INTERNATIONAL PROJECT FINANCING

WHAT EFFECT DOES THE EMERGING SPOT MARKET FOR LNG HAVE ON THE FINANCING OF GAS PROJECTS?

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Abstract: The prospects for gas are enormous, primarily as a result of its environmental credits, decline in production costs, EU security of supply issues, as well as the emergence of new fields and markets. In the past few decades the LNG trade had matured to the extent that most associated risks had become reasonably well understood by the international finance community. A fundamental paradigm shift is occurring with the emergence of a spot market for LNG. This shift tests the traditional project financing theories and assumptions. This paper therefore seeks to examine this paradigm shift Vis a Vis the traditional methods of financing gas projects. Where pertinent, examples will be used as a means of illustration .An attempt will be made at highlighting the new and enhanced risks impacting on the project financing of gas projects. This paper will conclude with suggestions project financiers can seek to cushion these new risks.

List of Abbreviations

BCF	Billion Cubic Feet
BTU	British Thermal Unit
EIA	Energy Information Administration
EU	European Union
GDF	Gaz de France
GTI	Gas Technology Institute
IEA	International Energy Agency
I.E.L.T.R	International Energy Law and Taxation Review
J.E.R.L	Journal of Energy and Natural Resources Law
LD	Liquidated Damages
MMBTU	Million British Thermal Unit
NLNG	Nigerian Liquefied Natural Gas
OGLTR	Oil and Gas Law and Taxation Review
RBS	Royal Bank of Scotland
SPA	Sales Purchase Agreement
TCF	Trillion Cubic Feet
US	United States

1. INTRODUCTION

Natural gas is the world's fastest growing fuel. It is available in great abundance, already proven reserves of gas (150,000 bcm) are sufficient to cope with anticipated increases in demand for at least from the present period till 2030[1]. It also accounts for almost a quarter of the world's commercial energy needs[2] and electricity generation represents the fastest growing source of demand for gas in recent years. Daniel Yergin has dubbed natural gas the "next prize". Natural gas is set to have a far reaching influence on the world economy because it has become obvious that gas is the fuel of the 21st century, just as coal powered the 19th and oil fuelled the growth of the 20th century. It ranks as the cleanest burning fossil fuel,[3] and its production costs are dropping as a result of recent improvements in engineering and construction, and these reductions seem set to continue. All of the above buttress the position of natural gas as the fuel of choice.

In spite of its abundance[4] one of the industry characteristics is the remoteness of the sources of production and markets of utilization. This has resulted in issues of "stranded gas" and has militated against the transportation of gas by means of pipelines. Therefore an alternative means of transportation had to be devised and this has heralded the advent of liquefied natural gas (LNG)[5]. Consequently the LNG business originated in response to the need to transport large quantities of stranded natural gas over long distances.

The gas is transported from the fields in pipelines to liquefaction plants and then transported in custom made ships to re-gasification plants and then on to the markets. The economics of LNG as opposed to pipeline gas is contingent on a diversity of geopolitical, technical and commercial factors. The inherent cost implications of LNG production mandated the use of project financing. The past few decades has seen the project financing of LNG projects mature to the extent that lenders have become

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[1] Powell , Oil and Gas: Crisis and controversies. 1961-2000.179 (1st ed. 2001) .
[2] U.Bartsch et al. Fossil fuels in a Changing Climate. 135 (1st ed. 2000)
[3] Natural gas produces 1/3 less carbon than oil and 50% less than coal.
[4] " world wide there are some 5,500 trillion cubic feet (tcf) left of natural gas reserves and an estimated further 50,000tcf still to be found and discovered" - Lord Browne, *Strategic Role of Gas*, 2 OGRL 26 (2003).
[5] LNG is a cryogenic liquid with a boiling temperature of approximately –270 Fahrenheit.

familiar with the various risks within the industry. These risks had become well appreciated and well received by the international finance community.

But a fundamental paradigm shift is taking place. In the place of traditionally long term contracts[6] (mainly due to lenders' requirements, LNG chain, and buyers' and sellers' requirements), contracts of exclusivity and destination restriction clauses, there is now a move towards more flexible contracts. A preference for flexibility rather than certainty has been born. This is as a result of a combination of different trends among which are: deregulation of government utilities; uncertainty of future market share; uncommitted production capacity e.g. Malaysia Tiga; market demand for more LNG e.g. US and Spain; speculative tanker building and enhanced contract flexibility.[7]

As a result of the change of risks on the LNG scene the question that arises is, what impact will the emerging spot market have on traditional project financing structures? The main aim of this paper is to discuss the ways in which this industry shift has impacted on project financing of gas projects. This is both salient and relevant because the core of the project financing of gas projects is long term contracts that guarantee identifiable and isolated cash flows. This paper will assess the current and emergent industry trends and an attempt will also be made to find ways to cushion the impact of these trends. It is however essential to examine the cost implications involved, the LNG value chain and the recent market implications.

2. LNG INDUSTRY COST OVERVIEW

One of the commercial factors that cannot be ignored is that in spite of the declining costs of production (according to the Gas Technology Institute (GTI) costs have reduced by about 30% over the past 10 years)[8] LNG projects are by their very nature extremely capital intensive. According to the Energy Information Administration(EIA)[9] – " LNG projects are among the most expensive energy

[6] Supply contracts of periods of 20- 25 years are not unusual.
[7] Energy Information Administration, *The Global Liquefied Natural Gas Market: Status and Outlook,* (undated) Available at http://www.eia.doe.gov/oiaf/analysispaper/global/lngmarket.html (last visited on 22 April 2004).

[8] Ibid.
[9] http://www.eia.doe.gov (last visited 3rd March 2004).

projects" the accuracy of data differs from project to project as a result of variables like location, Greenfield issues, or expansion of existing plants.

The cost implications for each component part of the LNG value chain are discussed below i.e. liquefaction, shipping and regasification.

2.1 LIQUEFACTION COSTS

The principal cost element in the LNG value chain is the liquefaction plant,[10] which consists of several trains or production units. LNG plants costs are high primarily because of their remote locations, strict design and safety standards, considerable quantity of cryogenic materials required and a historical inclination to over design in order to guarantee security of supply. According to GTI construction of a liquefaction plant that annually produces 390 Billion Cubic Feet (Bcf) of LNG would cost $1.5 to $2.0 billion. Major economies of scale have been achieved by increasing the size of the trains. Other factors reducing costs include improved engineering and technical techniques as well as reduction of over- supply margins.

2.2 SHIPPING COSTS

Most ships are committed to specific LNG projects and are owned by LNG importing or exporting companies or shipping companies.[11] LNG shipping costs are estimated by the daily charter rate, which is determined by the price of the ship, the cost of funding and operating expenses. There is no established market for LNG tanker tariffs as there are for crude oil tanker tariffs. Charter rates can range quite widely from between US$27,000 per day to US$150,000. Presently the average rate is between US$55,000 and US$65,000.[12] These variations are usually the result of distance and time. GTI states that the average cost of a 138,000cubic meter ship, which carries 2.9 bcf of natural gas, cost US$155 million in November 2003 as against US$280 million in the mid 1980s.[13]

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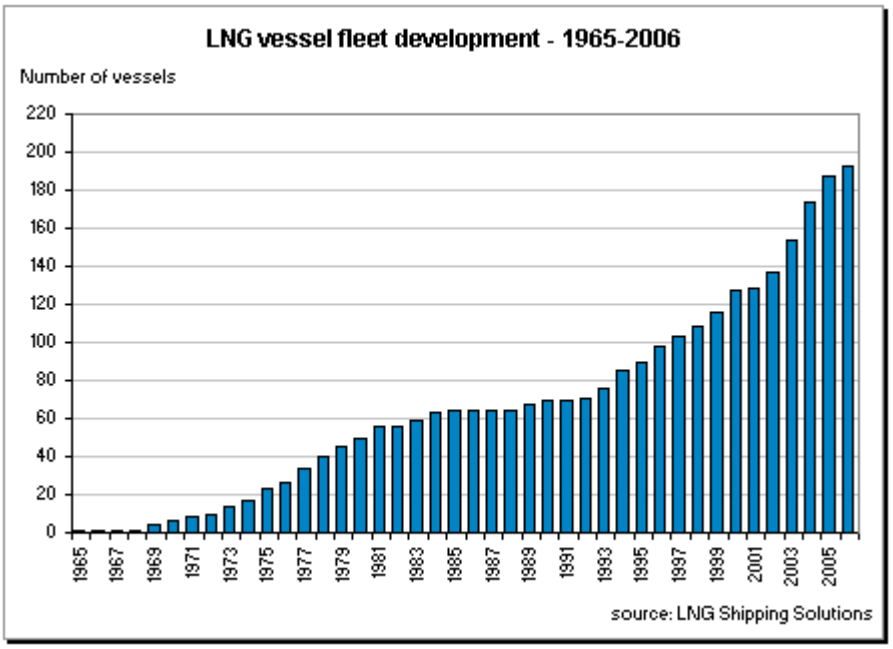
[10] R.J.E Jones, *LNG Markets: Historical Developments and Future Trends,* in Liquefied Natural Gas: Developing and Financing International Energy Projects, P. 15, (G.B.Greenwald, ed., London: Kluwer Law International, 1998).

[11] Independent shipping companies own only about a dozen ships in the LNG tanker fleet.

[12] Supra note 8.

[13] Ibid.

Figure 1



The factors affecting the reduction in cost of ships include enhanced competition following an increase in shipyards equipped to build LNG ships (see fig 1); speculative tanker building resulting in enhanced market capacity for spot trading and an increase in the size of ships being built resulting in lower per unit LNG shipping costs.[14]

2.3 REGASIFICATION TERMINAL COSTS

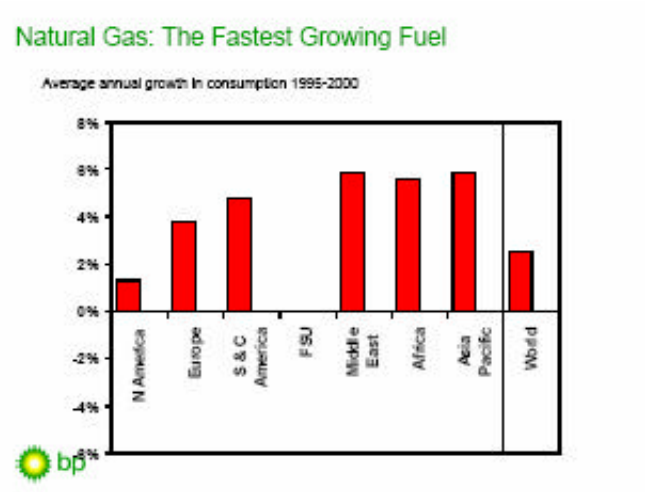
The cost outlay demonstrates wide disparity and is location specific. GTI estimates that terminal costs can range from US$100million to US$2billion for a daily send out capacity of 183 to 365 bcf. Marine amenities can also increase the costs, particularly if dredging of the ship route is involved.

[14] Ships being built can now hold as much as 145,000 cubic meters of LNG, with sizes as large as 240,000 cubic maters under consideration.

3. THE RISING PROFILE OF LNG

In the early 1990s global LNG sales grew by some 45% and it is envisaged that the worldwide market will double by 2011 and triple by 2020.[15] This colossal growth is attributable to a number of factors, which have contributed to the rising profile of LNG in the world energy market-see fig. 2

Figure 2



Source: BP Energy Statistical Review

- Oil is increasingly being substituted by natural gas as a much more environmentally friendly energy source .The power industry is the main consumer of LNG, one of the reasons being that gas fired power plants are easier to site as there is less environmental resistance to them. This reality is quite different from that originally claimed by LNG critics. "LNG is odourless, colourless, non- toxic and non-corrosive"[16] Today there is little debate over the safety of the LNG industry. A 1993 study found that since the start-up of overseas LNG transport, the world fleet had landed 1.4billion tons of LNG in 18,300 voyages over a distance of 36.6 million miles without a single fatality or major incident.[17]
- A systematic growth in world gas utilization. The International Energy Agency (IEA) has estimated gas consumption to grow at 2.8% a year to

[15] IQPC Website , http://www.iqpc.co.uk/binary-data/IQPC_conference/pdf_file/3929.pdf ,(Last visited 20th March 2004).
[16] P.L Weems, *Overview of Issues Common to Structuring, Negotiating and Documenting LNG Projects,* I.E.L.T.R. 190,(2000).
[17] Ibid.

2025 compared with 1.8% a year for oil and 1.5% a year for coal. Gas will represent 28% of global energy use by 2025.[18] There is also an expansion of many existing LNG liquefaction plants e.g. Nigerian LNG (NLNG) has recently announced a firm decision to invest in construction of two further production trains; other examples include Oman LNG and Ras Laffan in Qatar.

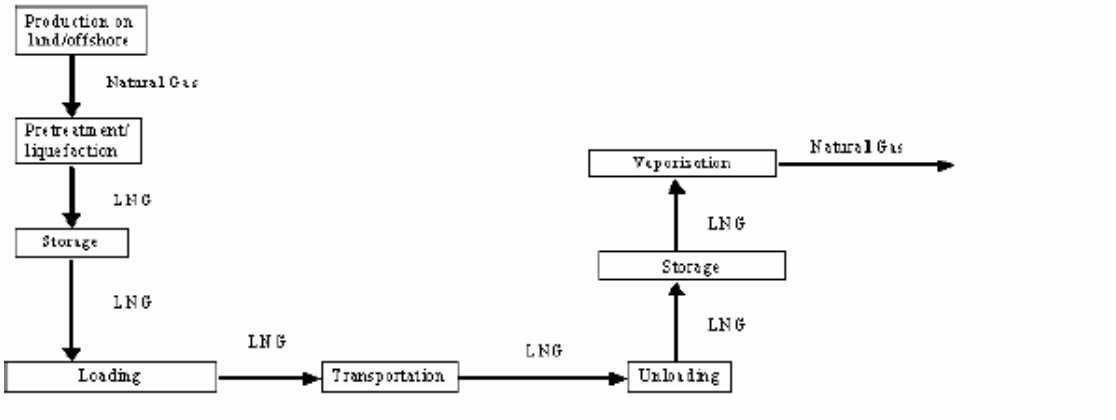
- The security of supply issues in Europe, driven by the need for a suitable alternative to piped gas, as pipeline capacity is somewhat inhibited and tariff structures are varied. There is an increase in import vulnerability i.e. the increased dependence on external suppliers of hydrocarbons to fuel continued economic growth. Therefore the need to diversify and produce indigenous energy that is both sustainable and in keeping with climate change policies has become heightened.
- The reduced LNG production, liquefaction, shipping and regasification costs combined with technological advancement have opened up opportunities for LNG where it might have previously been uneconomical.
- A robust import demand: Several of the major gas consuming nations of the world have very insignificant gas reserves of their own (e.g. Japan and Korea) or have developed and exhausted their own reserves to past peak production and have an escalating reliance on imported gas (e.g. US and UK).
- Monetization of stranded gas reserves: without access to end markets as a result of long distances, the previous options were gas flaring or reinjection of gas but LNG has the dual role of providing an access mechanism and reducing the environmental impact associated with gas flaring.

3.1 LNG VALUE CHAIN[19]

The LNG chain comprises of three main segments: the upstream (production and liquefaction), transportation (through tankers) and downstream (receiving terminal with associated facilities). The LNG supply chain is complex and involves various stakeholders – see figure 3.

[18] S. Robertson, *LNG Spending will reach $39 Billion by 2007,* Oil and Gas Journal, 62, (2004).
[19] This term will be used interchangeably with "LNG supply chain".

Figure 3



Source: Strategic issues in structuring and documenting Liquefied Natural Gas Project

To fully comprehend the LNG industry and the issues affecting the emerging spot market it is essential to appreciate the interconnected "chain" of LNG activities and facilities. One of the peculiarities of financing an LNG project is that the success of the overall project is dependant on the success of each individual link. All project activities must be co-ordinated through joint long range planning, which is why traditionally, gas projects tend to encourage long-term contracts as each of these segments have long lead times. Failure to correctly co-ordinate activities could have severe commercial implications throughout the remainder of the chain e.g. in the Indonesian Train E project completed in 1990, although the liquefaction plant had been completed on schedule, a delay in completion of the receiving terminal in Taiwan forced the postponement of LNG shipments.[20]

One of the effects of an LNG project comprising of various distinct infrastructure projects is that there may be a greater or lesser scale of involvement of participants in more than one component of the entire project. E.g. the participants in the liquefaction plant can also be involved in the transportation of the LNG.

3.2 MAIN PROJECT FINANCING RISKS

Each segment of the LNG value chain has its own financing peculiarities, which must be well appreciated for it to be successfully financed. The financing of any major gas project inexorably involves the provision of loan finance, this section aims to address

[20] Supra see note 16.

the main risks and issues that need to be addressed, which can be divided into four broad areas: upstream; midstream; shipping and offtake.[21]

3.2.1 Upstream Component

The project financier will primarily be concerned with security of the gas supply. They will need independent verification of the existence of gas reserves and if the lender is not directly in charge of the development of the upstream reserves the lender will want assurance that there is no risk that late development will result in a delay in the liquefaction phase. If these reserves are to be developed using third party finance it will necessitate inter creditor agreements to align the objectives of the parties involved. The analysis of the sales arrangement for by-products such as condensate is also very important, so as to ensure that the failure of the sale of the former does not impact negatively on the production of LNG.

Lenders also need confirmation that competent operators will develop the gas reserves in time for the project to effectively take off. If a significant amount of the gas that has been supplied to the liquefaction plant is not owned by the project sponsors the lenders will require guarantees to be included in the sales purchase agreement (SPA), confirming that the said companies will indeed invest in the development of the gas.

3.2.2 Midstream Component

This comprises of gas gathering, central gas processing and liquefaction facilities. The SPAs governing the contracting parties have the option of being negotiated either as "depletion sales agreements" or on a portfolio basis.[22] (The former means that the purchaser contracts to buy all the reserves of a particular field, while the latter means that the seller can meet his supply obligations from any given field). In the case of a portfolio basis contract, the lender takes into consideration the gas gathering costs, which can be aggravated if the gas is being gathered from a wide geographical area. There are also possible future costs to linking those fields as they come on stream.

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[21] T.A.Newendorp et al, *The Role of the Financial Advisor in LNG Project Finance,* LNG Journal, 24, (2003).

[22] G.D.Vinter, Project Finance, 67,(2nd edition, 1998).

Banks though being fairly comfortable with LNG technology are still wary of any untested technology especially in the liquefaction stage because as already mentioned this is the most expensive part of the chain. The construction period is the time of greatest risk to a lender to an LNG project providing finance on a non-recourse basis, because until a cash flow is generated the interest charges keep snowballing into an ever-growing debt. The preferred solution to this is the use of a fixed price turnkey contract where the risk of time and cost overruns are passed on to the contractor with liquidated damages (LDs) being paid in the event of time overrun or underperformance.[23] The magnitude of LNG liquefaction projects makes the potential LDs near impossible to bear, for all but the largest construction companies. The lenders are amenable to sponsor's guarantees that are allowed to fall away after stringent completion tests have been carried out.

Lenders will also have reservations about the quality of the gas feed stock system. If pertinent, additional costs incurred with removing liquids and impurities from the gas prior to liquefaction should be built into the overall economic model. A due diligence report will usually be conducted by the lenders on the project sponsors development and operating plans for the plant.

3.2.3 Shipping Component

Lenders will want to review the construction and financing schedule for any shipping that is not already in existence and in cases where the financing is not integrated release of pre-construction guarantees may possibly be dependent upon the timely completion of the dedicated vessels.

Because LNG shipping is subject to international maritime law it's financing reflects established practices in the international maritime trade. The lender will also want to be certain that the ships meet the required specifications demanded by international practice. As a critical link in the LNG value chain, its credit appraisal is linked to several issues including all the parties to the contract not just the seller. Political and country risks are examined not just of the contracting parties but also of the countries whose territorial waters the vessel will be plying. The route is examined for potential

[23] S. Mills and C.Zabriskie, *Liquid Opportunity*, Project Finance Global Oil & Gas Report, 3, (Dec 2003).

navigational problems including narrow straits and hazardous waters. A physical risk analysis of both ports is also necessary.[24] Technical risks will be taken into account in analysing experience of the builders; ship design and construction to ensure that the ship will be up to standard upon completion. Lenders also will be interested in the ability of the charterer to pay the transportation charges and most importantly the ability of the project to support debt repayment. This link in the "chain" is especially important because due to the long lead times in ordering a ship, the delivery of the ship might occur in circumstances radically different from the ones in which the ship was ordered.

3.2.4 Sales or Offtake Component

According to industry analysts "…it is this…risk that has been the focus of so much recent attention, as the potential for a spot market in LNG emerges."[25] This is the main source of the bank's recovery of their loan, so it is essential that the sales purchasing agreement (SPA) be as watertight as possible[26]. As a result long term SPAs have been the main characteristic of this sector up until recently. These contracts also contain "take or pay" clauses that meant that the buyer is obligated to take delivery of the contracted volume of LNG whether he needs it or not and to pay if he does not. Thus default from the buyers will not affect the seller thereby removing a substantial amount of volume risk from the lender.

The credit rating of the offtaker is essential to the financiability of the project and offtaker credit risk is mitigated through a very stringent credit analysis of the seller and the use of financing instruments. The financing prospects for LNG projects are based on a thorough analysis of the price and market risk components of the specific destinations options for the supplier. Lenders usually insist on minimum price provisions to lock in secure minimum revenue; price re-openers should be exercisable by either party so that at all times the price in the contract tracks the prices in the market place (it should be noted that price re-openers should be approached with

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[24] D.C.N.Ejiroghene, *Are the changes in the LNG Industry Sufficient to support Project Financing of Non-contracted ships?* (Unpublished LLM research paper submitted to CEPMLP, University of Dundee, 2002).

[25] R. Burrett and D. Hultman, *A Financier's View of the LNG Market*, 065/IJ/LNG Supplement (1 Aug. 2003). Available at *http://www.infrastructurejournal.com*. (Last visited 10th April 2004).

[26] P.Roberts, *Bankable Gas sales Agreements in the Project Financing of Offshore Gas Production Projects*, 16 J.E.R.L., P. 201(May 1998)

caution as volume uncertainties and price volatility can diminish a project's bankability), pricing formulae are also fixed for the entire duration of the contract.[27] The structure, depth, breath and maturity of the gas market are critical components in the credit analysis.[28]

In addition to the above lenders will dedicate considerable time to other due diligence issues such as attention to environmental, health and safety concerns especially after the validation by many leading banks of the "equator principles" and the tailoring of a comprehensive insurance package, post the 9/11 crisis to include cover for terrorism and sabotage.[29] There is an industry shift-taking place that modifies what has been discussed above, but this will be discussed in the following paragraphs.

4. RECENT LNG SPOT MARKET DEVELOPMENTS

Trends suggest that one of the most challenging developments in recent years has been the growth of the spot market for LNG[30] and the attendant need to accommodate the LNG buyer's need for flexibility in the contracting terms.[31] This flexibility also implies that lenders will also need to become more flexible themselves and fashion out more innovative ways of redirecting risk away from themselves.

This paradigm shift is characterised by various market developments, which an effort will be made to highlight, in an attempt at showing what the traditional project financing structures are up against.

- There is an increased shortening in the tenor of gas supply contracts and increase in the incidence of price re-openers.
- There is a de-linking of gas prices from oil prices and a movement towards a gas based price indexation. What is an acceptable gas price varies from region to region: in the United States (US) it is the Henry Hub and in the European market the Gazprom gas sale prices tend to form a price floor.[32]

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[27] LNG pricing will be discussed in greater detail later in the paper.
[28] T.A.Newendorp et al., *Flexible Friends,*Project Finance Global Oil &Gas Report, 100, (2002/03).
[29] Supra, see note 23.
[30] Spot trading accounts for up to 8% of LNG trade- See note 18 at p.63.
[31] Supra., see note 23 at p.5.
[32] Supra. See note 21 at p.26.

- The European Union (EU) initiative towards a more liberalised and regulated energy markets have interfered with the more traditional arrangements such as the continuing existence of long-term contracts and destination clauses which usually increase lender confidence in financing gas projects.
- There is a change in the role of suppliers and buyers in the LNG supply chain by the participation of LNG purchasers in the liquefaction process, examples include: the Guangdong LNG project in the People's Republic of China where the purchaser seeks to acquire upstream equity interest as part of the agreement of arrangements for LNG supply.[33] Even traditional sellers such as British Petroleum (BP) and Shell have leased capacity at terminals and are extending their role to trading.
- The increasing diversity of available markets and access to third party terminals, with the virtual elimination of destination clauses, has lead to speculative shipbuilding. For example in the winter of 2000 the availability of cargoes of LNG in the Middle East and high gas prices in North America, indicated a demand for undedicated ships.[34]
- Disputes under existing LNG SPAs and their subsequent resolution using trading instruments such as swaps. E.g. when the contract between NLNG and ENEL of Italy fell through, it was referred to arbitration and was subsequently resolved by a swap transaction under which Gaz de France (GdF) agreed to take delivery of the disputed cargo and make corresponding volumes of gas available to ENEL by pipeline.[35]
- The expanding list of LNG buyers and enhanced ability of LNG producers due to technological advancement, to produce above contracted volumes has resulted in some producers entering into the spot trading of gas. For example in 2001 NLNG marked its first inroad into the European spot market when two cargoes that were originally meant to be delivered at Lake Charles in the US were re-routed to Europe.
- Enhanced flexibility of "take or pay" contracts with less than 100% of plants' capacities being contracted for.

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[33] P.Griffin, *Changing Contracts and Contracts of the LNG Business*, 21 J.E.R.L., P.89, (2003)
[34] Ibid. P.91.
[35] Supra note 32, P.90.

It is trite knowledge that the basis of project financing is that the recovery of the loan is sought from the cash flow: an isolated and identifiable cash flow. This is usually guaranteed by a requirement that baseline components of LNG sales are sized to cover the debt, which is contracted with a buyer of acceptable credit standing. The terms of this agreement is embodied in the SPA, which is the principal source of the banks' recovery of their loans. The changes taking place in the industry as highlighted above shake the very foundation of the lenders confidence because the spot market bring with them a different set of risks, which the lenders have to evolve new ways of dealing with.

4.1 ENHANCED PROJECT FINANCING RISKS

Under the new paradigm it would be difficult to guarantee a steady and consistent cash flow and with that comes a set of risks, which though not unfamiliar have been heightened by the changing circumstances.

4.2. PRICE RISK

Price risk always well modulated in historical LNG structures is now a major risk under the new paradigm. Contracts for LNG prices were previously negotiated in the "money of the day" and prices were indexed to crude oil prices especially after the oil crisis of the 1970s.There was often an "S-curve" mechanism to stabilise prices in order to protect the respective parties from the impact of extreme volatility in crude oil prices. The practice used to be that an initial price was mandated in the SPA and was subsequently made subject to price re-openers and adjustment formulae based on movements in the prices of other competing fuels.

With the advent of de-regulation and general liberalisation it has become imperative for buyers and sellers alike to consider alternative pricing mechanisms that have reference not only to competing fuels but also to competing fuels in the buyer's market. This was exemplified by the Atlantic LNG where gas was contracted to the North American market in Boston on the terms of "net back pricing" which was calculated based on the current price in the buyer's market.[36] Other purchasers of

[36] Supra note 33 at p.90.

LNG are even including delivery flexibility to allow them to move cargoes to more price advantaged markets when the need arises.

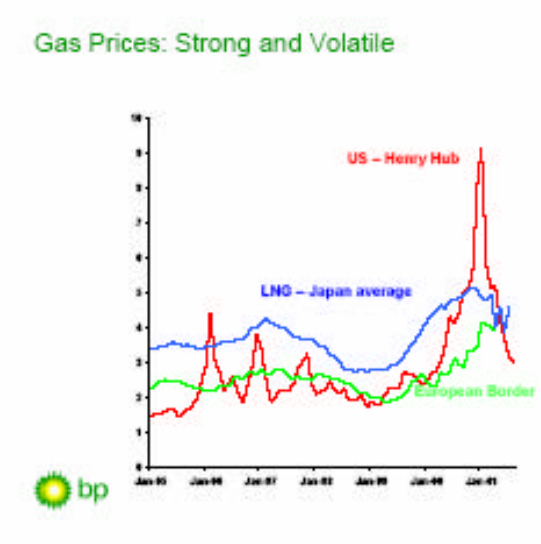
The currently unresolved nature of LNG pricing can be further highlighted by the statements of Petronas CEO, Tan Sri Mohd Hassan Marican in a keynote address on Feb. 11th 2004, when in reference to Petronas' first LNG shipment to India delivered in January 2004; he said "It is still grappling to find an acceptable price level"[37]

The emerging spot market has aggravated price risk because now natural gas prices fluctuate based on gas market supply and demand. This creates a challenge as each link in the supply chain comes with its own costs, which remain constant irrespective of whether the market prices are favourable, or not. The question now arises as to who bears the risk of the possibility that the cost of production might be higher than the market price? This is the summary of lenders' fears.

4.2.1 LNG Pricing Structures

LNG prices are benchmarked to a range of competing fuels, and according to the EIA[38] there are three separate and fairly autonomous markets for LNG, each with its own pricing structure and attendant risk exposure – see figure 4.

Figure 4



Source: BP Statistical Review 2001

[37] P. Dittrick, *CERA: Global LNG Market could see more contract flexibility*, Oil & Gas Journal, P.24 (Mar. 2004).
[38] Supra, see note 8.

- In the US, which is the main spot market, the competing fuel is pipeline gas; the benchmark price is the contracted price contained in the SPA or the Henry Hub price for short-term sales, which exposes the LNG transaction to significant instability due to the price volatility of the US gas market.
- In Europe, the competing fuel is low-sulphur residual fuel oil. LNG has begun being linked to the natural gas spot and futures market prices.
- In Asia, prices are benchmarked to imported crude oil. The price formula involves a base price indexed to crude oil prices, a constant, and perhaps a mechanism for the review of the formula. Asian prices are inclined to be higher than what usually obtains.

4.3 POLITICAL RISK

In the past, one thought of the producing countries when considering political risk as most were, and still are emerging markets. Conversely consuming economies tended to be developed markets, perceived as having low political risk. But lenders need to be aware that things have changed, as while political risk for producing countries include expropriation or perhaps oppressive fiscal regimes and other state interference, in consuming countries a more sophisticated form of political risk has evolved namely liberalisation, regulation and de-regulation.

4.4 VOLUME RISK

LNG contracts are demand driven i.e. the commitment of a buyer to purchase a substantial quantity is essential to providing the economic support for project development.[39] The practical implication is that because of the huge cash outlay as well as long lead times it makes no sense to produce LNG without the prior assurance that a substantial amount of the gas will be purchased. This is what "take or pay" contracts guarantee; they also take care of "volume risk" i.e. the risk that not all the LNG produced will be sold.

Due to an escalating number of options in the way of an increasing number of potential LNG suppliers, LNG buyers are increasingly reluctant to contract based on long-term "take or pay" contracts. In the words of ABN AMRO's M.D. and head of

[39] G.B.Greenwald, *LNG Themes and Variations*, in Liquefied Natural Gas: Developing and Financing International Energy Projects, 5, (G.B.Greenwald, ed., London: Kluwer Law International, 1998).

global project finance: "…Asian buyers are unwilling to sign up to long-term contracts given the restructuring of the energy markets that is taking place."[40] In the past lenders took price risk but were unwilling to take volume risk, it appears that under the new LNG contracts that lenders might need to re-think their position.

5. CONCLUSION

The short-term market has grown from almost zero before 1990 to 1% of the LNG market in 1992 and 8% in 2002. In 2002, thirty-two companies traded 218 shipments as short-term transactions or as swaps. Short term trading is projected to continue to grow, especially in the Atlantic Basin and could reach 15 to 20% of LNG imports over the next decade.[41] One of the most challenging developments in recent years has been not just the growth of the spot market in LNG but also the need for lenders to accommodate the buyers' requirement for more flexibility in LNG transactions. "Buyers would like to see an acceptance by sellers of a 'cocktail' of offtake contracts of varying maturities"[42] For sellers to be flexible it implies that lenders will also be flexible in accepting offtake structures which contain more risk than they are used to.

Robin Baker, managing director, oil and gas project finance for Societe Generale a Paris based banking group is optimistic that "There is a basis for credit lending. We've been doing it for 70 years in oil, so we can do it in gas."[43] LNG adds up to a bright future but challenges remain. The investment and financing of LNG projects requires huge capital outlays and long lead times in what is still an uncertain market. It should be borne in mind that additional LNG supplies could actually reduce domestic gas prices, making future projects more difficult to finance.

The lenders have the option of using even more conservative lending assumptions as well as escalating their fees to compensate for the higher risk that they have to be exposed to. The down side is that the larger the loan the longer it will take to repay although it could also be argued that due to the downward swing in LNG cost production, it balances out.

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[40] Supra note 26.
[41] Supra note 14.
[42] Supra note 23 at p.5.
[43] Supra note 38 at p.25.

Lenders should realise that the interdependence of the lenders and sellers is inevitable. It is important that both develop in tandem, as there is no point in developing reserves if there is no market and vice versa. Recently some projects have commenced with capacity yet uncontracted e.g. Malaysia Tiga. Spare capacity and more flexibility should lead to increased short-term sales.

The bottom line is that the simple LNG contract as we know it is disappearing and to manage more complex risks lenders need to create a portfolio approach to these contracts. There is no formula but each financing proposal should be handled on a case by case basis.

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