

# Refining

Jarmo Honkamaa  
Executive Vice President

**NESTE OIL**

refining the future

## Our refining position

- Nordic refining capacity: 1.2 Mbpd
- Neste Oil share: 22%



### Naantali refinery

- Capacity: 54 Kbpd
- Complexity: 7.1

### Porvoo refinery

- Capacity: 196 Kbpd
- Complexity: 12.1 (post-diesel project)

## Diesel project

- Scale and complexity
  - Conversion of heavy fuel oil into 1 Mt of high quality diesel
  - New Residue Hydrocracker supported by Europe's largest hydrogen plant
  - Flexibility to use up to 100% of Russian crude
- Economics
  - Total cost > €650 M
  - Expected margin increase of more than \$2/bbl

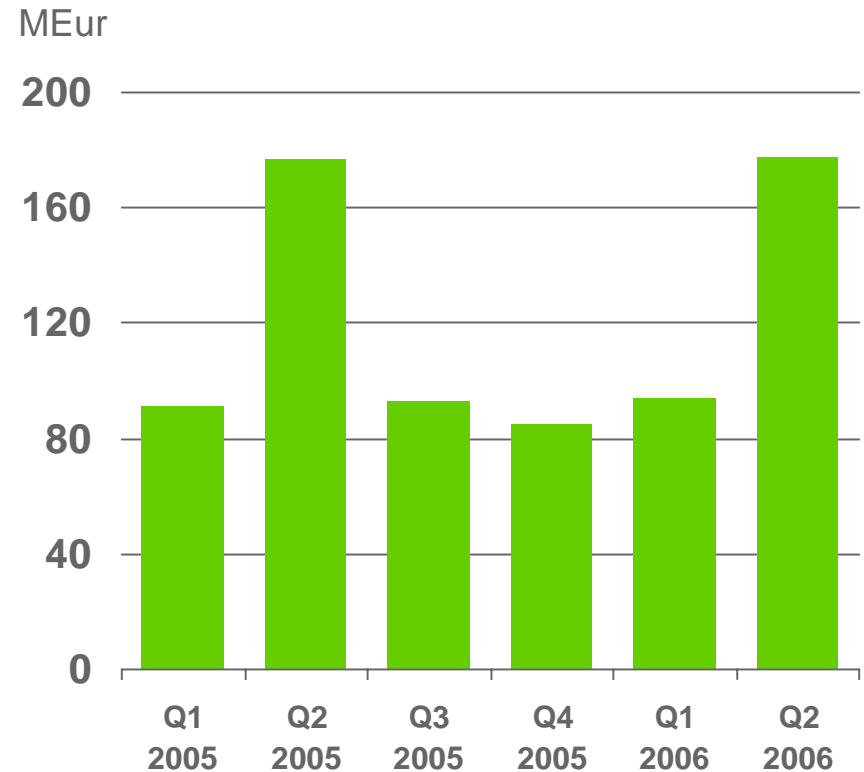
Sources: Oil & Gas Journal Refinery Databases



Cracking refining margins



Refining – comparable operating profit



Note: Comparable operating profit is calculated by excluding inventory gains/losses, gains/losses from sales of fixed assets, and changes in the fair value of oil derivatives from the reported operating profit.





**Upgrading  
projects driven  
by**



**Supply/demand  
balance for products**

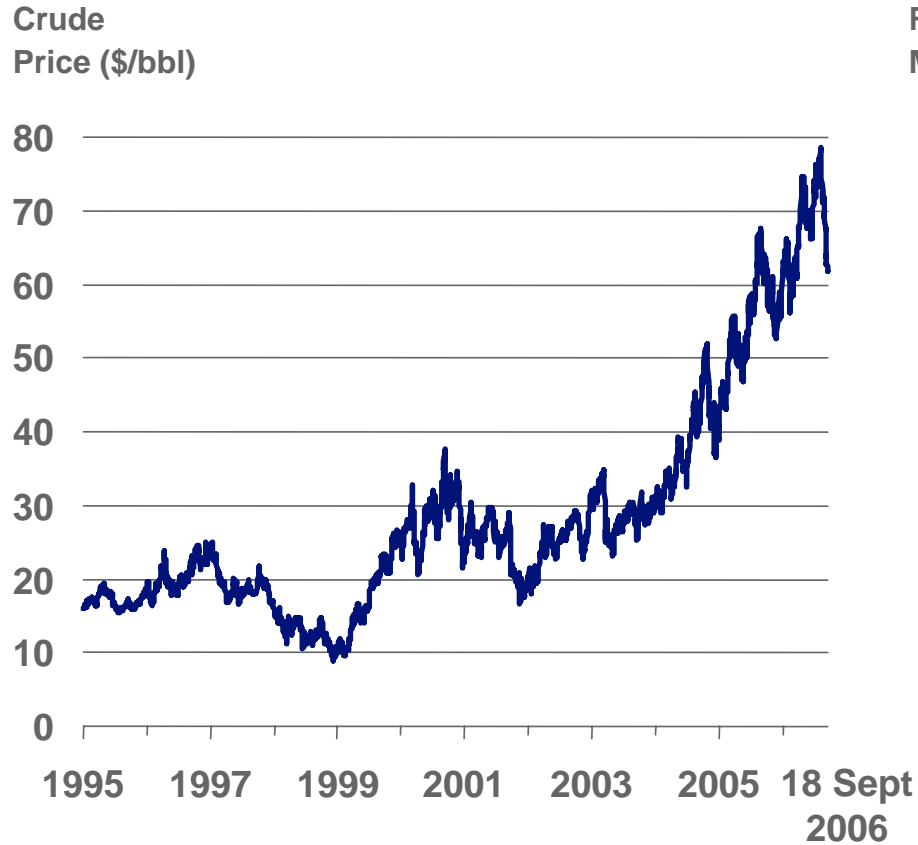
**Margins for complex  
refiners**

**Heavy-light crude oil  
price differential**

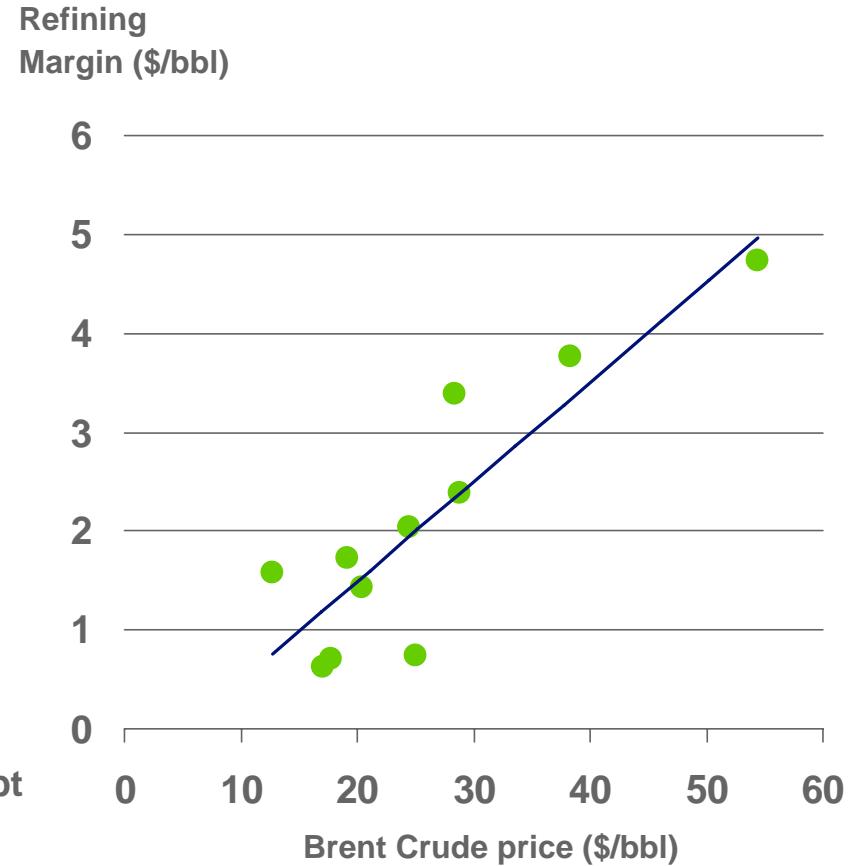


# High crude oil prices favor cracking margins

Historical prices  
(Brent Crude annual average price)



Brent cracking margin  
Yearly average (1995-2005) - North West Europe



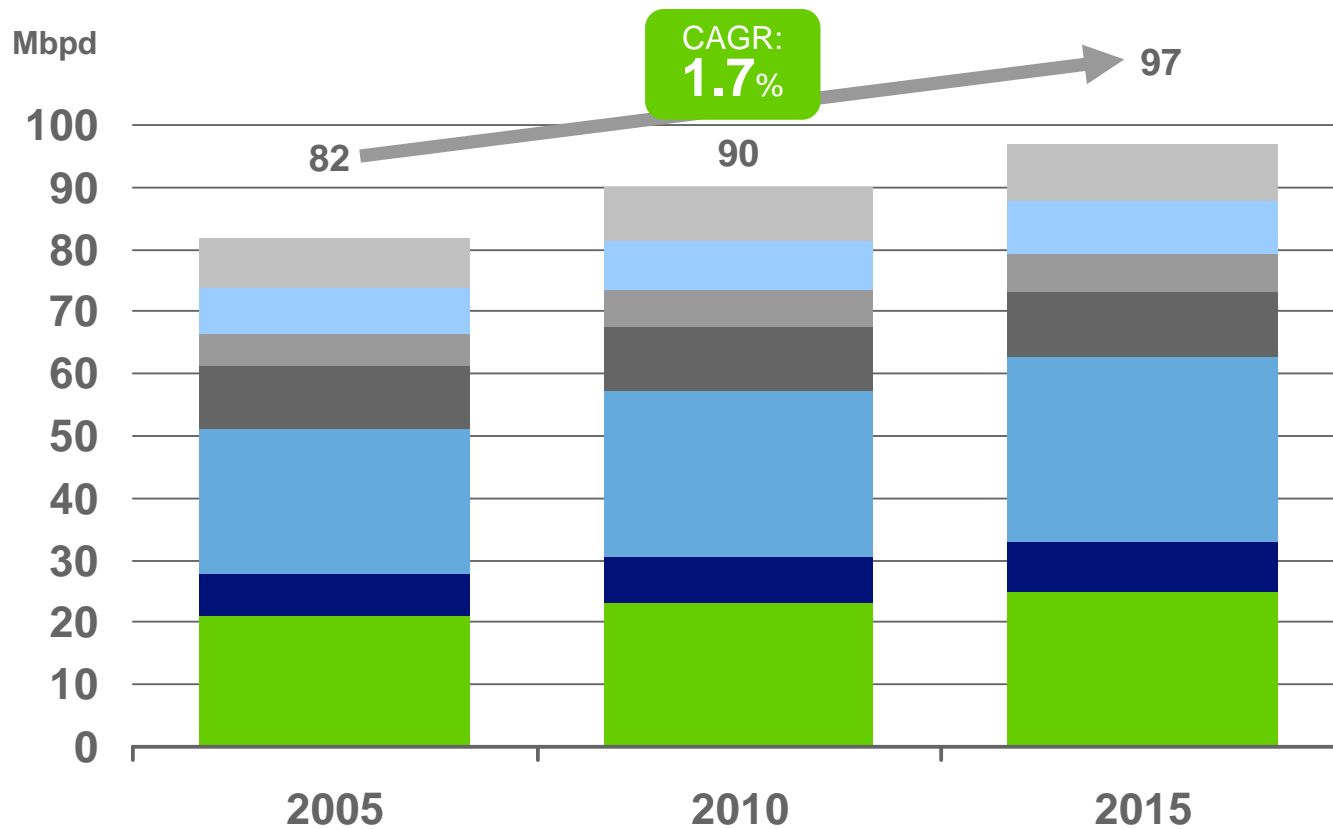
Source: Bloomberg





# Robust demand growth expected for refined products

Fuel products demand evolution 2005-2015



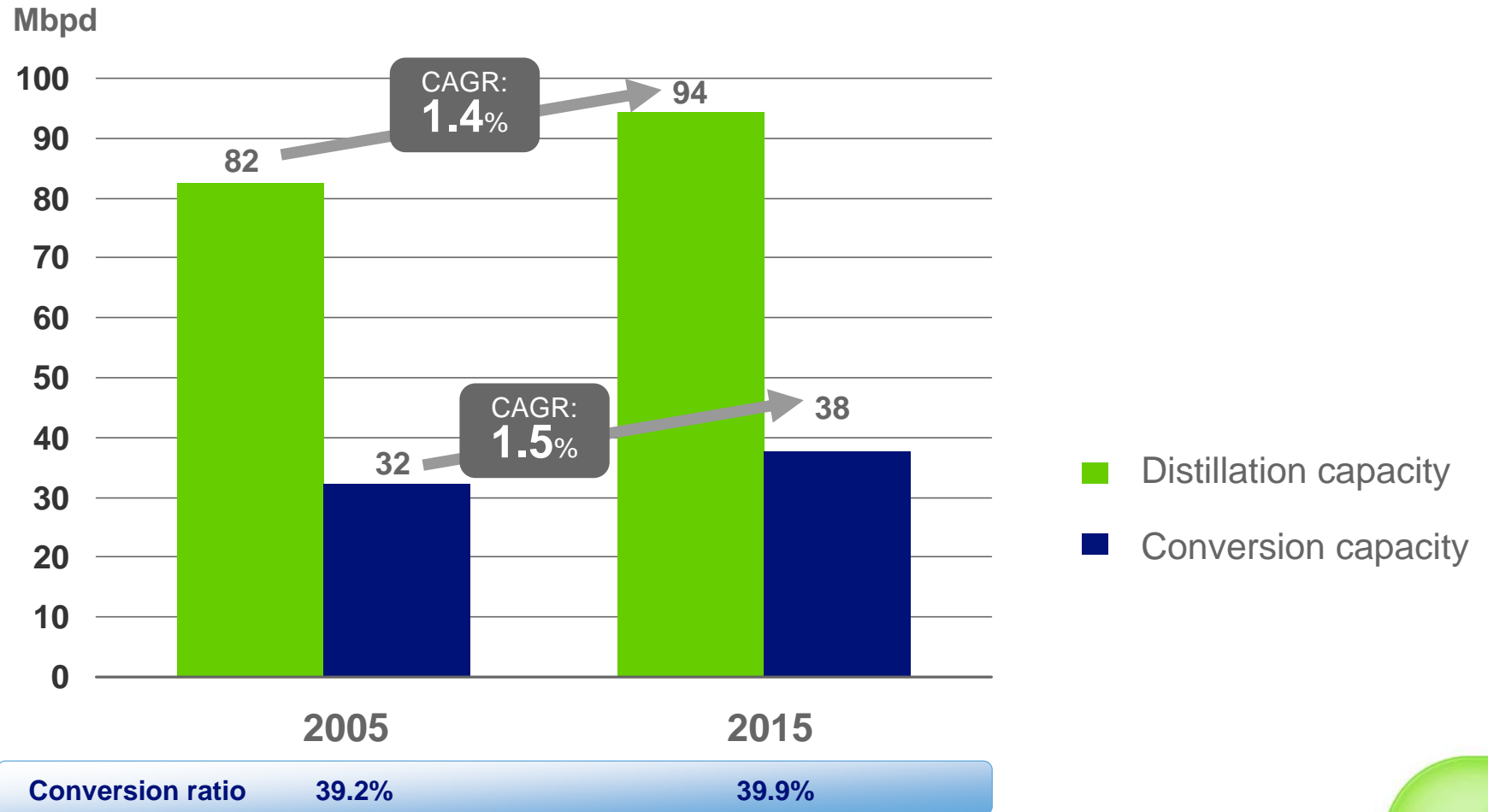
2005-2015 CAGR	
Others	1.6%
LPG	1.4%
Naphtha	1.3%
Fuel Oil	0.4%
<b>Distillates</b>	<b>2.5%</b>
Jet	1.7%
Gasoline	1.7%

Note: Demand figures assume a stable crude oil price at \$50/bbl  
 Source: HART 2005

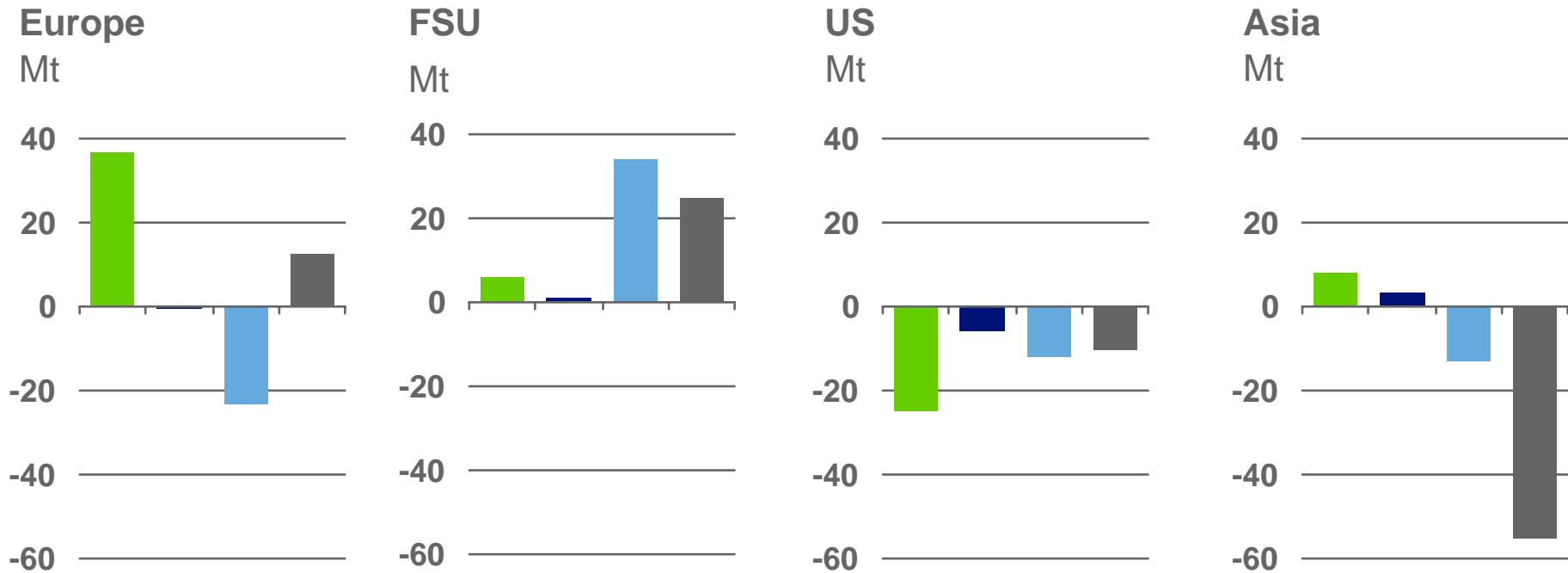


# Capacity expected to grow at slower rate

Change in global distillation and conversion capacity 2005-2015



Gasoline, Kerosene, Diesel & Fuel Oil supply/demand balance in 2005



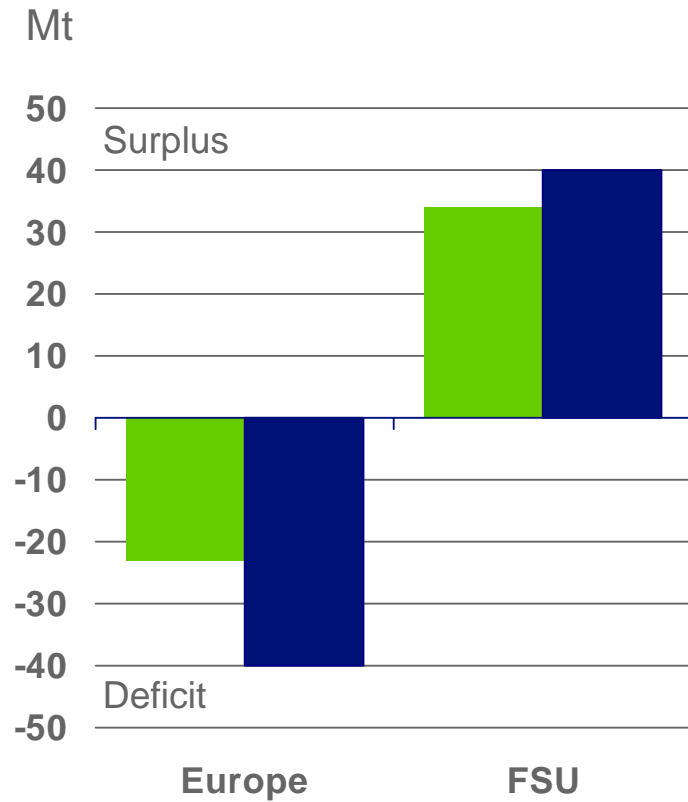
■ Gasoline   
 ■ Kerosene   
 ■ Middle distillate   
 ■ Heavy fuel oil

Note: Middle distillates include diesel and gasoil  
 Source: Wood Mackenzie

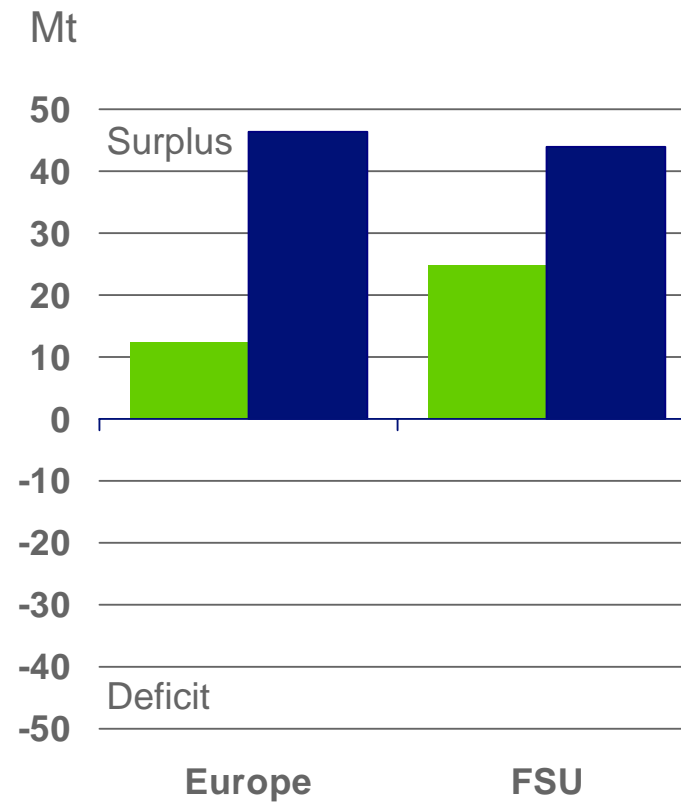




**Middle distillate tightness:  
Supply/demand balance (2005 and 2015)**



**Heavy fuel oil excess:  
Supply/demand balance (2005 and 2015)**



■ 2005

■ 2015

Sources: Wood Mackenzie, Internal Analysis  
Note: Middle distillates include diesel and gasoil



## Structural imbalances

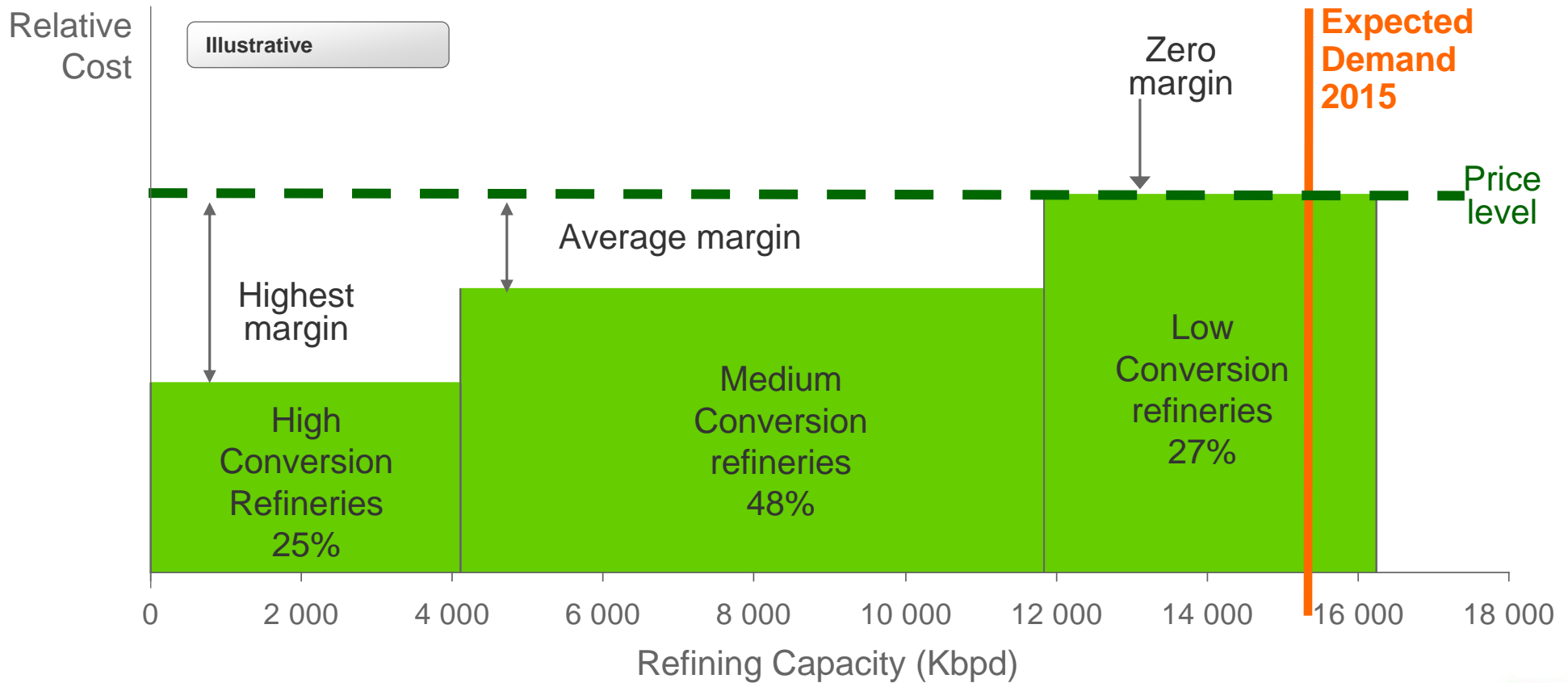
- Global tightness in Middle Distillates
  - Increasing demand in all main regions
  - Continuing dieselisation in Europe
  - Russian diesel exports expected to decrease
- Increasing excess of Heavy Fuel Oil
  - Inelastic residue price due to substitutes
  - Widening light-heavy differential
  - Increasing residue surplus in Europe with accelerating substitution effects

## Opportunities

- Upgrade Vacuum Gas Oil (VGO) and/or Fuel Oil
  - Attractive economics for Coker and Hydrocracker projects
  - Cost efficient VGO access is a key success factor
  - Securing external feed significantly increases economies of scale



2015 supply curve vs demand  
Western Europe



Notes: Low Conversion < 25%, Medium Conversion >25% <50%, High Conversion >50% Relative Normalised Conversion Capacity  
Sources: Oil and Gas Journal; Internal Analysis



## Our competitive advantages

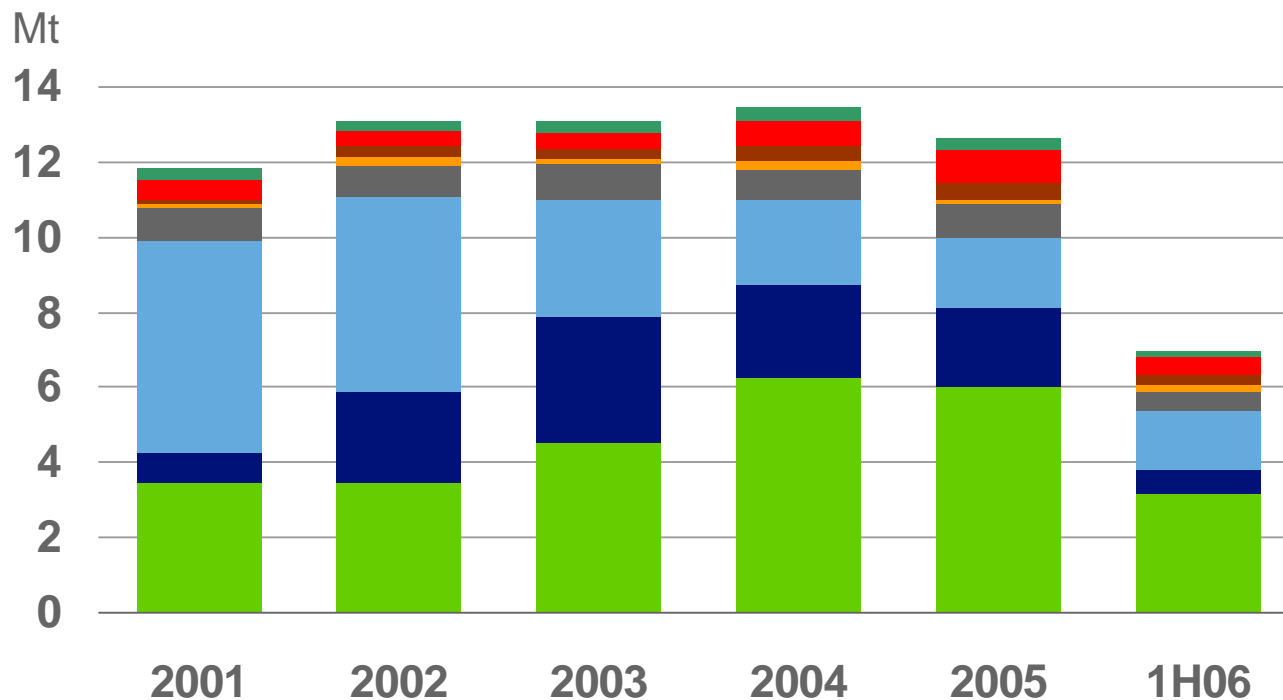




- One of the most flexible refineries in Europe
- Produce any required qualities of middle distillates / gasoline (e.g. California specifications)
- Cavern system enables contango plays
- Logistics flexibility allows reactivity to short-term market shifts
- Very large storage capacity and deep sea harbor allow loading of large vessels
- Reaction speed and agility: 'Just in time' product dispatch
- Create innovative solutions quickly in cross-organizational efforts
- Combine business and technical expertise for a leading position in niche markets



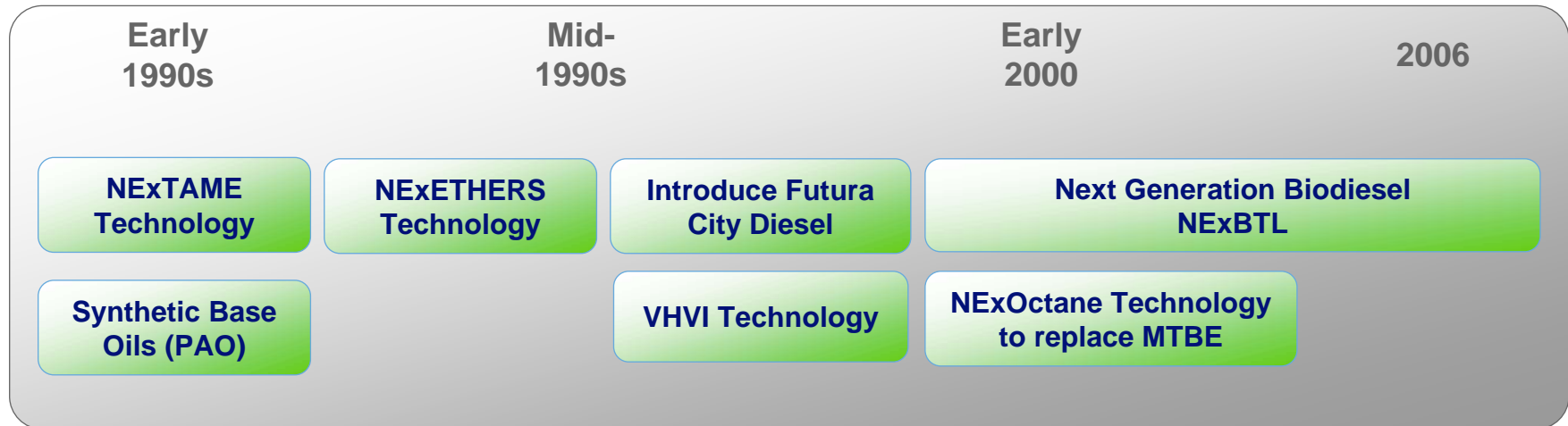
Supply of crude oil and feedstocks to Neste Oil refineries



After the diesel project we will be flexible to use 100% of almost any crude oil



### Neste Oil's key technologies



### Areas of expertise

- Early adaptation of new technology
- Sophisticated process modelling
- Extensive pilot scale testing
- Catalyst R&D
- Emerging know-how in processing heavy fractions
- In-house engineering capability



**Considering current market conditions, we prioritize organic investments over acquisitions as the best way to maximize shareholder value**



**Organic growth**

Healthy margin outlook for complex refiners means superior returns for organic upgrading projects

**Inorganic growth**

At this time, high price expectations around simple refining assets make inorganic growth options non-attractive





## Implement upgrading projects at existing sites

### Exploiting opportunities

- Organic investment opportunities in 'bottom of the barrel' upgrading
- Coker and Hydrocracker projects at existing sites to produce more diesel

### Using scale advantages

- Increase size of the process units significantly by using external feedstock
- Location advantage of Porvoo and Naantali favor projects based on imported VGO or fuel oil

### Leveraging capabilities

- Experience in implementing upgrading projects
- In-house engineering capabilities





- Structural imbalances ensure healthy cracking refining margins
- Oil refining strategy based on opportunities to upgrade existing refineries to maximize shareholder value
- Leverage operational, technological and project management expertise to deliver upgrading projects

