35 years 1974•2009

MEDIUM-TERM OIL MARKET REPORT

2009

Institute of Energy and Economy
Tokyo
Wednesday, 8 July 2009

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Energy Markets and Security

INTERNATIONAL ENERGY AGENCY

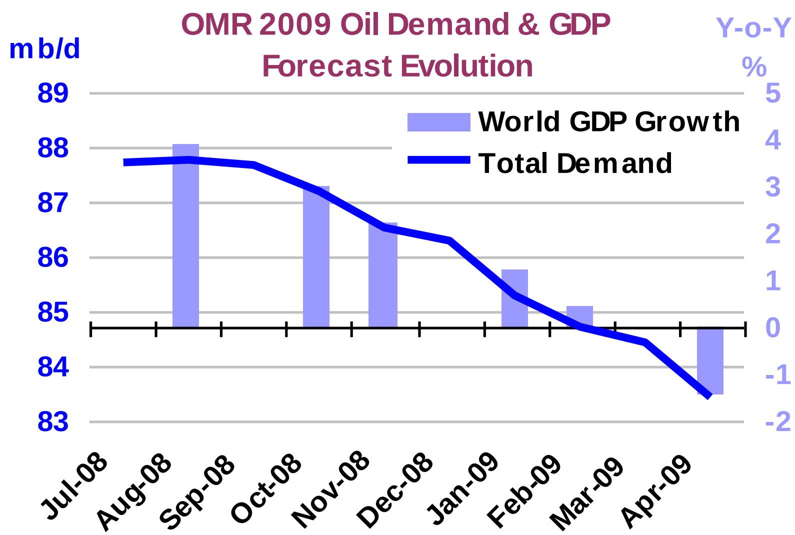
IEA AIE

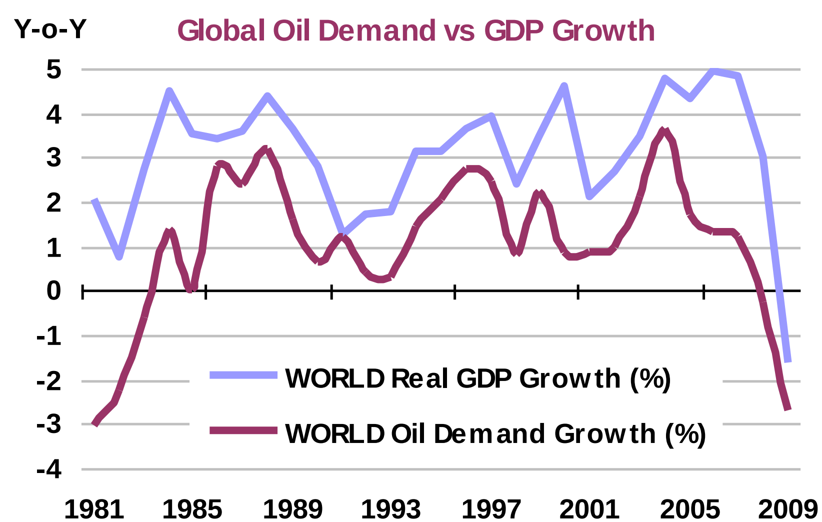
MTOMR 2009 – Some key issues

- **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**
- **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**

Demand

The global slump has hammered oil demand





- **GDP – and oil – demand forecasts cut sharply since mid-2008**
- **Oil demand is falling – even in non-OECD countries**
- **The short & medium-term outlooks are highly uncertain**

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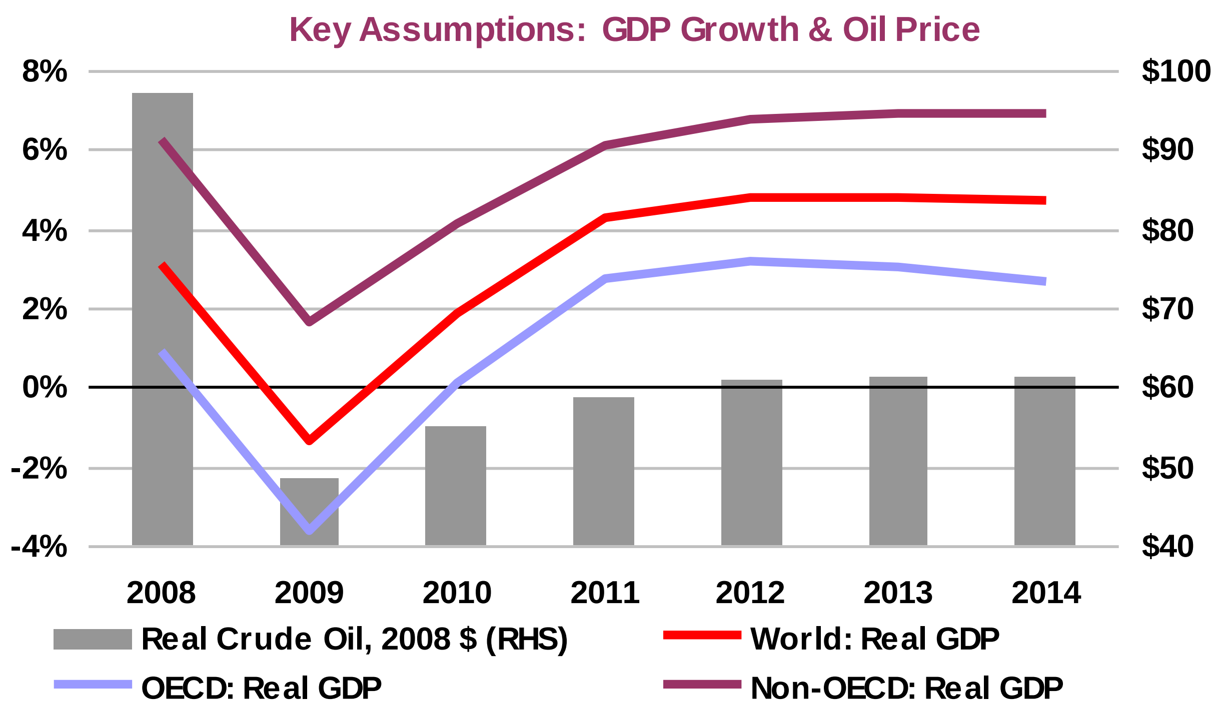
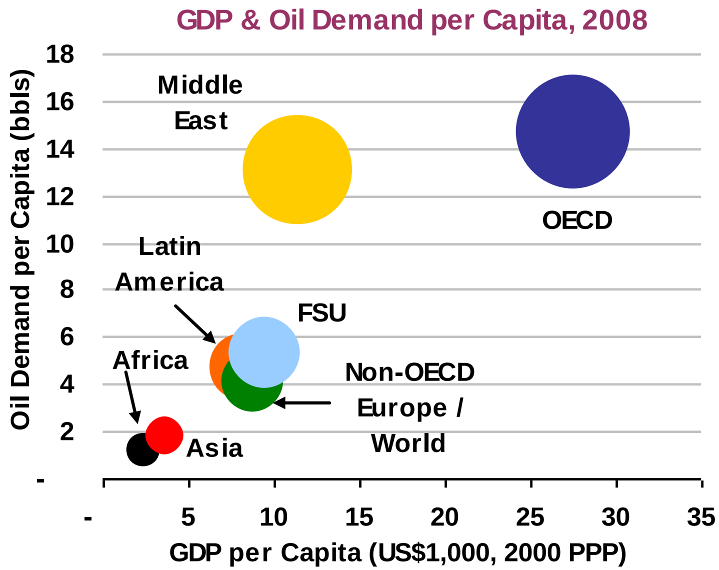
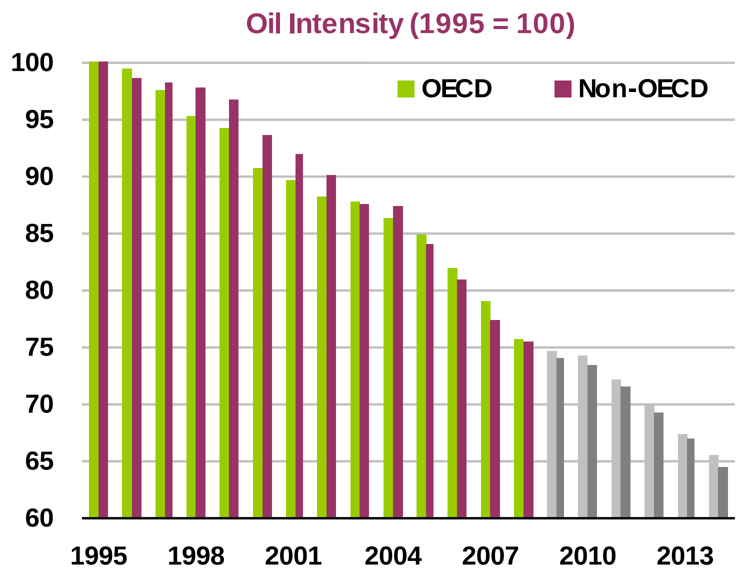
Recovery expected from 2010: higher GDP case assumptions



- **Global economic recovery begins in late 2009/early 2010, leading to renewed oil demand growth**
- **Price <u>assumption</u> based on futures strip (not a forecast)**
- **The oil price recovers, but remains well below its 2008 peak and only slightly above current levels**

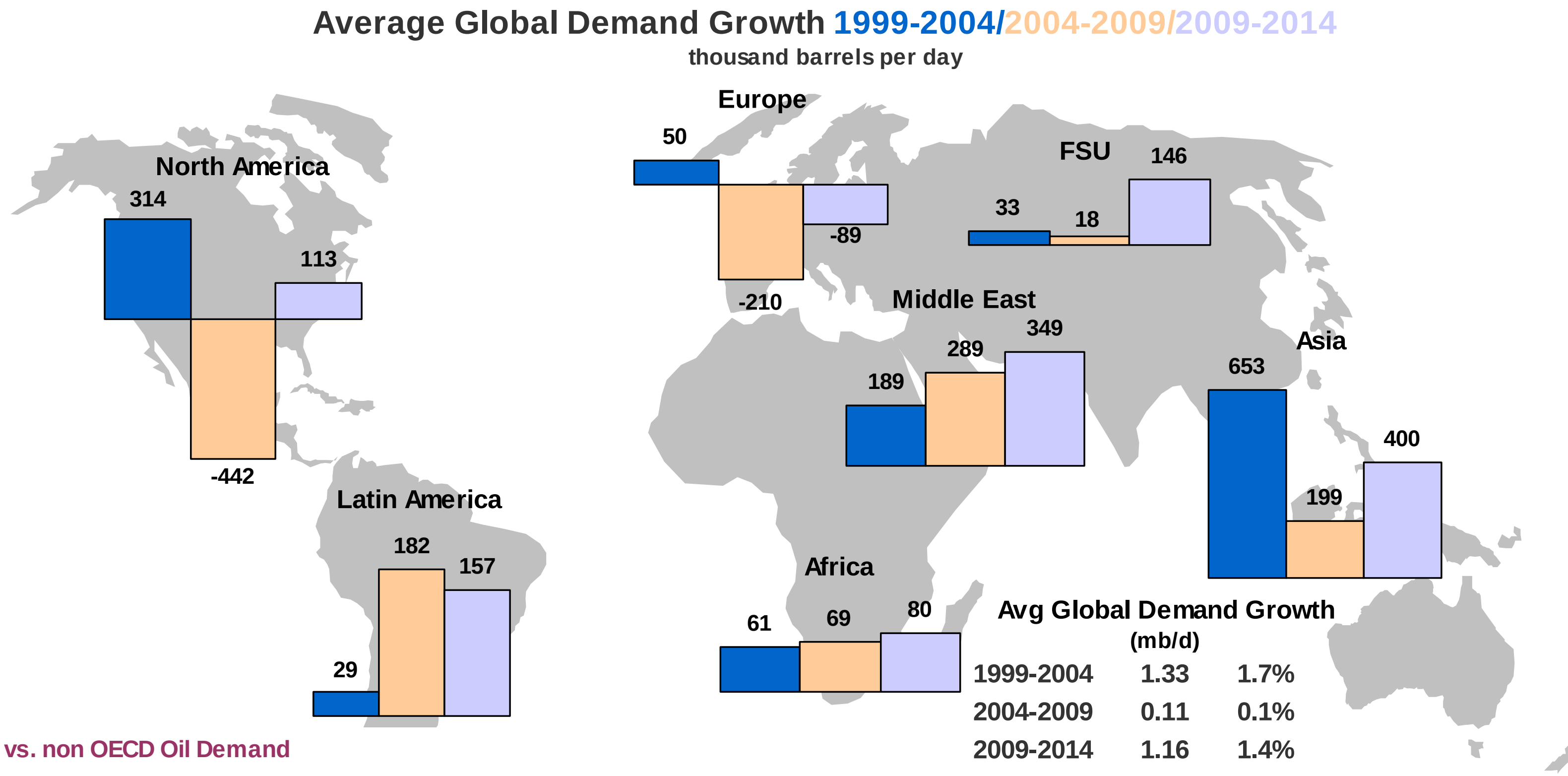
The efficiency conundrum: demand destruction v demand suppression

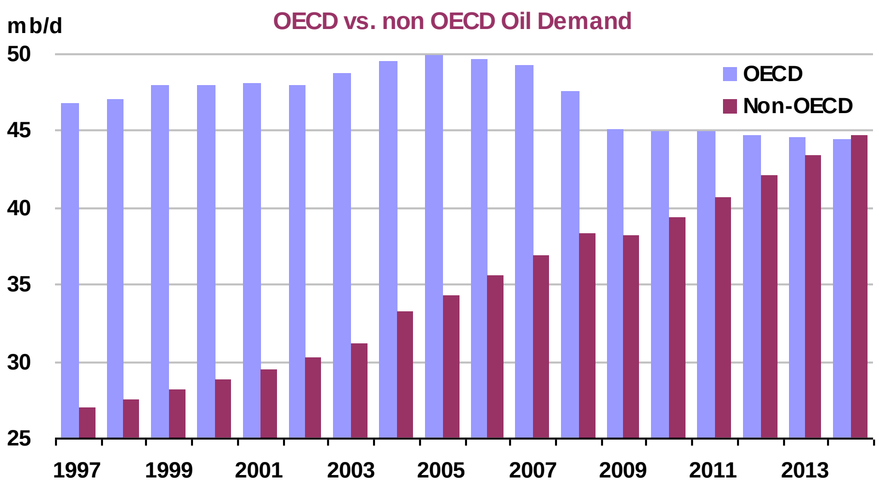




- **Already-evident gains in road and air transportation efficiency, and interfuel substitution (gas) in power sector may prove durable**
- **Extra impetus from airline rationalisation, CAFE standards, auto-industry restructuring, cap & trade**
- **Global oil intensity seen declining 2.4% per year (vs. 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…





- **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**

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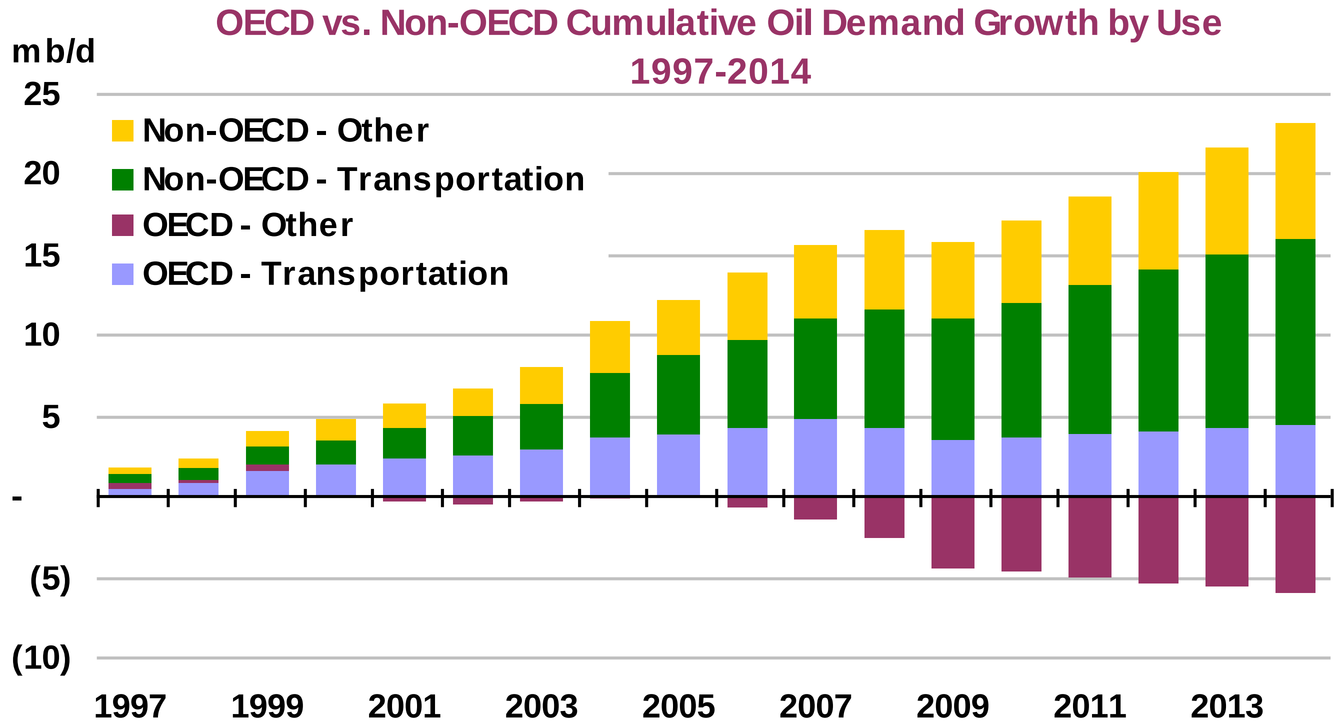
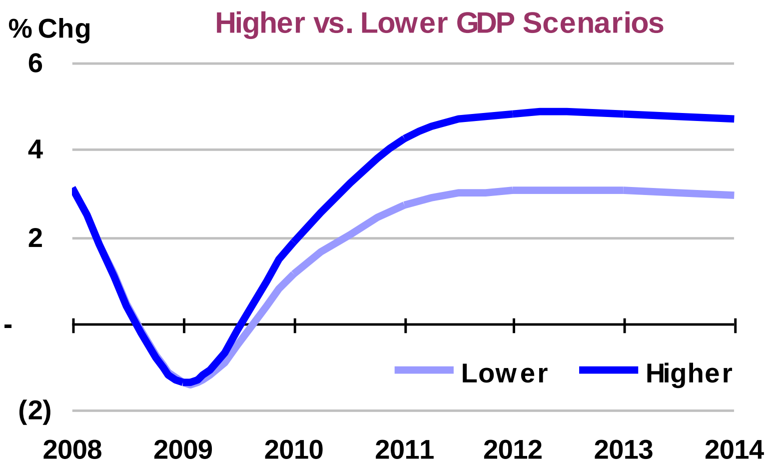
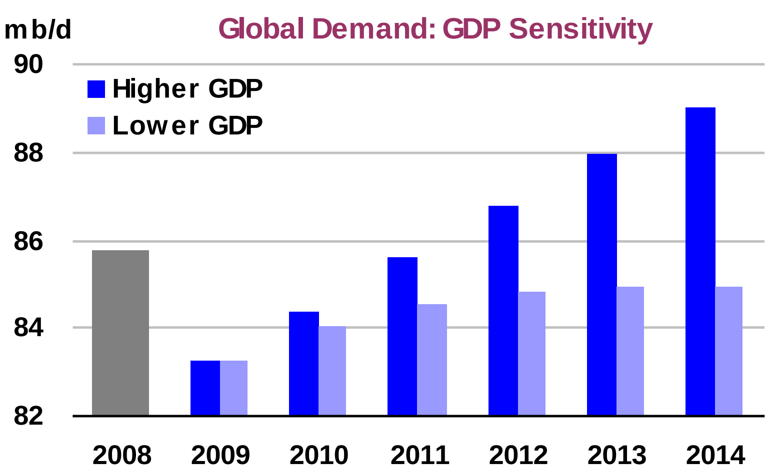
...with growth fuelled by transport and petrochemical sectors



- **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**

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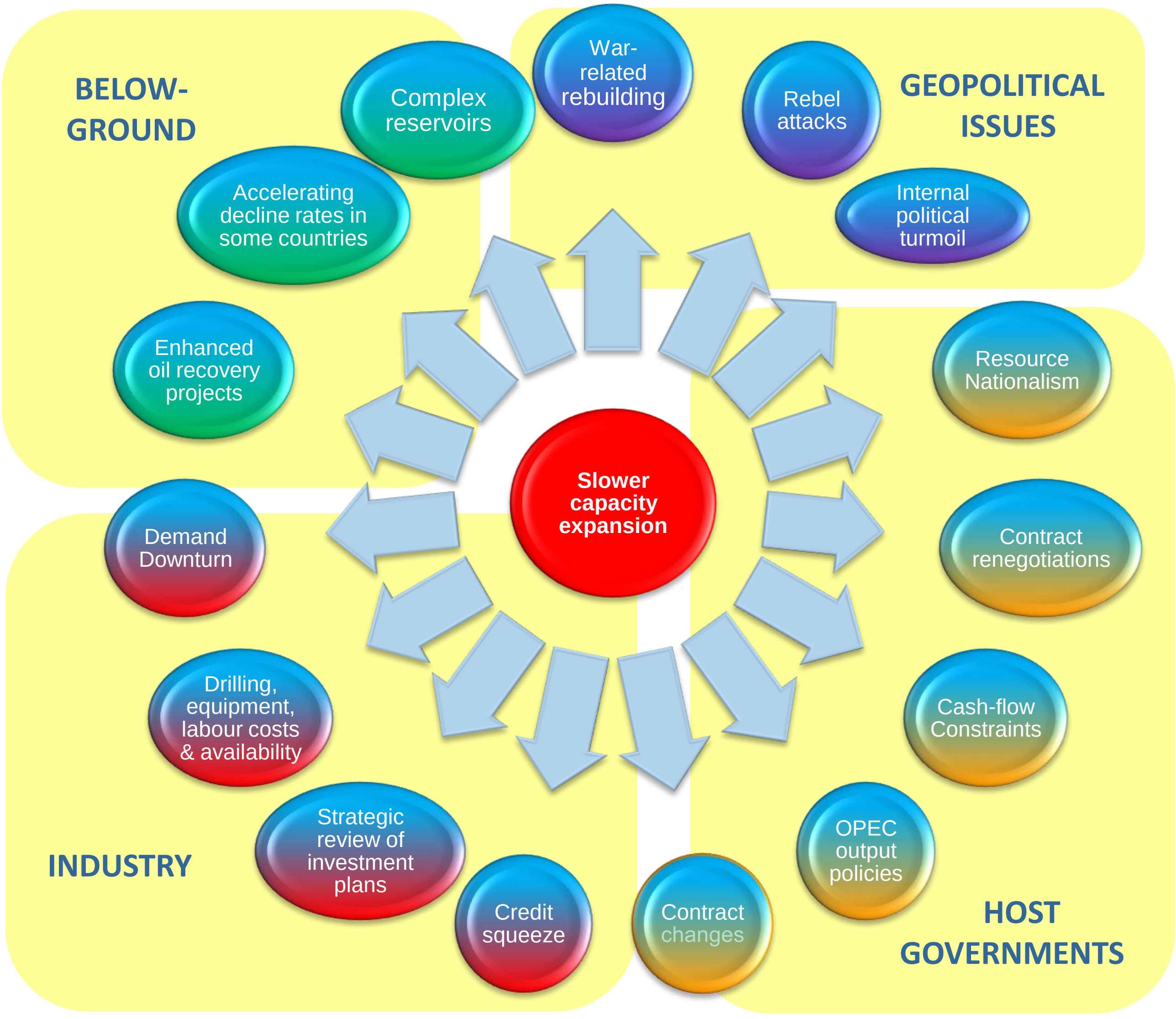
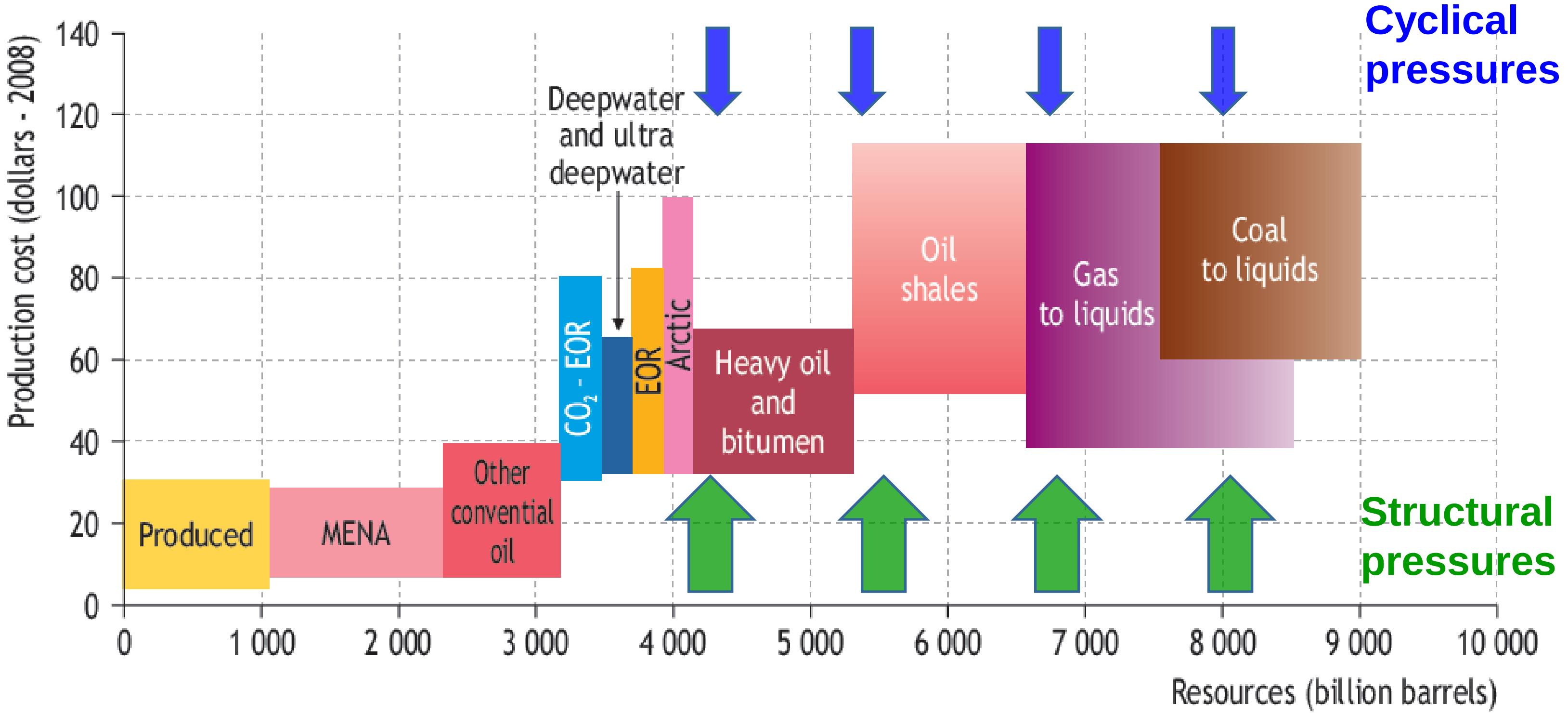
Supply

Slower supply capacity growth seems here to stay



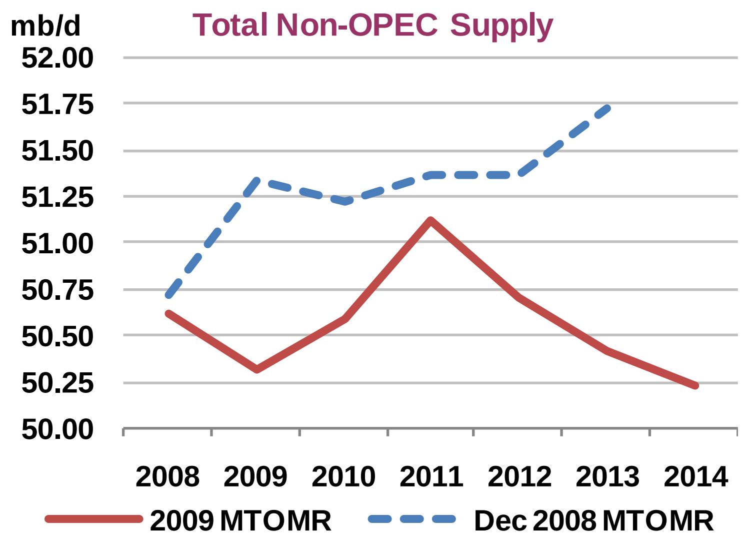
The resources are there, but how much to bring them to market?

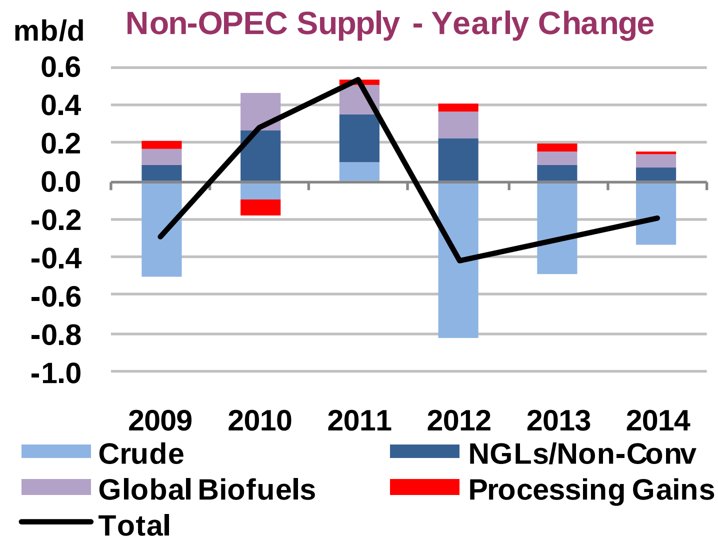
Figure 9.10 ● Long-term oil-supply cost curve



- **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 *__declines__* by 0.4 mb/d by 2014 (versus 1.5 mb/d *__growth__* 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**

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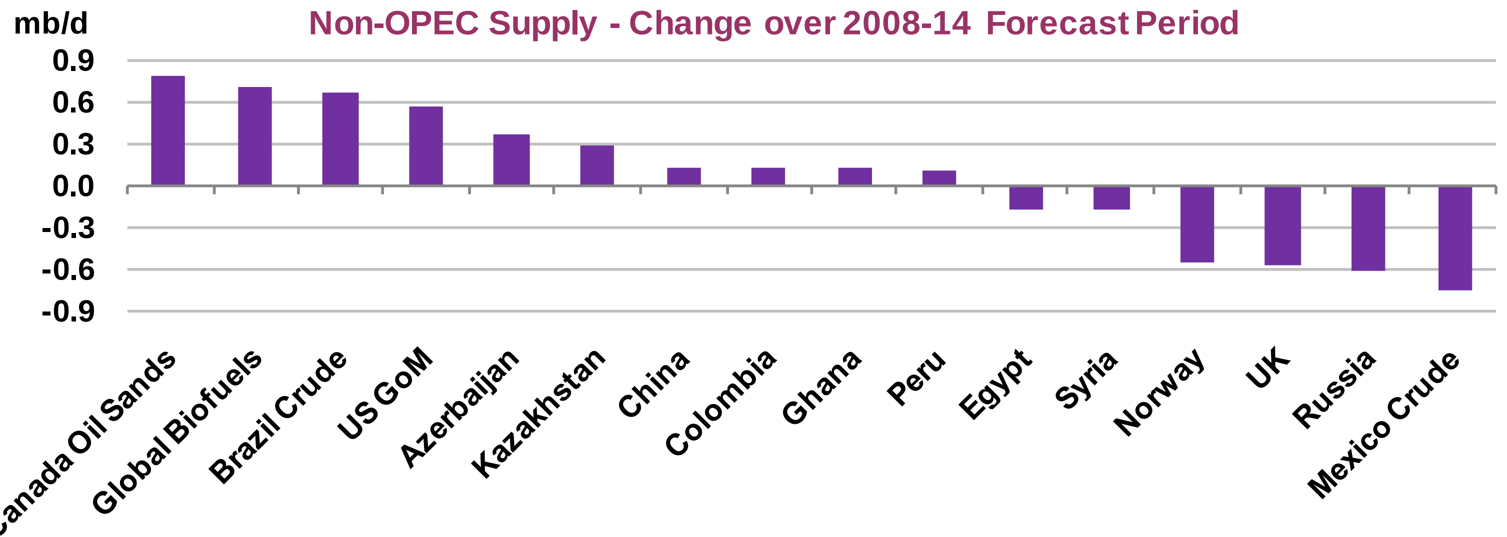
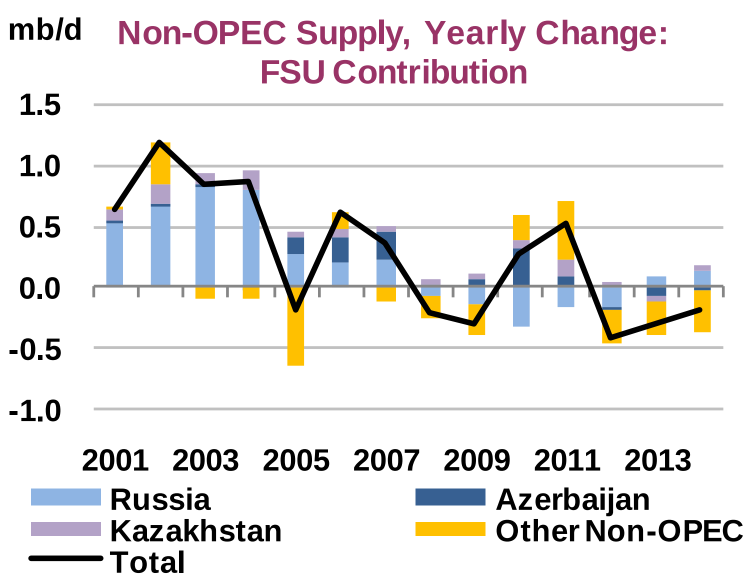
Canada oil sands dominate growth, but FSU's earlier dominance fades





- 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's contribution

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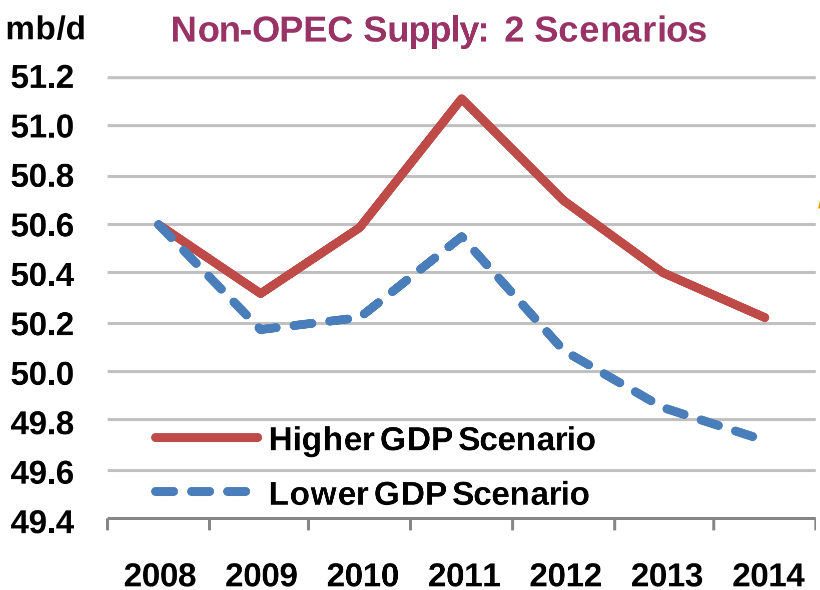
Scenario: protracted spending curbs could shave another 0.5 mb/d



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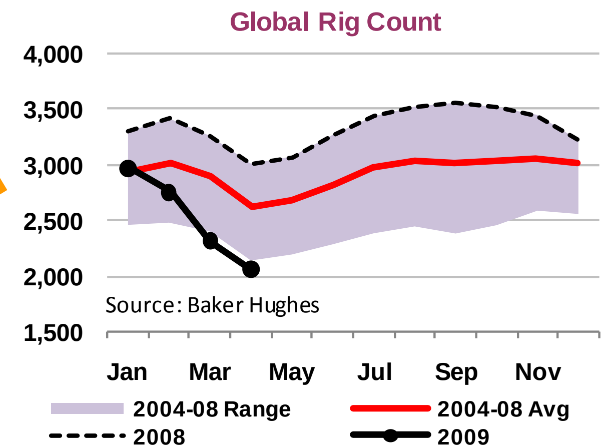

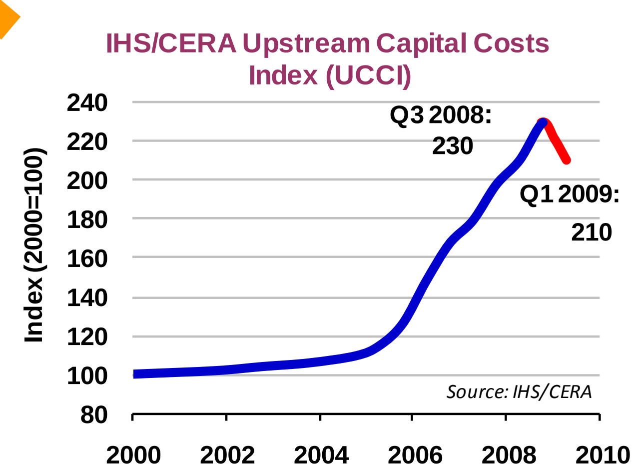

- **Analogue to *lower GDP scenario*, models potential impact of protracted lower upstream spend**
  - **Risk of further 0.5 mb/d on average shaved off projected non-OPEC supply**
  - **Impact greatest in mature OECD countries: US, Mexico, UK, Norway**
  - **But intense debate whether lower spend and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

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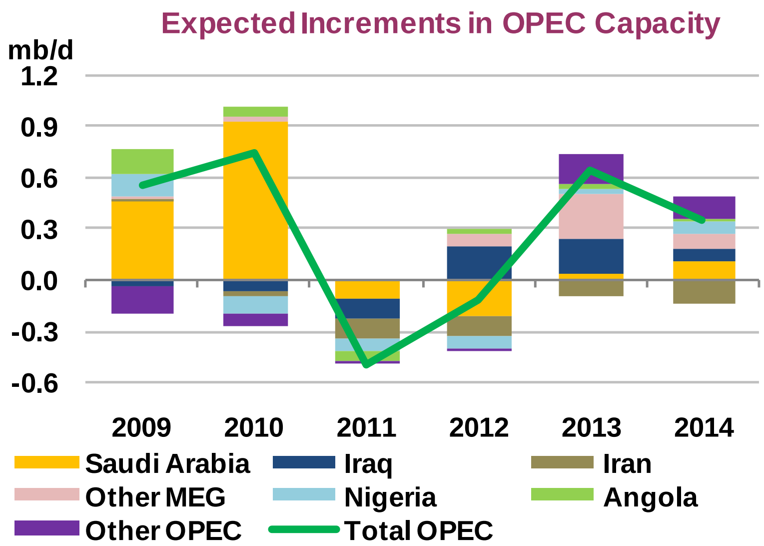
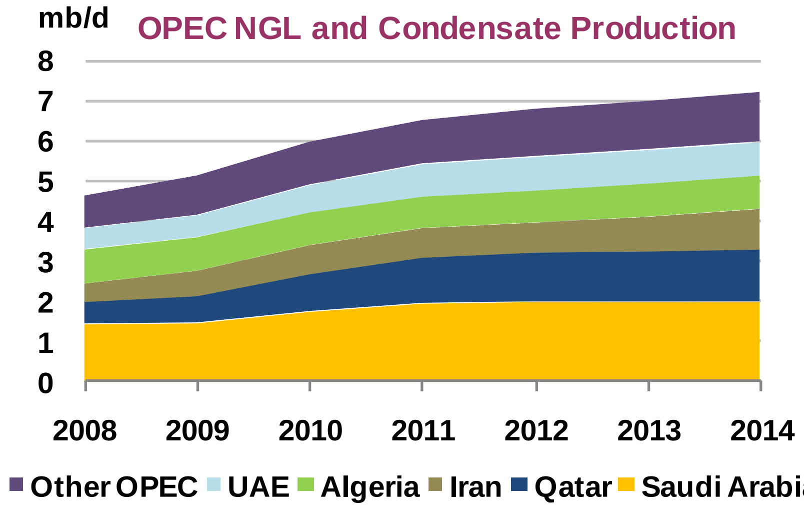
OPEC *crude* capacity growth derailed, but *gas liquids* still going strong





- **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**

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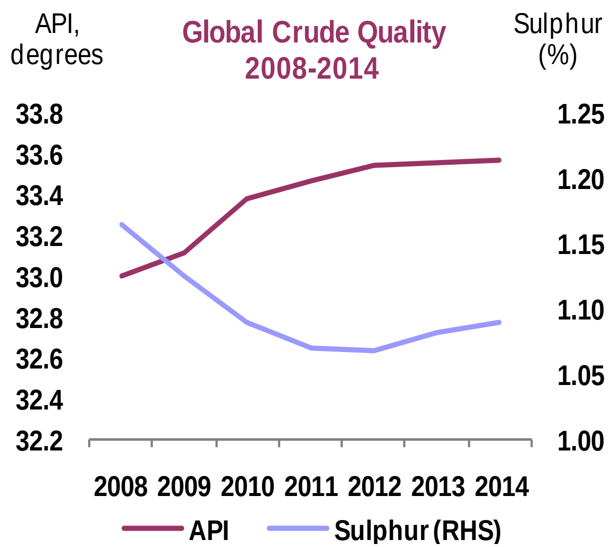
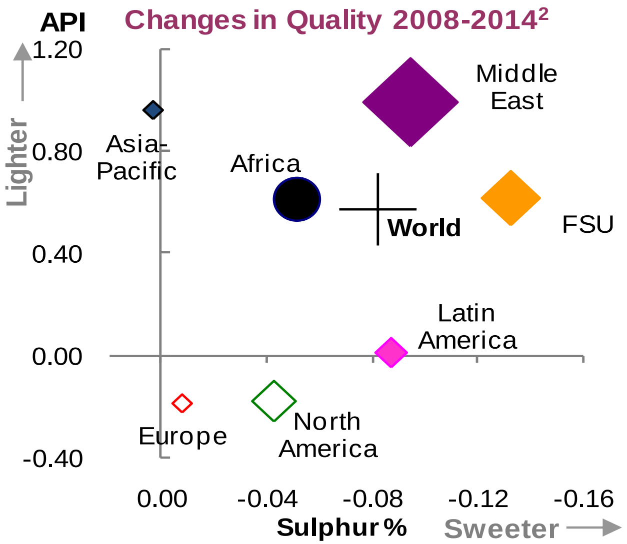
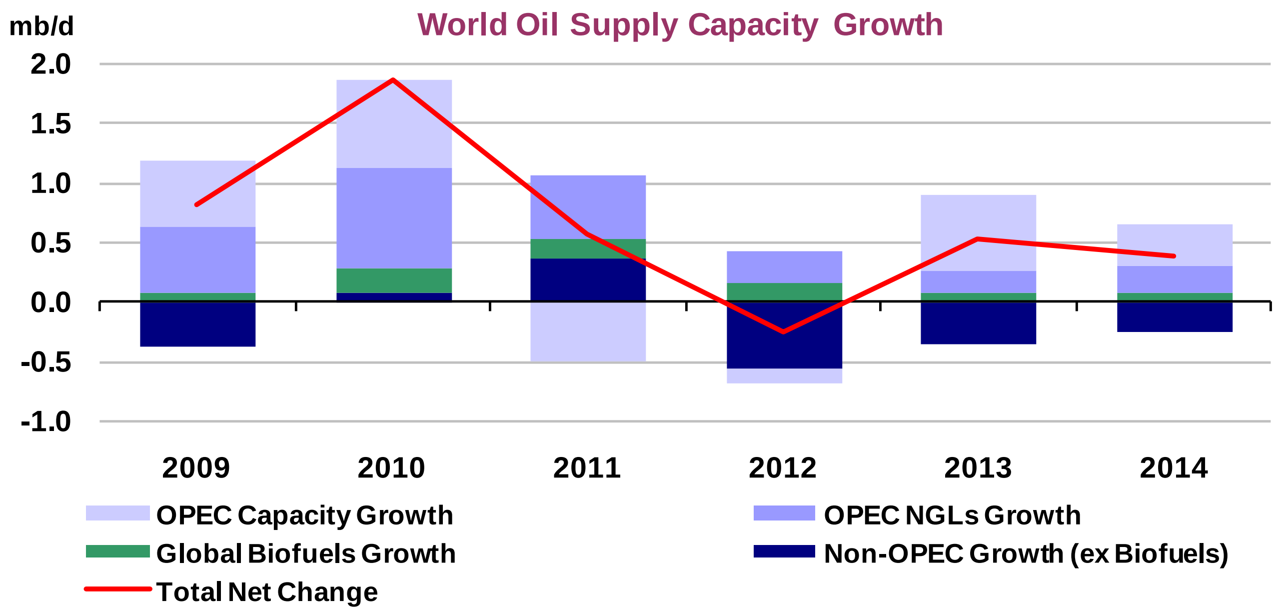
Crude quality: a trend towards lighter and sweeter…for now





- 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

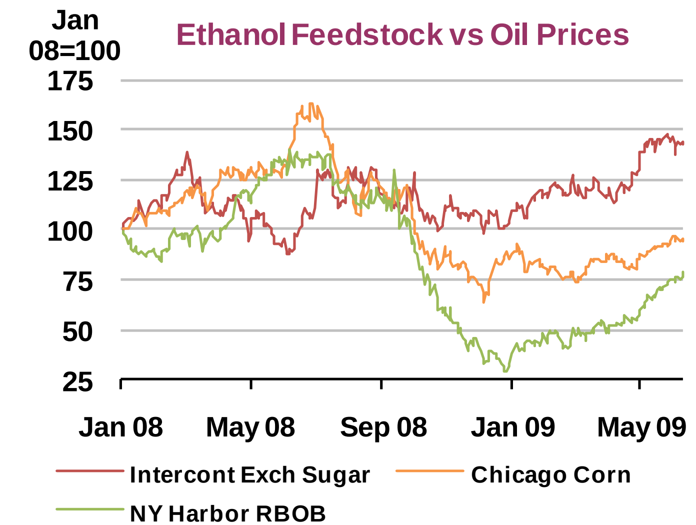
Global capacity outlook curbed on recession, lower investment

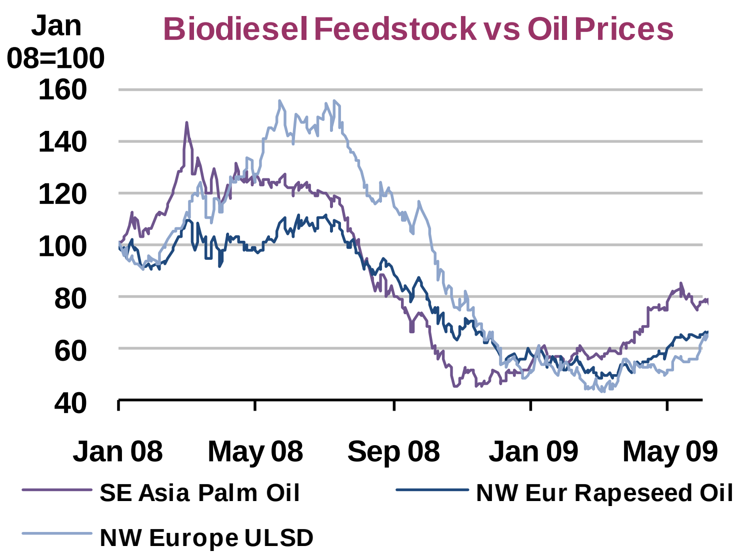


- **Total supply capacity growth in 2008-14 trimmed to 4.0 mb/d (1.5 mb/d lower than 2007-13 growth in last *MTOMR*) due to:**
  - **Impact of global recession/lower demand**
  - **Lower oil price environment**
  - **Credit constraints & contract renegotiation**

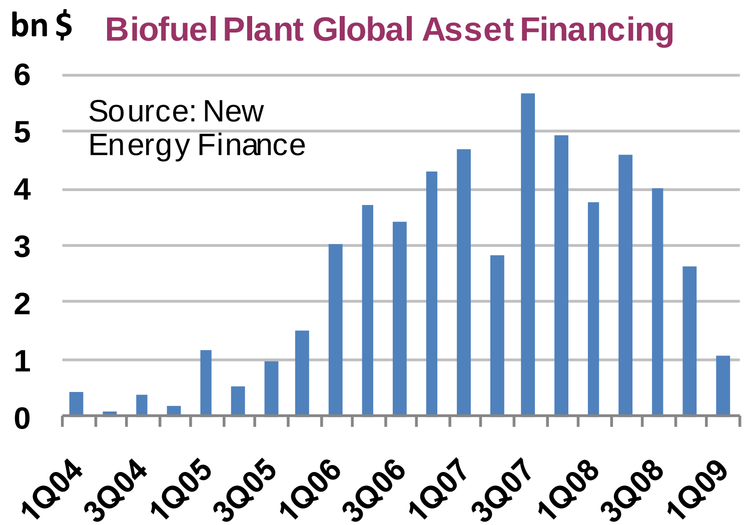
Biofuels

Lower oil prices and credit crisis hurt the biofuels industry



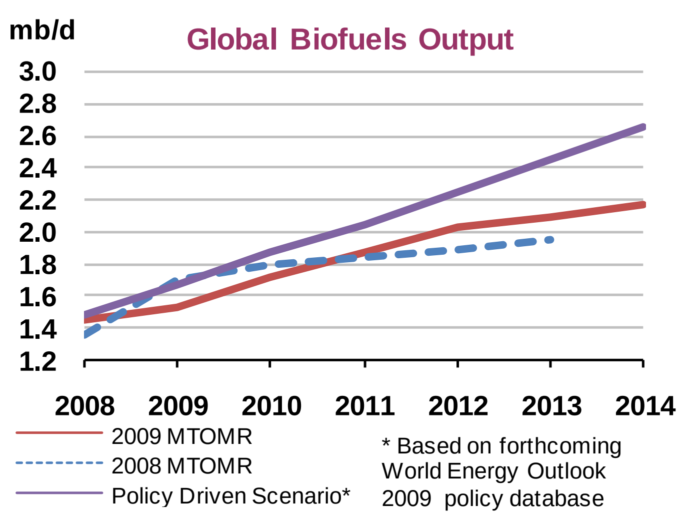


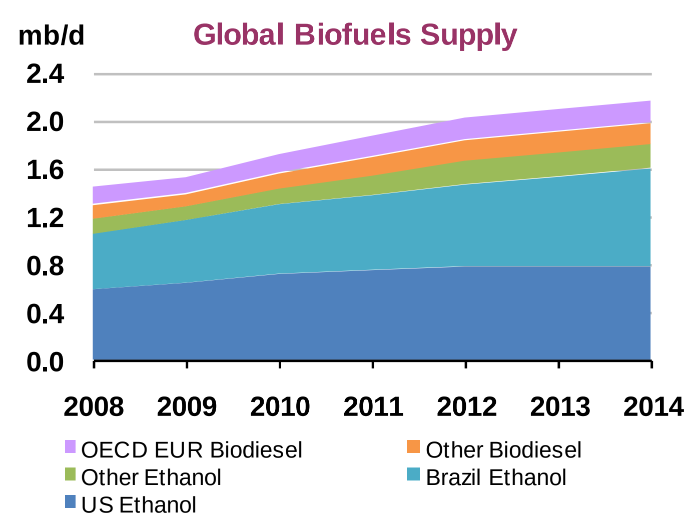
- oil prices fell more than agricultural feedstocks, undermining biofuels margins
- plant utilisation has fallen
- access to credit has dried up for over-leveraged producers
- Expected 2009 new mill start-ups for Brazil, US and Europe off by as much as 50%



But medium-term production forecast remains robust

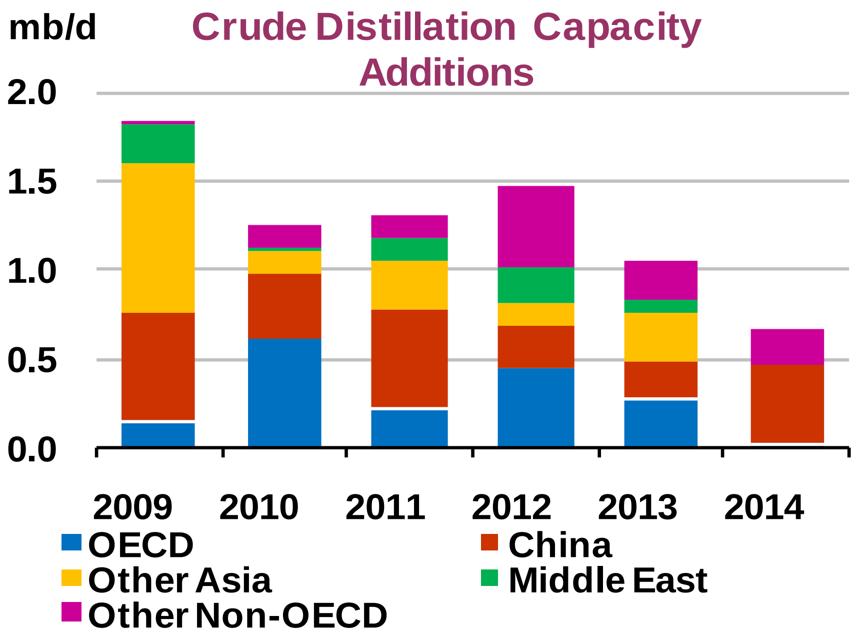
- **Despite near-term problems, strong biofuels supply growth expected through 2014**
- **Output can respond quickly to changing market conditions**
- **Sector consolidation suggests a transition to more economically sustainable production**
- **Low cost producers such as Brazil will continue expanding 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**





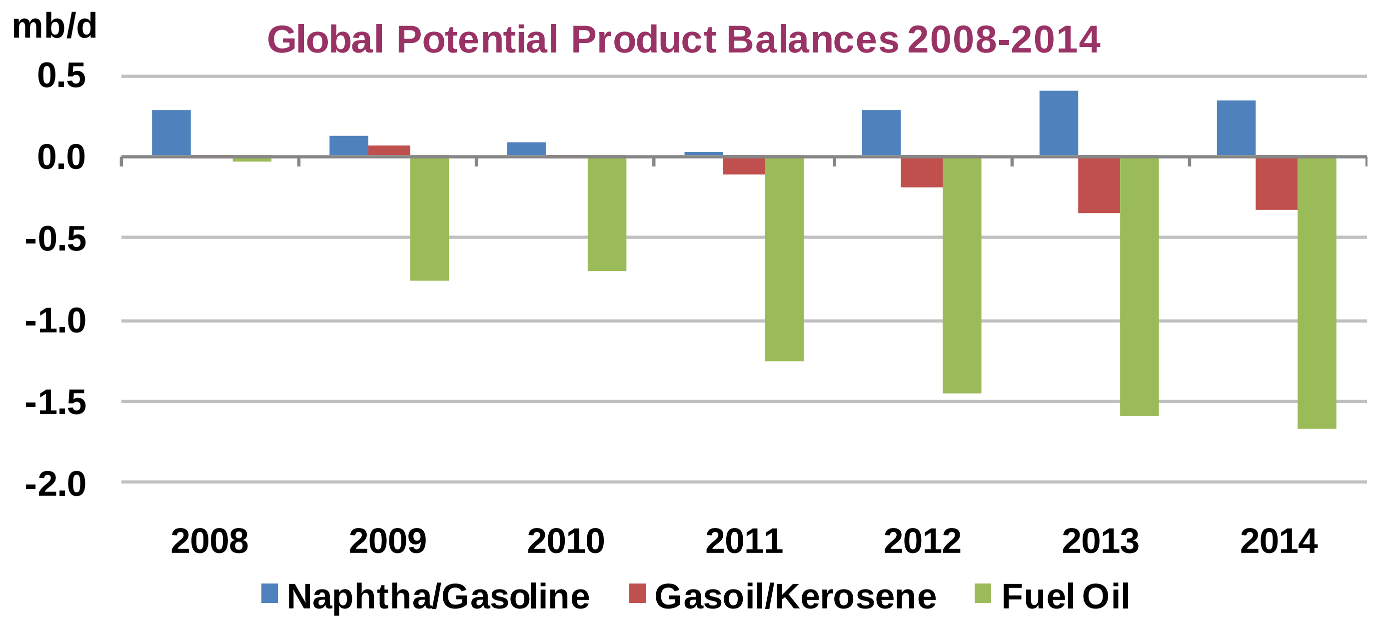
Refining & Product Supply

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**

Tightening fuel oil balance is likely



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

Downstream, something's gotta give…

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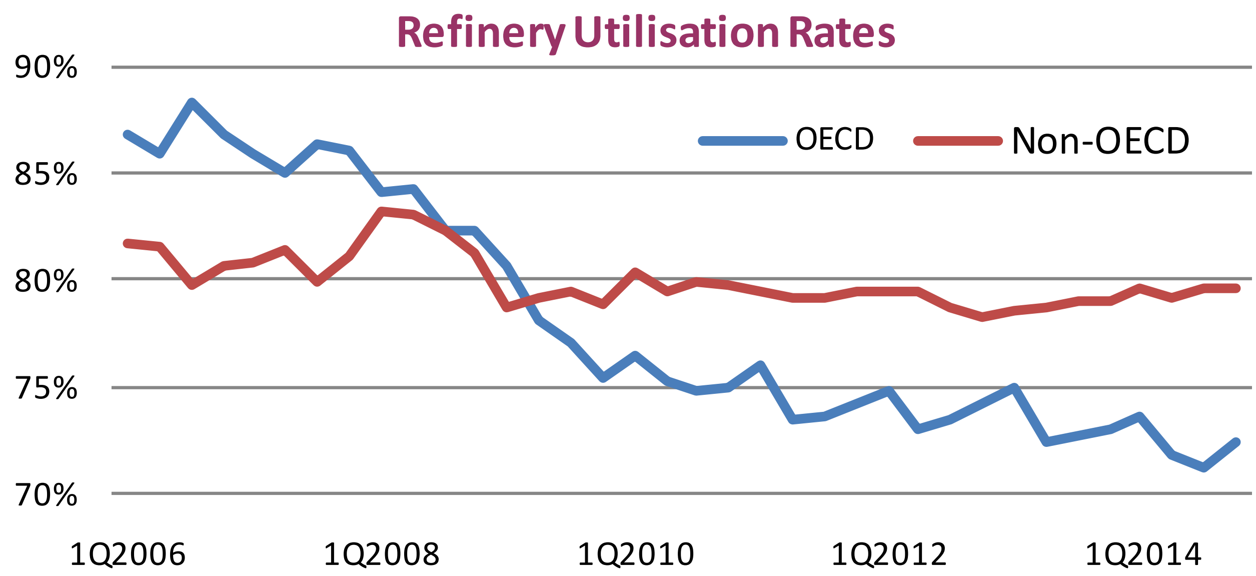


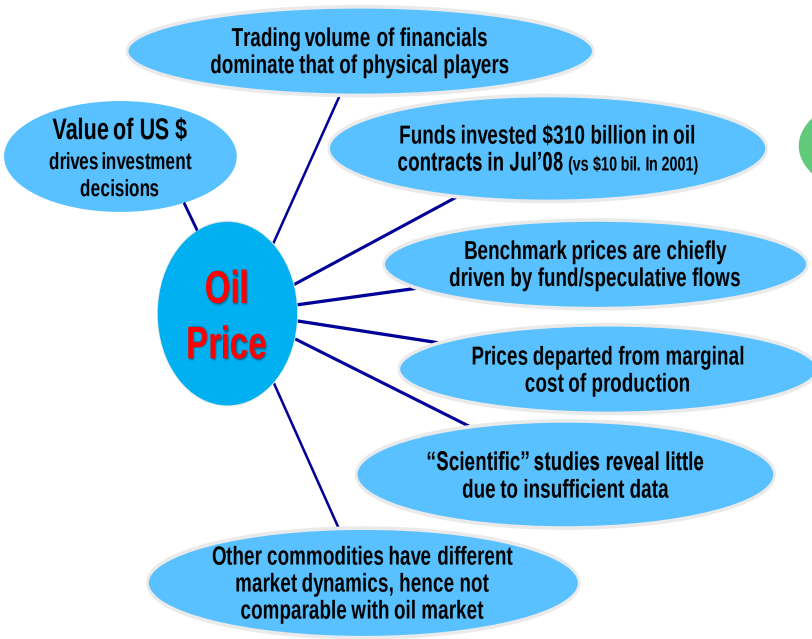
- **Lower demand and sustained capacity growth point to an overhang of spare capacity & weaker utilisation**
- **Non-OECD regions are assumed to retain utilisation rates in line with historic averages**
- **Commercially sensitive operators in the US, Europe and Japan are assumed to bear the brunt of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

Price Formation

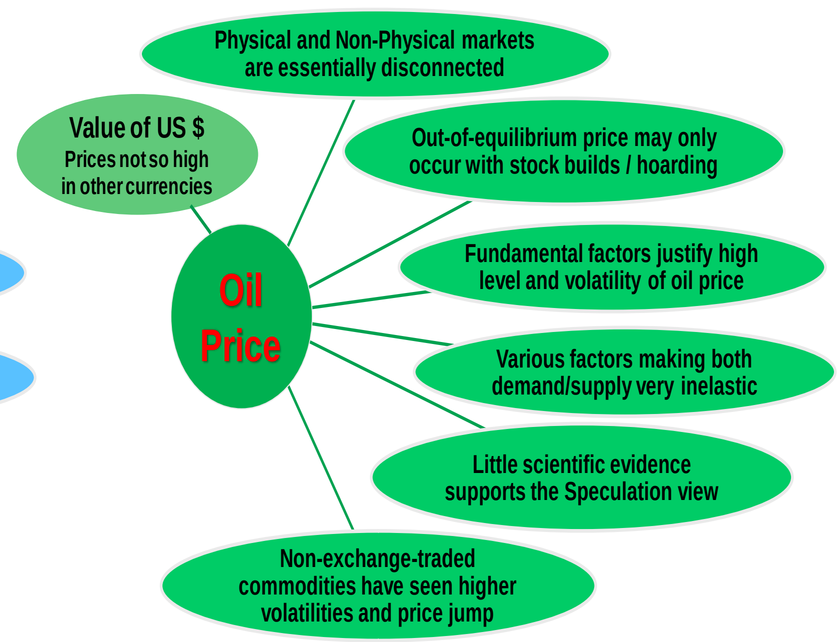
Making sense of oil prices

- **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**

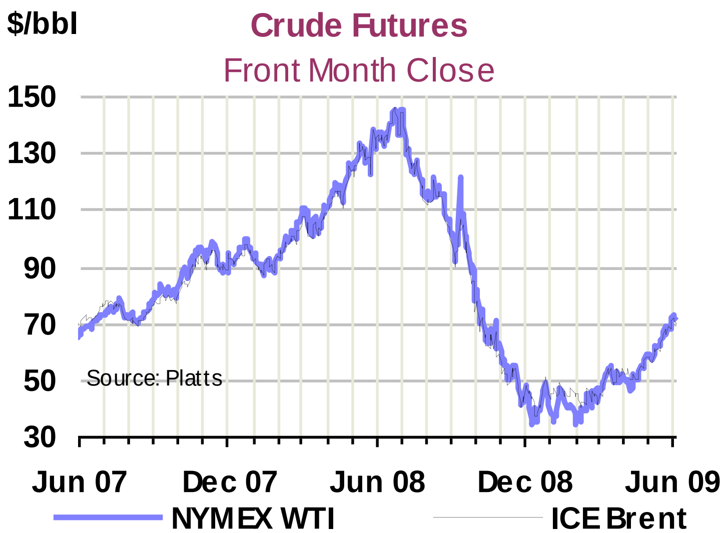
The "Speculation View"

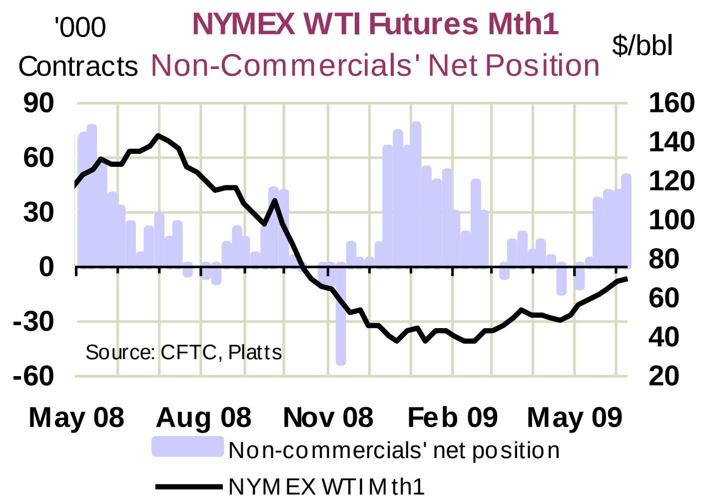


The "Fundamentals View"



Greater visibility could help flatten the oil price roller coaster





- Surge in prices until July 2008 on tight fundamentals, highly inelastic supply and demand, weak dollar & investor influence
- 75% fall by year-end on collapsing demand outpacing cuts by OPEC
- Fundamentals alone can't explain post-February 09 rise…
- …and concerns too sharp a rise now could derail economic recovery
- But net non-commercial positions don't 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 would deepen insight into price dynamics

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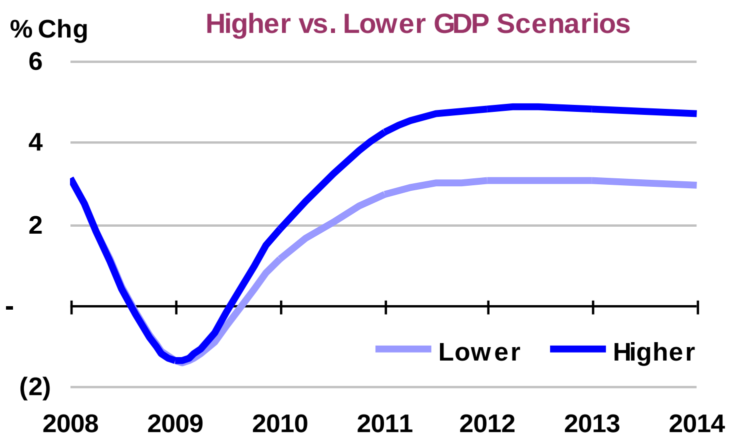
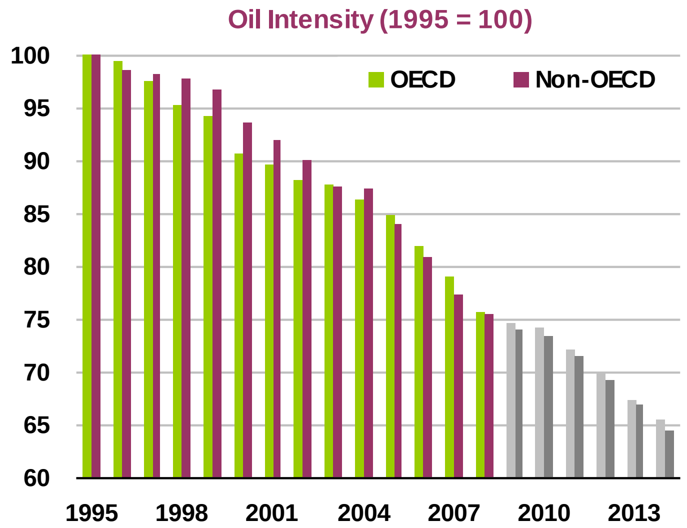
Summing Up

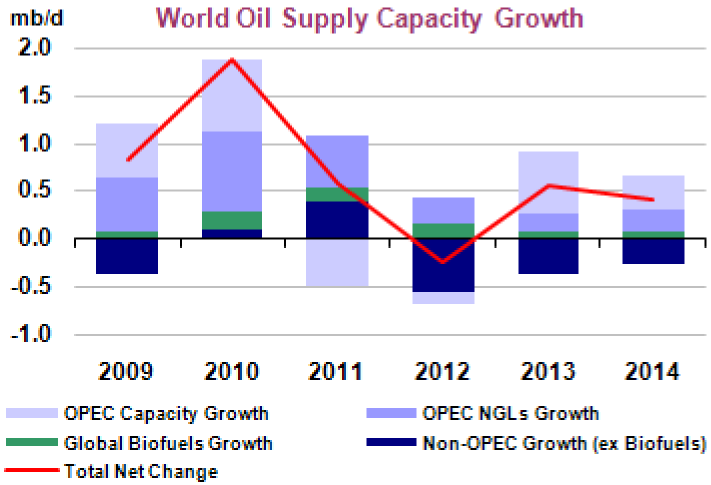
Outlook depends on shape of economic recovery & efficiency trends

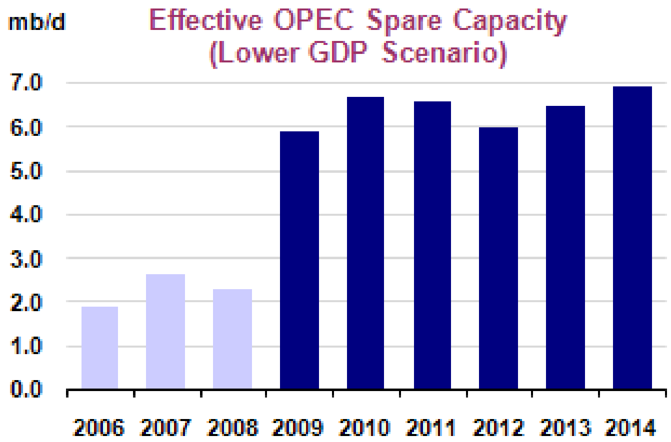




- **Oil market turned upside down since last summer**
- **Timing & extent of economic recovery is highly uncertain**
- ***MTOMR* presents two oil demand scenarios this year to reflect that uncertainty (diff=4.1mb/d)**
- **It also identifies clear signs that there have been structural changes in the way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

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 the future buffer of spare capacity**

Thanks for your attention

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