International Gas Pricing in Asia: an uncertain future

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OIES Natural Gas Research Programme

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• A gas research programme at a Recognised Independent Research Centre of Oxford University, specialising in fossil fuel research
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• consultants, sellers of exclusive, high price business reports

Research referred to in this presentation can be downloaded without charge from our website: http://www.oxfordenergy.org/gas-programme/
Original Price Logic: fundamentals, and risk sharing in long term international gas contracts

ECONOMIC FUNDAMENTALS:
- Cost of development and delivery
- Financing (loan) and cash flow requirements

MARKET FUNDAMENTALS:
- Competing fuels in end use markets
- Ability of customers to switch to other fuels
- Degree of competition from other suppliers

Producer took the **price risk** (via the base price and indexation); buyer took the **market risk** (via the take or pay clause)
In Continental Europe and LNG-importing Asia “fundamentals” = oil price linkage

RATIONALE FOR EXPORTERS:
- Gas was developed similar to – or along with – oil
- Many gas exporters were also oil exporters

RATIONALE FOR IMPORTERS:
- Gas was replacing oil products and crude oil
- Prices were set below, and indexed to, oil to prevent customers from switching (back)

Common rationale: oil prices were set elsewhere avoiding suspicion of manipulation by exporter or importer
Asian LNG Import Prices are based on Japanese Crude Oil Import Prices (JCC)

- Crude oil was the fuel competing with LNG in Japanese power plants when JCC was invented

- Traditional contract negotiations focus on:
  - the “slope” - how gas prices change in response to crude oil price changes
  - the “S-curve” – whether there is protection for the buyer at high oil prices and for the seller at low oil prices

- Prices reflect the era in which they were signed and this is why the price range is wide

Concentration has been on price level rather than price formation
What was unusual about this?

- International and domestic gas prices have had little in common with the basic Economics 101 proposition that: the price of a product should reflect the supply and demand for that product in the market in which it is sold BUT....

- For several decades (certainly up to 1990) in most countries these arrangements were successful and reasonably logical BUT THEN IN THE LATE 2000s....

THINGS BEGAN TO CHANGE
AGENTS OF CHANGE: 2008-13

- Global recession
- North American shale gas revolution
- Oil price increase above $100/bbl
- Fukushima nuclear accident and shut-down of Japanese reactors
- Growth of Chinese gas demand and LNG imports
- Growth of short term LNG trade

Assumption of oil-linked gas prices starts to unravel first in Europe, next in Asia
Hypothetical US Production-Price Dynamics

Source: Rogers/OIES, Illustrative Assumptions

LRMC assumption of US dry shale gas is $5-7/MMbtu
US LNG Export Projects: ~70 Bcm of capacity already permitted

Specific & Assumed Projects

Capacity Ownership

* Assumes BG Retains 100% of Lake Charles

Sources: Company & Media Reports, Rogers/OIES
Break-even costs for US LNG in Europe & Asia

Some Henry Hub based contracts signed in Asia

Source: Henderson/OIES
Asian price confusion in the 2010s

- Discontent with JCC is growing, both in Japan and elsewhere (especially at oil prices >$100/bbl) BUT…
- Uncertainty as to which price formation mechanism is logical: market- or hub-related
- Henry Hub/NBP–related pricing has a role but lacks market logic
- Huge increase in Asian spot trade invites the possibility of an Asian hub
- Singapore is the early hub but growth is limited

Continued confusion in Asia between price formation and price level
Obstacles to an emerging Asian gas hub

- Uncertain gas supply/demand fundamentals in many countries
- Lack of liberalised access to pipelines and LNG terminals
- Market dominated by national – often state-owned – companies and...
- Insufficient numbers of alternative stakeholders of significant size

Nothing will happen quickly, but there is a progressive rebellion against/rejection of JCC and a determination to achieve lower price levels
An Uncertain Future

- The dynamics of the “old world” have shifted and are now unsatisfactory and unsustainable.
- The “new world” is not yet clear but will feature an increasing shift to hub pricing – initially Henry Hub but eventually…
- An LNG hub in Asia – Singapore is the starting point but probably not the long term solution.
- The transition is likely to be very difficult as demand for lower prices coincide with high cost LNG projects coming on stream later this decade.
Thank You

Relevant published research:

- The Pricing of Internationally Traded Gas, ed. Jonathan Stern
- The Impact of a Globalising Market on Future European Gas Supply and Pricing, Howard Rogers
- Natural Gas Price Volatility in North America and the UK – Sofya Alterman
- Continental Gas Hubs – Are They Fit For Purpose? Patrick Heather
- The Transition to Hub-Based Pricing in Continental Europe: a response to Sergei Komlev of Gazprom Export, Jonathan Stern & Howard Rogers
- The Potential Impact of North American LNG Exports - James Henderson

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