

# The Korean Oil Industry Challenges and Opportunities

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# Outline

1. Overview of Korean Oil Industry
2. Key Issues and Challenges
3. Key Opportunities
4. Conclusion

# 1. Overview of Korean Oil Industry

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## Outline of Korean Economy and Oil Industry

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### GDP (FY 2004)

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▪ Nominal GDP	US\$ 680 BN (World's 10 <sup>th</sup> largest economy)
▪ GDP per capita	US\$ 14,162
▪ Growth rate	4.6 %

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### Crude Oil Import

2,262 MBD  
(US\$ 29,917 mil, World's 5<sup>th</sup> largest importer)

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### Product

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▪ Consumption	2,064 MBD (World's 6 <sup>th</sup> largest consumer)
▪ Export	581 MBD (US\$ 10,203 mil)
▪ Import	389 MBD (US\$ 6,848 mil)

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### Refining Capacity

2,735 MBD (World's 5<sup>th</sup> largest capacity)

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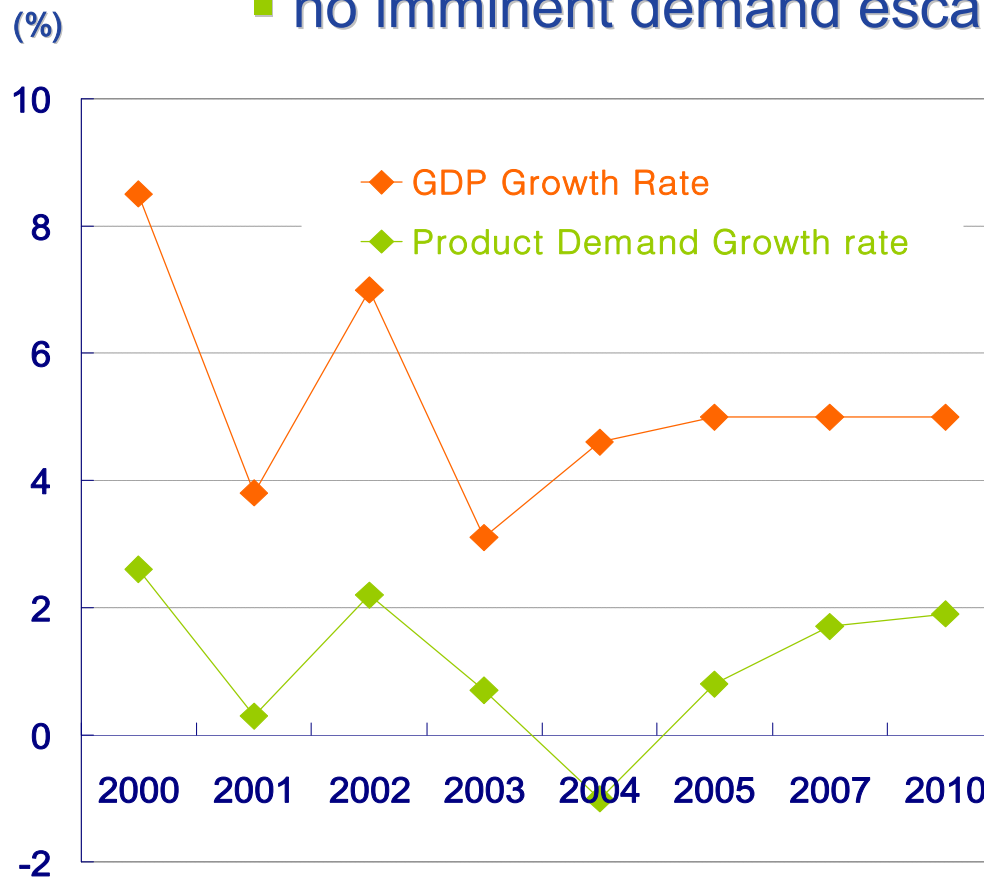
# of Service Stations  
11,000

# of Vehicles  
15 million

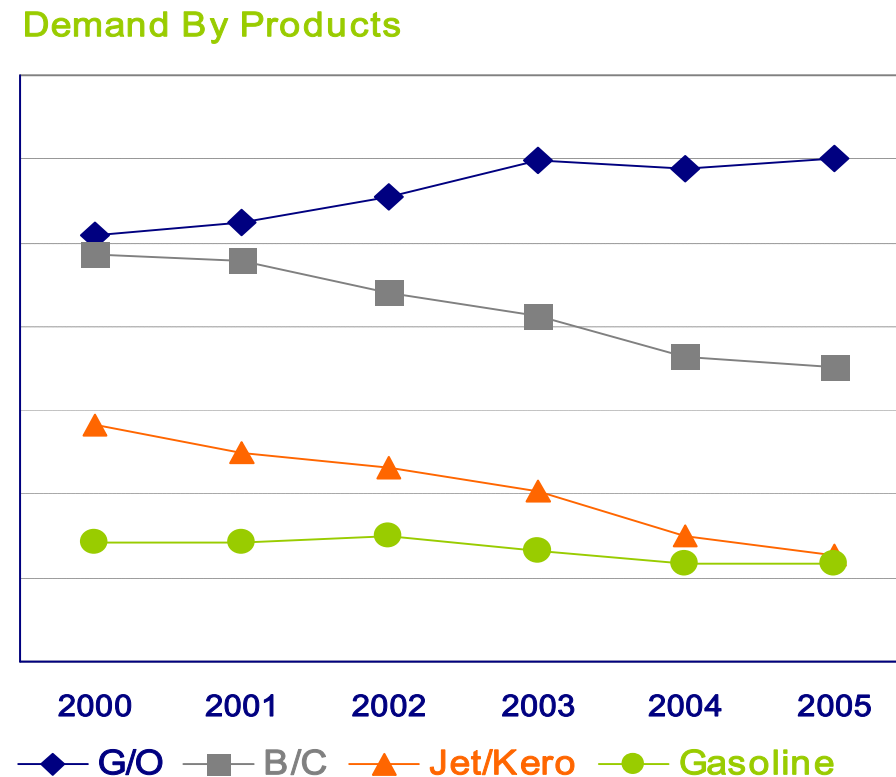
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# 1. Overview of Korean Oil Industry Domestic Demand vs GDP

- Korean economy grew 5+% for the last 5 years
  - demand for oil products remains the same
  - no imminent demand escalation is expected



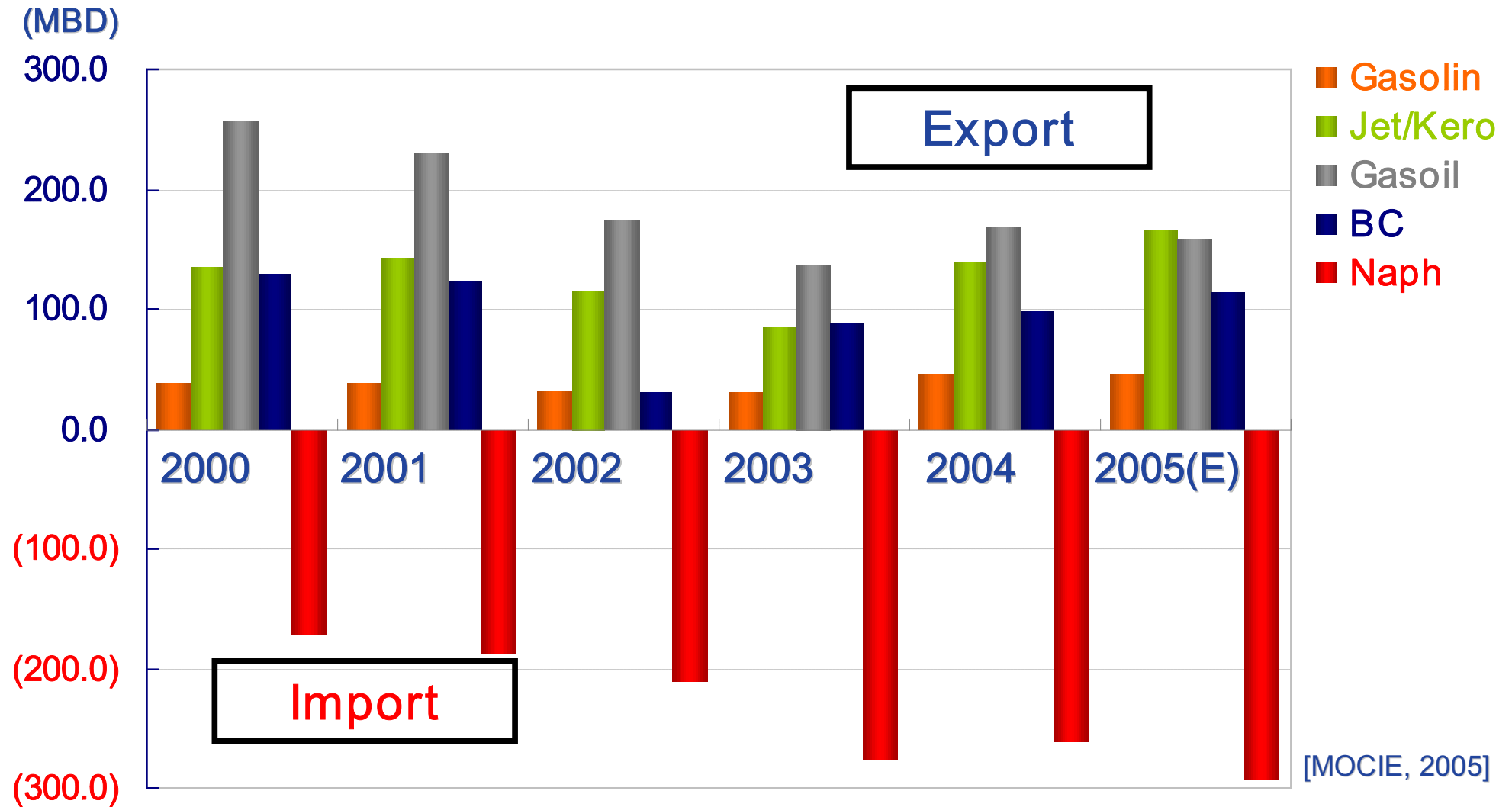
[MOCIE, FACTS-Asia/Pacific Energy Demand & Supply, Spring 2005]



[Korea Petroleum Association 2005]

# 1. Overview of Korean Oil Industry

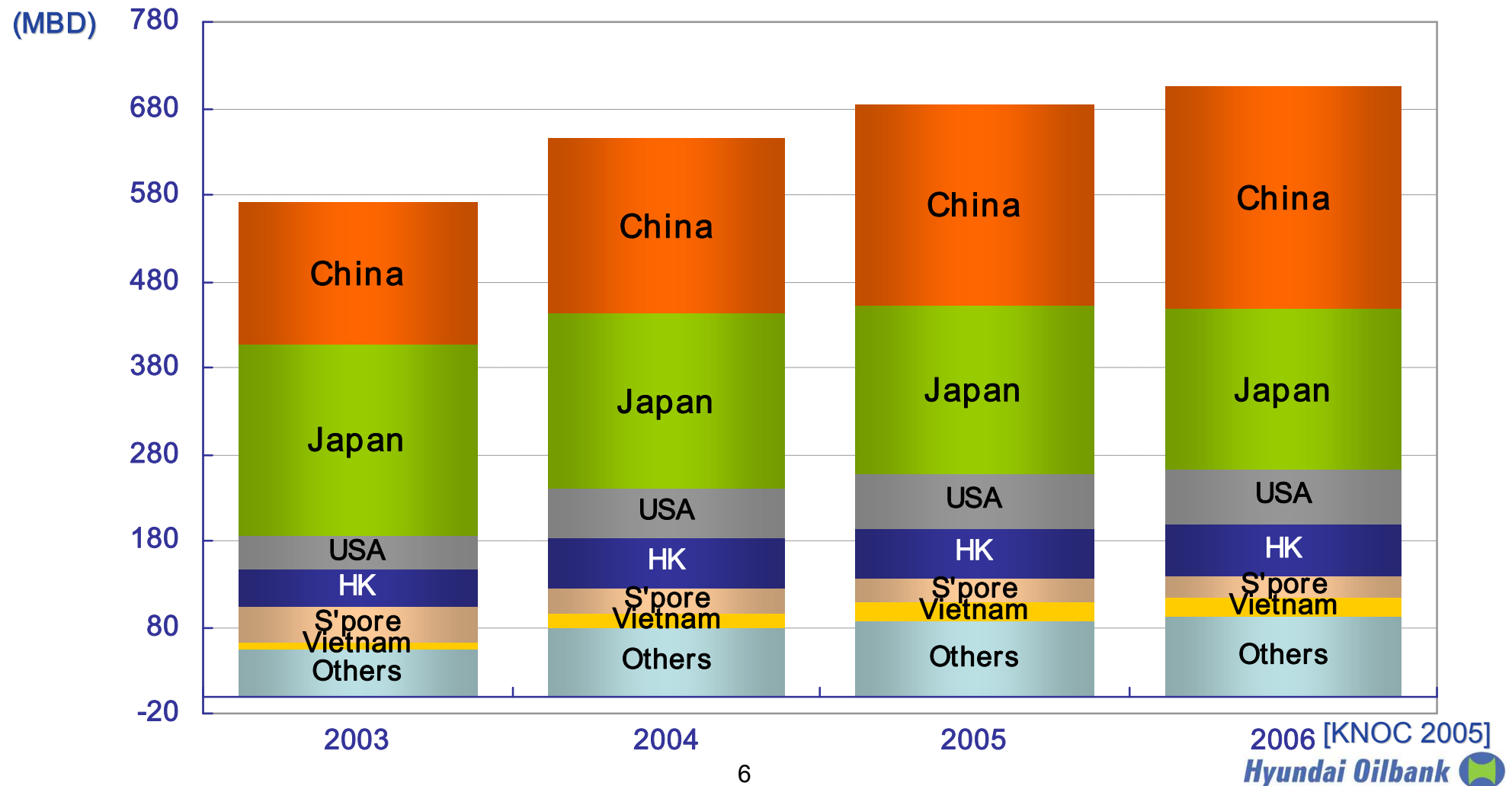
## Export/Import Balance



# 1. Overview of Korean Oil Industry

## Export by Country

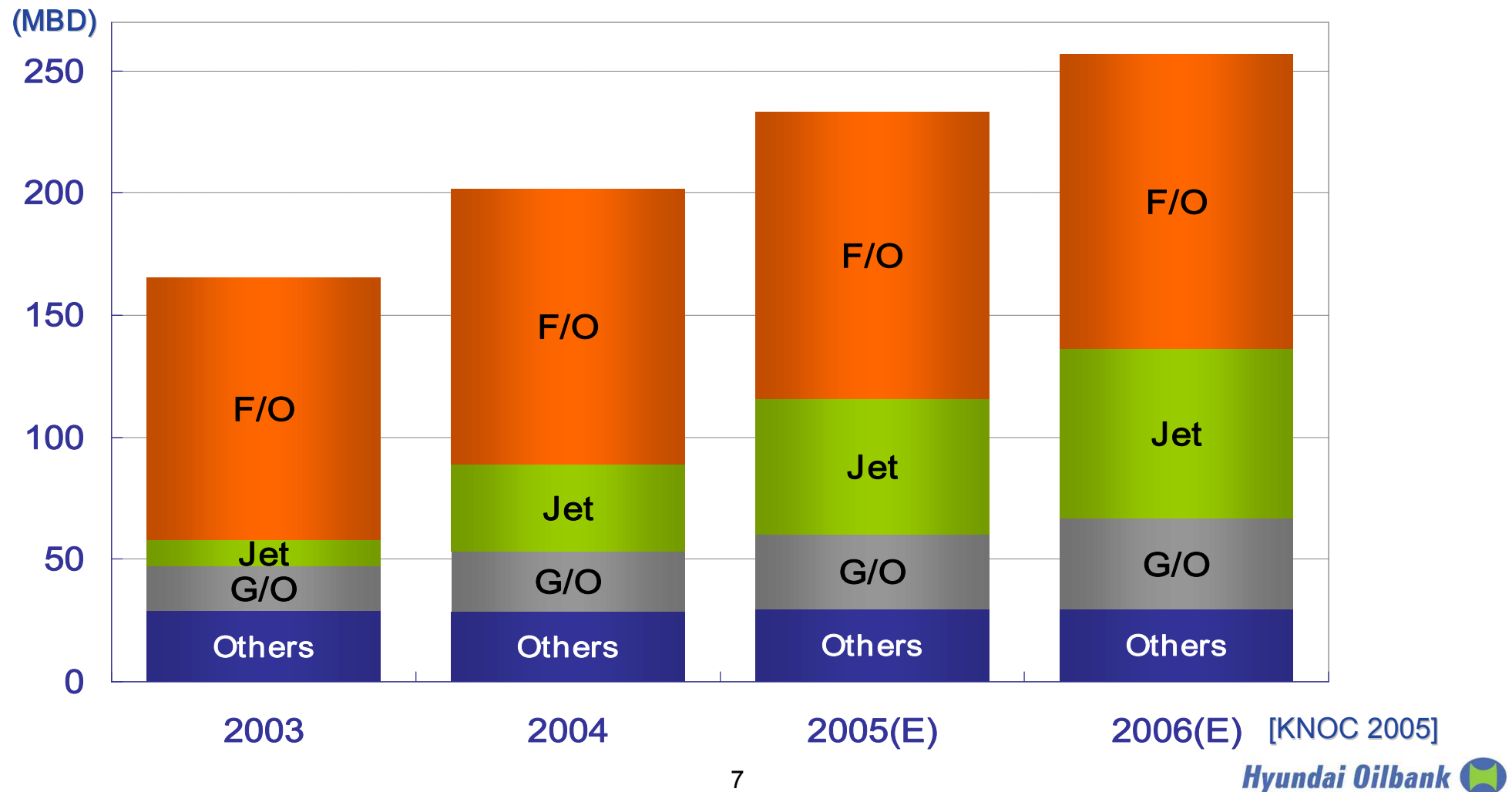
- Skyrocketed demand from China
- Japanese tighter product spec. after '04



# 1. Overview of Korean Oil Industry

## Export to China

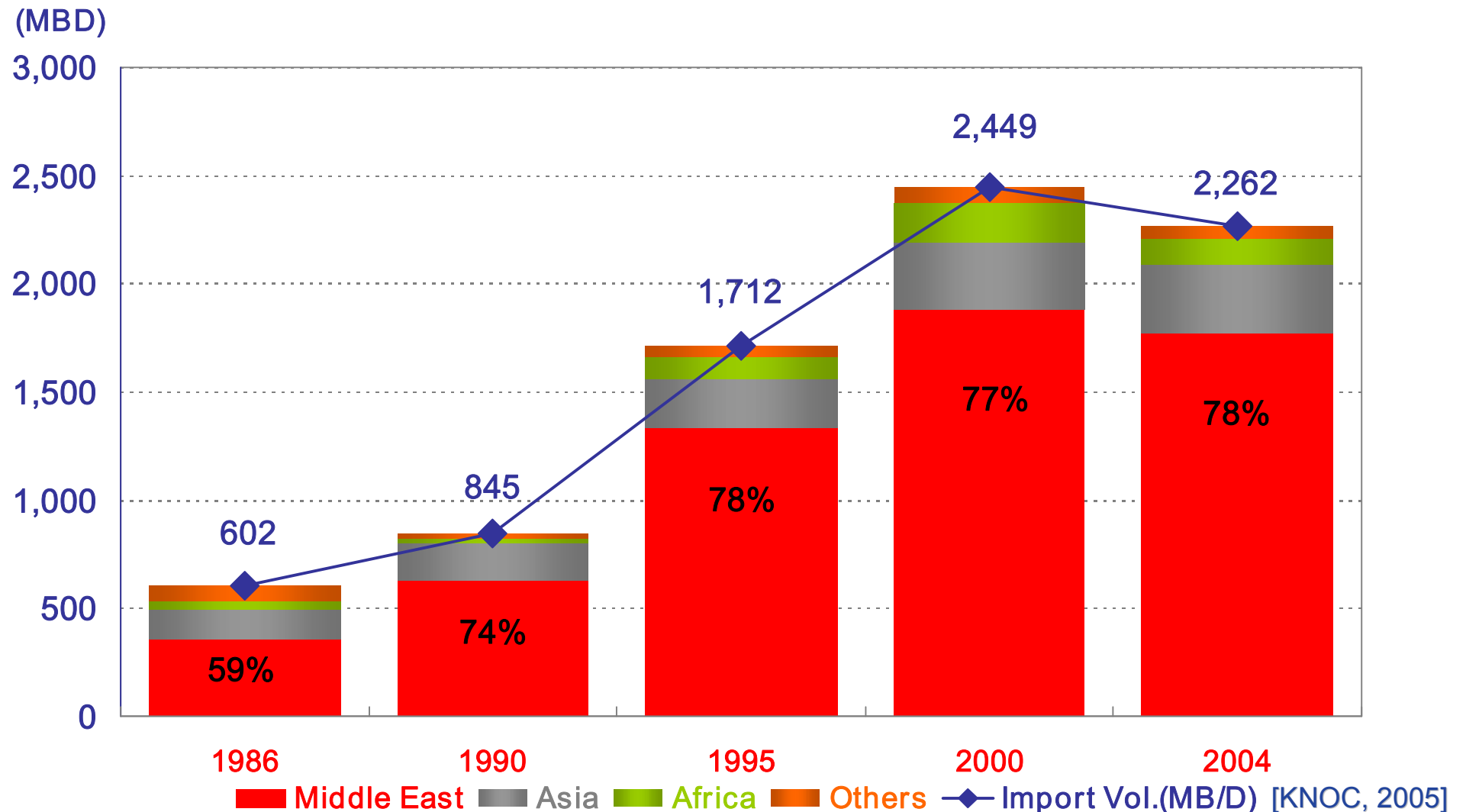
- Export volume to China surged by 22.0% year on year to 202 MBD last year



# 1. Overview of Korean Oil Industry

## Crude import by Region

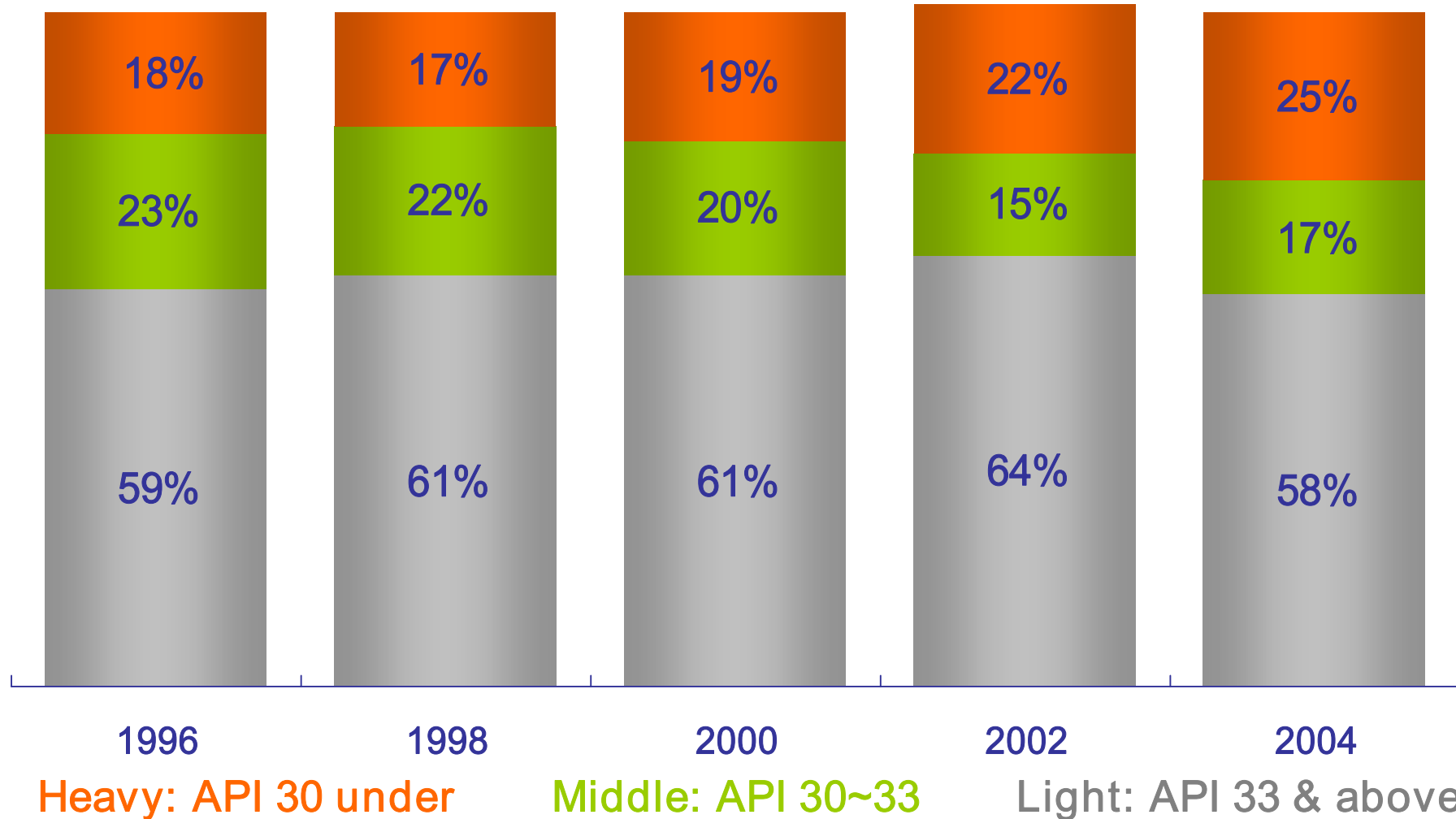
- Dependence on Middle East crude remains high at over 75%





# 1. Overview of Korean Oil Industry

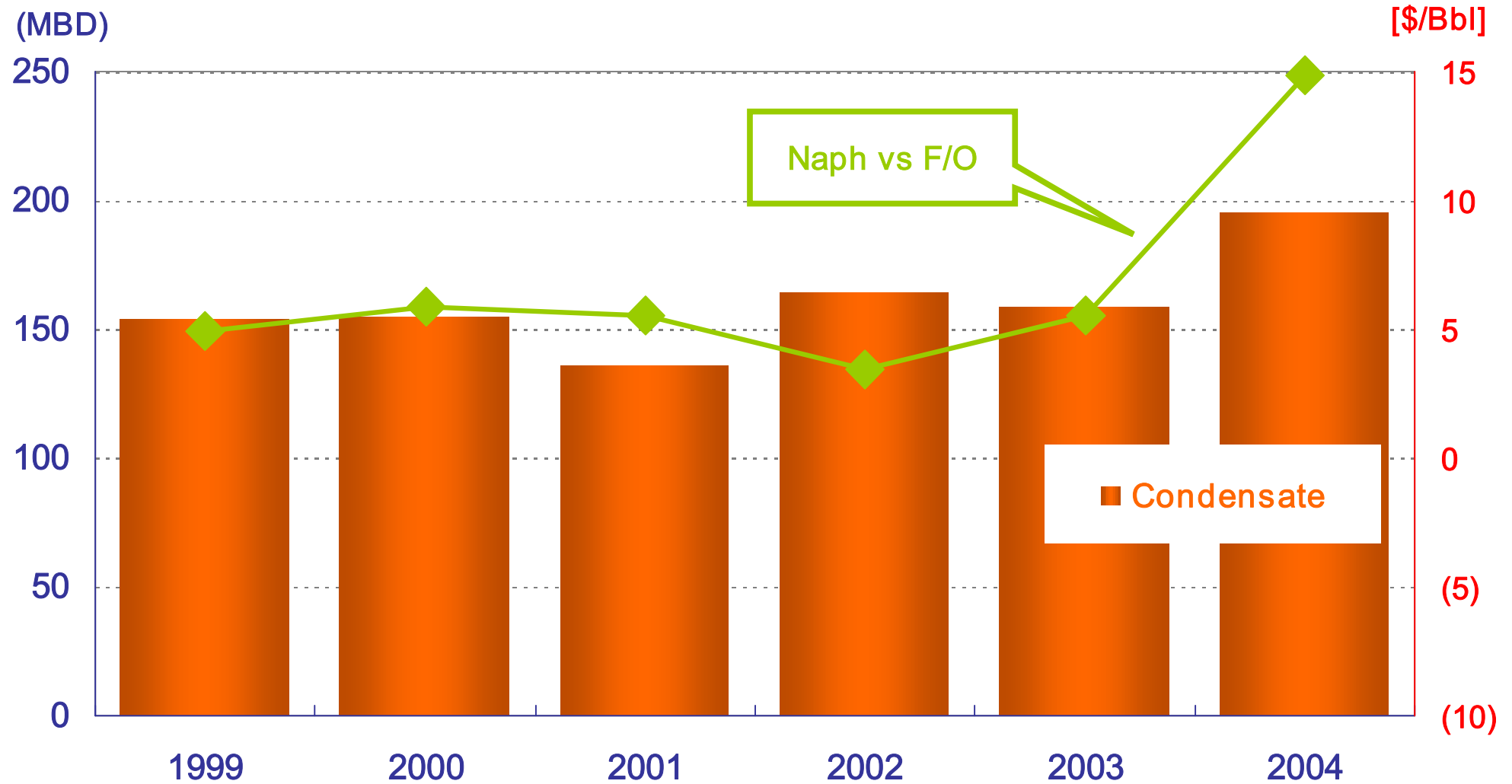
## Crude Import by Grade



[KNOC, 2005]

# 1. Overview of Korean Oil Industry

## Crude Import-Condensate



[KNOC, 2005]



## 2. Key Issues & Challenges

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## 2. Key Issues & Challenges    Government Policies/ Slower Demand



### Government Policies

- Policy of Accelerating open-market and FTA
- Macro/Micro basic plan for new & renewable energy



- Saturated domestic market

- Demand growth centering on light oil and transportation (especially diesel)

- Tax Scheme on products (100:85:50)

### Slower Demand



## 2. Key Issues & Challenges Keener Competition/ Environmental Regulation



### Keener Competition

- Severe competition among refiners
- Overly established Channel-11,000
- Demand shift to renewable and substitute energy

- Kyoto protocol will come into effect
- Tougher environmental regulations on petroleum product
- Introduction of Alternative Motor fuel; CNG, Bio-diesel, Hybrid-car



### Environmental Regulation

## 2. Key Issues and Challenges **Correspondence to Climate Change**

- Careful preparation for Kyoto protocol and New Agreement of 6 countries (Australia, China, India, Japan, South Korea, USA)
  - Opportunity for New Business
    - R&D for Clean Energy development  
ex) Landfill Gas, Bio Fuel, Wind power, Fuel Cell etc.
    - Development of CO2 treatment technology
  - Improvement Efficiency of Existing Business
    - Installation of the high-energy efficiency devices
    - Reshuffle the energy for CO2 reduction



## 2. Key Issues and Challenges **New Environment Regulation Method**

### ■ Changes of Environmental regulation method for sustainable development

#### ● Introducing the Voluntary Agreement

##### - Site Assessment and Soil Remediation (Dec. 2003)

→ protect the additional contamination through quick/efficient remediation

##### - Emission reduction of Chemicals (named as 30/50 Program, Dec. 2004))

→ reduce the emission 30% by 2007, 50% by 2009 compared with 2001

##### - Green Procurement System (mandatory to the public institution, Sept. 2005)

→ competitiveness of eco-friendly product will be increased

#### ● Regulation on total amount from July 2007 in Metropolitan

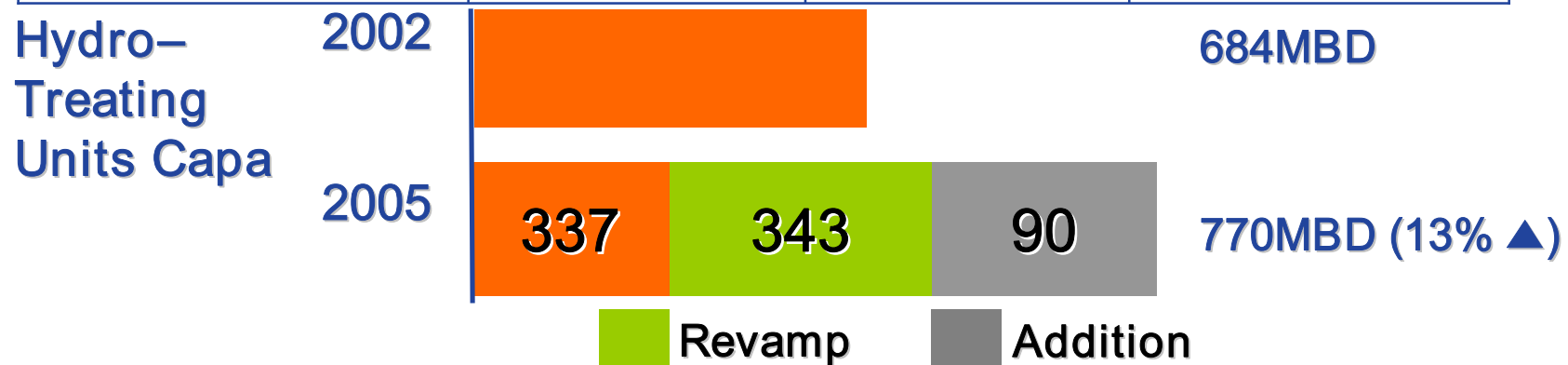


## 2. Key Issues and Challenges

## Tighter Product Specifications

- Addition or upgrading of desulphurisation units  
Switch to ultra- low sulfur motor fuels from January '06

Item	2002	2006	2010(?)
Gasoline	130 <	50<	10<
Diesel	430 <	30 <	10<



## 2. Key Issues & Challenges

## Overcapacity in Refining

Refiner	CDU capacity (MBD)	Actual Production in 2004 (MBD)	utilization rate (%)
HDO	390	283	72.56
SK	840	720	85.71
GS	650	618	95.08
S-Oil	580	538	92.76
ICO	275	102	37.09
Sum	2,735	2,261	82.67

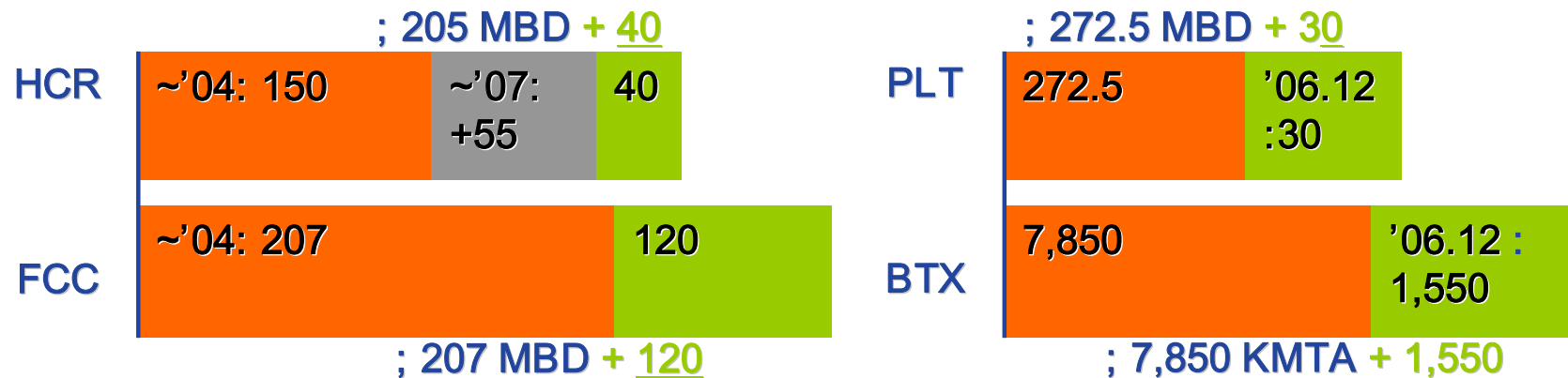
※ ICO under court receivership



### 3. Key Opportunities

### Future Upgrading and BTX Expansion

- Korean refiners are focusing on upgrading their facilities to **increase** the yield of lighter products and also expanding BTX units to **diversify** its business territory and **maximize** profitability



	Upgrading		BTX Expansion	
Item	HCR	FCC	PLT	BTX
Capacity	245	327	303 MBD	9,400 KMTA



## 4. Conclusion

### ■ Create New Opportunities

- ▶ Invest on facilities upgrading to exploit the gap between light/heavy product/crude
- ▶ Invest on BTX for Integration into Petrochemical downstream
- ▶ Further develop the growing Chinese market

### ■ Manage

- ▶ Internal Industry Competition and preserve operational excellence
- ▶ Optimize operations with neighboring refineries for mutual advantage

### ■ Diversify and Stabilize crude oil import sources

- ▶ Sustain oil exploration & development projects
- ▶ Beef up cooperative relationship with oil-producing countries

# THANK YOU

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