MEDIUM-TERM OIL MARKET REPORT 2009

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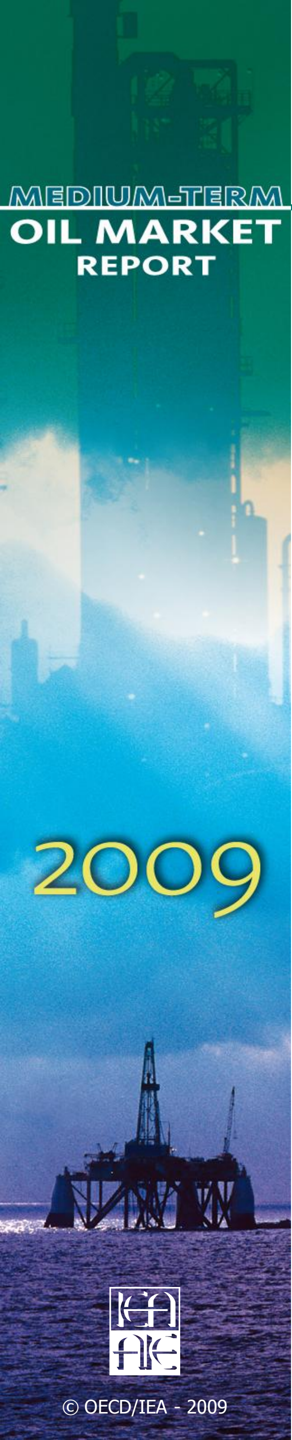
INTERNATIONAL ENERGY AGENCY

35 years 1974•2009



MTOMR 2009 – Some key issues

- **Economic recovery – 'business as usual' or subdued growth trend?**
- **Pace of demand rebound amid structural change - demand destruction vs. demand suppression?**
- **Impact of economic uncertainty & price volatility on investment - supply growth slower in future?**
- **Biofuel, NGL & non-conventional oil as a safety valve, amid weak conventional crude growth**
- **Refining sector boom and bust cycles**
- **Prices – driven by fundamentals or funds?**
- **Supply crunch, or easier capacity buffer? – the role of economic growth & government, consumer choices**
- **A role for governments:**
    1. **stimulating investment plus energy efficiency;**
    2. **enhancing market transparency to reduce price uncertainty without choking off liquidity;**
    3. **joined-up thinking on fuel quality & emission standards**
- **How has the picture changed since June?**

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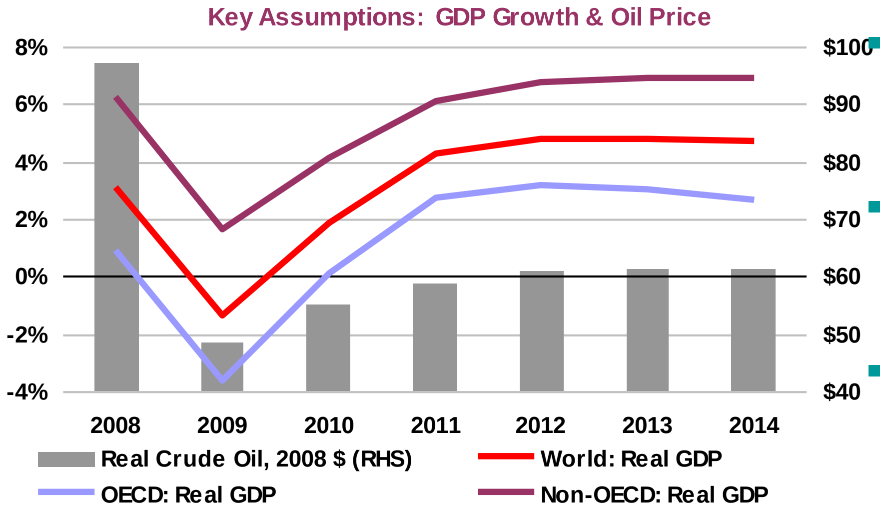
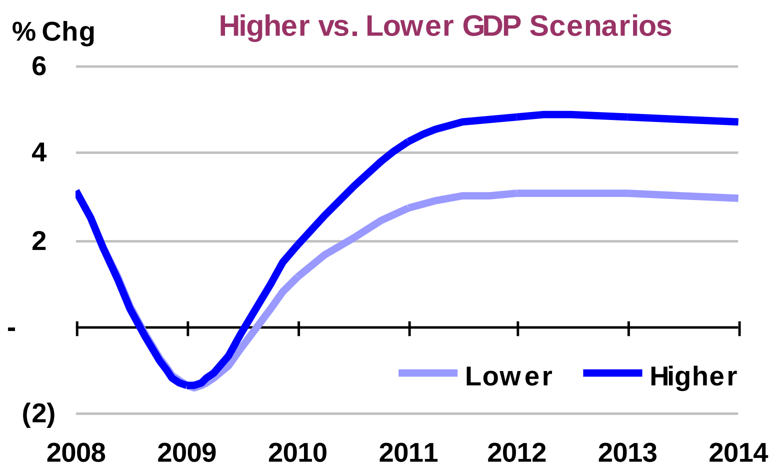
MTOMR 2009 – Starting points

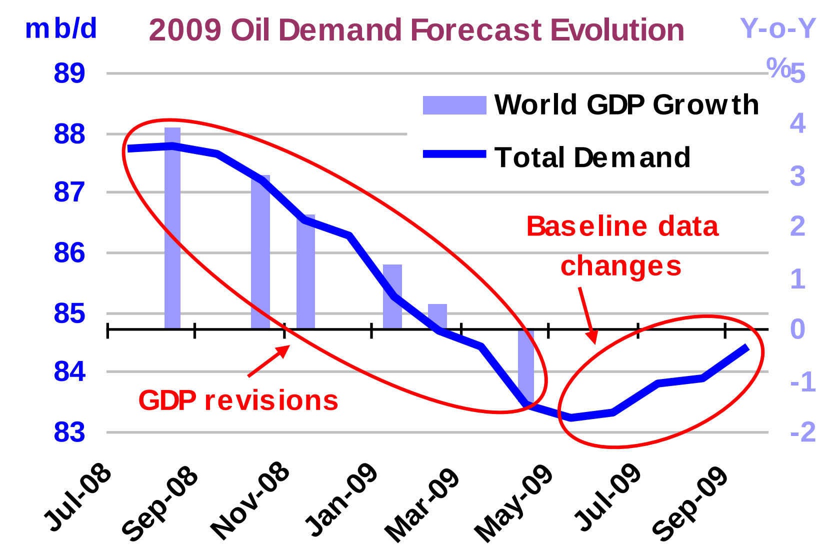


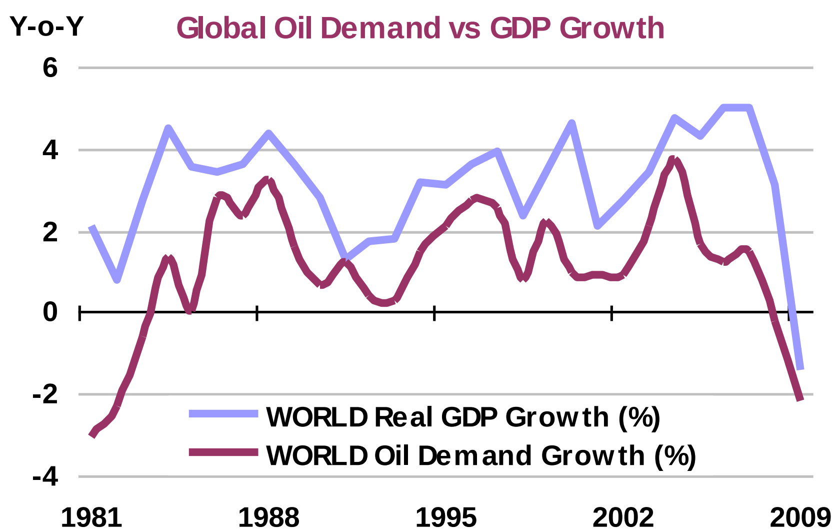


- **Single price assumption (<u>not</u> forecast) based on the futures strip**
- **Acts as a peg on which to hang demand projections**
- **Alongside two potential visions of economic recovery path**
- **Oil intensity assumed to fall 2.4%pa v 2.1% pa in last decade**
- **Supply side based on currently planned projects, operating regimes and policies**
- **Decline rate sensitivity employed for lower GDP/oil demand case**

Demand

The global slump has shaken many assumptions





- **GDP – and oil – demand forecasts have been cut sharply since mid-2008**
- **Oil demand is falling everywhere – even in non-OECD countries**
- **The short & medium-term outlook are highly uncertain**
- **Large baseline revisions highlight data quality issues**

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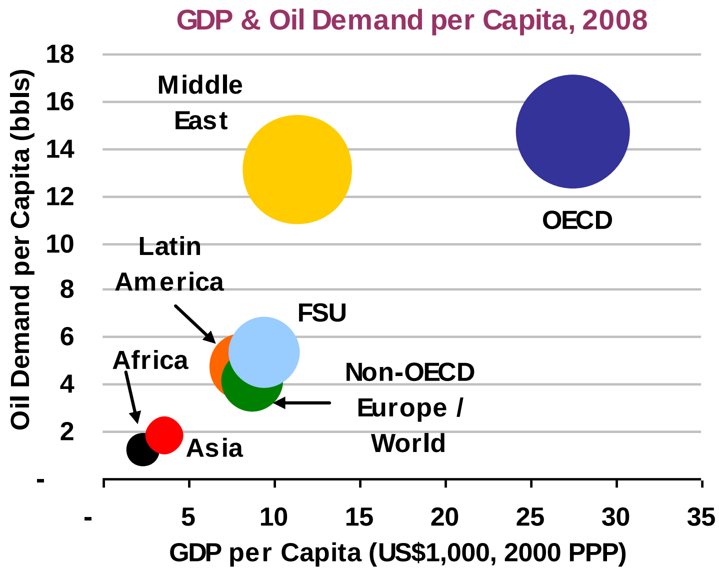
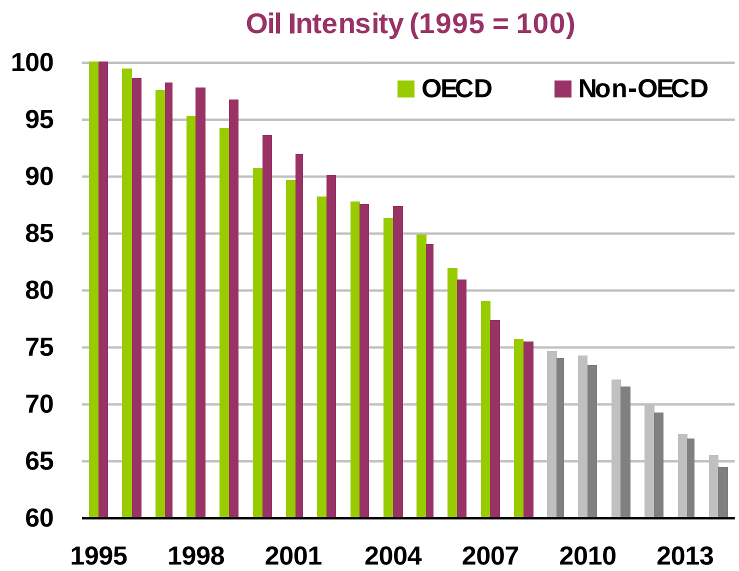
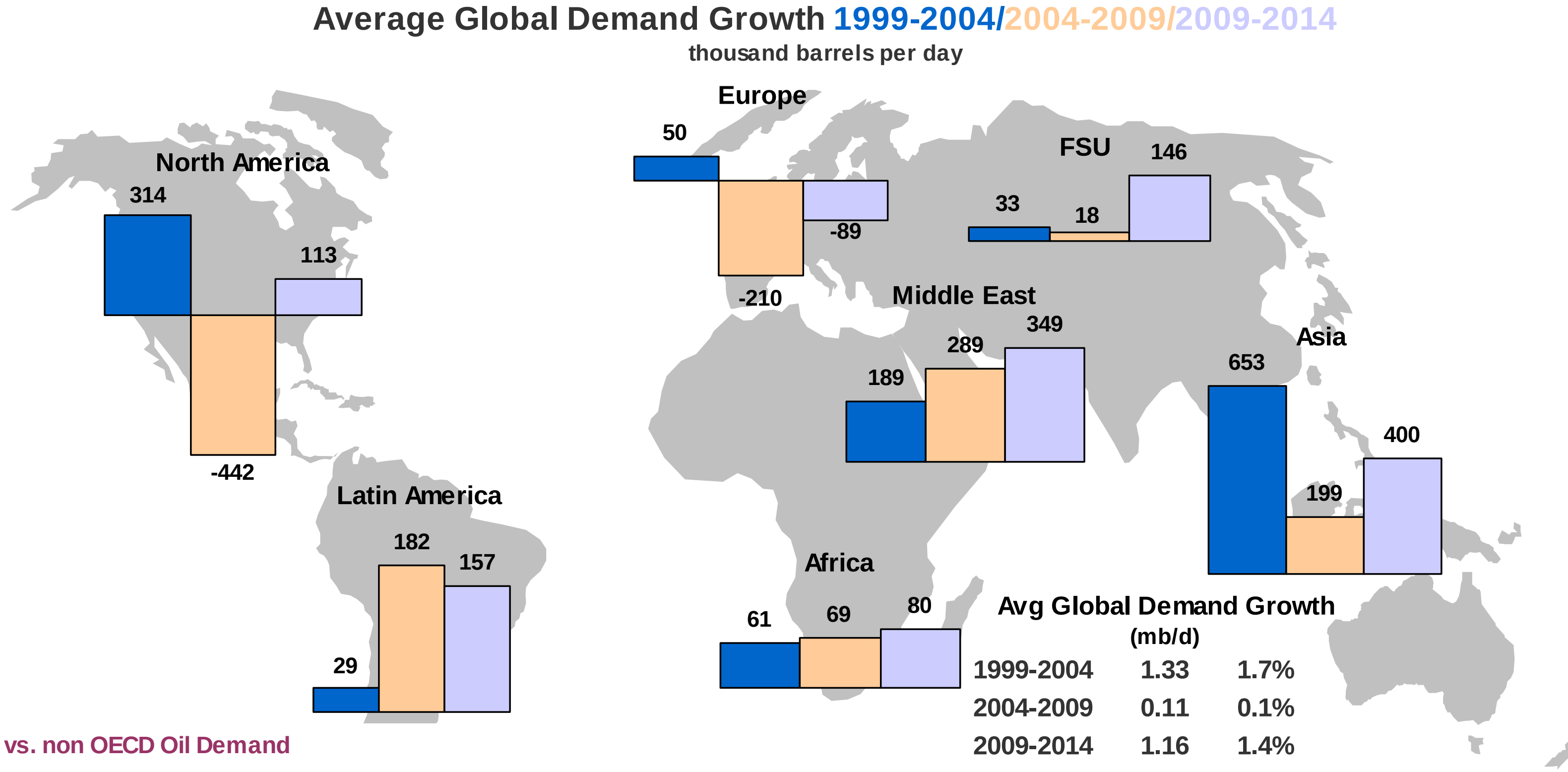
The efficiency conundrum: demand destruction v demand suppression



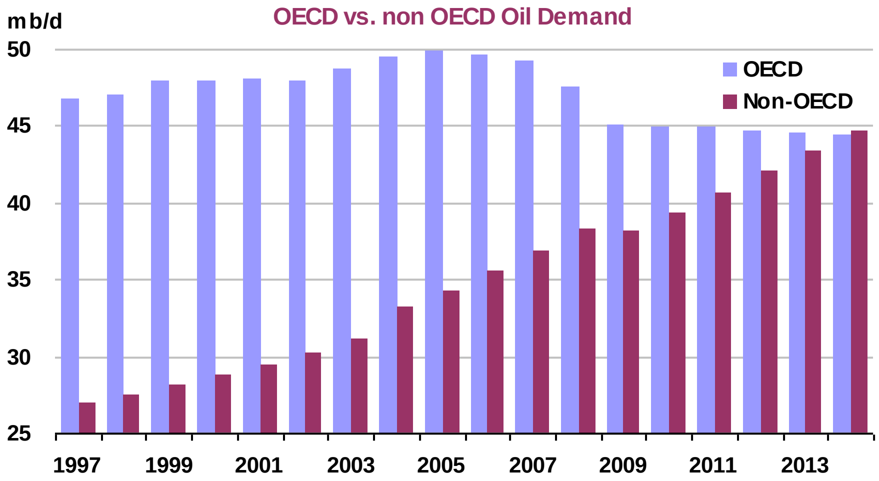


- **Already-evident gains in road and air transportation efficiency, and interfuel substitution (gas) in power sector may prove durable**
- **Extra impetus from airline rationalisation, CAFE standards, auto-industry restructuring, cap & trade**
- **Global oil intensity seen declining 2.4% per year (vs. 2.1% previous decade), despite regional differences – e.g. Mid.East**
- **Technological breakthrough or new policy initiatives (gasoline tax increases?) could *accelerate* the pace of efficiency improvements**

In the higher GDP scenario, re-emerging growth…

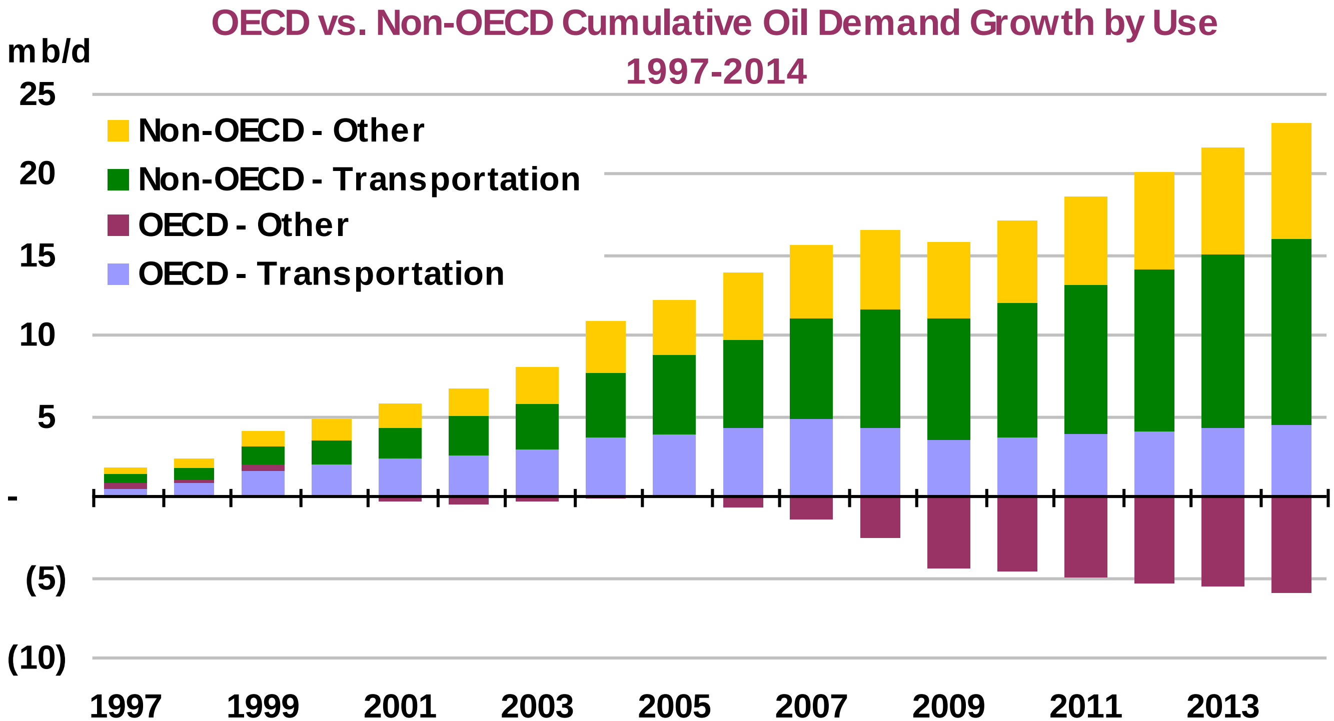


Avg Global Demand Growth	(mb/d)	
1999-2004	1.33	1.7%
2004-2009	0.11	0.1%
2009-2014	1.16	1.4%



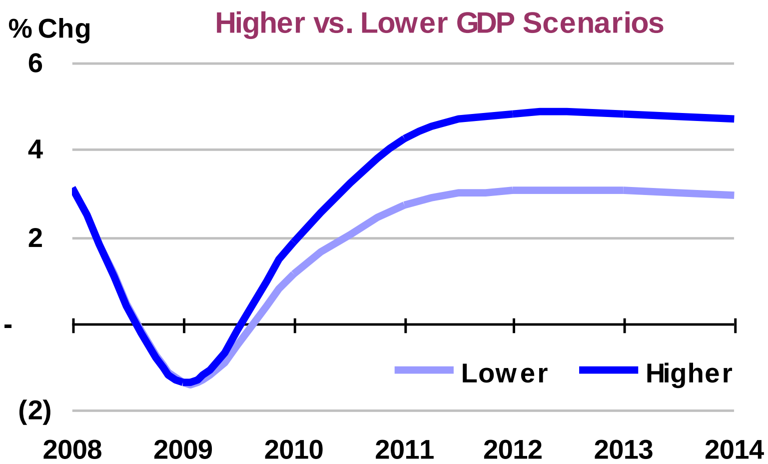
- **Demand growth comes from emerging countries – >50% share by 2014**
- **Stronger GDP, higher income elasticity & sticky administered prices**
- **OECD economies will see demand stagnate => interfuel substitution & greater efficiency**

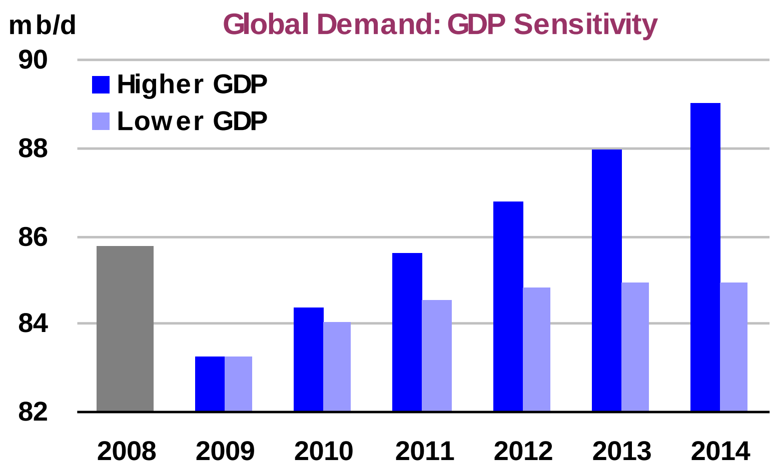
...with growth fuelled by transport and petrochemical sectors



- **Transportation needs are expected to account for roughly 4/5 of total demand growth**
- **In the OECD, transportation demand will barely grow => saturation, efficiency improvements in the US**
- **Overall, projected 2013 demand is 3.3 mb/d lower than in December forecast**

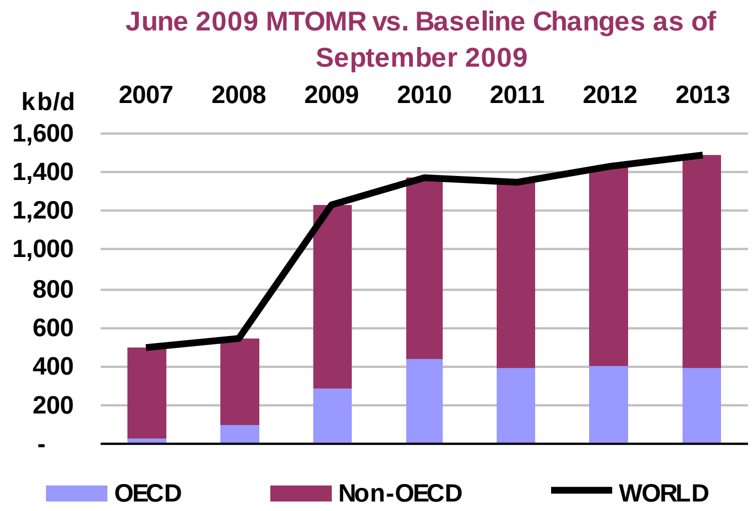
What if economic recovery is slower and weaker?

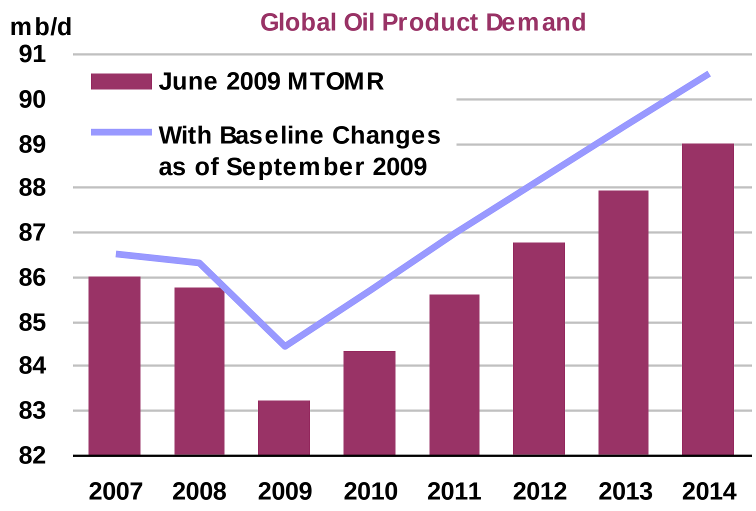




- **This scenario entails a delayed recovery & lower long-term growth**
- **Purely illustrative, doesn't account for medium-term iterations – i.e., oil price changes & effects**
- **As such, *MTOMR* detailed downstream analysis is based on higher GDP case**
- **Lower case demand is 4.1 mb/d weaker by 2014 vs. high case (0.4% versus 1.4% annual demand growth)**
- **Many see this economic scenario just as likely as the 'business as usual' high case**

Epilogue: demand-side baseline revisions





- **Baseline revisions across all countries following submission of revised annual data**
  - **OECD: 2008**
  - **Non-OECD: 2007**
  - **Data finalised in July 2009, two months after MTOMR freeze**
  - **Baseline revisions concentrated in non-OECD countries => data quality issues**
- **In addition, large revisions to 1H09 data as of September 2009**
- **Assuming identical trends, global demand would be 1.5 mb/d higher by 2014**

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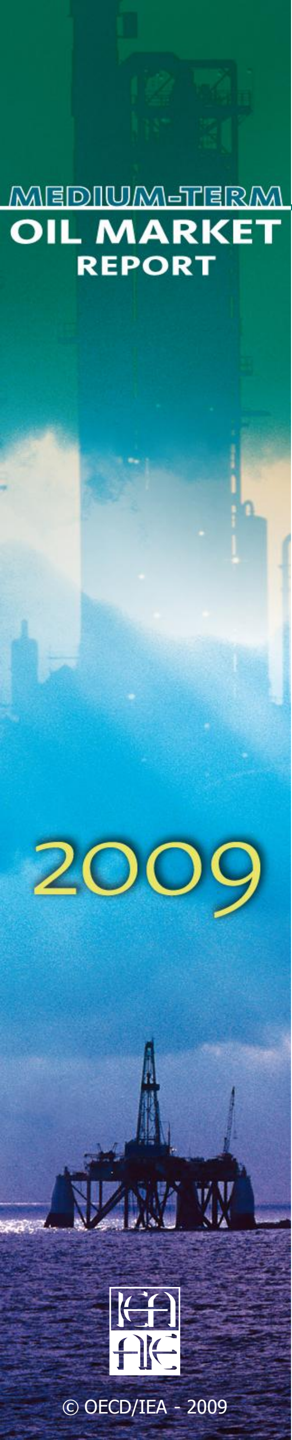
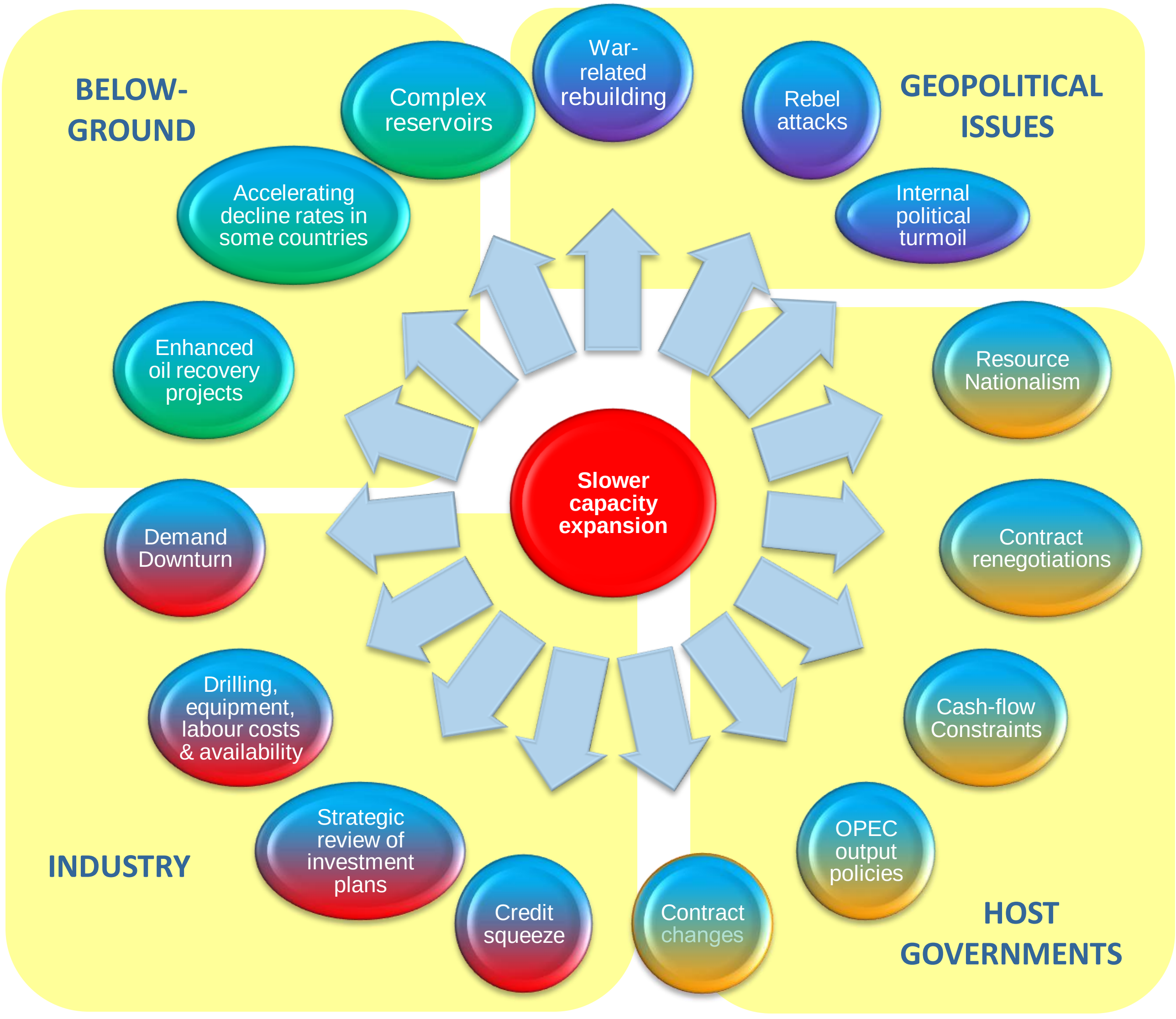
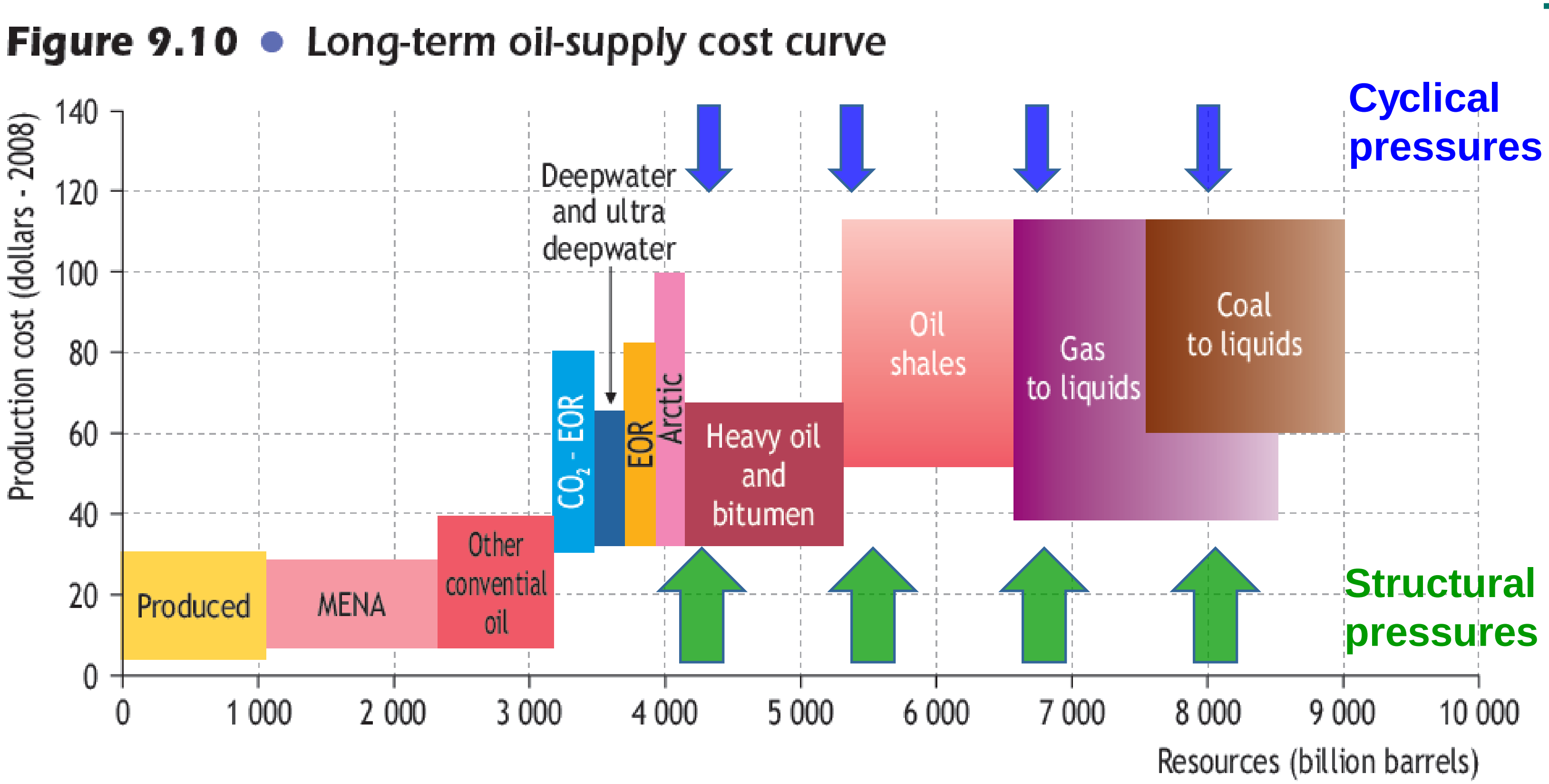


Supply

Slower supply capacity growth seems here to stay

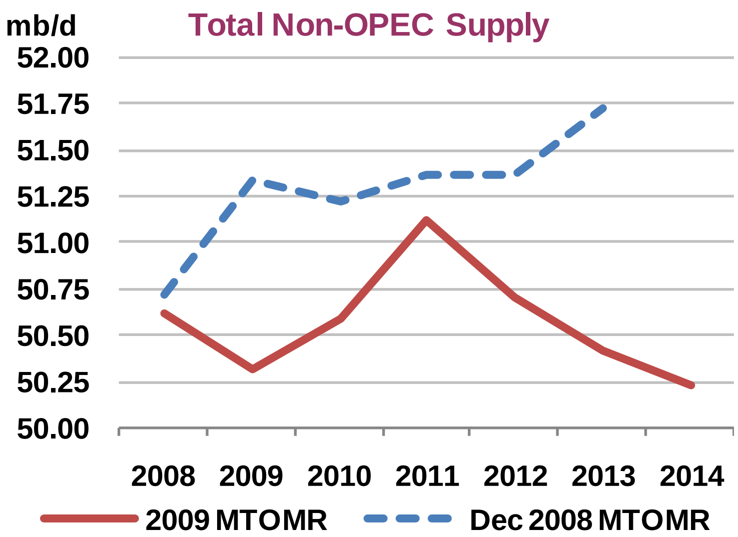


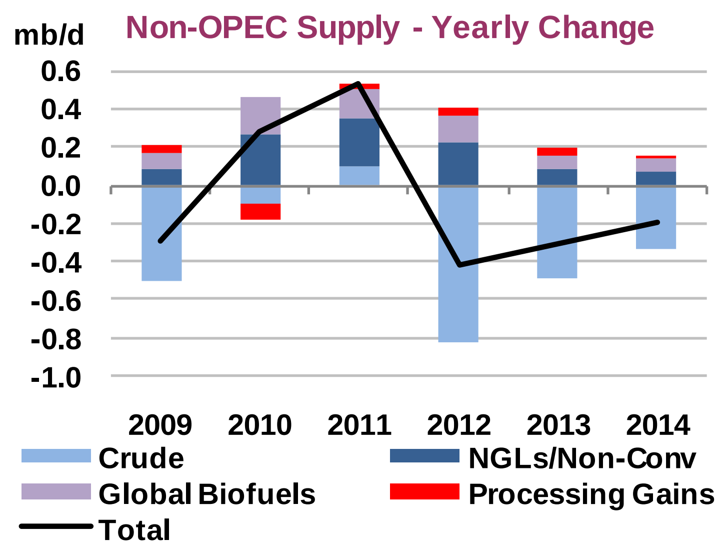
The resources are there, but how much to bring them to market?



- Upstream capex cut 21% in 2009 - worsening field decline?
- Defers over 2 mb/d of short term capacity growth
- $60-plus/bbl needed for oil sands projects & ultra deepwater
- But cyclical easing of cost inflation (-10-15% in 2009?)
- So scale of eventual supply impact from current crisis unclear
- Costs 'moving target' clouds calls for a managed, 'ideal' price

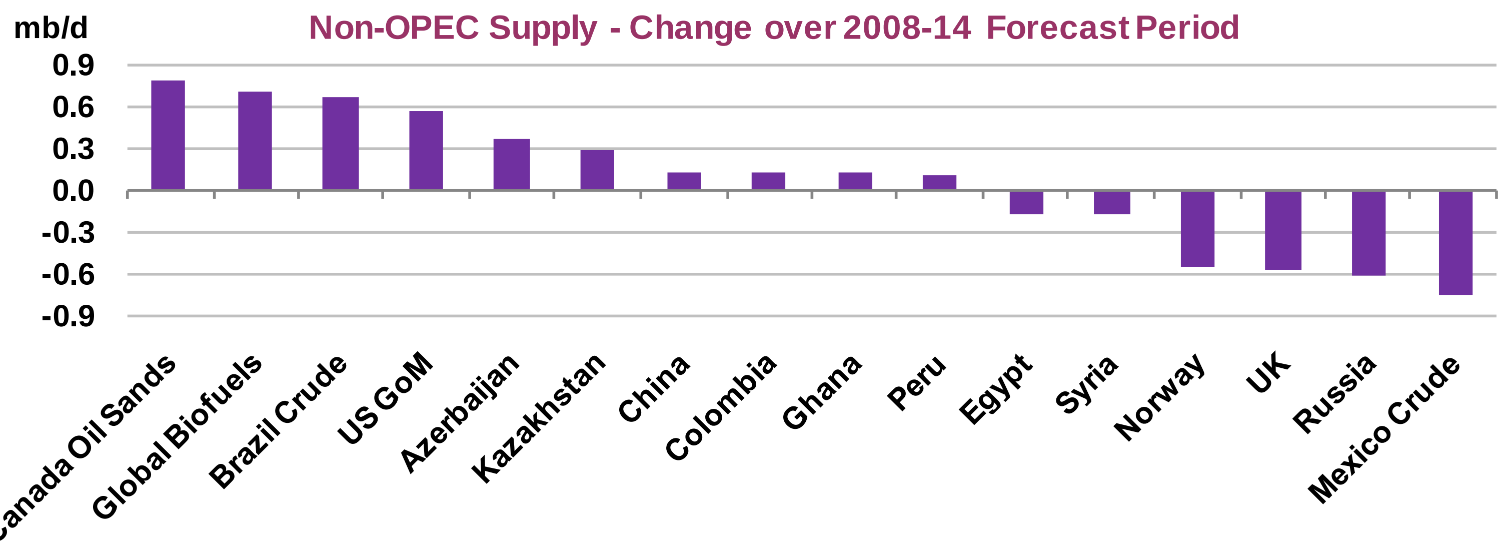
Non-OPEC supply now *declines* during 2008-2014

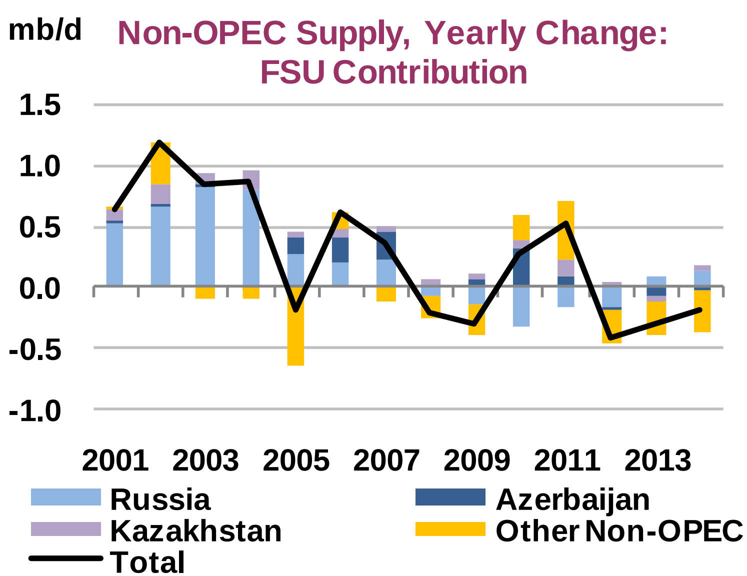




- **Non-OPEC supply <u>*declines*</u> by 0.4 mb/d by 2014 (versus 1.5 mb/d <u>*growth*</u> in last *MTOMR*)**
  - **Upstream projects delayed, deferred or cancelled - 2014 non-OPEC supply now seen at 50.2 mb/d**
  - **IEA study for G8 shows over 2 mb/d postponed in 4Q08/1Q09 – and upstream investment down by 21%**
  - **Conventional crude drops by over 2 mb/d 2008-2014, offset in part by non-conventional, NGL and biofuels**

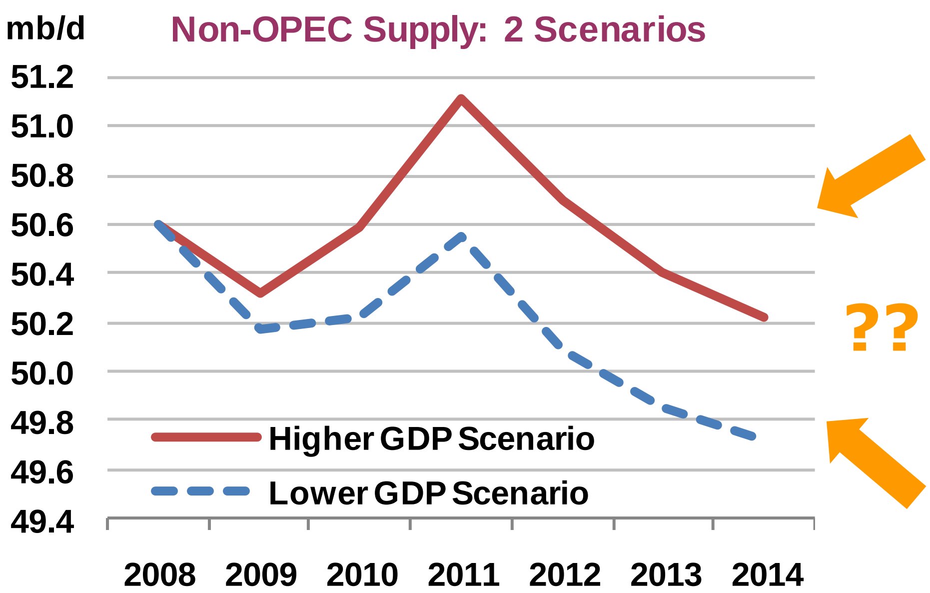
Canada oil sands dominate growth, but FSU's earlier dominance fades

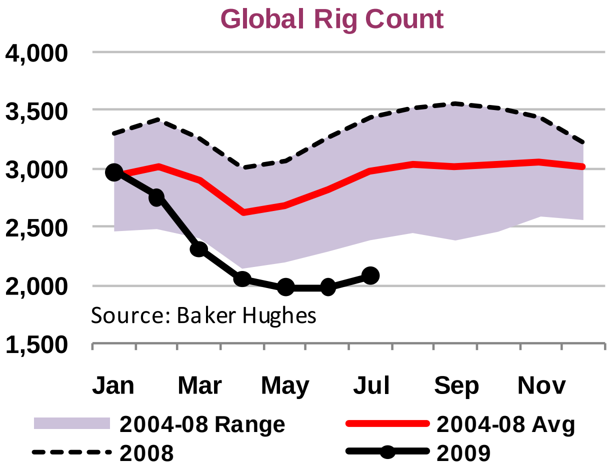


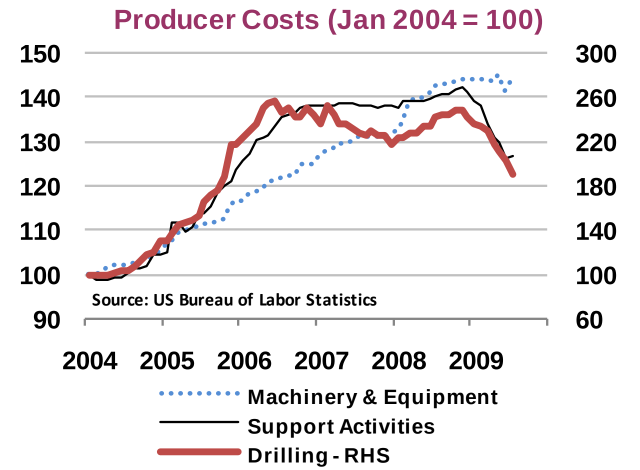


- **Despite delays, Canadian oil sands are the single largest source of growth**
- **Conv. crude: Only Brazil, US GoM, Caspian likely to grow (but also biofuels, NGLs)**
- **Latin America the only *region* with ongoing growth (1.2mb/d)**
- **Mexico, Russia, UK, Norway all see steep contraction**
- **Project deferrals & Russian mature field decline, dilute FSU contribution**

Scenario: protracted spending curbs could shave another 0.5 mb/d

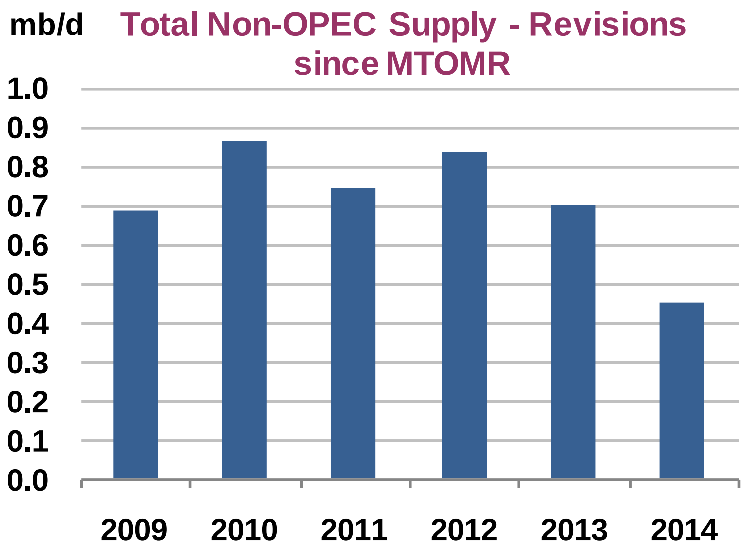


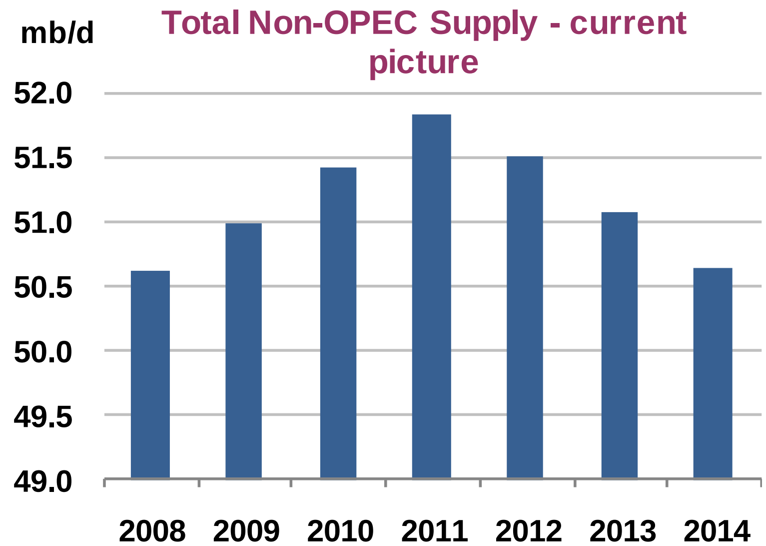




- **Analogue to *lower GDP scenario*, models potential impact of protracted lower upstream spend**
  - **Risk of further 0.5 mb/d on average shaved off projected non-OPEC supply**
  - **Impact greatest in mature OECD countries: US, Mexico, UK, Norway**
  - **But intense debate whether lower spend and activity levels will be offset by reduced costs and upstream efficiencies**
  - **2009-to-date suggests non-OPEC holding up well vs. forecast**

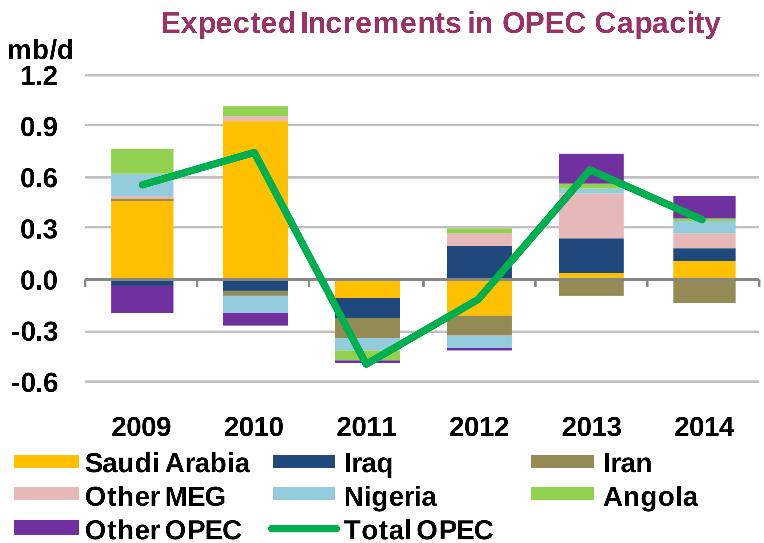
2009 non-OPEC supply – series of revisions has raised baseline

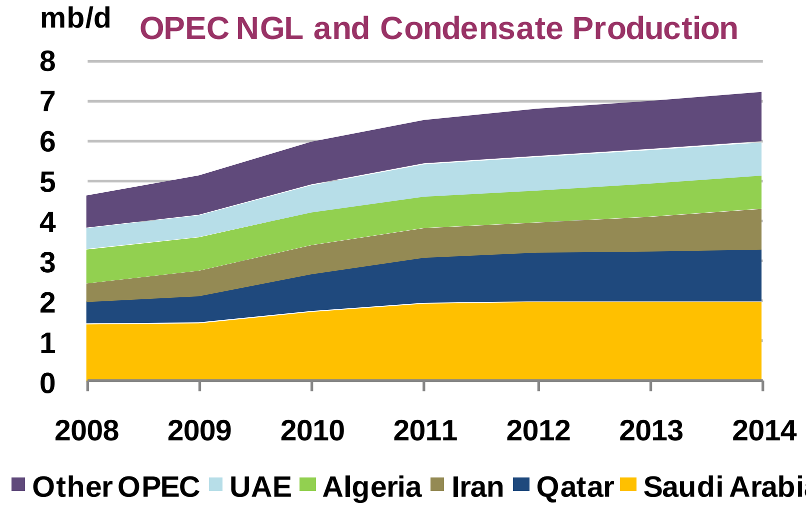




- **Several months of upward revisions have raised non-OPEC supply baseline vs. MTOMR by around +0.7 mb/d on average**
  - **Largely due to stronger-than-expected performance by Russia, but also lack of hurricanes, robust biofuels etc**
- **Production profile very similar, but 2008-2014 output now seen flat overall**

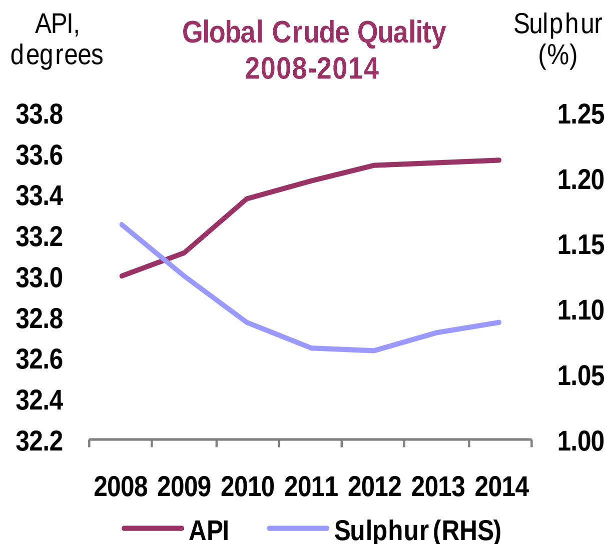
OPEC *crude* capacity growth derailed, but *gas liquids* still going strong

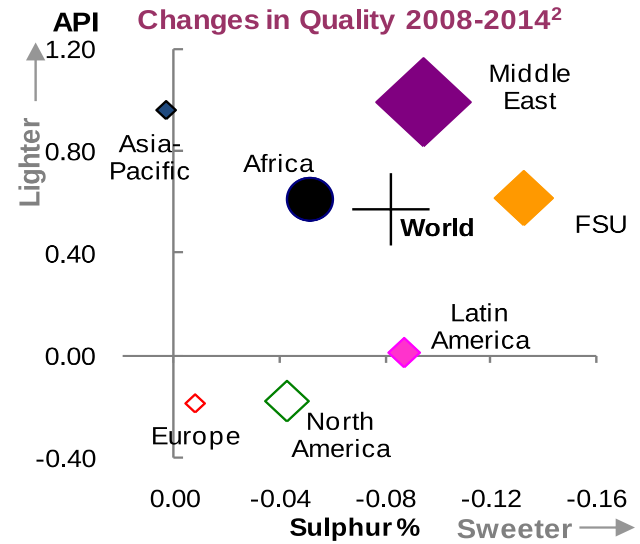




- Crude capacity +1.7mb/d, to 35.8mb/d (-47% from prev.forecasts)
- Project delays reflect:
  - strategic reviews of investment plans (demand)
  - contract renegotiations as costs decline
  - reduced cash flow – lower output targets and prices
  - resource nationalism & geopolitical turmoil (Iraq, Nigeria, Iran?)
- But NGL +2.6mb/d: gas for power, petchem and re-injection
- Gas liquids attain 17% of total OPEC output in 2014 from 12% today

Crude quality: a trend towards lighter and sweeter…for now





- **Average crude quality lightens from 33° to 33.6° API in 2008-2014, while barrel sweetens from 1.16%S to 1.06%S**
- **Rising condensate volumes exaggerate the trend but their exclusion doesn't change the overall picture**
- **FSU, Africa, Mid East drive the trend, offset by heavier Canadian mix**
- **Could have a profound impact on refinery upgrading economics**
- **Longer term, swing back to heavier/sourer barrels is likely**

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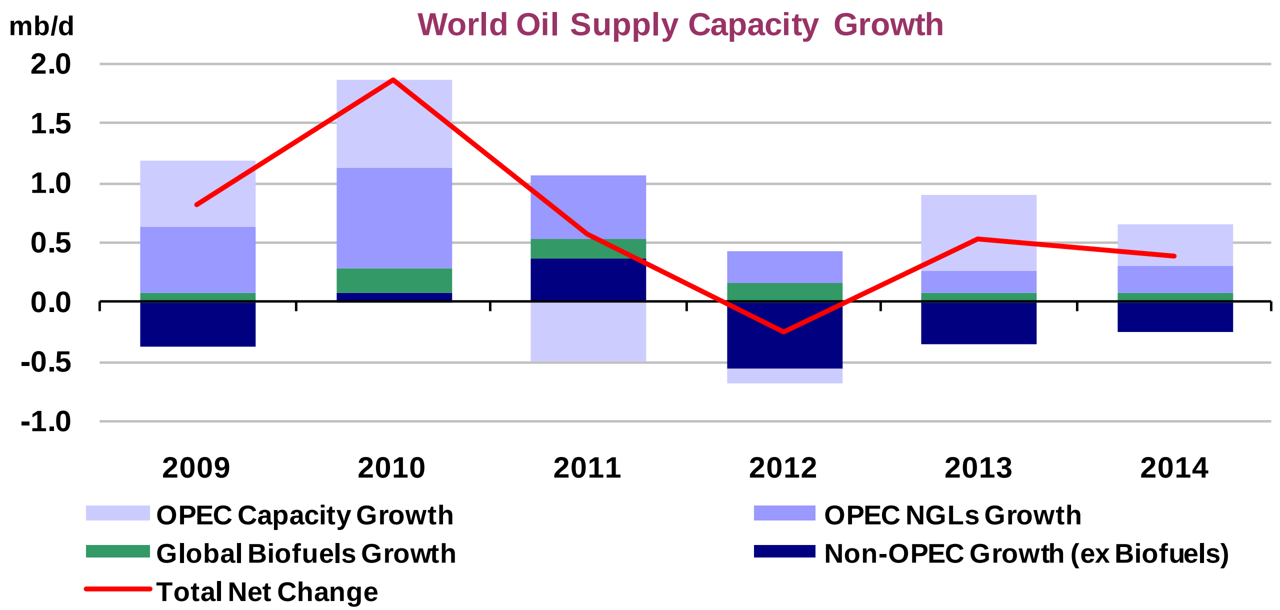
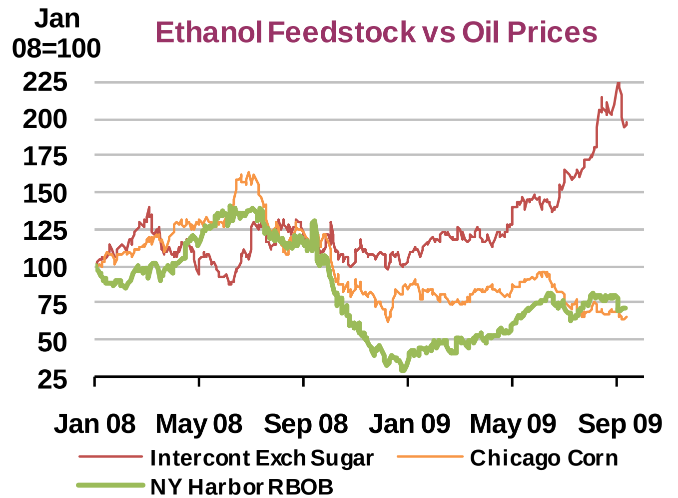
Global capacity outlook curbed on recession, lower investment



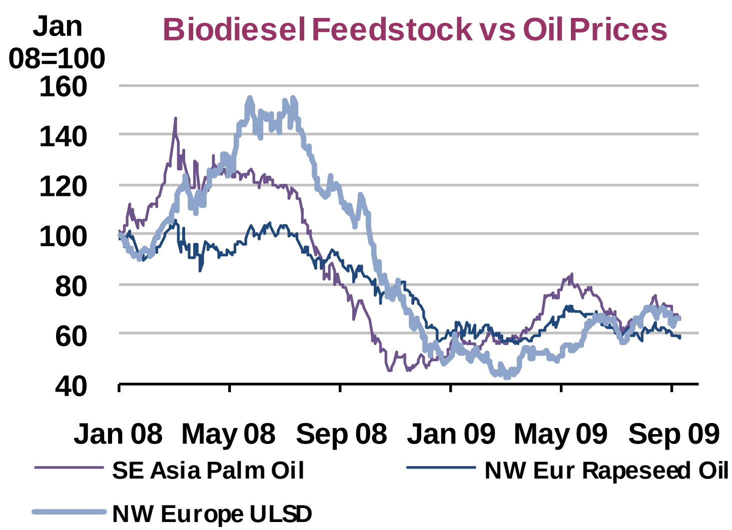
- **Total supply capacity growth in 2008-14 trimmed to 4.0 mb/d (1.5 mb/d lower than 2007-13 growth in last *MTOMR*) due to:**
  - **Impact of global recession/lower demand**
  - **Lower oil price environment**
  - **Credit constraints & contract renegotiation**

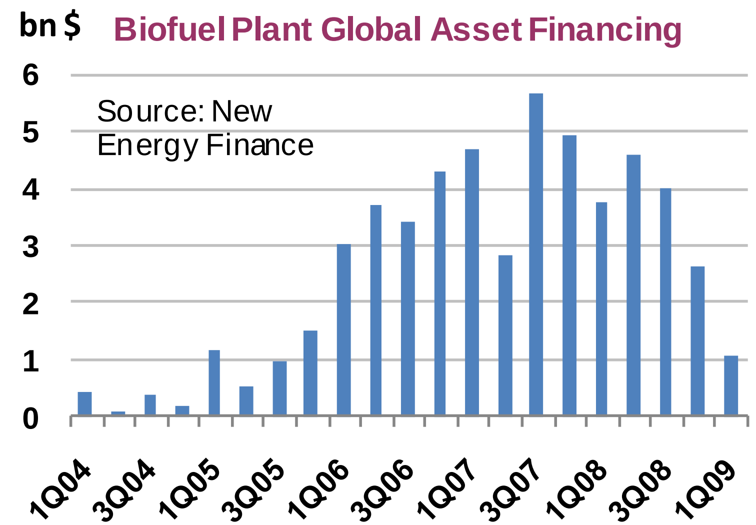
Biofuels

Lower oil prices and credit crisis hurt the biofuels industry



- oil prices fell more than agricultural feedstocks, undermining biofuels margins
- plant utilisation has fallen
- access to credit has dried up for over-leveraged producers
- Expected 2009 new mill start-ups for Brazil, US and Europe off by as much as 50%





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But medium-term production forecast remains robust

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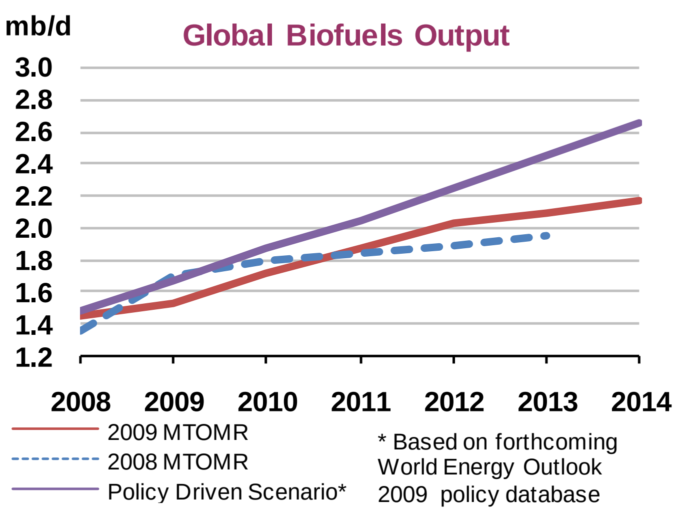
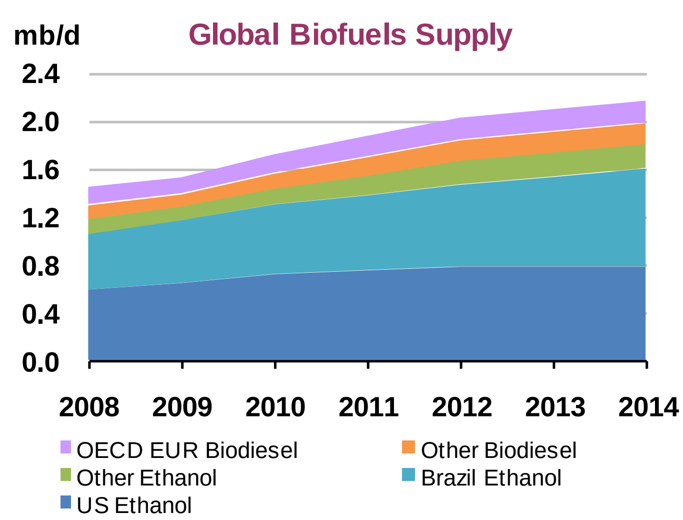
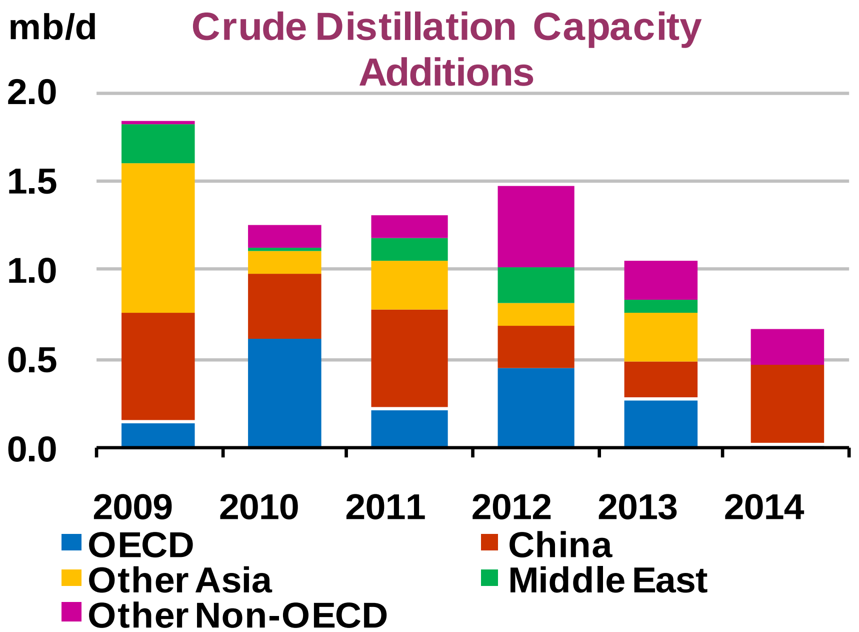
- **Despite near-term problems, strong biofuels supply growth expected through 2014**
- **Output can respond quickly to changing market conditions**
- **Sector consolidation suggests a transition to more economically sustainable production**
- **Low cost producers such as Brazil will continue expanding strongly..**
- **..and OECD blending mandates provide a floor for growth**
- **Total supply rises to 2.2mb/d from 1.4mb/d, meeting 15% of incremental gasoline & gasoil demand**
- **An oil market relief valve from otherwise sluggish non-OPEC supply**
- **Brazil and USA generate 80% of this growth**





Refining & Product Supply

Primary capacity additions +7.6mb/d



- Weaker demand, financial constraints have seen widespread slippage & cancellations downstream too (OECD & M.East)
- But 7.6mb/d of crude distillation capacity still expected to be added for 2008-2014 (also +6.5 mb/d upgrading)
- Growth dominated by Asia – more than 50% – with China accounting for nearly a third of the total.
- The OECD accounts for 20% – mainly North America
- The Middle East share drops below 10% - project slippage

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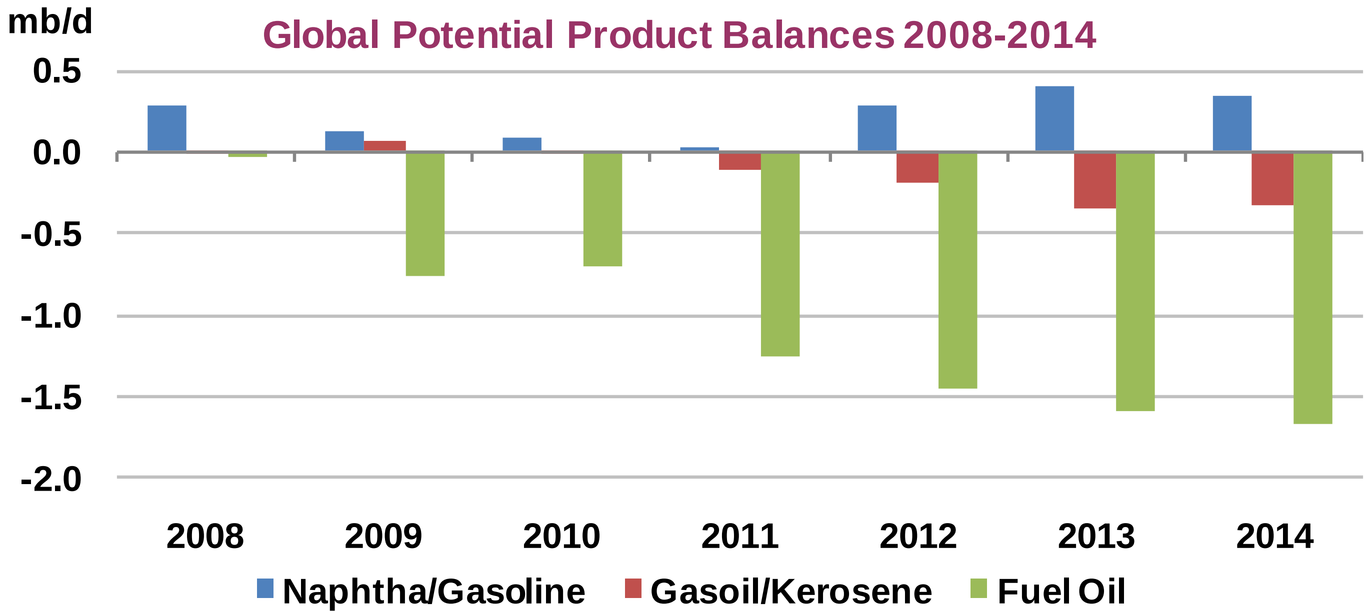
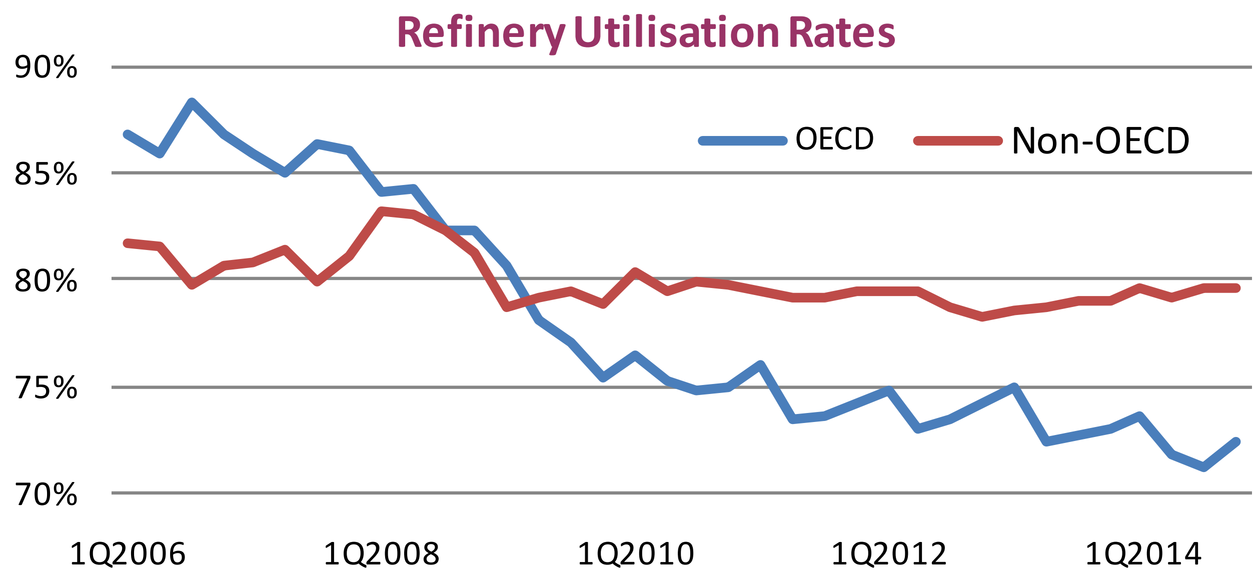
Tightening fuel oil balance is likely



- ***Fuel oil*** **projection shows significant (and untenable) tightening, requiring a price, investment or throughput response**
- ***Naphtha/gasoline*** **– surplus re-emerges post 2011**
- ***Middle distillate tightness*** **to re-emerge post 2010, as strong demand growth outruns refinery additions**
- **Remember 2007/2008 –** ***imbalances downstream can affect crude price levels***

Downstream, something's gotta give…



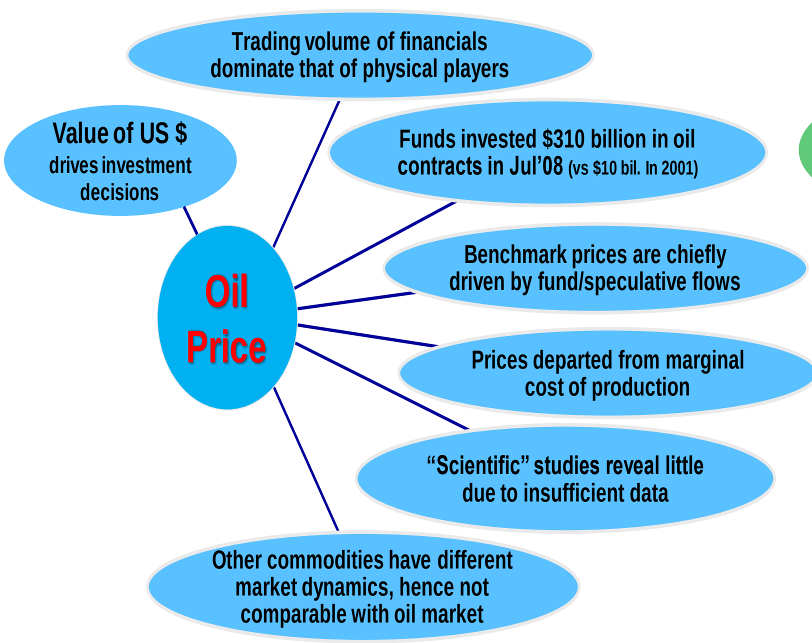
- **Lower demand and sustained capacity growth point to an *overhang of spare capacity* & weaker utilisation**
- ***Non-OECD regions are assumed to retain utilisation rates* in line with historic averages**
- **Commercially sensitive operators in the US, Europe and Japan are assumed to bear the brunt of the *run cuts***
- ***Capacity closures look inevitable* in some OECD regions, particularly as ongoing, mandatory environmental spend confronts squeezed margins**

Price Formation

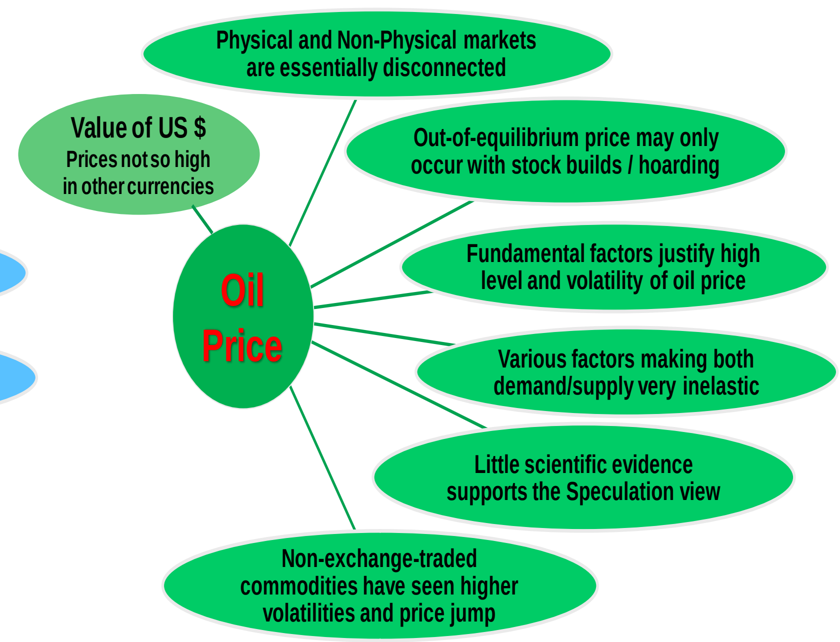
Making sense of oil prices

- **Polarised debate over the importance of speculative vs. fundamental price drivers**
- **The reality is that both play a role**
- **But while inelastic supply and demand allow other factors to influence short term prices, 'sustainable' price level is likely determined by fundamentals**

The "Speculation View"



The "Fundamentals View"



Transparency & regulation of commodity markets now becoming a reality

- **CFTC weekly Commitment of Traders report now includes overseas trades of the NYMEX crude contract**
- **Swaps & money manager trades now disaggregated, with aim to eventually report quarterly/monthly index fund positions**
- **CFTC also examining standardised position limits across commodities (will this limit liquidity or reduce concentration and diversify participation?)**
- **More opaque over-the-counter (OTC) derivatives trades now under scrutiny by US Treasury, CFTC and SEC**
- **Proposed measures include migration to exchanges, standardised contracts, enhanced position reporting and higher margin requirements**
- **Uniformity of international standards would limit trade migration, but will take time to achieve.**

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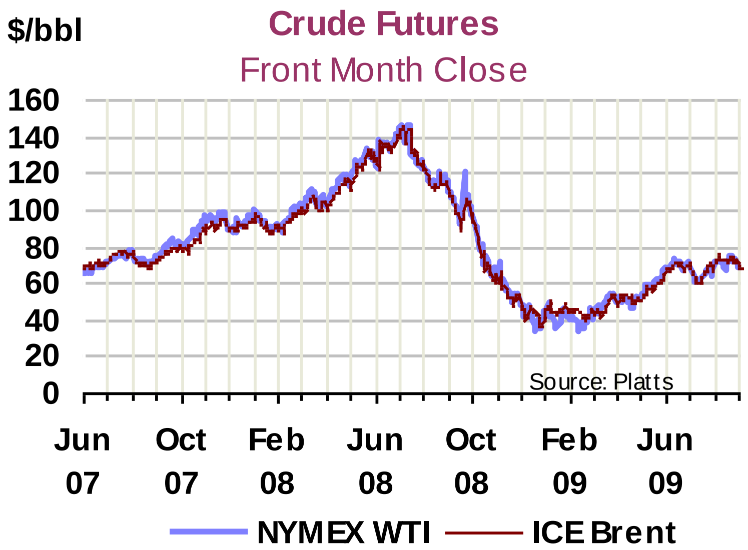
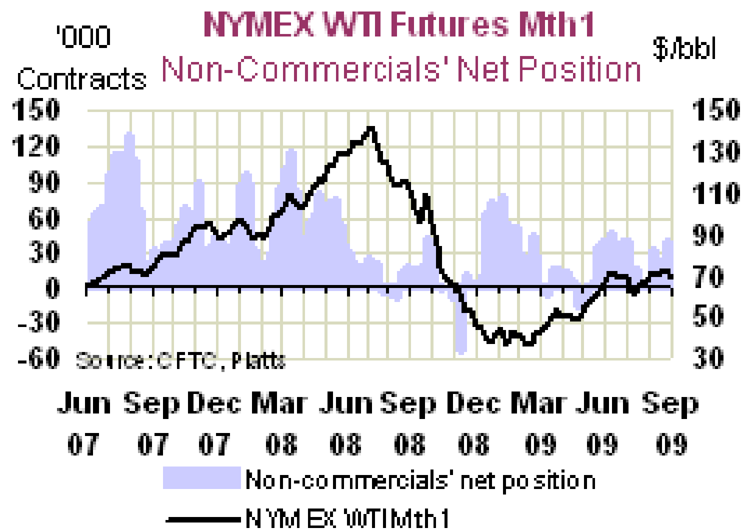
Greater visibility needed to understand oil price roller coaster





- **2008 price surge on tight fundamentals, inelastic supply/demand, weak dollar & investor influence, then demand collapse outpaces OPEC cuts**
- **Fundamentals alone can't explain post-February 09 rise…**
- **…and concerns too sharp a rise now could derail economic recovery**
- **But neither open interest, nor net non-commercial positions correlate well with prices either**
- **Prices drivers are manifold, and their relative influence varies over time**
- **Better visibility on non-OECD demand/inventory, and more granularity on futures market (notably OTC derivatives) trades could deepen insight into price dynamics**
- **Bear in mind 'speculation is necessary', more a question whether position limits enhance or detract from liquidity**

Summing Up

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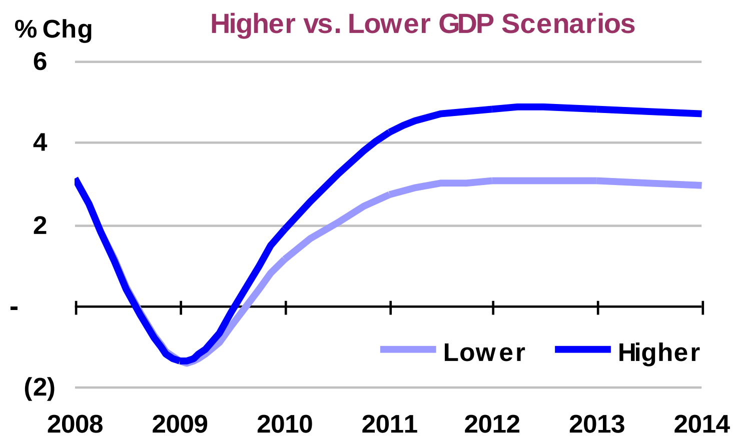
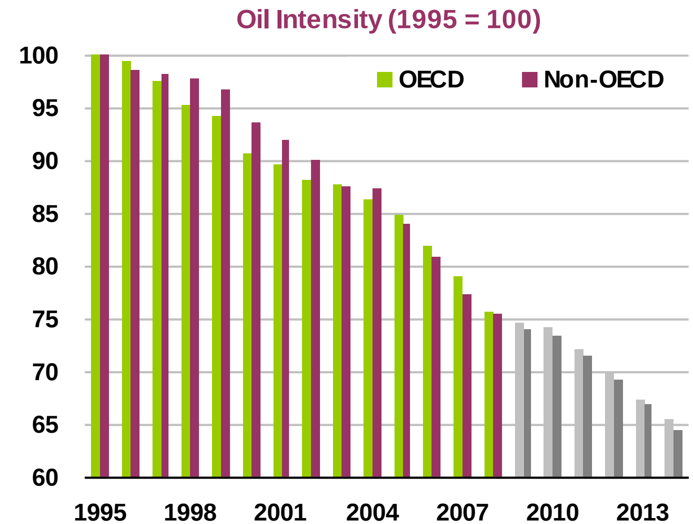
Outlook depends on shape of economic recovery & efficiency trends





- **Oil market turned upside down since last summer**
- **Timing & extent of economic recovery highly uncertain**
- ***MTOMR* presents two oil demand scenarios this year to reflect that uncertainty (diff=4.1mb/d)**
- **It also identifies clear signs that there have been structural changes in the way oil is used**
- **Weaker demand, new Asian capacity & biofuel penetration will squeeze OECD refining margins**

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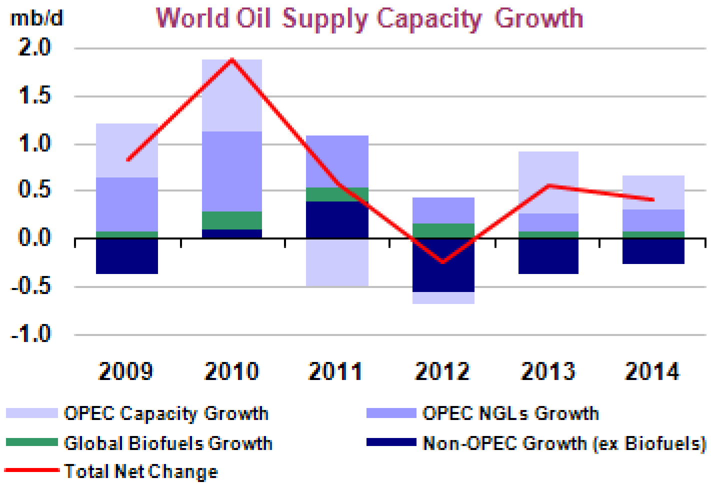
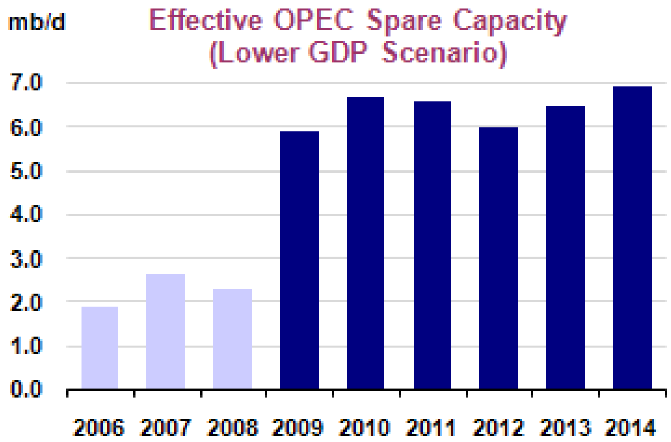
But don't forget the supply-side of the equation





- **Spending cuts & project delays have intensified, despite easing cost pressures**
- **Supply growth now looks anaemic post-2010**
- **Whether we see a supply crunch mid-decade depends on economic trends & efficiency..**
- **..but consumer & government choices can also affect future spare capacity buffer (3.2%pa v 2.4% efficiency)**
- **Baseline data, and new project info, heavily prone to revision since June – forecast update with December OMR**

2009

Thanks for your attention

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