

Prospects for the World Oil Market and Crude Oil Prices for 2005



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Content

- **Major Topics in the World Oil Market in 2004**
 - **Recent supply & demand trends in the world oil market and factors behind the 2004 high crude oil prices**

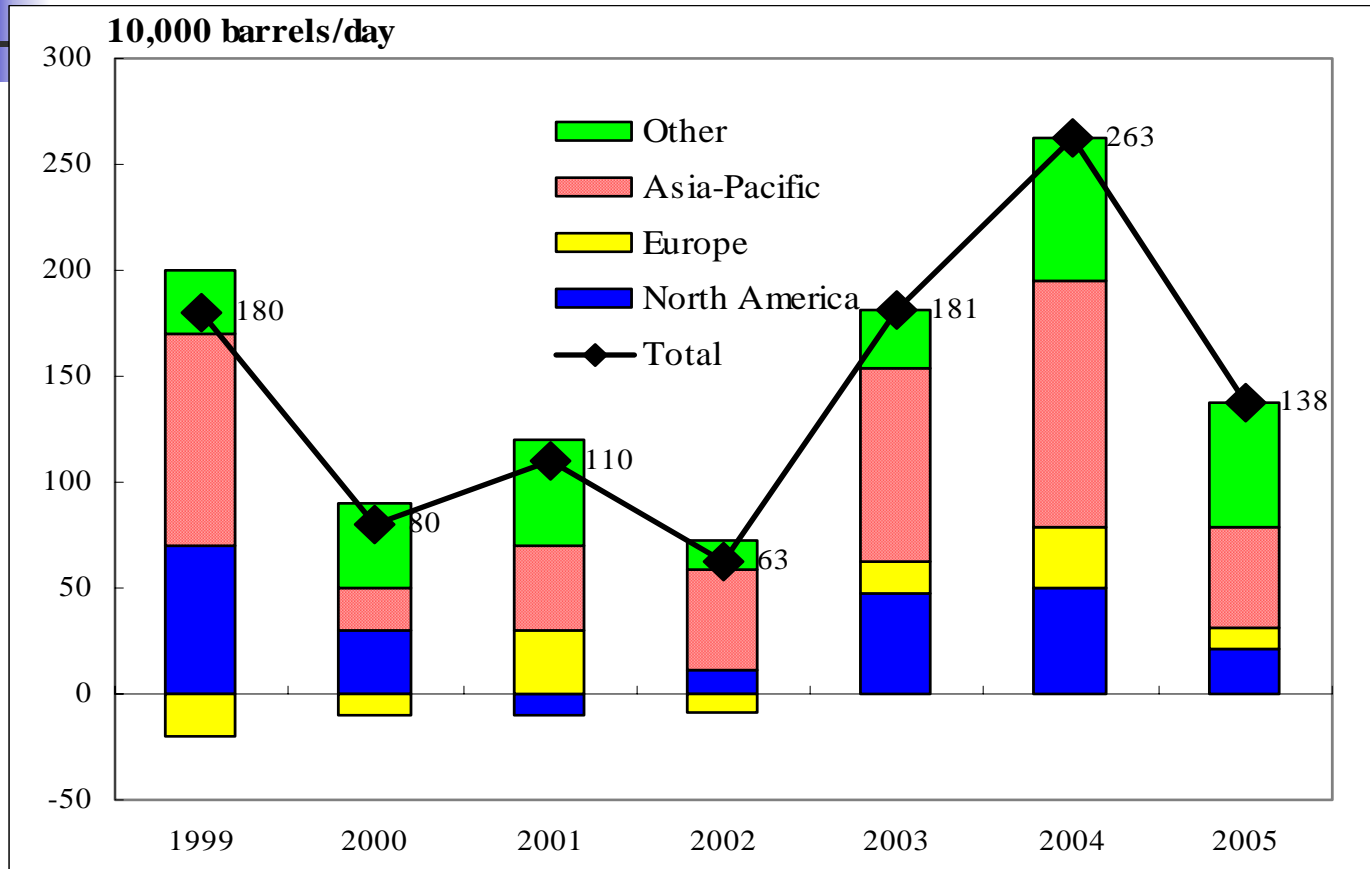
- **Prospects for the World Oil Market and Crude Oil Price in 2005**
 - **Main factors influencing supply & demand balance**
 - **Three cases concerning crude prices**

Soaring 2004 WTI Crude Futures Prices



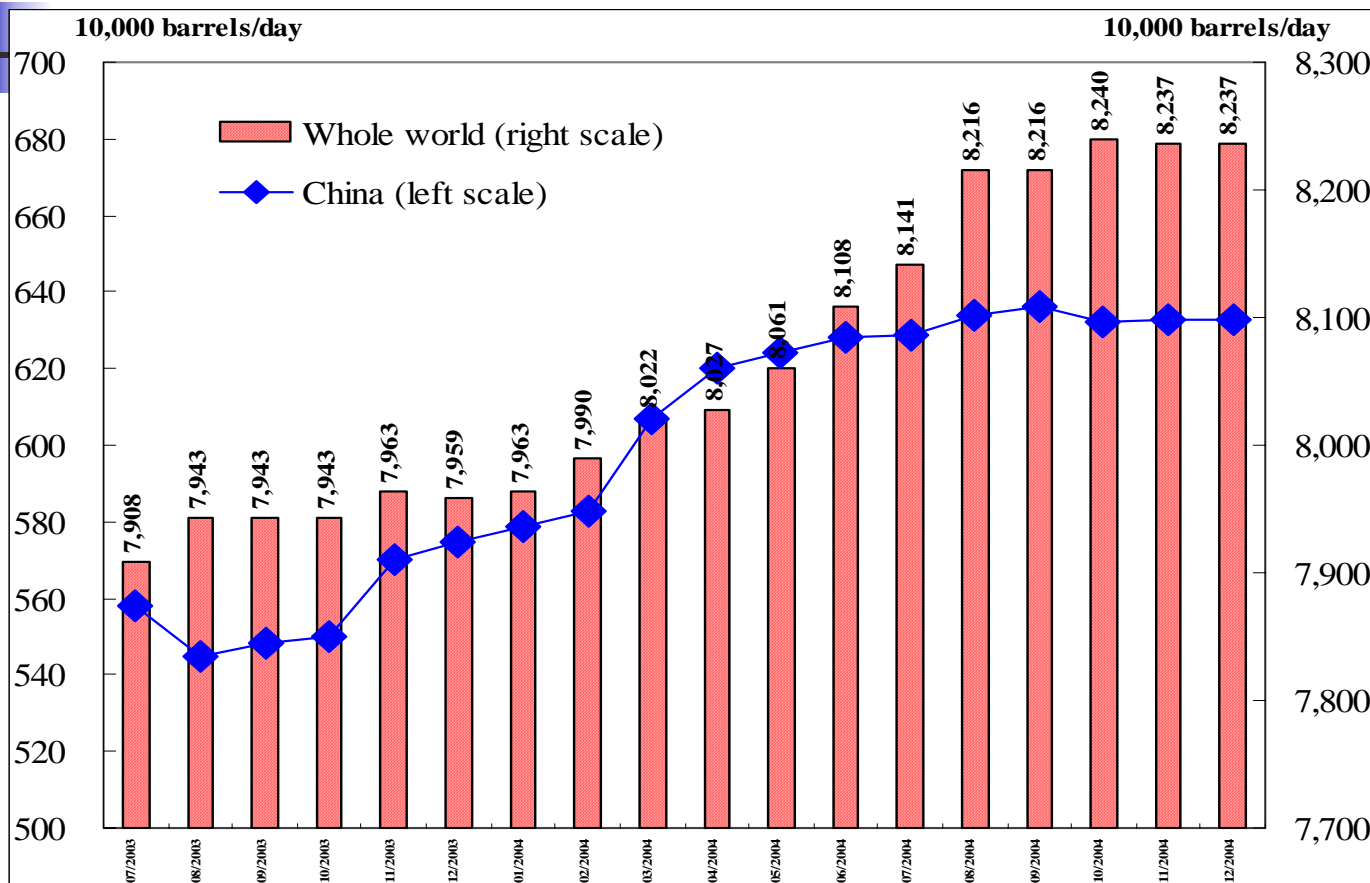
Source: Prepared by the author from NYMEX data

Huge Increase in World Oil Demand in 2004



Source: Prepared by the author from IEA Oil Market Report

2004 World Oil Demand (IEA forecasts) Consistently Revised Upward

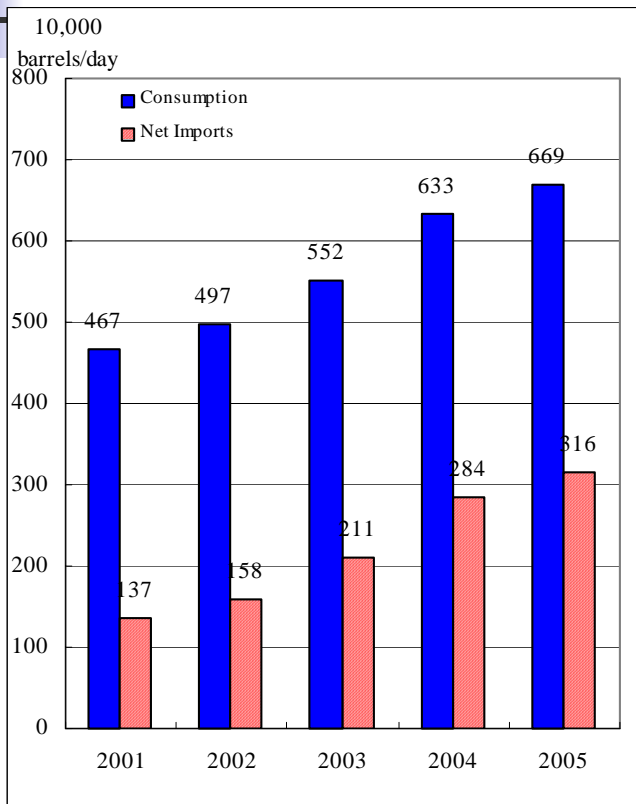


Note: Graph shows world & China oil demand forecasts released at each point of time (monthly)

Source: Prepared by the author from IEA Oil Market Report

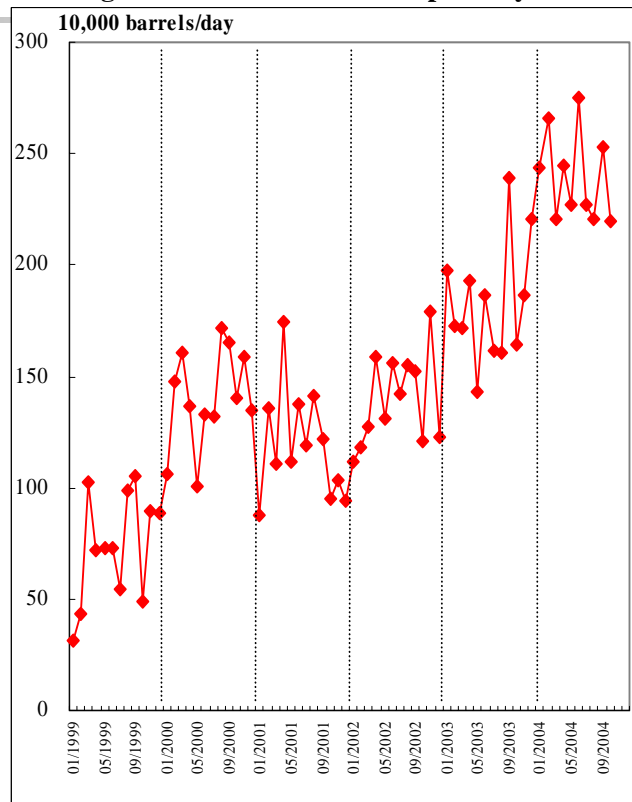
Increasing Chinese Oil Demand & Crude Oil Imports

Changes in China's oil supply & demand balance



Source: Prepared by the author from IEA Oil Market Report

Changes in China's crude oil imports by month



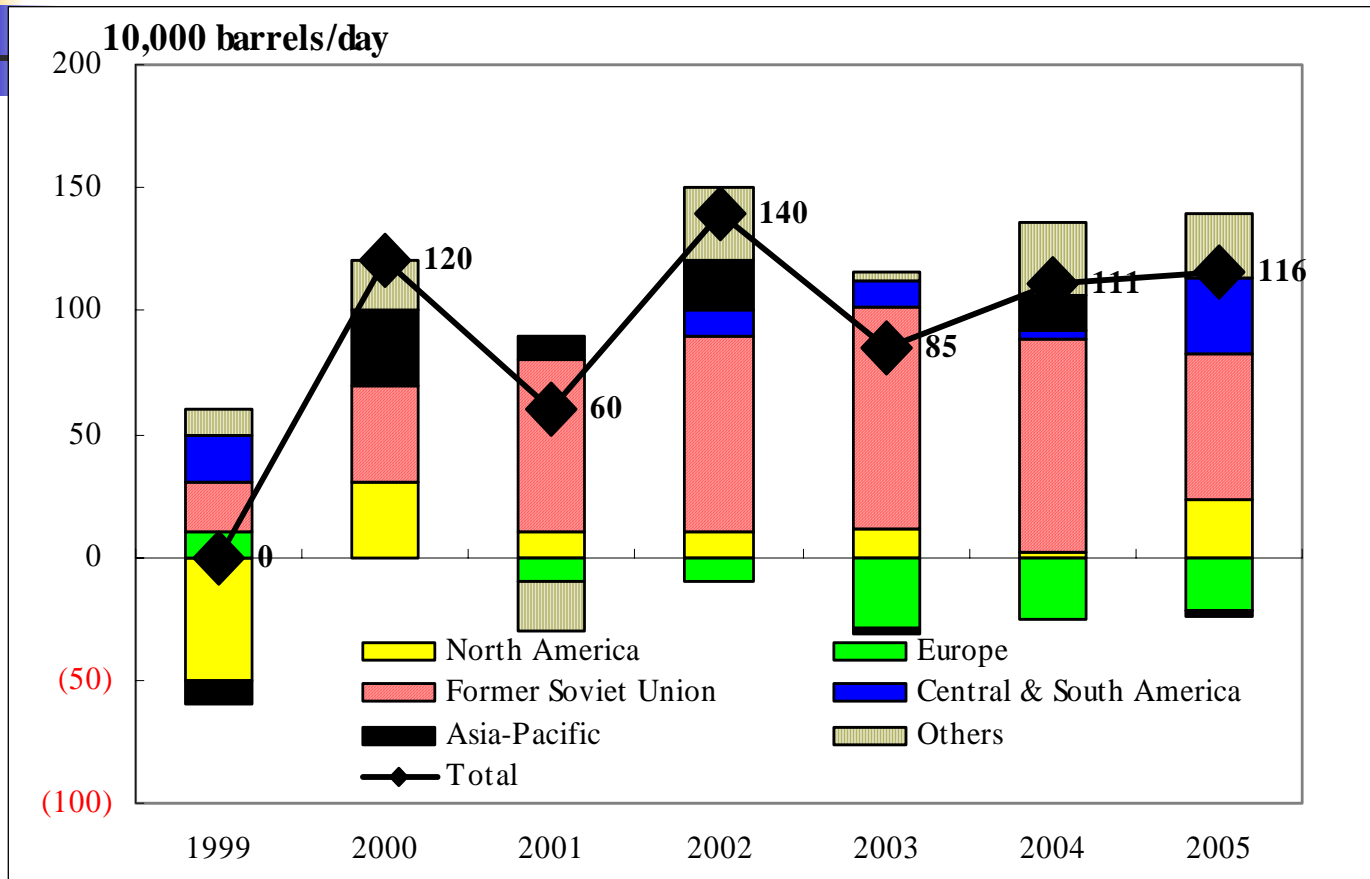
Source: Prepared by the author from Chinese customs statistics and other data

Tight U.S. Gasoline Supply & Demand Situation and its Effects



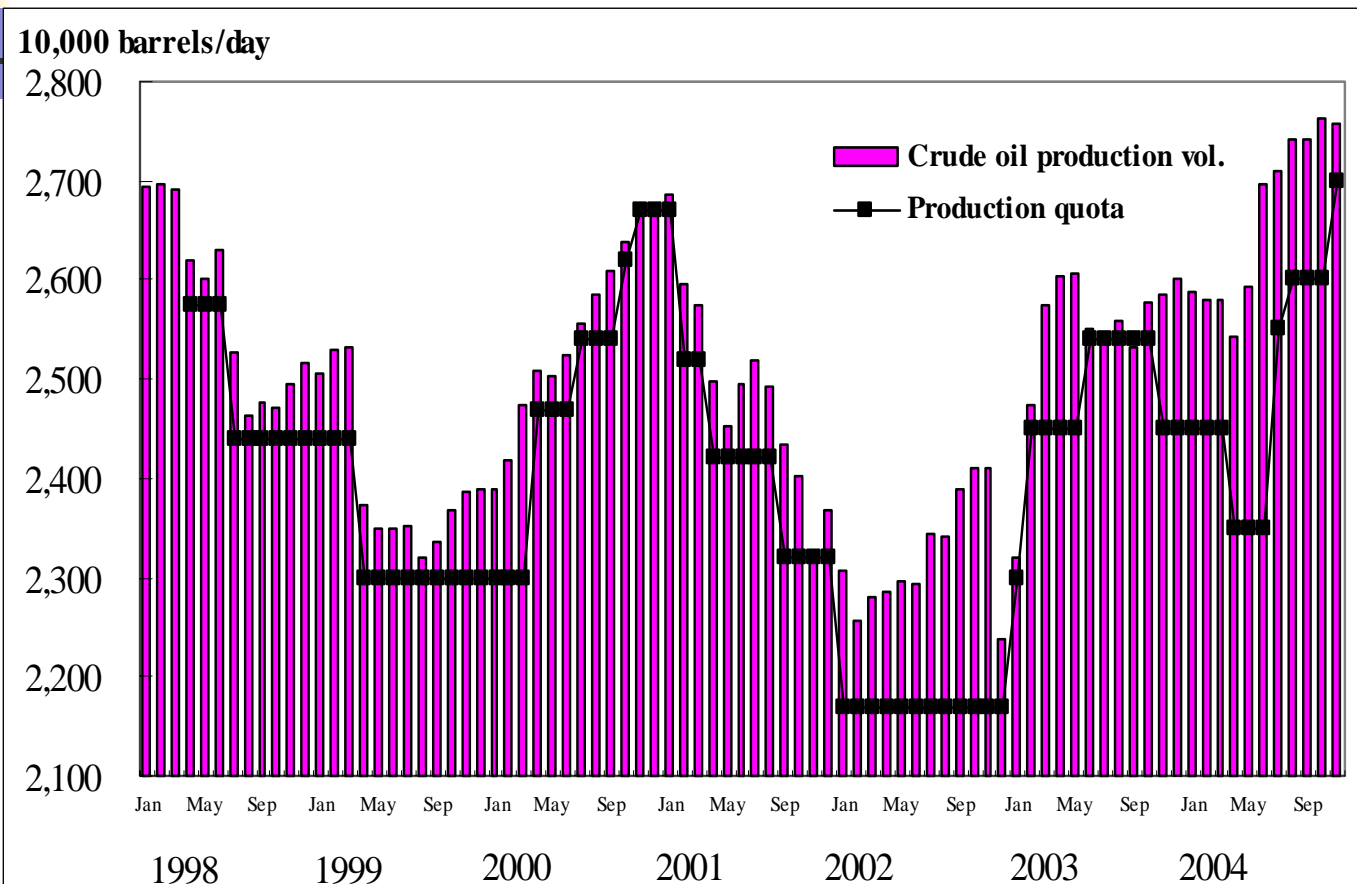
- **Steadily growing gasoline demand in the world's largest market**
 - Favorable domestic economy, popularity of SUVs
 - Rising demand for driving
- **Bottlenecked gasoline supply**
 - U.S. refineries running at almost full capacity
 - Stricter gasoline quality standards introduced
 - Fragmented quality standards by region/state (Boutique fuel problems)
- **Gas prices top \$2/gal. in May 2004, creating a political problems (tops \$2/gal. again in October)**
- **Gasoline prices and problems affect crude oil prices, driving crude oil prices sky high**
- **Supply bottleneck remaining in U.S. petroleum's downstream oil industries**

Non-OPEC Production to Increase, but Less than 2004 Demand Increases



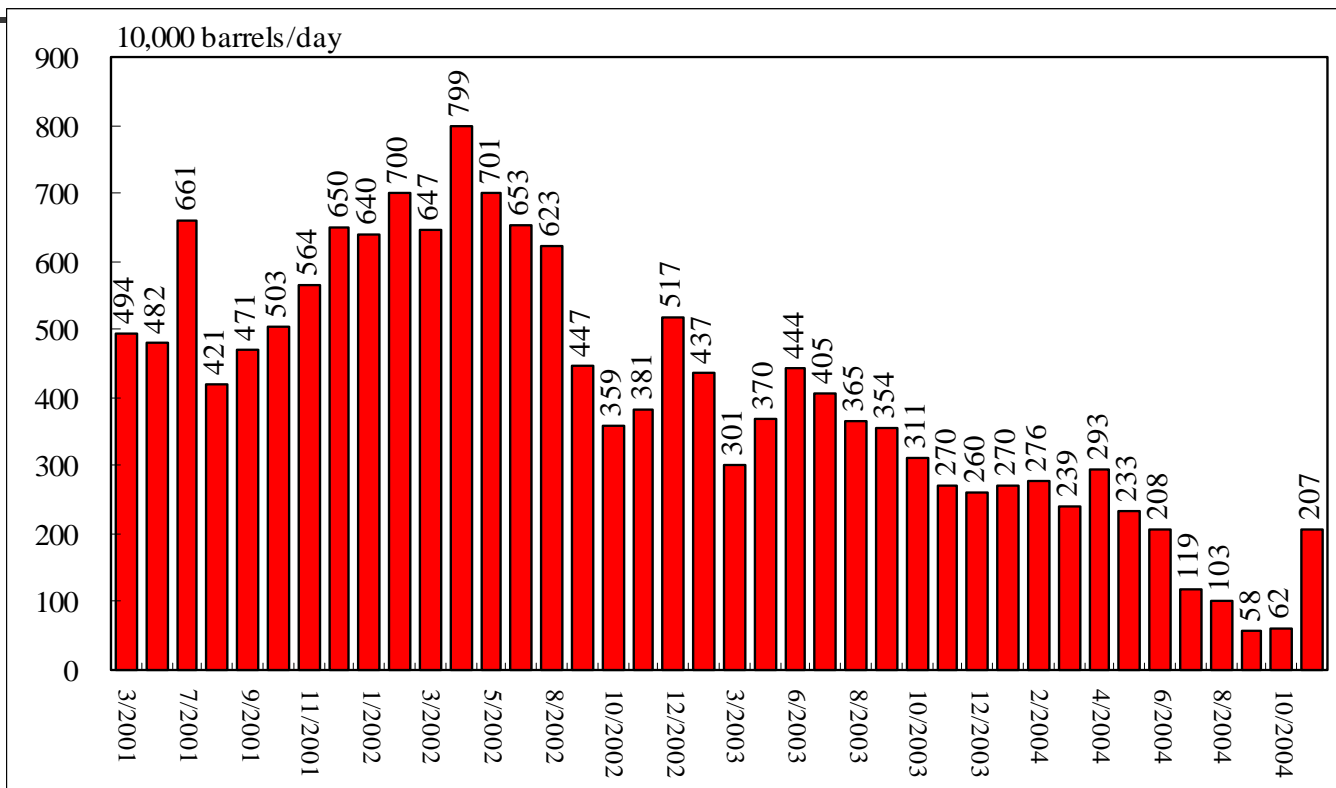
Source: Prepared by the author from IEA Oil Market Report

Major Production Increase by OPEC 10 to Meet Increase in Demand



Source: Prepared by the author from IEA Oil Market Report

Decreasing OPEC Surplus Production Capacity



Note: In October 2002, IEA revised downward Saudi Arabia production capacity estimates by 1 million barrels/day to 9.5 million due to a revision of definitions. Figures were revised upward in December 2004 to again be in the 10 to 10.5 million barrels/day range.

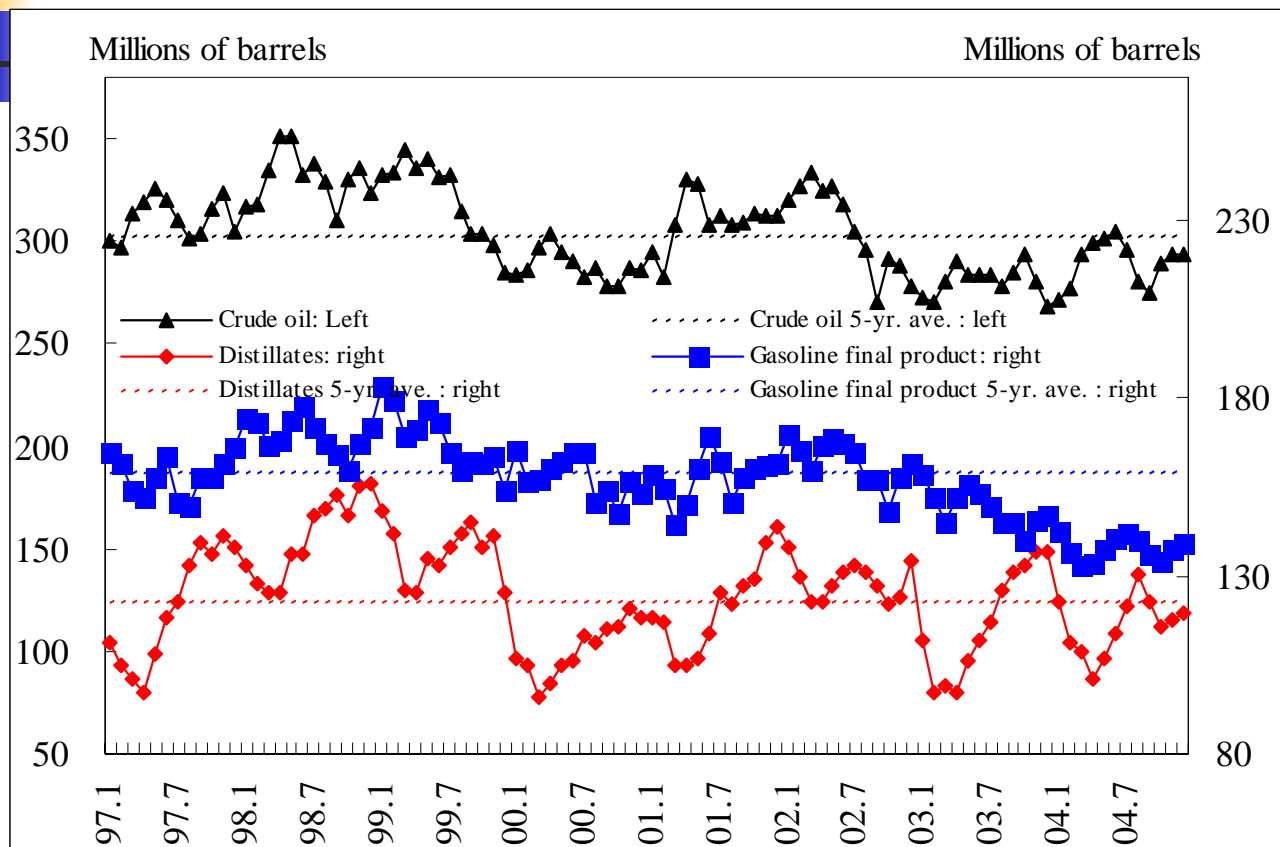
Source: Prepared by the author from IEA Oil Market Report

Recent OPEC Crude Oil Production Status

	Crude oil production capacity (1,000 B/D) (A)	Nov. 2004 output (1,000 B/D) (B)	Surplus capacity (1,000 B/D) (A) - (B)	Current production quotas (1,000 B/D) (C)	Production over quotas (1,000 B/D) (B) - (C)
Algeria	1,300	1,290	10	860	430
Indonesia	1,000	970	40	1,400	(430)
Iran	4,000	3,900	100	3,960	(60)
Iraq	2,500	1,790	720		
Kuwait	2,500	2,440	60	2,170	270
Libya	1,620	1,610	10	1,450	160
Nigeria	2,400	2,350	50	2,220	130
Qatar	800	800	0	700	100
Saudi Arabia	10,000-10,500	9,550	450-950	8,780	770
UAE	2,550	2,420	140	2,360	60
Venezuela	2,250	2,250	0	3,110	(860)
Total	30,920-31,420	29,360	1,570-2,070	27,000	570
OPEC10 (excluding Iraq)	28,420-28,920	27,570	850-1,350		

Source: Prepared by the author from IEA Oil Market Report

U.S. Private Sector Oil Inventories Remaining Low



Note: Gasoline final product means gasoline totals minus gasoline blendstock.

Source: Prepared by the author from DOE/EIA website data

Drop in Supply Surplus/Buffers and its Effect



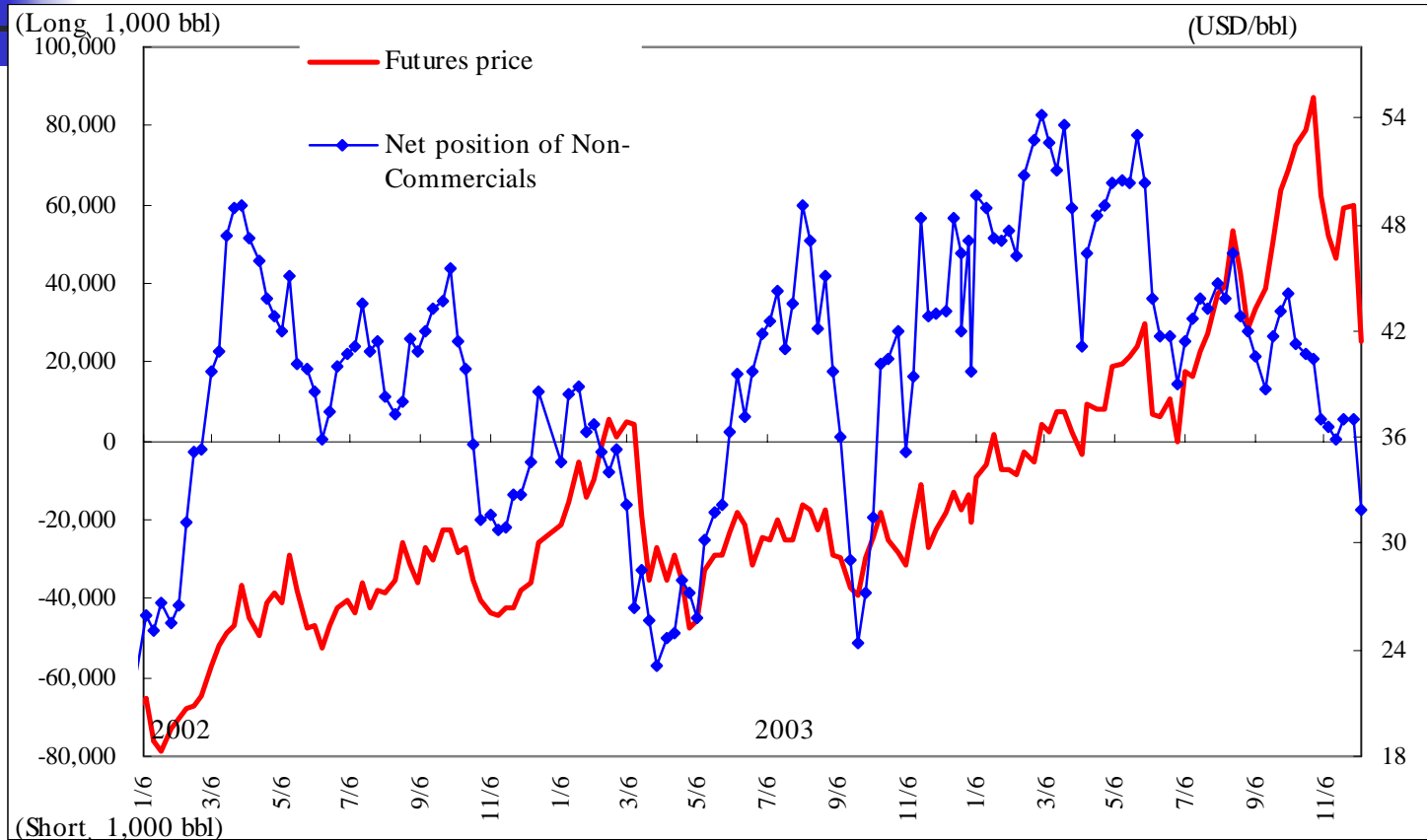
- **Supply surplus/buffers play an important role in responding to and adjusting for supply and demand fluctuation in the world oil market.**
- **Major supply surplus/buffers include OPEC surplus production capacity, oil stocks, and surplus refining capacity.**
- **Supply surplus/buffers have shrunk markedly due to factors such as demand increases and oil companies' streamlining efforts and pursuits.**
- **Vulnerability of the market as a whole to demand/supply fluctuations has increased with the drop in surplus/buffers.**

Repeated Incidence of Supply Instability in 2004



- **Instability in the Iraqi situation**
 - Confusion and instability in political & security situations
 - Terrorist attacks on oil export infrastructure
- **Terrorist attacks in Saudi Arabia and increased concern for their effects on the oil sector**
 - Two terrorist attacks in May on targets related to the oil sector
 - Emergence of security concerns about Saudi Arabia, the world's largest oil producing nation having the largest surplus capacity
- **Russia reeling from the Yukos problem**
- **Tension in Nigeria**
- **Damage from Hurricane Ivan, etc.**

Trading of Non-Commercials and WTI Futures Prices



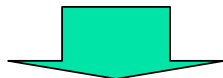
Source: Prepared by the author from NYMEX and CFTC materials

Speculative Trading and Risk Premiums

- Continuing supply instabilities have created anxiety among investors in the market. Large impact on market psychology.
- Vulnerability from reduced supply surplus/buffers (previously mentioned)



- Increases in speculative trading while volatility is on the rise



- Accelerating crude price skyrocketing and volatility increases
 - Some predict that the portion padding the price jump (risk premium) may reach \$10 to \$15 (for crude oil of more than \$50/barrel).

Major Factors Influencing the World Oil Market in 2005 (Uncertainties)

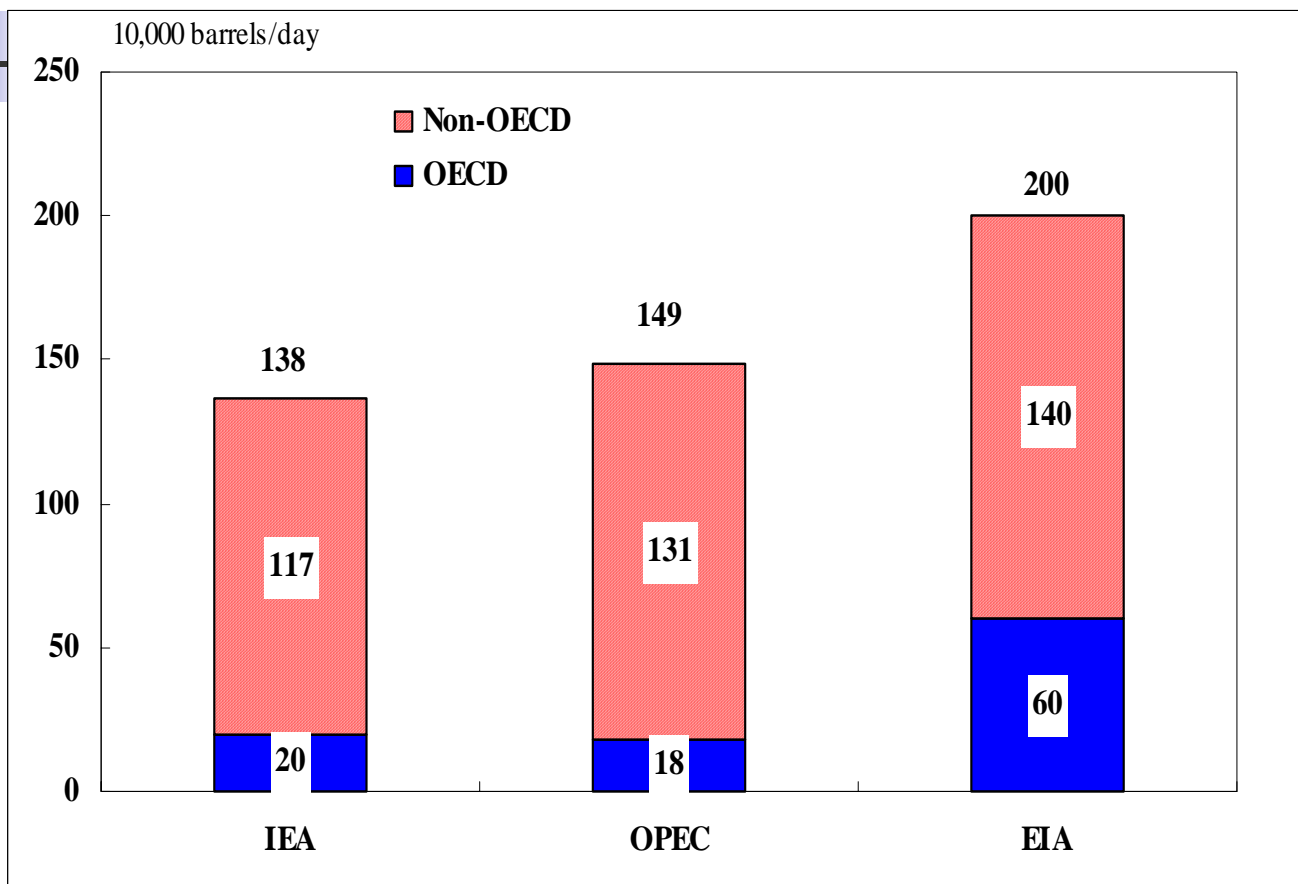
- **Growth in world oil demand**
- **Trend for non-OPEC production increases**
- **OPEC production trends and surplus production capacity situation**
- **Possibility of supply interruptions and instability in major oil producing countries**
- **Trends in speculative money influx**
- **OPEC response to the factors above and market situations**

How to View 2005 Oil Demand



- **Was the 2004 increase in demand a case of exceptionally high growth?**
- **Possibility that global economy will gradually slow down in 2005**
- **What was the influence of the “price effect” from high crude oil prices?**
- **Will the increases in Chinese demand return to “cruising speed?”**
 - **Future of overheated economic growth**
 - **Factors that influence transportation-related demand (number of cars owned, economic growth, railroad transport bottlenecking, etc.)**
 - **Effect of electric power shortage**
 - **Effect of stock demand and speculative demand**

Comparison of Outlook for Increase in 2005 Oil Demand



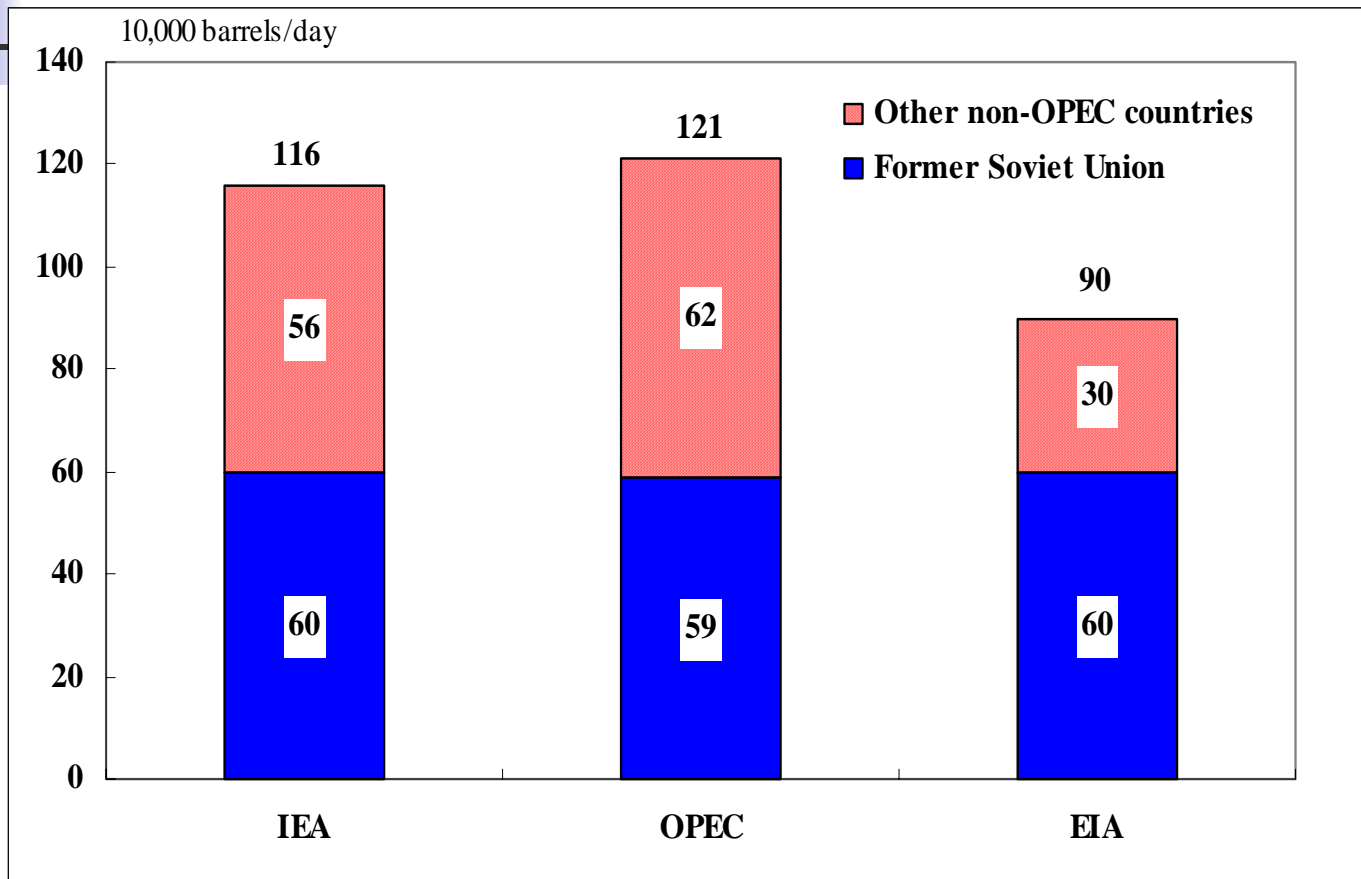
Source: Prepared by the author from IEA, OPEC, and EIA materials

How to View 2005 Non-OPEC Oil Production



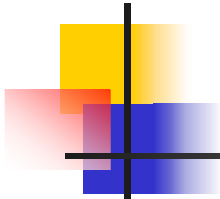
- **Will the steady production increase by non-OPEC countries since 2000 (average of just over 1 million barrels/day) continue?**
 - **Future of Russian production increases that have led the increase in production in recent years (effect of the Yukos incident)**
 - **Progress of major projects in other regions (Caspian Sea, Africa, Central & South America, etc.)**
 - **Will upstream sector investment by international oil companies increase? (Effects of high earnings, upwards revision of oil price assumptions for investment, etc.)**

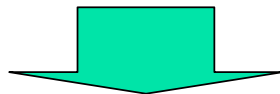
Comparison of 2005 Non-OPEC Production Increase Forecasts



Source: Prepared by the author from IEA, OPEC, and EIA materials

OPEC Responses and Their Effects

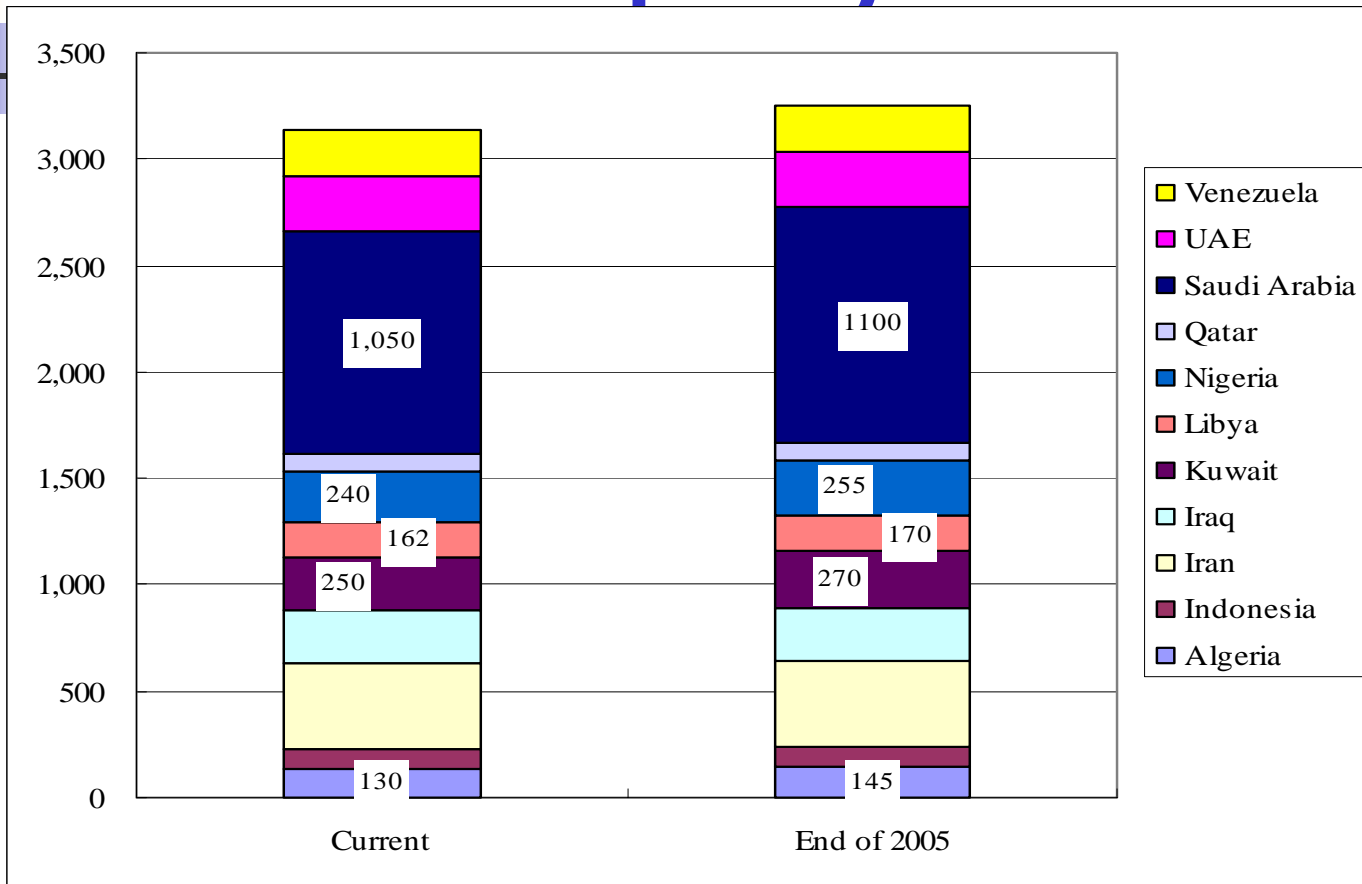
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- **Wariness about excessively high prices (more than \$40/barrel)**
 - Production quota increases decided on successively at 131st and 132nd general meetings.
 - Contribution of the production increases to market stabilization was rather limited. The side effect of lowered surplus production capacity may increase market vulnerability.
 - **Recognizing the need for production cuts in light of recent price drops and the supply and demand situation**
 - Production cuts decided on at 133rd general meeting for production quota excesses (about 1 million barrels/day)
 - Monitor market at Jan. 2005 extraordinary meeting and March regular meeting, and take necessary countermeasures.



Adhere to supply adjustment policy for market stabilization

- **OPEC commenced investments to raise production capacity in response to demand increase.**
 - Mainly for Gulf OPEC (Saudi Arabia, etc.) and Africa OPEC
 - OPEC capacity as a whole may reach around 32 to 33 million barrels/day in 2005.

Outlook for OPEC Crude Oil Production Capacity Increase



Source: Prepared by the author from IEA materials and interviews

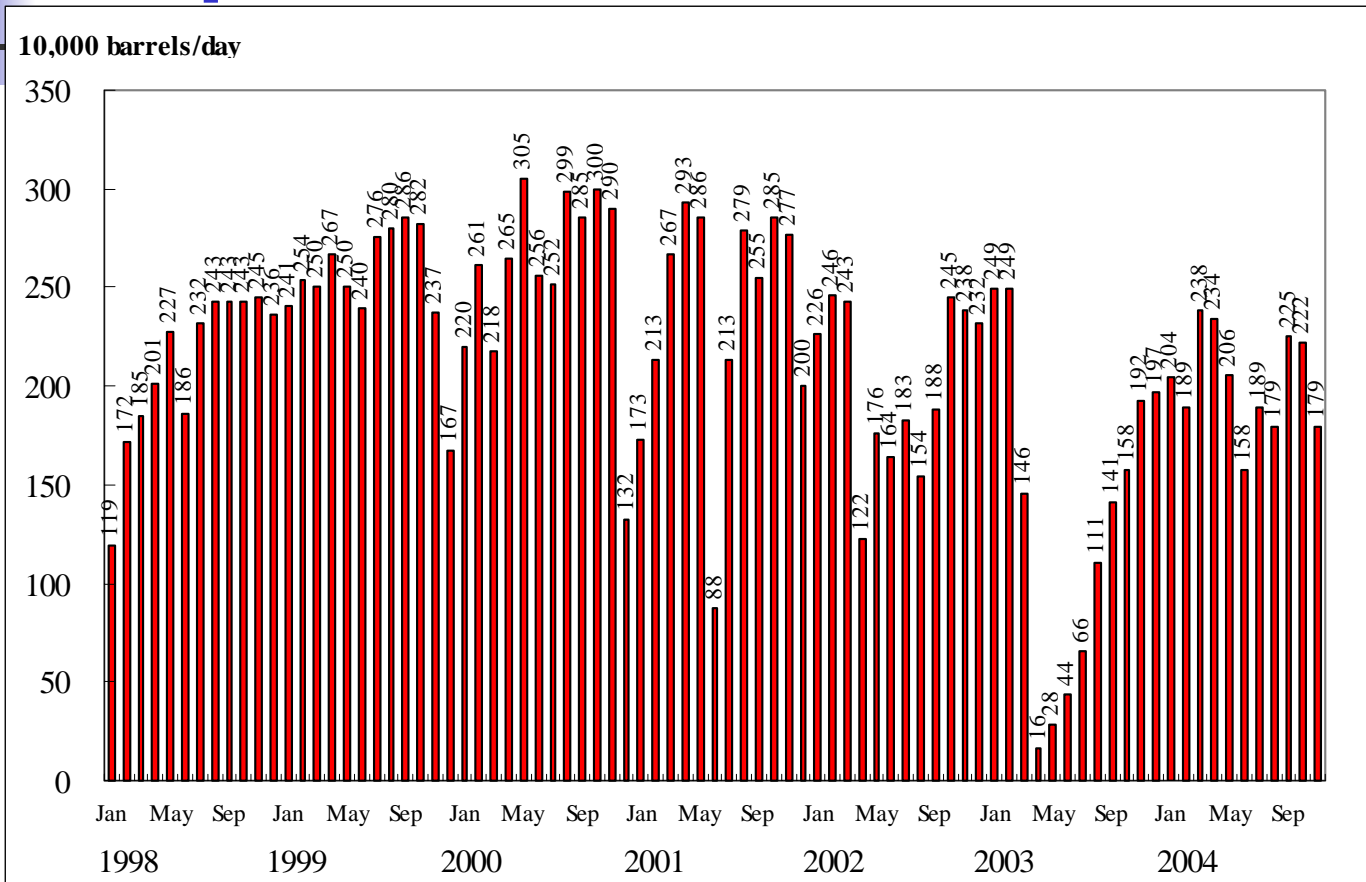
How to View Possibility of Future Supply Interruptions & Instability



- **Impossible to eliminate possibility of instability**
 - Unclear future for the Iraqi situation
 - Major oil producing nations such as Saudi Arabia, Russia, Nigeria, and Venezuela bear a number of risk factors
 - Risk of natural disasters, unforeseen situations, and accidents
- **Supply bottleneck remaining in U.S. oil downstream sector**



Iraqi Oil Production Trends



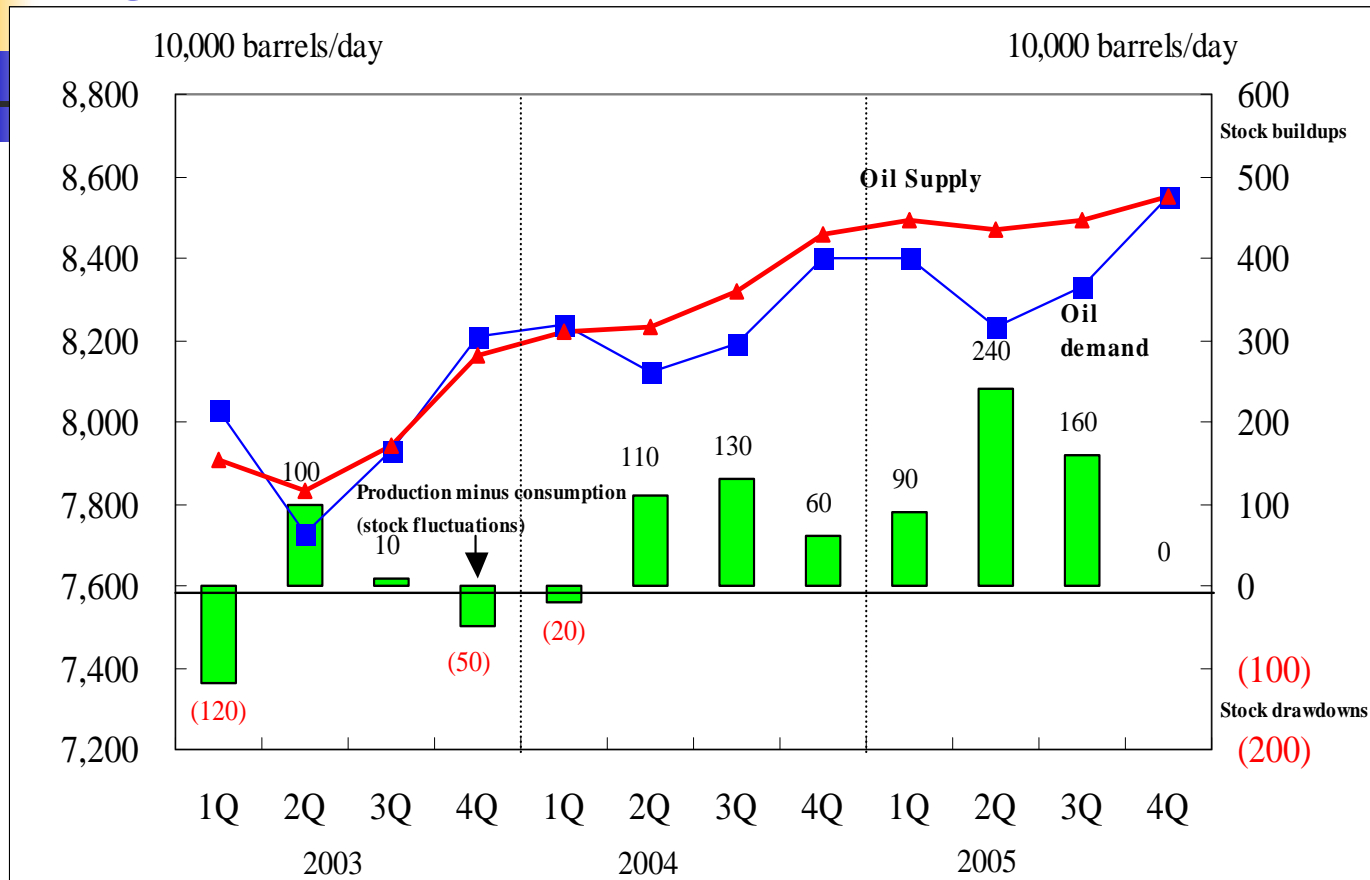
Source: Prepared by the author from IEA Oil Market Report

Reference Case for World Oil Market in 2005 (Presumptions)



- **World oil demand growth slows down from 2004 to 1.4 - 1.5 million barrels/day in 2005.**
- **The pace of Russian production increase slows, but non-OPEC production mainly in the former Soviet Union (especially Russia) increases, resulting in a 2005 increase of about 1.2 to 1.3 million barrels/day over the previous year.**
- **OPEC crude oil production capacity gradually expands to about 32 to 33 million barrels/day at end of 2005.**
- **Iraqi crude production hovers at about 2 million barrels/day (Jan. to Nov. 2004 average).**
- **Supply instability in major oil producing countries occurs sporadically but does not become serious.**

Short-Term Outlook for World Oil Supply & Demand Balance(Reference Case)



Note: 2005 Iraqi production assumed to be 2 million barrels/day, and OPEC 10 production 27 million barrels/day.

Source: IEA Oil Market Report for up to the third quarter of 2004. After that is assumptions by the author (oil demand and non-OPEC production are IEA forecasts)

Reference Case for the World Petroleum Market in 2005 (Results)



- 2005 demand for OPEC crude oil is approx. 28 million barrels/day, almost level with 2004 (yearly base).
- OPEC 11 production at 29 million barrels/day may result in oversupply.
- Production must be reduced from current (Nov. 2004) high levels (approx. 30 million barrels/day). Large reduction necessary especially in preparation for period of low demand (2nd quarter).
- If production is reduced, surplus capacity will increase to about 3 or 4 million barrels/day as OPEC production capacity is rising.
- Surplus capacity is increasing, leading to improve on vulnerability of the supply system.
- That will result in a gradual decrease in speculative capital influx.
- OPEC will continue to adjust supply and demand to prevent excessively high or low prices.
- A gradual downward pressure will be exerted on crude oil prices in the 2005 world oil market with gradual easing of the supply and demand balances. Average price of WTI crude over the year will be at \$37-\$39 a barrel.

High Price Case Presumptions & Results

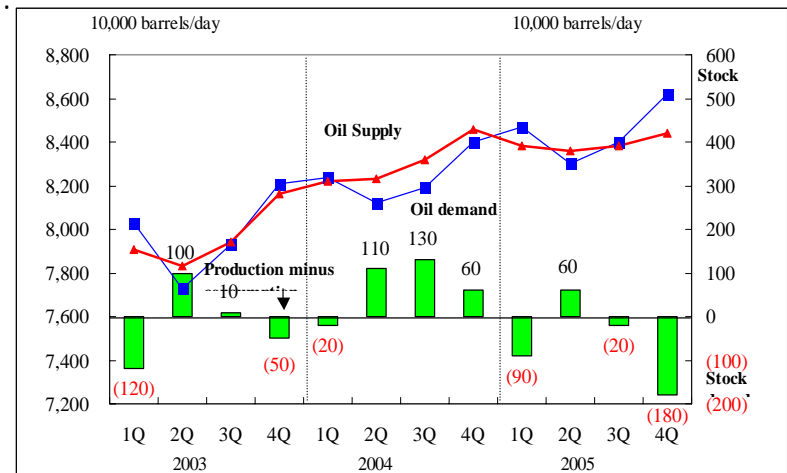
■ Presumptions

- 2005 world oil demand will steadily increase about 2 million barrels/day over the previous year.
- Non-OPEC production will be unexpectedly sluggish.
- Demand for OPEC crude oil will steadily increase.
- Frequent supply interruptions and instability to occur in major oil production countries.

■ Results

- Supply and demand balance in the world oil market remains tight.
- OPEC surplus production capacity will remain at 2004 levels.
- Vulnerability in the international oil market will not be improved on.
- Speculative capital influx will increase with supply interruptions, and the high level risk premium will remain.
- Crude oil prices will fluctuate violently, but will for the most part be high. Average WTI prices over the year will be high at around \$48 to \$50.

Outlook for supply and demand balance in a high-price case



Note: 2005 Iraqi production assumed to be 1.5 million barrels/day, and OPEC 10 production 27 million barrels/day.

World oil demand being 700,000 barrels/day higher than the reference case and non-OPEC production being 600,000 barrels/day less than the reference case.

Source: IEA Oil Market Report for up to the third quarter of 2004. After that is assumptions by the author

Low Price Case Presumptions & Results

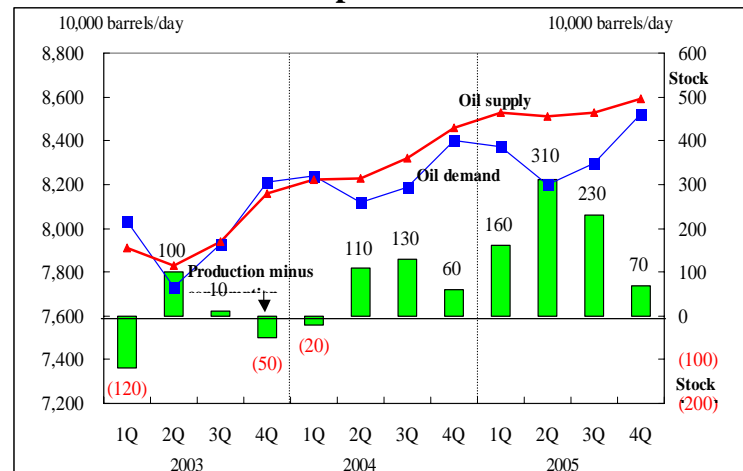
■ Presumptions

- 2005 growth in world oil demand will rapidly slow down (growth of just under 1 million barrels/day over the previous year).
- Non-OPEC production will steadily increase mainly in the former Soviet Union.
- Demand for OPEC crude be sluggish.
- Supply interruptions in major oil producing countries will be limited.

■ Results

- The supply and demand balance in the world oil market will be softened.
- OPEC will face large-scale production cuts.
- OPEC surplus production capacity will greatly increase.
- Supply interruptions will be limited, so the risk premium will fall down.
- Crude prices will continue to drop, with the price of WTI averaging \$30 to \$32 over the year.

Outlook for supply and demand balance in a low-price case

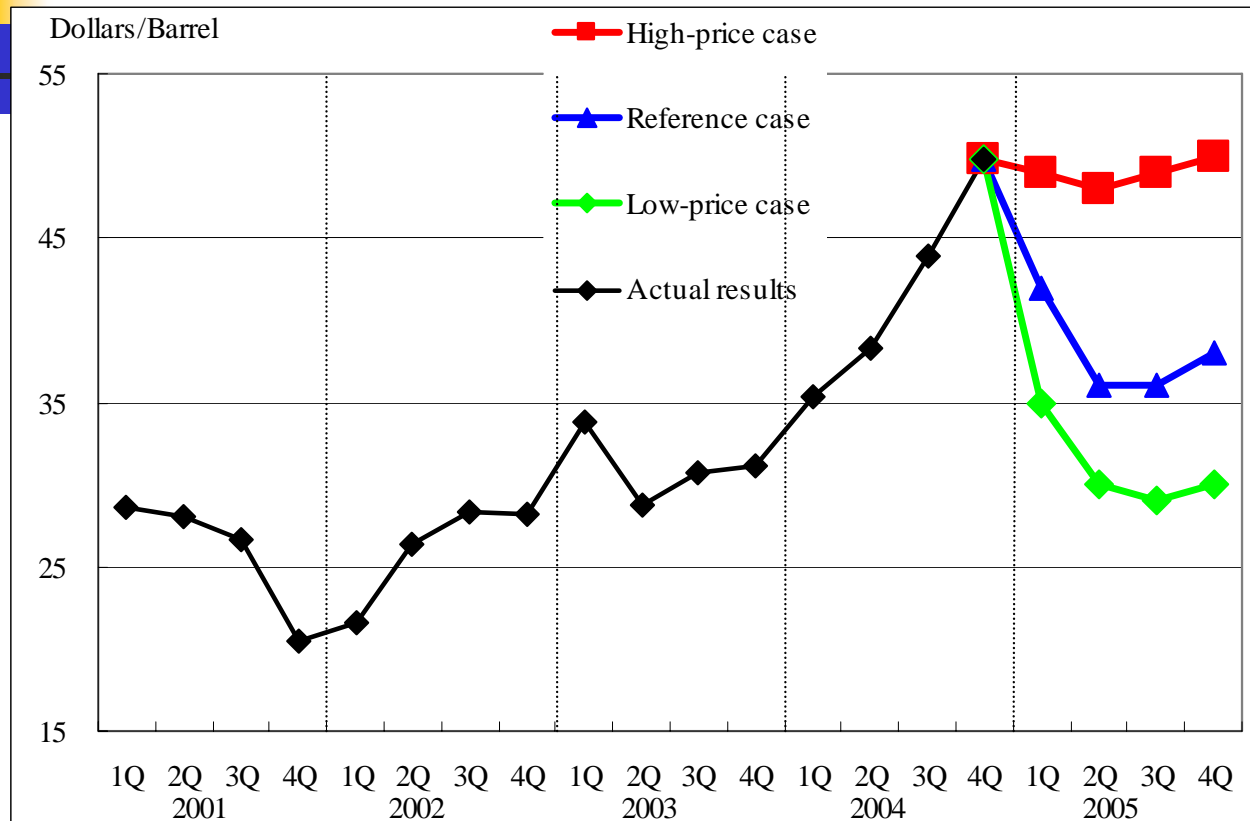


Note: 2005 Iraqi production assumed to be 2.2 million barrels/day, and OPEC 10 production 27 million barrels/day.

World oil demand being 300,000 barrels/day lower than the reference case and non-OPEC production being 200,000 barrels/day more than the reference case.

Source: IEA Oil Market Report for up to the third quarter of 2004. After that is assumptions by the author

Crude Oil Price Trends by Case



Note: Data for up to the third quarter of 2004 are actual results, and a portion of the fourth quarter are estimates. Figures for 2005 are estimates by the author

Source: Prepared by the author

Summary

- **Supply and demand fundamentals in the 2005 world oil market may gradually soften.**
- **But, a variety of uncertainties will continue to exist in the future world oil market.**
- **Actual prices are determined by (market psychology in) the futures market. The influence of geopolitical (instability) factors on market psychology is important.**
- **2005 crude prices (WTI) will differ greatly depending on the developments in major factors such as growth of oil demand and situations in oil producing countries.**
 - **Reference case: \$37 to \$39 (average for the year)**
 - **High-price case: \$48 to \$50** “
 - **Low-price case: \$30 to \$32** “
 - **Order of probability: Reference case > High-price case > Low-price case**
- **Continued large price fluctuations and high volatility are highly likely.**