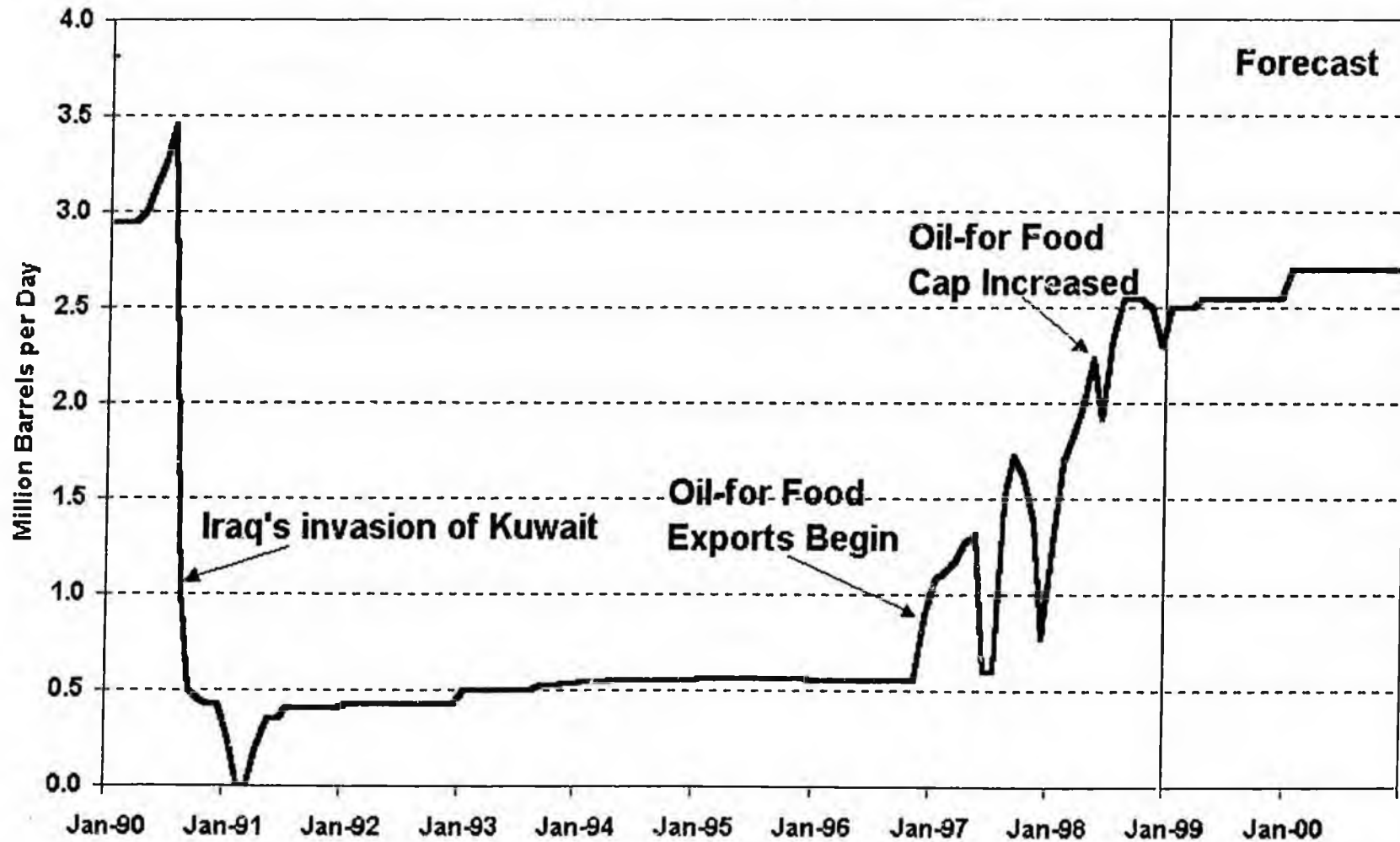
## Part 1 - Iraq

- 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



# Factors Influencing World Oil Market

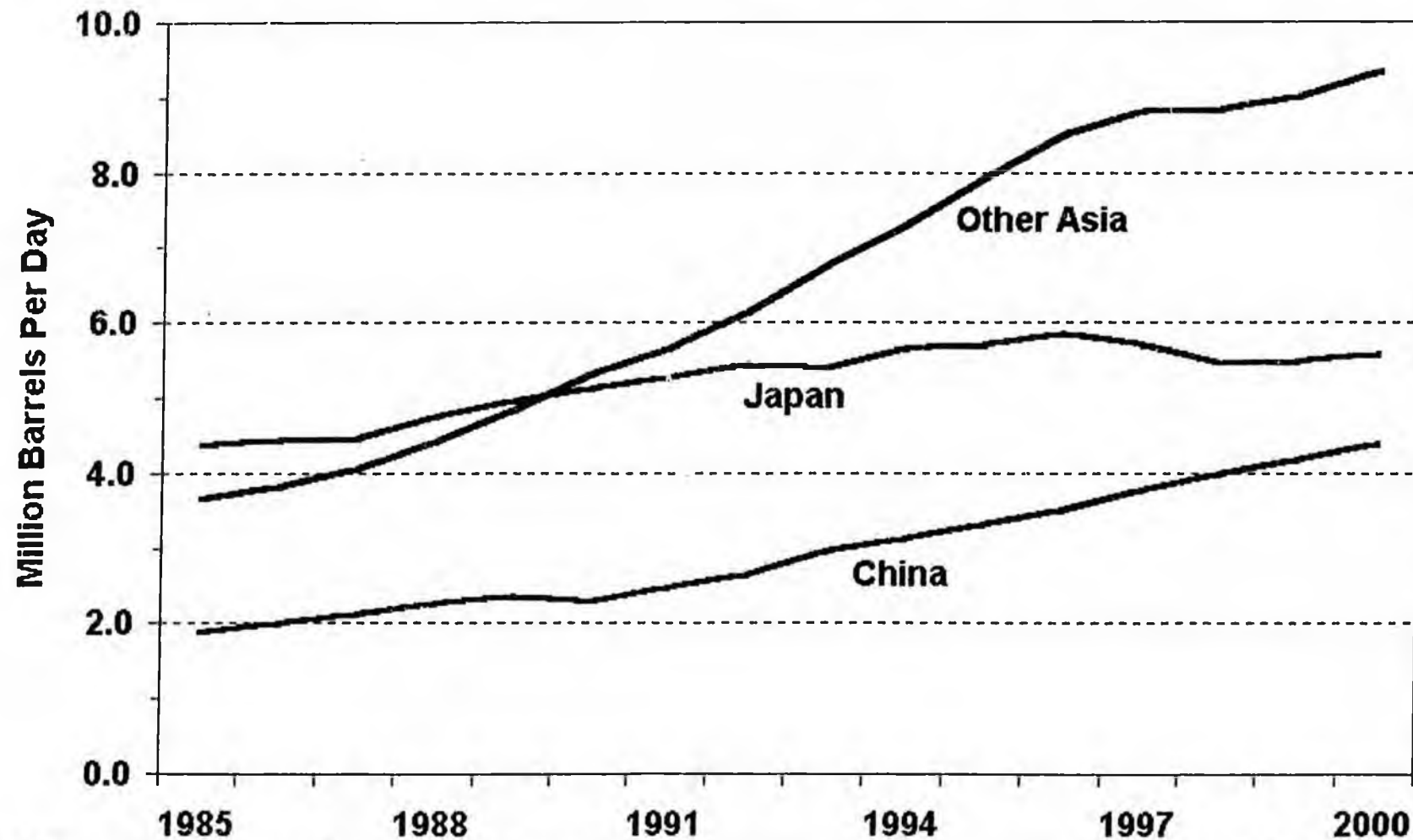
## Part 2 - Asia

- 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



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# Factors Influencing World Oil Market

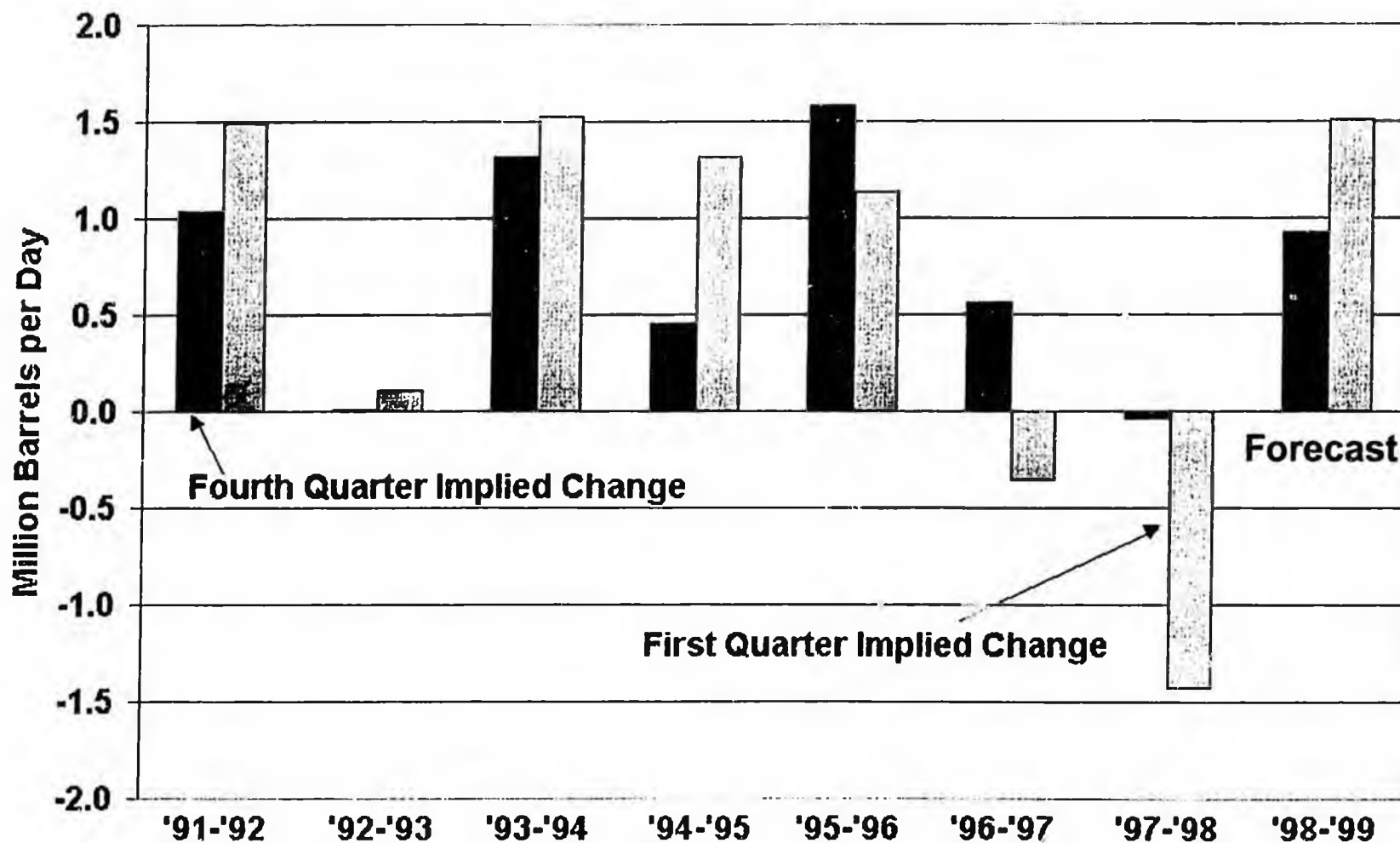
## Part 3 - Warm Weather

- 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)

### Implied Global Stock Change During Winter Quarters

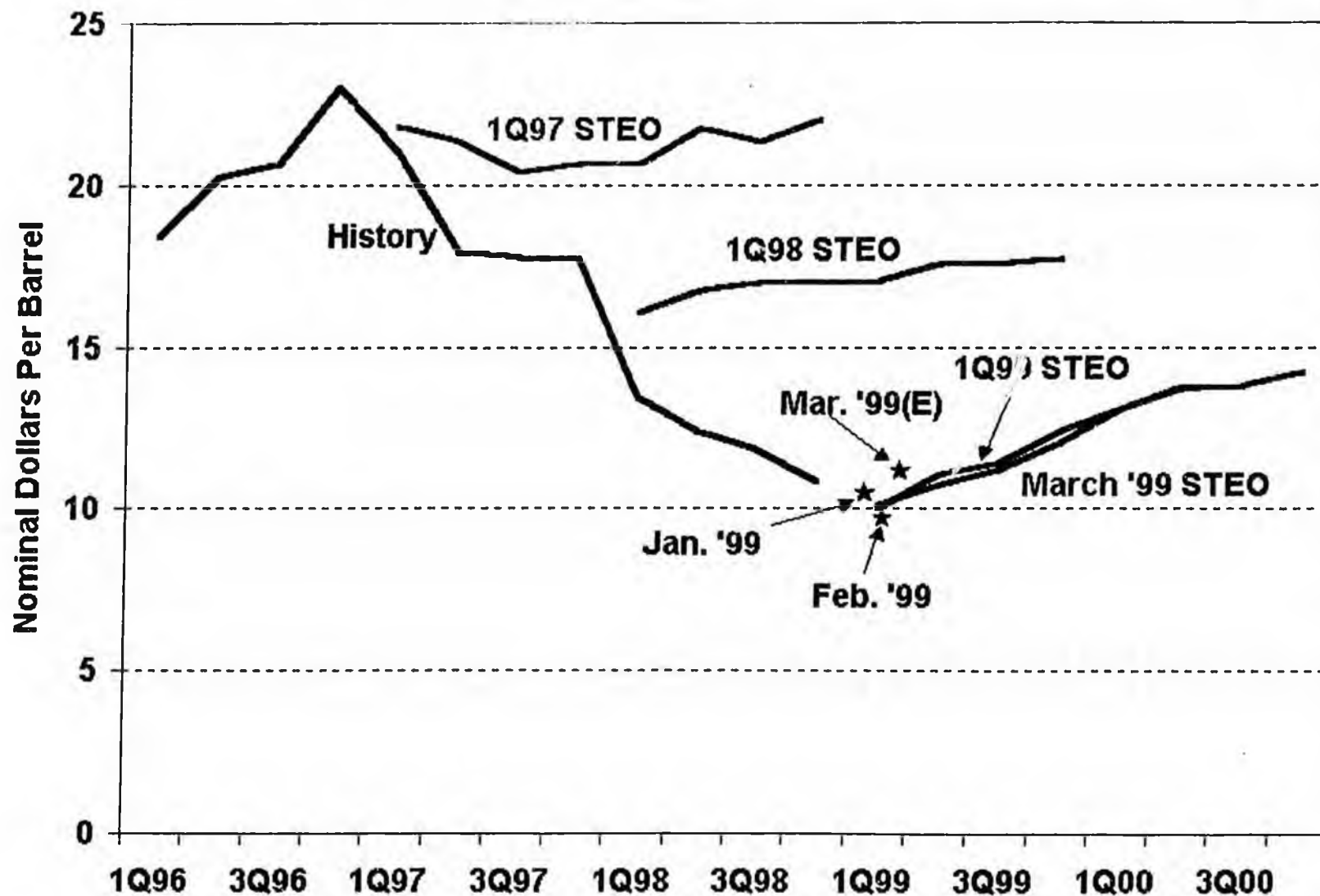


# Factors Influencing World Oil Market

## 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

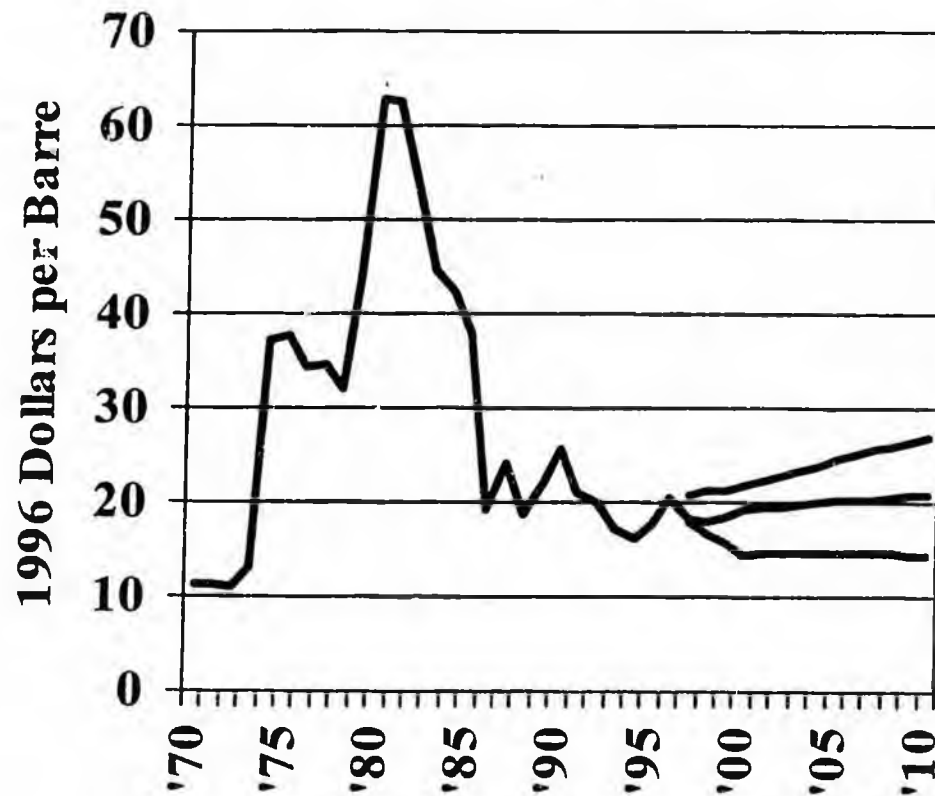
# Recent EIA World Oil Price Forecasts



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

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*Energy Information Administration*

*March 23, 1999*



# Alaska State Legislature

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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

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### **DOUG MacINTYRE** **US Energy Information Administration**

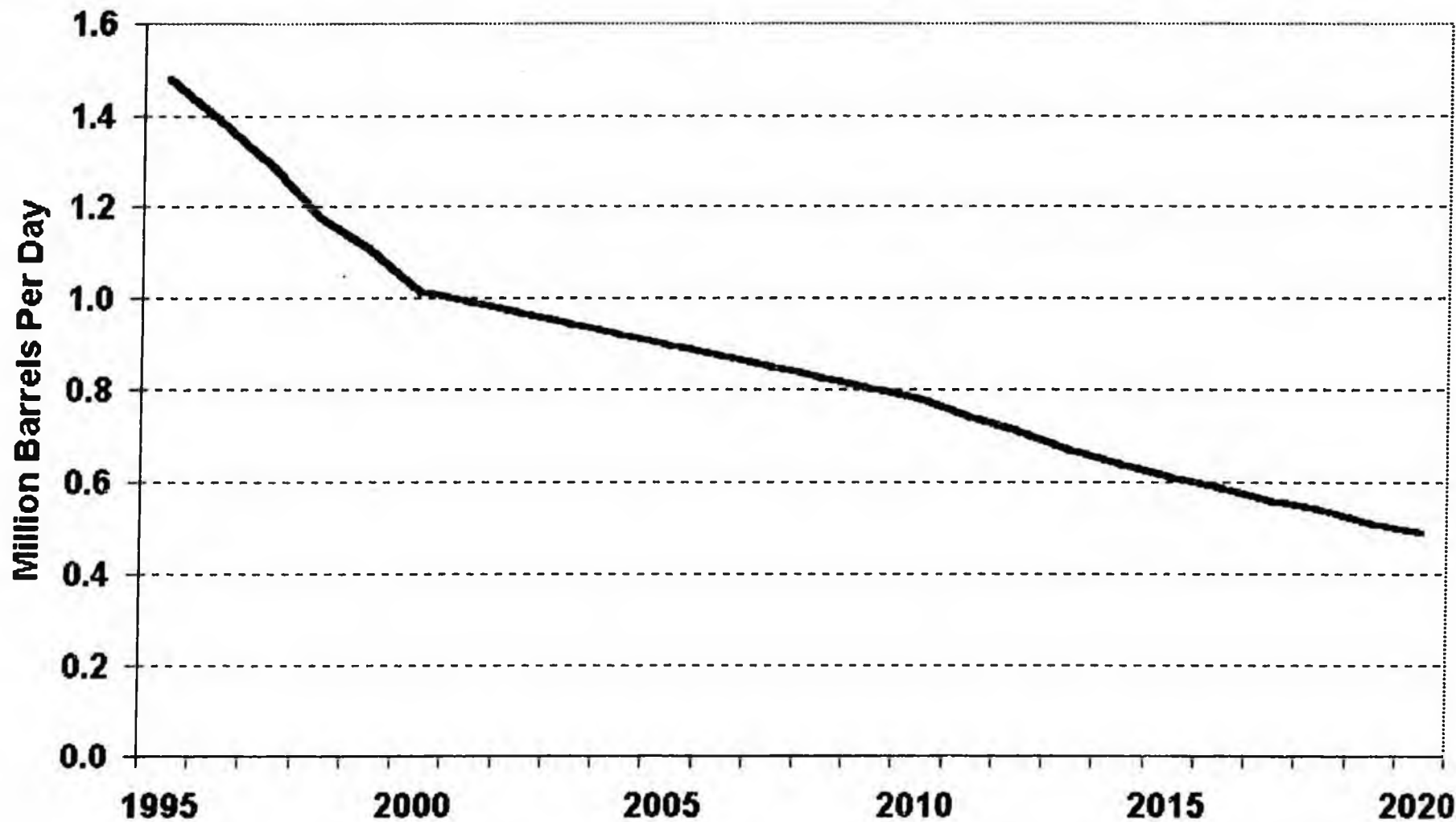
Doug MacIntyre is responsible for the Energy Information Administration's (EIA) short-term international oil market forecast (<http://www.eia.doe.gov/emeu/steo/pub/contents.html>), including EIA's short-term world oil price forecast which is updated monthly. In addition, he is EIA's lead analyst for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