



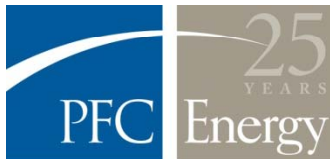
Strategic Advisors in Global Energy

Asia's Downstream Sector – Markets & Trends

Prepared for: Offshore Technology Conference, Houston 2009

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May 6, 2009

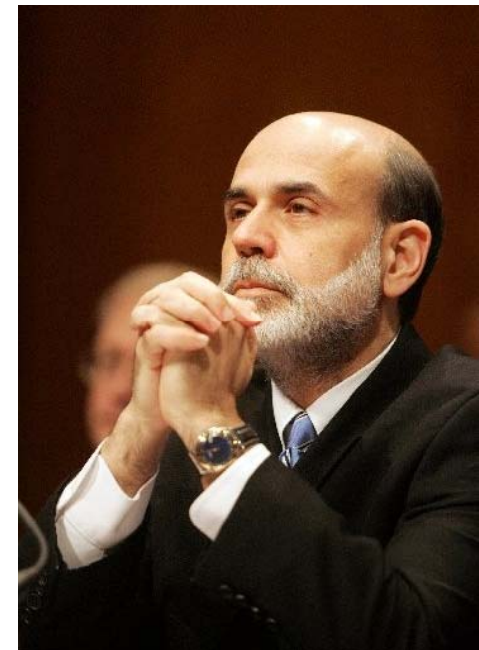


The Most Dangerous Crisis Since the 1930s

- **Most alarming aspect may be the collapse of policy certainties:**
 - Usual tools of economic management are (so far) not working
 - The very complexity of this crisis is itself a major risk factor

“We’re not making it up. We’re working along a program that has been applied in various contexts. We’re not completely in the dark.”

- **Fed Chairman Ben Bernanke, testimony to the House Financial Services Committee, Feb. 25**



World Economy: Falling Off The Edge

Manufacturing, exports have plunged since September

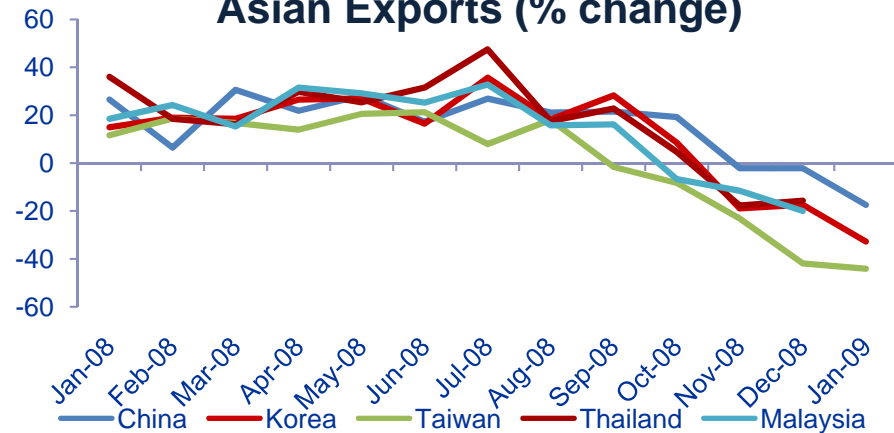


- This is an inflection point, unusually hard to forecast
- First half of 2009 certain to see sharp falls in growth rates throughout the world
- De-stocking partly to blame—some signs this may be bottoming out
- Secondary impacts yet to come, especially from job losses

JPMorgan global manufacturing PMI



Asian Exports (% change)

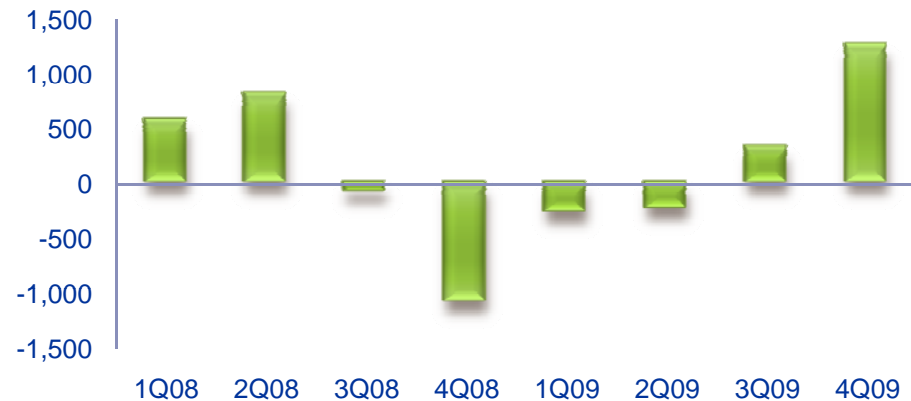


Stimulus in US, China and elsewhere will help—but no recovery is possible without restoring the financial sector to health

China: 2009 Weakness in Context

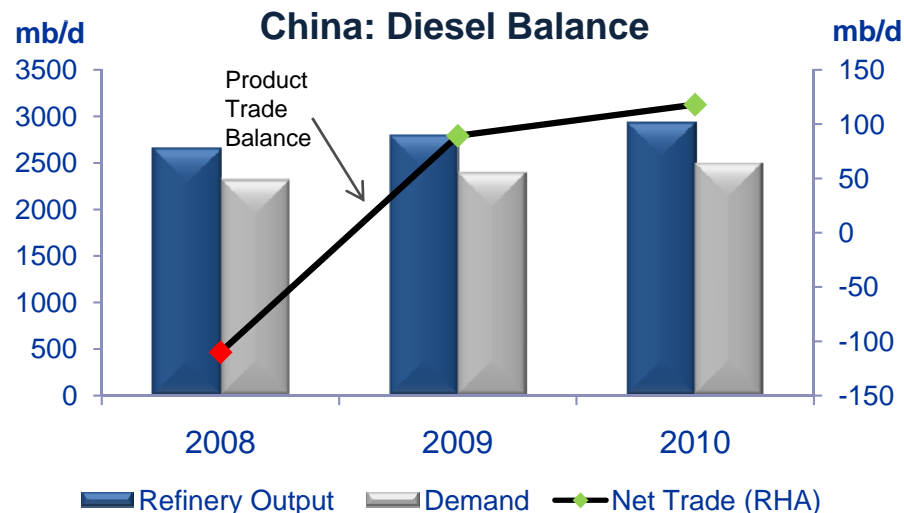
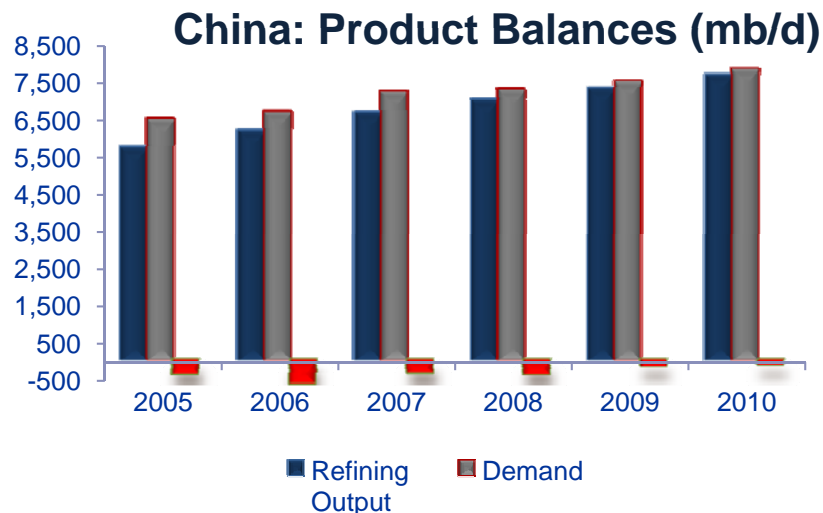
- **Reflecting the global patterns of demand, Chinese consumption of oil tells two stories of 2008**
- **Pre-Olympic construction led to a surge in 2H08 demand**
- **But the dramatic collapse in activity in 4Q08 offset most of these gains**

China: Year-on-Year Changes in Quarterly Demand (mb/d)

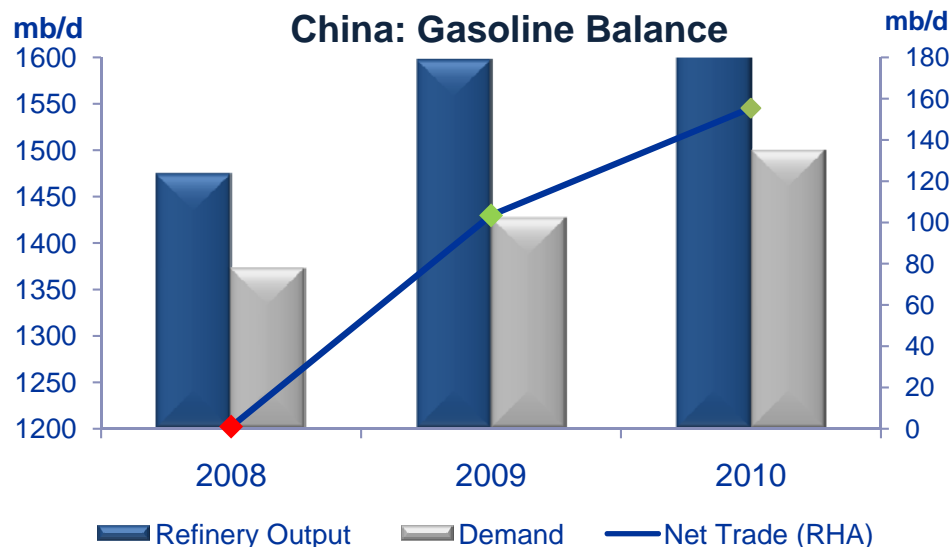


- Construction began tailing off after the Games, impacting diesel and LPG demand
- But the hard hits to investment and exports in 4Q08, impacting diesel for investment and transportation, as well as gasoline, jet fuel and bunkers
- **Beijing's stimulus program should spur construction activity, lifting oil demand, but the impact will increase throughout the year**
- **1H09 year-on-year comparisons will continue to suffer in the context of the strong pre-Olympic performance**

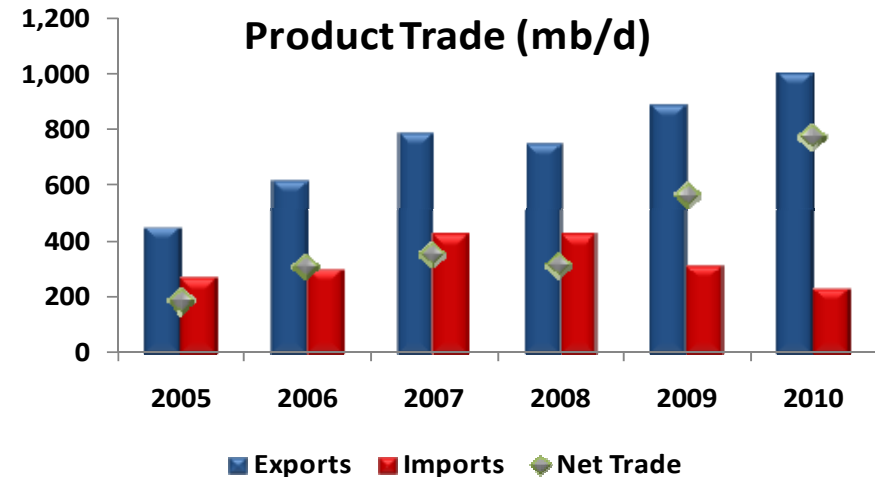
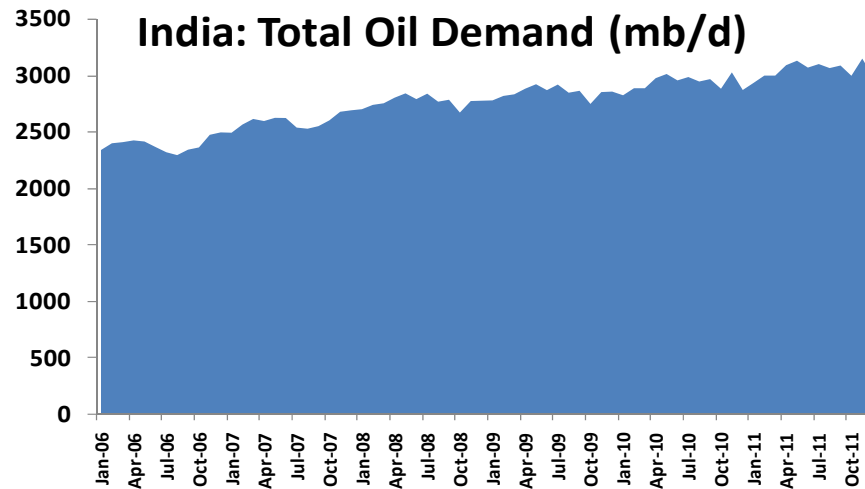
China: Shifting Product Balances



- An additional 0.800—1mmb/d of refining capacity coming online at a time of weaker demand (and additional supplies from India) will pressure Asian product markets
- Diesel should see a reversal from negative to positive net trade; while gasoline will revert back to a positive trade balance
- Product Balance (2009):
 - Fuel oil: short
 - Diesel: net long
 - Gasoline: net long
 - LPG: net short
 - Naphtha: net long



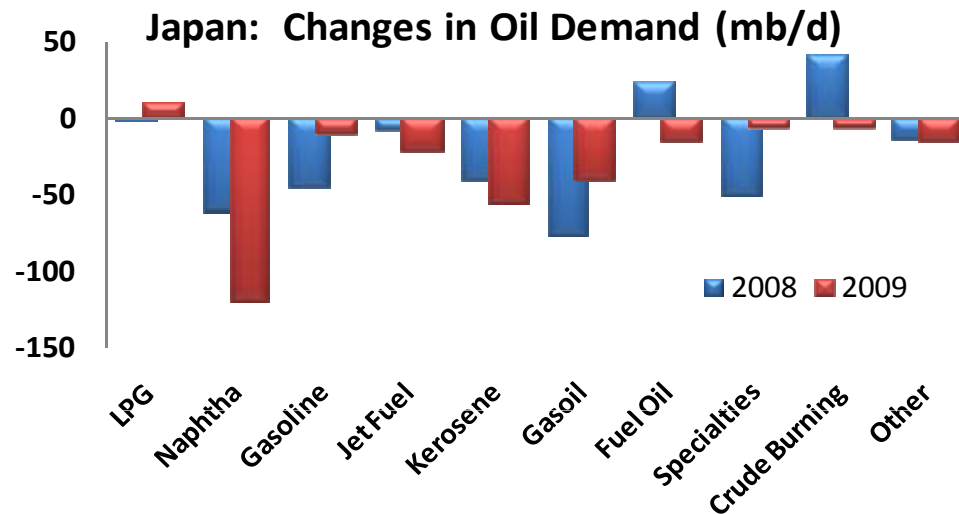
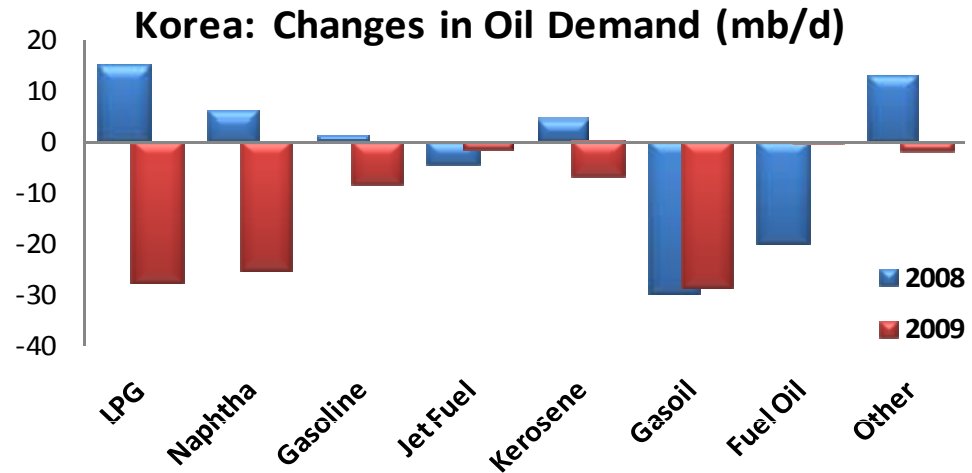
India: New Role as Major Exporter



- **Some 70% of India's GDP growth is attributable to the services sector, hence the country's limited influence in global oil markets**
 - Oil demand growth has averaged 90 mb/d annually over the past five years
- **For oil markets, key factor is new refining capacity and increased product exports**
 - Reliance's recently opened export dedicated second Jamnagar refinery adds 580 mb/d of complex capacity to Asian product supplies
 - Requested change in status of Reliance's first Jamnagar refiner from export status to supplying domestic market will cut imports
 - India's net exports will increase substantially while Asia demand growth is muted

Other Asia: Bearing the Brunt of China's Slowdown

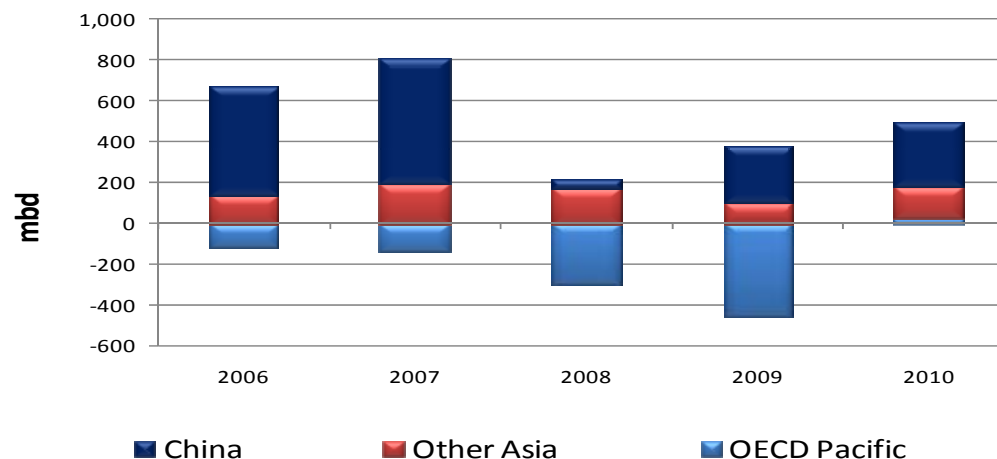
- As some of China's largest suppliers of intermediate goods, South Korea, Japan as well as Taiwan have already begun to feel the effects with trade moving deeper into negative territory
- A drop in naphtha is directly reflective of a steep drop in industrial output including petrochemicals
 - Naphtha crackers should continue running below optimum capacity until recovery in industrial output
 - At least a three-month rebound in imports needed to suggest a revival in industrial output



Asia Oil Downstream Conclusions

- Regional products demand growth fading
- New and complex refining capacity coming on stream
- Shrinking margins, run cuts, delayed start-ups characterize near term
- But overall Asia runs likely up from expanded capacity
- Fight for export barrels
- Despite poor economics few if any refining closures expected

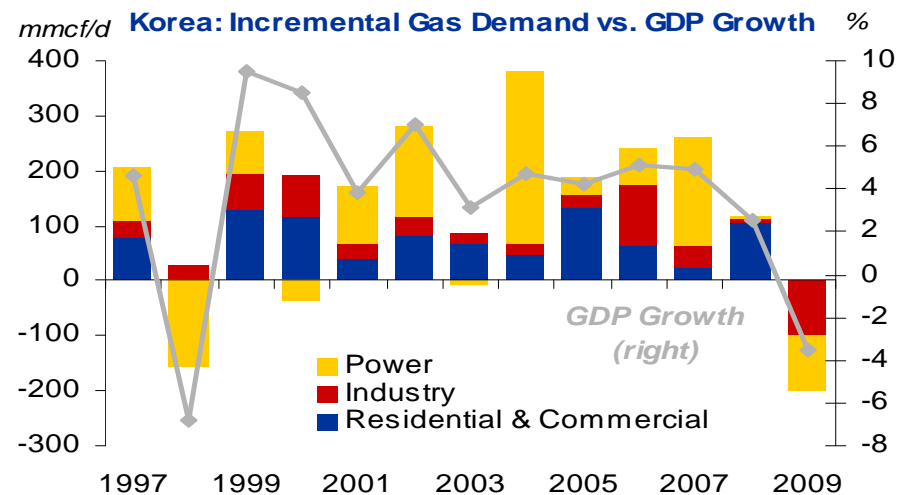
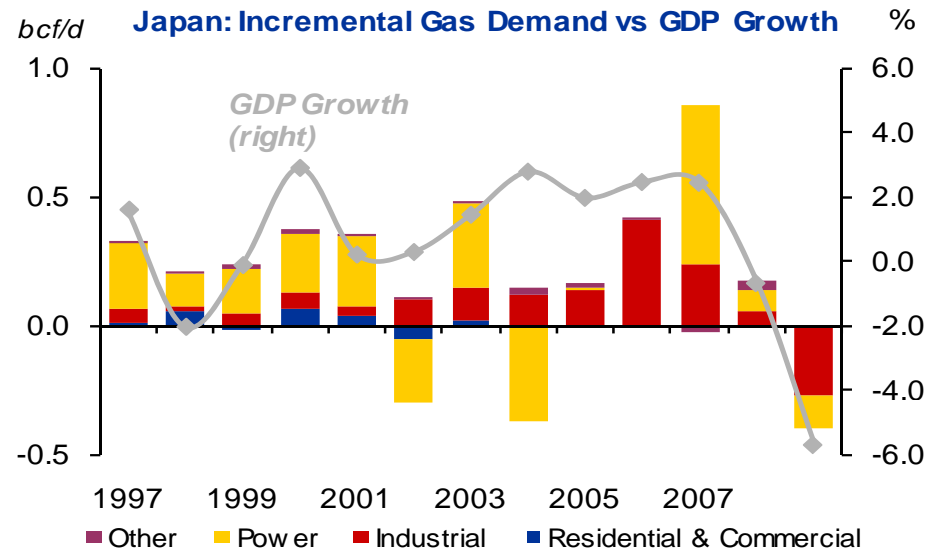
Annual Change in Asia Oil Demand



Major Asia Refinery Additions (2008-2009)			
Country	Company	Refinery	Size (mb/d)
China	CNPC	Dalian	200
	Sinopec	Qingdao	205
	CNOOC	Huizhuo	240
	Fujian	Sinopec	160
	CNPC	Dushanzi	200
	Sincochem	Quangzhou	240
	Sinopec	Tianjin	150
India	Essar	Vadinar	200
	Reliance	Jamnagar	580
Vietnam	Petrovietnam	Dung Quat	145
Total			2,320

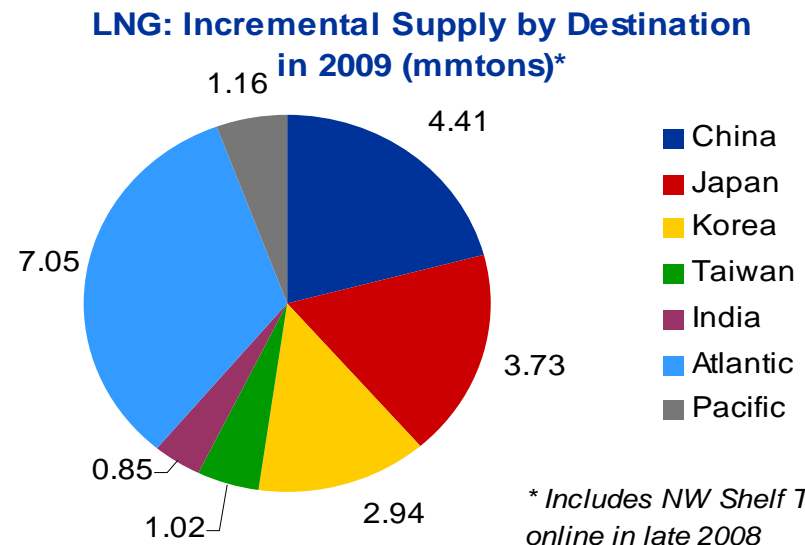
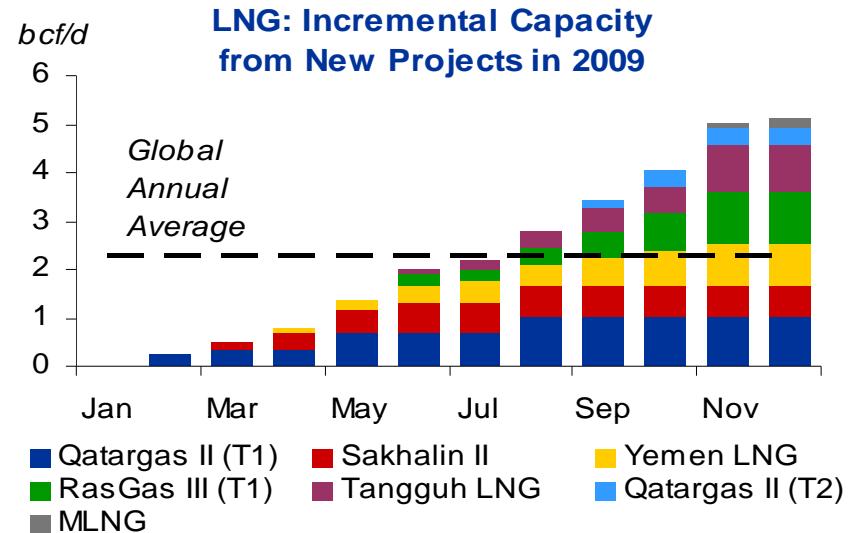
Asia Natural Gas Demand Pressured as Well

- Japan and South Korea account for 55% of world LNG demand and are facing a substantial decline in industrial output
- Gas demand is expected to drop in both countries by about 4.5 mmtons of LNG this year
- At the same time, new long term contracted LNG will add 5.9 mmtons to supply in 2009
- Drop in demand plus new supply mean a major cut in spot purchases that totaled 10.3 mmtons in 2008 – all sourced from the Atlantic basin
- Spot LNG prices will be under pressure



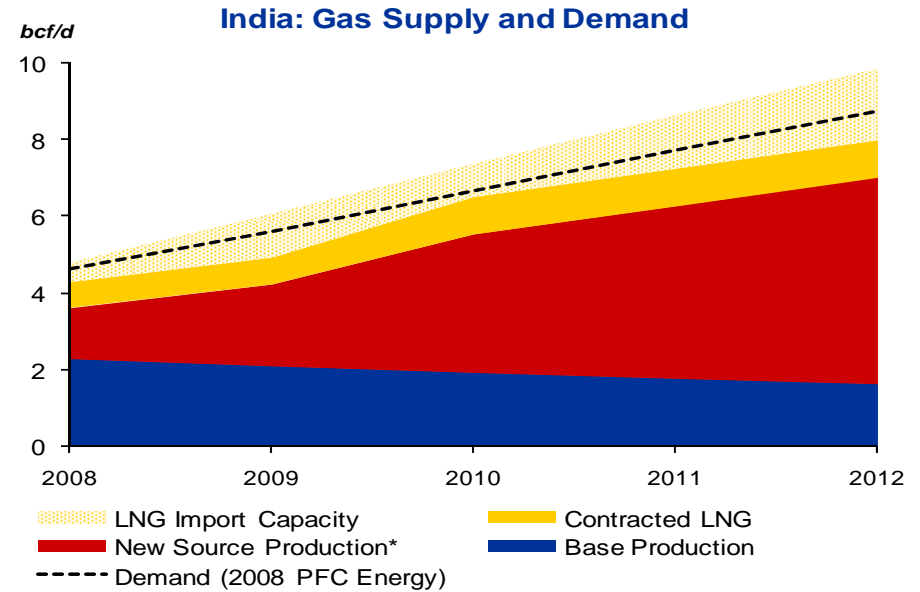
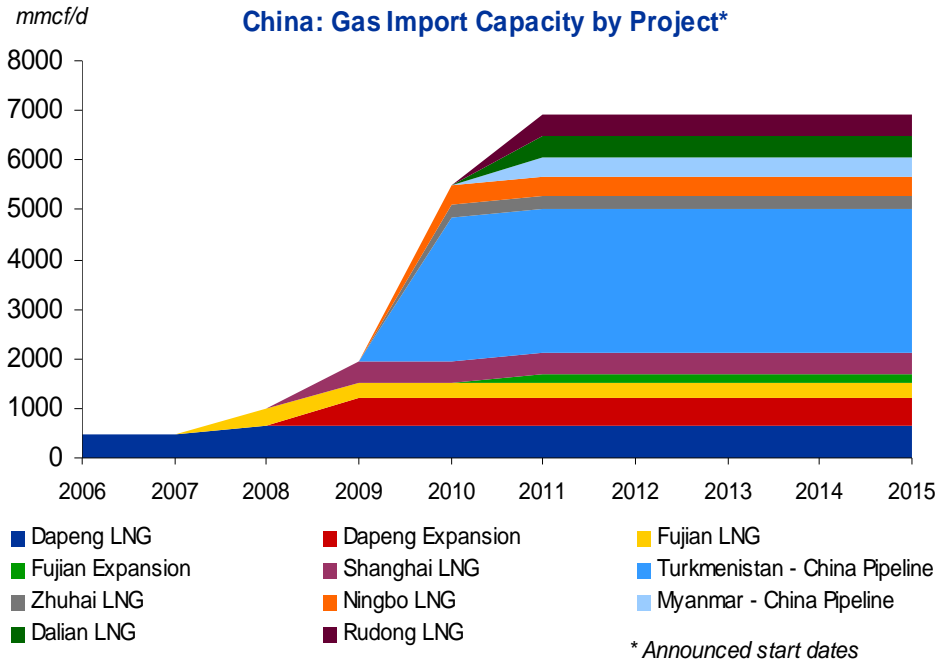
LNG in 2009: Unprecedented Expansion

- LNG supply grew by a mere 1.7% in 2008, the lowest in two decades – one of the reasons behind last year’s lofty spot prices
- Conversely 2009 could see almost 30 mmtons (4.0 bcf/d) added, a 17% increase in global capacity
- With global recession in full swing and expected only partial economic recovery in 2010, global gas demand muted
- Incremental LNG flows will change especially fewer cargoes to Asia and more to US and Europe
- But with relatively low oil prices and certainly spot LNG prices under pressure, un-contracted supplies could be held back



But China and India will Key Growth

Looking beyond the recession...

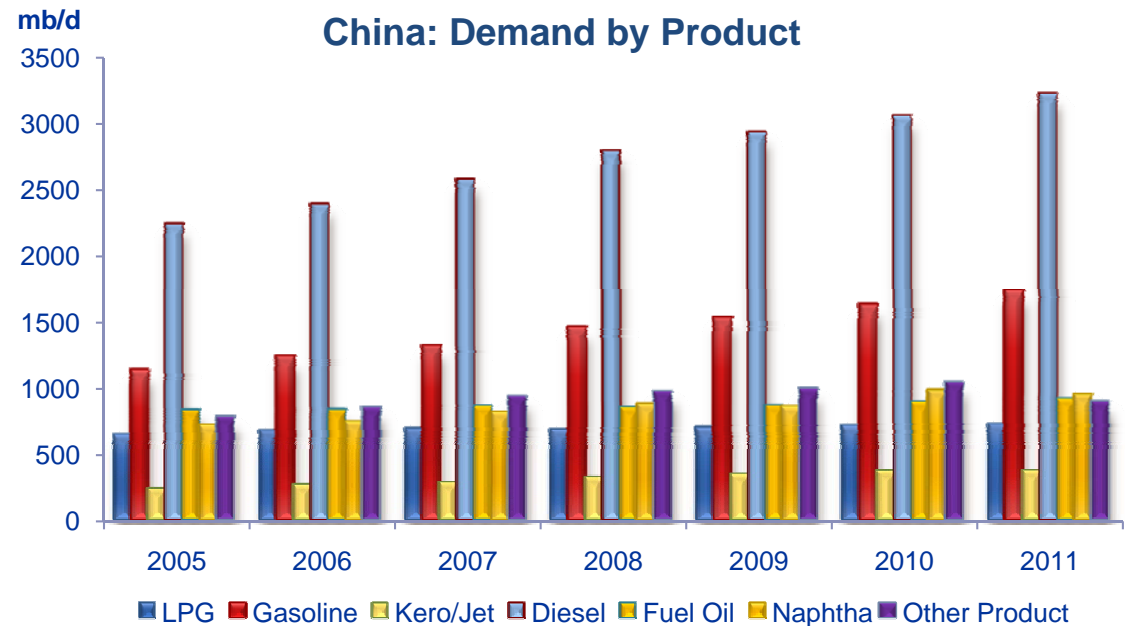
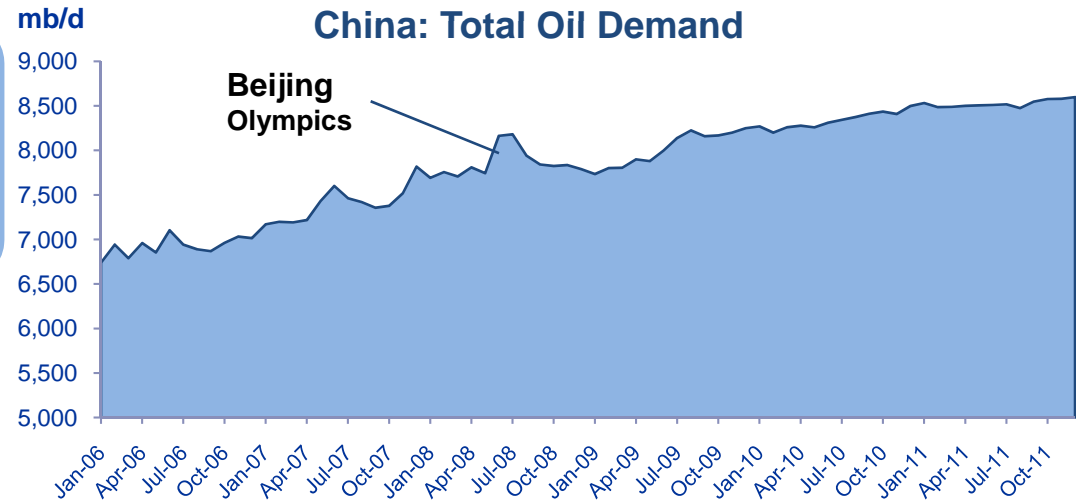


- **China planning major increases to gas importing capacity with both pipeline and LNG components**
- **Although strong economic growth expected to resume, new import capacity and expected growth in domestic gas production could see some import facilities under utilized (if not delayed) in the intermediate term**
- **India growth keyed to Reliance's start-up of its KG-D6 fields off the country's east coast**
- **With older producing regions on decline, growing demand will necessitate continuing LNG imports with Qatar continuing as the key source**

China: The Last Hope for Global Demand?

Fiscal Stimulus Should Support Domestic Demand

- Emphasis on domestic consumption and infrastructure
- Will support spending in investment, greatest contributor to both GDP and energy demand
- Further price reforms also provide support for more robust demand
- Key downside risk is in the effective implementation of the fiscal stimulus package





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