

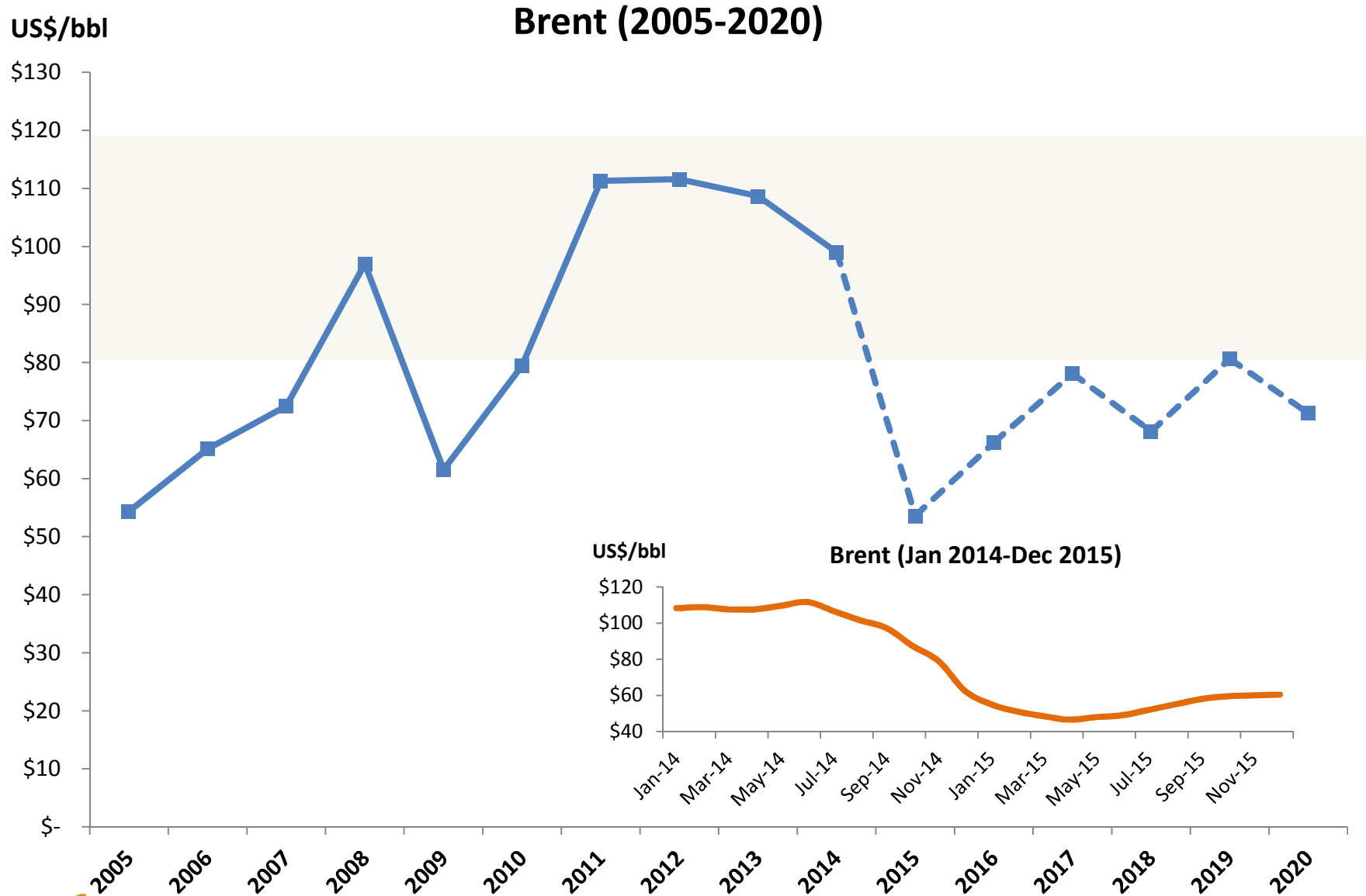


Sustainability vs. Volatility: The New Paradigm in the Petroleum Industry

**Dr. Fereidun Fesharaki
FGE**

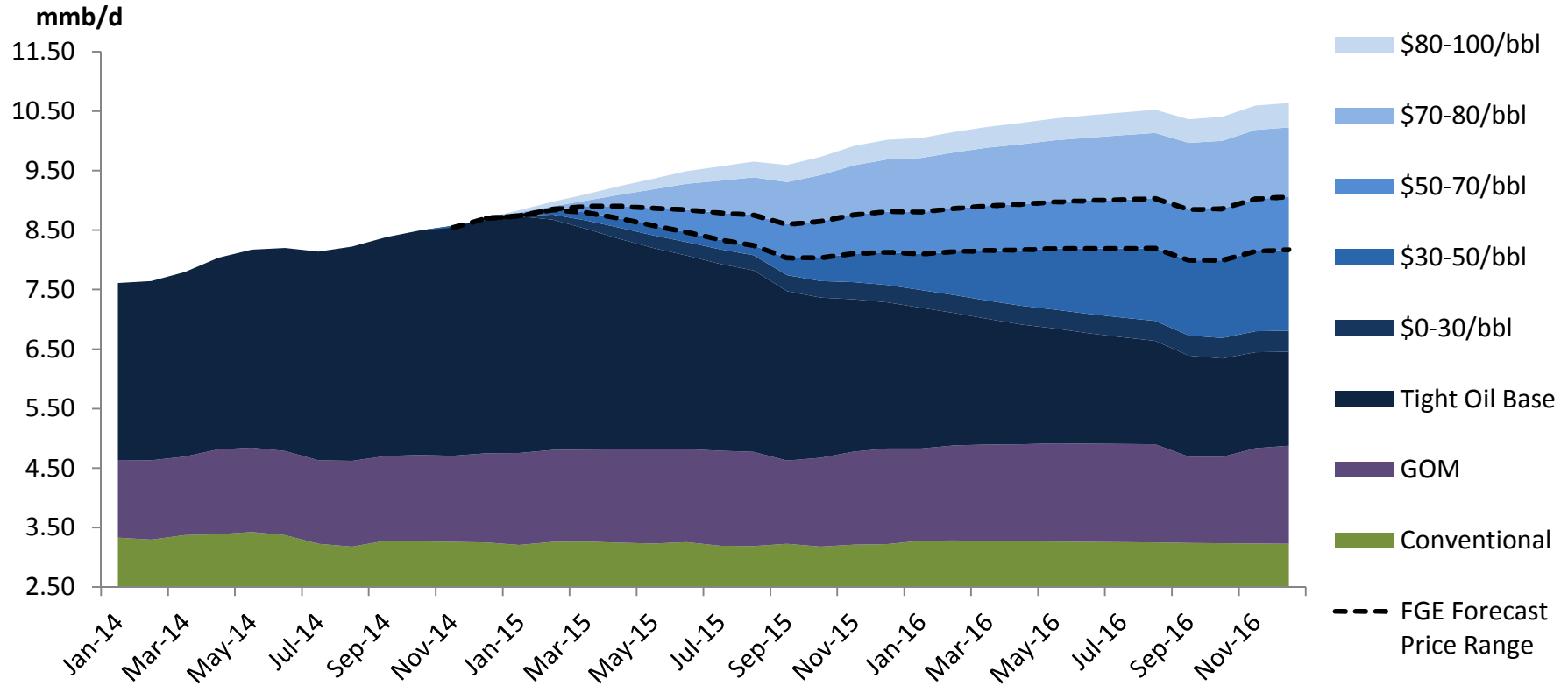
**The 33rd JCCP International Symposium
Tokyo, Japan
January 21-22, 2015**

Long-Term Oil Price: A Range to Consider



Limited Short-Term Price Impact on US Tight Oil

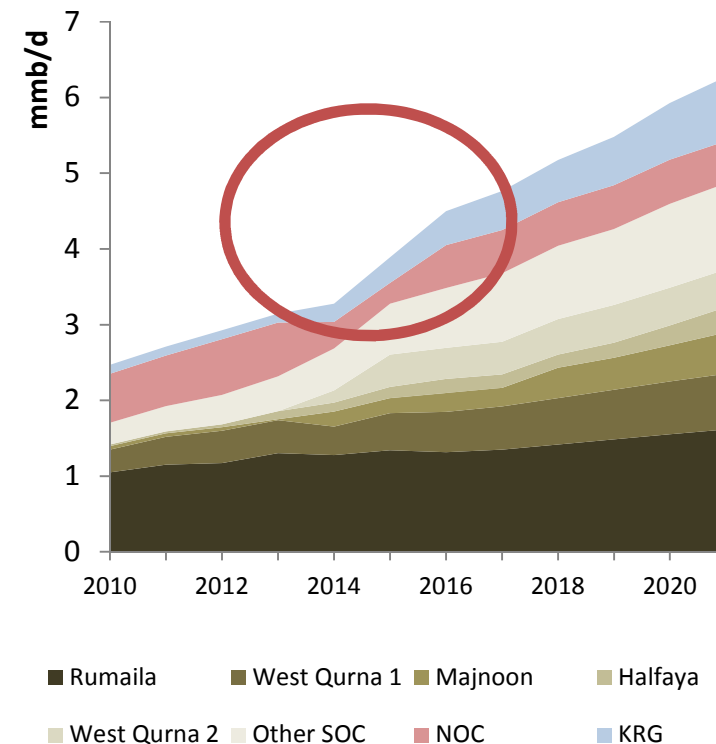
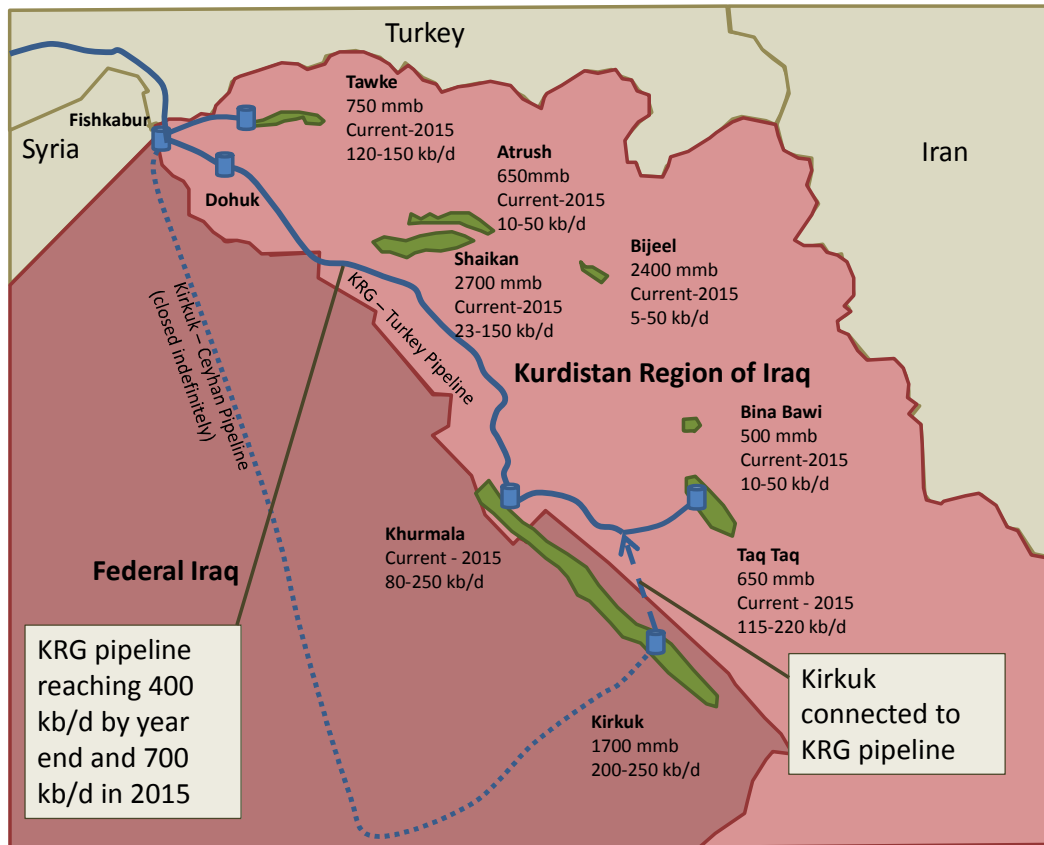
- US tight oil growth protected in 2015 by inertia of current drilling activity
- 2016 output growth at risk however, as weaker prices expectations start feeding in
- Prices at US\$70/bbl (Brent) seen as low enough to cut growth



Total US Tight Oil Output	2013	2014	2015	2016	2017	2018	2019	2020
High Case	2,595	3,394	4,350	4,878	5,213	5,378	5,502	5,594
WTI Prices at \$70/bbl (18m Hedging)	2,595	3,381	4,108	4,324	4,456	4,461	4,452	4,431
FGE Forecast of WTI Price (18m Hedge)	2,595	3,381	4,128	4,520	4,713	4,924	5,041	5,069

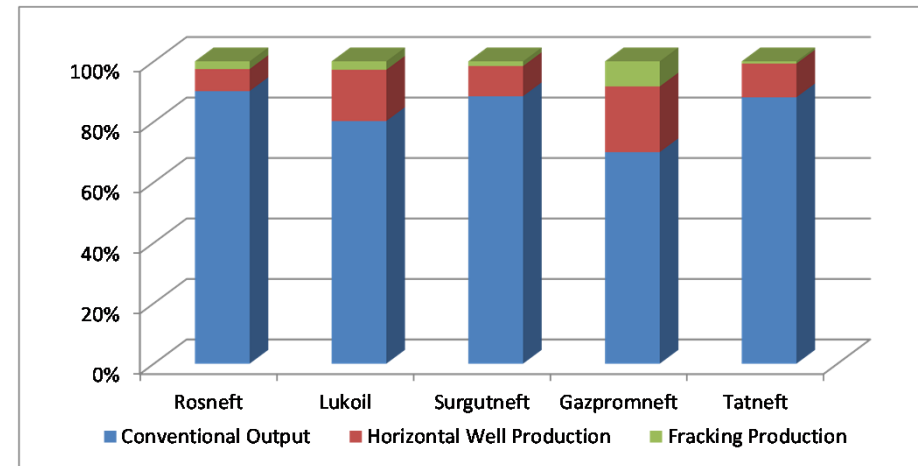
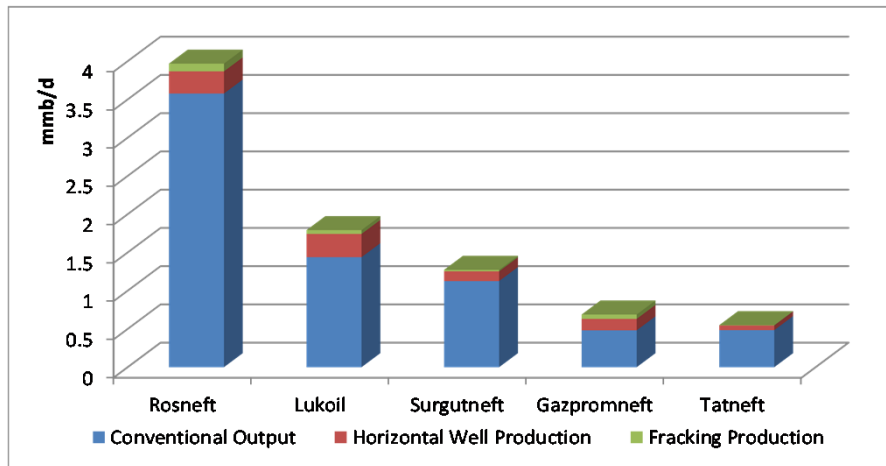
Iraq Crude Outlook—More Potential Volume

- Some 400 kb/d of supply due to hit the Med early next year, rising to 700 kb/d
- Southern Iraq output growth moving on, but at a slower pace than Iraq Oil Ministry expectations



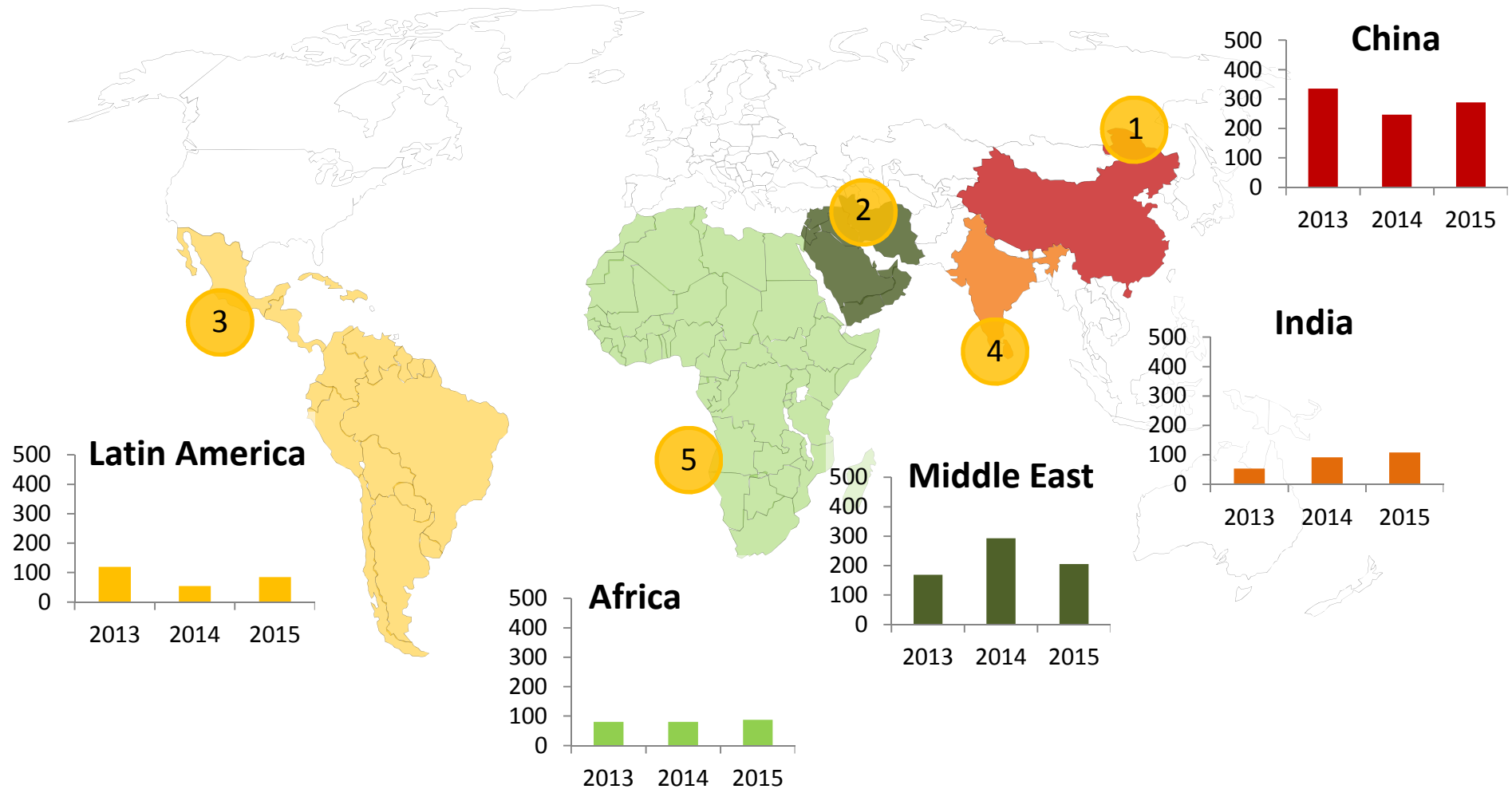
Russian Production Expected to Decline by up to 150 kb/d

- Previous expectations saw tight oil accounting for over 1 mmb/d by 2025
- Some 300 kb/d of production at risk from horizontal multi-stage frack wells
- About 3% of Russia's current production exposed to sanctions
- Decline of 50-150 kb/d in 2015 expected



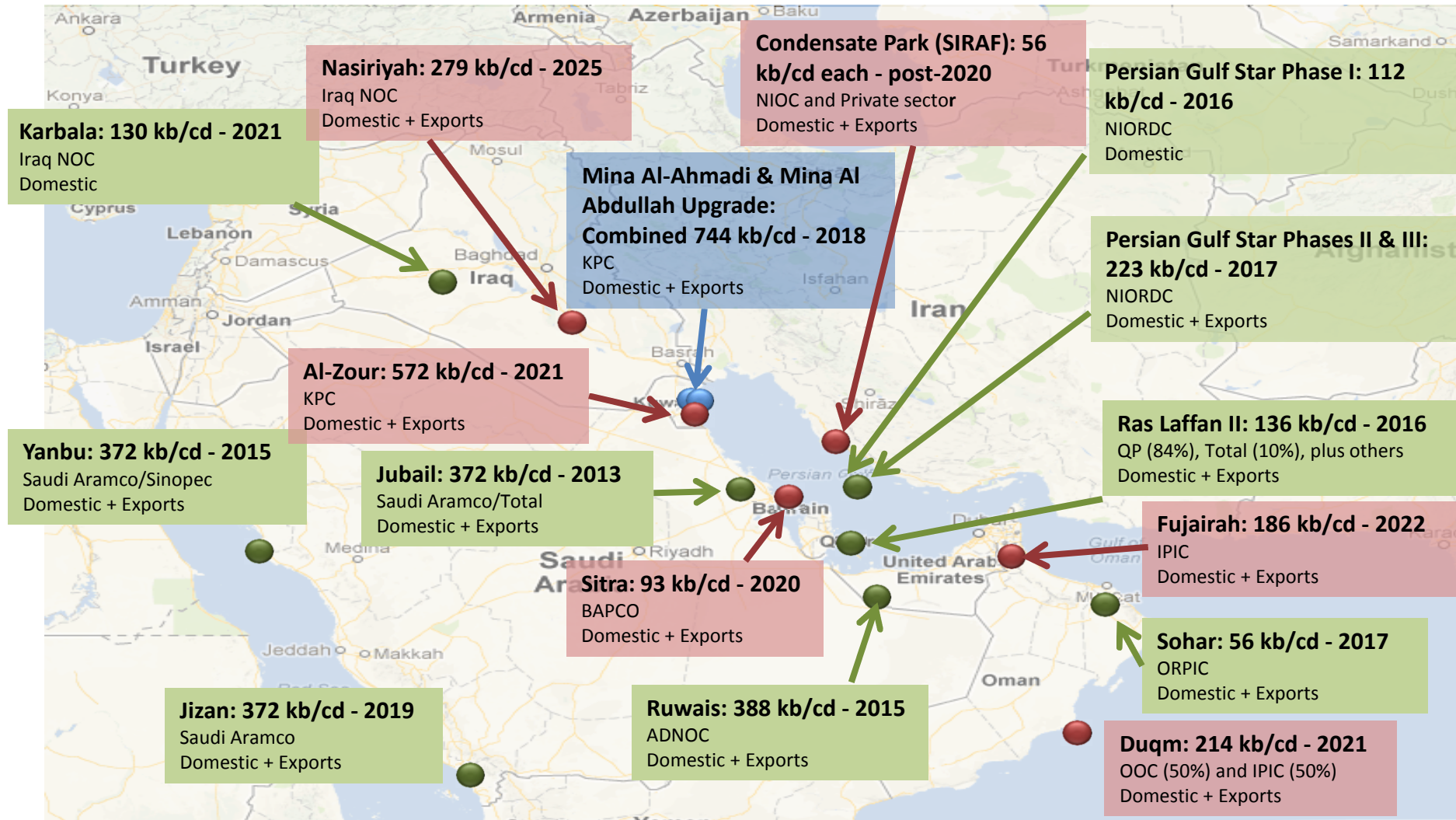
Five Key Oil Demand Growth Centers

(Year-on-year Oil Demand Growth, kb/d)

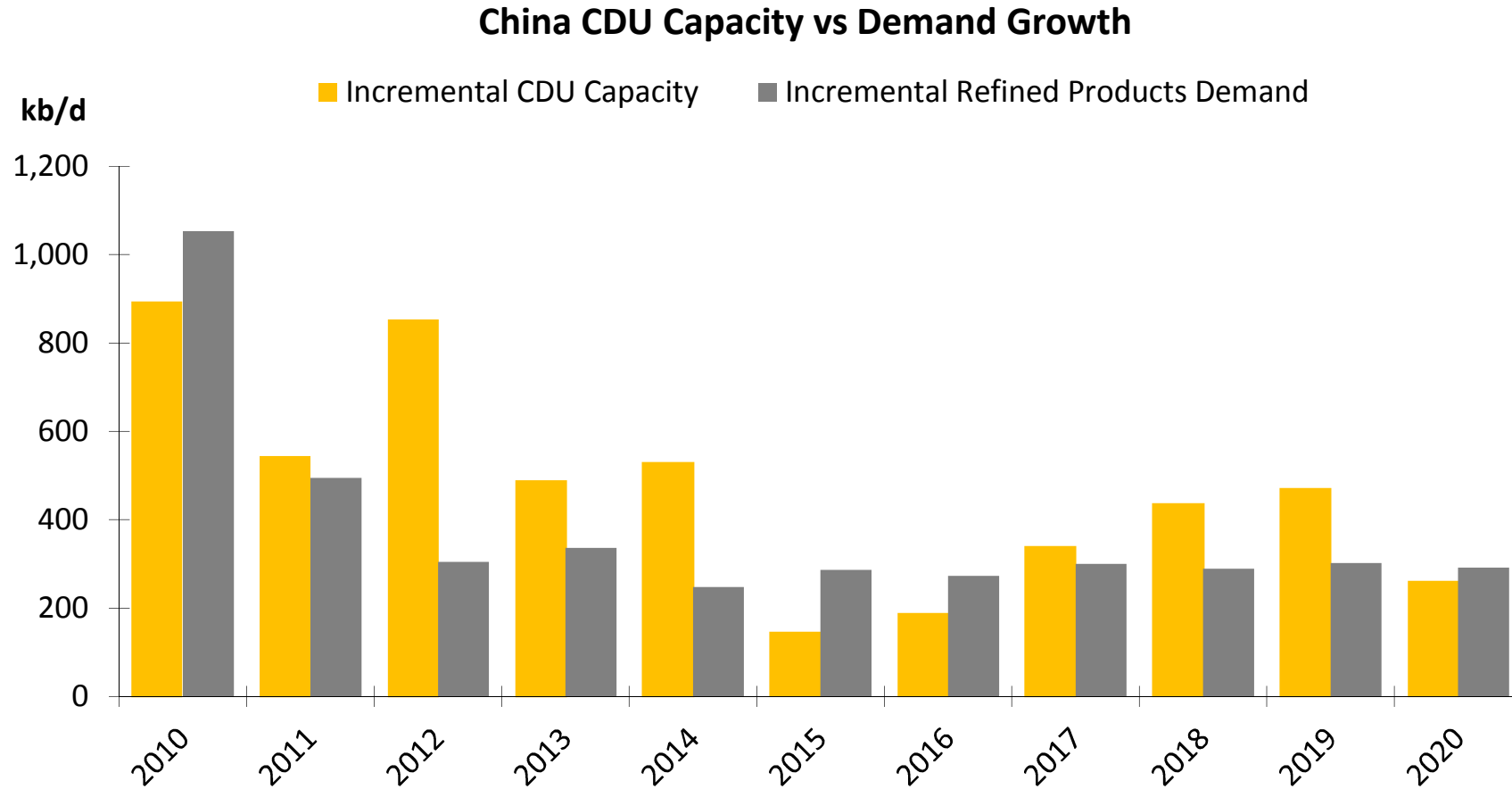


Major Refining Projects in the Middle East

Key: Firm and likely projects by 2020 Likely/possible projects post-2020 Ongoing upgrade projects



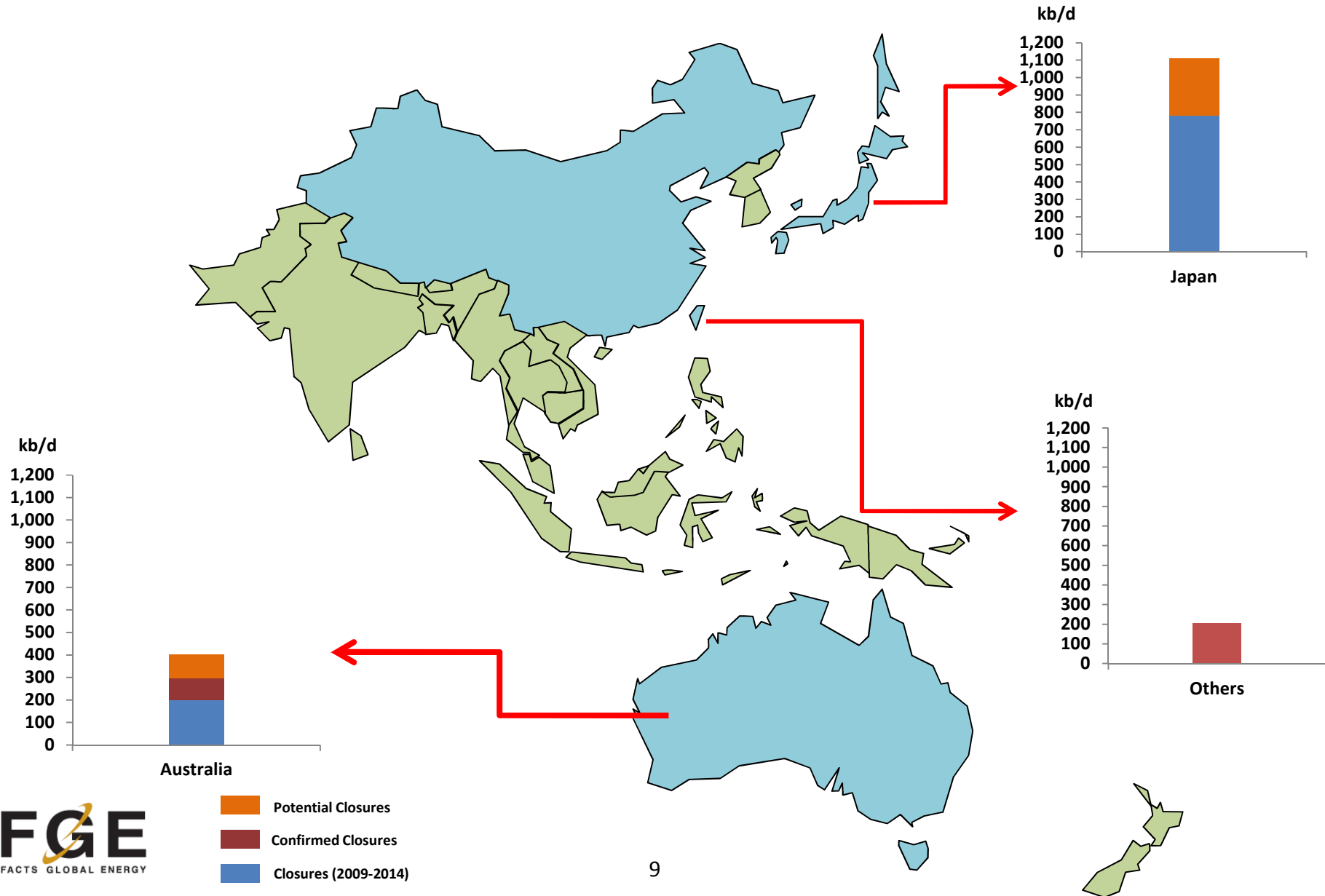
China Capacity Expansion Slows...But Still a Wild Card



Note: Data for 2014-2020 is based on probability-adjusted additions

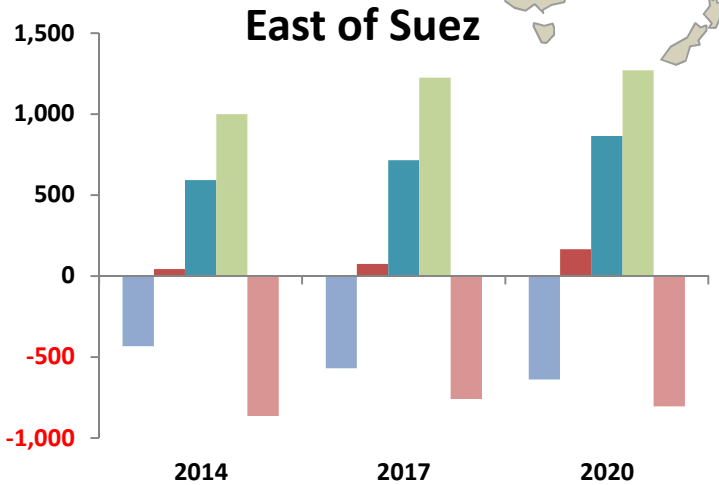
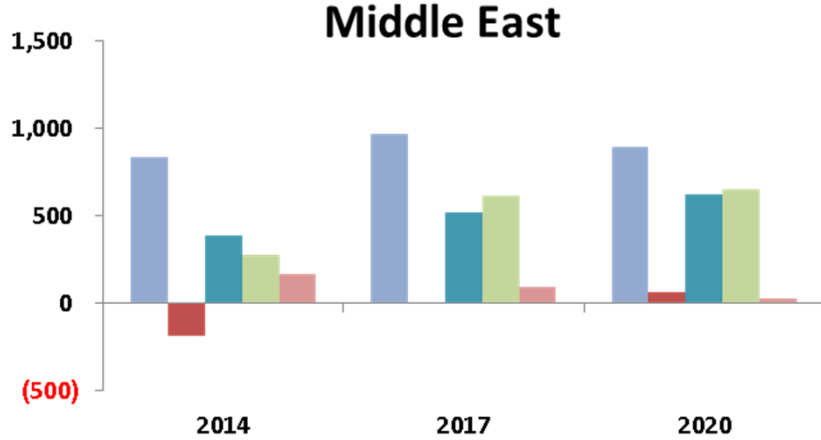
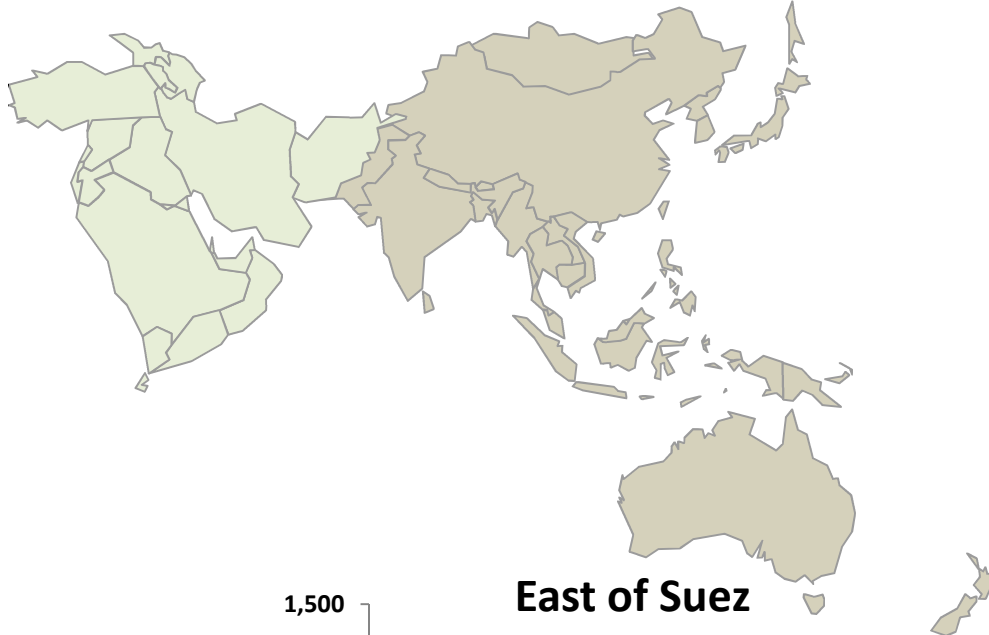
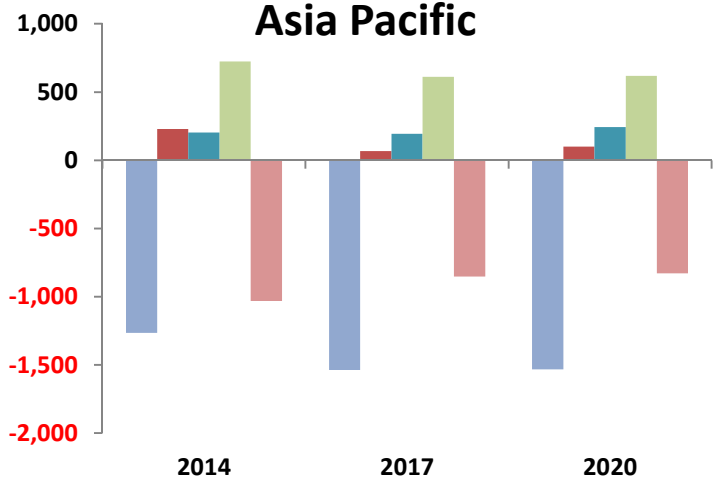
Refinery Closures: Potential Realized?

Japan Leads Refinery Closures in Asia Over 2009-2020

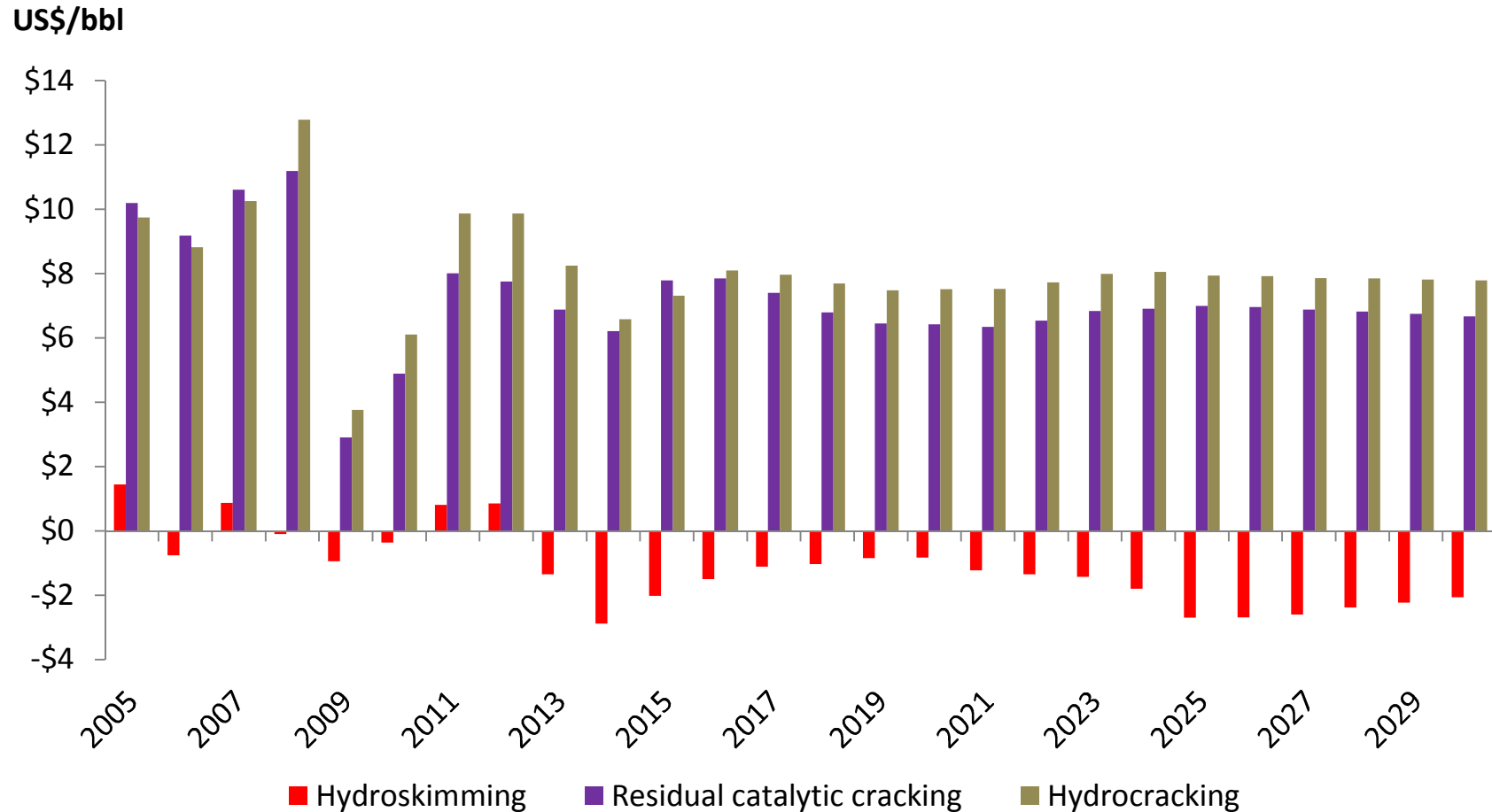


East of Suez Net Surplus to Rise

Net **Imports**/Exports (kb/d)



Past and Projected Refining Margins for Dubai Crude Singapore Market



Actual prices for 2013. Forecasts in \$2014 thereafter.

Thank You

Global Headquarters:

133 Aldersgate Street
London, EC1A 4JA
United Kingdom
Tel: (44 -0-20) 7726-9570
FGE@fgenergy.com

Asian Headquarters:

8 Eu Tong Sen Street,
#20-89/90 The Central,
Singapore 059818
Tel: (65) 6222-0045
Fax: (65) 6222-0309
FGE@fgenergy.com

Global Offices:

Dubai	(971-4) 439-0451
Beijing	(86-10) 5869-5737
Tokyo	(81-3) 6256-0299
Hawaii	(1-808) 944-3637
California	(1-646) 733-7571
Melbourne	(61-3) 9787-9520



London – Singapore – Dubai – Beijing – Tokyo – Hawaii – California – Melbourne