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What Governments Need to Know About Cross-Border Gas Projects

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1. THE NEED FOR SHARED VISION IN CROSS-BORDER GAS TRADE

Governments, especially politicians, just do not get it: gas markets are not commodity markets like oil markets.

If gas markets are to work, they require proactive facilitation by governments in collaboration with investors. A study on cross-border gas projects carried out in 2004 for the APEC Energy Working Group identified a lack of shared vision amongst gas exporting and importing economies as a major barrier.¹ This is very much in evidence today.

An anticipated doubling of the global gas market every 25 years, combined with a disparity in the locations of demand and supply, will continue to underpin cross-border gas trade. The main cause of this is that natural gas is continuing to increase in importance as a fuel in power generation, where it is becoming more cost-competitive with coal. As well, natural gas offers speedier construction times for new-build generating capacity. Most importantly, however, natural gas produces lower carbon dioxide emissions than coal does in power generation.

The supply of natural gas is, however, failing to keep up with demand, despite the abundance of natural gas globally.² Much of natural gas is “stranded” because it is isolated from markets.³ New cross-border gas projects to bring stranded gas to markets continue to languish because they require pre-committed off-take support, as well as supportive policy and regulatory frameworks to speed up both upstream development and downstream market creation.

It is not a little ironic, in an era of increasing anxiety about the risk of disruption to oil supplies from the Middle East, that resources nationalism in relation to natural gas supply has manifested itself not in any Middle Eastern economy but in Russia, Indonesia and the Australian State of Western Australia.

In Russia, the monopoly of Gazprom as the sole agency for export of Russian natural gas continues to be problematic. In Indonesia, many shipments of LNG have been cancelled in order not to curtail domestic fertilizer production. In Western Australia, the State Premier has announced a unilateral requirement that 15% of offshore gas reserves

¹ ResourcesLaw International, “Great Expectations: Cross-Border Natural Gas Trade in APEC Economies”, APEC Energy Working Group, Singapore, 2004.

² At the recent APEC Gas Forum (APGAS 2006) held in Perth, Australia on 31 August / 1 September 2006, the dominant concern expressed by both suppliers and customers was the need to speed up the development process, see www.apgas.com.au.

³ Proved global reserves of natural gas are estimated to be 180 trillion cubic meters (Tcm), or 65 times the volume used in 2004: BP plc, 2005, “Statistical Review of World Energy”, London, UK. An International Gas Union committee has claimed that global natural gas reserves are adequate to support current levels of production for the next 200 years: International Gas Union, 2003, “Gas Prospects, Strategies and Economies”, 22nd World Gas Conference, Tokyo, Japan (Report of IGU Working Committee 9).

(which it does not even own) must be reserved for domestic consumption.⁴ These actions throw doubt on the reliability of supply from all three economies if another energy crisis develops but, of more immediate concern, they serve to impede investment decisions in cross-border gas projects.

2. PIPELINES OR LNG? BOTH INVOLVE COMPLEXITY

Gas pipeline and LNG projects are alternative delivery channels for cross-border gas trade. Both involve complexity. Usually one or the other is more suited to a particular application but occasionally, both pipelines and LNG are required.⁵

Pipelines involve three basic stages and LNG five, as illustrated below:

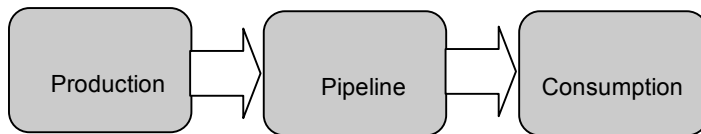


Figure 1: Stages in Gas Pipeline Projects



Figure 2: Stages in LNG Projects

The main factor influencing the choice between pipelines and LNG projects is the distance between the resource and the market. Other factors influencing the choice are summarized in table 1:

Table 1: Summary of Contrasting Features — Pipelines Versus LNG Projects		
Feature	Pipelines	LNG
Comparative economics	Cost competitive over shorter distances	Cost competitive over longer distances

⁴ In the case of Australia, the requirement of the State of Western Australia has been strongly criticised by the Commonwealth Government.

⁵ An example is the Sakhalin 2 project presently being developed on Russia’s Pacific coast. After being brought onshore, gas will be piped 800 km to a liquefaction plant in the south before being transported by ship as LNG.

Table 1: Summary of Contrasting Features — Pipelines Versus LNG Projects		
Market risk	Opportunities for market developments along the pipeline route	Concentrated regional market required near the LNG receiving terminal (such as a power station)
Demand fluctuations	Demand fluctuations and emergencies require a buffer facility (such as underground storage)	Demand fluctuations and emergencies are catered for by LNG storage tanks and facilities or by use of “spot” or “swapped” cargos
Supply source	Typically based on a single source or very limited range of supply sources. May be subsequently expanded.	Historically a part of a single buyer/ seller relationship. New LNG markets seek “open access” regimes, yet must recognize the need for long term contracts to underpin the facilities
Government involvement	Intergovernmental agreements are required amongst supply, consuming and transit countries before transactions are possible	Transactions are possible between supplier and consumer without government involvement. Cross-border LNG trade is almost entirely driven by market forces.
Regulatory risk	Usually exposed to regulatory risk — pipelines are seen as monopolies	In transition from bilateral “life-long” arrangements to a more flexible portfolio of contract types. Currently free of regulatory controls.
Number of stages	Three project stages are required, strongly tied together	Five project stages are required, strongly tied together but with some decoupling as short-term markets emerge

All stages of cross-border gas projects must be strongly tied together by contractual methods, although a limited degree of decoupling is possible as markets mature. As well, all cross-border projects attract the regulatory supervision of at least two governments. In combination, these contractual and regulatory factors give rise to considerable organisational complexity that governments do not fully understand.

3. THE LACK OF INTERNATIONAL STANDARDS ON GHG EMISSIONS

On top of organisational complexity, the most serious concern is the lack of an international standard for CO₂ emissions. Most environmental agencies expect project developers to minimise emissions as far as practicable but what this might entail is not specified. This is creating great uncertainty for all parties.

A major risk for investors in new energy projects is the risk of any subsequent tightening of environmental regulation.⁶ Internationally recognised environmental standards offer a much more reliable basis for investment than domestic standards but there is no international standard for CO₂ emissions.

4. GAS MARKET CREATION

The problem that all cross-border gas projects must confront is the “chicken or egg” problem. Gas markets do not yet exist in many of the jurisdictions that are potential importers, at least not of a size necessary to take large additional volumes, and markets need to be created to justify building a cross-border pipeline or developing an LNG project.⁷

Gas markets do not automatically happen – they must be created over time.

Commercial solutions must be tailored for the maturity of each market. Conditions in a mature gas market, such as Japan, are to be contrasted with conditions in an emerging market, such as China.

For a cross-border gas project to eventuate, a gas demand profile must be matched to a similar supply profile. For investors in a pipeline or an LNG facility, this has to translate into a bankable project, with adequate risk-weighted returns to the investors over the life of the project. This same consideration is true for the upstream developer, who will have to prove up and maintain adequate gas reserves for the project life.

Given the very large volumes of gas to be used, customers typically need substantial switchable base load capacity and cannot rely on the gradual building of reticulation systems and the gradual build-up of gas demand, nor on peaking power stations. Factoring in the build-up period can be a substantial challenge for all parties to a gas project.

Creating a base load demand that will financially underpin any substantial gas development project is therefore a serious barrier. New power plants, or conversion of existing “towns gas” companies, are problematic in the build-up period.

However, the major commercial challenge for the developer of any new pipeline or LNG project is to secure a creditworthy, long-term offtaker for the gas (with a matching transportation contract for pipeline capacity in the case of a pipeline project) that can “underpin” the upstream project. Offtakers are always reluctant to enter into firm forward commitments of this type unless they are certain that the upstream development project will come to fruition.

⁶ Wälde, T and Kolo, A, 2001, “Environmental Regulation, Investment Protection and Regulatory Taking in International Law”, 50 *International and Comparative Law Quarterly* 811-848.

⁷ See Taylor-DeJongh Inc, “Potential for Growth of Natural Gas as a Clean Energy Source in APEC Developing Economies”, APEC Energy Working Group, Singapore, 2006.

Exporting economies, for their part, must understand the importance of ensuring security of supply to the importing economies that gas project developers agree to do business with. Importing economies, for their part, must actively facilitate market creation by adopting an “industry vision” to facilitate an orderly transition to a mature market. There is a need for the exporting and importing governments to share this vision.

5. PIPELINE TRANSIT THROUGH THIRD COUNTRIES

The need for cross-border pipelines to transit third countries also poses a serious barrier to development. We need to be reminded that:

“ ... cross-border oil and gas pipelines have a history of vulnerability to disruption and of generating conflict. While it is true that most operating pipelines have avoided such problems, the minority that have such a history have cast a much greater shadow than their actual numbers might justify. This negative perception inhibits both the operation of existing lines and the building of new ones.”⁸

Where cross-border pipelines need to transit third countries, transit arrangements must be settled before development is able to commence. These arrangements include transit fees, offtake and input arrangements, taxation and regulation.

Intergovernmental organizations (IGOs) abound to facilitate international energy trade and its environmental impacts but, when it comes to individual projects, the need for shared vision must be the starting point.⁹

6. INVESTMENT PROTECTION

Most intending investors in new cross-border gas projects will carry out their investment decision-making process in three stages:

- first, they will evaluate the potential economic return

⁸ United Nations Development Program and the World Bank, 2001, “Cross-Border Oil and Gas Pipelines: Problems and Prospects”, New York, NY, USA.

⁹ These IGOs include:

- the ASEAN Center for Energy (ACE)
- Asia-Pacific Economic Cooperation (APEC)
- the Energy Charter Conference (ECC)
- the Gas Exporting Countries Forum (GECF)
- the International Atomic Energy Agency (IAEA)
- the International Energy Agency (IEA)
- the International Energy Forum (IEF)
- the Organization of Arab Petroleum Exporting Countries (OAPEC)
- Organización Latinoamericana de Energía (OLADE)
- the Organization of Petroleum Exporting Countries (OPEC)
- the United Nations Conference on Environment and Development (UNCED).

- second, they will assess the investment risks and
- third, if the potential risk-adjusted economic return is considered to outweigh all of the risks, and the requirements of “bankability” are satisfied, they will decide whether or not to go ahead.

If a host economy does not provide a secure and stable legal framework for investment and subsequent reliability of supply, most investors are likely to balk. In the absence of confidence in ongoing government support, it may not matter how attractive the project might be or what taxation or other financial inducements the government might offer.

7. THE NEED TO LOCK IN PROJECT FINANCE

Ten years ago, the author was a member of a World Energy Council study team that concluded that the major issue in financing energy projects was how to mobilize capital rather than the adequacy of either the supply or demand for investment funds.¹⁰ This is even more so today.¹¹

This does not, however, diminish the need for each project to be robustly structured to secure the required funding.

Is project finance always needed?¹² The simple answer to this question is “almost always, yes”, because the scale of cross-border projects is so large that project proponents cannot shoulder the financing burden alone.

With some of the less risky projects, it is not uncommon for project finance to be utilised for 80% or more of total project costs, although 70% is a more conventional level.

The bankability of all major infrastructure projects is always economy-specific and project-specific. In gas projects, it is highly dependent on both the reliability of supply and the quality and creditworthiness of the offtake arrangements.

In considering whether a particular infrastructure project is bankable, banks will study the complete range of economy-specific and project-specific risk issues, the creditworthiness, experience and track record of the project proponents (the equity

¹⁰ World Energy Council, 1997, “Financing the Global Energy Sector – The Task Ahead”, London, UK.

¹¹ An APEC workshop in Tokyo in 2004 confirmed that there was no shortage of financial capacity to support the levels of expenditure necessary to expand the gas industry within APEC: ResourcesLaw International, “Great Expectations: Cross-Border Natural Gas Trade in APEC Economies”, APEC, 2004 (note 1 above), see Appendix 2.

¹² The term “project finance” is often loosely used to describe any debt financing of a project. However, what distinguishes true project finance from other types of lending transactions is that the lenders look primarily to the cash flow of the project itself for repayment and to a lesser degree to the project assets as collateral security, rather than depending upon the creditworthiness of the project proponents. For this reason, project finance is often called “non-recourse” or “limited recourse” finance. Project finance is however only available to projects that satisfy the requirements of “bankability”.

investors), the investment structure and the risk mitigation mechanisms proposed for the project.

Banks will always be concerned with the two crucial issues discussed below.

The First Crucial Financing Issue — Creating a Robust Revenue Stream

Where there is no active market for natural gas (as is usually the case with a new cross-border gas project), the whole of the project's capacity will need to be dedicated under a long-term contract for use by a single entity. The lending banks will then rely almost wholly on the robustness of the contracted revenue stream and on the creditworthiness of the offtaking party.

Whether and in what circumstances the supply of the contracted volumes and payment of the contracted revenue stream could be interrupted, is always the most crucial issue in the development and financing of all cross-border gas projects.

The Second Crucial Financing Issue — Reducing Completion Risk

The commencement of the contracted revenue stream obviously depends on the successful completion of the project. The value of the physical assets of a major gas project prior to commissioning will ordinarily be only a fraction of the capital expended. Even after commissioning, the physical assets may have very little value without the contracted revenue stream that goes with the assets.

With many new infrastructure projects, completion risk typically represents such a great risk that conventional lenders are unwilling to accept it. In such cases, project proponents may need to seek "bridging finance" by providing the financiers with recourse to governmental or corporate balance sheets and/or other collateral security (often at more expensive rates) until all of the "completion tests" are satisfied. After that, non-recourse or limited-recourse project finance can be substituted.

The ability to obtain bridging finance will however require all of the project proponents to be highly experienced and highly creditworthy entities and for the exporting and importing governments to share their vision of what the project will achieve.

8. WHY CROSS-BORDER GAS PROJECTS CONTINUE TO LANGUISH

This paper has sought to explain that, despite the increasing global demand for natural gas as an environmentally friendly fossil fuel, and despite high-level policy support for its increasing use, new cross-border natural gas projects continue to languish. This is due to a number of factors:

- the failure of governments to appreciate the subtlety of the difference between bulk natural gas markets and markets in commodities like oil
- the immaturity of gas markets in many importing economies

- uncertainty about future standards for regulation of CO₂ emissions
- delays and uncertainties in obtaining development and environmental approvals and
- difficulty in locking in project finance at the early stages of project definition

Despite the recognition of these challenges, many governments seem to give only lip service to the need to provide support. Gas exporting economies in particular must facilitate the commitments that project developers need to make to customers in importing economies.

As the APEC Gas Forum has highlighted, self-interest remains a potent force in the energy industry and steps must be taken to keep it in check. The lack of shared vision amongst exporting and importing economies must be proactively addressed.

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ResourcesLaw International is an Australian-based consultancy which provides specialist advisory services to governments and corporations on:

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- energy industry reform and regulation.

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