KUALA LUMPUR 2012 WORLD GAS CONFERENCE

25th world gas conference

"Gas: Sustaining Future Global Growth"

# Gas: Instrument for Peace or Conflict?

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# A Joke From the 1970s

An oil executive walks into a bar and sees a wildcatter staring into his drink.

"What's the problem," the executive asks, "another dry hole?"

"Worse than that," the wildcatter says...

"...we found ***gas***."

Today, there are more opportunities in gas, but...

<u>No one ever invaded another country to seize their gas reserves.</u>

<u>No one threatens a world gas embargo.</u>

# All International Energy is Politicized…

In oil, the big risks are in the E&P phase.  Once oil is found, if it can be delivered to a port, it is easy to export.  Much offshore oil loads directly onto tankers.

Most oil is easily re-routed.  An oil exporter can't always place all volumes somewhere else, but finding buyers is comparatively simple…at the right price.

Even if gas is found in an easy system of reserves, with low production costs, monetizing the gas involves huge investments…especially for exports.

Gas is still politicized, but gas trade usually cannot be disrupted without both the seller and the buyer suffering.

# Some call it commitment, some call it entanglement

Oil is like dating…

Gas is like marriage…

…it's long-term and comes with complications.

# An academic economist would say that gas trade ought to be simpler than oil trade

- Crude oil is not a finished product.
- Crude oils vary widely in yield patterns.
- Crude oils contain sulfur and metals in wildly varying amounts.
- Finished oil products face different specifications from country to country.

In contrast, gas exports are highly fungible:

- Gas exports have already been scrubbed of sulfur.
- With the exception of Japan's requirements for "rich gas," BTU specifications fall into a narrow range.

**Yet oil is easy and gas is hard.**

# The oil supply chain is simpler, cheaper, and easier to scale up and down

Oil import facilities are so common they are almost invisible. Almost every port in the world can take sea deliveries of at least some oil products.


In addition, there are many hundreds of ports that can handle crude oil.

There are so many oil-handling facilities worldwide that oil smuggling has been a real problem in many countries.

**Gas smuggling would be a bit more challenging!**

# Digression…local gas theft is rampant in parts of China

Using this method for international transport or smuggling is probably not practical…

…especially in high winds.

The theft of gas is minor compared to oil theft; Sinopec reported more than 30,000 cases of oil theft from pipelines and wells in the last decade.

# Oil and gas can both be exported by pipeline or by sea

Excluding trade between European countries, more than 80% of oil moves by sea.

Excluding Europe-Europe trade, only 38% of gas trade moves by sea. (Including Europe-Europe drops this to 30%.)

Pipelines are cheap and efficient for both oil and gas. But pipelines literally hard-wire the connections between trading partners. The history of the Middle East, where 1,200 miles of international pipelines are rusting away (TAPLine and Kirkuk-Banias) shows how badly things can go wrong.

Recent problems like the Canada-US Keystone pipeline show that problems can arise even between close allies.

**<u>Interdependence requires cooperation…but does not guarantee it.</u>**

# The costs of LNG supply chains are now staggering

Cheniere is expecting to invest US$5 billion to produce 9 mmtpa of LNG—but this is at a site that is already developed as an LNG import terminal, so it radically understates greenfield costs.

At the other end of the spectrum, recent cost estimates for the 15 mmtpa Gorgon plant in Australia have runs as high as US$43 billion. Dealing with such sums means involving many parties. On the supply side alone, Gorgon includes investment by Chevron, ExxonMobil, Shell, and three Japanese utilities.

Be it five billion or forty billion, these are sums that require reliable, long-term outlets for the majority of the production. Exporting companies, importing companies, and even exporting and importing national economies, are highly exposed.

# Overcoming the "Tyranny of Geography" in gas requires forethought and cooperation

Moving liquids from place to place is an ancient practice, going back as far as goatskins, gourds, and jugs.

Containing and moving gases is an inherently unnatural act that must fight against entropy.

Any cowboy wildcatter can figure out how to pump a barrel of oil out of the ground and sell it halfway around the world. Gas is another matter.

**Expanding the gas business is more difficult in times of conflict. And conflict is quite inconvenient for the gas industry. HOWEVER…**

# That doesn't mean that gas is the key to world peace

**<u>It's about the money.</u>** The interdependency engendered by gas trade means that it tends to be in everyone's financial interest to avoid conflict. <u>That doesn't mean that uneconomic projects will succeed in creating international cooperation.</u> For example, take the Turkmenistan-Afghanistan-Pakistan-India gas pipeline or the Iran-Pakistan-India "Peace Pipeline."

**<u>It's still about the money.</u>** Many LNG contracts were centered on certain long-term markets. But now that the Asian prices are high and Atlantic prices are weaker…welcome to *diversions*!

**<u>It's still about the money. No, really.</u>** The announcement that Egypt will be cutting off gas sales to Israel has been seen as a political move. Sure, it has political overtones. But the prices were about half the prices paid in nearby Turkey or Italy. If they were, say, US$12/mmBtu, the politics might not be so important.

# And, in the future? Well, remember the Seven Sisters?

Until the 1970s, or arguably the late 1980s, there was no real world market in oil.  A few vertically integrated multinational companies controlled the system, from the overseas production fields to the shipping to the refining to the sales at the pump.

It wasn't a true market, but it was stable...except that the producing countries weren't getting cut in on the real cashflow.

To obtain the mega-financing needed, international gas projects try to imitate vertical integration—through long-term contracts. Elements may be indexed, but the goal is to create enough stability to support the project (and then make more money at the margins).

# In my crystal ball, I see that Gas is getting Oilier…

There are only 19 LNG exporters (including re-exporters). But not that long ago, there were only a handful.

There are 90 regasification plants in the world…but 21 more are under construction, and who knows how many more are in the planning phase?

“Portfolio suppliers” are becoming a critical element of the market. These are the companies that can provide bridging volumes between immediate needs and longer-term supplies. *(Q: If oil is dating and gas is marriage, what are portfolio sellers?)*

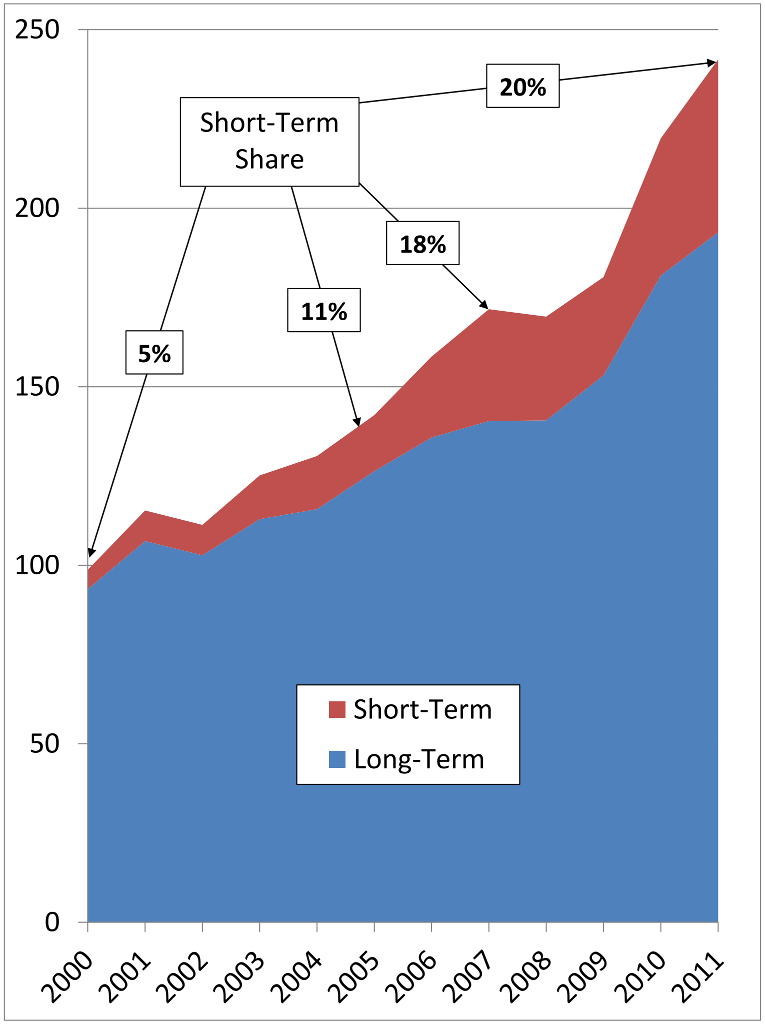
The world is still divided into discrete markets, but those markets are becoming more dynamic. If the US emerges as a major LNG exporter, it will send price signals between markets.

# …and even Oilier…

In 2010, pipeline trade expanded by 5%, while LNG expanded by 22%. The move is toward sea trade—which allows volumes to switch destinations.

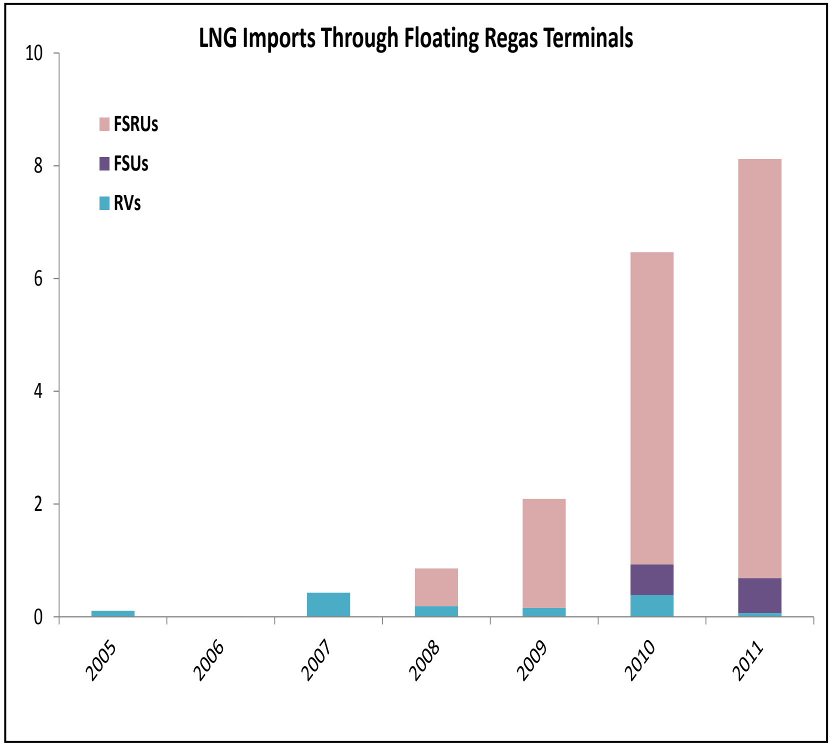
To protect both buyers and sellers, LNG will continue to be dominated by long-term contracts. But short-term contracts are growing at 22% per annum as opposed to 8.5% per annum for LNG overall.

World LNG Trade by Contract Type (mmtpa)



# LNG is moving from few importers to many

Traditionally, constructing an LNG import terminal took almost as long as building a liquefaction plant. Offshore storage and regasification are changing the horizon from 5 years to 1-2 years.




Offshore regasification also minimizes the onshore footprint, and needs less permitting and environmental assessment.

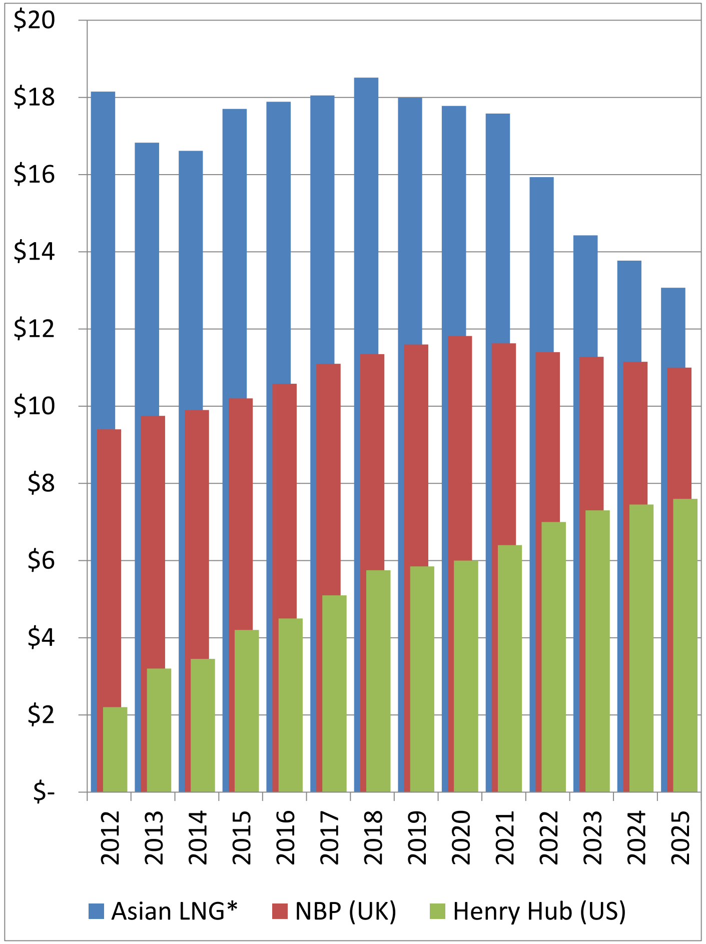
# Prices won't equalize, but they will grow closer

A wave of new LNG projects in Australia will increase supply dramatically.

US gas exports will lift US prices somewhat—but will also act to restrain prices internationally.

Short-term and spot sales will make the overall market more responsive, and tend to move prices indexing to a gas-to-gas basis (rather than gas-to-oil).

Regional Gas Price Forecasts (US$/mmBtu)




*New long-term contracts.

## Gas will never be oil, but…

- Gas in the ground will never be a prize worth fighting over.
- Gas will always require a higher degree of contract commitment than oil.
- As international gas becomes more like a real market, the opportunities for conflicts and politicization will increase.
- It is economic imperatives that make gas an instrument for cooperation rather than conflict. Conflict is always possible—but it is less likely if we get the economics right to start with!
- Gas trade will always be like a marriage. But with a real market emerging, the honeymoon is over. It's time to settle down and do some real work.