THE NEW LNG TRADING MODEL
SHORT-TERM MARKET DEVELOPMENTS AND PROSPECTS

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Keywords: 1. LNG; 2. Short-term markets

Introduction

Short-term trade allows divertible or uncommitted LNG to go to the highest value market in response to changing market conditions. Owing to this benefit, the short-term LNG market has grown rapidly over the course of this decade, accounting for an estimated 20% of total LNG trade in 2008. Short-term trade remains concentrated in a relatively few key players, although some of these players are changing as the locus of short-term trade shifts from the Asia Pacific to the Atlantic Basin, and the roster of participants is widening. It should continue to grow both in absolute terms and as a share of total trade, reaching a quarter of all LNG volumes traded by 2015.

Objectives

This paper aims to address the main drivers and trends which have contributed to the development of the spot/short-term market thus far, are currently impacting trade, and are likely to do so for the next several years.

As shipping costs and capacity availability play a key role in the functioning of the spot market and the evaluation of arbitrage opportunities, we will also present our view of the current state of the LNG shipping market and how this is likely to develop over time.

We will discuss which market players have been active in exploiting spot / short-term opportunities and the strategies and circumstances that have facilitated this activity.

Based on an assessment of the current market and likely short-term drivers, we present a medium-term forecast for the short-term market.

The Hub-and-Spokes Model

The LNG industry originally developed as a niche business with a “hub-and-spokes” business model, under which a relatively small number of sellers supplied specific regional markets, with little in the way of spot/short-term trade or cargo diversions from the originally intended destination.

The LNG world was firmly divided into the Atlantic Basin and Asia Pacific markets, with minimal trade between the two, and consequently little or no market or price interaction. In addition, the vast majority of cargos were committed under long-term contracts into fixed markets. Highly capital-intensive projects monetized “stranded” gas under thin margins. Sellers needed firm contractual commitments from buyers to take the volumes produced in order to mitigate the risk of being displaced if cheaper gas became available closer to market. Investments had long payback periods and project financing required high payment security. Shipping costs were large relative to the delivered price of gas. There were only a few markets for LNG, and less spare capacity in shipping.

Under these circumstances little short-term trade occurred. What did was mostly limited to the following types of cargoes:
• Ramp-up volumes, or the wedge of LNG supply from the beginning of a liquefaction project’s life until its long-term contracts reach their full volume commitments. These long-term contracts often took several years to reach full volume since buyers could not immediately absorb all the LNG from the new trains.

• Volumes in excess of long-term contractual commitments that became available after startup due to plant debottlenecking. These surplus cargoes often were effectively rolled into the long-term contracts and sold to the same buyers under the same conditions as other sales.

Development of the Short-term Market

Over recent years, as LNG has become part of the gas mainstream, the regionalization of the industry has started to break down. Sellers have sought more contractual and supply flexibility in order to arbitrage prices between alternative LNG markets.

The advantages of short-term trade derive, at the most basic level, from the fact that gas supply and demand are volatile.

• Supplies can unexpectedly be disrupted by natural events. For example, Hurricanes Katrina and Rita on the US Gulf Coast in 2005 disrupted US gas production, causing short-term LNG prices to spike around the world.

• Declining production from existing fields and/or delays in bringing new projects onstream can cause gas supply to droop, as occurred in recent years in Indonesia, causing shortfalls against long-term commitments.

• Gas demand is also vulnerable to natural events. Very cold weather in January 2008 caused Russia to curtail pipeline gas exports to Turkey, again causing a spike in short-term LNG prices. A mid-2007 earthquake in Japan shut down the Kashiwazaki-Kariwa nuclear facility, driving TEPCO into the short-term LNG market for many months.

• Institutional factors can play a role. A lack of consensus on gas market reform in Korea has caused Kogas, which still enjoys its monopoly on imports for sale to third parties, to extemporize, favoring short-term purchases over longer-term contracts. This magnified the existing tendency in that highly seasonal market to fill in winter demand peaks with short-term procurement.

The rebalancing of risks and rewards came into its own when LNG began to be contracted on a long-term basis to deep, gas-on-gas markets, which include the US in particular, but also, and to a lesser extent, the UK and fast-growing and closely aligned hubs in adjacent continental Europe. When such markets are the primary destination, an LNG cargo can be diverted elsewhere on short notice, with replacement volumes procured from domestic producers, pipeline supplies, or gas storage. Those deep markets became the primary destinations for some long-term LNG contracts because supply from local production and pipeline imports was seen to be declining and gas prices were viewed as likely to remain high enough to sustain profitability if sales to other markets failed to materialize. As it turned out, the first premise was not true. Rather than declining, US domestic output has increased strongly, mostly because of a boom in unconventional production from shale gas, coalbed methane, and tight sands. The UK has seen a major increase in Norwegian and Dutch pipeline imports. The second premise—high prices—held until recently.

LNG Sale and Purchase Agreements began to address destination flexibility and short-term trade in new ways. In some cases, term contracts no longer specify a particular destination at all, giving buyers or sellers flexibility to send or source the LNG anywhere in the world. Meanwhile, some existing long-term contracts
supplied by fully amortized liquefaction plants have expired, enabling suppliers to embrace the potentially lucrative but less secure spot / short-term market. A key example is Algeria, which has allowed about 8 MMT/y of long-term contacts to expire without renewal in recent years, and has embarked on rebuilding its Skikda facility (which was heavily damaged in an accidental explosion in 2004) without further long-term contractual coverage.

LNG now tends to drive prices in the US and UK toward rough alignment. On the other hand, there has been much less convergence between gas prices in these deeper markets and the rest of the world. Buyers elsewhere continue to negotiate LNG with reference to oil prices. Short-term prices have tended to take their cue from the explicit oil-price indexation in long-term contracts. This practice can be seen as a throwback to the days when short-term cargoes were mostly rolled into long-term contract volumes. For example, buyers in Japan are reluctant to chain themselves to market events in the US, and show little appetite to work with regulators to create the mechanisms that would let them regularly pass cost swings from across the globe on to Japanese consumers.

The Current Situation

Short-term trade, including diversions from long-term contracts, can be likened to an enormous tub. Through most of last year, the tub was tipped toward the Far East, and supplies went pouring to that end. Now the cant is reversed, and supplies have come sloshing back into the Atlantic. Thus far, Northwest Europe has been the primary destination for the increased volumes, although some of this has fallen under contracts that had been diverted in 2008. As time goes on, the US and Canada will receive an increasing share of the additional volumes.

One of the major forces tipping the tub was the liquidity crunch and economic collapse of September-October 2008. As recently as mid-2008, the big Far East markets could hardly get enough LNG. With oil prices in the $150 range, the prices they were willing to pay dwarfed those set by gas-on-gas markets in the US and UK. Big utilities in continental Western Europe were also hard-pressed to compete, since that region has lots of production from the North Sea and pipeline supplies from Russia and Algeria. The predictable result was an exodus of short-term LNG from liquefaction ventures in the Atlantic Basin. When the world economy nose-dived, LNG imports declined in traditional Asian markets and most Mediterranean markets. Traditional buyers struggled to absorb even the minimum volumes they were committed to take under their long-term contracts.

Not all of this massive change in the pattern of LNG trade is attributable to the economic downturn, though:

- Total production levels are down, particularly for Algeria’s Sonatrach and Nigeria’s NLNG venture, which have been experiencing feedgas supply problems.
Plentiful rainfall in Spain has allowed hydroelectricity to displace gas-fired power generation.

Northwest Europe has been rebuilding storage levels that were depleted during a cold winter marked by a temporary disruption of supplies from Russia.

Japan would have reduced its LNG imports anyway in anticipation of restarting the earthquake-damaged TEPCO nuclear power facilities.

New import terminals in Brazil, Argentina and Chile are largely a response to increasing power generation requirements, declining production in Argentina, and—especially for Brazil—concerns as to the stability of arrangements for Bolivian pipeline supplies.

The world economic downturn caused gas and oil prices to drop, partly because demand evaporated, and partly because the credit crunch sucked liquidity from commodity markets. Henry Hub declined by 73% between June 2008 and April 2009. The UK’s NBP declined by 65% over the same period. Oil prices, which dropped 62%, will (with a lag) set gas prices via contractual formula in major LNG importers without gas-on-gas price determination, such as Japan. As some liquidity returned, oil prices have edged back upward. The short-term market thus presents the paradox of increasing sales into what, to judge from average LNG import prices, would seem the weaker market.

Asian LNG suppliers have even begun to sell a few cargoes into the Atlantic Basin. In April 2009 Australia began to export to terminals in Northwest Europe. These were the first Asia-Pacific sales into the Atlantic Basin since 2005. East-West volumes, however, are likely to be relatively small, not least because of burgeoning supplies in the Middle East.

Cargo swaps to reduce shipping distances, which never got much attention when price disparities between markets were huge, have begun to attract interest. In April 2009, for example, StatoilHydro and BG group swapped cargos, with one from Statoil’s Snøhvit venture in Norway going to the Isle of Grain terminal in the UK and a one from BG in Trinidad going to Cove Point on the US East Coast. The shortened hauls saved each company about $350,000 in fuel costs, enough to compensate the expense of arranging the deals and the risk of relying on third parties to meet contractual obligations.

Shipping

The economic downturn has been hard on shipping. Long hauls from the Atlantic Basin to the Far East mopped up surplus capacity, keeping up short-term charter rates. Those gung-ho days have ended. Dozens of vessels were available for prompt service in the second quarter of 2009, with others idle but not ready for work. Short-term charter rates were driven down by one-third to one-half vis-à-vis the average for the fourth quarter of 2008, a period when prices were already lackluster.

Once again, a downturn was inevitable even before the world economy swooned, because the boom times caused ships to be built speculatively. To complicate matters further, vessels built for new supply ventures are generally scheduled to hit the water before the corresponding trains are ready, to avoid the risk that shipping will be on the critical path to startup. The ships have been largely completed on time, while

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![Key LNG Price Benchmarks](image1)

![LNG Fleet Capacity Growth](image2)

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Source: Poten & Partners, Inc.
Startup dates for many trains slipped.

Shipowners are doing what they can to cope. Frustrated by poor market conditions, Mitsui OSK Lines is opting to leave some new vessels at the shipyard, while compensating the builder, Hyundai Heavy Industries, for the de facto lay-up. Other shipowners are cutting crew costs, moving ships to benign anchorages where boilers can be shut down to save fuel, and evaluating other commercial and operational measures. As of mid-2009 they were stopping short of deep lay-up, which would involve full decommissioning of vessels, draining water systems, sealing and dehumidifying accommodation and machinery spaces, and laying off crew. Even so, the short-term charter market will likely remain slack for several years.

**Key Players**

The short-term market has been dominated by a handful of firms. For the buyers, Korean state-owned utility Kogas has been the most important player. This is because of that firm’s virtual monopoly on LNG imports for that important market. Kogas needs to buy huge quantities of LNG, and such quantities need to be concentrated in the colder months, since most of it is used for heating rather than power generation. But because the Korean government is uncomfortable with Kogas’ monopoly—with reform always just around the corner—Kogas has had difficulty committing to additional long-term contracts. So it dips massively into the short-term market. Indonesian production shortfalls against long-term contractual commitments and delays in startup of new liquefaction ventures—notably Indonesia’s Tangguh—have strengthened Kogas’ dependence on short-term supplies.

In 2008 Tokyo Electric was the second largest importer, partly to compensate for declining Indonesian supplies and new venture delays, but also because of the 2007 earthquake incident at the Kashiwazaki-Kariwa facility. After TEPCO came Gas Natural, by far the largest importer of LNG into the Spanish market, which in turn is the largest in the Atlantic Basin. Gas Natural’s short-term LNG activities go well beyond a one-way traffic of cargoes from suppliers to Spain. It also has been actively involved in triangular deals whereby cargoes were diverted into Asian markets. A major source of replacement volumes for the diversions was Algeria. For energy-security reasons, Spanish regulations limit how much gas can be sourced from a single supplier. Short-term substitutions, though, are exempted from this requirement.

On the supplier side, the biggest player by far is BG, which has a number of contracts from Trinidad, Egypt, Equatorial Guinea and Nigeria that allow diversion to higher-value markets as the opportunity arises. It has an abundance of shipping capacity, low-cost, backstop terminal capacity at Lake Charles on the US Gulf Coast, and soon will have (more expensive) capacity at the Dragon terminal in Wales. BG has been the most successful practitioner of a new portfolio business model for LNG, whereby a diverse asset base is managed integrally, with ongoing optimization of profits and a bias toward flexibility.

The second-largest supplier in 2008 was Nigeria LNG. Until quite recently NLNG was disinterested in short-term LNG activity. Its LNG volumes are mainly sold on an ex-ship basis, and its shipping fleet had little slack to accommodate shipments further afield. The venture was pushed to short-term trade almost by accident in 2007, when heavy rainfall and low demand in Spain caused LNG carriers to back up in Spanish harbors. Initial diversions were a means to eliminate the backlog. The profits from diversions made a virtue of necessity. NLNG (along with Algeria) was a main participant in triangular deals with Gas Natural. Ramp-up cargoes from a new train and a contract with the US as the primary destination only helped.

Qatar’s RasGas was the third largest short-term supplier in 2008. In part this reflects its position, closer than Atlantic suppliers to then-thirsty Far Eastern markets. It also reflects delays in completion of the Rovigno terminal offshore Italy, a massive, gravity-based structure owned by Qatargas and ExxonMobil, which has a send-out capacity of 770 MMcf/d. Volumes from RasGas 2 Train 5, which started up in 2007, were earmarked for Rovigno; the terminal, however, is only expected to receive its first cargo in mid-2009.

A reordering of the buyers and sellers is all but inevitable to reflect the shift to Western markets, massive increases in liquefaction capacity in Qatar, and force majeure problems in Africa. On the buyers’ side, Asian utilities are likely to drop in the rankings, because of both lower aggregate demand and the startup of LNG ventures including Indonesia’s Tangguh and Russia’s Sakhalin Island, which will sell under long-term contracts. Gas Natural should also see its activity diminish owing to slack domestic demand and lower volumes from Algeria and Nigeria. Utilities in Northwest Europe including GdF Suez and Centrica are likely to increase volumes. BP, which has capacity at the UK’s Isle of Grain terminal, is also likely to benefit. Meanwhile, in the US, Chevron does not have any long-term supply contracts, but reportedly reached an agreement with RasGas 3 in May 2009 for four cargoes per month to Chevron’s capacity at the new, 2.6 Bcf/d Sabine Pass terminal in Louisiana. The deal will last until RasGas’ 2.0 Bcf/d Golden Pass
regasification terminal on the US Gulf Coast is finished in mid-2010. Sempra, Statoil, Total, and ConocoPhillips should also get some interim RasGas cargoes to the US.

Nigerian supply volumes will drop until it remedies its feedgas supply problems. Algeria’s Sonatrach (another big short-term supplier, though not quite in the top three) is in a similar situation. Both will continue to decline in relative terms as new production from Qatar hits the market. The RasGas 3 venture will be an important source of short-term LNG through mid-2010, and these volumes should more than offset the decline in short-term sales that will result from the start-up of the Rovigo terminal. The Qatargas 2 venture should provide additional short-term volumes. Though some Qatargas 2 volumes will go to that venture’s new South Hook terminal in Wales, a lot of volume will be left over. Even the UK gas market, the largest and most liquid in Europe, cannot absorb all the Qatargas 2 volume it is contracted to receive, especially in summer.

The Outlook for Short-term Trade

Poten maintains a suite of models to forecast LNG trade flows. A detailed review of such forecasts is beyond the scope of this paper, but the main outlines of future short-term activity are noteworthy. We anticipate that short-term trade volumes will increase at an average rate of 11% per annum over the period from 2008 through 2015, with most of the growth occurring from 2011 through 2014. This short-term growth rate is faster than total growth in the LNG market, causing short-term trade to increase from 20% to 25% of total trade over the period.

Most of the growth in short-term demand is in the Atlantic Basin, which increases at an average rate of 16% over the period vs. just 6% for Asia Pacific. Atlantic Basin growth is concentrated in 2009. The jump in 2009 is largely due to the economic crisis, as discussed above, with additional short-term volumes going to North and South America. In the later years of the forecast period Korea, Northwest Europe, and China are all major growth markets for short-term trade. The key growth driver in Korea is the economy as it recovers from the current slump. Drivers from Northwest Europe are growing demand for power generation, declining North Sea production, and new LNG import terminals that will help develop regional gas-on-gas trading. Chinese imports are largely limited by that country’s ability to put additional infrastructure in place for LNG imports and downstream distribution and sales. The Chinese government requires that the nation’s terminals be supplied using Chinese ships. Those terminals are expected to continue to be onshore facilities with mostly long-term contracts.

Total output from both of the main supply regions for short-term LNG is forecasted to grow by around 10% per annum over the period. Early increases are concentrated in the Middle East, as new capacity in Qatar and also Yemen comes onstream. Middle Eastern short-term supplies first bloom in 2009 as volumes are sold into the US and Northwest Europe. They decline in 2010 and 2011 as the Qatari ventures send their imports to their own terminals under long-term, integrated contracts, and bloom again as demand...
increases in markets other than the US and UK. Atlantic Basin short-term supply increases later in the forecast period, largely due to the start-up of the Skikda rebuild in Algeria, which we expect to be sold mainly on the short-term market, as well as additional production in Egypt from higher capacity use in existing trains and potential startup of an additional facility. Short-term sales in Asia continue to be small, and mainly reflect ramp-up volumes and excess capacity from debottlenecking.

These are base forecasts. They assume normal temperatures; an absence of market shocks from hurricanes, earthquakes, or other incidents of natural or man-made origin; and a world economy that continues to mend, with a return by and large to normalcy in 2011. If events are otherwise, short-term trade flows could change, perhaps radically. Flexibility, after all, is the short-term market’s distinctive advantage.

Conclusion

Short-term LNG was insignificant at the beginning of the decade, but now accounts for more than a fifth of total trade. While many factors are responsible for this change, the potential for LNG sales into liquid, transparent markets such as the US and UK has been critical. Major short-term players are active in the market for a variety of reasons. From a strategy standpoint, perhaps the most interesting case is BG, which exemplifies a flexible portfolio approach to LNG trade. Changes are underway in short-term trade patterns, owing to the economic downturn, which has dampened demand in the traditional premium markets in Asia and the Mediterranean and driven LNG toward markets with flexibility to absorb additional volumes, in Northwest Europe and the US. Looking ahead to 2015, the short-term market should keep growing, and slowly increase its share of total LNG trade. Key suppliers include Algeria, Egypt, and Qatar, while growth markets are the Americas, Northwest Europe, Korea and China.