Oil Market Report

Short & Medium Term Oil Outlook

Presented to IEA-IEF-OPEC Symposium
on Energy Outlooks

Riyadh, 23-24 January 2012

International Energy Agency

Oil Market Report

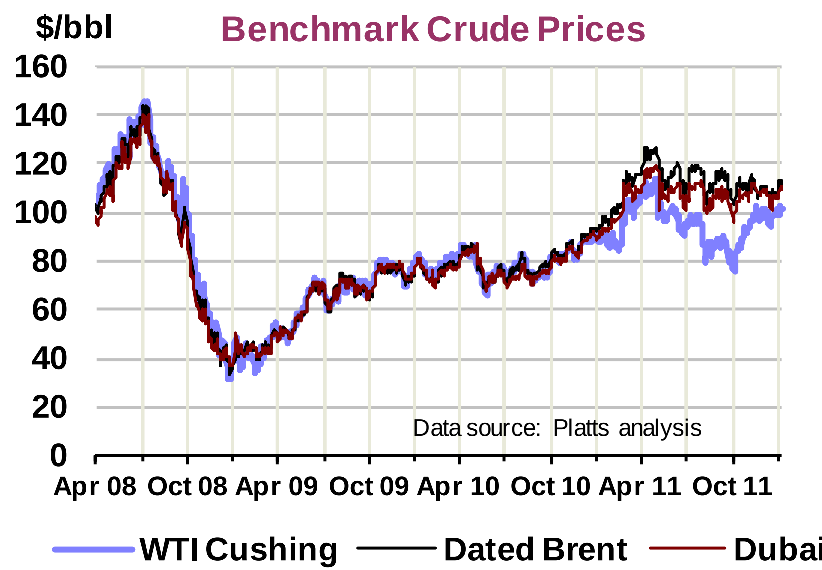
1. Short term market developments

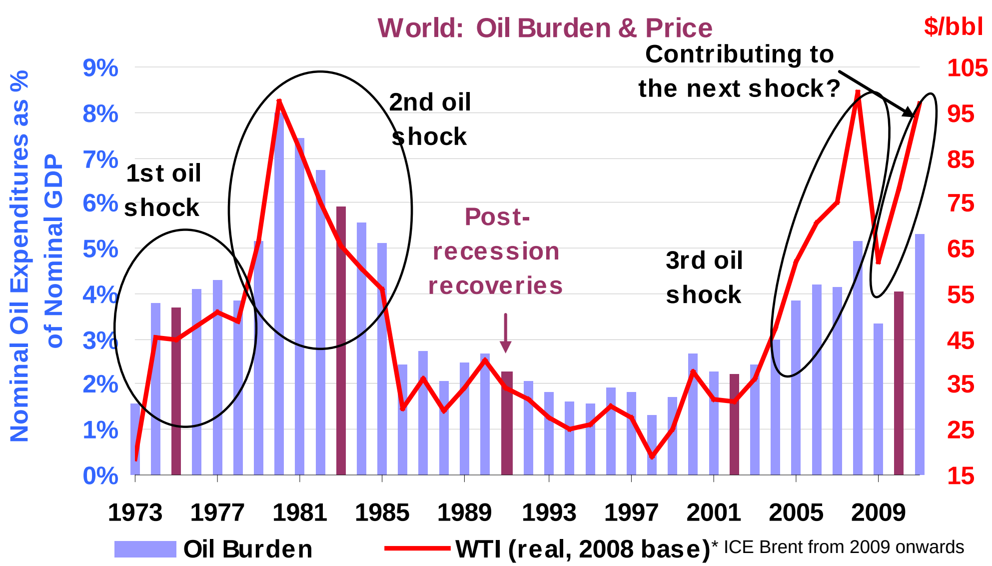
Economic risks and supply surprises

Two year price recovery stalled since spring

But prices remain high by historical standards

- Crude prices have slipped from April highs
- Higher OPEC supply and weakening economy have eased some market concerns…
- …though geopolitical issues provide price floor
- WTI regains lost ground on regional fundamentals, Libya / NSea recovery eurozone concerns
- But high prices already contributing to economic slowdown & oil burden near 2008 levels

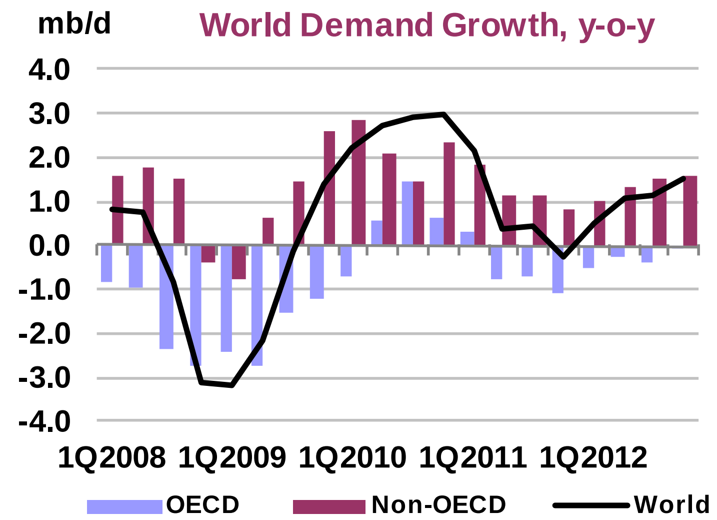


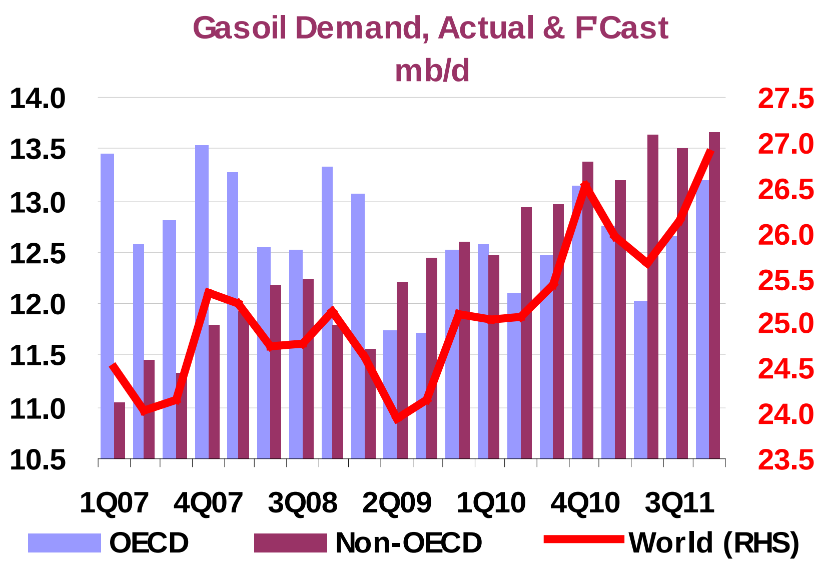


Source: IEA *Oil Market Report*

Short Term Oil Demand: Bending But Not Breaking

- Demand growth dipped into negative territory in 4Q12 for first time since 2009
- Global GDP growth assumed at 3.8% and 3.9% for 2011 and 2012, respectively
- Short-term economic risks lie to the downside
- Still, robust gasoil demand underpins product demand
  - Industrial strength still lingers, particularly in the US
  - Diesel use upside if there are further non-oil generation outages

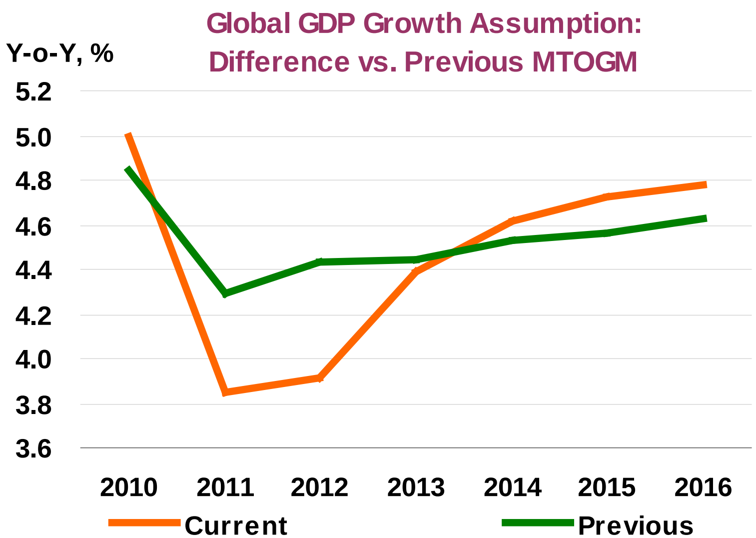




Source: IEA *Oil Market Report*

Oil Market Report

Demand-side risks skewed to the downside



- Consensus economic outlook scaled back since the spring
- Curbs 2011 demand growth to well below 2010, now 0.7 mb/d
- NB Japan nuclear offset boosts CODB and fuel oil

Oil Demand Sensitivity

(million barrels per day)

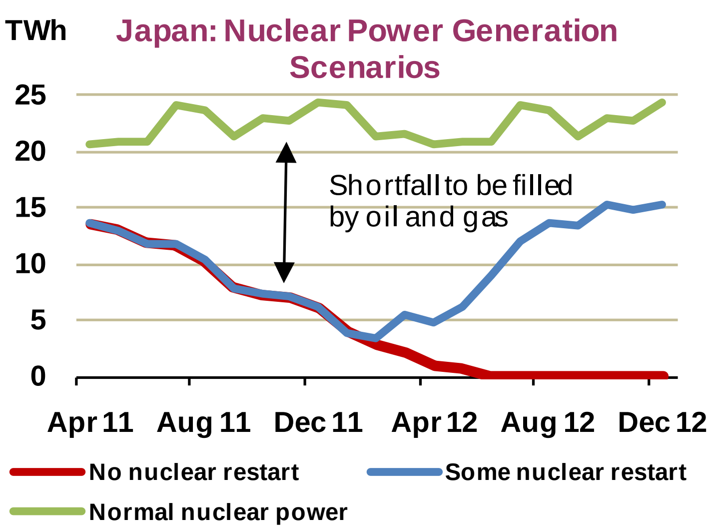
	2010	2011	2012	2011 vs. 2010		2012 vs. 2011	
				%	mb/d	%	mb/d
Base GDP							
Global GDP (y-o-y chg)	5.0%	3.8%	3.9%				
OECD	46.2	45.6	45.3	-1.2%	-0.56	-0.7%	-0.30
Non-OECD	42.1	43.4	44.8	3.0%	1.25	3.2%	1.37
World	88.3	89.0	90.0	0.8%	0.69	1.2%	1.07
Lower GDP							
Global GDP (y-o-y chg)	5.0%	2.6%	2.6%				
OECD	46.2	45.6	45.0	-1.3%	-0.58	-1.3%	-0.59
Non-OECD	42.1	43.3	43.8	2.7%	1.13	1.3%	0.57
World	88.3	88.8	88.8	0.6%	0.55	0.0%	-0.02

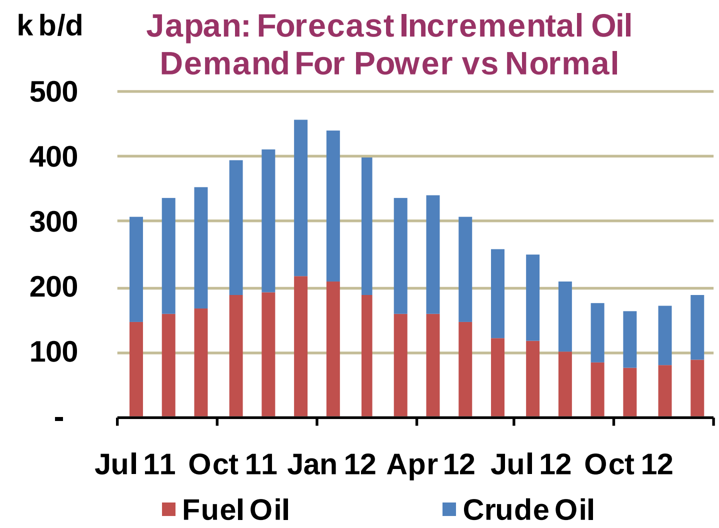
- 2012 outlook depends on GDP profile
- Difference between 3.9% & 2.6% GDP growth =1.2 mb/d
- Income elastic non-OECD demand impact is greatest

Oil Market Report

One-off factors can have major impact

Japan Turning Towards Thermal Power

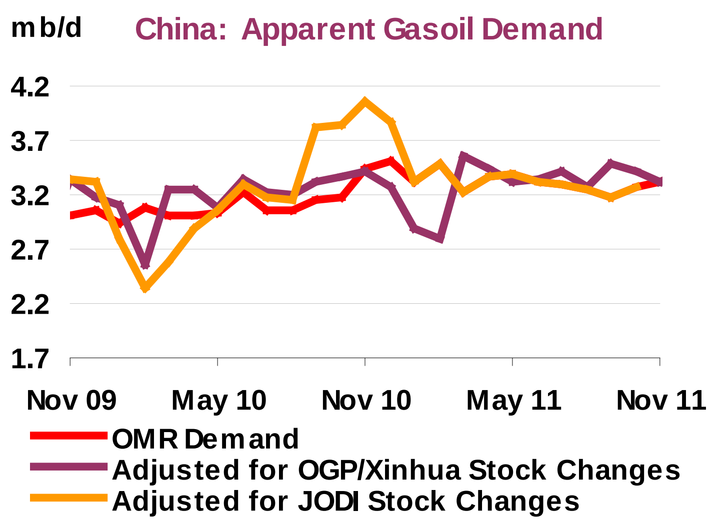


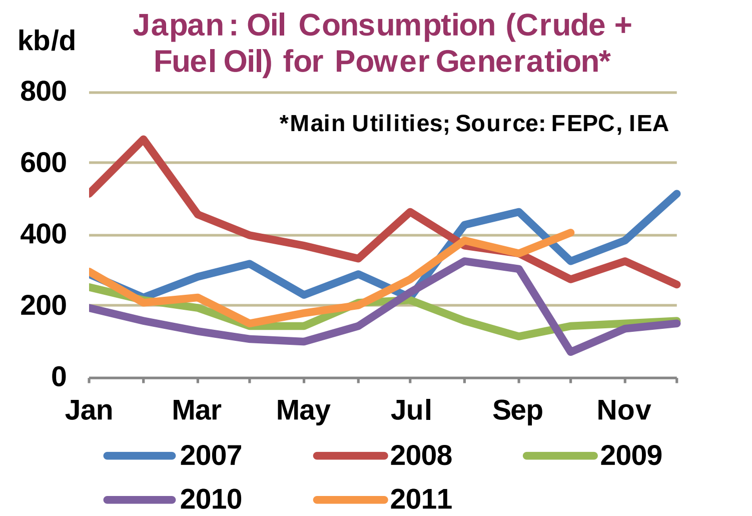


- **Japan's nuclear capacity likely to dip to low levels in early 2012 as more plants go offline for normal maintenance with uncertain restart times**
- **In the absence of policy changes, oil and LNG likely to make up most all of the shortfall**
- **Under scenario where nuclear power plants restart in 2012**
  - Incremental crude + fuel oil burn for power generation needs would rise to 230 kb/d above normal in 2011; 270 kb/d above normal in 2012
  - By contrast, oil fired generation would normally consume about 200 kb/d
- **Under worst case scenario of no nuclear restart**
  - Incremental oil needs could rise to 460 kb/d versus normal nuclear profile

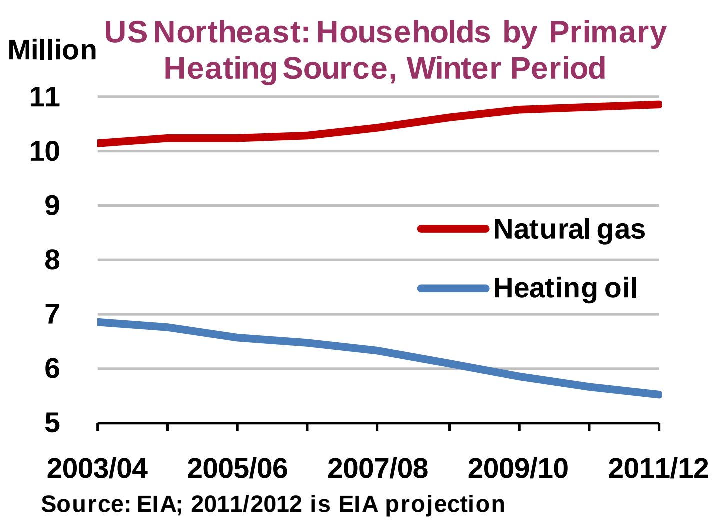
Source: IEA *Oil Market Report*

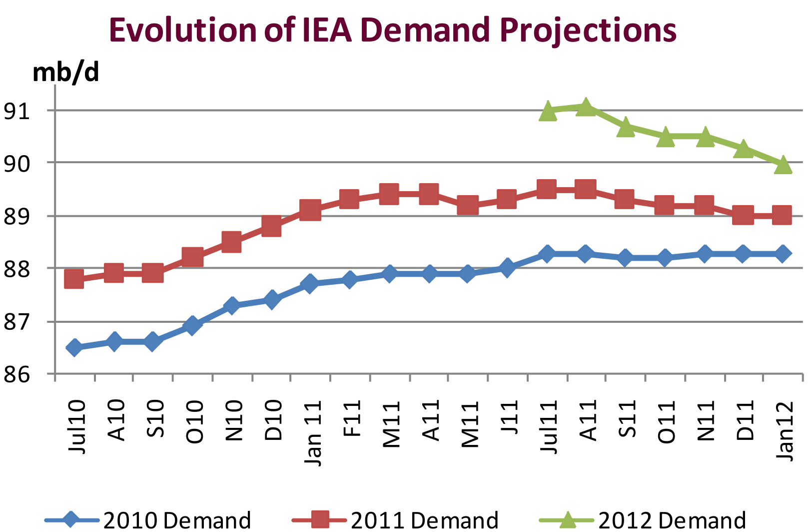
Demand puzzles to watch in coming months





- Slowing? But +400 kb/d
- Nuclear restart? Oil 0.2-0.4 mb/d





- Lower seasonality? +/-0.3 mb/d

Oil Market Report

2011 tells a story of supply disappointment… …risk of more to come in 2012?

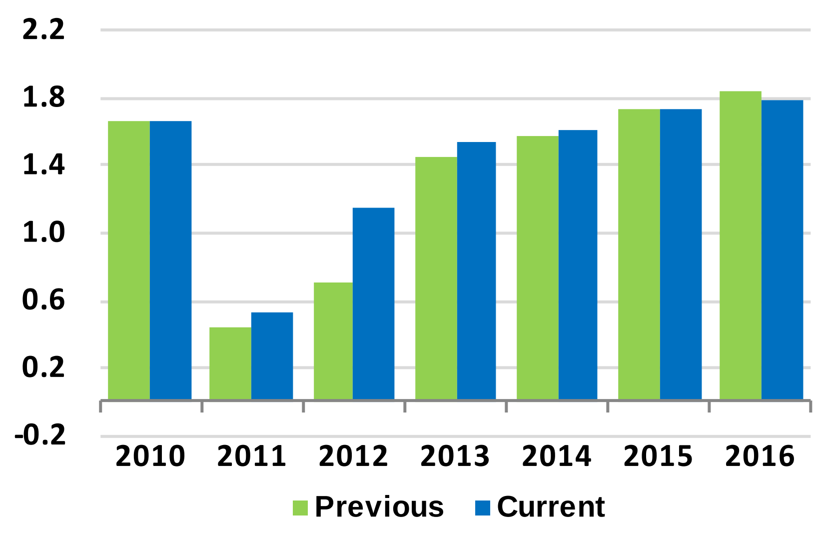
Estimated Jan-Sep 2011 Imports of Iranian Crude

IEA	kb/d	% Total 2011 Oil Demand	% Total Exports
Belgium	36	5%	1%
Czech Republic	5	3%	0%
France	58	3%	2%
Germany	15	1%	1%
Greece	103	30%	4%
Italy	185	13%	7%
Japan	327	7%	13%
South Korea	228	10%	9%
Netherlands	19	2%	1%
Poland	3	1%	0%
Spain	161	12%	6%
Turkey	196	29%	8%
UK	11	1%	0%
IEA Pacific	**555**	**8%**	**22%**
IEA Europe	**792**	**7%**	**31%**
IEA Total	**1347**	**7%**	**53%**
Others			
China	550	6%	22%
India	310	9%	12%
Other Asia	240	3%	9%
Non-OECD Asia	**1100**	**5%**	**44%**
Total Asia	**1655**		**65%**
South Africa	80	14%	3%
Total	**2527**		**100%**

Source: IEA databases, Lloyds/Apex

- **Unplanned outages curb non-OPEC supply by 0.7 mb/d in 2H11**
- **Libyan supply loss cost the market 425 mb so far, while OPEC & IEA collective action compensated around 75%**
- **Libyan recovery could slow, and market is pricing in concerns on Iranian supply availability**

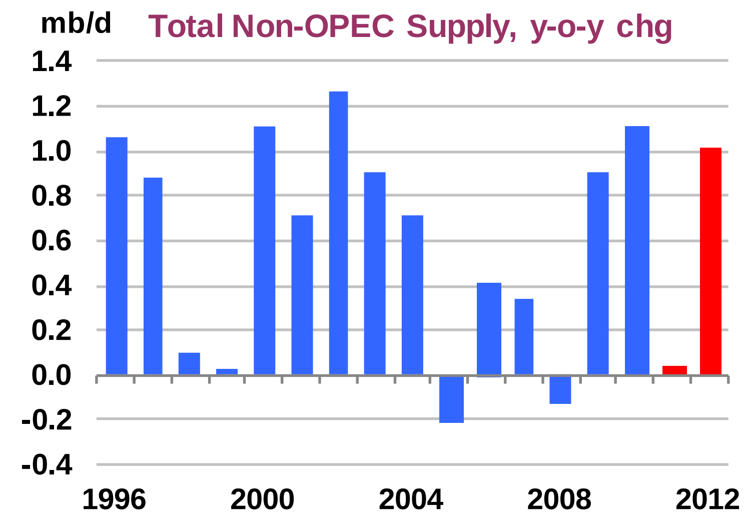
Libyan Crude Oil Capacity

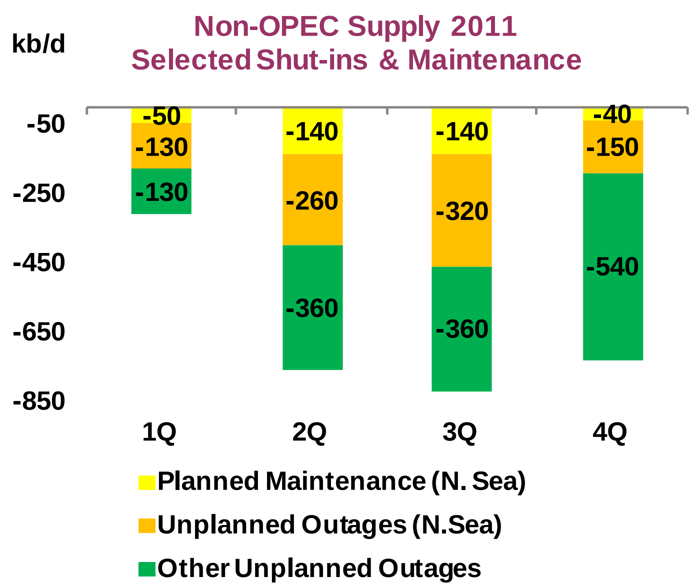


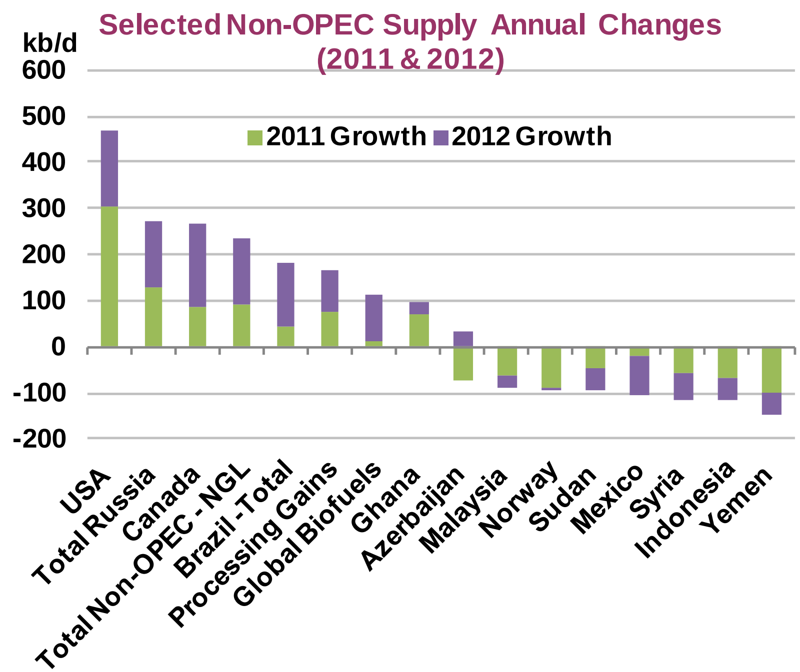
Source: IEA *Oil Market Report*

Non-OPEC also suffers unscheduled 2011 outages

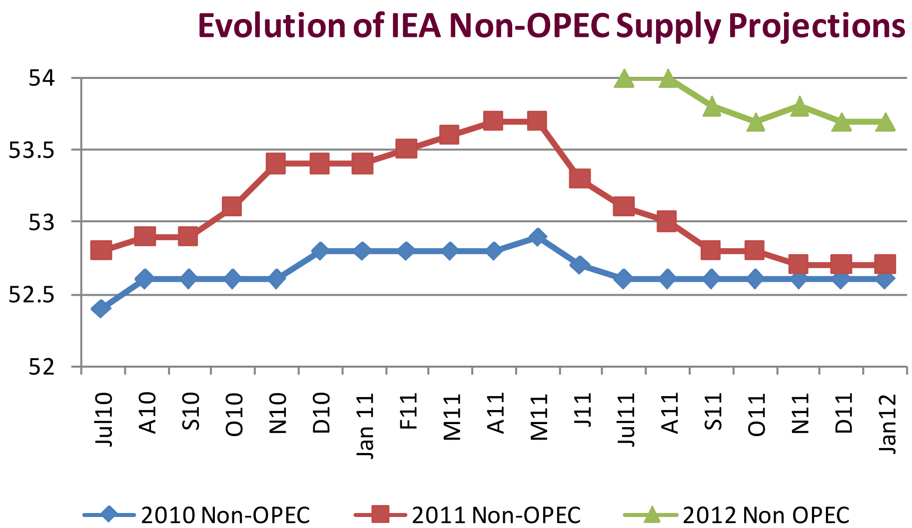
- Consistent shortfalls averaging 0.7 mb/d from non-OPEC in 2011, even without major hurricane outages
- Working assumption is that 2011 is an outlier…
- …and that non-OPEC can potentially grow 1 mb/d in 2012



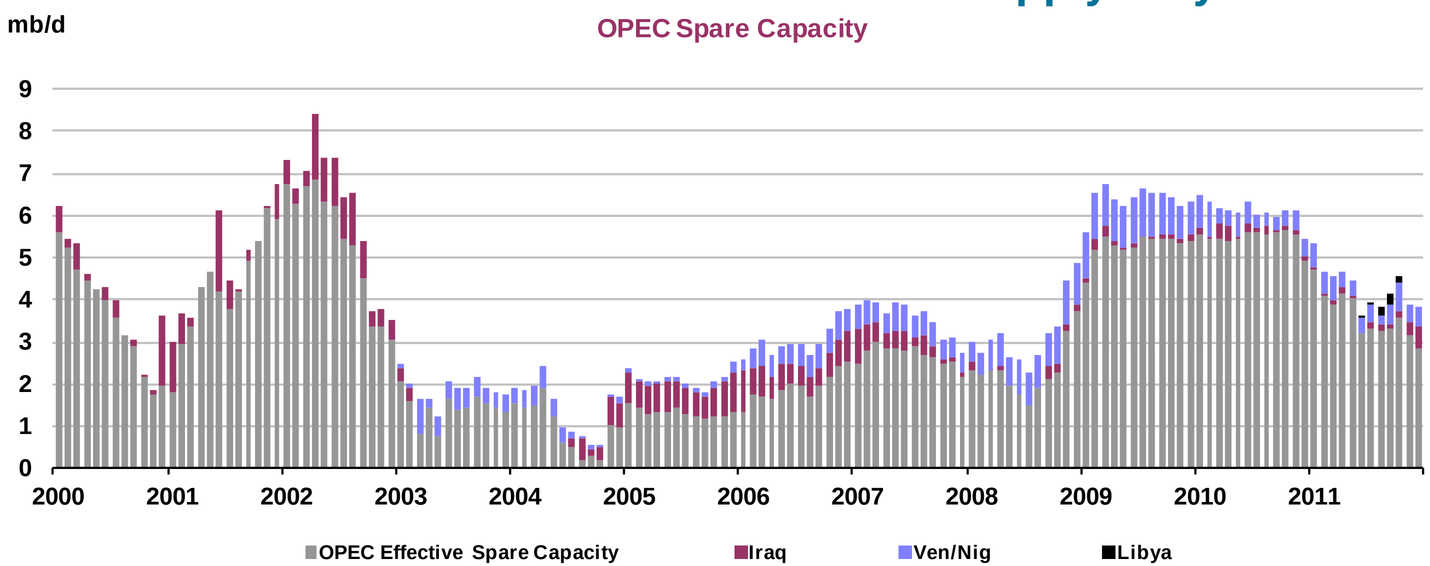




2012 supply uncertainties abound

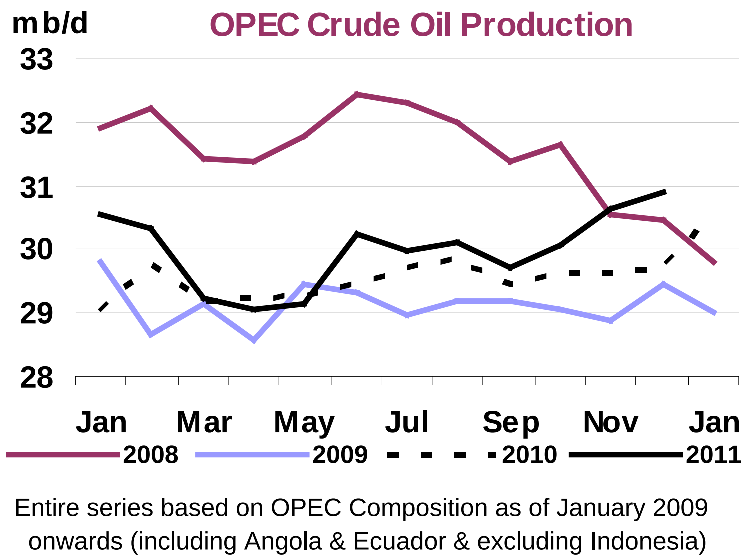


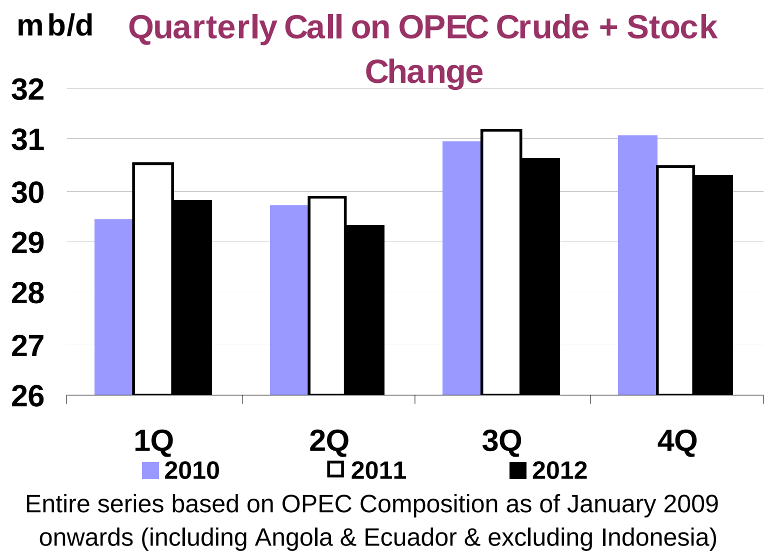
- 2011 demonstrates again that non-OPEC *potential supply* faces downside risks
- Geopolitical risks throw market spotlight on spare production capacity
- IEA defines OPEC capacity as available in 30 days, sustainable 90, excl. surge
- *Effective* spare capacity acknowledges that short term capacity to boost supply may be constrained



Oil Market Report

2011 OPEC output recovers after Libya disruption

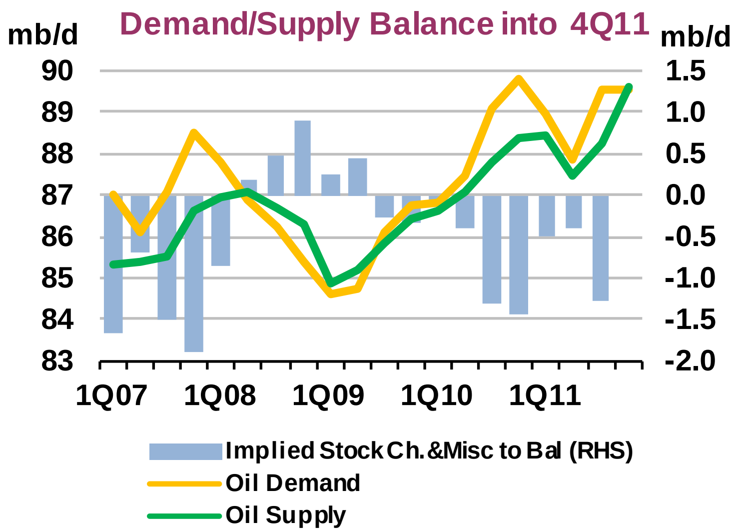


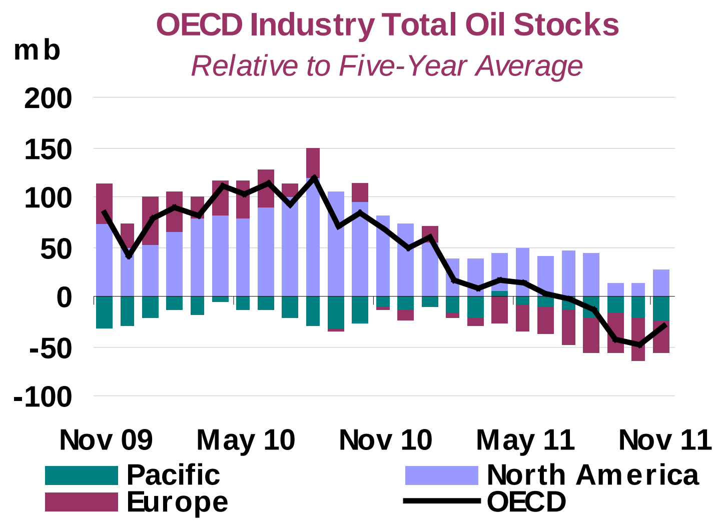


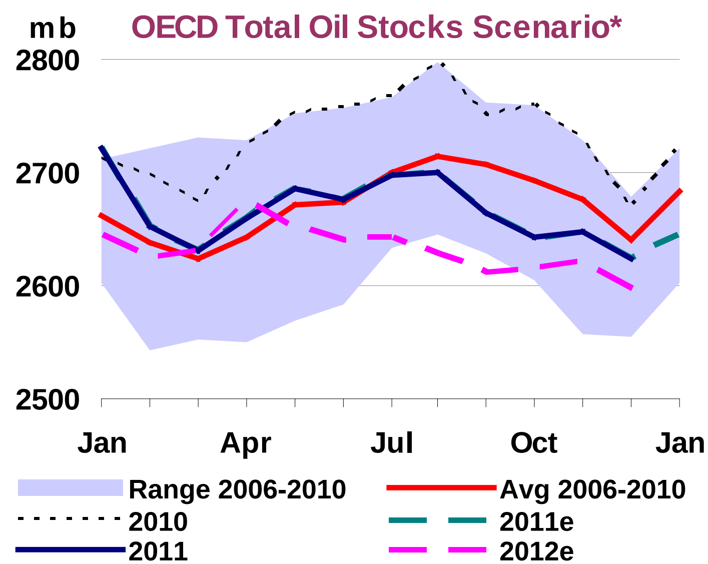
- **OPEC December supply estimated +240 kb/d to 30.9 mb/d**
- **Monthly market assessments for OPEC supply based on a combination of JODI data, tanker tracking & other market intelligence, amid data and definitional issues**
- **Amid economic uncertainty, and weak non-OPEC performance, 2H11 OPEC supply, though increasing, seems to have lagged underlying demand**
- **2012 'call on OPEC crude & stock change' oscillates around 30 mb/d, some 0.5 mb/d less than in 2011**

Source: IEA *Oil Market Report*

Physical market has tightened sharply since mid-2010 – more to come in 2012?



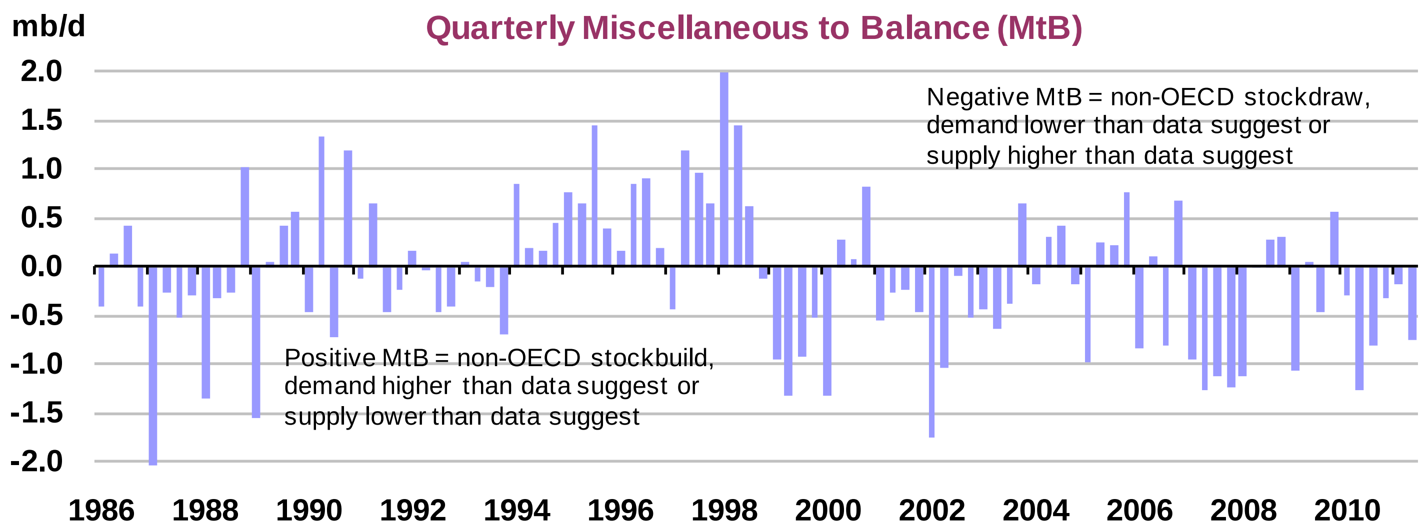


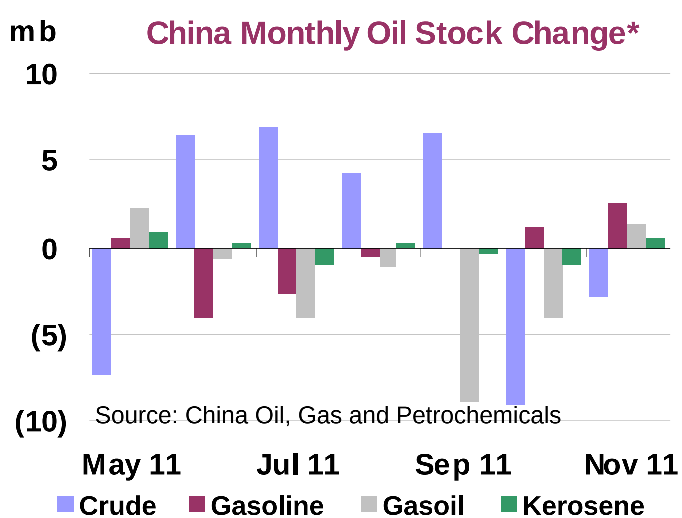


- Post-recession demand bounce drove tightening market in 2010
- 2011 tightness has derived from supply side factors
- This, & uncertain OPEC response post-Libya crisis, drove IEA LCA decision
- Increased consensus now over underlying 2012 'call', and OPEC raises target to 30 mb/d

Source: IEA *Oil Market Report*

Inventories: major gaps in data coverage





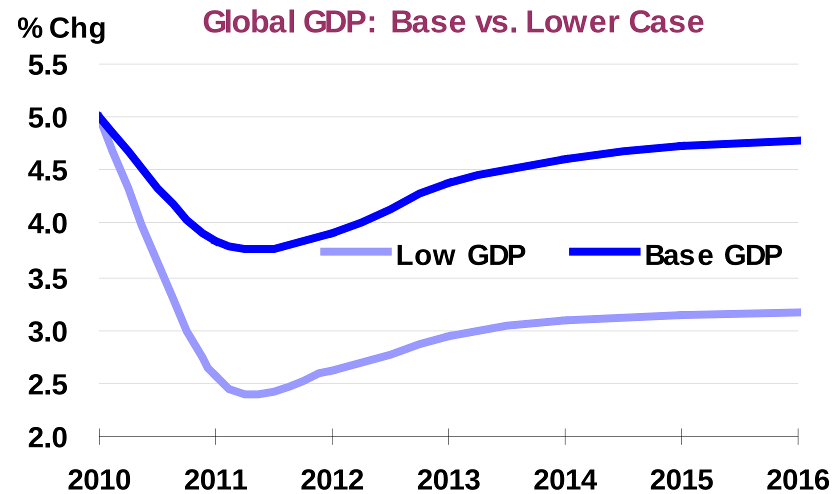
- OECD inventory data far from perfect – monthly revisions of +/- 10 mb not uncommon
- But at least there is regular, comprehensive, timely reporting
- This is missing for non-OECD, notably major growth markets like China and India
- Asian storage additions (strategic & comm) could add 400 kb/d to underlying crude & product demand in 2012-2016

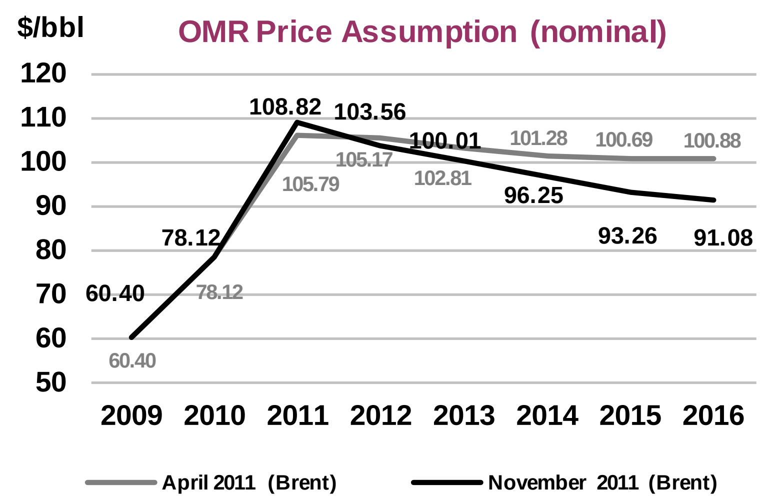
Oil Market Report

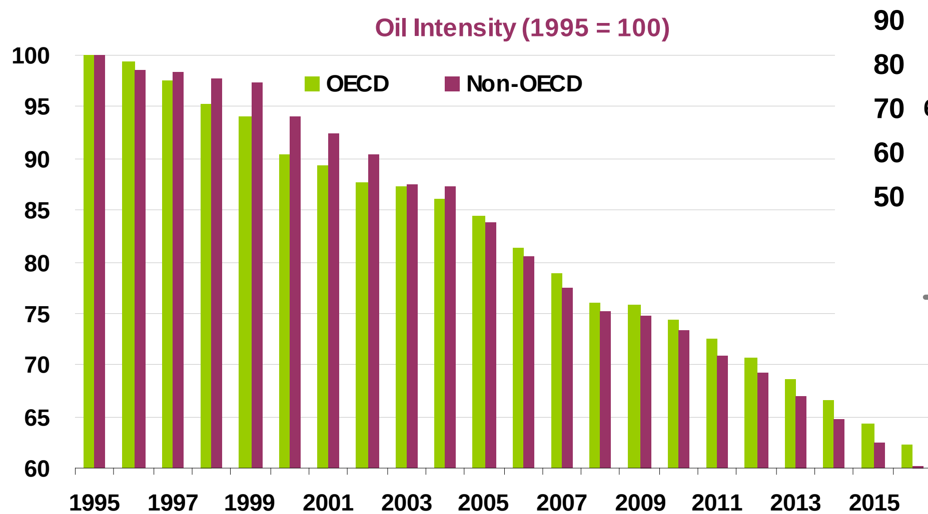
2. Medium Term Oil Markets December 2011 update

Working assumptions: medium term outlook

- Price assumption based on prevailing futures strip
- Economic outlook arguably shifting towards 'low case'
- 'Low-Case' sensitivity
  - GDP growth averages 3% per annum, 2011-16
    - Versus 4.4% in 'Base-Case'
  - Global Demand up 0.8% (or 0.7 mb/d) per annum
    - Versus 1.2% (1.1 mb/d) 'Base'
- Oil intensity declines by 2-3% annually



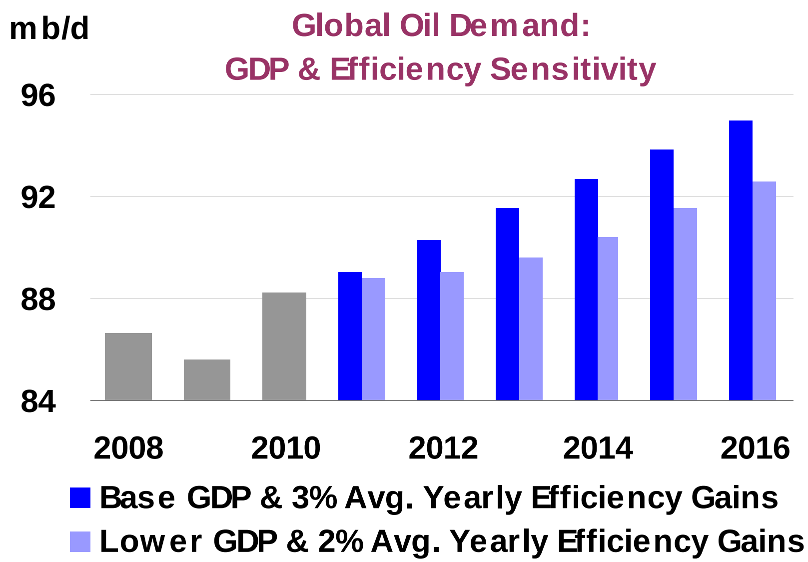


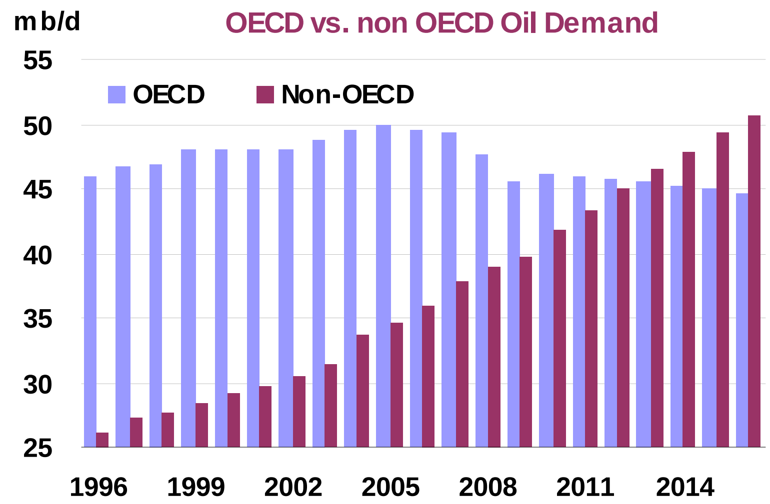


Source: IEA *Oil Market Report*

Oil Market Report

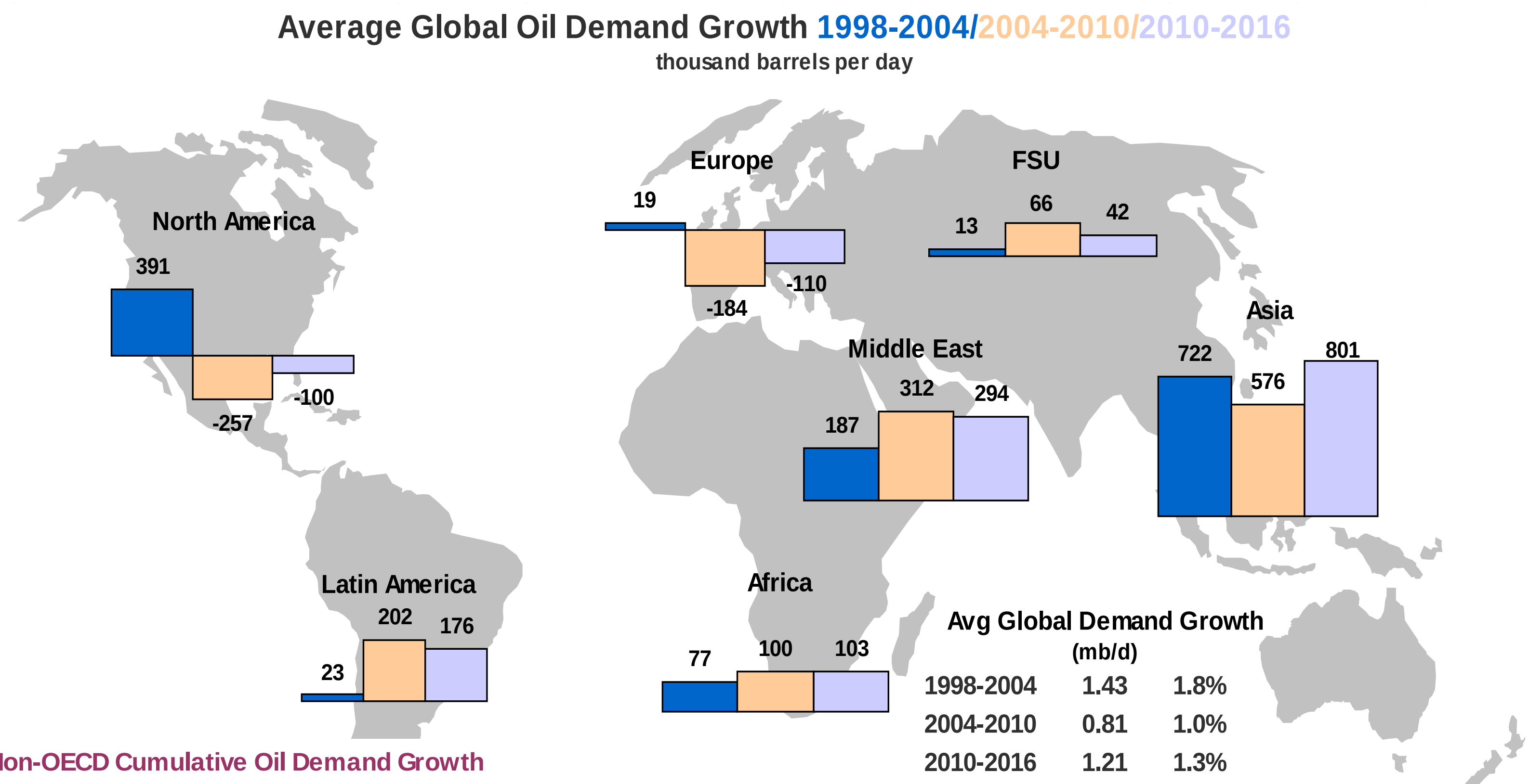
Creates two very different demand profiles

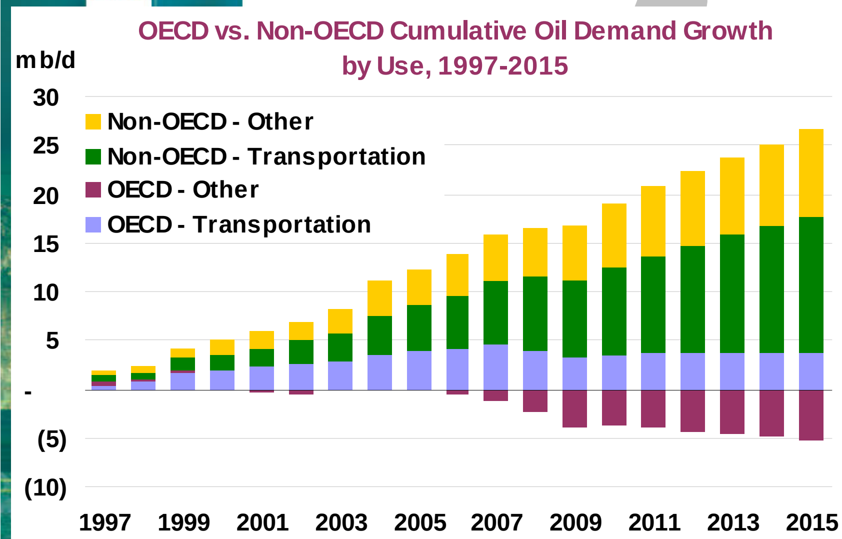




- **Difference in 2016 oil demand between the two cases is 2.4 mb/d (92.6 mb/d vs 95 mb/d)**
- **But in both cases, non-OECD drives demand growth**
- **Exceeding 50% global market share by 2013**
- **Robust growth driven by rising incomes and assumption that price subsidies only removed gradually**

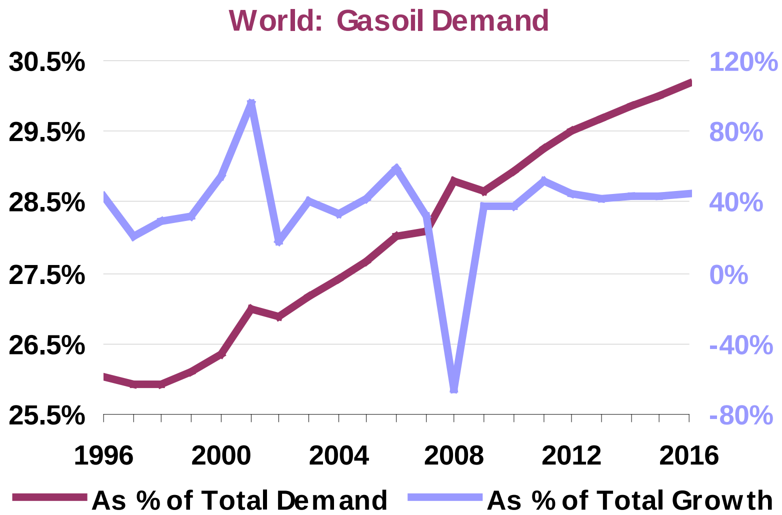
Demand growth is all about non-OECD & transport

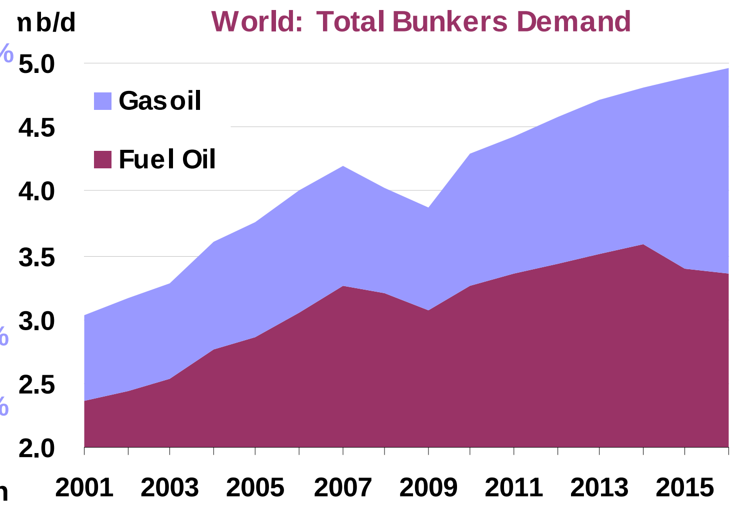




- OECD demand peaked in 2005
- Demand growth now focused in 3 regions: Asia, Mid.East & L.America
- Asia alone generates 55% of the total and China 35%
- Premium & subsidised markets sustain growth, despite high prices
- Understanding market trends requires better non-OECD data

Transport & Gasoil Underpin Demand Growth

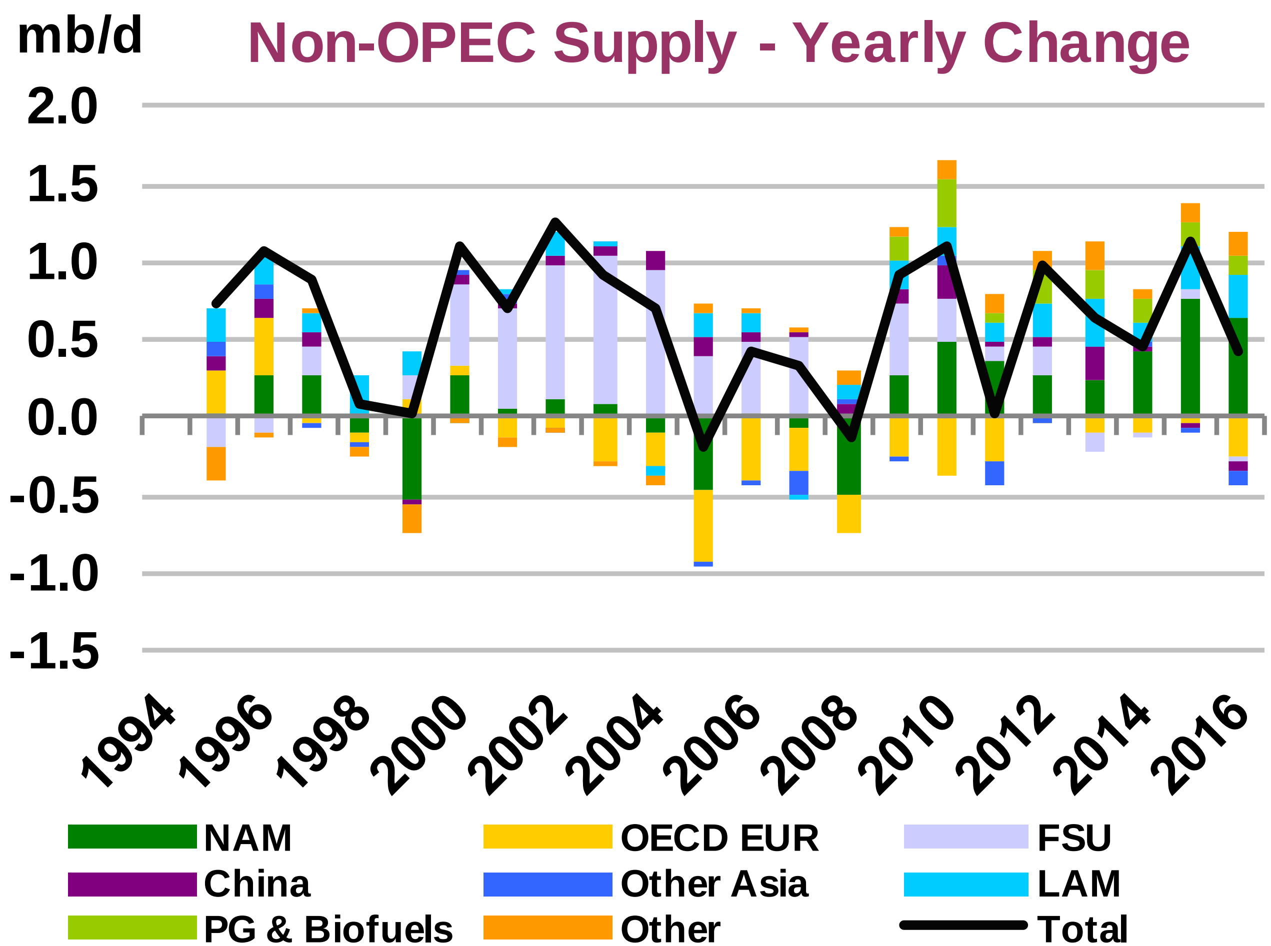




- Transport fuel use generates 65% of total oil growth, even though some will derive from biofuels and NGLs
- Oil has fewer short-to-medium term competitors in transport
- 40% of growth, 30% of total demand by 2016 will be gasoil/diesel
- Engine efficiency, all-round flexibility, make gasoil 'fuel of choice'
- Bunker sulphur quality changes and ever-present fuel switching possibilities add further lustre to gasoil's rising star
- Bunker fuels rise from 4.3 mb/d to 5 mb/d, with residual fuel oil's 75% share diminishing

Oil Market Report

Non-OPEC growth focus is shifting

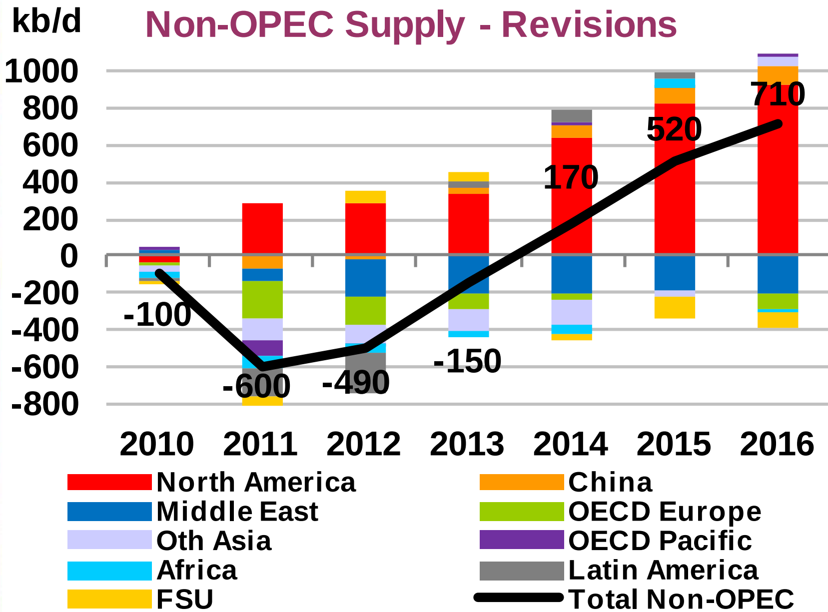


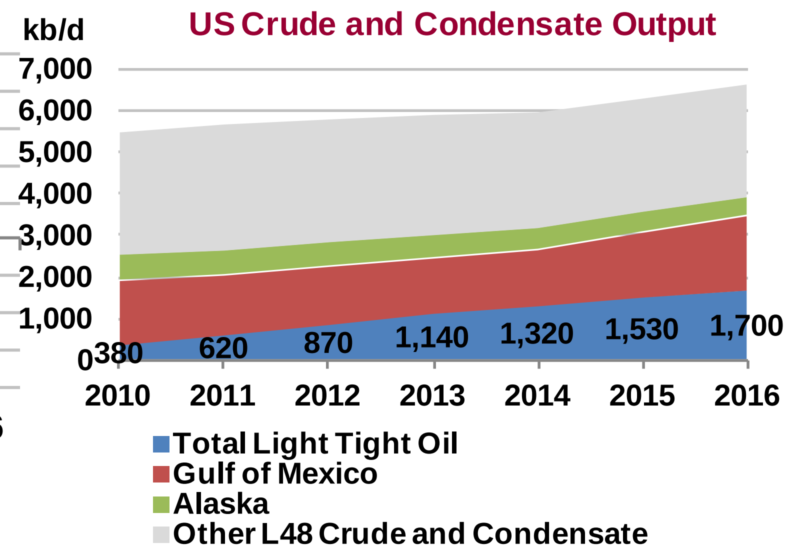
- FSU provided main impetus for non-OPEC supply in the early part of the last decade
- Baton now passed to the Americas – USA, Canada and Brazil

Source: IEA *Oil Market Report*

What's changed since June?

US Light Tight Oil Raises Non-OPEC Supply Estimates



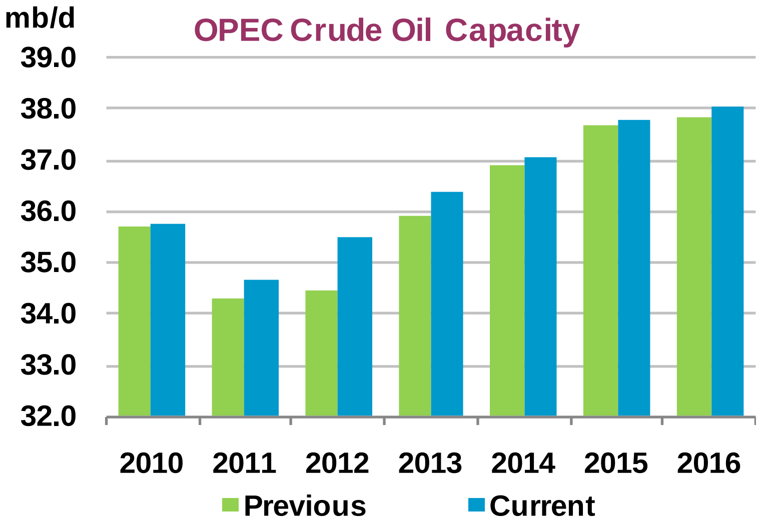


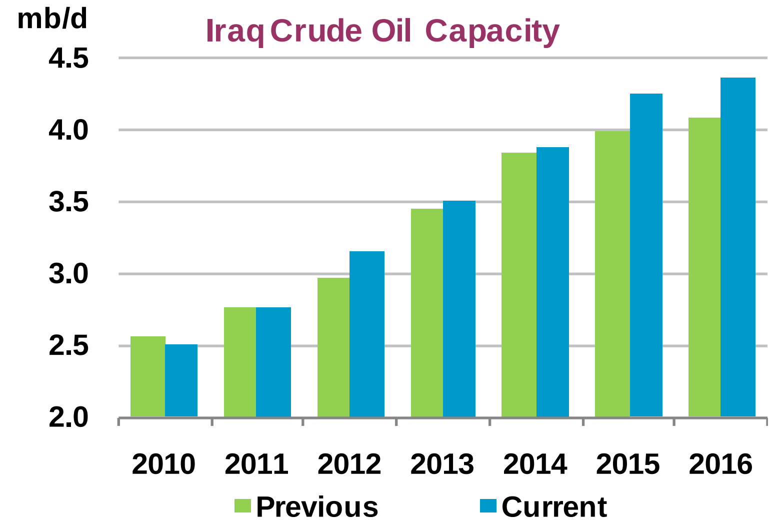
- Downward revisions in 2011-2013 due to unplanned outages, project delays, difficult investment climate in some MENA countries.
- Upward revisions due to uptick in E&P spending (rises by 22% in 2011, 10% in 2012), rosier N. American outlook.
- 2016 LTO revised up by 500 kb/d from June MTOGMR
- NGL supply revised up because producers are targeting liquids-rich tight oil plays.

Source: IEA *Oil Market Report*

OPEC Crude Capacity Set to Rise 2.33 Mb/d

Expected to Reach 38.1 mb/d by 2016

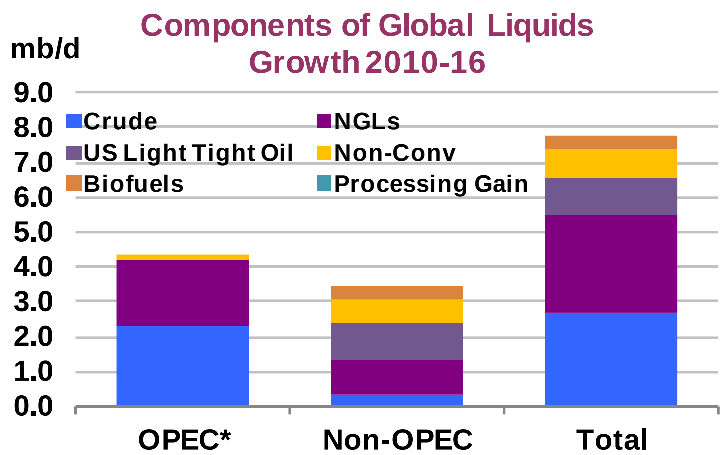


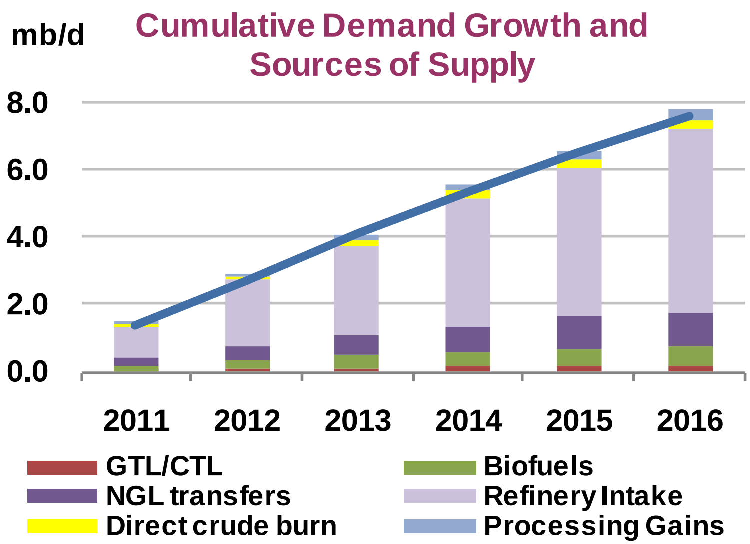


- **Crude oil expansion plans in the medium-term are moving apace,** with capacity now forecast to increase by 2.33 mb/d to 38.1 mb/d by 2016
- **Capacity growth is 200 kb/d higher than our previous forecast for the 2010-16 period**, with upward revisions to Iraq partially offset by delays to Iranian projects
- **Iraq accounts for 80% of the increase,** with capacity forecast to increase by a sharp 1.87 mb/d, to 4.36 mb/d on average by 2016, which is higher by 340 kb/d since our June report, largely due to steady progress at the country's 12 JVs

Source: IEA *Oil Market Report*

Profile of new global oil supplies is changing



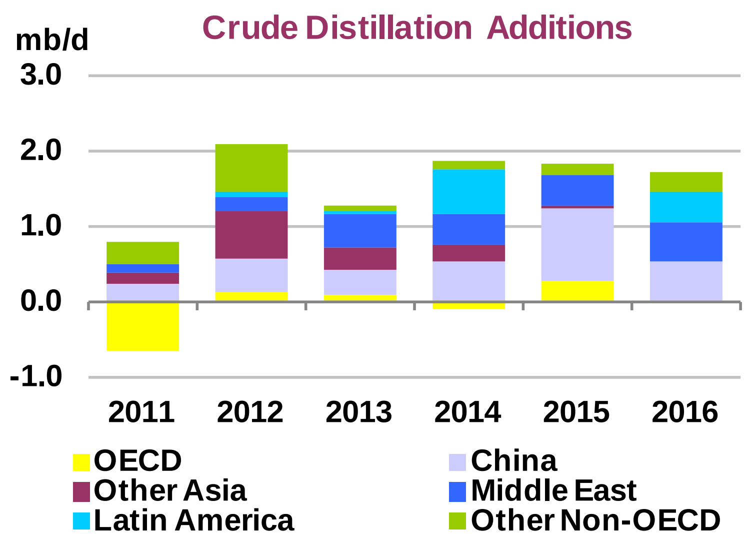


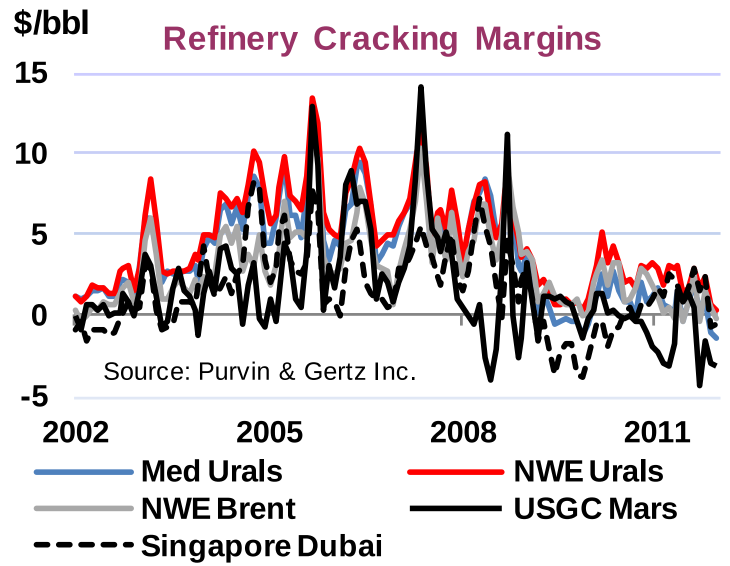
* OPEC crude is capacity additions
Global Refinery processing gains included in Non-OPEC

- With OPEC NGLs also gaining +2.0 mb/d to 7.4 mb/d, 'other supplies' outstrip conventional crude in generating 2010-2016 supply growth
- Other supplies also eat into the share of demand growth that needs to be sourced from refining crude….

Oil Market Report

…Leaving refining (at least in OECD) under pressure

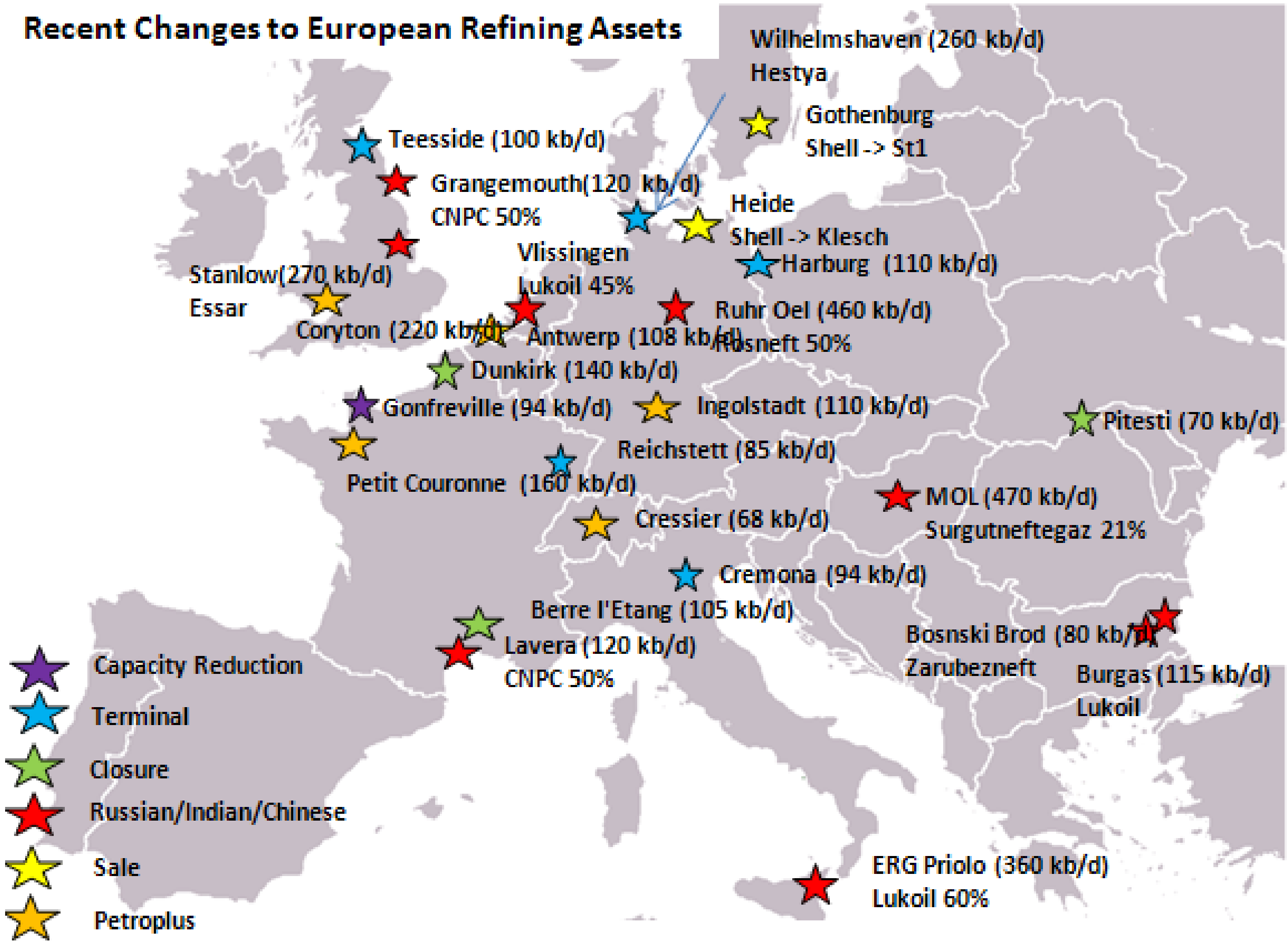




- Net refining capacity growth of 8.7 mb/d (all non-OECD) outstrips expected demand growth by 2 mb/d
- Suggests there is more OECD capacity closure or rationalisation to come
- The one bright spot will be middle distillates, with refiners positioned to produce clean diesel better able to resist intense competitive pressures

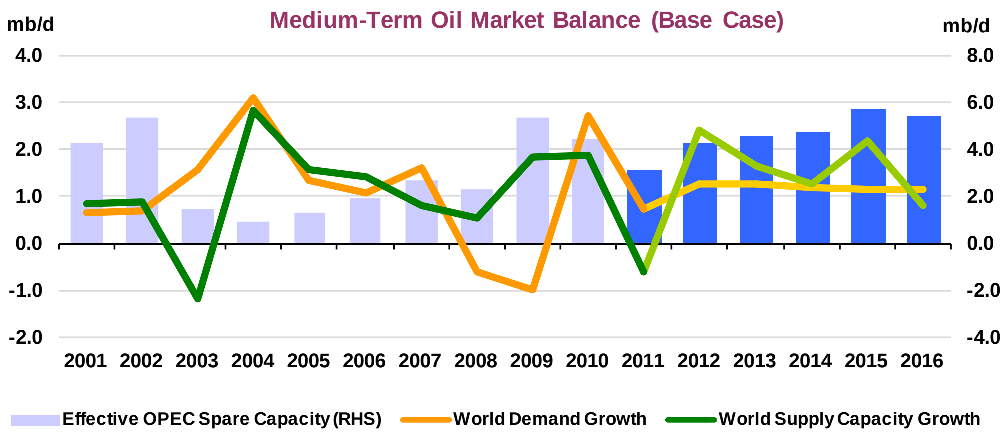
European refinery rationalisation gains pace

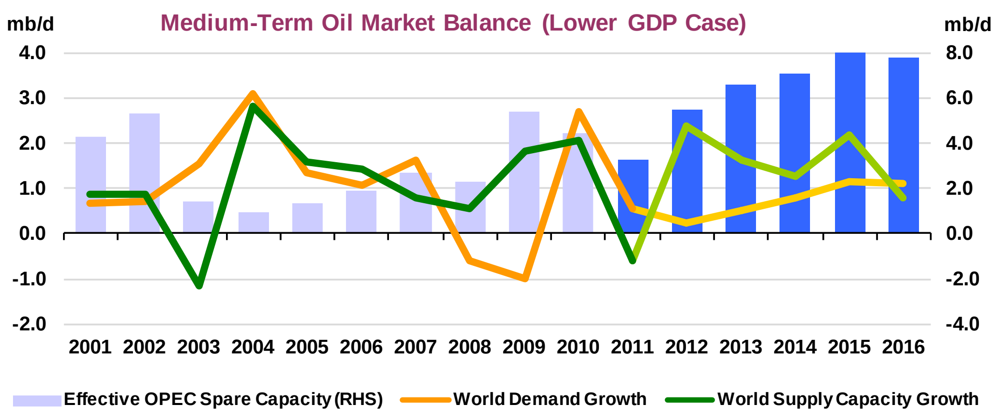
Closures amount to 1.35 mb/d since 2008



The medium term in summary

- Weaker demand baseline & stronger supply lead to easier market balances than in June 2011
- Spare capacity to increase from 2013 onwards in the base case
- Uncertainties persists – eurozone, global economy, China, subsidies, supply risks, boom & bust refining
- Supply growth struggles to exceed +1 mb/d annually, so outlook hinges critically on economic growth
- Demand migration to non-OECD, & shift to more difficult oil needs better data for better forecasts





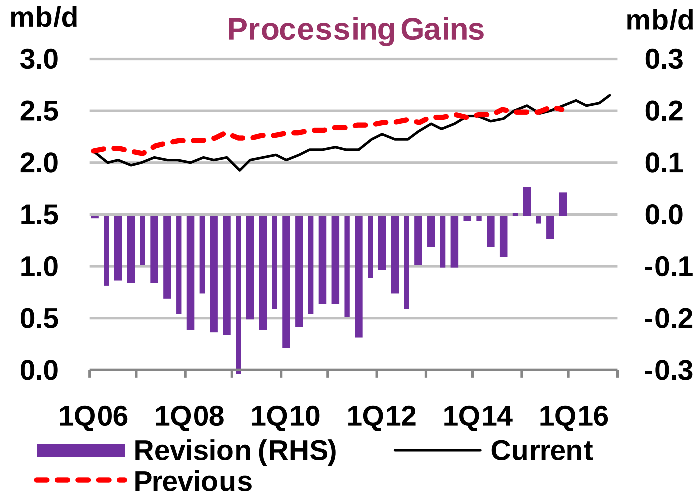
Oil Market Report

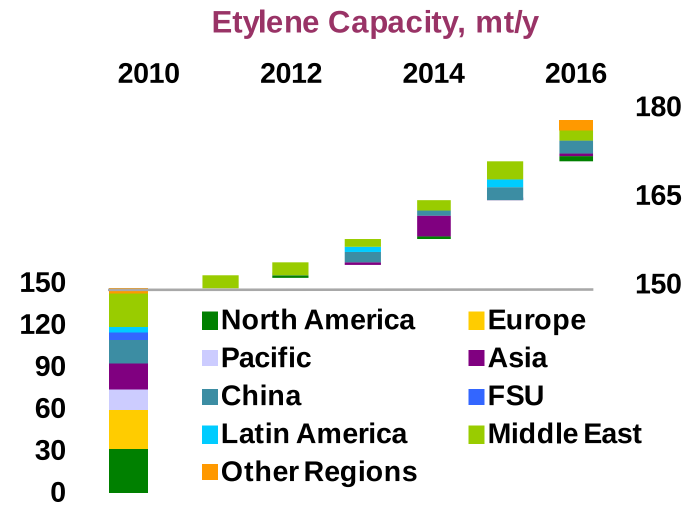
iea

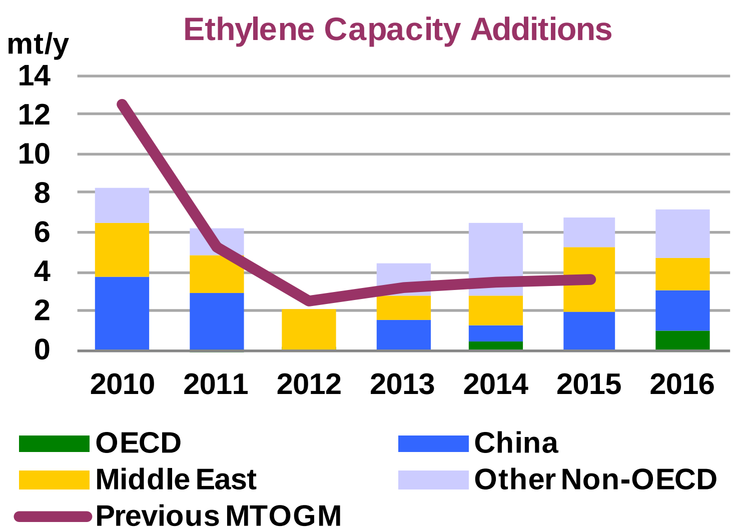
Oil Market Report

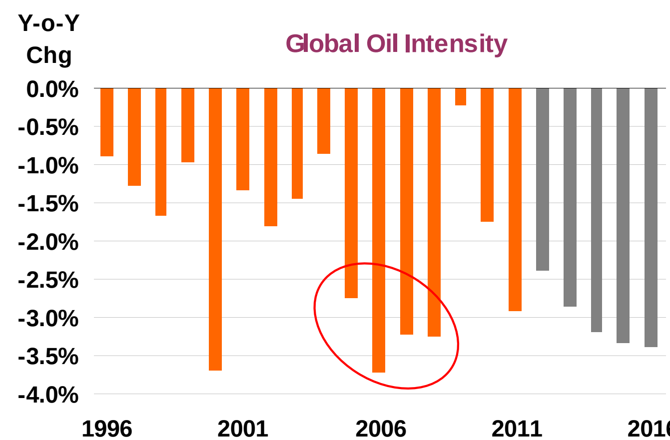
Thank you for your attention


Oil Market Report


Processing Gains
mb/d
mb/d
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
1Q06
1Q08
1Q10
1Q12
1Q14
1Q16
Revision (RHS)
Current
Previous


Etylene Capacity, mt/y
2010
2012
2014
2016
180
165
150
150
120
90
60
30
0
North America
Europe
Pacific
Asia
China
FSU
Latin America
Middle East
Other Regions


Ethylene Capacity Additions
mt/y
14
12
10
8
6
4
2
0
2010
2011
2012
2013
2014
2015
2016
OECD
China
Middle East
Other Non-OECD
Previous MTOGM


Y-o-Y
Chg
Global Oil Intensity
0.0%
-0.5%
-1.0%
-1.5%
-2.0%
-2.5%
-3.0%
-3.5%
-4.0%
1996
2001
2006
2011
2016