



Global Gas and LNG in Flux

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BIEE Gas Outlook Seminar, 10th October 2011

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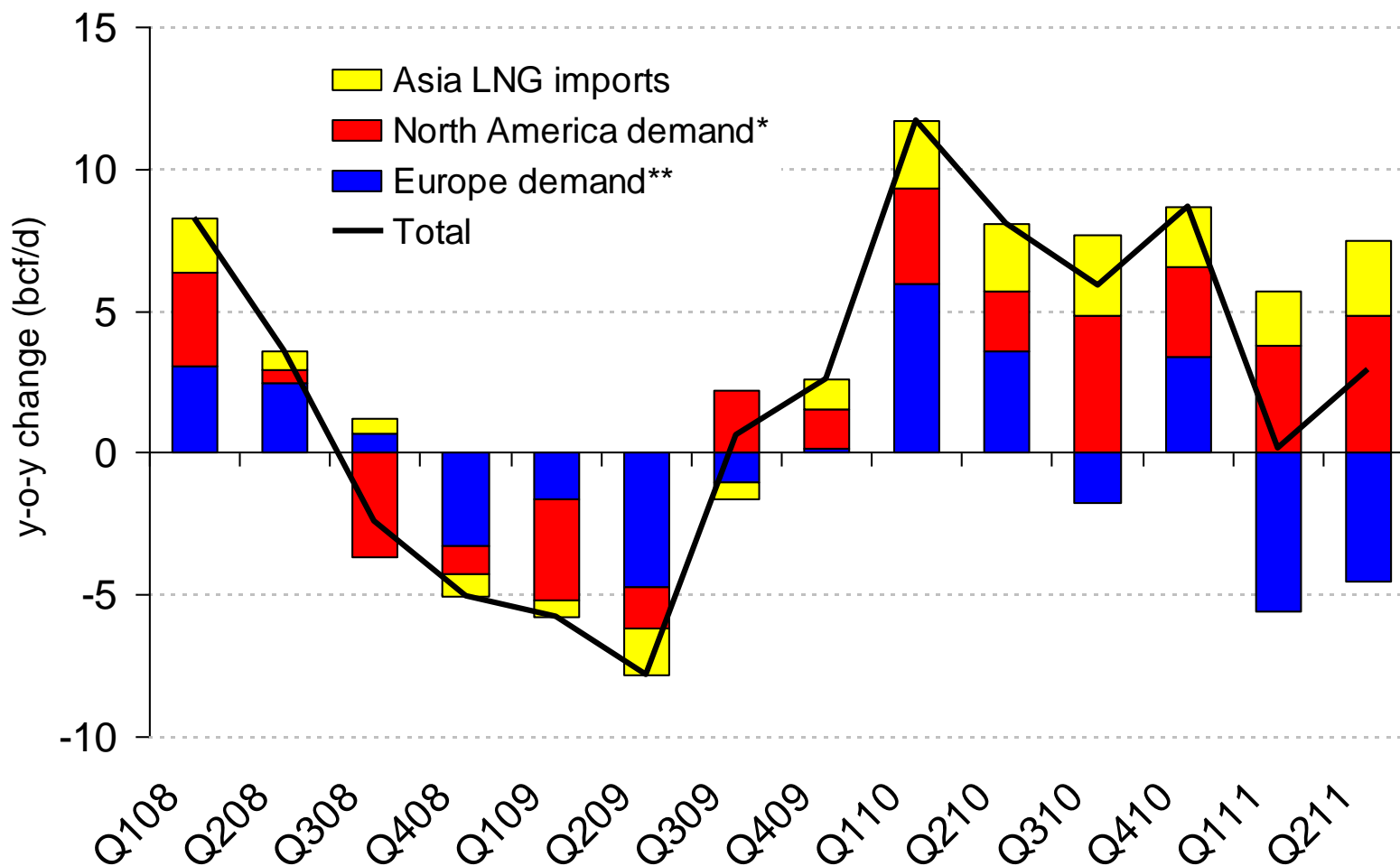
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Presentation outline



- Recent developments in key markets
 - regional supply/demand
 - LNG supply/demand
 - price signals
- Market outlook
- Conclusions

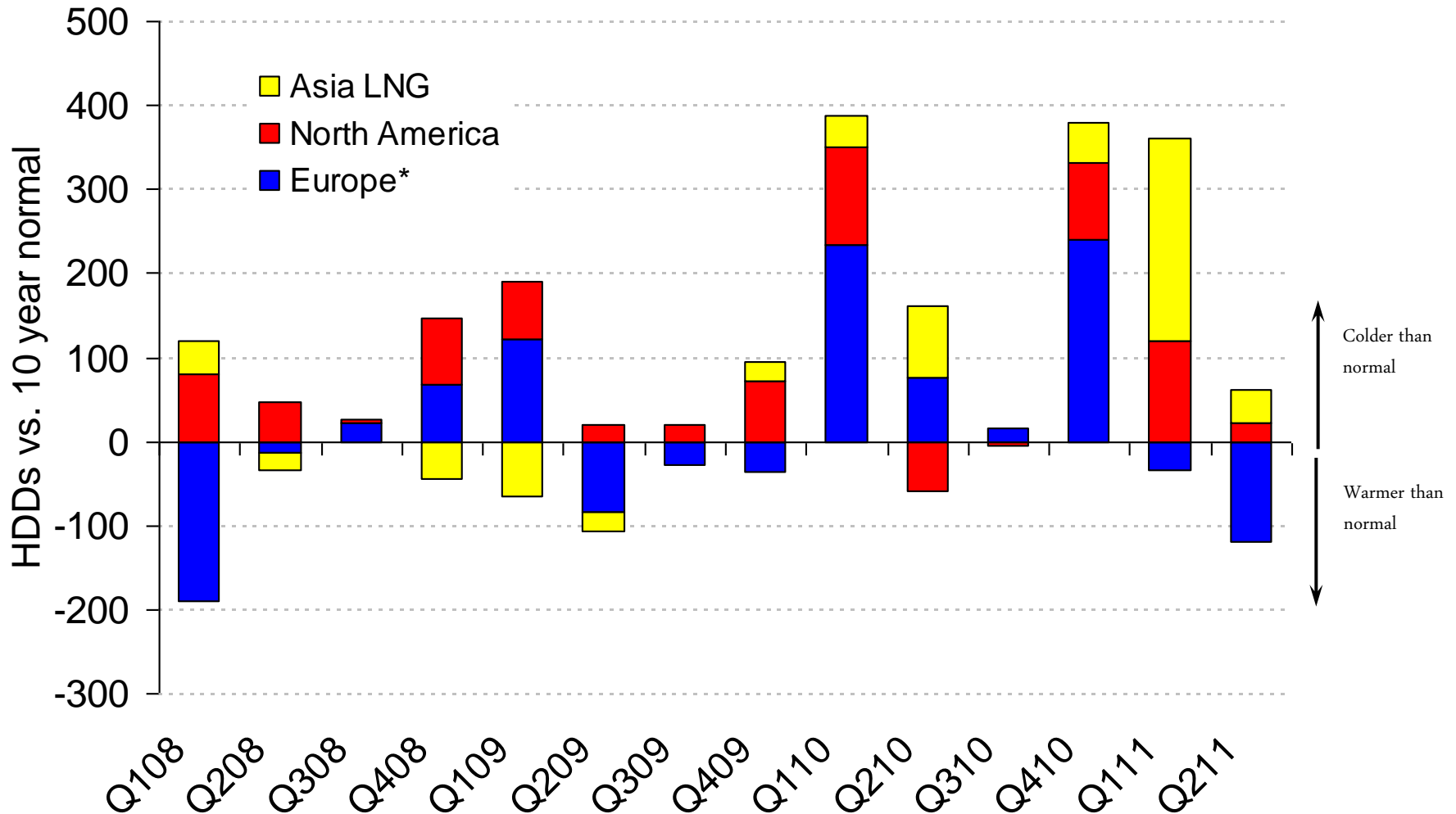
Major gas markets grew strongly through 2010. North America and Asia have stayed strong into 2011 but Europe has weakened



*USA (implied demand), Canada & Mexico

** Big 6 consumers (UK, Germany, Italy, France, Netherlands & Spain)

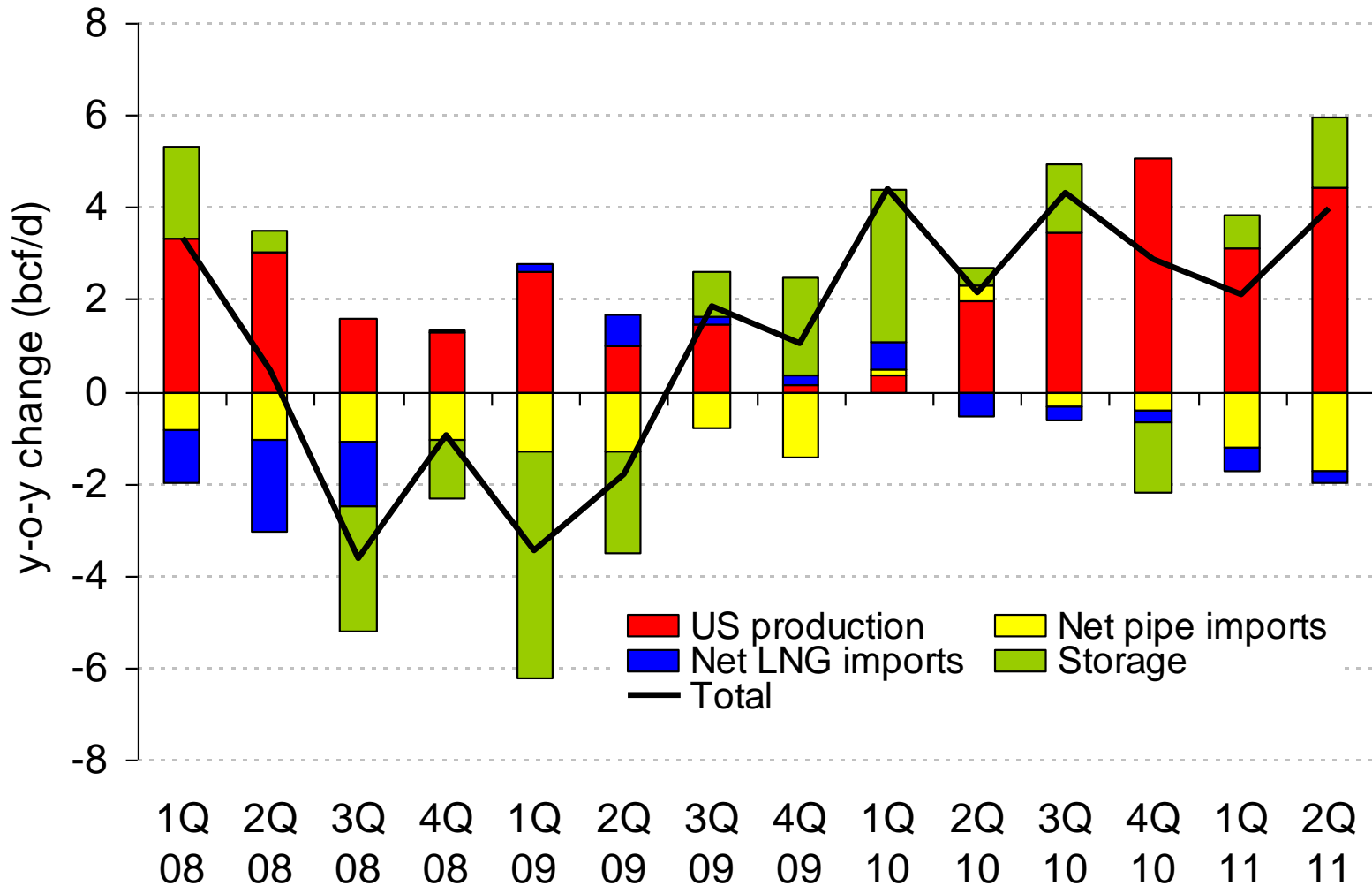
Weather was a key driver of strong 2010 demand, especially in Europe



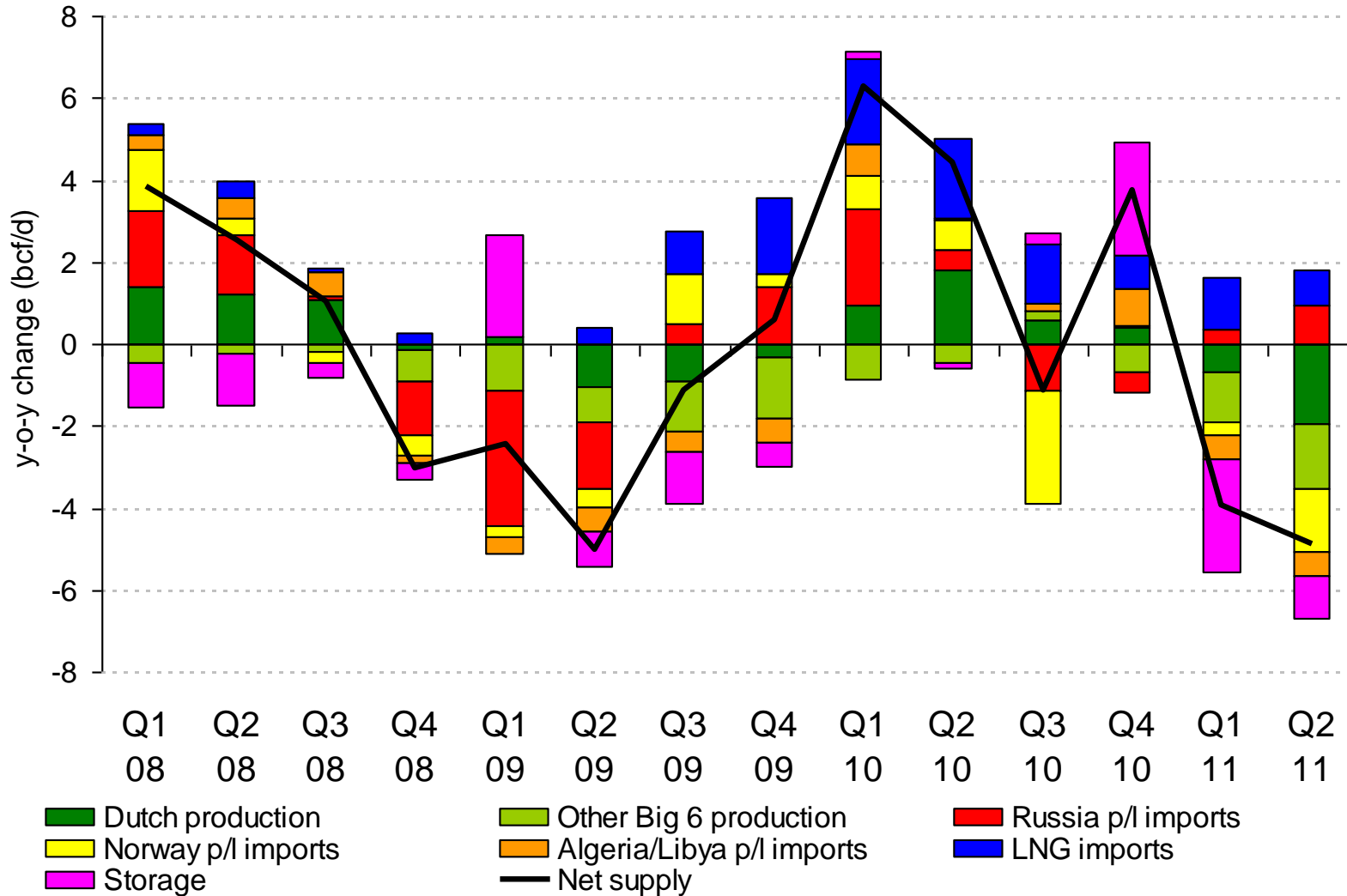
* Big 6 consumers (UK, Germany, Italy, France, Netherlands & Spain)

Source: PIRA Energy Group

Strong US production growth from 2Q 2010 absorbed in the domestic market and via lower net gas imports



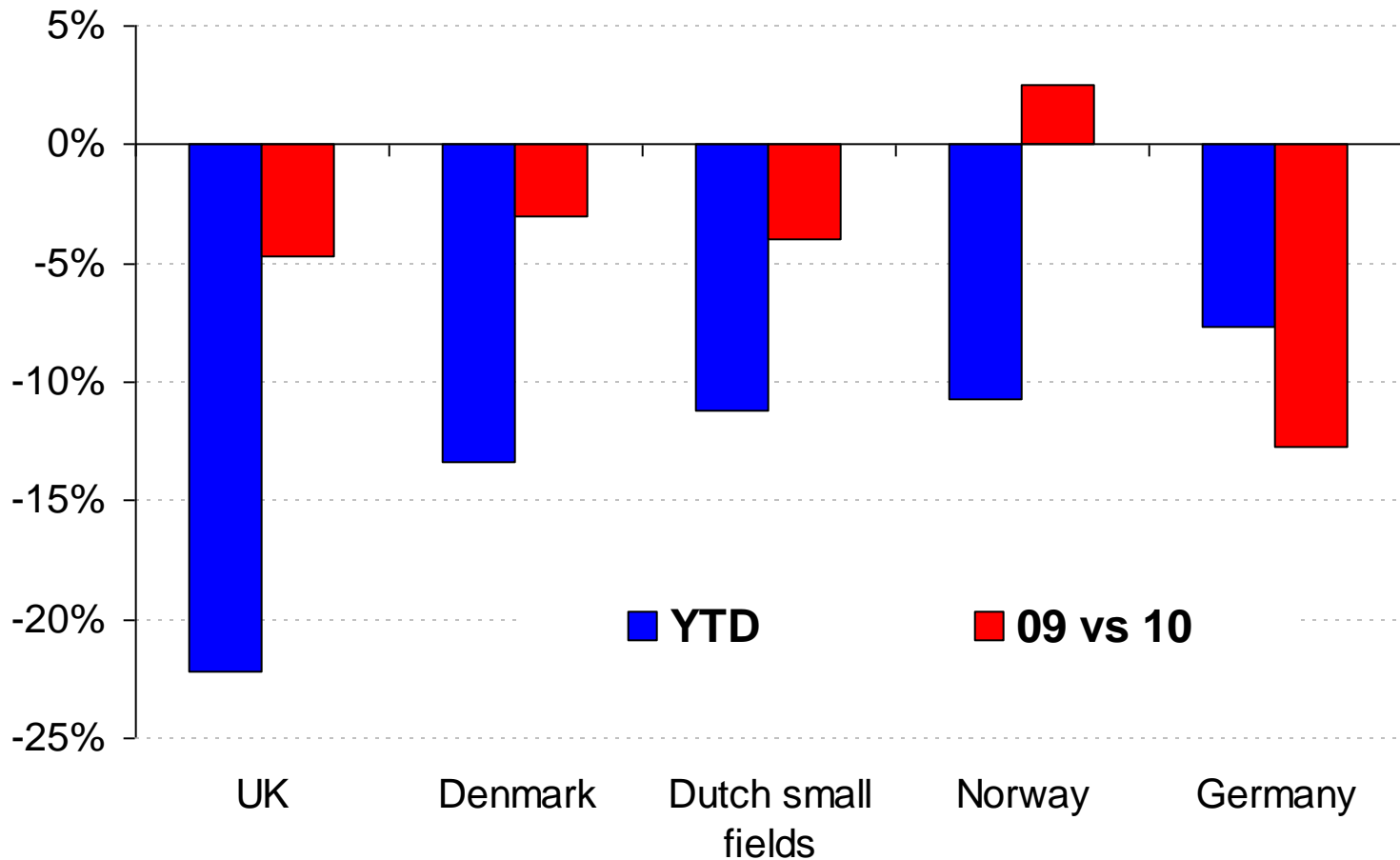
Supply flexibility in evidence throughout the cycle in the European* gas market



* Big 6 includes: UK, France, Germany, Netherlands, Spain, Italy

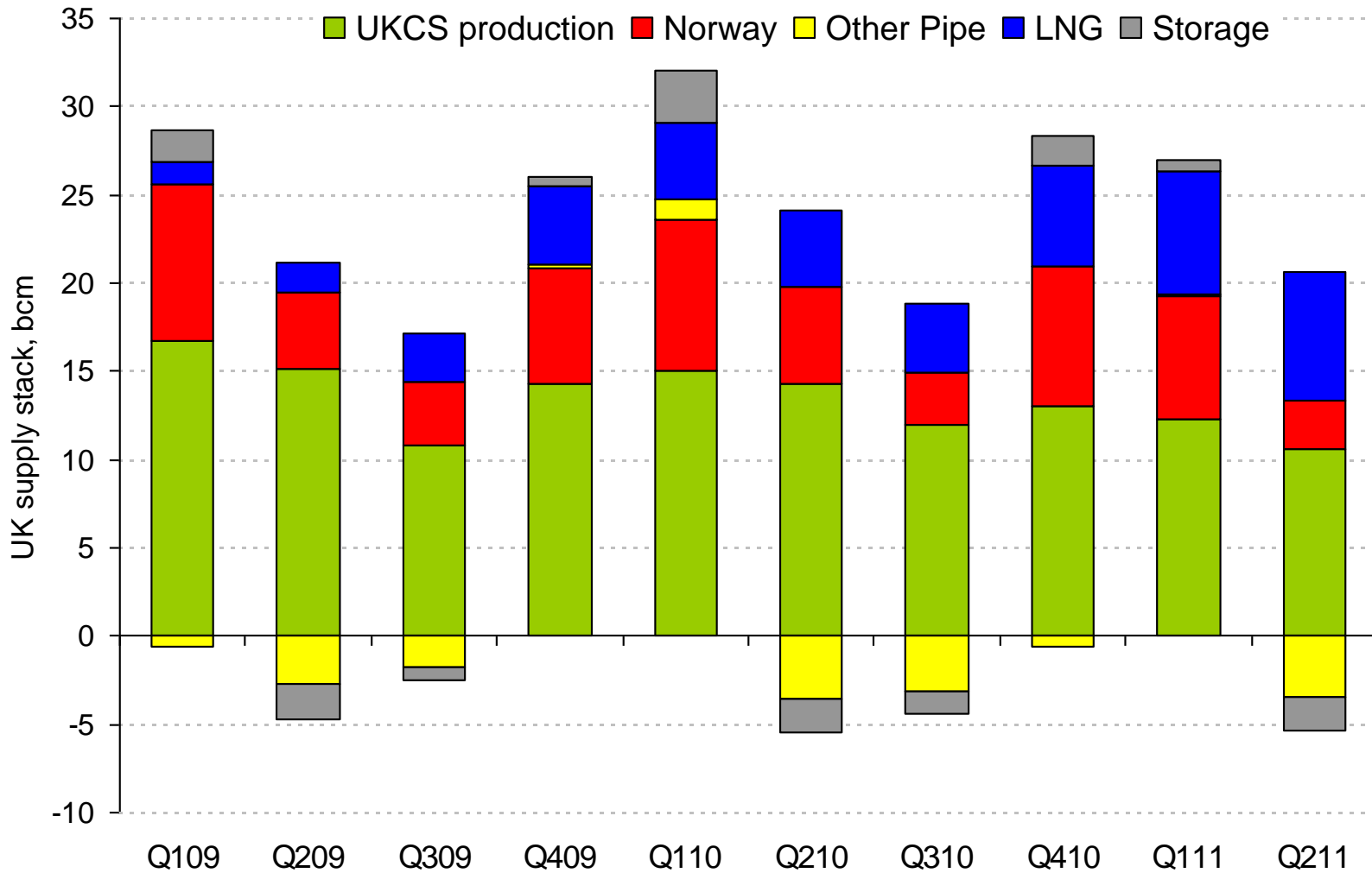
Sources: DECC, BAFA, Enagas, Snam, GTS, French Ministry of Ecology & Sustainable Development

European gas production falling rapidly so far in 2011



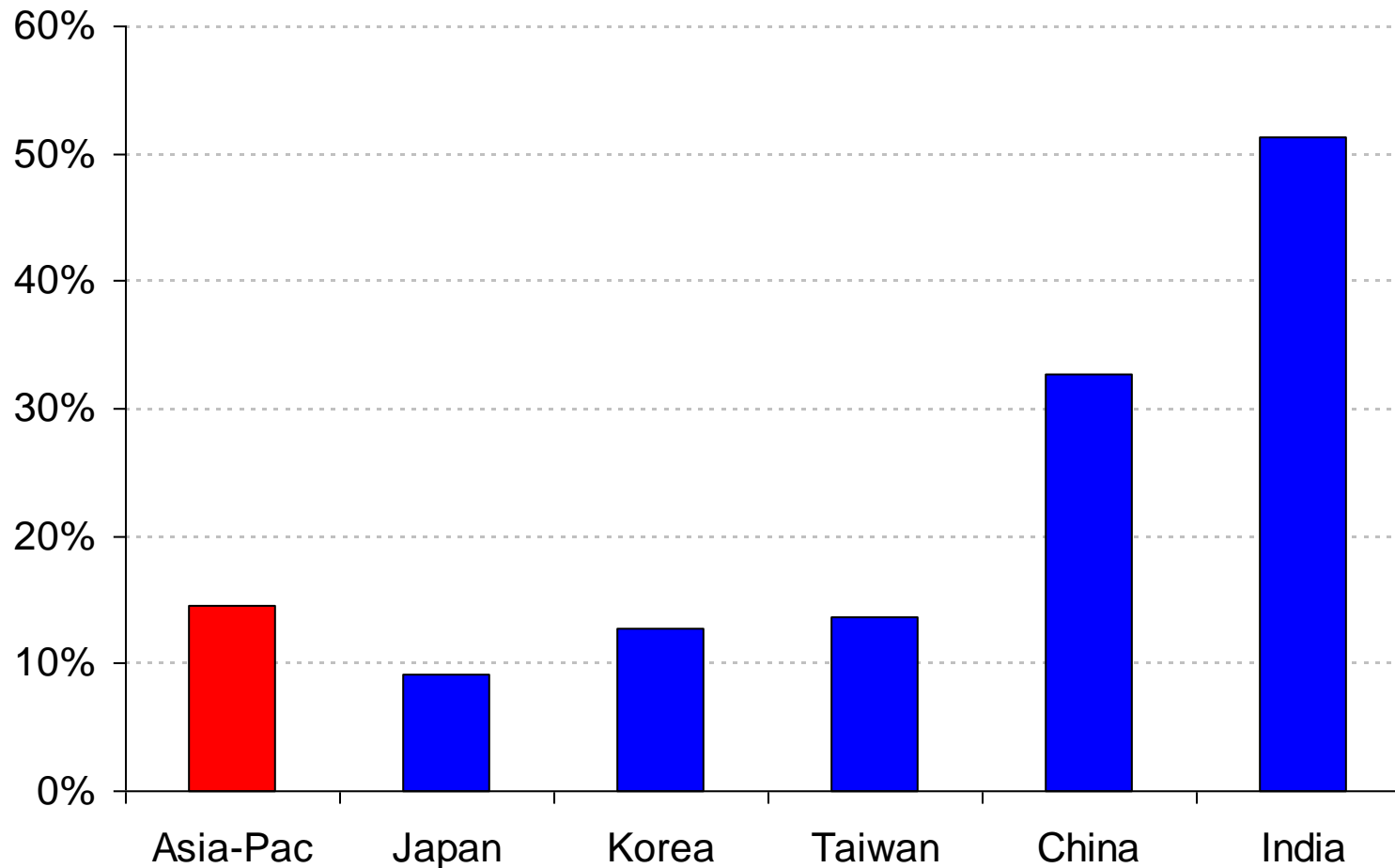
- UK based on DECC production data and National Grid flow data through August 2011
- Denmark/Norway/Netherlands/Germany based on official data through July
- Probably elements of responding to demand weakness and different phasing of maintenance in these numbers

LNG became the second largest source of supply to the UK market in 1H 2011



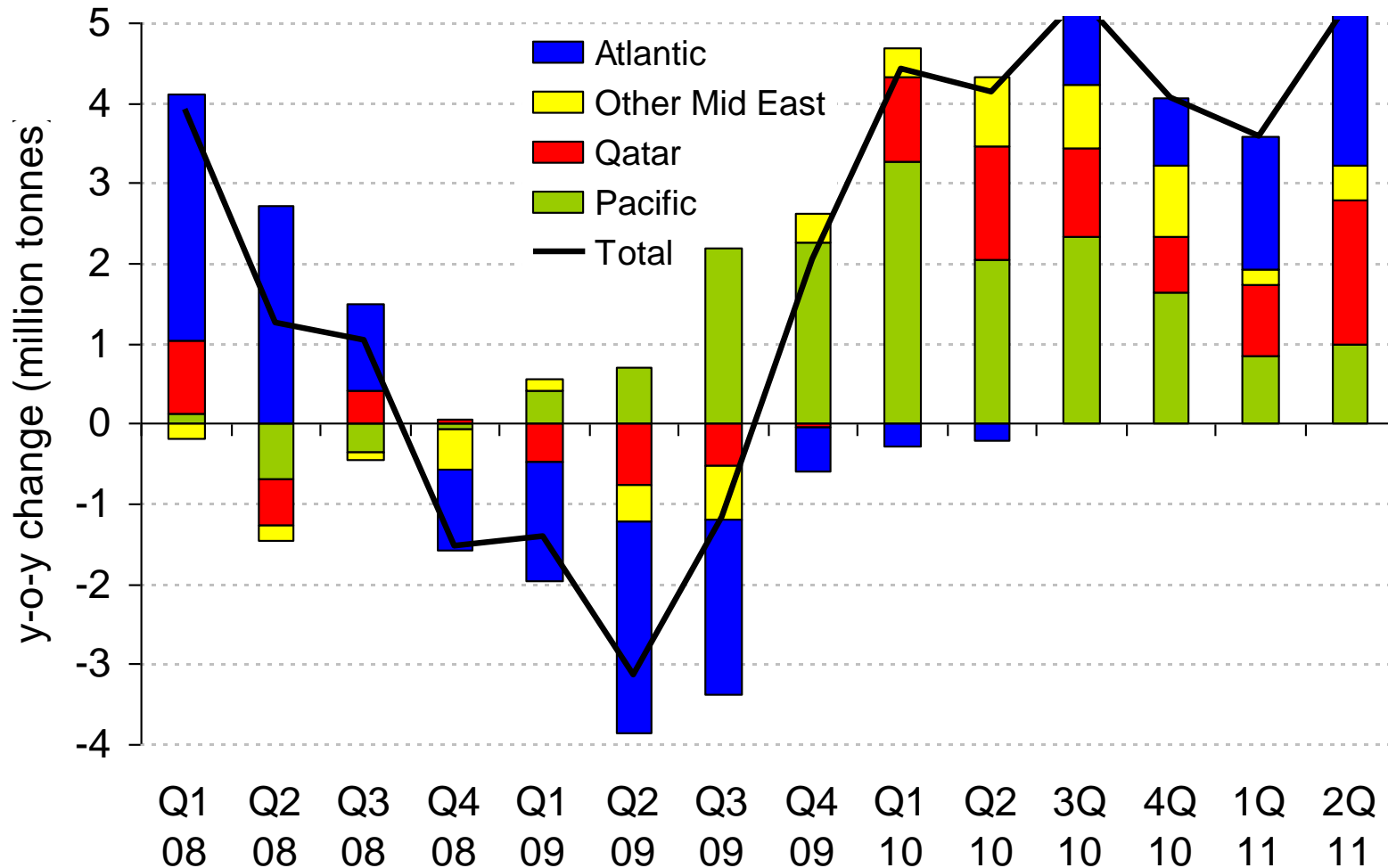
* Other imports includes exchange with Belgium, the Netherlands and Ireland

Asian LNG imports show very strong y-o-y growth during January-July 2011



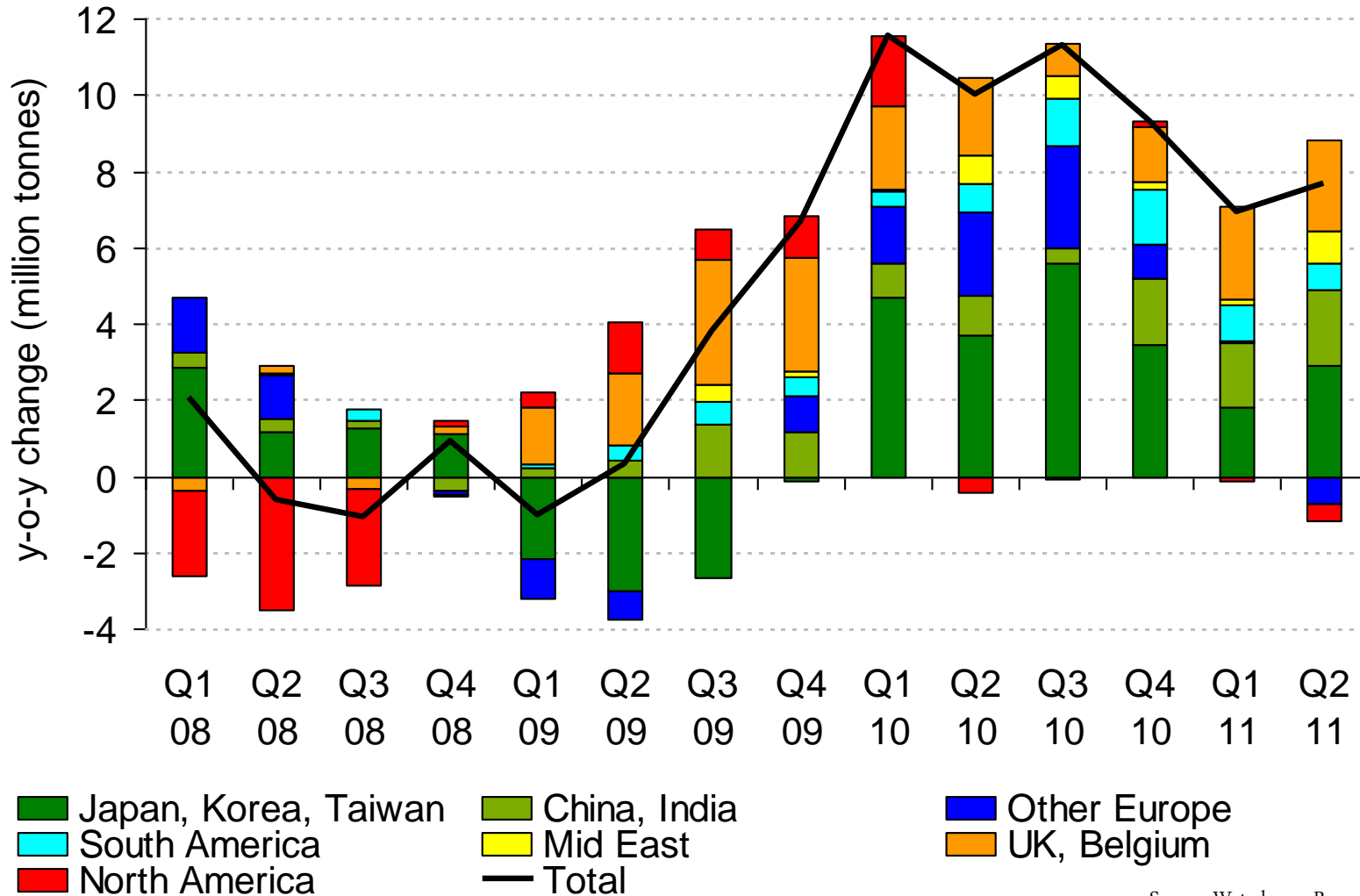
- Asia-Pacific LNG imports ~15% higher (19 mtpa annualised) y-o-y during Jan-Jul 2011
- Japan/Korea/Taiwan LNG imports up by over 10% year-to-date
- Chinese growth accelerated during last 3 months with new terminals commissioned
- Indian demand strength reflects shortfalls in domestic (KG Basin) gas production

Re-direction of flexible Atlantic Basin/Middle East LNG supplies has been the main mechanism for managing the cycle in Asian LNG importers



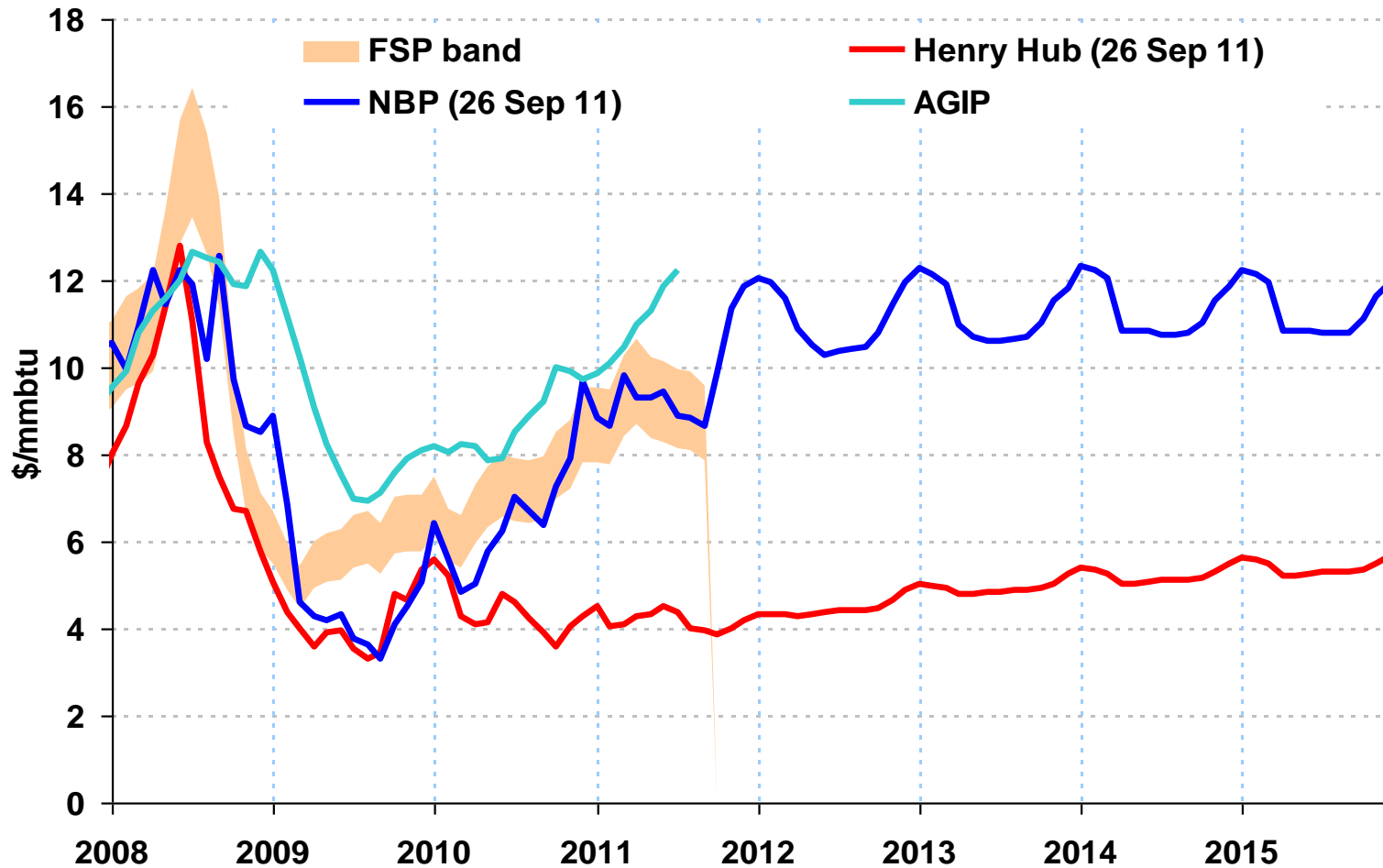
* Asian LNG importers: Japan, Korea, Taiwan, China, India, Thailand

Global LNG supply/demand balance: return to growth for contract/new markets has absorbed most of 2010-11 supply surge but incremental LNG still pushing into N.W. Europe at the margin



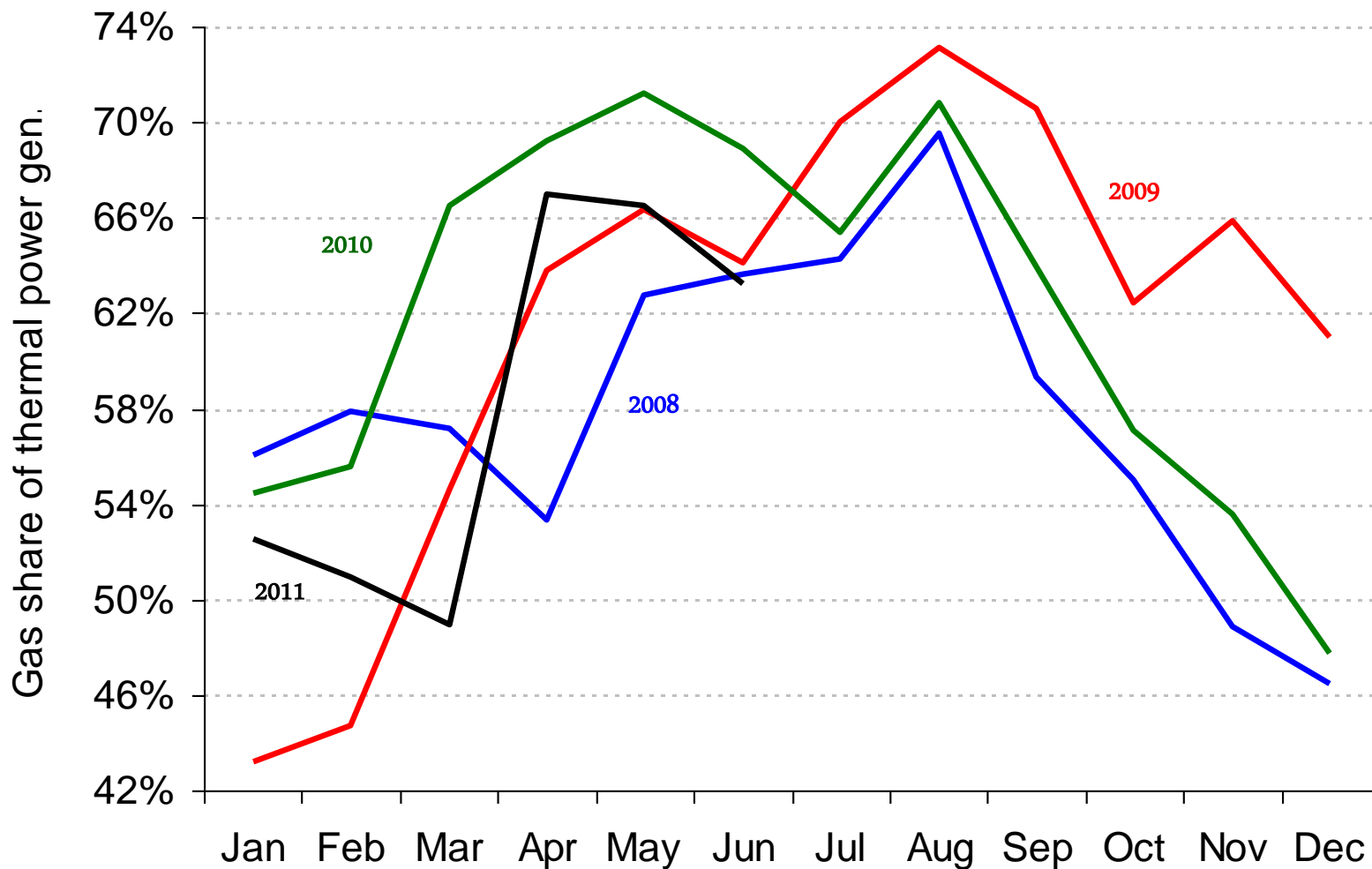
Source: Waterborne Report

NBP shows clear divergence vs. Henry Hub but still trading in coal switching range and below AGIP



Source: ICE, NYMEX, BAFA,

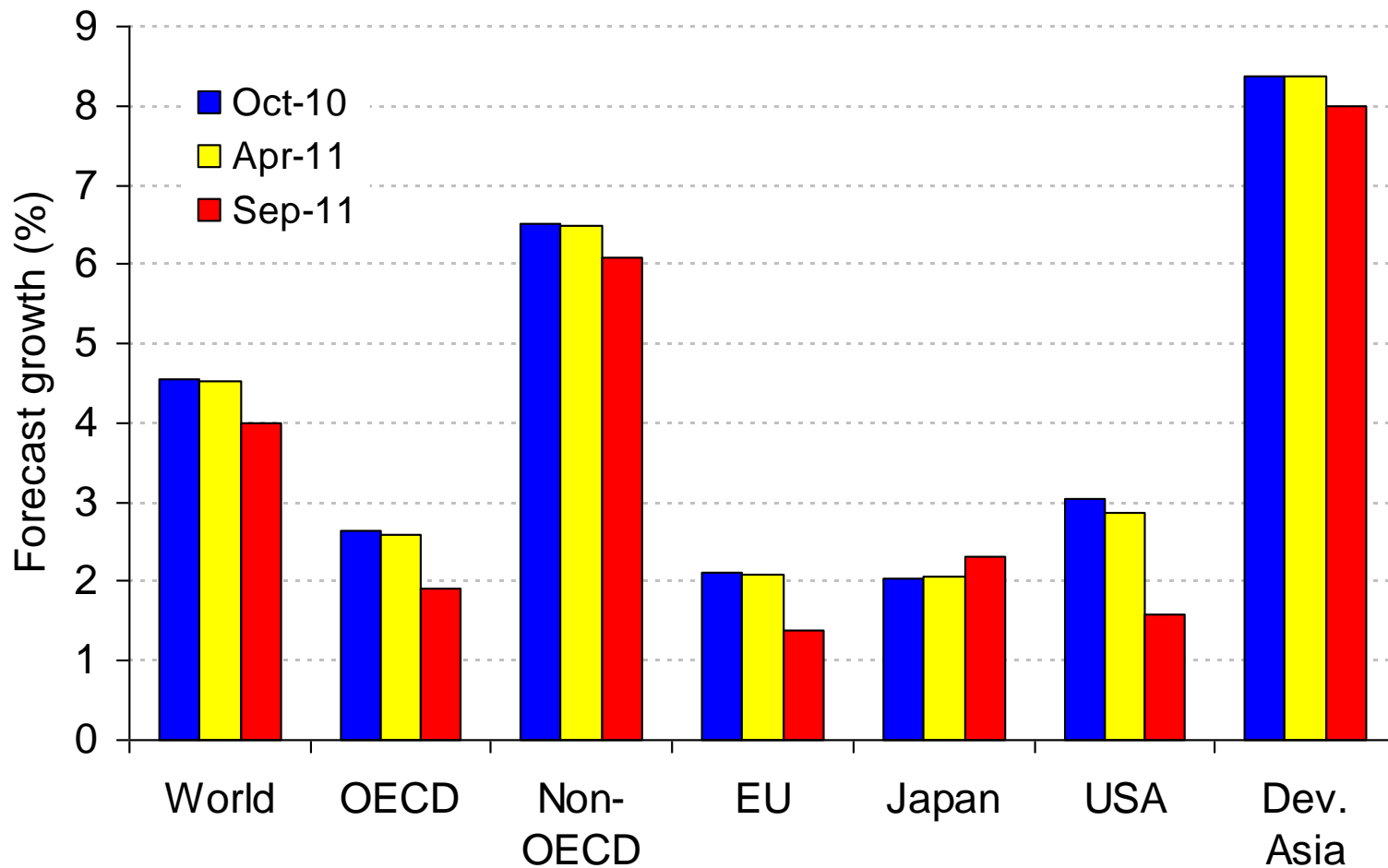
Higher UK price feeding back into demand: gas share of thermal power lower in 1H 2011



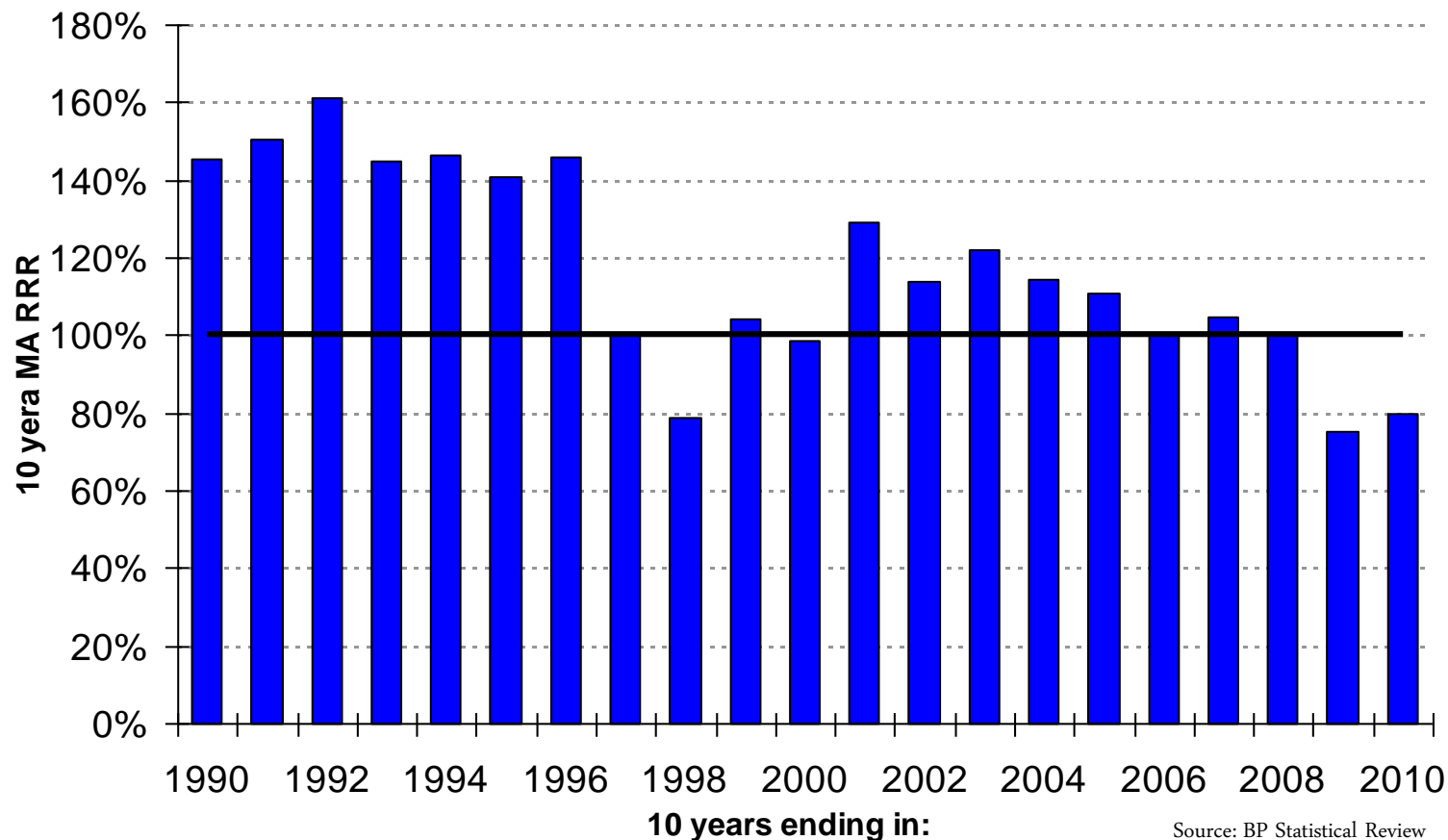
Outlook



IMF economic forecasts for Europe and USA downgraded in September but strong growth still forecast for Non-OECD

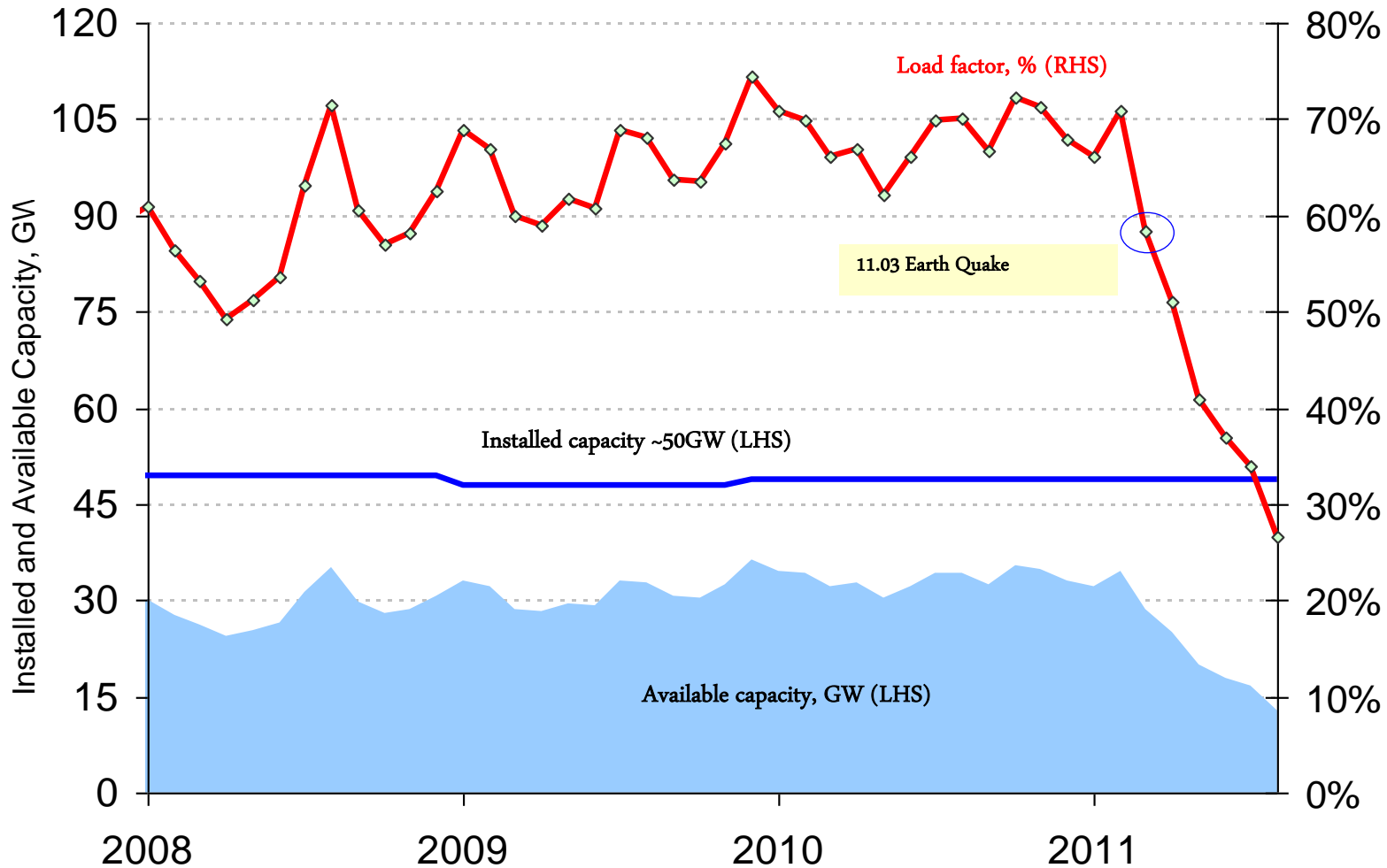


10 year moving average gas reserve replacement vs. production & consumption: Europe

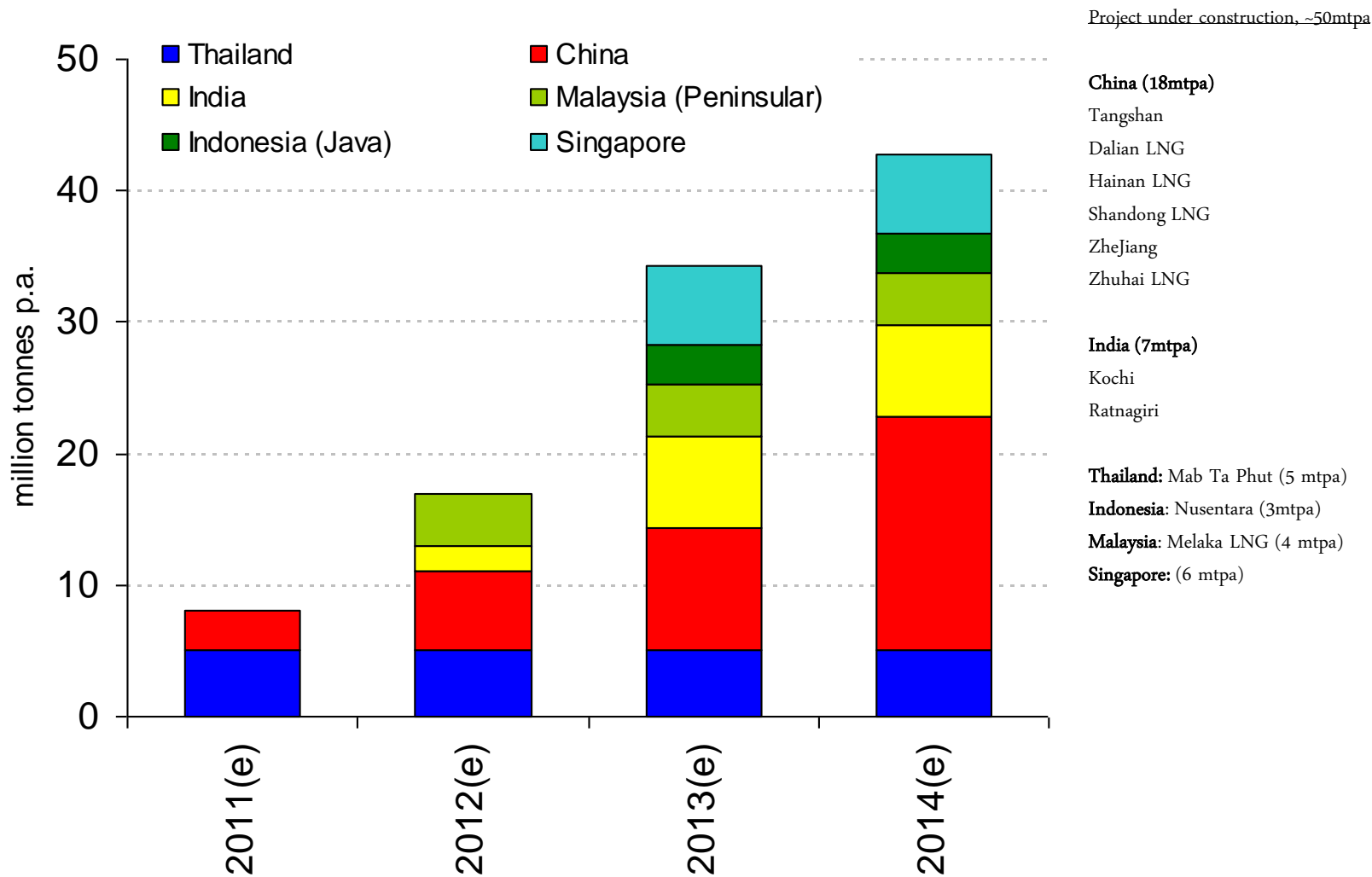


- Reserves replacement rate of 100% implies flat production at a fixed reserves to production ratio
- Possible to increase production at reserves replacement rate below 100% by squeezing R/P ratio but not sustainable long term and leading to steeper decline once past peak (UK experience)

Japanese nuclear plant operating rates plunged after the March quake. Future is uncertain



Strong growth in re-gas capacity in Asian growth markets expected over the next 3 years

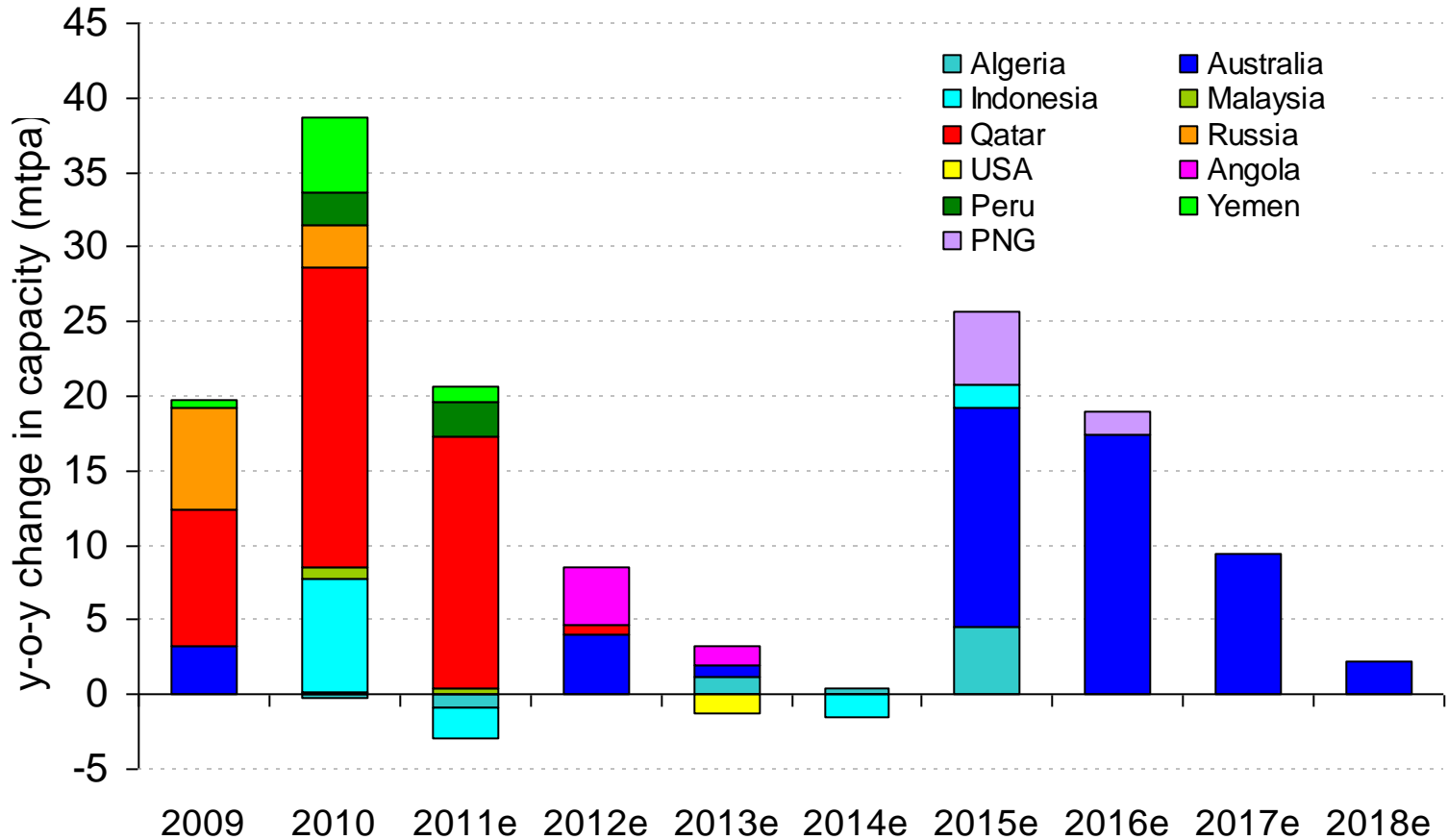


Source: project public announcements

Expected LNG capacity additions (adjusted for month of start-up) fall sharply during 2012-14, prior to next wave of supply

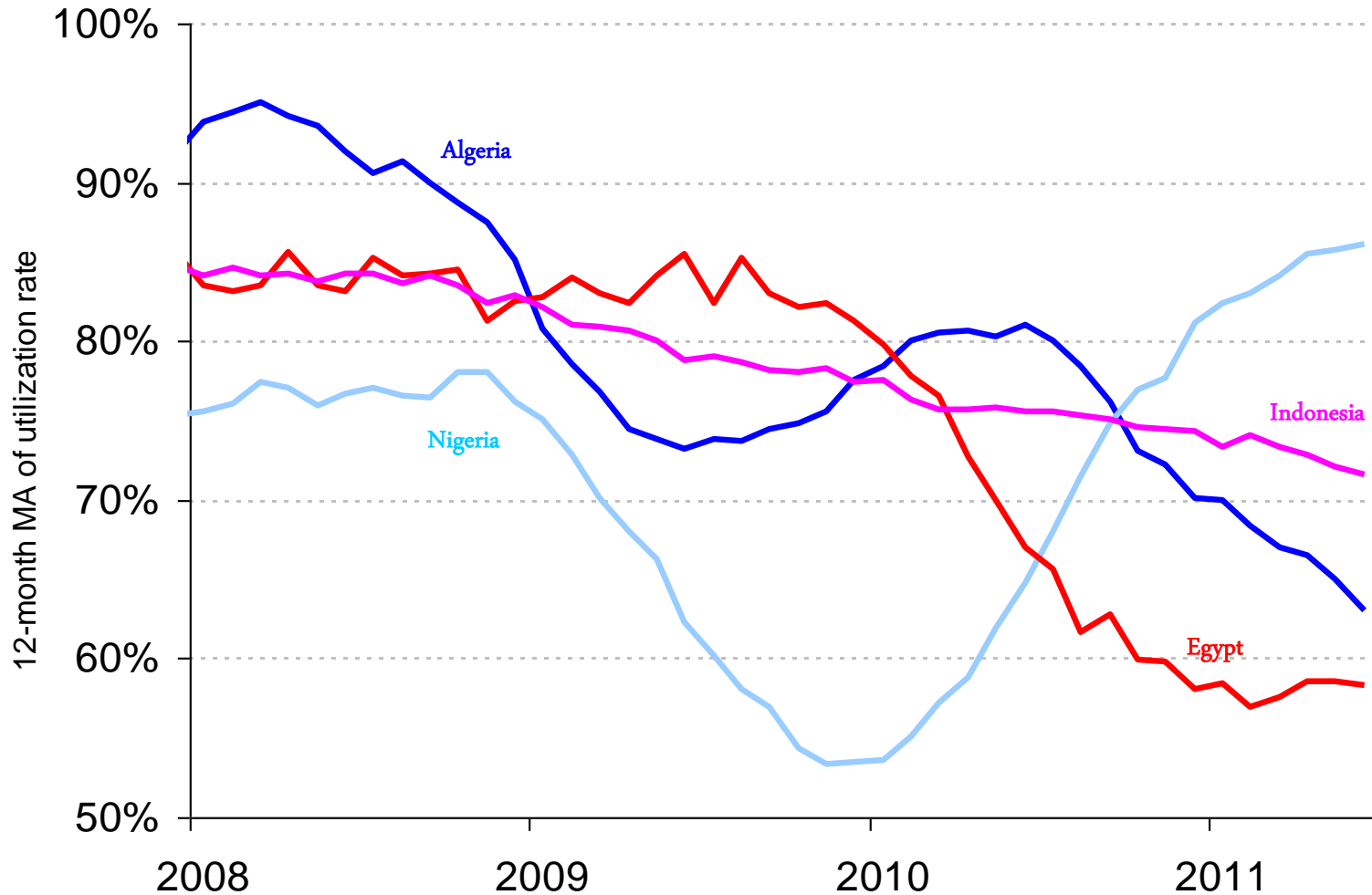


Commissioned and under construction projects only



- 2010 saw highest ever LNG capacity additions. Momentum carries over into 2011
- Net capacity additions 2012-14 average only 5 mtpa vs. >25 mtpa 2009-11
- Element of delay built into new wave of Australia/PNG projects given complexity and recent experience

LNG project operating rates impacted by gas supply/operational issues and hence unpredictable



Conclusions



- Strong 2010 demand growth in North America and Asia continued into 2011, in contrast to European demand weakness
- Major change in UK supply structure with growing role for LNG
- NBP price currently in coal switching range and below AGIP. Clear divergence vs. Henry Hub
- European/US economic forecasts downgraded but, as yet, growth forecasts for Non-OECD economies have not changed significantly
- Strong momentum in US gas production suggests continued disconnection from global market, as signalled by relatively low NYMEX futures
- Opposite trend in Europe signals growing import dependence. Pipeline/LNG split will depend on availability of flexible LNG and relative prices
- Aftermath of Japanese quake and emergence of new markets suggest strong LNG growth momentum in Asia
- Pronounced cycle in LNG supply with limited additions in 2012-14 followed by new wave of supply, mostly from Australia
- Global LNG market is cyclical and prone to shocks, highlighting value of growing flexibility