

Applied Price Theory: Prospects for a “Gas OPEC”

By Diego Villalobos Alberú*

Introduction

“...focus on coordinating investment policies to dissuade countries from further flooding the market”¹, such was the latest stated intention of the Gas Exporting Countries Forum (GECF), an organization commonly referred to as the ‘Gas OPEC’ that has been gaining momentum of late, and which last week elected its first secretary general at a meeting in Qatar, where it is headquartered. Most of OPEC member countries are also members of GECF. More worrisome however, is the fact that GECF countries hold a bigger share of world gas reserves than OPEC does for oil.

Consequently, it is not surprising that western officials are increasingly concerned about the possibility that an international gas cartel may materialize, especially in a carbon constrained world which is becoming increasingly reliant on gas, as it substitutes away from more carbon intensive commodities like oil and coal. How worried should we be, and what can western policy makers do in order to minimize this possibility?

In answering these questions, one needs to distinguish between two things: Firstly, the likelihood of a gas export cartel actually materializing. Secondly, the potential impacts that a higher price may inflict on gas consuming economies. Regarding the latter, my preferred view is that there is no strong reason to be alarmed, as gas prices have widely fluctuated in the past, and present assets in the economy are geared to higher expected gas prices. Besides, it seems unlikely that the price movements derived from the cartel will be greater than those witnessed in the recent past. Moreover, a higher gas price need not necessarily be at odds with the goal of pricing carbon. Therefore, the rest of this article focuses on addressing the former issue, namely, what can economics tell us about the potential for coordinated gas export policies.

The Economics of Cartels: Why Isn’t There a Gas OPEC?

There are a number of characteristics that facilitate the formation of cartels (i.e., explicitly colluding to limit production in order to raise price) that may or may not be present in markets. As a result, it is more likely to find cartel-like behavior in some markets than in others. The most important characteristics are listed in the table on the next page, and include things like the number of producers, the similarity of the cost structures, and the ability to monitor compliance, which in turn depends on how transparent pricing is.

An immediate question comes to mind: do the international oil and gas markets share those characteristics? If they do, then why is there an oil exporting cartel and not a gas one? It turns out that both commodities share most of the economic factors that facilitate the formation of cartels, to a lesser or greater extent. However, there are some important ones that are not (yet) present in the gas market:

1. Most of the gas is sold under long-term contracts between producers and consumers. This is how the market hedges the hold-up risks associated with relatively higher capital-intensive investments for producing and trading gas, compared to oil. These contracts specify a quantity to be delivered regularly for a period of some 20 to 25 years, at a specified price that is linked to the price of oil, but it is not publicly available. This implies that producers have little flexibility to reduce output, and makes gas pricing quite un-transparent, as opposed to oil.
2. Exporting and importing liquefied natural gas (LNG)² requires liquefaction and re-gasification plants, which as mentioned, are highly capital intensive compared to oil infrastructure. Once the infrastructure is built, there is little incentive to restrict the use of these assets. On the contrary, owners are induced to ‘sweat’ them as much as possible in order to recover the costs. This is true in markets where the costs of the assets are big relative to the size of the demand, as is the case in a relatively small market, like the LNG one when compared to piped gas.
3. Partly due to point 1 above, there isn’t a liquid, flexible and transparent international gas market. Nevertheless, LNG spot prices are developing in the U.S. and the UK., particularly due to the increasing importance of flexible LNG supplies. Critically though, due to the low penetration of LNG in these two markets, and the ease of substitutability with piped gas, these gas prices are not responsive to economic and political signals from LNG producers. It is worth emphasizing that the creation of a single international gas market, with its corresponding single gas price, relies on the creation of a LNG market. This is mainly

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See footnotes at end of text.

Market Conditions that Facilitate Cartels	Oil Market	Gas Market	Comments
<i>Theoretical</i>			
Oligopoly market structure	√	√	Refers to member countries of OPEC (12) and Gas Exporting Countries Forum (14, 7 of which are in OPEC too)
Homogeneous product	√	√	
Similar cost structures	~	~	Some reserves are more costly to exploit than others. The situation is similar in both sectors
Slow technological change	~	√	Recent technological improvements have untapped vast new gas reserves in the U.S.
Low short term elasticity of demand	√	~	Gas can be substituted with coal, and flexible markets with access to piped gas
Limited scope for entry	√	√	Entry to the market that would undermine the effectiveness of the cartel. Entry is subject to new oil/gas field discoveries and expansion of non-OPEC production
Multi-market contacts	√	√	Provides more scope for retaliating deviations from agreed production quotas
Scope for retaliation	~	~	Limited. It is in the interests of countries to sustain cooperation since it is an infinitely repeated game
Price transparency	√	√	Facilitates monitoring of deviations from agreed prices or quantities
Oil/gas market specific			
Contractual flexibility	√	√	Most gas sales bound by long-term contracts
Spot price	√	√	LNG spot market developing, but does not have critical mass enable LNG-specific price formation, not gas-to-gas competition

because of the arbitrage opportunities brought about by LNG, where a tanker could in theory be diverted towards the port of the highest bidder, wherever in the world that may be.

These factors, together with the fact that gas acquired an economic value much later than oil (in fact, to date, gas is commonly burnt as a bi-product of oil extraction), go a long way to explaining why there is no international gas cartel as of yet. But, is this likely to remain unchanged going forward?

The Changing Face of the International Gas Market

There are uncontroversial economic signals which suggest that the international gas market is evolving in a manner favorable to the creation of an international cartel. In particular, the factors described above are changing in the following way:

1. The pervasive presence of long-term contracts is diminishing, as the new ones tend to be shorter than the old ones, and new supplies are coming into the market in a flexible form, namely, to be sold to the highest bidder. Hence, the proportion of spot trading has been on the rise. This results from a reduction in the hold-up problem, which long-term contracts addressed. The main reasons are diminishing asset specificity (e.g., nowadays there are more alternative LNG buyers and sellers, and there is more liquefaction and re-gasification infrastructure developed); and lower costs of LNG infrastructure due to economies of scale.
2. The incentive to fully utilize LNG assets once built (and hence not reduce output) is weakened as the market grows. Consider the decision faced by a LNG exporting country considering reducing output to raise price on the volumes it sells: if it has few assets and production, then a given absolute reduction in total throughput also implies a relatively high proportional reduction, therefore the opportunity cost in foregone revenue is high. However, if the producer has a lot of assets and production, then the same absolute reduction only implies a small proportional reduction. Since the costs of doing so are smaller (foregone revenue) relative to the gains (higher price on all the units sold), it will be more likely to reduce output when the quantity produced is large.
3. Asian demand, which mainly operated under long-term contracts, has been increasingly reliant on the more flexible Atlantic basin LNG supply. This has brought up Atlantic basin LNG prices more in line with those underlying the Asian long-term contracts, making international LNG prices more convergent. In addition, gas-to-gas competition has been intensifying in the Atlantic basin, as some LNG cargoes have been diverted to/from the U.S. and Europe in order to exploit the

arbitrage possibilities due to the price differential between these two geographies, also bringing prices together. Besides being closer to a single international price for LNG, the increased volume of LNG being traded in spot markets adds transparency to prices.

In short, the evidence indicates the present economic conditions are not quite there for an international gas cartel to be successful. However, the changes that are gradually taking place in the international gas market are making prices more transparent; increasing the incentives to reduce output; and enabling producers to do so as they are less and less bound by long-term contracts. In other words, the ongoing and foreseen market developments increase the ease, and thus likelihood of an international gas cartel being successfully created in the future.

What About Policy Against a Gas OPEC?

When it comes to energy policy, western policy makers tend to see increased gas consumption, and the development of a wider, more transparent LNG market as desirable, given that it helps them deliver on a number of their objectives. For example, a more diverse gas supply, made possible by the development of LNG, increases security of supply by reducing reliance on certain producers; and substituting coal and oil for gas reduces greenhouse gas emissions, as gas is a cleaner fossil fuel. It was with this in mind that the EU energy commissioner recently declared: “Gas is fundamental to Europe’s energy security, Europe’s economy and to our battle against climate change... Qatar’s investment in Liquefied Natural Gas comes conveniently at a time when the EU is developing new import openings for this fuel, as well as a common action plan for LNG”³.

Policy in this direction is only encouraging a bigger and more transparent LNG market. This, in turn, reinforces the market developments described above, which facilitate the creation of a cartel of gas exporting countries. Consequently, western policy makers face a tradeoff between further encouraging the development of the LNG market, and acting to prevent the creation of a Gas OPEC, a fine balancing act.

Conclusion

A review of the international gas market through the lens of economic theory reveals that up to now, it is likely that an international gas cartel has not materialized because some of the conditions that facilitate collusion have not been present. The main ones are: a pervasive presence of long-term contracts that cause a lack of transparency in gas pricing restrains producers (exporters) from reducing output, and limiting the liquidity of LNG spot markets; and relatively high capital intensive assets needed for the trade of LNG, which induces the owners to fully utilize them.

However, recent and ongoing market developments have been in a direction favorable to the creation of a cartel: long-term contracts are becoming shorter in length and there are fewer of them; and the share of LNG traded in flexible spot markets is increasing. This is causing pricing to converge and become more transparent. Moreover, with a bigger market, the incentive to withhold output is also greater.

By ignoring the economics of cartels, the current policy drive in the west (at least in Europe) of encouraging the further development of LNG markets may have unintended consequences, as it reinforces the pro-cartel market developments, and makes it easier for LNG producers to explicitly collude. This is not to say that stopping a Gas OPEC should dominate the objective of developing transparent LNG markets. It only means that policy makers should include the potential pro-cartel effects of their policies in their calculations, as it is likely that they are seldom considered.

Footnotes

¹ <http://www.nytimes.com/2009/12/10/business/energy-environment/10gas.html>

² Natural gas is liquefied into LNG at liquefaction facilities usually located at the export port, then loaded into tankers and, in principle, can be shipped anywhere in the world where there is a re-gasification plant.

³ http://www.montesquieu-instituut.nl/9353000/1/j9tvhajcor7dxyk_j9vvhfxcd6p0lcl/vi39ig6m3yvix?ctx=vgv62rns92q2