

# World Petroleum Congress

## **MEDIUM-TERM** **Oil Market Report**

*Oil Industry & Markets Division*  
[www.oilmarketreport.org](http://www.oilmarketreport.org)

Madrid, July 1, 2008



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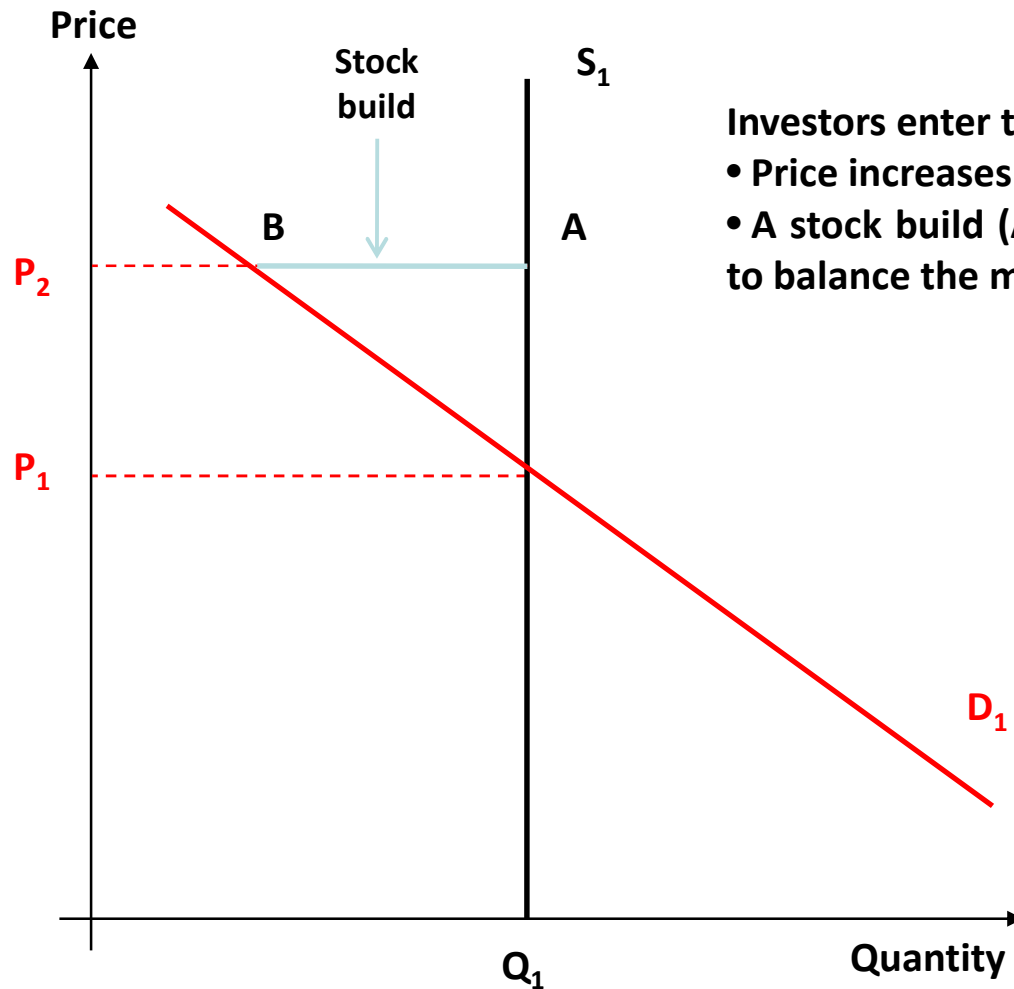
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# Are "Speculators" to Blame?



- Investors enter the market:
- Price increases from  $P_1$  to  $P_2$
  - A stock build ( $A - B$ ) is necessary to balance the market in  $D_1$



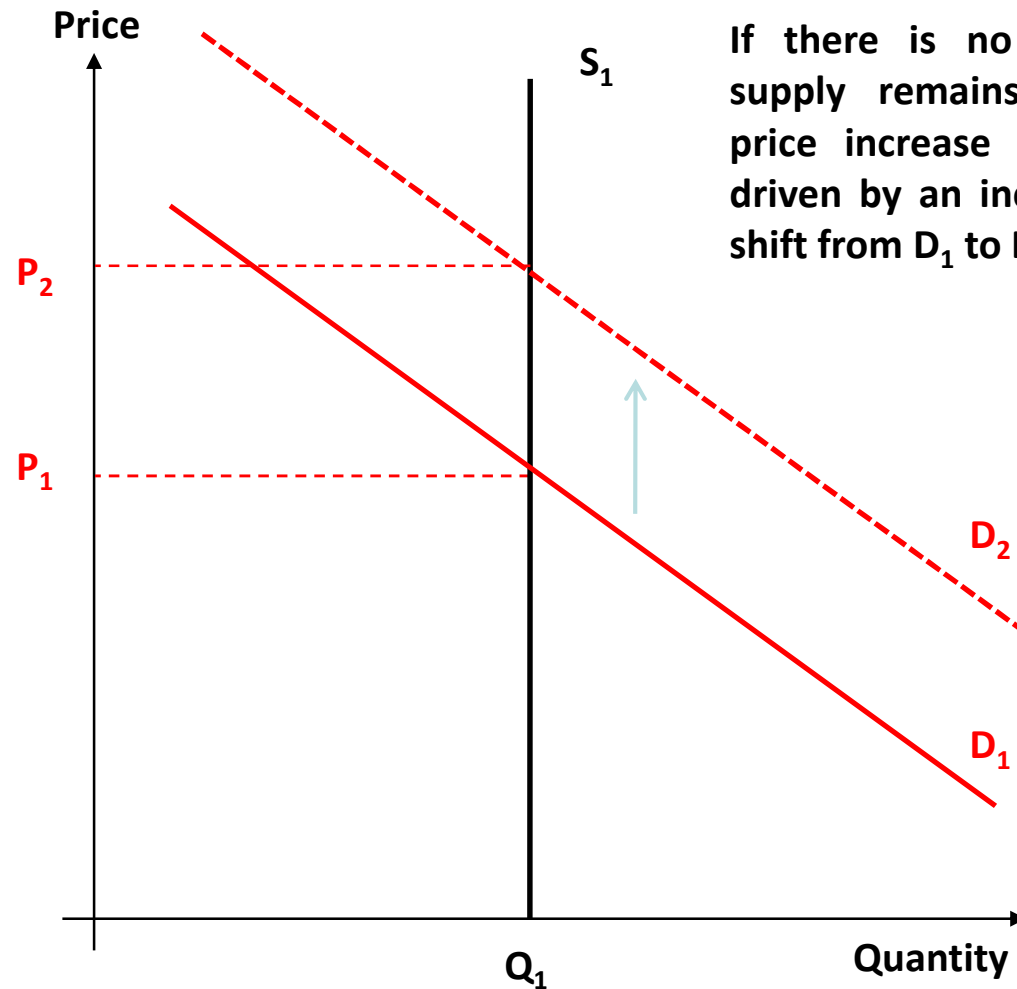
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## If not stocks, then demand...



If there is no stock build and supply remains unchanged, the price increase from  $P_1$  to  $P_2$  is driven by an increase in demand: shift from  $D_1$  to  $D_2$



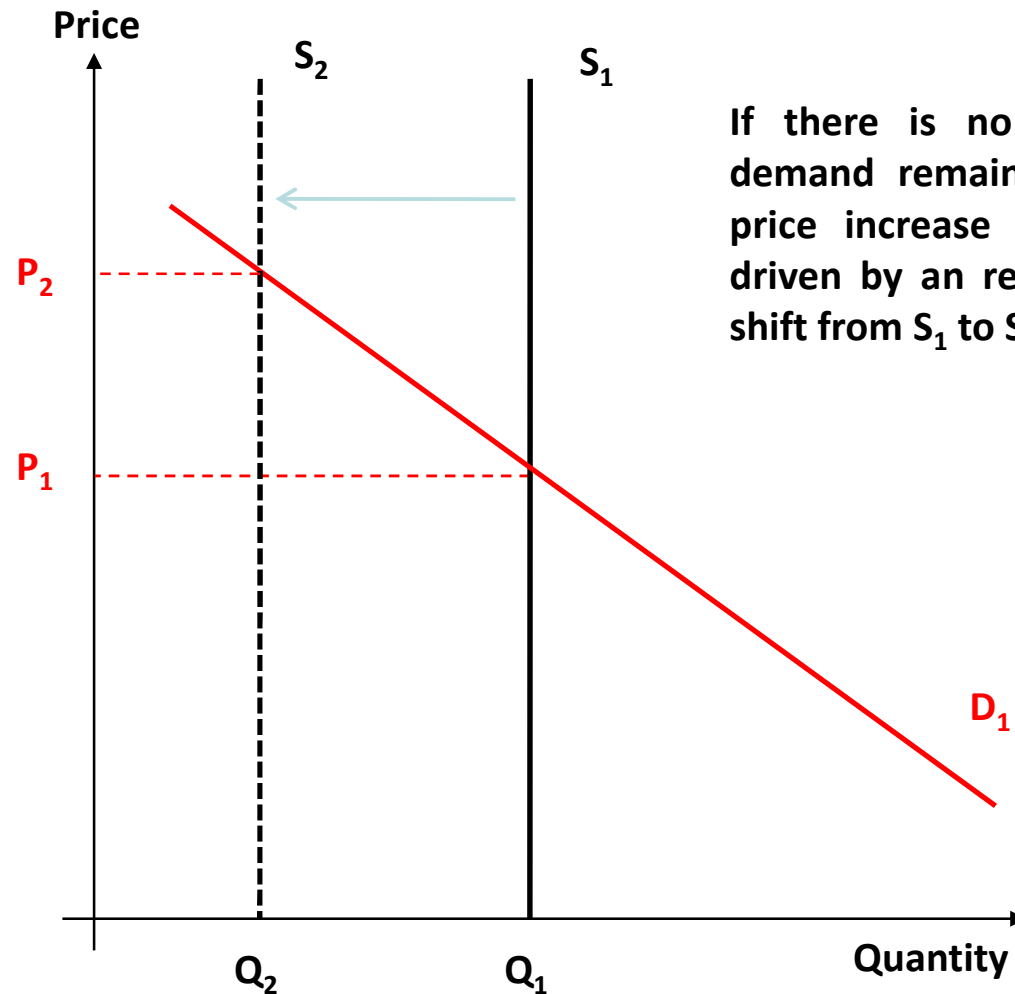
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## If not demand, then supply...



If there is no stock build and demand remains unchanged, the price increase from  $P_1$  to  $P_2$  is driven by a reduction in supply: shift from  $S_1$  to  $S_2$



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# More oil, same price, no buyers



If more supply is offered, then it has to be discounted to clear

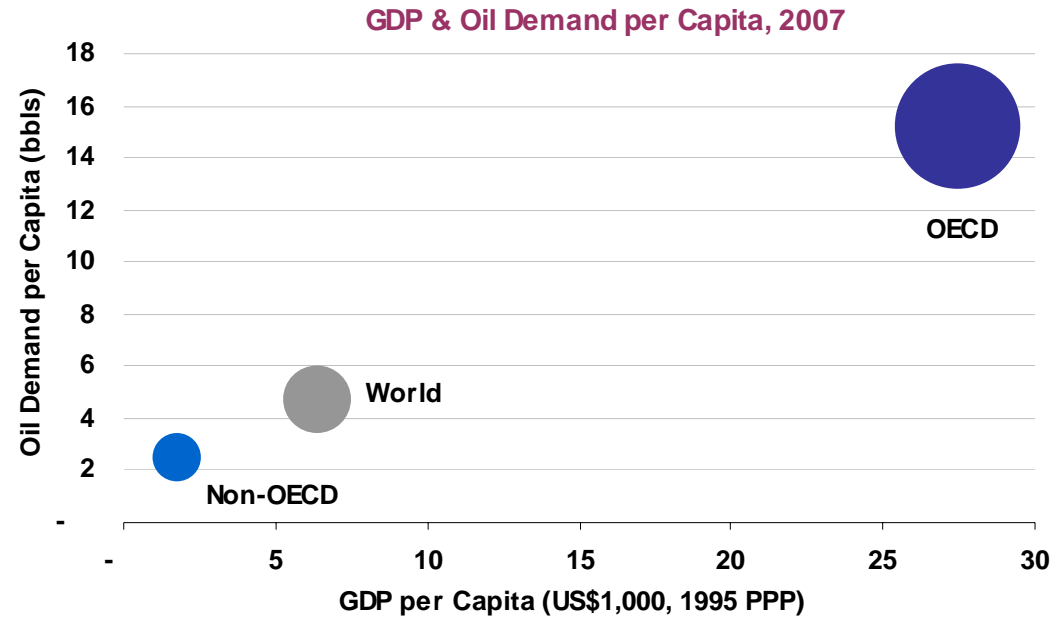
# The big picture: it's a question of balance

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- Backdrop of supply constraints
- In most developing countries, oil demand per capita is much lower than in the OECD
  - OECD: 15.2 bbls per inhabitant (2007)
  - Non-OECD: 2.5 bbls
  - World: 4.8 bbls
- This correlates with lower GDP per capita
  - OECD: \$27,400 per inhabitant (2007, at 1995 prices)
  - Non-OECD: \$1,800
  - World: \$6,400
- If supply is constrained, demand has to fall in the OECD



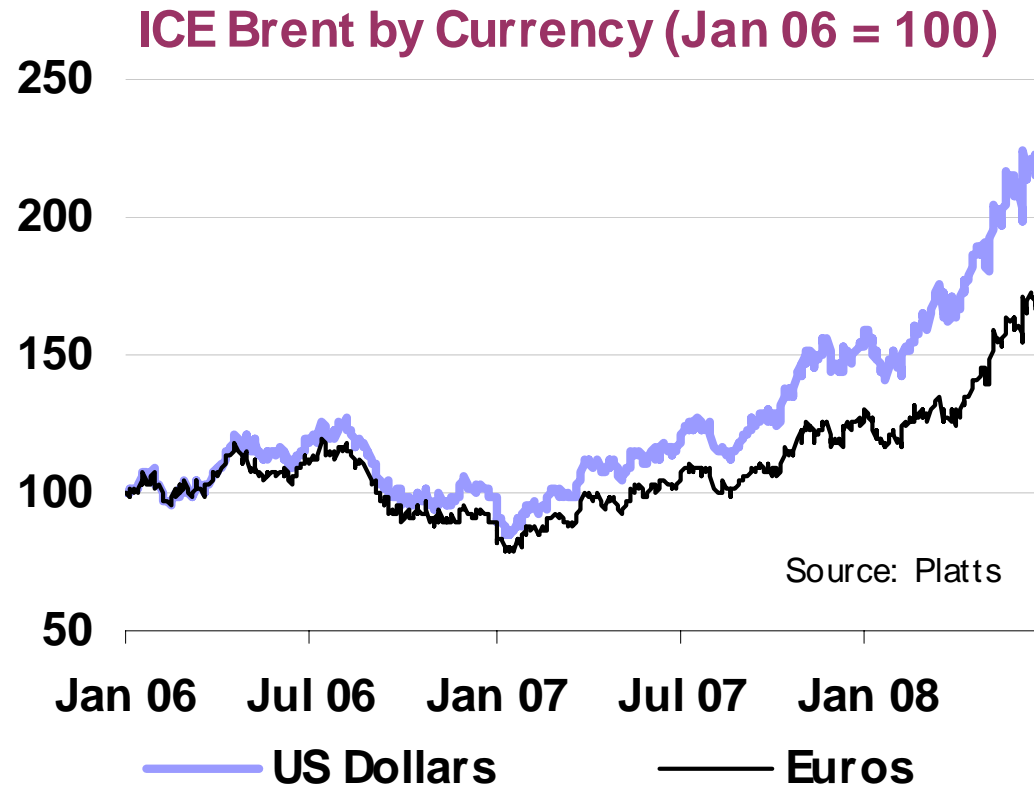
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## Weak dollar causing flight to safety?



- Due to dollar's weakening and global economic downturn, there may be some price effect from investors moving into commodities

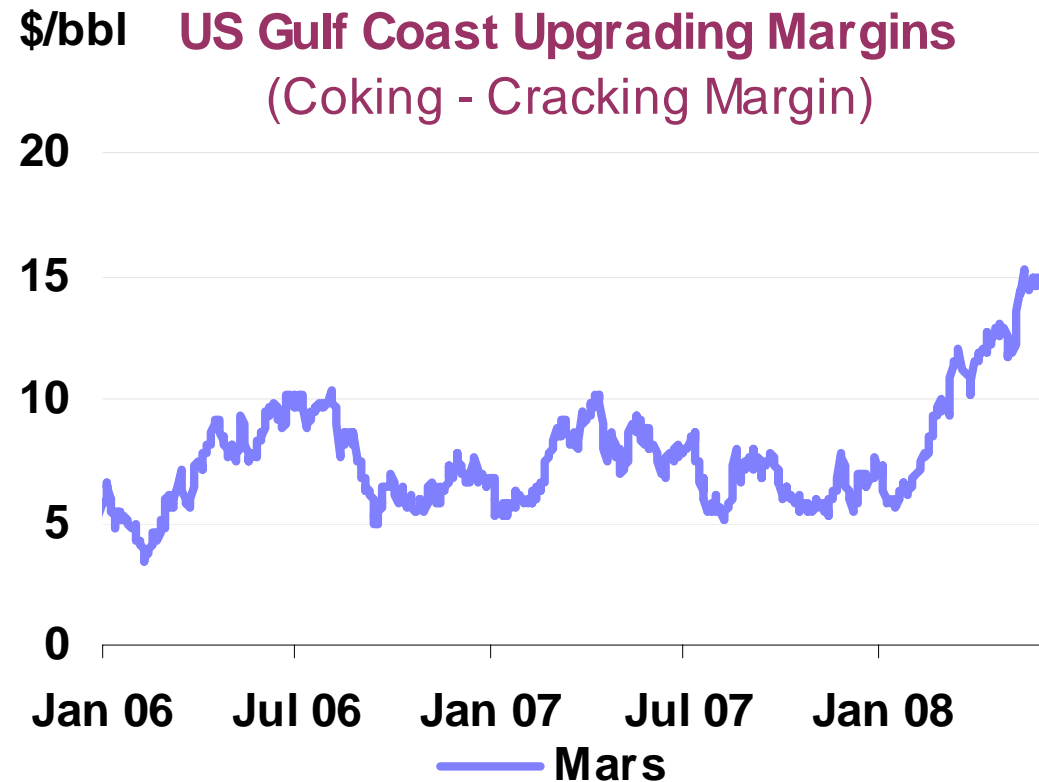


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## Refining imbalance adding to tightness



- **Widening imbalance** between light and heavy ends of barrel (-> as seen in upgrading margins) is tightening market
- Many **simpler refineries cannot run profitably** under these conditions



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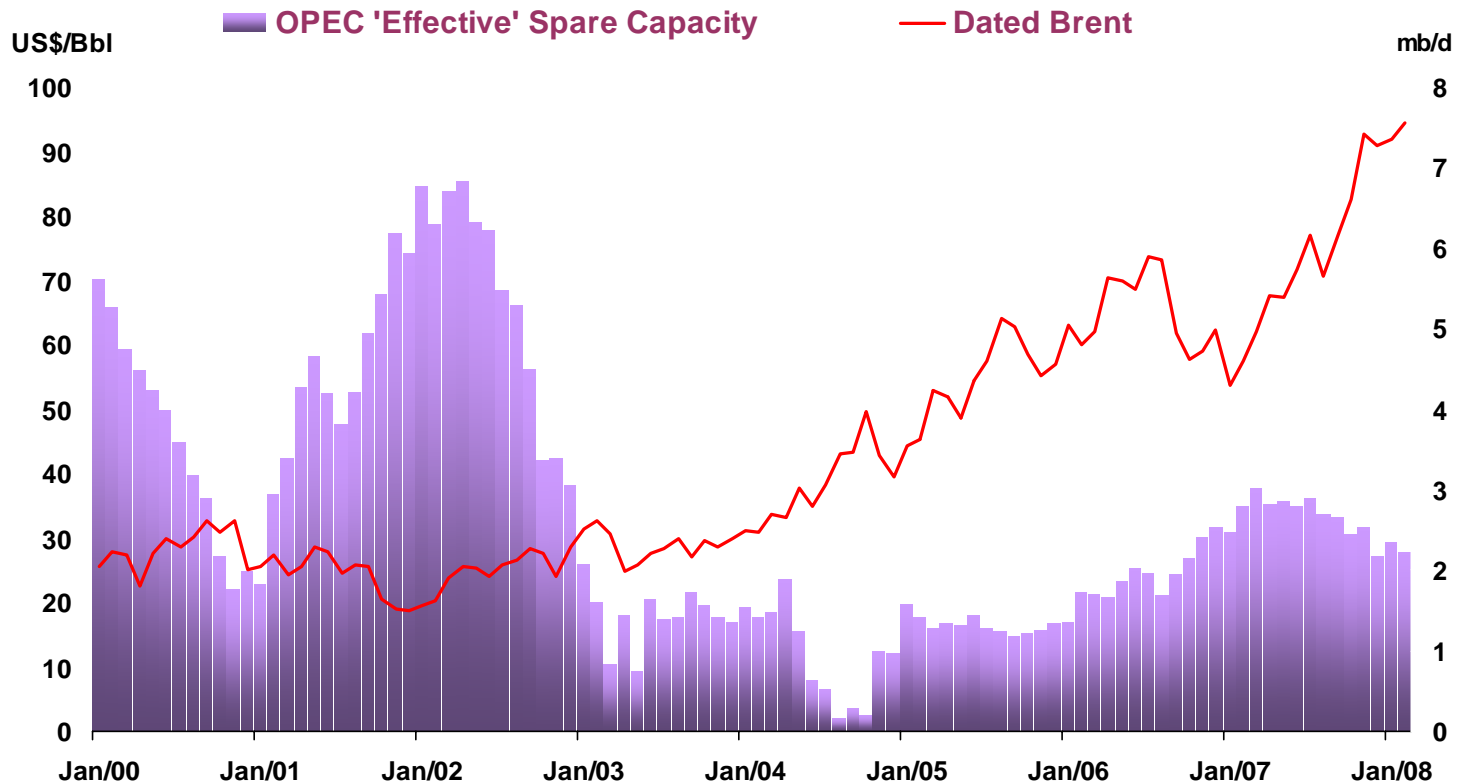
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## Spare capacity still low by historical standards

Strong demand growth, upstream bottlenecks, low refining flexibility, producer policy, lower inventory cover, geopolitics, speculative money and tight spare capacity all contribute to higher prices



- Spare capacity is not a perfect barometer of prices
  - will it be released to the market?
  - is it marketable?
- Low spare capacity: lasting desire to hold more stock

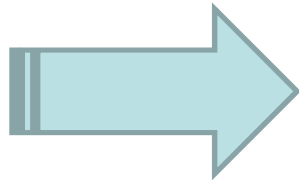


# Refinery tightness can have an impact

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3 mb/d  
crude



\$60/bbl



3 mb/d  
diesel



\$60/bbl

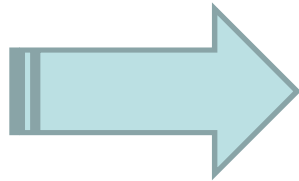
If there is ample refinery capacity, the balance between crude and refined product supply is pretty smooth



# Refinery tightness can have an impact

Demand rises but  
supply cannot increase  
So price rises

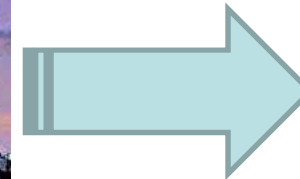
3 mb/d  
crude



\$60/bbl



3 mb/d  
diesel



\$60/bbl

Price of refinery output  
rises so refiners willing  
to pay more for crude

If there is refinery tightness, then value of output rises and  
refiners would be prepared to pay more for crude

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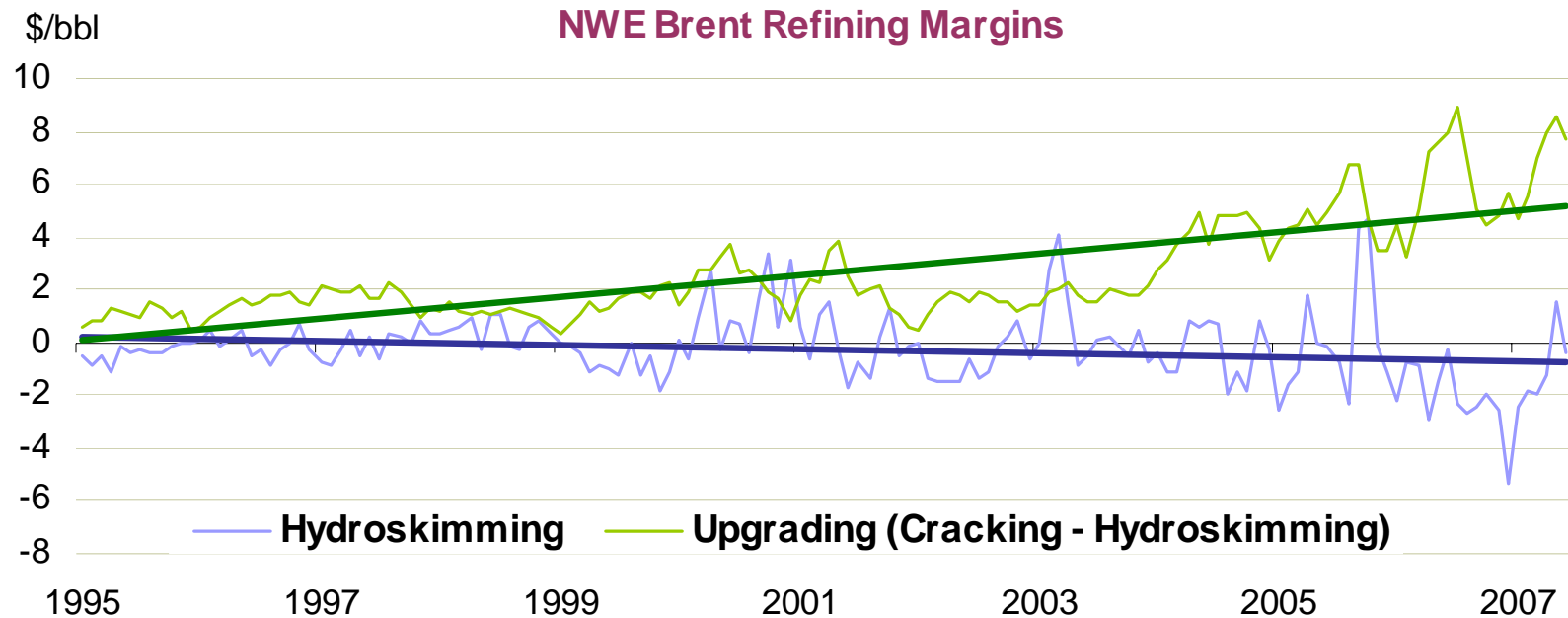
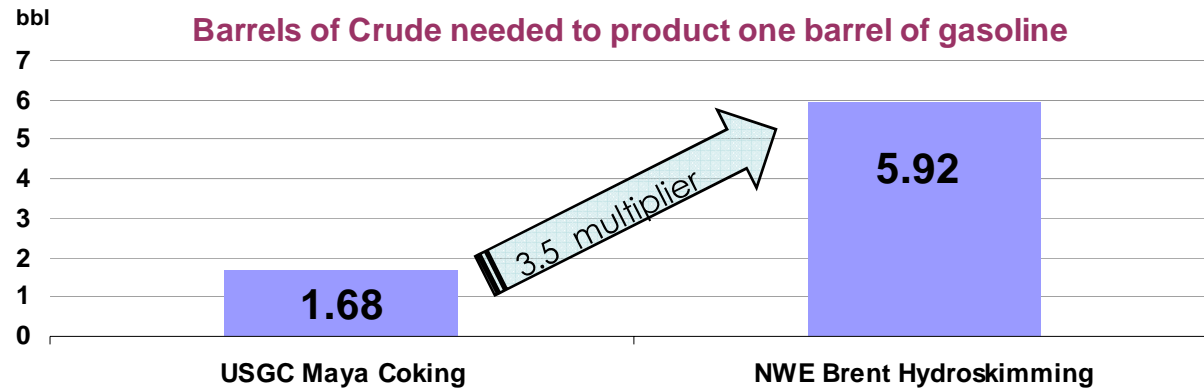
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# Refinery tightness= more crude oil use

Lack of upgrading boosts crude demand & negates spare capacity  
Increasing signs of producers integrating downstream?





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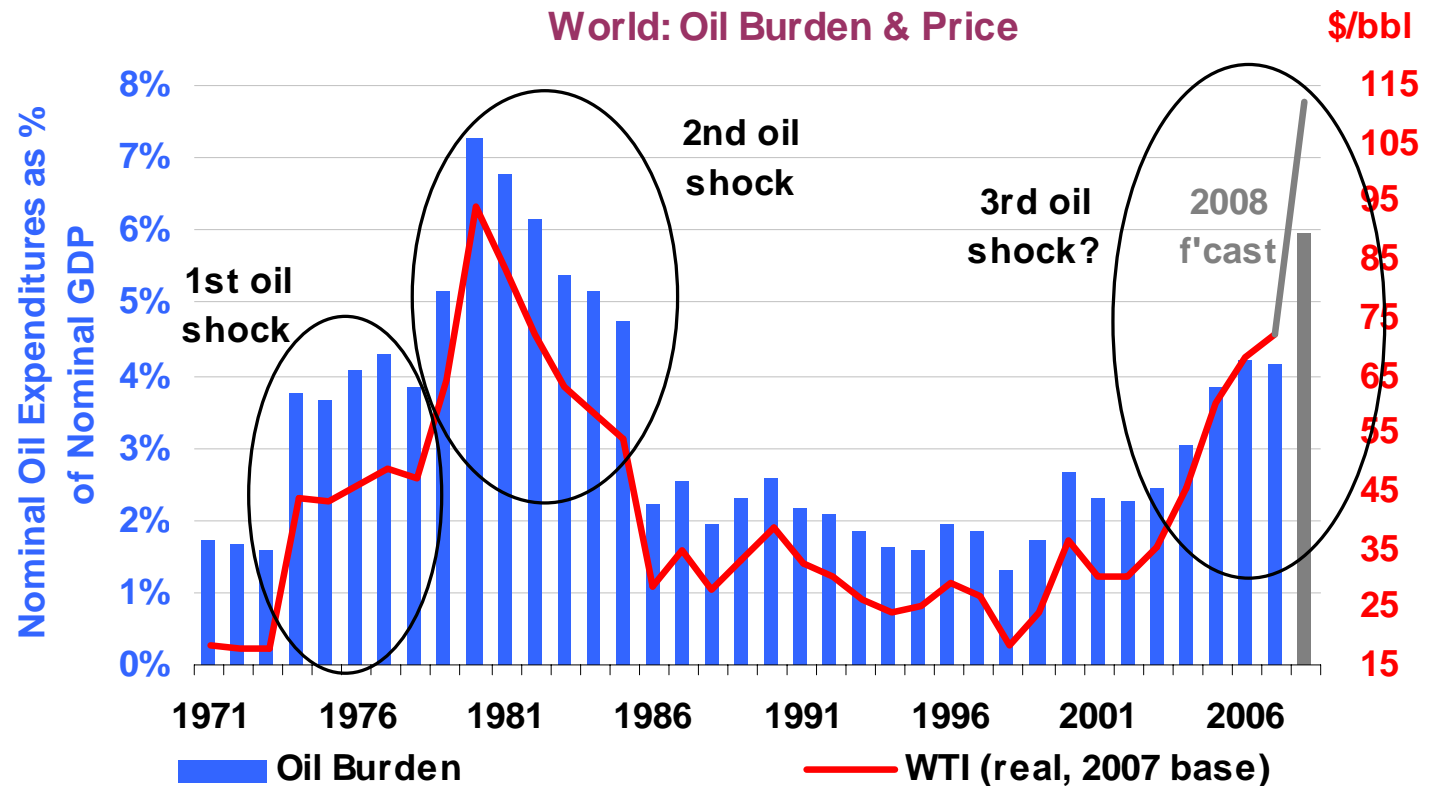
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# DEMAND

# Record prices – record oil burden?

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- If prices remain at current levels, the **global “oil burden”** (nominal oil expenditures as % of nominal GDP) **may reach the levels seen in the 1980s**
- Despite increasing energy efficiency, this situation could well herald a **third oil shock**



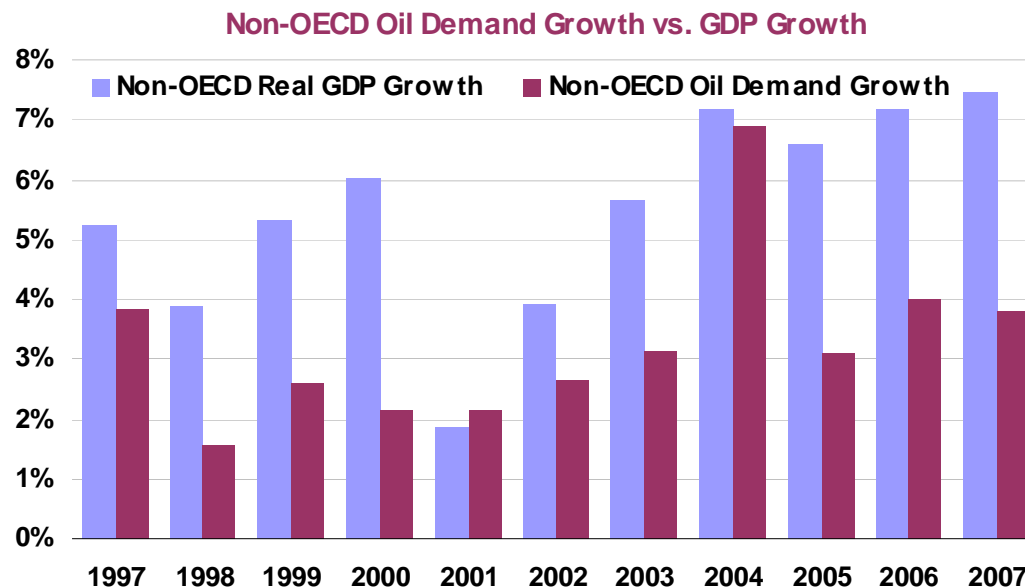
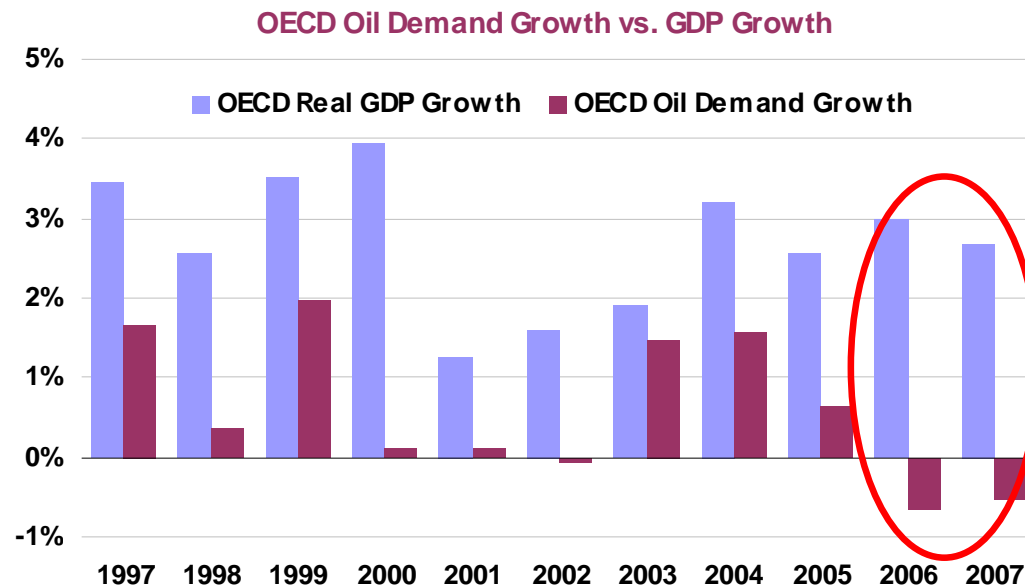
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# Mature vs emerging economies



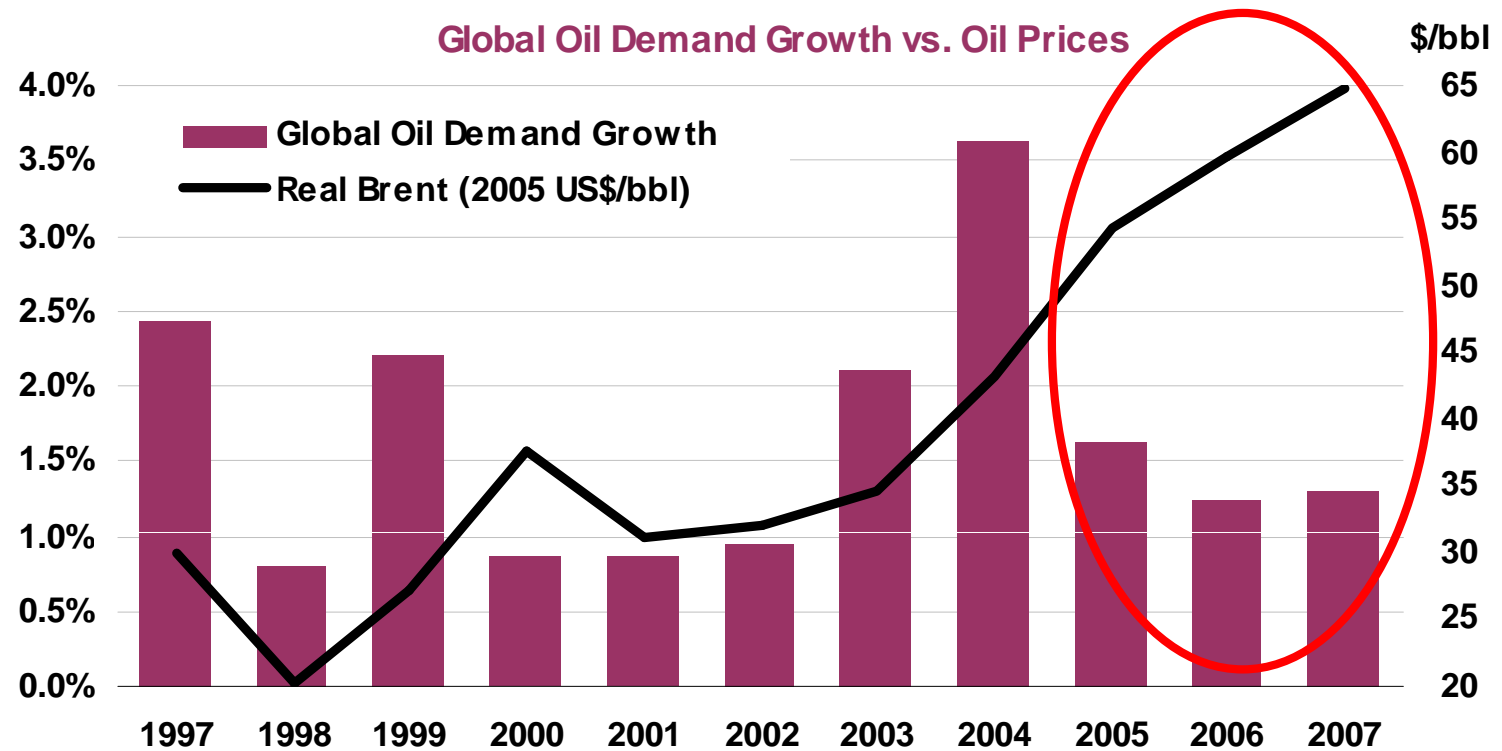
- In mature countries, economic activity – albeit important – is no longer the main driver

- The GDP-oil demand relationship holds essentially in non-OCDE countries

# What about prices?

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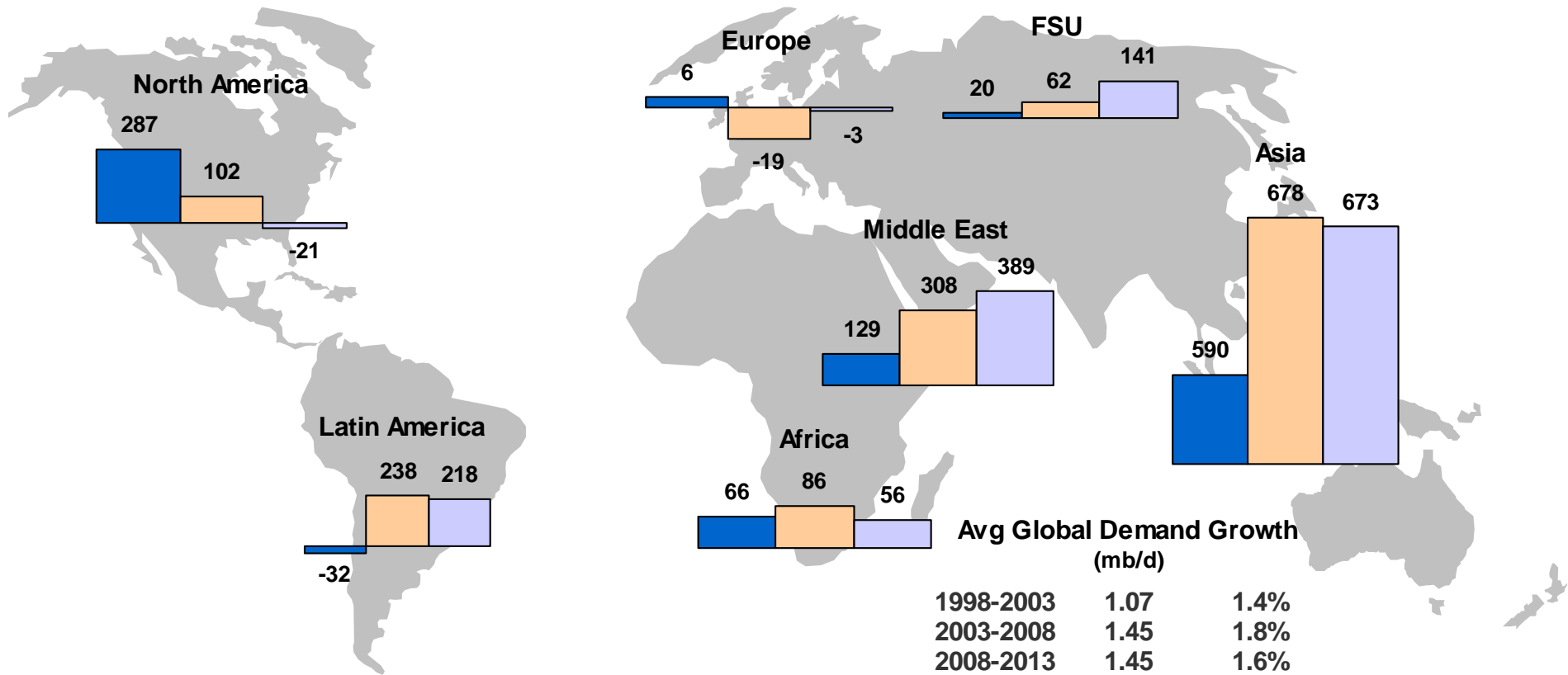


- After a time-lag, rising oil prices have an effect on overall demand patterns
- This has been quite noticeable since 2005
- Yet demand keeps on growing, albeit modestly



# The big picture

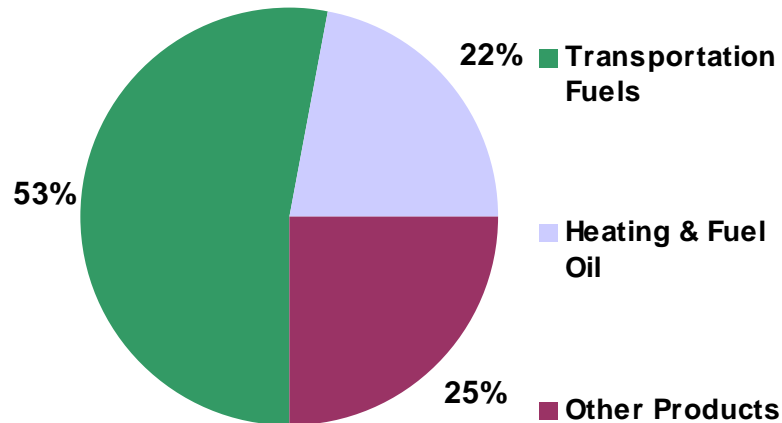
Average Global Demand Growth **1998-2003**/**2003-2008**/**2008-2013**  
thousand barrels per day



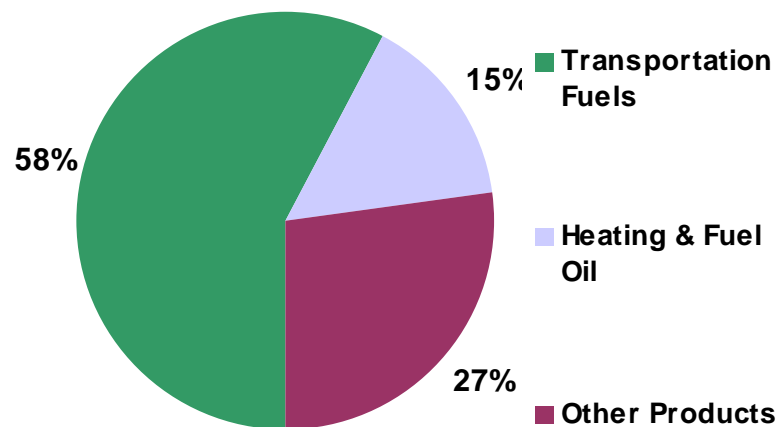


# Demand has changed...

World: Total Oil Product Demand by Type of Product, 1996



World: Total Oil Product Demand by Type of Product, 2007



- The barrel is gradually “lightening” – higher demand for **transportation fuels**, lower for heating and fuel oil
- This is occurring in **both** OECD and non-OECD countries – **environmental concerns and arbitrage pricing factors** at play
- 48% of demand growth in middle distillates

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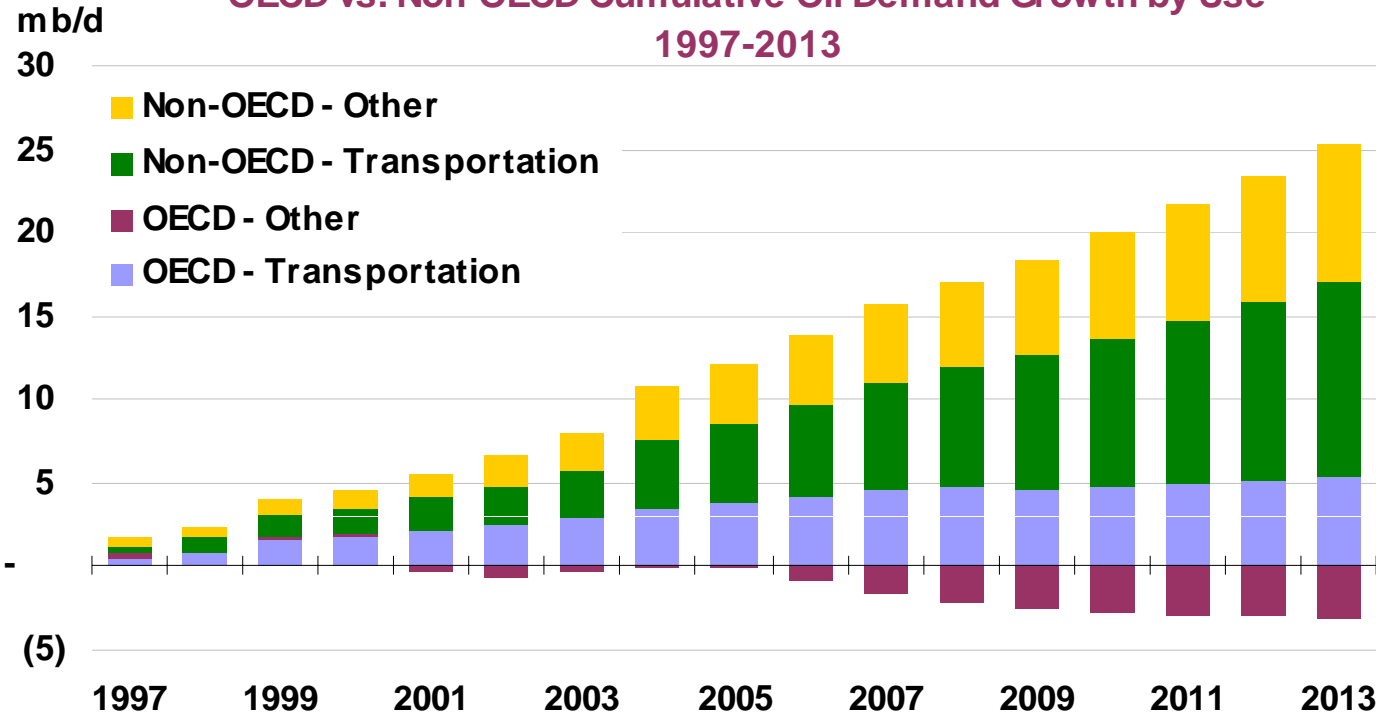
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# Developing countries and transport

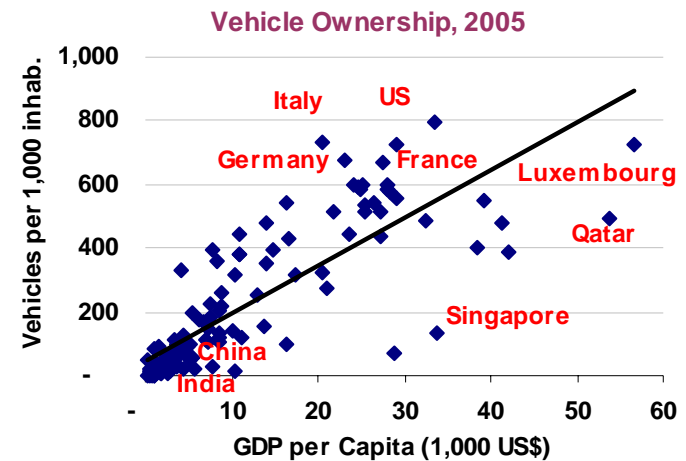
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OECD vs. Non-OECD Cumulative Oil Demand Growth by Use  
1997-2013



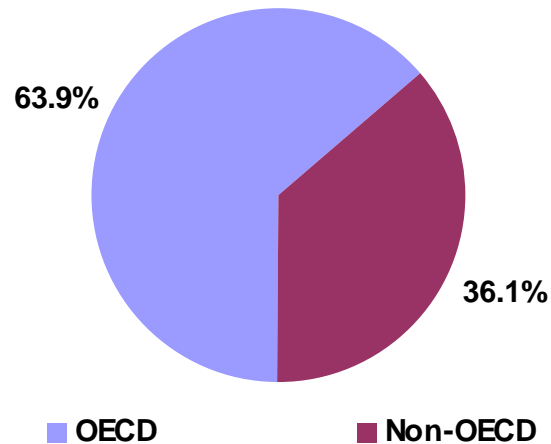
- **Usage shift:** transportation fuels will account for the bulk of oil demand
- **Geographical shift:** oil demand growth will come from non-OECD countries



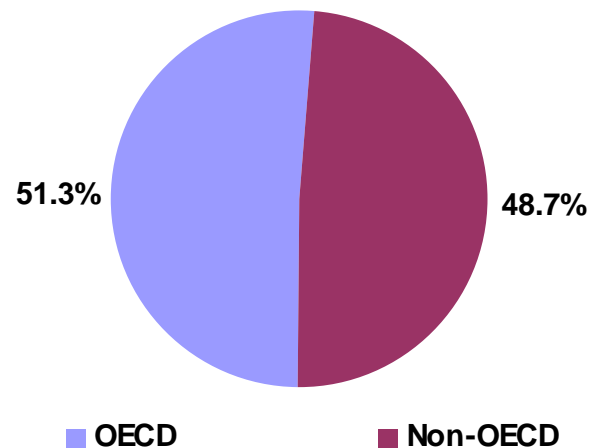


# Parity by 2015 – but it won't stop there

World: Total Oil Product Demand  
by Region, 1996



World: Total Oil Product Demand  
by Region, 2013



- OECD countries will still account for the **bulk of global oil demand** in the medium-term...
- ...yet several key non-OECD regions, particularly in **Asia and the Middle East**, are catching up fast – developing countries will **overtake the OECD** by around 2015

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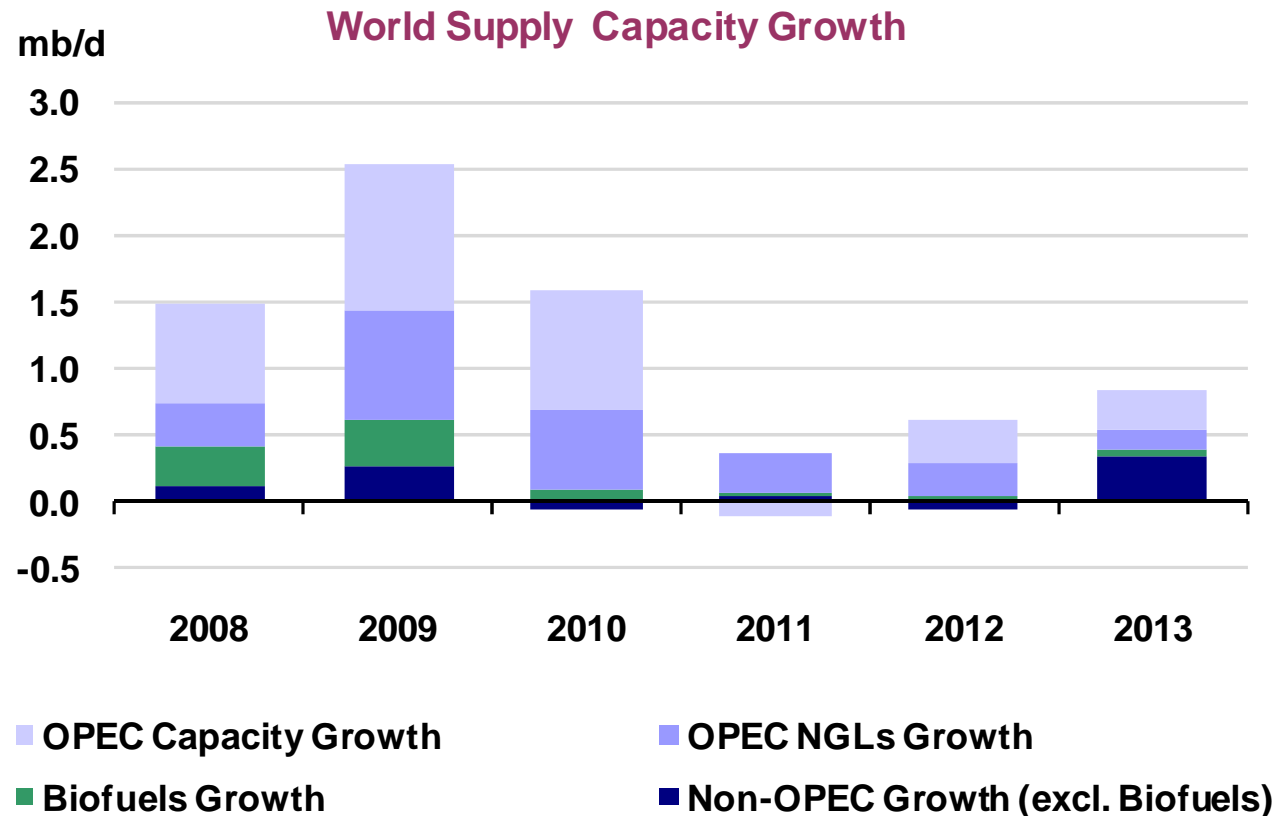
# SUPPLY



# Supply Growth Looks Front End Loaded

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- Underlying forecast is 2.6 mb/d lower than last year for 2012
- OPEC crude & liquids drive 2008-2010 growth
- Lull in 2011/2012 on project slippage and mature field decline
- But fledgling signs of recovery from 2013?



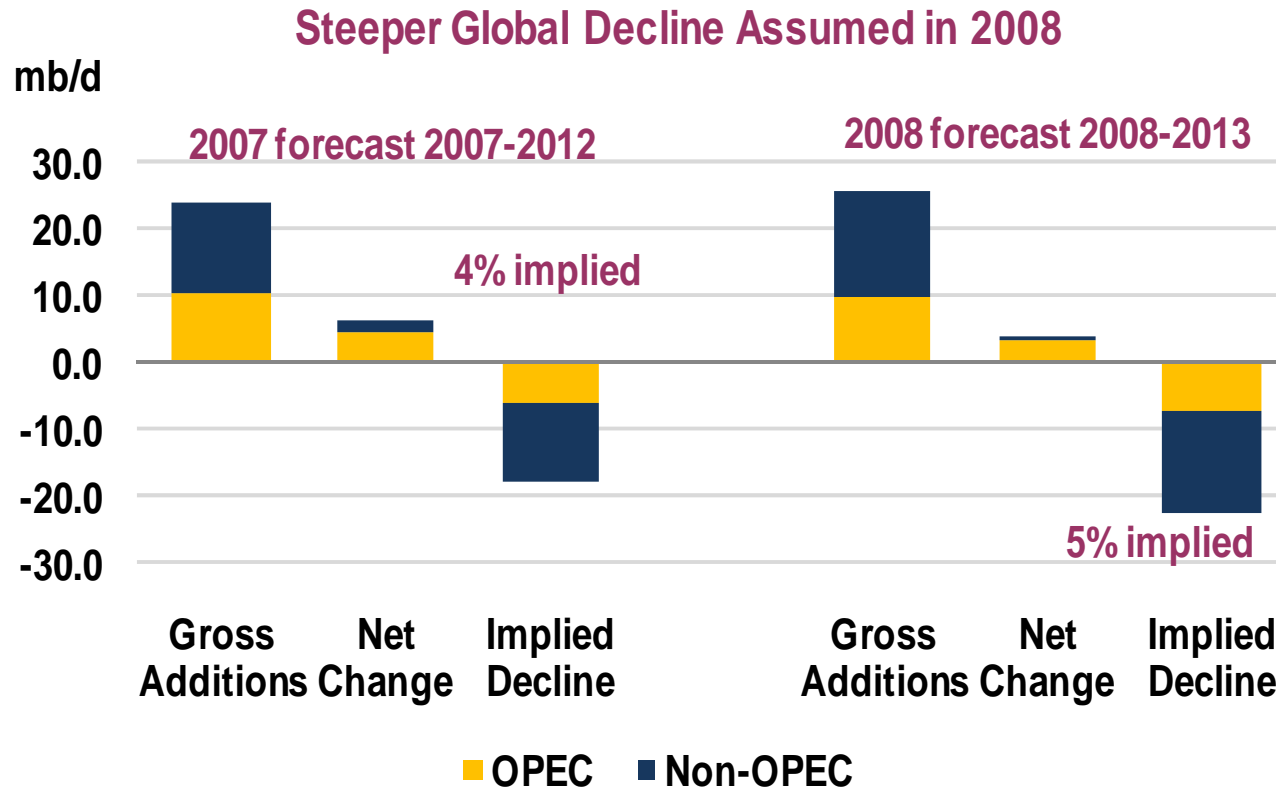
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# Mature Field Decline an Ever-Present

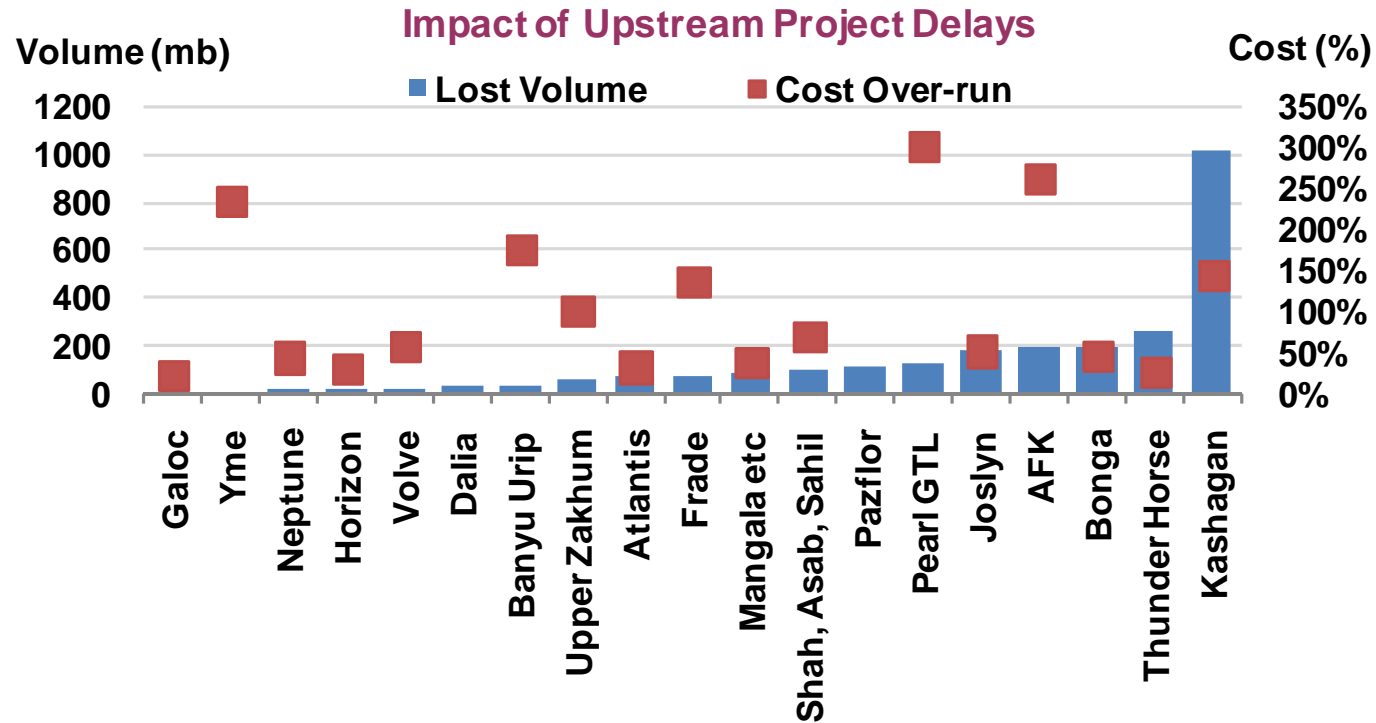


- Global net decline seen around 5% pa for 2008-2013
- Implies that over 3.5mb/d of new start-ups needed every year just to stand still
- OECD facing mature field decline >10% pa, but no sign that aggregate non-OPEC rate accelerating in past decade

# Key Projects are Slipping & Getting Costlier

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- Non-exhaustive look at key recent project announcements suggests average 1 mb/d loss due to slippage
- A doubling of investment costs...
- ...and 12-15 months slippage on average

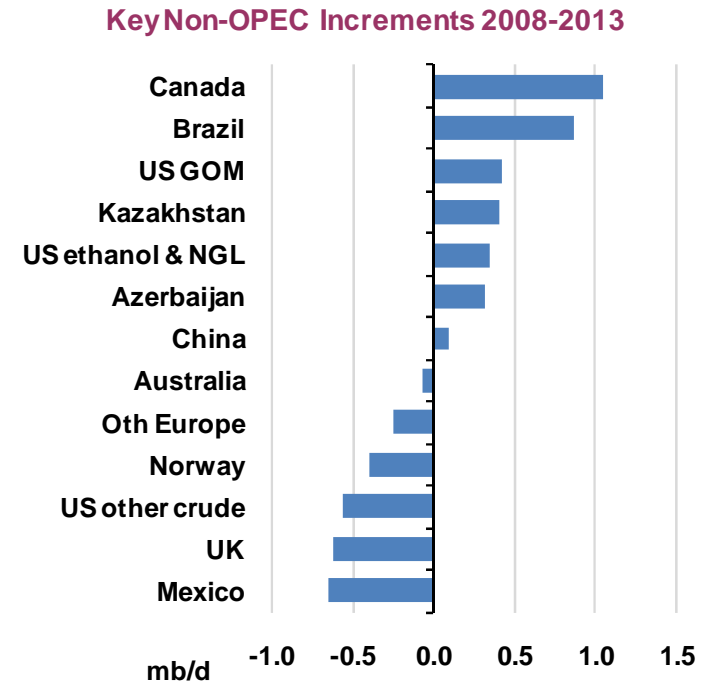
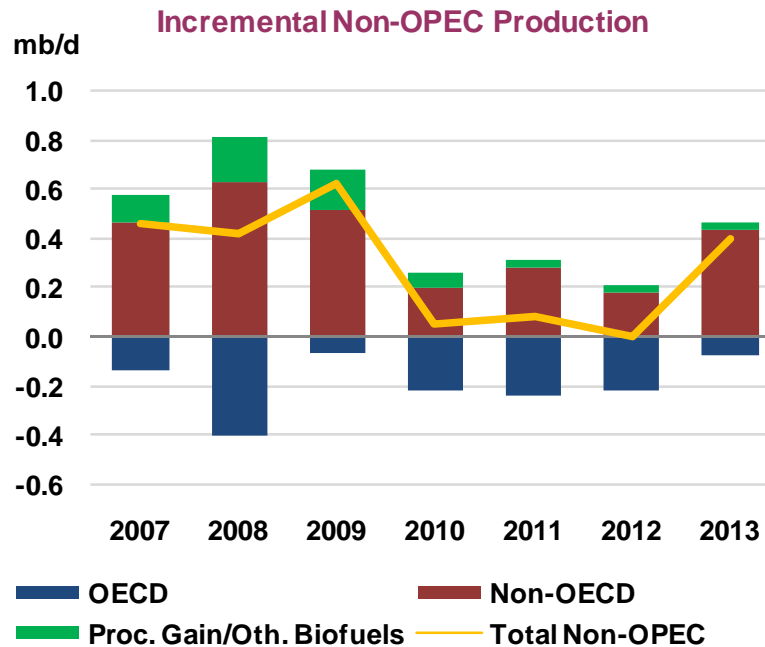


# Non-OPEC Output: Headed for a dip in 2010-2012

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- Net increase of 1.2 mb/d expected for 2008-2013
- Total masks a weak OECD picture....
- ...and the fact that gas liquids, non-conventionals and biofuels are drivers of growth, not crude



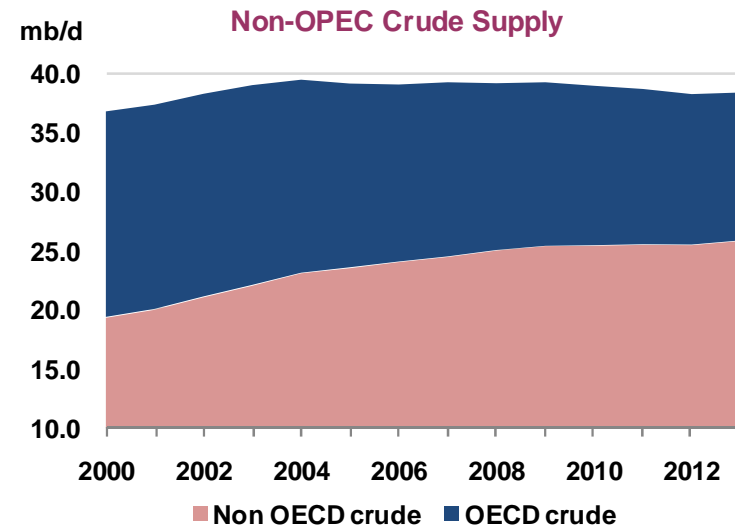
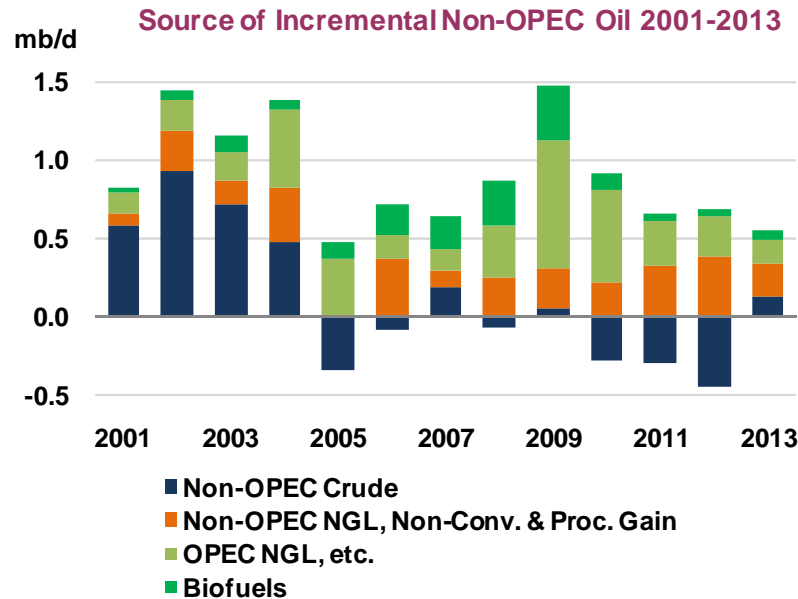
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# Non-OPEC crude in decline...until 2013

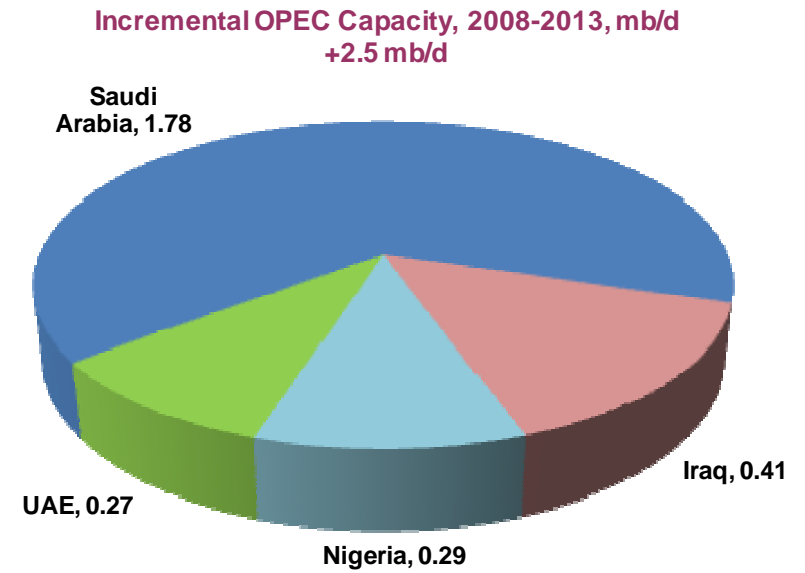
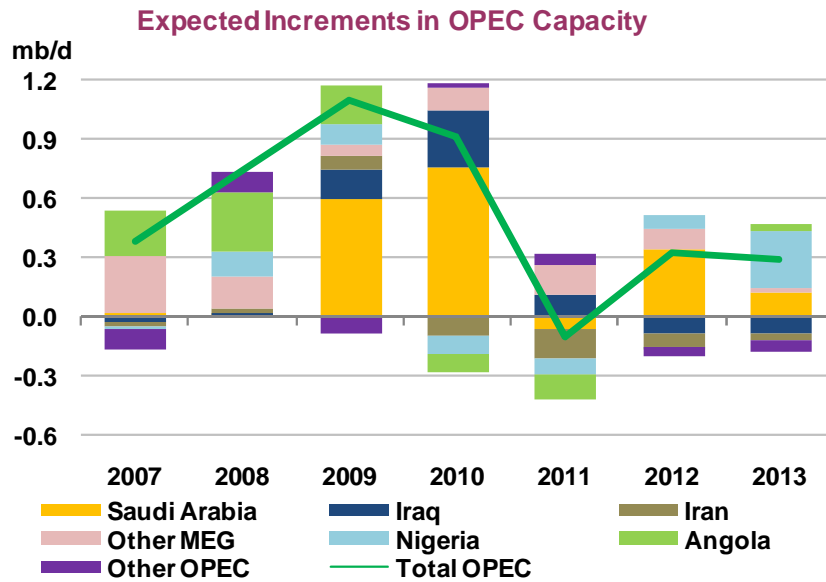


- Non-OPEC growth is despite, not because of, crude oil
- OECD decline outstrips modest non-OECD crude growth
- But can crude growth re-emerge from mid-decade onwards if major discoveries in Russia, Caspian, US GOM, Brazil & China are tapped?

# Saudi Arabia drives OPEC crude growth

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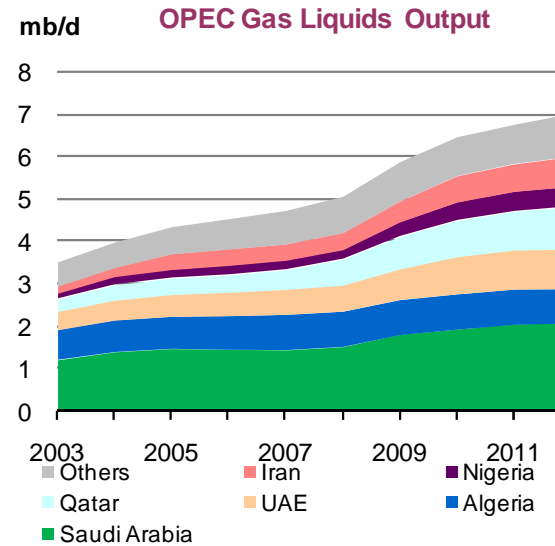
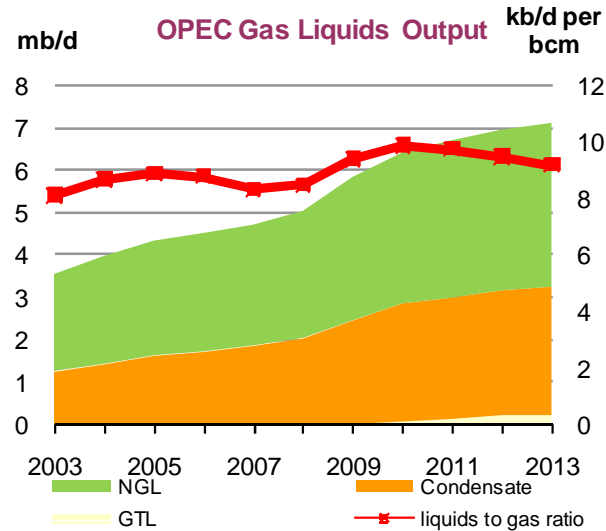
- Strong 2009/2010 capacity growth driven by Saudi lighter/sweeter crude additions, plus initial Iraqi recovery
- Later phase growth comes from Saudi Arab Heavy additions plus Nigerian deepwater



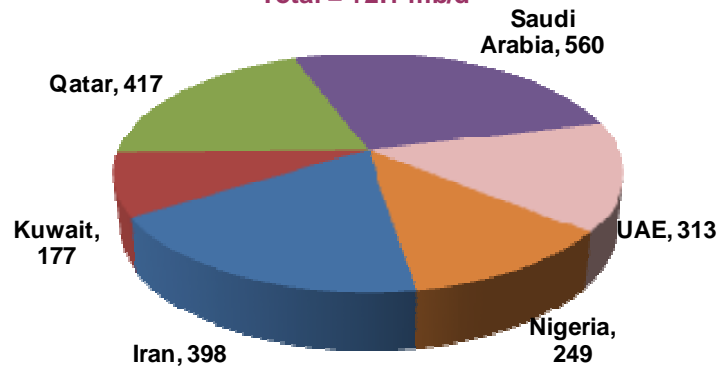
# OPEC Gas Liquids: A forgotten source of growth

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Incremental OPEC NGL 2008-2013, kb/d  
Total = +2.1 mb/d



- 2013 supply reaches 7.2 mb/d
- 7% pa growth looks strong..
- ..but matches 2003-2008 levels



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# BIOFUELS



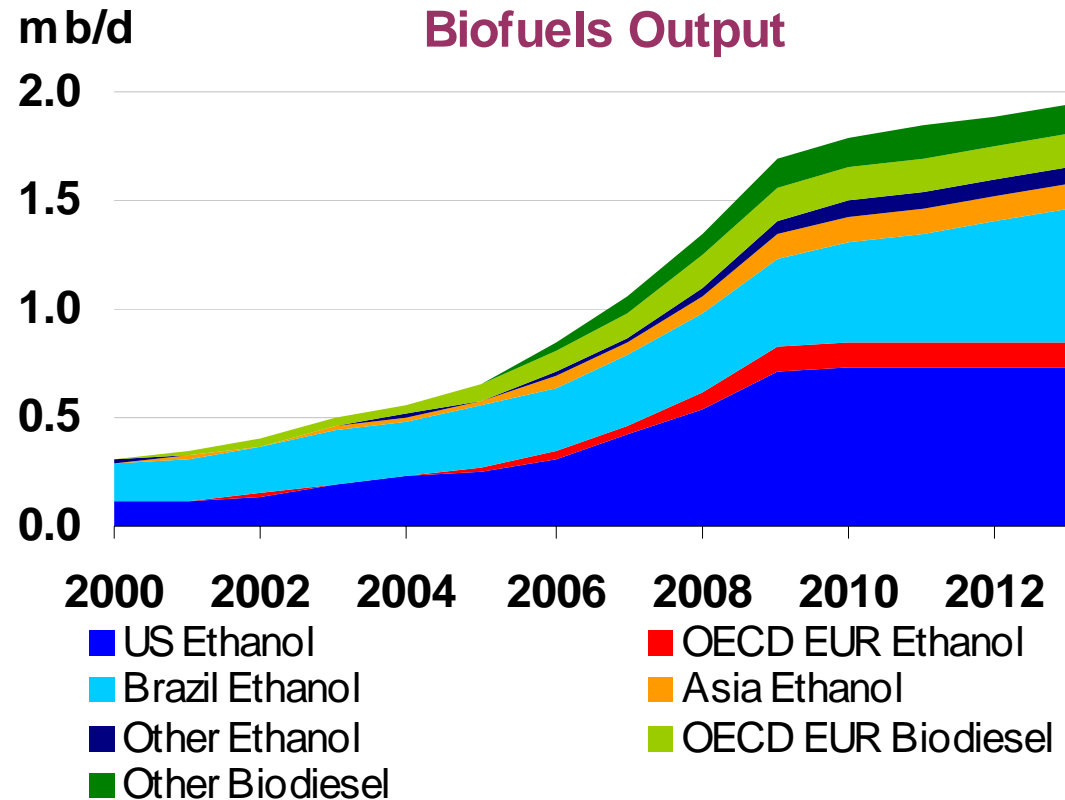
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## Strong growth in Biofuels output

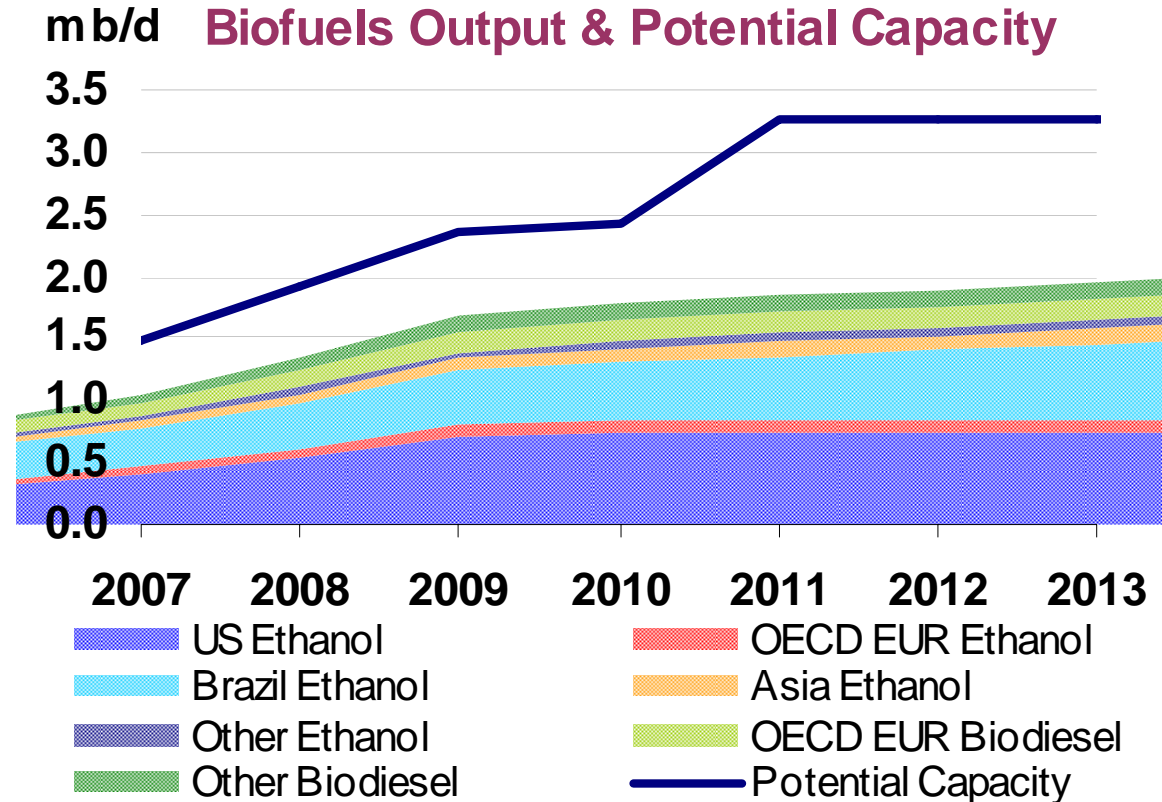


- Biofuels supply maintains strong growth seen in previous forecasts: from 1.35 mb/d in 2008 ► 1.95 mb/d by 2013 (in volumetric terms)

# Growth potential even higher

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- **Potential supply capacity much higher: 3.3 mb/d by 2013** (were all announced projects to come online!)
- But, due to downside risks, **have capped output in 2010 for all countries bar Brazil!**



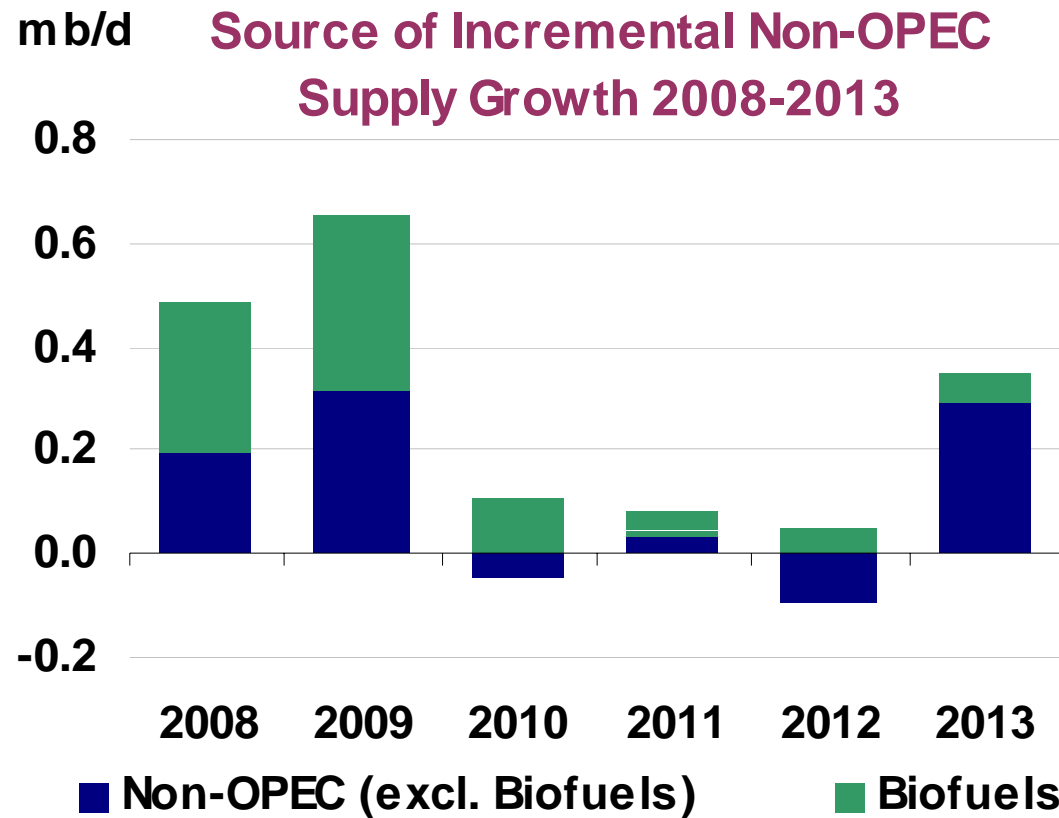
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## Biofuels contribute to supply growth



- Biofuels contribute 50% of (faltering) non-OPEC supply growth in 2008-2013
- Lion's share of this is fuel ethanol



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# REFINING AND PRODUCT SUPPLY



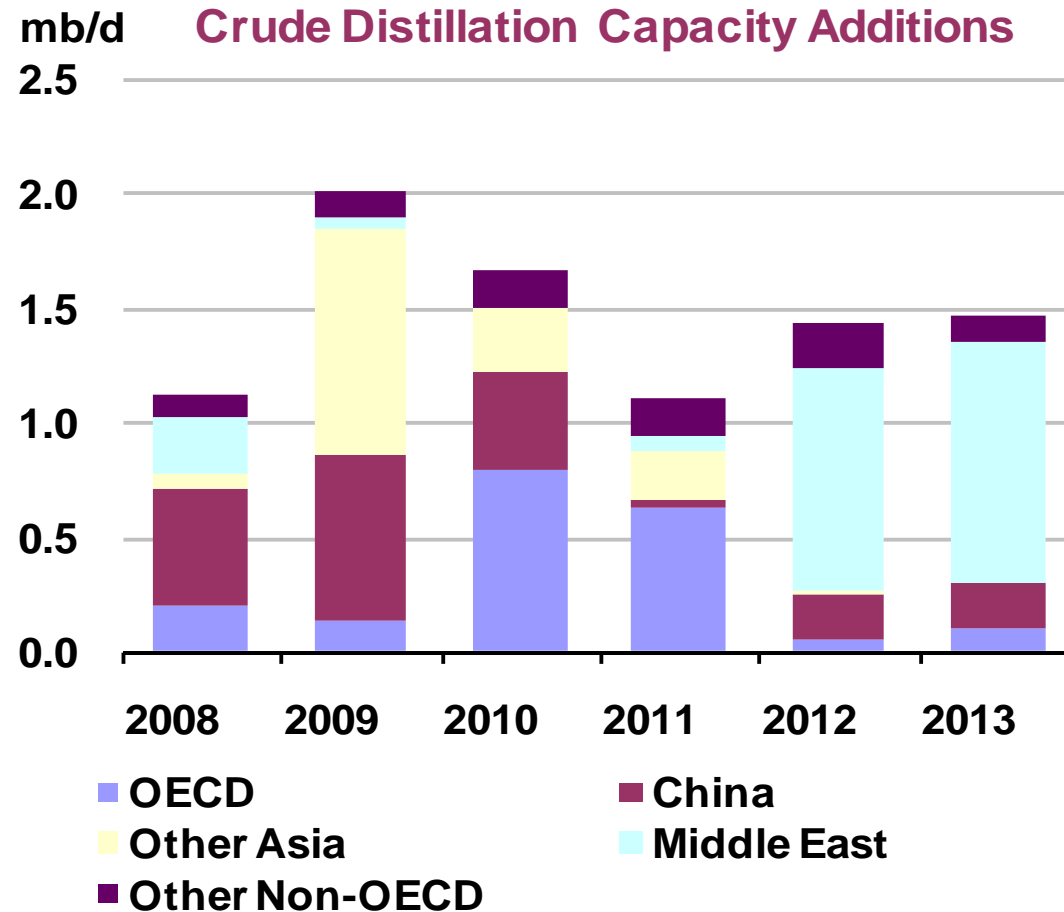
# Refining Industry: Significant Growth Ahead

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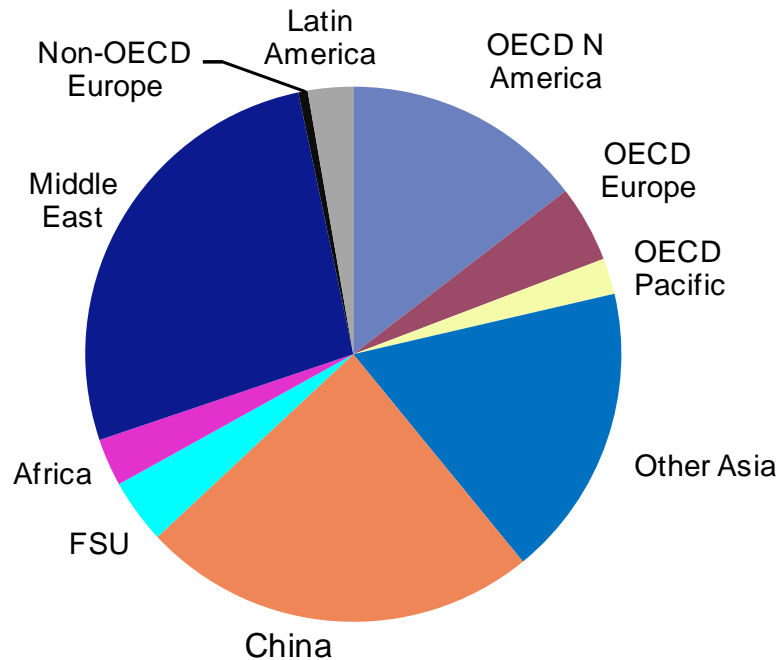


- Growth peaks in 2009, before dropping to a trough in 2011. Middle East projects revive growth thereafter
- OECD regions account for only 20% of the increase; largely in North America
- Significant slippage as costs soar



# Middle East and Asia Dominate Growth

Distribution of Crude Distillation Capacity Additions



- Increased capacity is largely dependant on projects in:
  - Middle East – Mega projects e.g Al Zour, Ras Tanura etc.
  - China – Continued expansion from CNPC & Sinopec
  - Other Asia – Jamnagar refinery expansion in 2009

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## Product supply: tensions persist

- Difficulty keeping up with rapid growth in distillate demand
  - 48% of global demand growth in distillate
- Gasoline to move into surplus in the Atlantic Basin
  - Trend towards more fuel efficient cars could accelerate that trend
  - Biofuels part of that balance
- Petchems to absorb NGL increase
- Fuel oil to tighten through upgrading additions
  - Wide current fuel oil discounts reflect surplus
  - Increasing fuel oil demand from Middle East for power generation
- Tighter fuel oil supplies at same time Middle East and Europe looking for more gas
  - No refining limits on producing more fuel oil
  - But will need more crude runs or fuel efficiency elsewhere



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## What the next five years hold in store

- High prices reflect strong non-OECD growth and poor non-OPEC supply performance
  - No obvious sign speculators behind high prices stocks normal to low, distillates very tight
  - Producers operating close to flat out
- Opposing trends in supply and demand to 2013
  - Demand growth weak, then picks up
    - Led by non-OECD
  - Bunching of projects bolsters 2009 spare capacity, but then dips
    - Ongoing slippage, cost inflation, service sector constraints
    - Non-OPEC crude supplies to continue to contract
    - More oil beyond 2013 – Saudi, Khashaghan, Tupi
      - ❖ More investment needed
  - Refining investment continues apace
    - Struggles to keep up with distillate demand
    - Fuel oil to tighten, competition with other fuels



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**Thank You**

**Q & A**