



Asia and Middle East Oil Markets post Fukushima

Presentation to

30th JCCP International Symposium

By

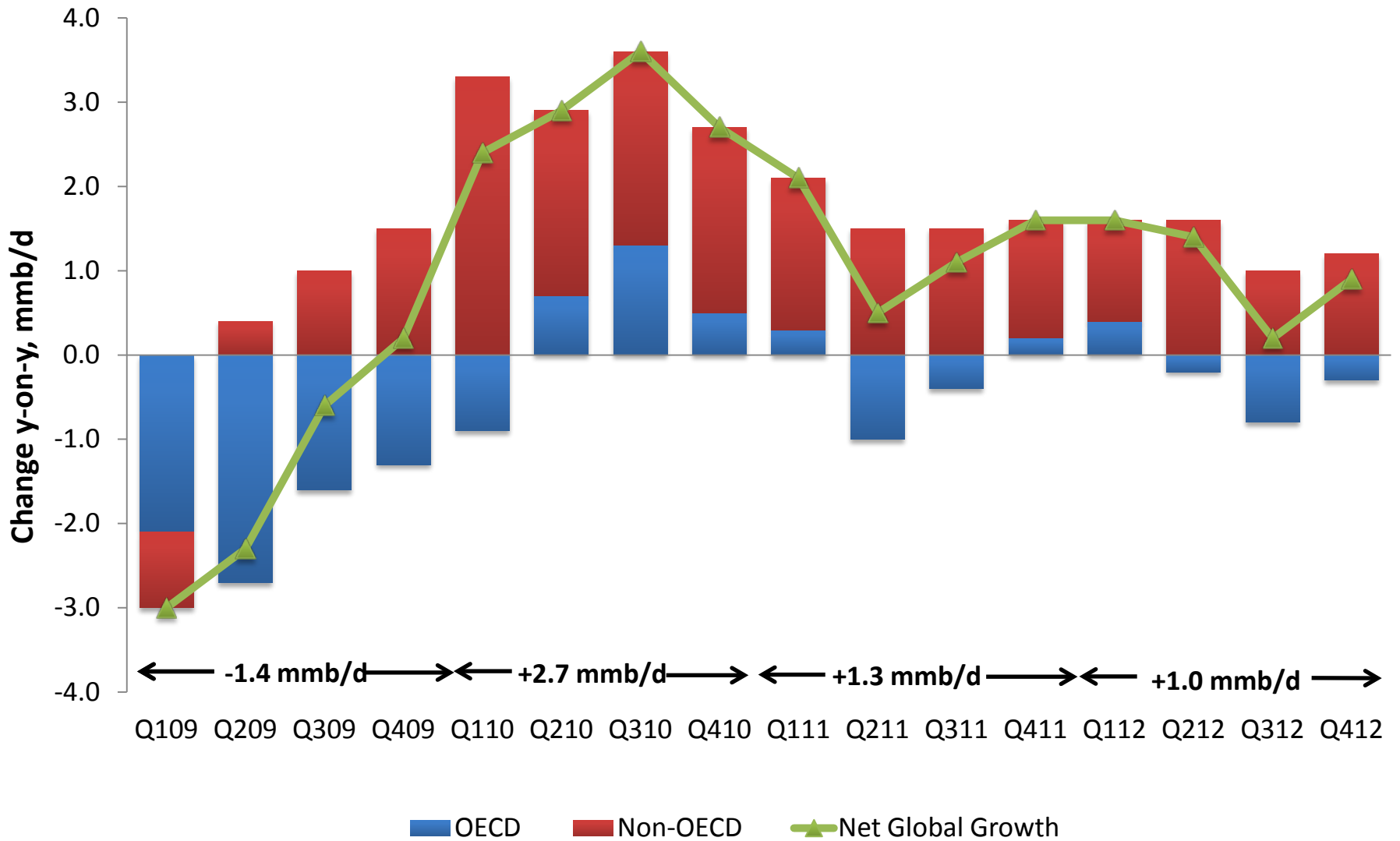
Dr. Fereidun Fesharaki, Chairman

FACTS Global Energy

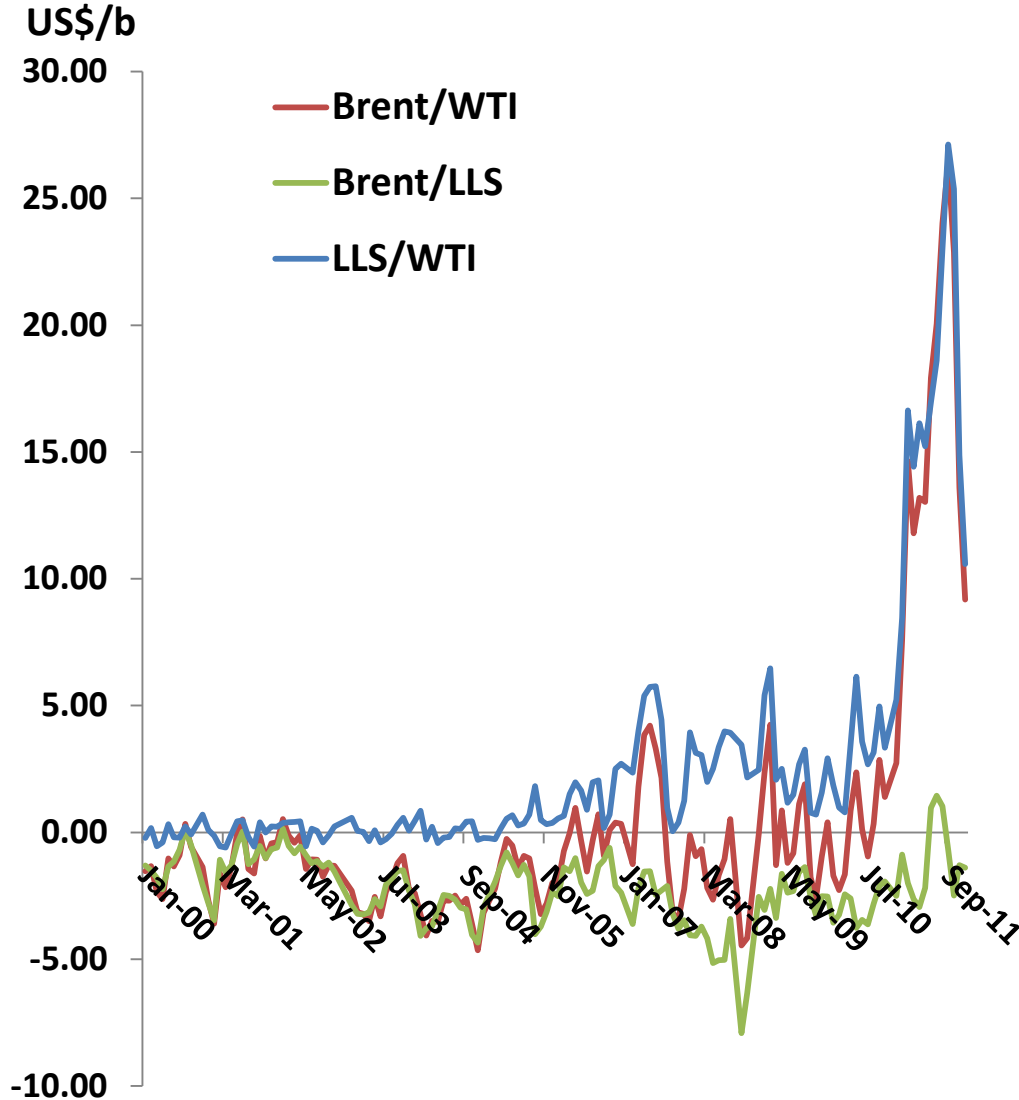
January 25, 2012

Tokyo, Japan

Oil Demand in 2011 and 2012 Slowed Down from 2010



Brent/WTI Differential to Stay High?

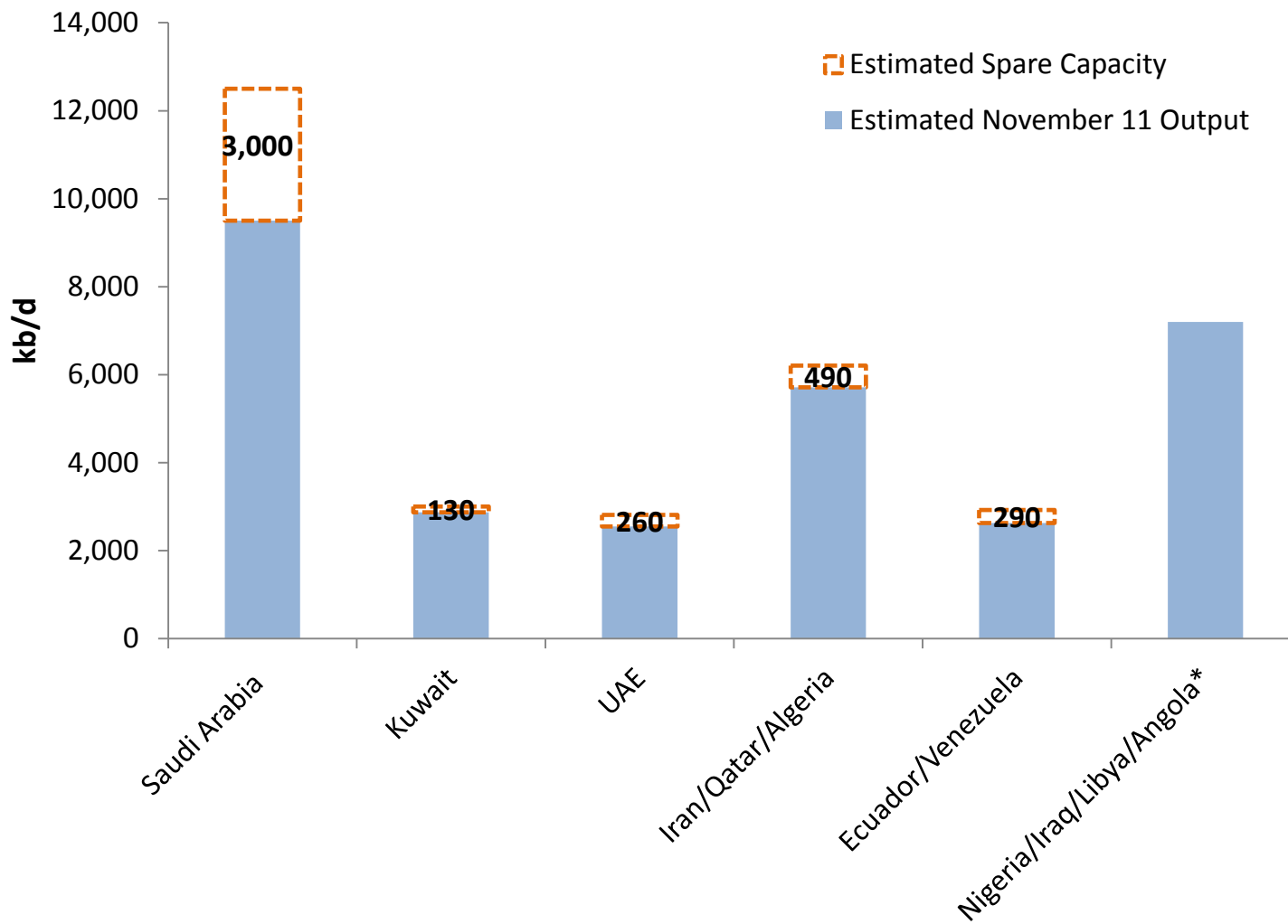


Factors on Brent/WTI Spread

- Infrastructure bottleneck: current pipeline capacity into Cushing is 1.9 mmb/d but pipeline capacity out of Cushing is only 1 mmb/d.
- Liquid production from the US shale gas plays—up from ~700 kb/d in 2011 to 1.3 mmb/d in 2013 and 1.9 mmb/d in 2015.
- Increase in western Canadian crude exports to US—up by 700 kb/d by 2015.
- Progression on the proposed major pipelines: Seaway reversal project (400 kb/d), Keystone XL pipeline (500 kb/d), and Enbridge Monarch pipeline (expand from 150 kb/d to 350 kb/d).

OPEC Spare Capacity Estimated Only at 4 mmb/d

OPEC Estimated Output and Capacity



*Nigeria/Iraq/Libya/Angola – output constrained by temporarily unavailable capacity.

2012 will be a Tough Year

Downward Pressure on Price

- Weak world oil demand growth of only 900 kb/d in 2012 compared to 1.2 mmb/d in 2011.
- Exceptional growth in non-OPEC oil supply of 1 mmb/d.
- Growth in OPEC oil supply of only 500 kb/d.

Upward Pressure

- Geopolitical tensions worldwide, but especially in the Middle East.
- Iran sanction issues and potential backlash.
- Iraq political crises and potential conflicts among different factions.

Net impact: prices may not be that different in 2012 from 2011.

Iran Sanctions Issues

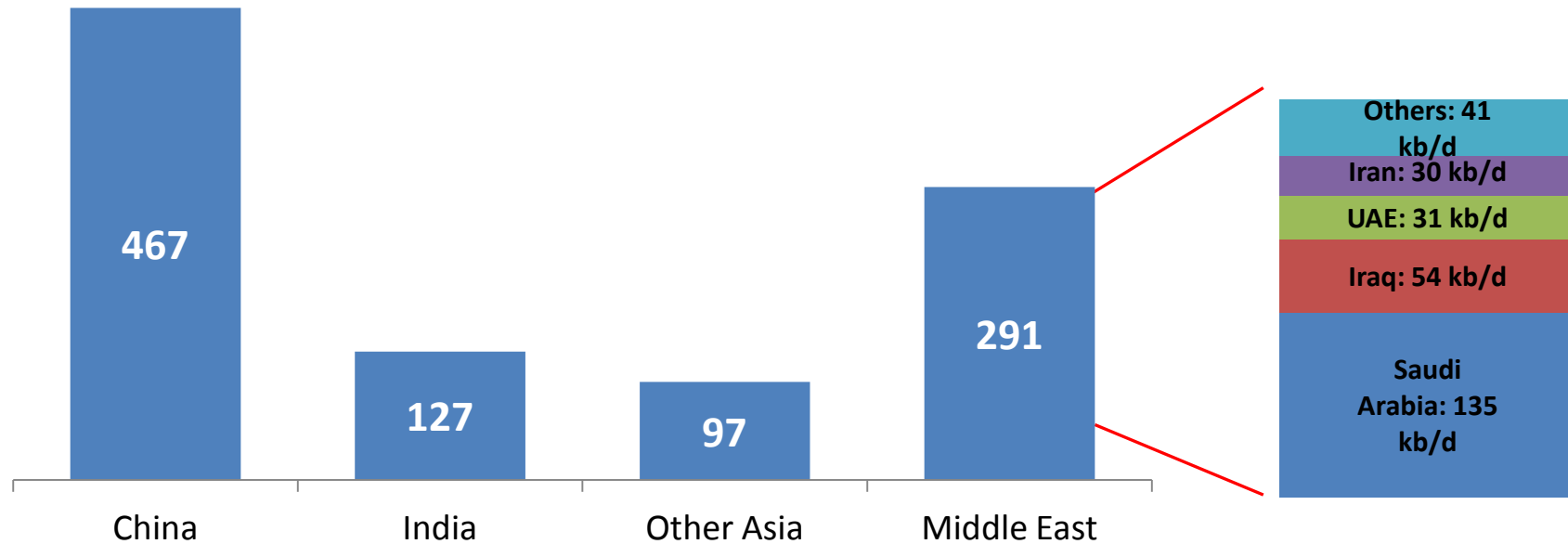
- The oil market is like a swimming pool. If you remove a bucket from one side and pour one in on the other side, the impact is minor.
- The European countries will move to reduce or eliminate imports from Iran over a 6-12 month period. Iran has large debt payments to Italy repaid partially by oil.
- China has reduced imports from Iran by half, due to price and credit terms within the past month, before the sanctions. We expect a resolution.
- Japan, Korea, and India are likely to show small-scale cuts in crude imports (but, probably not condensate).
- Symbolic cuts could be 10-15%.
- This means Iran will face marketing difficulties and will resort to floating storage, but we expect 70-80% of exports will be sold eventually.
- A full stoppage of Iran's exports cannot be met by OPEC or non-OPEC.
- Sanctions will be partially effective, but we expect Iran's exports to continue, unless there is a military conflict.

Price Will Stay at US\$100-110/b in 2011 and 2012

Base Case Dubai Crude (US\$/b)				
	Q1	Q2	Q3	Q4
2009	\$44.3	\$59.1	\$67.9	\$75.4
2010	\$75.8	\$78.1	\$73.9	\$84.3
2011	\$100.5	\$110.7	\$107.1	\$107.0
2012	\$105.8	\$102.7	\$108.2	\$112.5

Long Term: Market Tightness Will Return

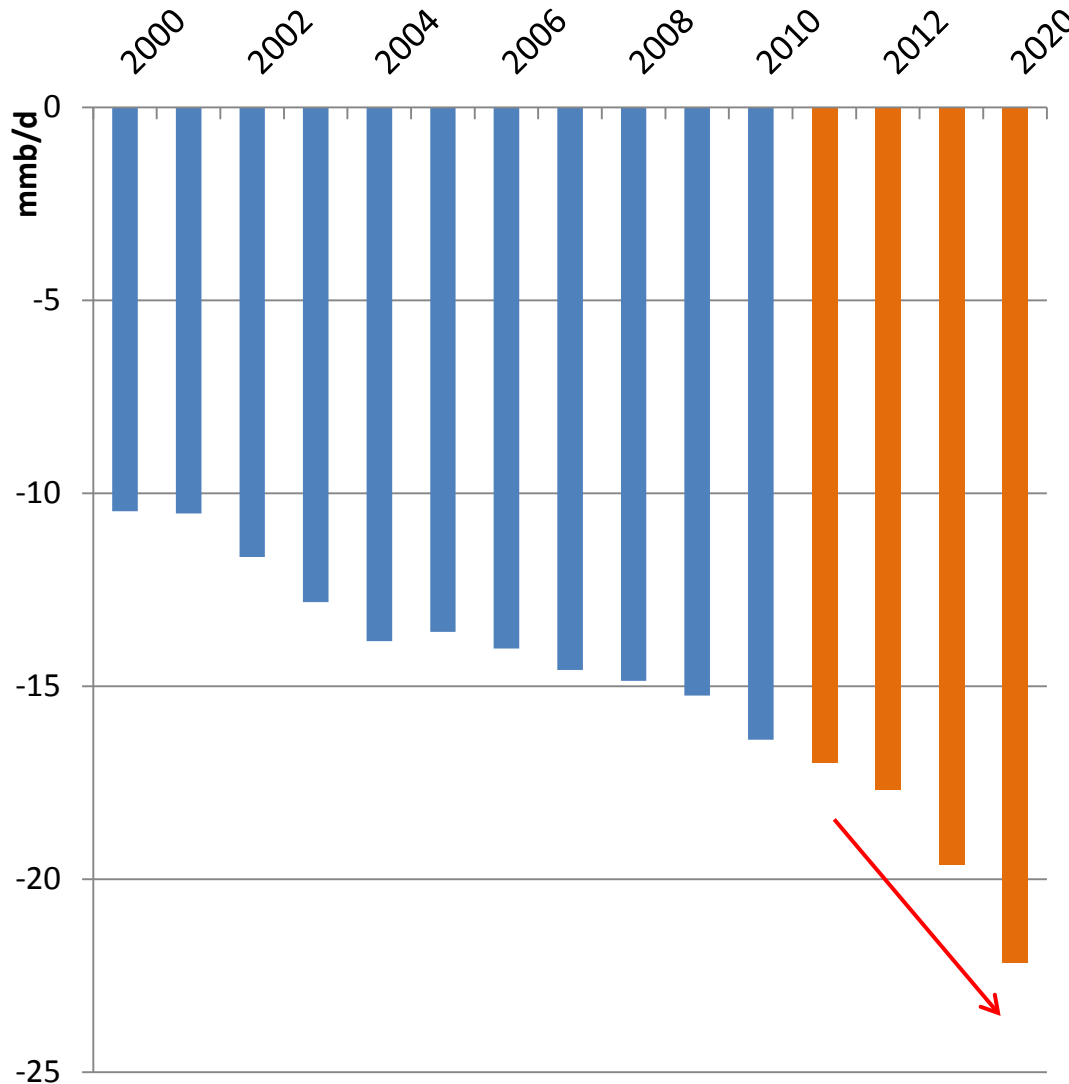
Annual “Base-Load” Demand Growth: 2010-2020, kb/d



Structural Demand Shift:

- OECD countries – Oil demand has peaked;
- Non-OECD countries – Strong “base-load” demand growth of ~**1.0 mmb/d** in the next decade.

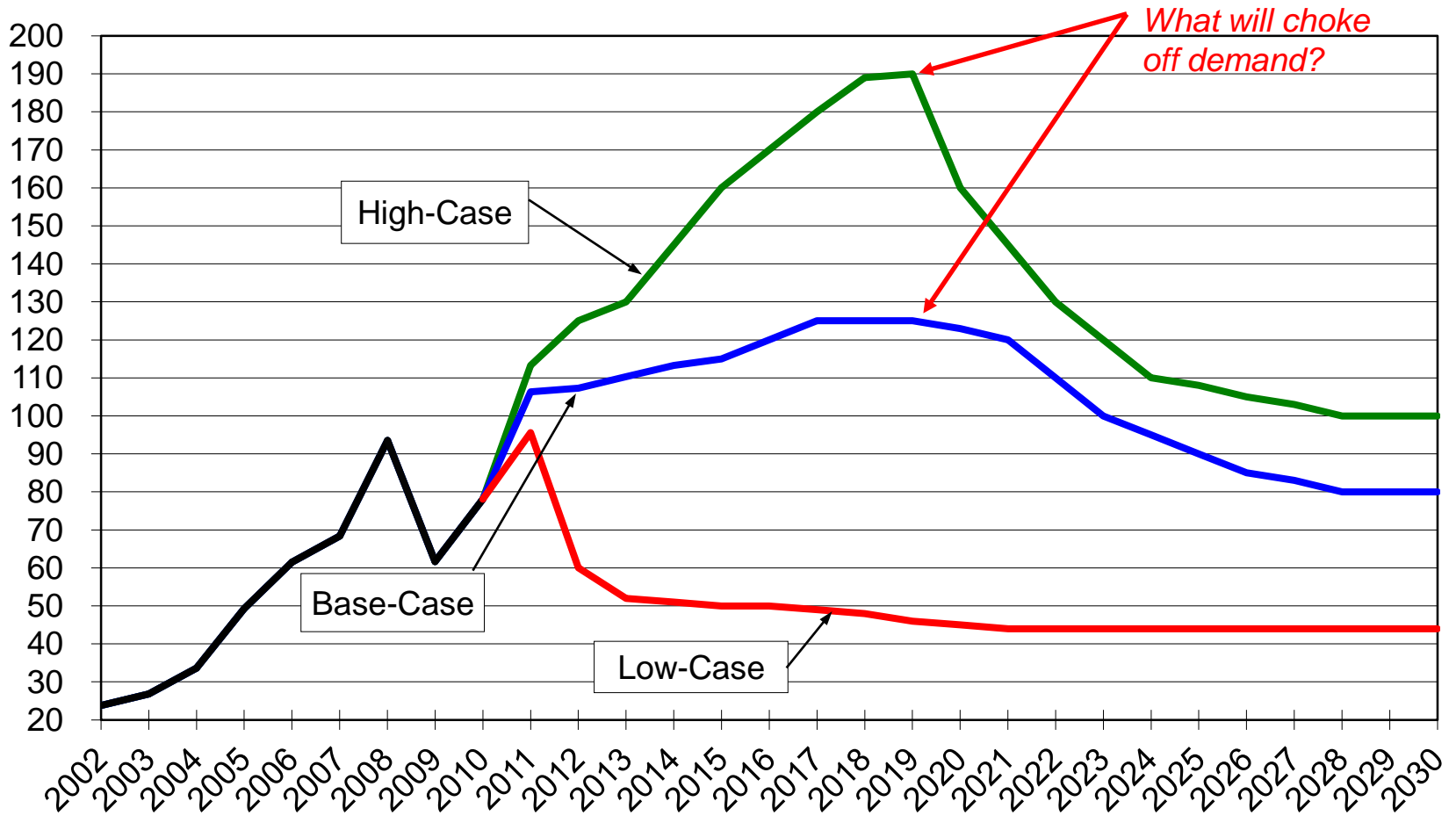
Asia Net Crude Imports Rising Fast



- **Diversifying sources of crudes supplies, but Asia has to import more from OPEC (especially Middle Eastern countries).**
- **Asian NOCs aggressively acquiring overseas upstream assets.**
 - China spent more than US\$50 billion in overseas upstream oil and gas acquisitions in 2009 and 2010 alone;
 - India, Korea, and Japan are also aggressive in their overseas acquisitions.
- **Establishing global trading network.**

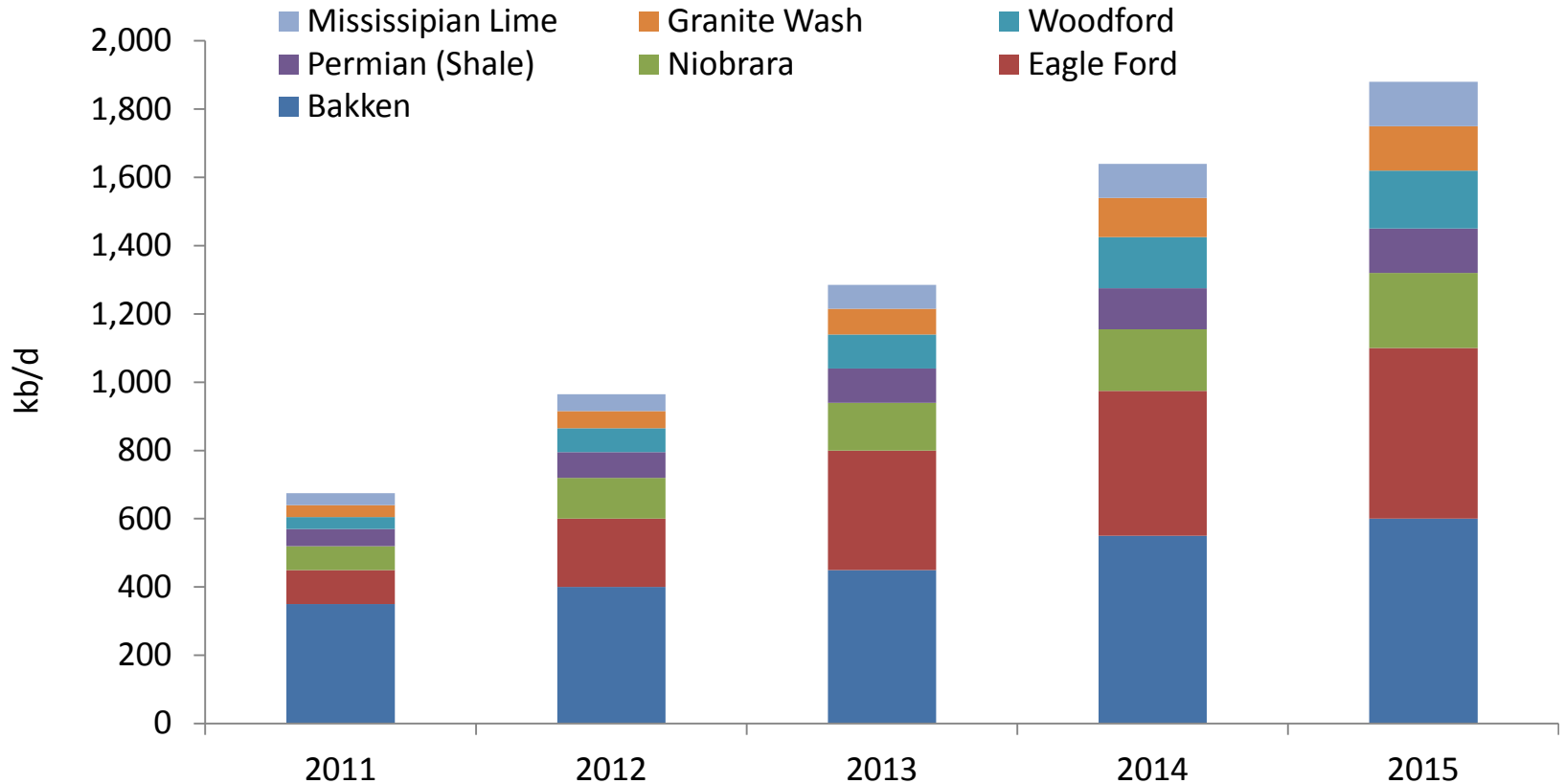
Longer-Term Oil Market Still Seen as Bullish

High, Base, and Low Price Forecasts for Dubai, US\$/b



Note: Actual up to 2010 and forecasts in 2011\$ thereafter.

Real Game Changer: Liquids Production from Shale



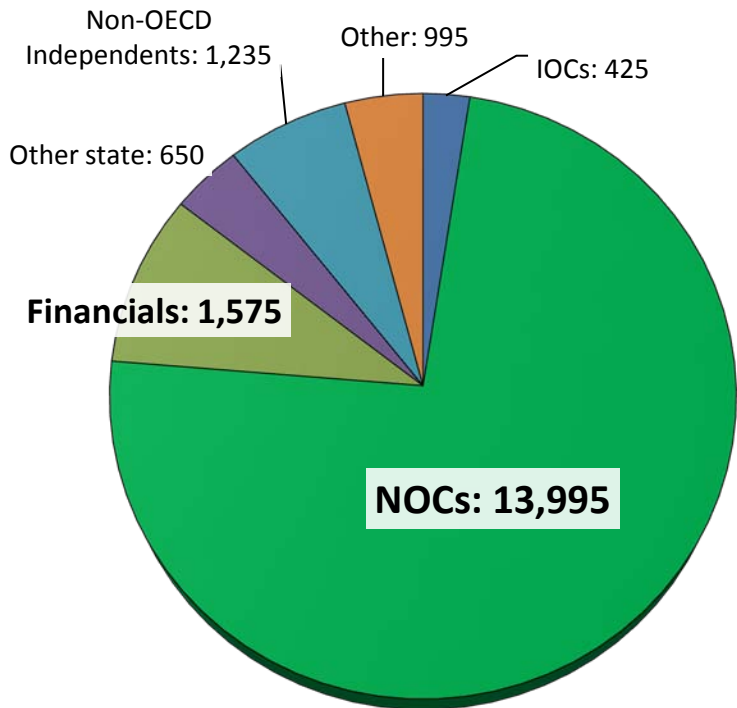
- US crude production declined from ~6 mmb/d in 2003 to 5 mmb/d in early 2009, but light crude production associated with shale gas plays has reversed the trend.
- Current liquid production from shale is ~700 kb/d with projections to nearly 2 mmb/d by 2015.

Future of Shale Gas Liquids Outside the US

- The US resources are less than 8% of global resources.
- Very little non-US information on organic content.
- Speed of development outside the US will be slow due to lack of well servicing infrastructure.
- Shale gas requires pipeline infrastructure and a market.
- Shale gas exploration in China, Australia, Poland, and Argentina.
- What is the potential for shale gas liquids by 2020-25? 5 mmb/d? 10 mmb/d? Equivalent of Iraq or Saudi Arabia **production?**

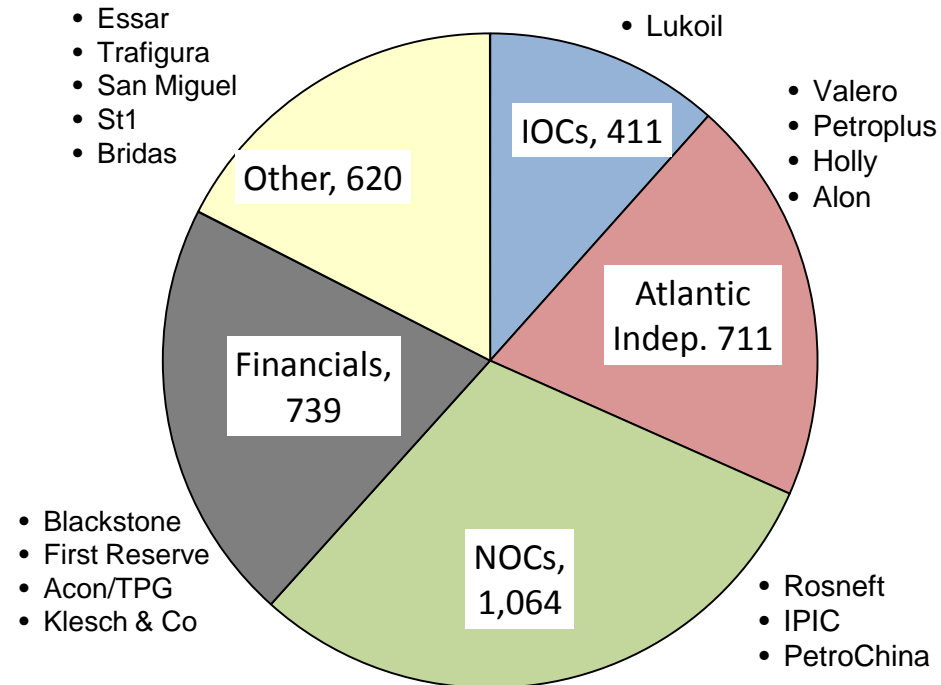
Who is Still Investing in Refining?

New Refinery Announcements Since Mid-2008 (kb/d)



Total since mid-2008: 19 mmb/d

Purchasers of Existing Refining Capacity Since 2008 (kb/d)

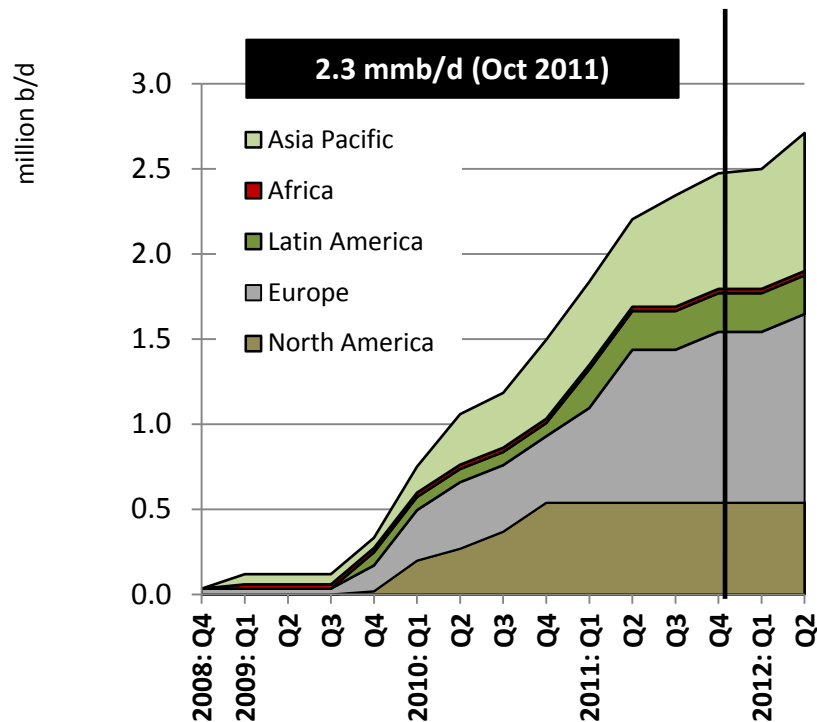


Total since mid-2008: 3.4 mmb/d

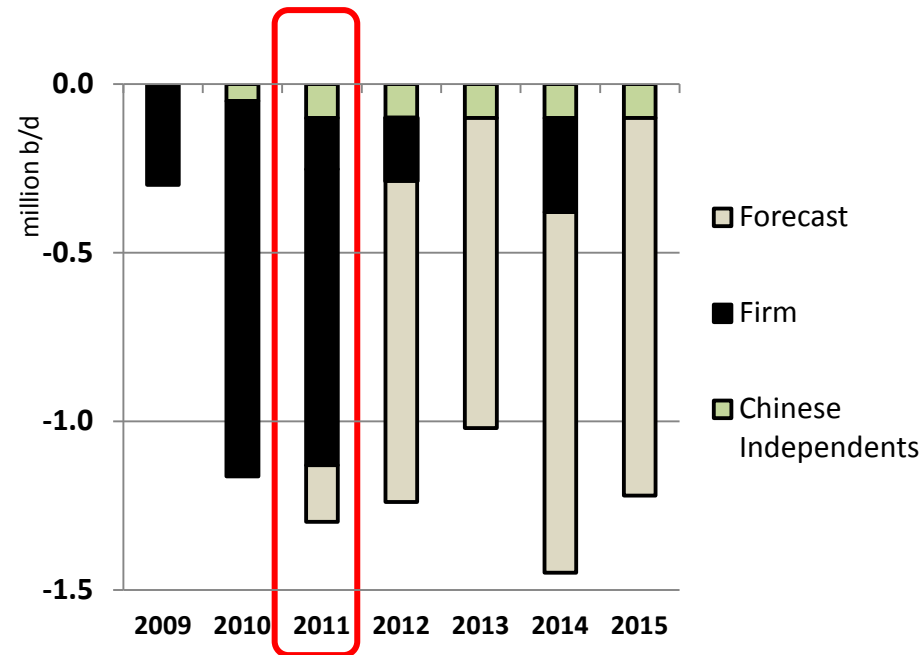
Refining Sector's Response to Downturn: Closures

- Between 2008 and mid-May 2011, 2.3 mmb/d of refining capacity was permanently shut (1 mmb/d this year).
- A further 200 kb/d is confirmed to close by mid-2012, with another 450 kb/d of unspecified Japanese reductions by 2014, and up to 700 kb/d of US capacity.
- In total, we consider another 4.2 mmb/d will close by 2015, bringing the total to around 7 mmb/d.

Refinery Shutdowns (Cumulative)

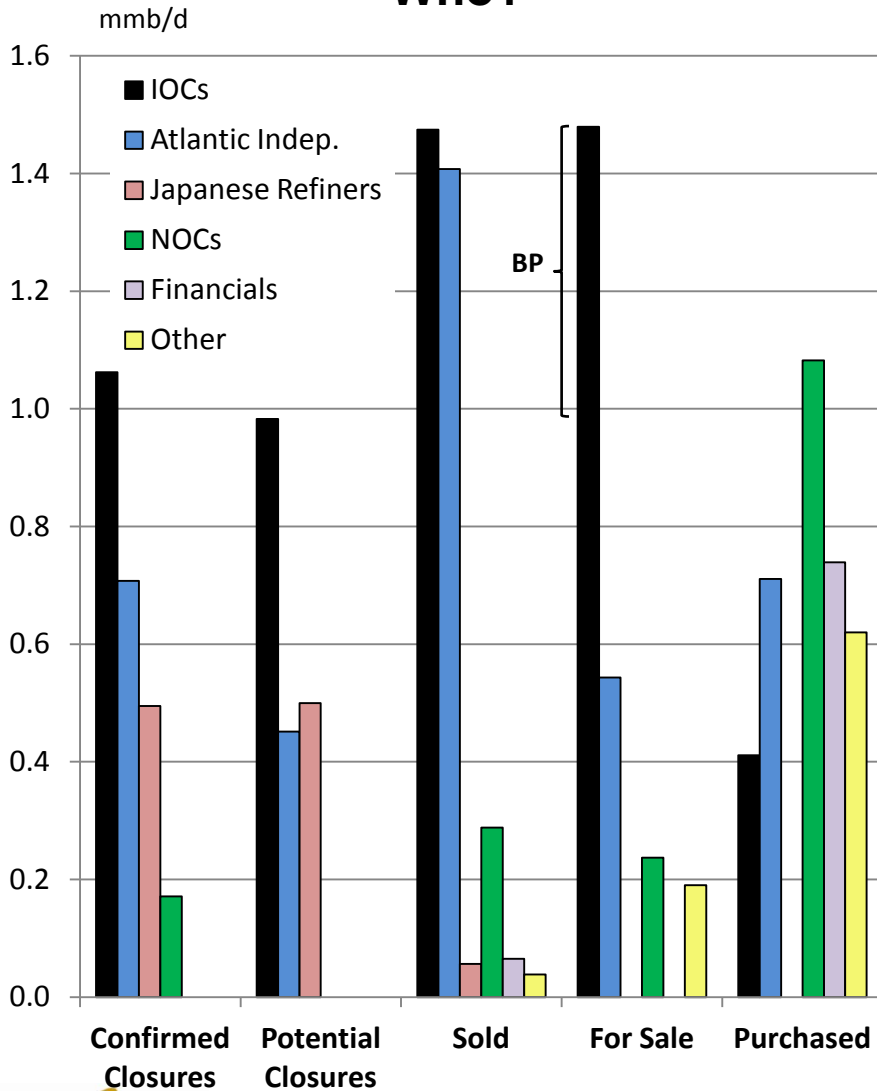


Forecast Refinery Closures by Year

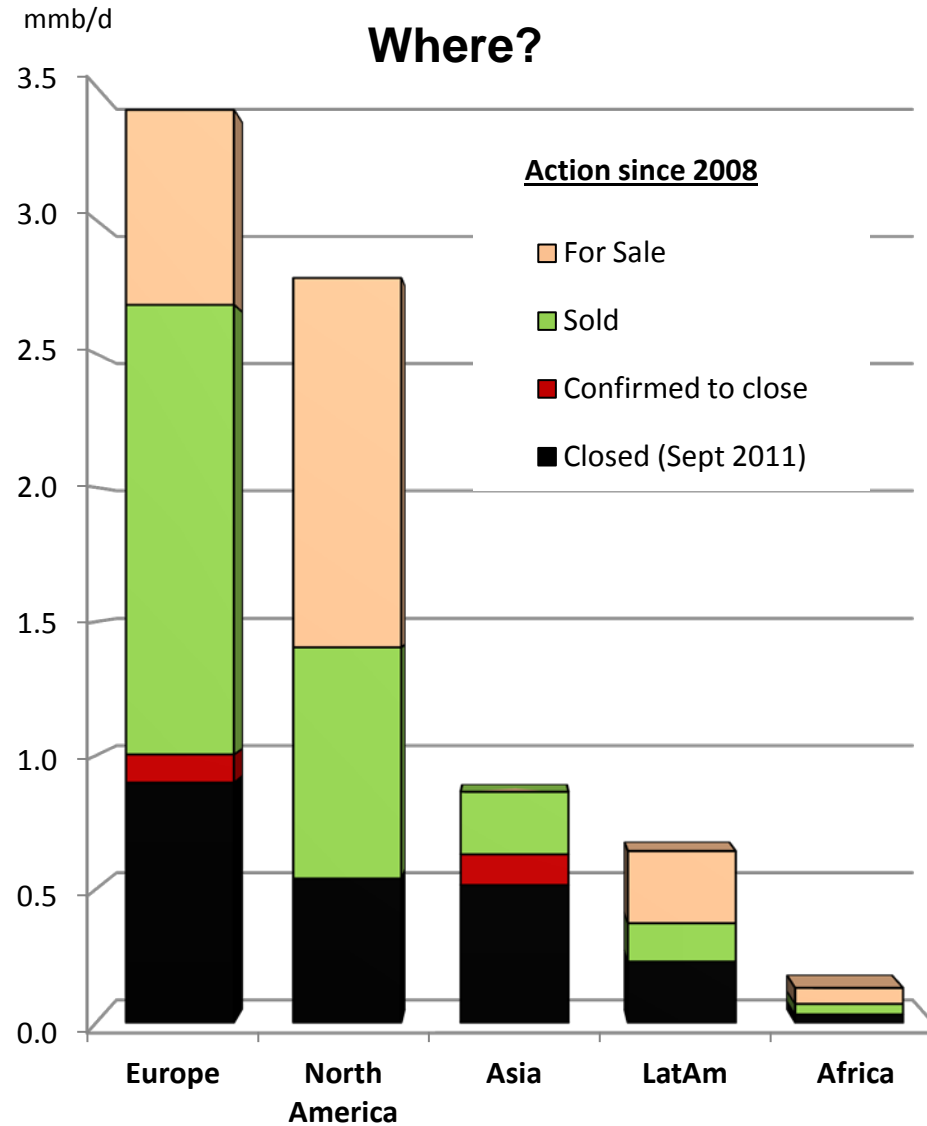


Refinery Closures and Sales Since 2008

Who?



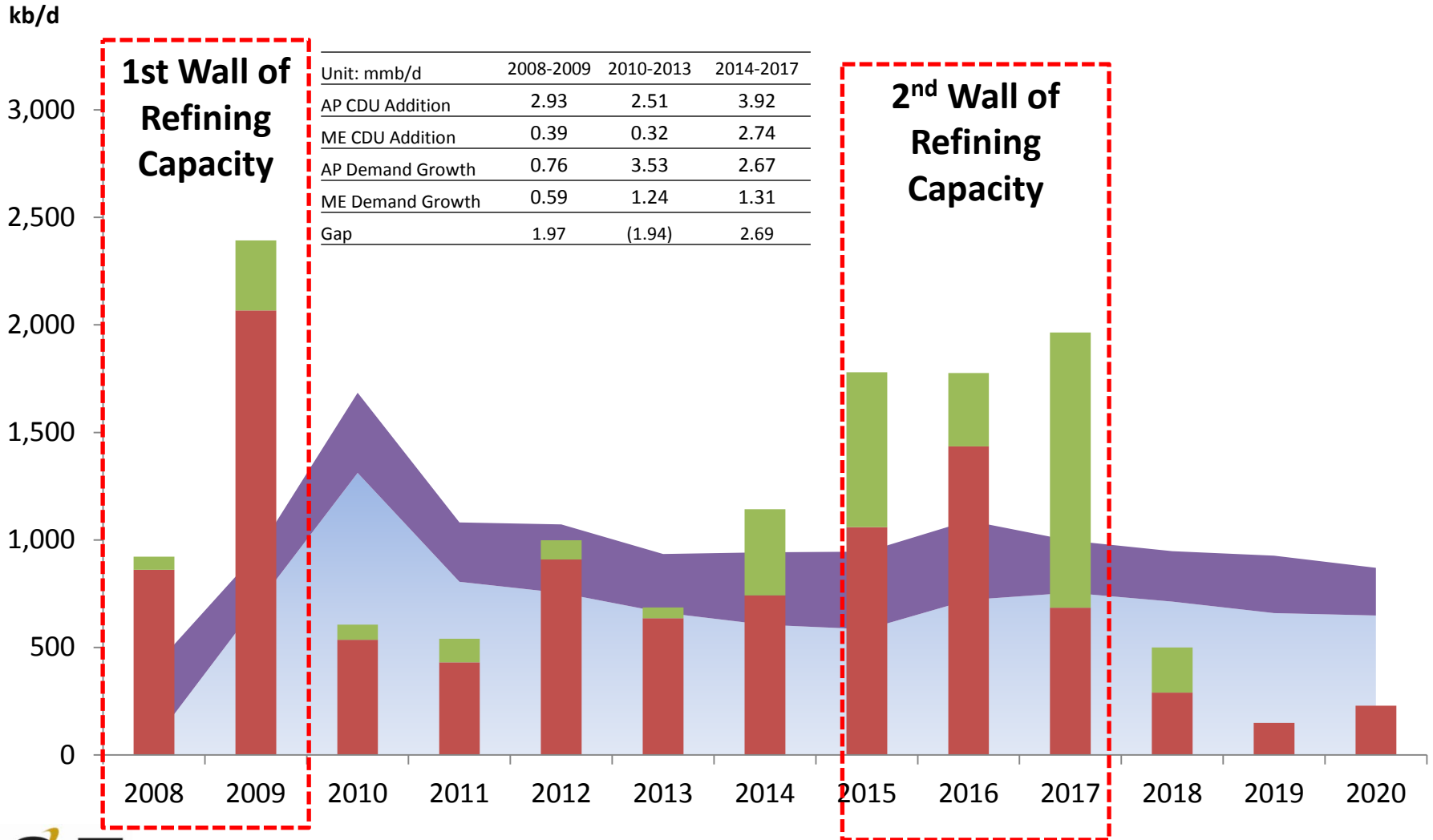
Where?



East of Suez Refinery Build and Demand Growth

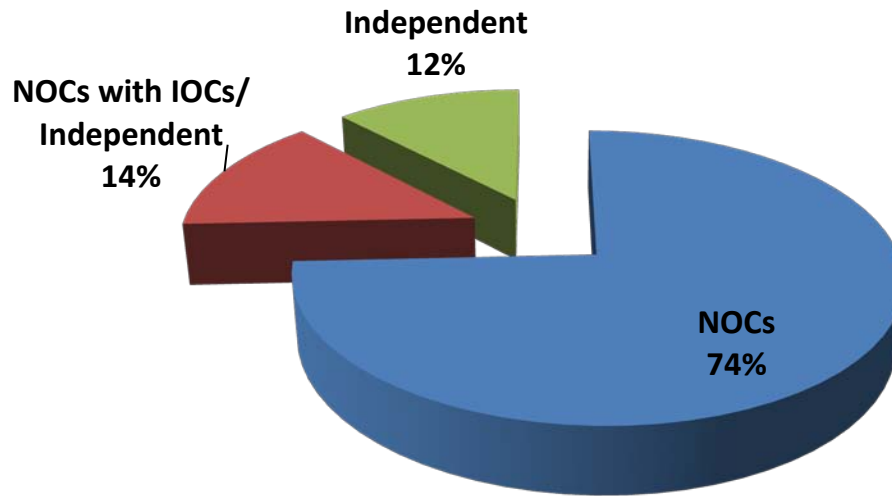
■ Total AP Incremental Demand
■ Total AP Incremental CDU Capacity

■ Total ME Incremental Demand
■ Total ME Incremental CDU Capacity



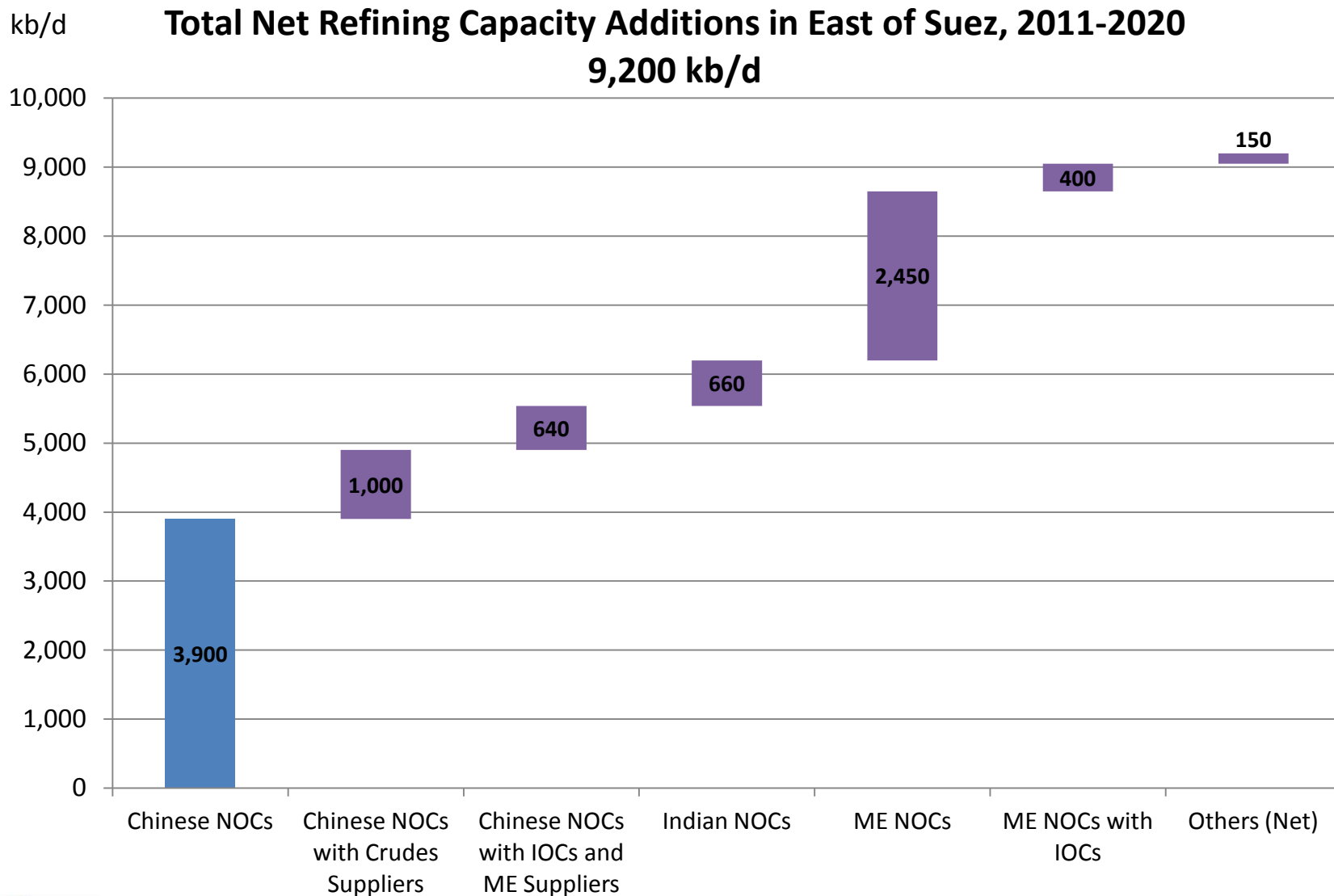
Who is Building in the East of Suez?

Firm and Likely CDU Addition in East Suez (2011 - 2020)
11 mmb/d



- **NOCs** will be involved in **~90%** of the refining capacity expansions in 2011-2020.
- Unlike the 2001-2010 period, independents will build much less refining capacity.
- IOCs are only involved in joint-venture projects with Chinese NOCs in China.

Who is Building in the East of Suez?



Structural Pressures on the Refining Business

Supply

- NOCs' aggressive CDU and upgrading expansion;
- Slow closures of old facilities;
- Increase in non-conventional supplies (GTL, NGL production from gas fields).

Demand

- OECD fuel efficiency mandates;
- Substitutions of oil products by natural gas, biofuels, etc.;
- Price sensitivity, especially for gasoline in US under high crude prices.

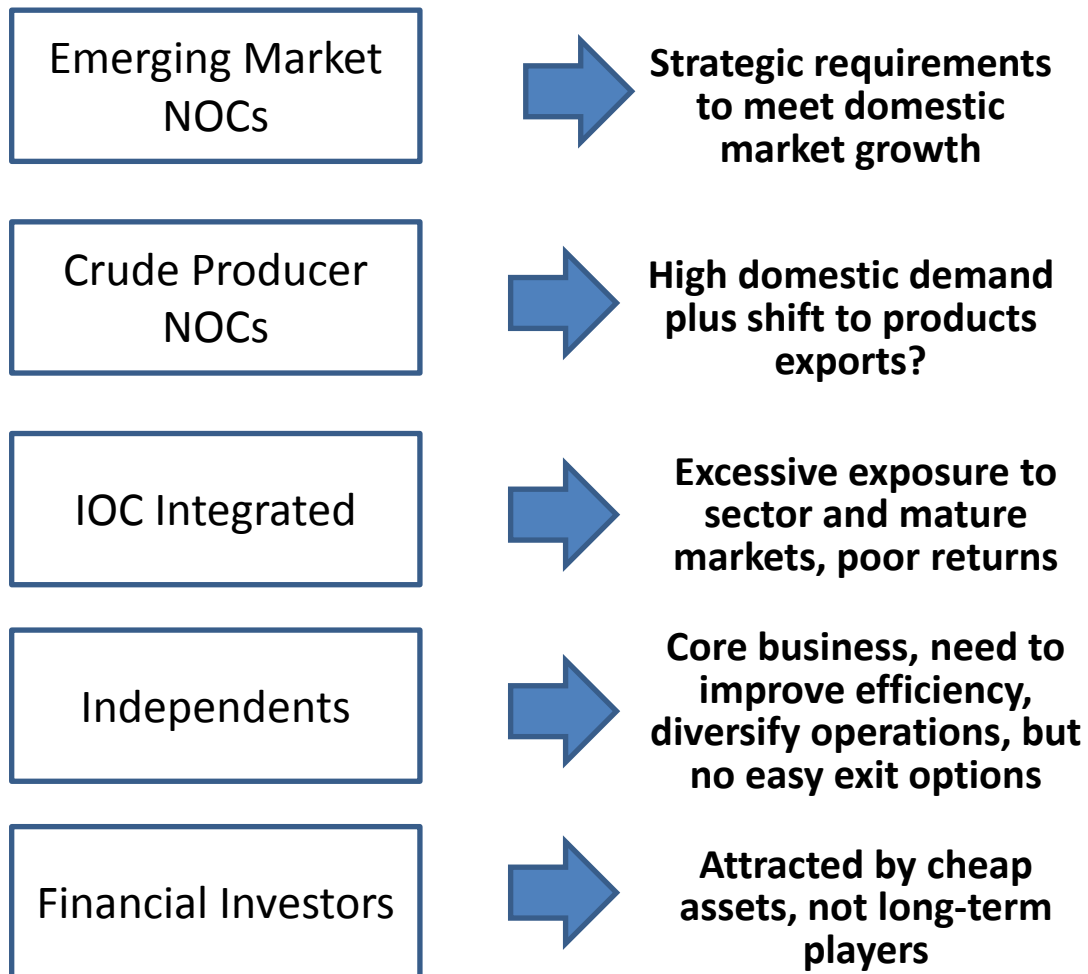
Government

- Deliberate policies to incentivize refining investments;
- Tighter petroleum products specifications;
- Expected increasing cost of carbon emissions in OECD countries.



Structural Pressures on the Refining Business

Refining Industry—Structural Pressures



NOCs vs IOCs



Upstream

- IOCs – Experienced in mega projects requiring sophisticated coordination of complex technologies and financing.
- NOCs – Aggressive in upstream acquisitions (e.g., Chinese NOCs) with access to relatively cheap capital and strong government support in the name of “energy security.”
- IOCs and NOCs are not necessarily competing with each other (cooperation in the upstream developments in Iraq).



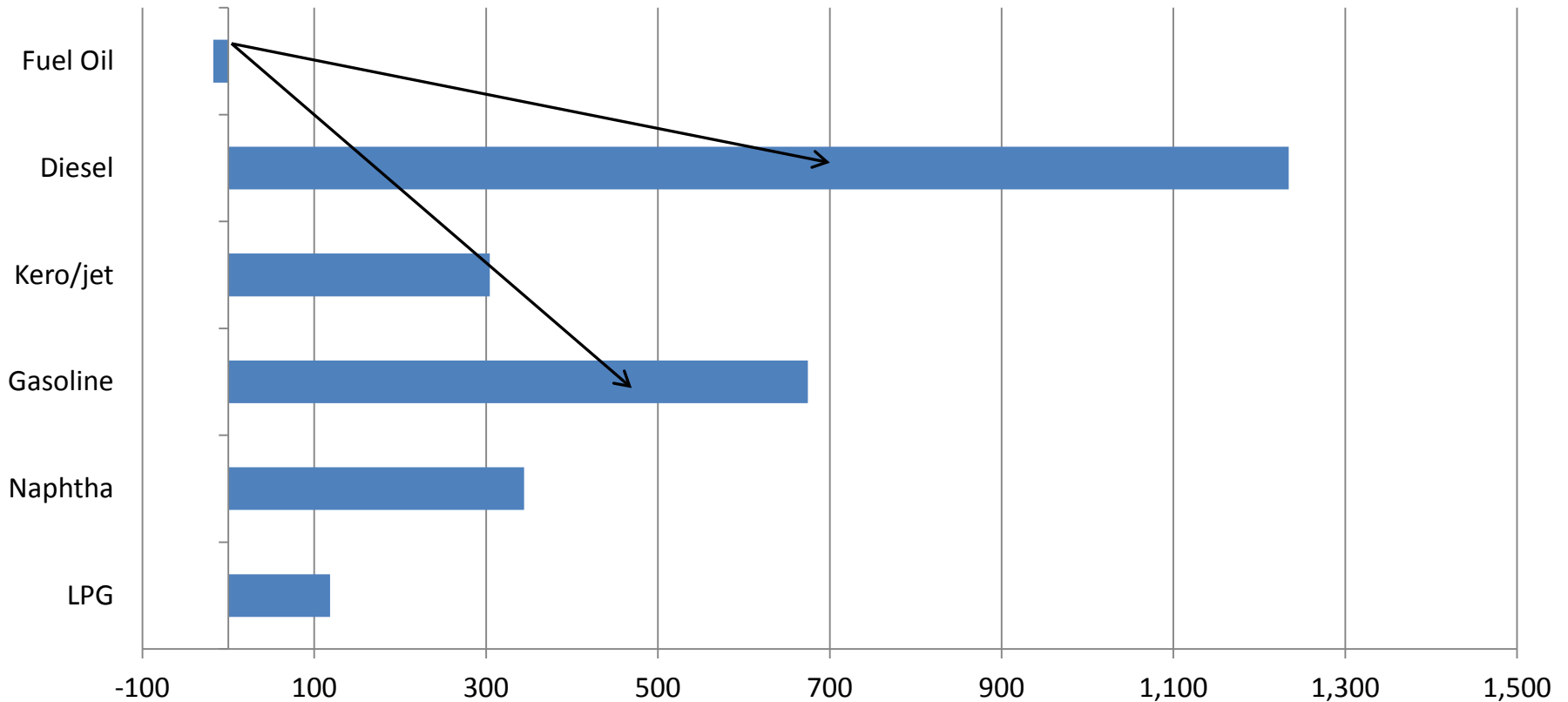
Downstream

- IOCs, NOCs, and independents have similar capabilities.
- Rates of return in the refining sector are much lower than the upstream.
- IOCs are exiting the downstream sector:
 - BP only has small refining assets in Australia and New Zealand.
 - Shell is planning to shutdown refineries in Australia (Clyde), Japan (Showa Shell), and the Philippines.
- NOCs are aggressively expanding in the downstream sector (either for strategic reasons or as a heavy crude disposal avenue).

Incremental East of Suez Refinery Supply: 2010-2013

Additional upgrading capacity increases East of Suez gasoline and diesel/gasoil supply significantly between 2010-2013, but also reduces fuel oil supply.

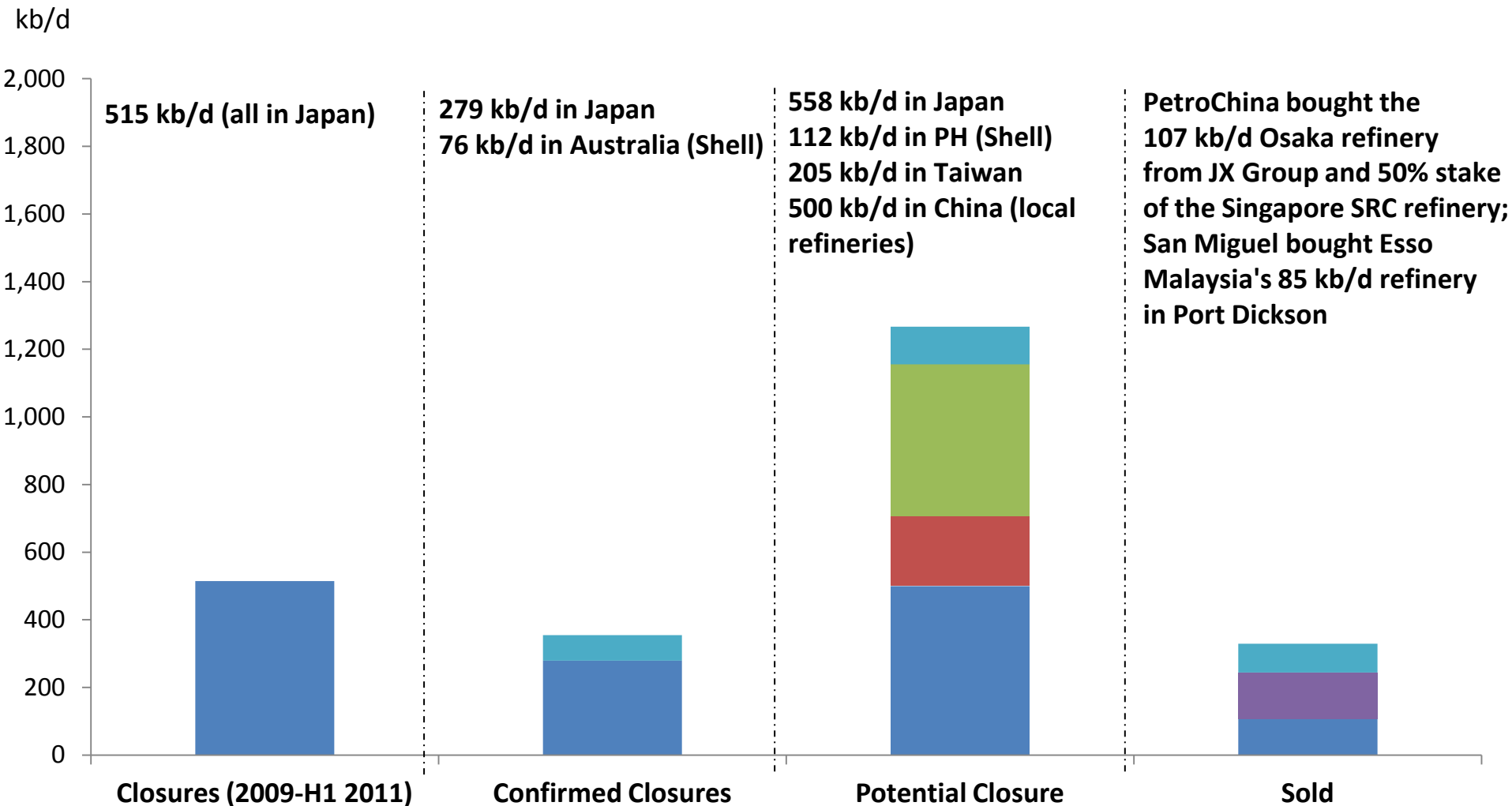
Has too much upgrading been planned?



Additional Refinery Supplies in East of Suez: 2010-2013, kb/d

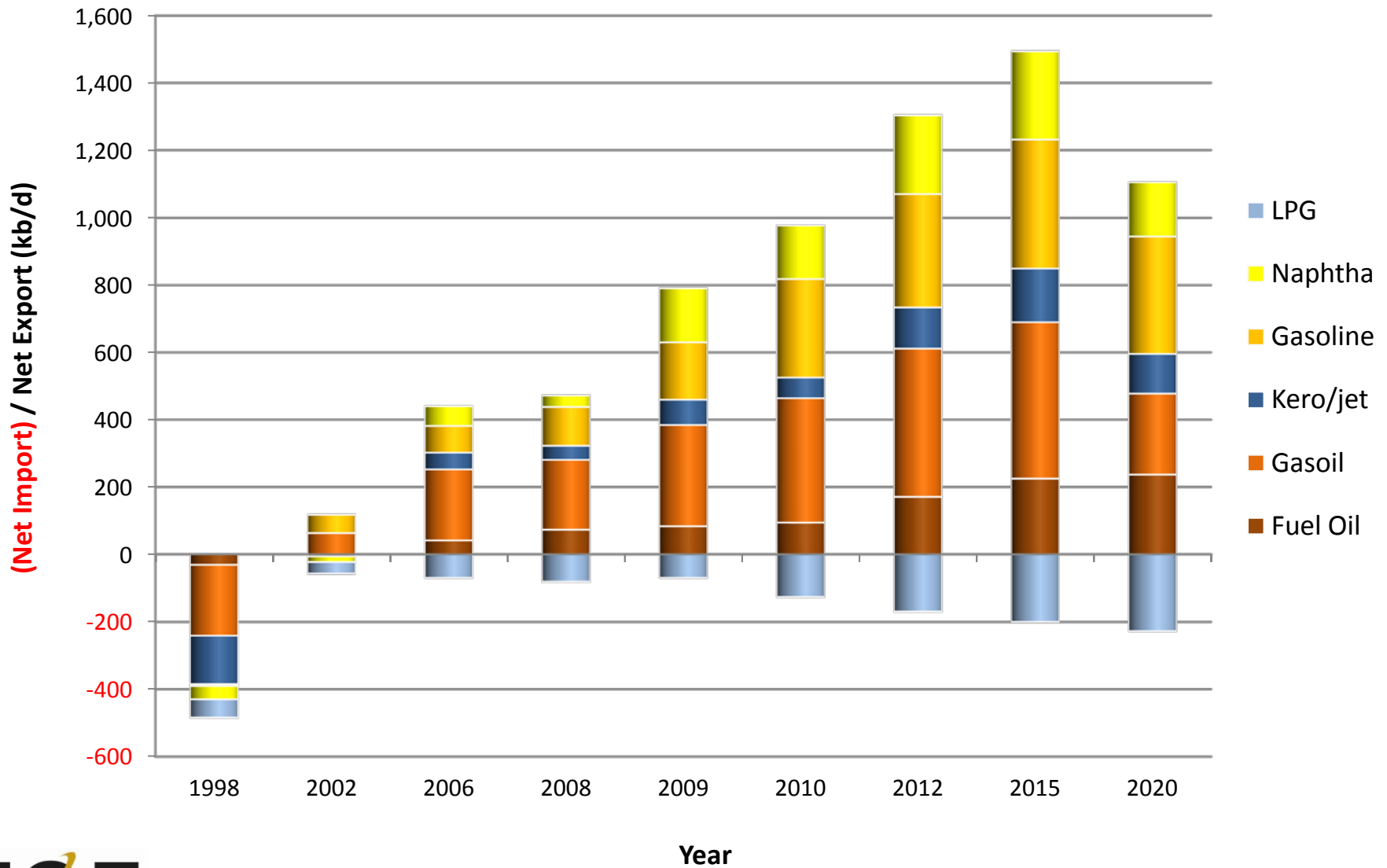
Refinery Closures and Sales in Asia

■ Japan ■ Taiwan ■ China ■ Singapore ■ IOCs (Ex-Japan)



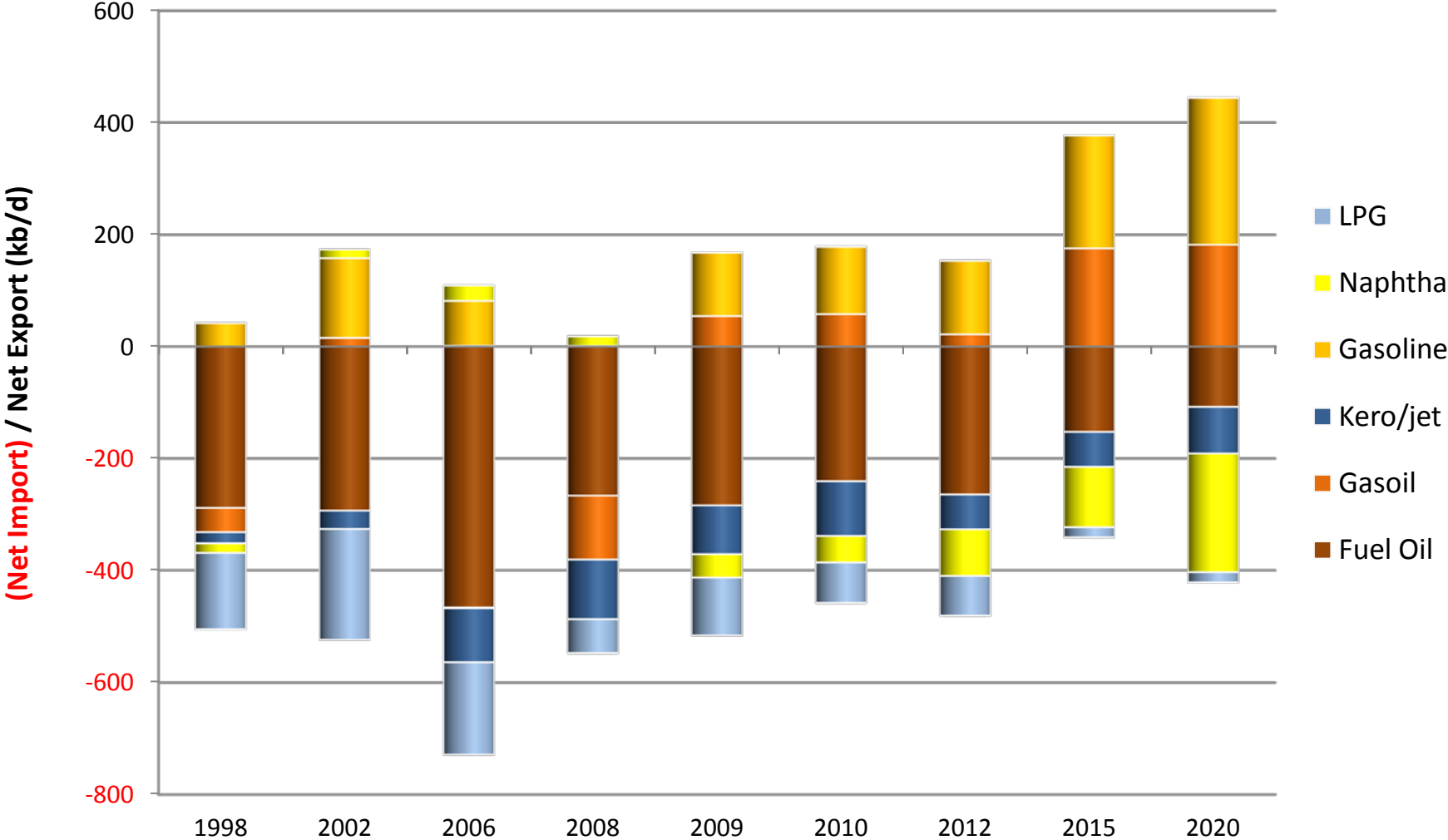
India—Fearless Push Forward

India Petroleum Product Balance



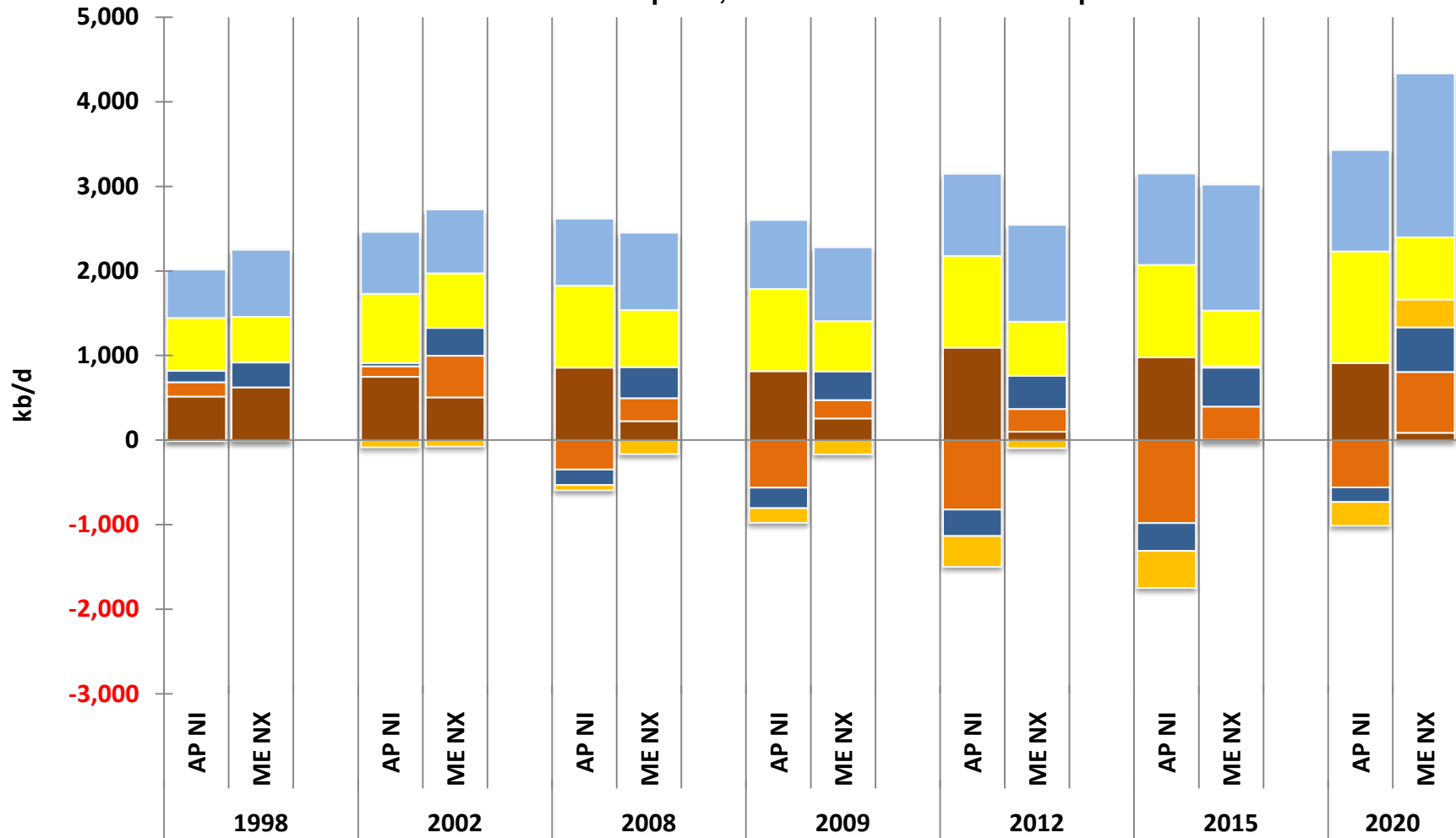
China—Becoming a Larger Exporter of Gasoline and Diesel

China Petroleum Product Balance



The Trade Balance is Shifting

AP NI: Asia Pacific Net Imports, ME NX: Middle East Net Exports



LPG Naphtha Mogas Kero/Jet Gasoil FO & Other

Can West of Suez handle the imbalance?

East of Suez Net Products Export

	2010	2015	2020
LPG	185	409	735
Naphtha	-584	-442	-582
Gasoline	175	463	608
Kero/jet	595	788	700
Diesel	934	1,373	1,279
Fuel Oil	-882	-938	-791

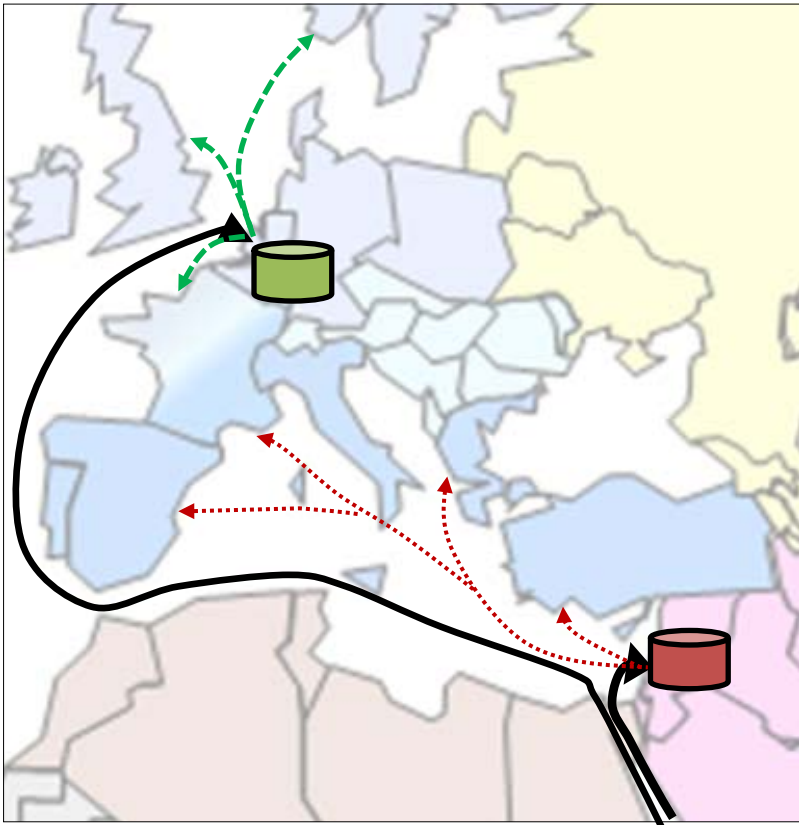
Key Development:

- Naphtha and fuel oil continue to be in large net deficit
- Gasoline and middle distillates net exports set to increase due to rapid expansion of refining capacity
- LPG net export set to increase, mainly due to rise in production from gas fields in the Middle East

Product Trade Outlook

- More product trade—short and long haul
- Diesel/gasoil and LPG dominate growth
 - Europe: more gasoil imports
 - Asia: more LPG and naphtha imports
- New players involved
 - Eastern heavyweights
 - Traders
- Larger tankers, plus small for shuttling
- More storage needed
 - Higher price volatility
 - More trading plays (contango, new players)
 - Make/break bulk
 - Receive larger cargoes

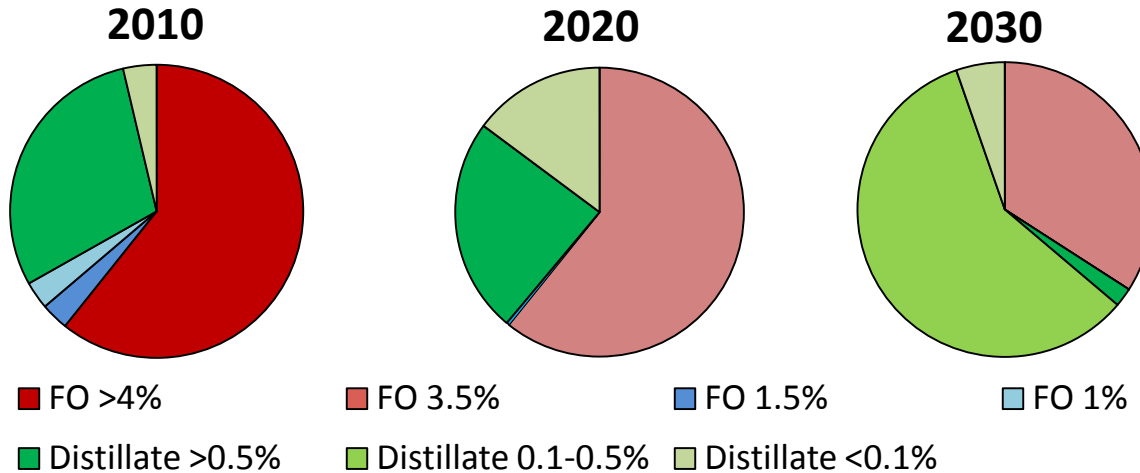
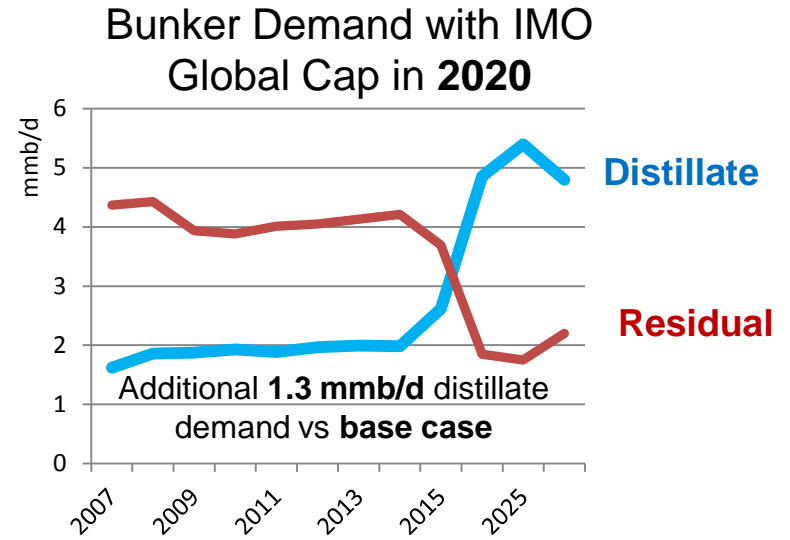
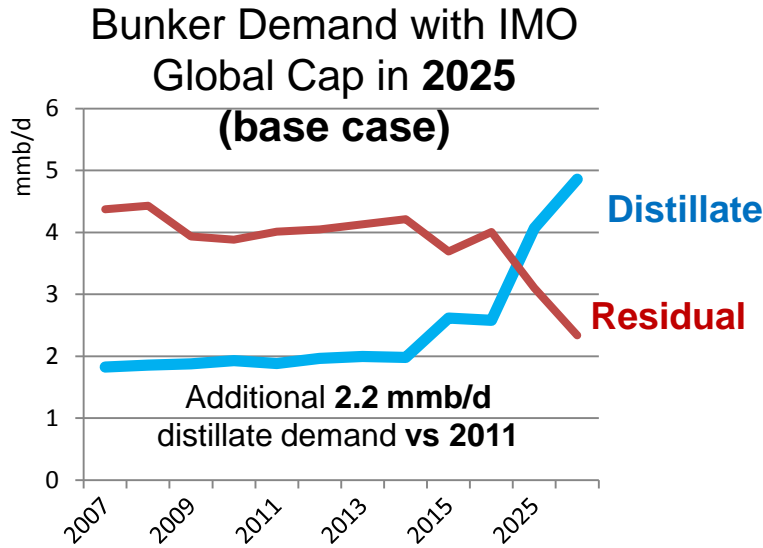
Implications of Higher Product Trade



Greater global product trade means:

- Larger tankers needed to exploit economies of scale;
- Therefore more make/break bulk.
- Increased role of trading hubs and opportunities for new ones if there is sufficient depth, size, and location.
- More commercial storage required.
- More strategic storage required.

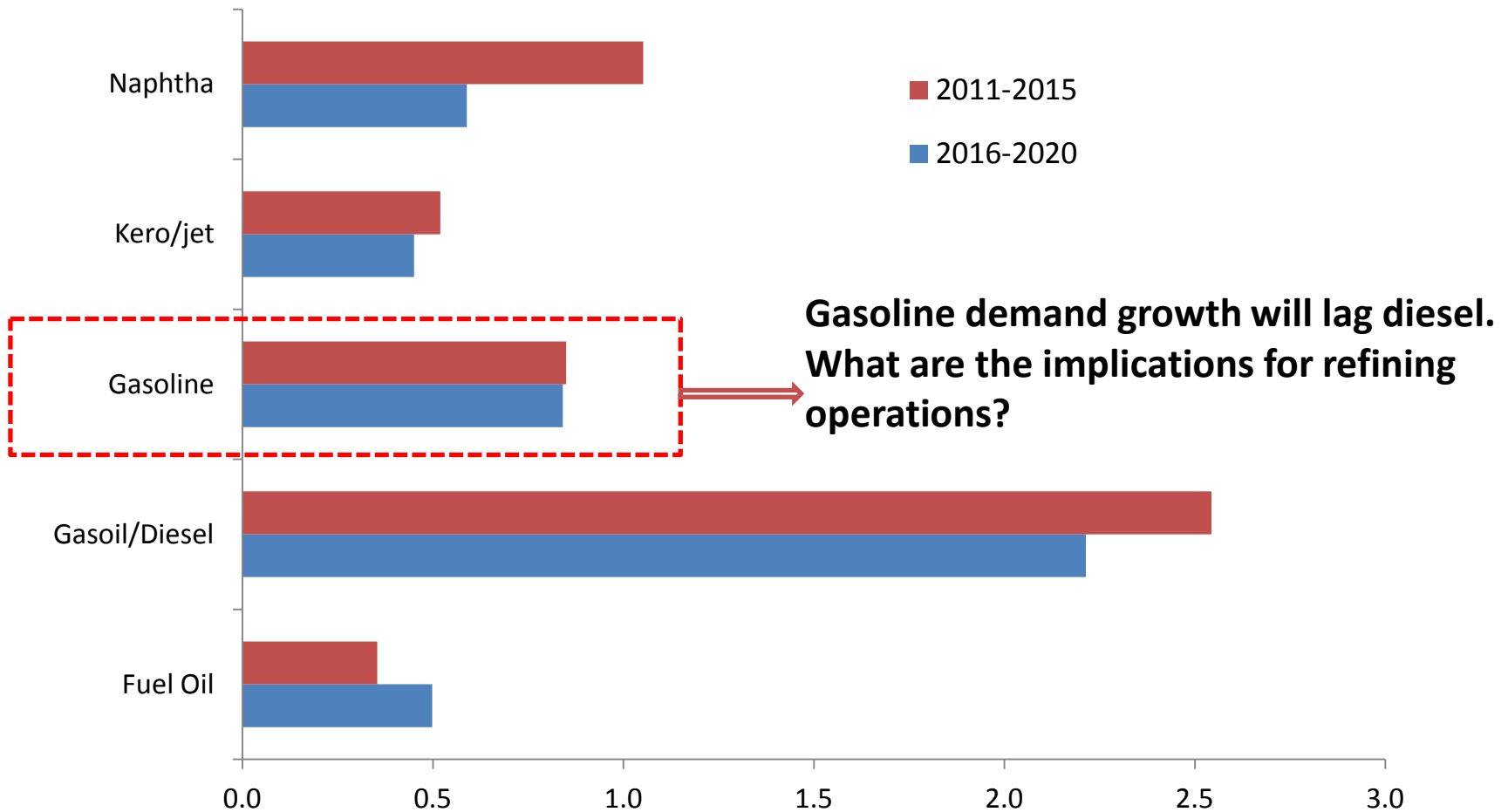
How will Specification Changes Impact Bunker Demand?



Source: Outlook for Marine Bunkers and Fuel Oil to 2030 (FGE/Robin Meech)

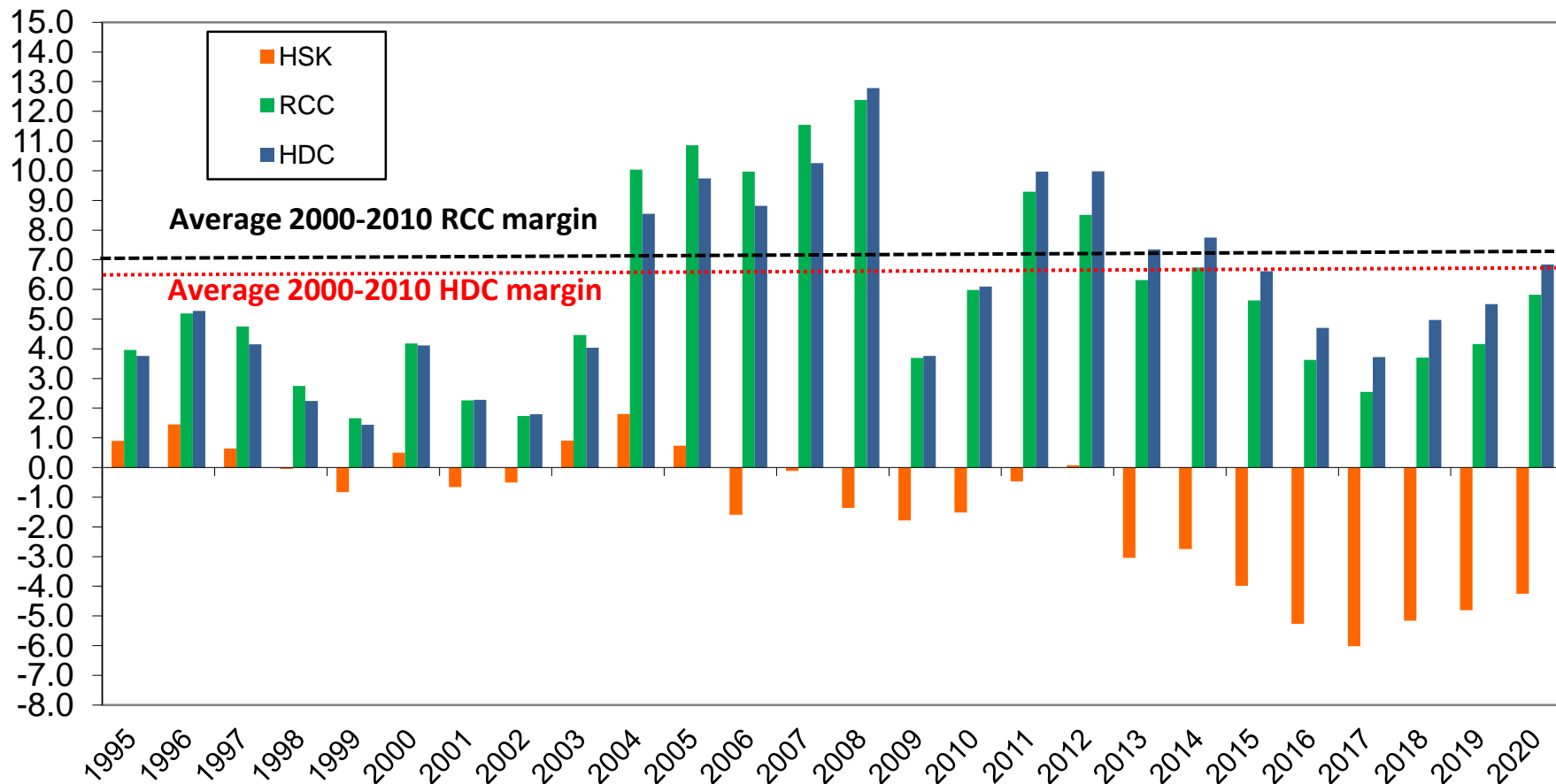
Gasoil/Diesel Leads Global Demand Growth

Changes in Demand for Oil Products 2010-2015 and 2016-2020
(mmb/d)



Refining Margins to Remain Moderate in Near Term

Past and Projected Refining Margins for Dubai Crude, Singapore Market (US\$/b)*



* Actual up to 2010 and forecasts in 2011\$ thereafter.

Relative Winners/Losers

Winners	Losers
<ul style="list-style-type: none">• Upstream• Trading/storage• Secure access to supply• Targeted upgrades where feasible?	<ul style="list-style-type: none">• Less complex refiners in mature markets• Refiners without feedstock/integration/logistics advantage

Thank You

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