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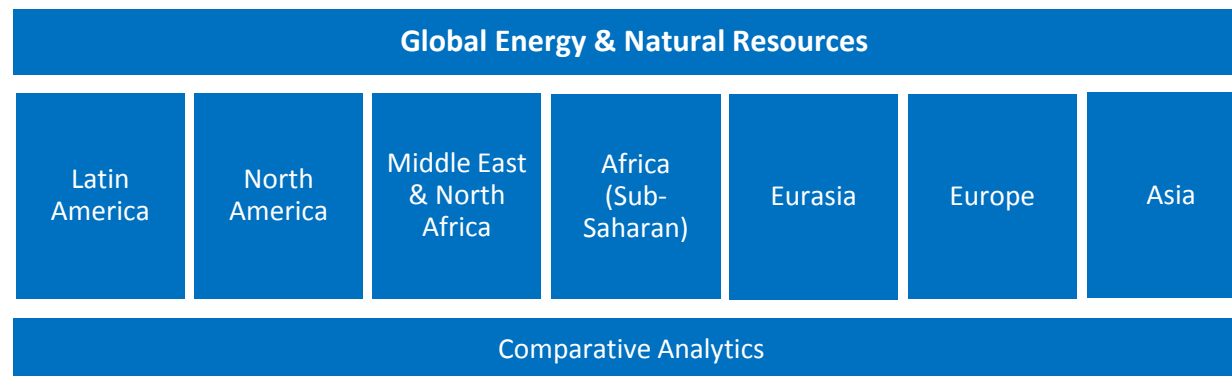
Key challenges for Asian gas buyers: from geopolitics to pricing

March 11, 2014

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- Engineering
- Storage
- Geology
- Finance
- Lobbying

4 key political challenges for Asian gas buyers

#1: Supply risk: potential for global output surge will be offset by domestic risks

#2: Geopolitical events could disrupt the flow of gas

#3: Buyer cartel: from cooperation to competition

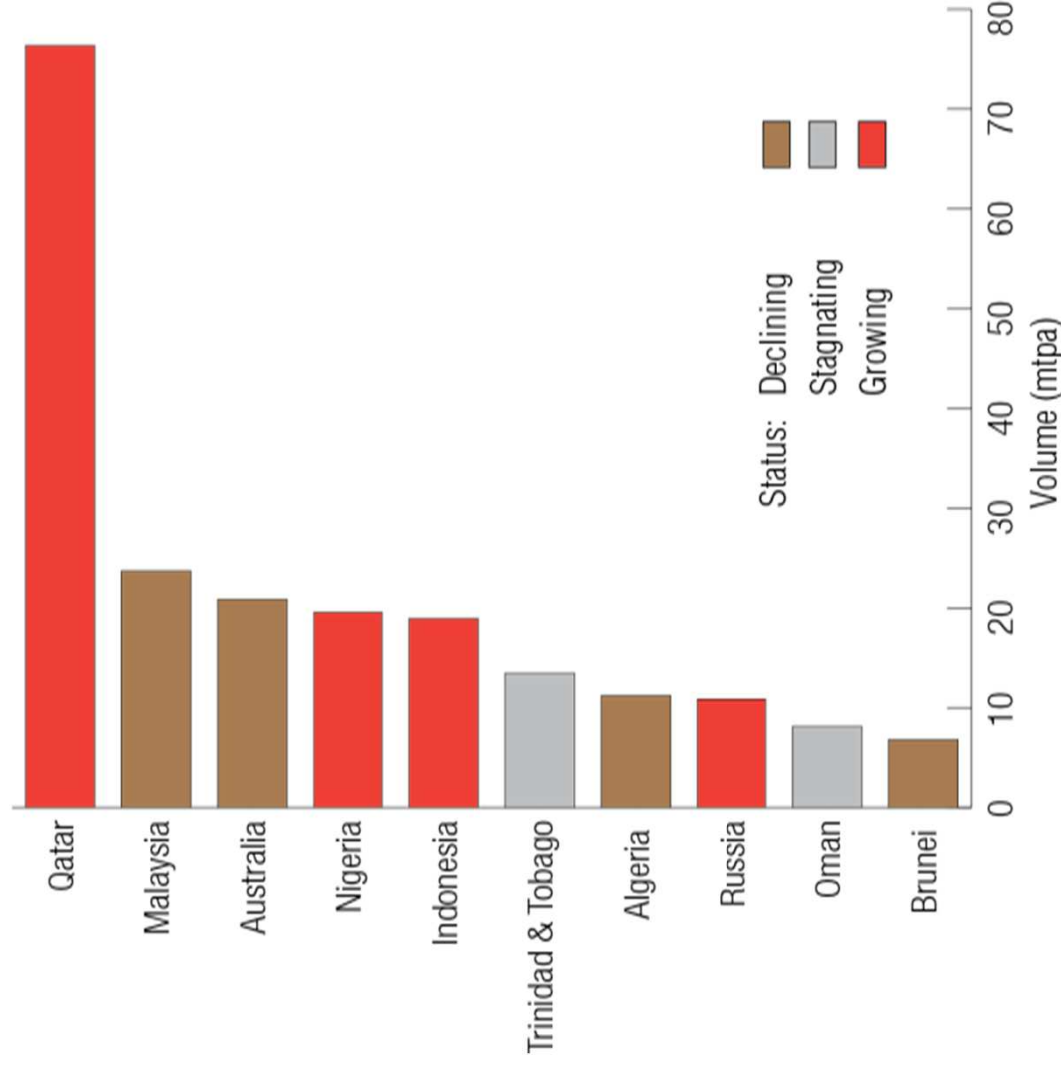
#4: Asian price evolution will be gradual. The long road towards an Asian gas hub

#1: Supply risk: potential for global output surge will be offset by domestic risks

- **Evolving role for established LNG producers:**

- ⑩ Qatar: The moratorium on new supplies will not be lifted this year and likely to remain intact through 2015.
- ⑩ Russia: Green light on Yamal LNG is a win for Russia's LNG strategy but a headache for Gazprom
- ⑩ Nigeria: Stagnation of output in the absence of PIB
- ⑩ Indonesia: Prioritization of domestic needs over export market
- ⑩ Egypt: LNG production will remain well below capacity
- Their competitiveness has been impacted by the US shale gas-to-LNG revolution

Top ten LNG exporters, 2012



Qatar will only add new volumes through debottlenecking (about 10 mtpa)

Malaysia has no plan to expand current capacity amidst declining output and rising domestic demand

Indonesia is expected to add about 4.5 mtpa in 2014-2016

Australian output is expected to reach 60 mtpa by 2016-2017, and 80 mtpa by 2020

As soon as the PIB is passed, at least one new LNG export project (10 mtpa) is likely to take FID

Amidst declining gas reserves, ALNG is unlikely to expand

A new plant will start in 2013 adding 4.7 mtpa but others have been decommissioned

Russia is considering several new export projects which could bring a minimum of 15 mtpa by decade-end

Any growth in LNG exports in the coming years will have to be balanced with meeting growing domestic needs

Concerns over gas reserves has led Brunei to reduce its exports to Japan starting in 2013

#1: Supply risk: potential for global output surge will be offset by domestic risks (continued)

- Regulatory overreach could delay projects for emerging suppliers
 - ⑩ US: Latest DoE approval of Cameron LNG and role of US LNG as a foreign policy tool post-Ukraine crisis suggests that US LNG will undercut rival projects
 - ⑩ Canada: BC tax provides industry with fiscal clarity but delays will persist
 - ⑩ Australia: faces costs challenges and delays
 - ⑩ Tanzania: Natural gas legislation unlikely this year due to distractions over constitutional reform
 - ⑩ Israel: The October court ruling opens the door for exports, but the first recipients of Israeli pipeline gas will be neighbors

#1: LNG supply risk map 2015-2020

New LNG supply risk map 2015–2020

Key variables	Mozambique	Tanzania	Australia	US	Canada	Cyprus	Israel
Domestic political risk	Regulatory risk	◆	◆	◆	◆	□	◆
	Change in tax take (including carbon tax)	◆	◆	□	◆	◆	◆
	Labor shortage	💣	💣	💣	💣	💣	◆
	Resource nationalism	◆	◆	□	💣	□	□
	Bureaucratic inertia	◆	💣	□	□	□	💣
	Domestic demand	◆	💣	◆	◆	□	□
	Lack of infrastructure	💣	💣	◆	□	◆	💣
	Environmental and local opposition	□	◆	◆	◆	◆	◆
Top security threat	Militancy/terrorism	□	□	□	□	◆	💣
	Piracy	💣	💣	□	□	□	□
	Disputed maritime borders	◆	◆	□	□	□	💣
	Low Risk	□	Medium Risk	◆	High Risk	💣	

Source: Eurasia Group research

#2: Geopolitical events could disrupt the flow of gas

- Risks of miscalculation in South and East China
- North Africa will struggle to expand gas output this year and beyond (Algeria, Libya, Egypt)
- Pipeline attacks (Ukraine, Yemen, Nigeria)
- Not a long time ago the focus was on the Strait of Hormuz with 30% of the world's LNG supply lying behind the Strait...



#3: Buyer cartel: from cooperation to competition

- With skyrocketing LNG costs, Asian governments are considering joint procurements to pressure suppliers to lower prices
- The Japanese government is leading the charge with initiatives at home and abroad to form increased gas cooperation between gas players (Tepco, Japan-India and Japan-Korea deals)
- As the market gets longer and the price of spot LNG drops with the arrival this year and next year of a combined 60 million tons of additional export LNG capacity, the willingness of Asian buyers to cooperate will be tested.
- Meanwhile the demise of gas OPEC seems irreversible as GECF loses steam on pricing

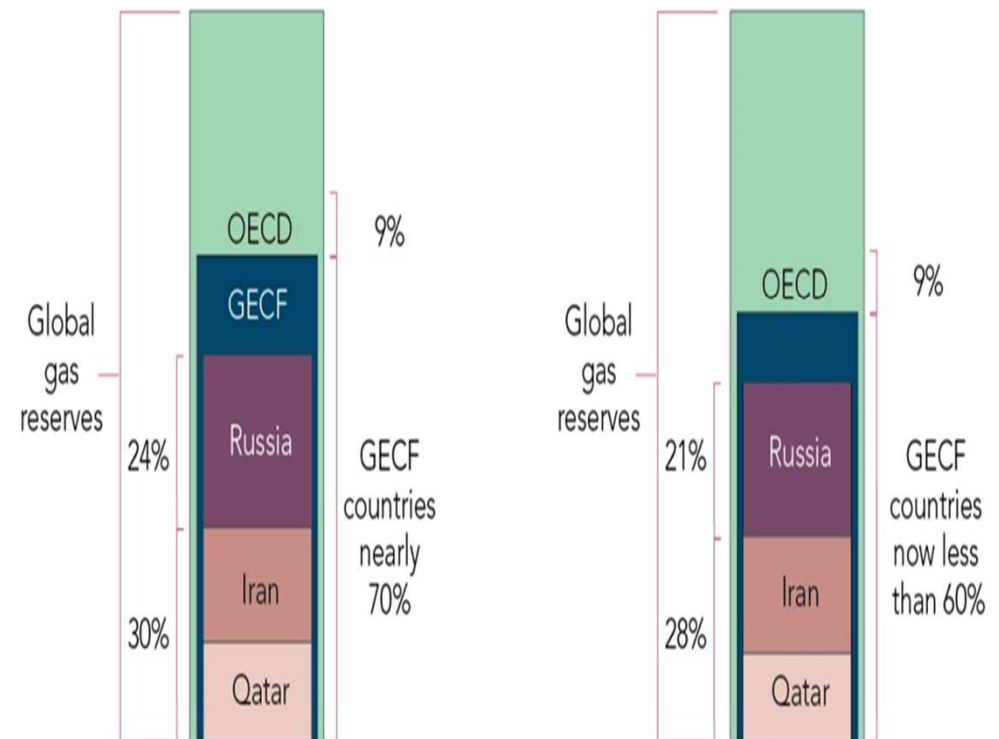
GECF concentration of gas reserves drops

Global gas reserves (2009)

54% of reserves are found in just 3 countries

Global gas reserves (2011)

49% of reserves are found in just 3 countries



Source: BP Statistical review, Eurasia Group Research

#4: Asian price evolution will be gradual

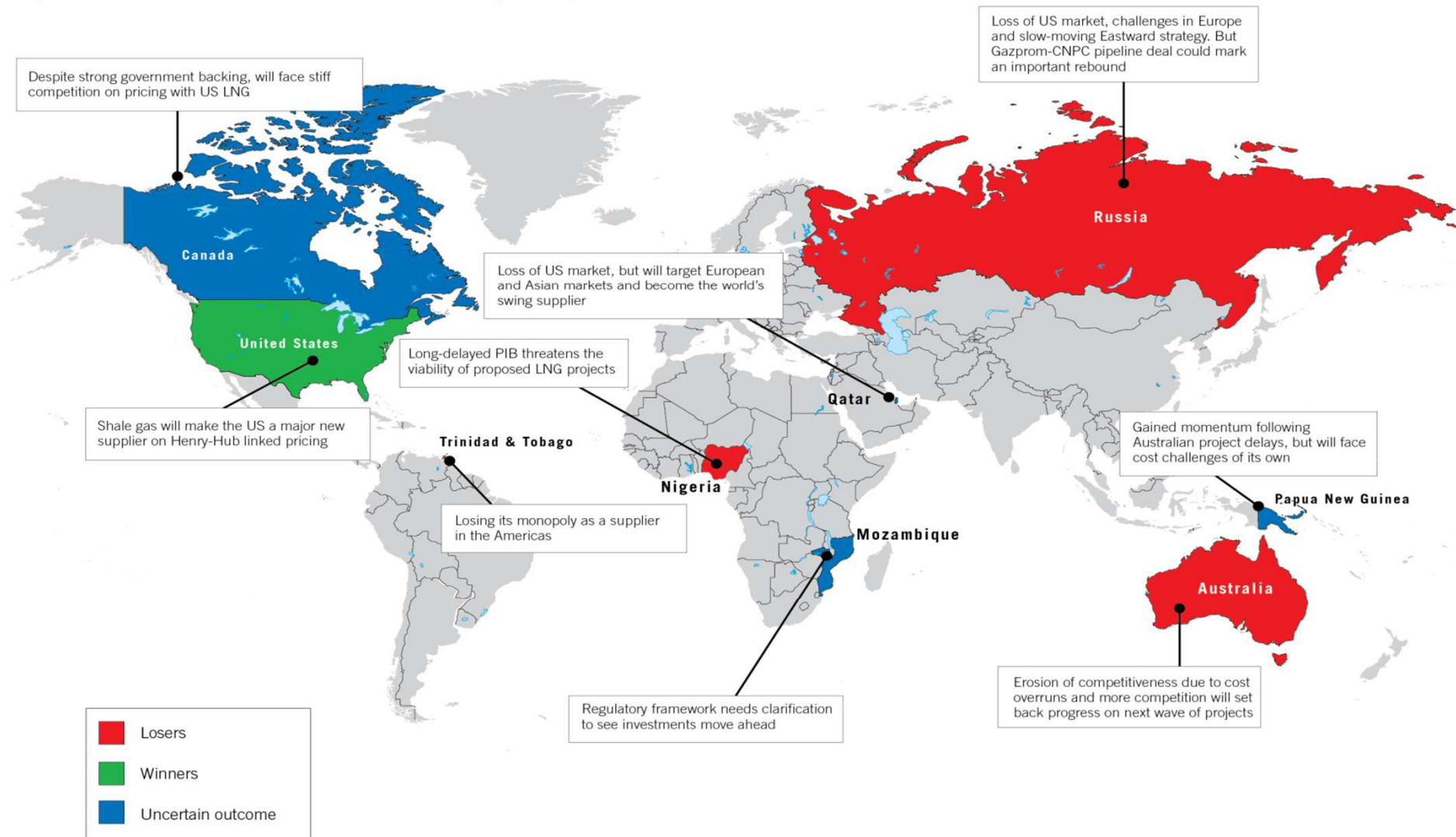
- The prospect of US LNG exports, has improved the bargaining position of European and Asian importers
- For Asian buyers, US LNG will diversify their pricing exposure and maybe reduce their fuel import bills
- But the evolution of global gas prices away from oil indexation will be slow-moving and achieved only in incremental steps
- Prospects of US gas exports are already putting pressure on the pricing formula of several existing long-term contracts, and also shaping the pricing for new projects that will come on line later this decade
- However the road towards a second price market and an Asia's gas hub will be long

Milestone events illustrating pricing evolution worldwide (timeline)



#4: Geopolitics of US LNG exports and its impact on pricing

Impact of US shale revolution on select gas exporters



Conclusion: Should Asia look like more Europe?

- Can EU model of integrated gas market be applied to the growing Asia? (cross-border pipelines? inter-regional trade?)
- Europe does not avoid geopolitical disruptions for now

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