

UNESCAP – PEG WORKSHOP ON THE ASIAN GAS GRID

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Legal and Regulatory Challenges of the Asian Gas Grid

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THE CHALLENGES OF THE ASIAN GAS GRID

- **The East Natuna gas field offshore Indonesia, operated by ExxonMobil, is estimated to hold 222 trillion cubic feet (tcf) of gas. Although the resource has a very high CO₂ content, its net recoverable sales gas is estimated to be 46 tcf.**
- **It is believed that China could have an unsatisfied need to import at least 2000 million cubic feet (mcf) of gas per day.**
- **To link Indonesia's East Natuna gas resource to markets in China by pipeline would require the laying of the world's longest sub-sea pipeline of almost 5000 km ("the Asian Gas Grid").**
- **The cost of construction is estimated at around US\$8 billion.**
- **The pipeline would comprise six stages and would follow the route shown in figure 1 of this paper.**
- **The pipeline would traverse the coastal waters of three transit countries: Malaysia, Thailand and Viet Nam.**
- **The Asian Gas Grid involves a range of technical, commercial and political challenges.**
- **The Asian Gas Grid also involves a number of legal and regulatory challenges. However, none of these are novel and all of them could be overcome with goodwill and through constructive negotiations amongst governments and investors.**

The Asian Gas Grid Pipeline

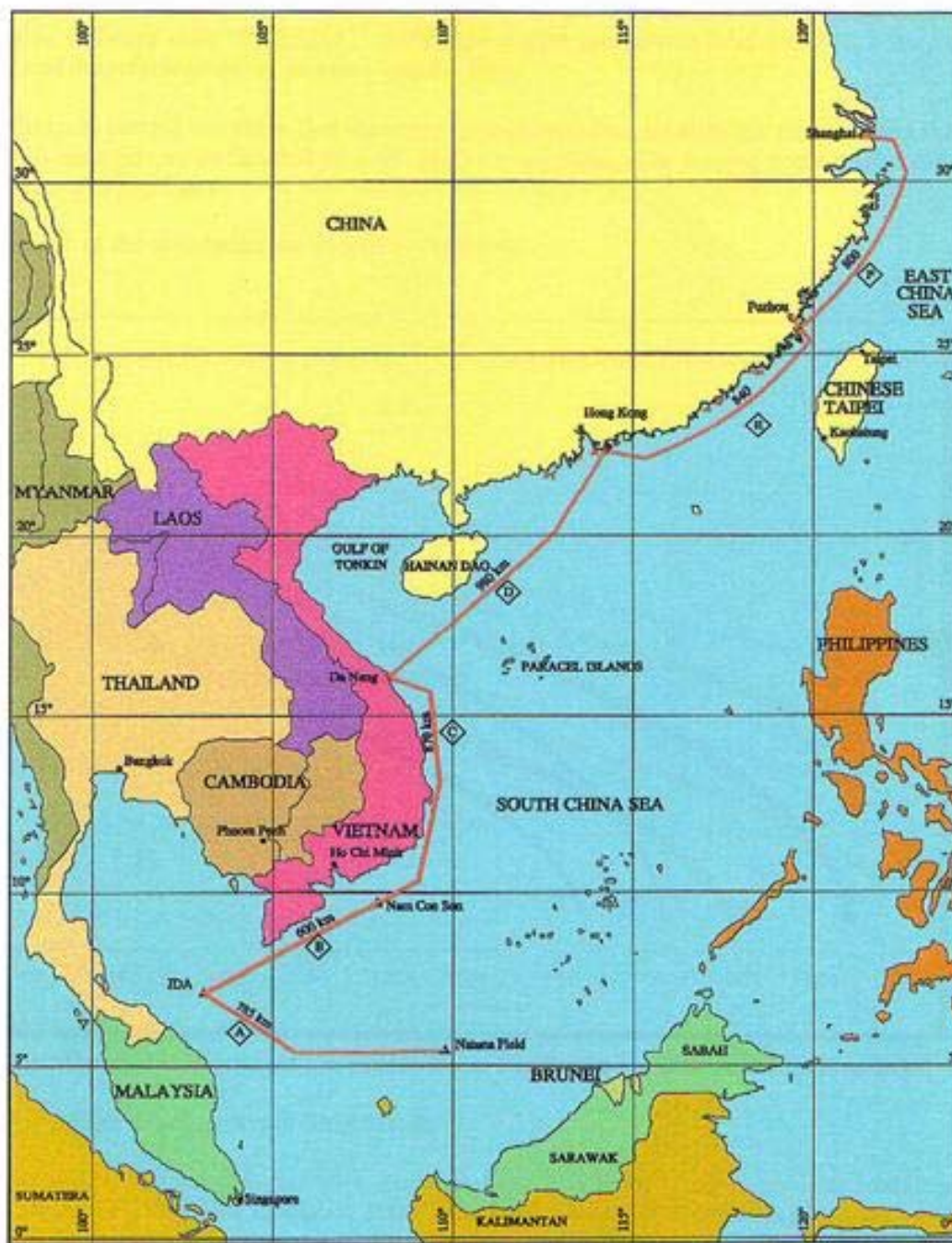


Figure 1: The Asian Gas Grid – Main Stages and Route

1. INTRODUCTION

(a) The Potential for Cross-Border Gas Trade

There is an abundance of natural gas globally but much of it is “stranded” because it is isolated from established markets.¹ There is a huge geographic disparity between the locations of the resources and the centers of demand.

An anticipated doubling of the gas market every 25 years, combined with the disparity in the locations of demand and supply, will continue to drive rapid growth in cross-border gas trade.² The high growth rate is unlikely to abate for the reason that natural gas is increasing in importance in energy supply, particularly as a fuel in power generation, where it has become more competitive with coal on a unit electricity price basis as well as offering significantly lower times for new-build capacity.

Recent global consumption and export data is broken down in table 1:

Table 1: Breakdown of Global Natural Gas Consumption and Exports for the Year Ended 31 December 2003			
	bcm	Share of exports	Share of global consumption
Domestic consumption	1967		76.0%
Pipeline exports	455	73%	17.5%
LNG exports	169	27%	6.5%
Subtotal exports	624	100%	24%
Total	2591		100%

Source: Extrapolated from provisional Cedigaz data as reported in the BP 2004 Statistical Review of World Energy.

To meet the expected level of future demand, three quarters of new natural gas production has the potential to enter into cross-border gas trade. However, achieving this potential will require an unprecedented level of investment, project financing, improved transportation systems, off-take support, and policy and regulatory changes.

The Asian Gas Grid (AGG) could in future play a pivotal role in future cross-border gas trade. All of the countries that would be involved in the AGG are members of the Asia-Pacific Economic Cooperation (APEC) organization. A study on best practice in cross-

¹ Proved global reserves of natural gas are estimated to be 176 trillion cubic meters (tcm), or 67 times the volume used in 2003: BP plc, 2004, “Statistical Review of World Energy”, London, UK, page 20. 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).

² International Energy Agency, 2003, “World Energy Investment Outlook: 2003 Insights”, OECD, Paris.

border gas projects has been carried out for the APEC Energy Working Group by ResourcesLaw International.³

(b) Pipelines or LNG?

Gas pipeline and LNG projects are alternative delivery channels for cross-border gas trade. Either one or the other is more suited to a particular application. With some projects, both pipelines and LNG are required.⁴

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

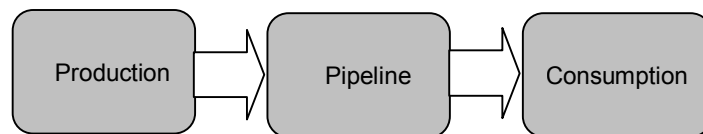


Figure 2: Stages in Gas Pipeline Projects

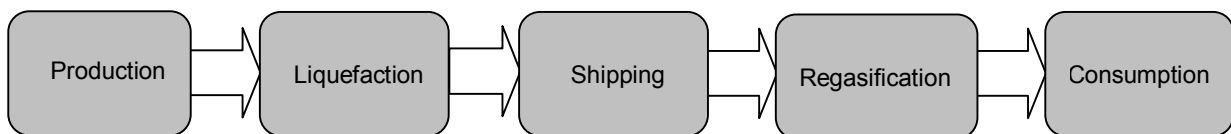


Figure 3: Stages in LNG Projects

Each stage in a cross-border gas project is typically a separate infrastructure project with its own sub-set of characteristics. Each stage can, and usually does, require the involvement of separate investment consortia and separate financing arrangements and supply/off-take agreements.

Historically, all stages of cross-border gas projects have been strongly tied together by contractual methods, although recent transactions in the expanding gas market have shown that some degree of decoupling is possible. In addition, all cross-border projects attract the regulatory supervision of not less than two governments. In combination, these contractual and regulatory factors give rise to considerable organizational complexity (more so with LNG than with pipelines).

The main factors influencing the choice between pipelines and LNG projects are:

- project size and gas volumes
- distance by land and/or sea
- availability of rights of way

³ ResourcesLaw International, "Great Expectations: Cross-Border Natural Gas Trade in APEC Economies", APEC Secretariat, Singapore, 2004.

⁴ An example is the Sakhalin 2 project presently being developed on Russia's Pacific coast. After being brought onshore, gas is piped 800 km to a liquefaction plant in the south before being transported by ship as LNG.

- transit arrangements
- delivered gas volume and price, including producer “netbacks” and
- financing costs and project financeability.

The contrasting features of pipelines and LNG projects are summarized in table 2:

Table 2: Summary of Contrasting Features — Pipelines Versus LNG Projects		
Feature	Pipelines	LNG
Comparative economics	Cost competitive over shorter distances	Cost competitive over longer distances
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

(c) Project Scale

The volume of gas that can be transported by pipeline is directly dependent on a combination of pressure rating and pipe diameter. Technical innovations have allowed

larger gas volumes to be transported over longer distances, by the use of aircraft derivative gas turbines for compression, plus significantly higher pressure-rated and larger diameter pipes.

Until recent times, the longest pipeline systems were 3500 km from Siberia to Europe and 3000 km across Canada. The West-East pipeline in China from the Tarim Basin to Shanghai, the proposed Alaska Gas Pipeline Project, the Kovykta project (Siberia-China) and the AGG are of a much greater scale of 4000 – 5000 km. The distinctive and challenging feature of the AGG is that it would be entirely offshore.

Although larger projects may bring lower unit prices, they require larger markets, greater reserves, greater upstream investment to prove up, requiring greater time. It often takes 5 – 7 years and longer to develop a new project.

The cost of developing a pipeline includes the acquisition of rights of way, the cost of the pipes and compressor stations and the cost of construction. The estimated total cost of some of the major planned pipelines in the APEC region, excluding the cost of gas field development itself, are set out in table 3:

Table 3: Estimated Total Cost of Selected Pipelines	
Kovykta, Russia to China Pipeline	\$6-8 billion
The Trans-China East-West Pipeline	\$10 billion
The Asian Gas Grid	\$8 billion
The PNG – Australia Pipeline	\$3 billion

By comparison, the indicative cost of a typical 8 million ton per annum LNG project is estimated at around \$6 billion.

The development of offshore pipelines has been constrained by a combination of water depth and distance. To meet the challenge of increasing water depths and pipe diameters, pipe lay and reel-barges have progressively improved and enhanced lay methods and tension capability, with water depths significantly in excess of 2000 meters now being possible.

When gas moves down a pipeline, the pressure falls and compression stations are needed at regular intervals.

With offshore pipelines, the cost of installing compression facilities at regular intervals along the pipeline to mitigate pressure-drop can be prohibitive due to the cost of the supporting structures, unless these are combined as part of other offshore facilities, or can be located in shallow waters. Even though increased pipe diameters and higher operating pressures can be used to offset this effect, offshore pipelines have until now been limited to 500 to 700 kilometres.

For the purpose of this paper, it is assumed that these development challenges can be overcome in the case of the AGG.

(d) The Tendency of All New Cross-Border Projects to Languish

Despite the increasing global demand for natural gas, and despite high-level policy support for its increasing use, new cross-border natural gas projects have tended to languish because of a complex aggregation of interrelated factors. These factors include:

- the immaturity of gas markets in many importing economies
- the sheer scale, cost and financeability of developing the required infrastructure (cross-border natural gas trade cannot be undertaken without very heavy investment)
- the difficulties of obtaining development and environmental approvals (so-called “permitting difficulties”)
- the diversity of historical, political and ideological positions in relation to resource ownership, product values and value flows/beneficiaries
- differences in, or incompatibility of, national policies, investment rules, regulatory regimes and pricing regimes
- differences between the economic and/or pricing expectations of some stakeholders and marketplace reality and
- a variety of other complexities and risks that are specific to individual projects.

2. GAS MARKET CREATION

The greatest difficulty for all pipeline development is the “chicken or egg” problem: usually, gas markets do not yet exist, at least not of a size necessary to take large additional volumes, and need to be created to justify building the pipeline.

Long-term “take-or-pay” contracts will be vital for bringing the East Natuna gas to market.

A gas-fired or gas turbine-based power plant, will typically require a take-or-pay supply contract for about 20 years. For a 1,000MW gas-fired plant, costing perhaps \$800 million, this equates to a guaranteed minimum payment of approximately \$250m per annum for the take-or-pay period (or \$5 billion over a 20-year period).

Creating a base load demand that will financially underpin any substantial gas development project is therefore a significant barrier. New power plants, or conversion of existing “towns gas” companies, are problematic in the build-up period. However, the conversion of high efficiency liquid-fuel plants, the re-powering or conversion of brownfield sites and the promotion of value-adding industries can often provide the base load to underpin a new gas development project.

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 successful cross-border natural gas project to eventuate, a gas demand profile, matched to a similar supply profile has to be achieved. For private sector investors, 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 gasfield 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, this typically requires 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.

Natural gas markets do not automatically happen – they must be created over time. However, the creation of a gas market may be hindered by:

- political barriers
- economic limits (low standards of living)
- inter-fuel competition
- the lack of gas distribution infrastructure
- the lack of investment in new technology, such as CCGT generation
- heavy-handed regulatory regimes
- uncertainty about GST and other ad-valorem taxes that may be imposed by the importing government
- deregulation (if deregulation constrains buyers from committing to long-term offtake or supply contracts or disaggregates buyers so as to reduce their financial capacity to undertake such commitments) and
- the lack of recognition of the “environmental value” of gas.

Market creation involves both contractual and regulatory issues. The former can be dealt with by commercial negotiations amongst sellers and buyers but regulatory regimes often constitute a major barrier and require a degree of government vision and involvement. Regulatory regimes are discussed in further detail below.

Participants in APEC workshops in 2004 strongly emphasized the need for importing economies to actively facilitate market creation. Participants also emphasized the great value of importing economies adopting an “industry vision” to facilitate an orderly transition to a mature market environment for natural gas.

The major commercial challenge for the AGG is to secure a creditworthy, long-term offtaker for the gas and a matching transportation contract for the pipeline capacity that can “underpin” the project.

3. TRANSIT THROUGH THIRD COUNTRIES

A joint UNDP/World Bank study has reported 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.”⁵

Although much of energy trade is global, *governments can only enact domestic laws*. However, governments can enter into multilateral treaties, which they can put into effect as domestic laws.

Numerous intergovernmental organizations (IGOs) have been created to facilitate international energy trade and its environmental impacts.⁶ The Energy Charter Conference stands out as one IGO that has significantly increased its global influence.

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.

Treaty-based transit protection reduces political risks at the same time as leaving it to the parties and the transit country to work out their detailed contractual arrangements. The Energy Charter Treaty (ECT) provides a ready-made mechanism by which transit rights can be entrenched, as referred to in Article 7 of the Treaty (there are analogous provisions in Chapter 12 of the North American Free Trade Agreement (NAFTA)). It has been suggested that:

“... the failure of the MAI negotiations highlights the potential role of the ECT as a model for sectoral and regional economic regulation. Already Mongolia has acceded to the Treaty and the ECT institutions have been in discussions with China and North Africa.”⁷

Under the ECT, negotiations for a detailed Protocol on Transit have been going on for some years. It is hoped they will be successfully concluded soon.

⁵ United Nations Development Program and the World Bank, 2001, “Cross-Border Oil and Gas Pipelines: Problems and Prospects”, New York, NY, USA.

⁶ These IGOs include Asia-Pacific Economic Cooperation (APEC), the ASEAN Center for Energy (ACE), 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), and the United Nations Conference on Environment and Development (UNCED).

⁷ Bamberger, C, Linehan, J and Wälde, T, “Energy Charter Treaty in 2001: in a New Phase”, Journal of Energy and Natural Resources Law, Vol 18, No 4 November 2000.

If the AGG goes ahead, opportunities may emerge for the transit countries to install local power generation and cogeneration plants in coastal towns adjacent to the pipeline route.

4. THE COMPLEXITY OF NEGOTIATIONS

The negotiation of investment agreements for infrastructure projects is a complex, lengthy and expensive process. It is only the most substantial investors who can afford the time and cost to see these type of negotiations through to the end.⁸

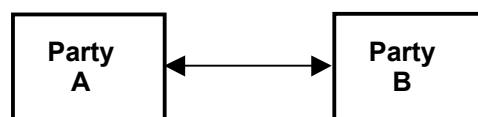
In international negotiations involving projects for the private development of infrastructure, there can be an unequal understanding of the “rules of the game” and confusion about total trade flows versus values created from the various stakeholders. There is often great tension in public-private sector deals, especially if a developing economy is involved and its officials are participating in project negotiations for the first time.

In projects that involve multiple parties, it is essential for the parties to test their preconceptions, to re-evaluate their goals and to redesign their proposed dealings so as to either reduce the number of contracting parties or minimize the level of contractual complexity.

Negotiating sound and durable investment agreements for cross-border projects does not involve special science but it often requires special facilitation and guidance⁹. To begin with, such projects normally bring together in an international transaction various participants, including public officials, who would otherwise have had little to do with each other. These people need in their negotiations to transcend national and cultural boundaries and establish an overriding mutuality of purpose. Public officials for their part may need to contend with competing or unsympathetic constituents within their own government.

Most trilateral or quadrilateral deals involve contractual complexity to a degree well beyond the level to which parties and their lawyers have been trained to cope with or may have ever encountered. This is illustrated in figure 4.

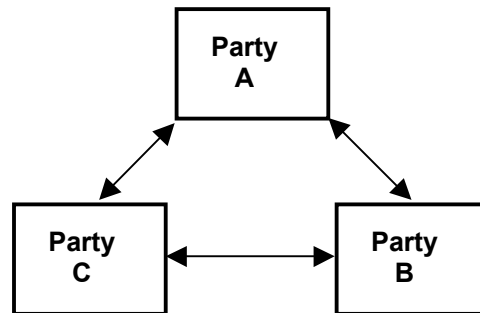
Figure 4: The Complexity of Multi-Party Contractual Relationships



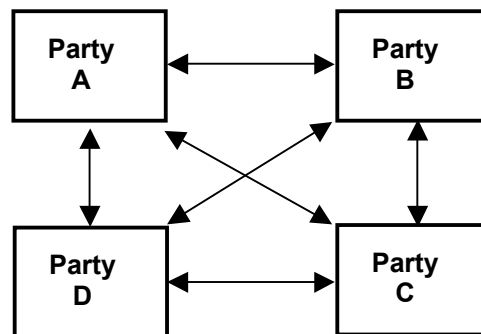
A bilateral relationship depends on two sets of rights and obligations

⁸ Even before such negotiations can occur on many major gas projects, the delineation of borders, ownership of reserves and apportionment of benefits have to be agreed. As these issues may include sovereignty, national policy and other issues, it is important to recognize the benefits of reaching agreement on a commercial solution, even if the boundary issue resolution is deferred.

⁹ Hager, M and Pritchard, R, 1999, “Deal Mediation: How ADR Techniques Can Help Achieve Durable Agreements in the Global Markets”, ICSID Review – Foreign Investment Law Journal, Vol 14 No 1, Spring, International Center for Settlement of Investment Disputes, Washington DC, USA.



A trilateral relationship has three times the complexity of a bilateral relationship because it depends on six sets of rights and obligations



A quadrilateral relationship has six times the complexity of a bilateral relationship because it depends on 12 sets of rights and obligations

A five-party relationship (not depicted in the illustration) involves 10 times the complexity of a bilateral relationship and easily outstrips the capacity of the parties and their lawyers to stabilize their relationship by orthodox contractual means.

It is important from the beginning of negotiations to strive to minimize contractual complexity. One technique of achieving this in the case of jointly-owned projects is to utilize incorporation laws to establish joint ventures in preference to contractual structures. This process itself requires substantial work to allow effective tax planning and expense-offsetting to take place.

Parties who succeed in putting others into legal strait-jackets can unwittingly sow the seeds of instability in the real relationship if they fail to appreciate that the legal issues are inseparable from the surrounding political, financial, policy and social issues.¹⁰

The real glue to hold cross-border projects together is not the legal framework so much as mutual benefit.

¹⁰ Pritchard, R, 2001, "The Energy Lawyer Through a Looking Glass", Journal of Energy & Natural Resources Law, Vol 19 No 1.

5. REGULATION

(a) The Need for Effective, Stable and Fair Domestic Regulation

Each country needs to establish an effective, stable and fair scheme of domestic regulation as it will impact on gas pipelines. The role of government is to design and put in place the regulatory scheme; the role of the independent regulator is to implement it. The regulator does not, or certainly should not, make its own regulatory rules.

The main principles of effective regulation are set out in table 4.¹¹

Table 4: Principles of Effective Regulation
The regulator should be legally and organizationally separate from the government and the utilities
The objectives of the regulator should be specified in clear and unambiguous terms
The scope for the regulator to exercise personal discretion should be limited (in order to maintain confidence in the impartiality of the regulatory process)
Regulatory procedures should be transparent and easy to administer
Regulatory procedures should be carried out promptly
A method of review of network pricing should be specified which enables network operators to benefit from efficiency improvements and which leads to simple, automatic adjustments
The regulator should be able to obtain direct access to information about service quality and user satisfaction, with mechanisms to consult with the public
The regulatory system should function free from political interference
The regulator should be legally accountable for its actions by a prompt and effective appeal process

There are two broad options by which the establishment of an effective regulatory scheme can be achieved: the first is by the enactment of legislation to establish an independent regulatory scheme applicable to the entire industry; the second is “regulation by contract”, by the negotiation of contractual regulatory arrangements with the energy facility operator on an individual basis.

For governments in economies which are not accustomed to independent regulatory systems, it may be more palatable for political reasons for regulatory controls to be negotiated and set out in particular contractual arrangements. These may be easier for some governments to implement than the establishment of an independent regulatory agency at the outset and may be seen by investors as offering more certainty, security

¹¹ Taken from Pritchard, R and Webb, D, “Privatisation and Private Provision of Infrastructure”, chapter 4 in Pritchard, R (ed), 1996, “Economic Development, Foreign Investment and the Law”, International Bar Association and Kluwer Law International, London, UK.

and stability for their investment. Such contractual arrangements must however be enforceable against governments.

The approach taken for “economic regulation” or pricing regulation is often more complex because a gas user pays for two components:

- the energy value of the gas and
- the cost of transporting the gas from the source of supply.

In the early life of projects, typically for the first 15 years or so, investors have a strong preference for pipelines to enjoy a regulation-free period or at least clarity about regulation for its project term and envisaged expansions. This enables investors to negotiate freely with the gas suppliers and customers for use of the pipeline and enables the investors to establish a secure revenue stream to service and retire debt. Heavy-handed or uncertain regulation has a chilling effect on pipeline investment.

It should be in the normal commercial interest of the pipeline operator to maximize throughput.

The “use-it-or-lose-it” principle should apply: that is, if a customer contracts for pipeline capacity but does not intend to use it, it must inform the pipeline operator so that it can then make this capacity available to others in the market.

(b) Approaches to Regulatory Harmonization

Regulatory harmonization does not mean that each economy involved with a cross-border project, whether as exporting, importing or transit nation, will necessarily adopt a uniform or standardized regulatory regime. The goal of harmonization is to remove the uncertainty of local law and regulatory regimes.

The process of regulatory harmonization depends on the legal, commercial and cultural similarities of the exporting and importing countries. Possible approaches include:

- multi-party project agreements between the respective governments and the commercial sponsors
- project-specific agreements or framework treaties between sovereign states and
- special purpose enabling legislation and regulations.

A combination of the above approaches could be necessary where there are serious political and commercial risks.¹²

Multi-party project agreements raise concerns about the extent that the respective governments are willing to give undertakings regarding:

¹² For example, the legal framework for the West African Gas Pipeline Project involving Benin, Ghana, Nigeria and Togo includes an international project agreement between the states and the commercial group of companies, a treaty between the governments and harmonizing legislation as well as an administrative body specifically created to regulate the project on behalf of the states.

- waiver of sovereign immunity
- whether foreign law will control the interpretation of the agreement
- performance guarantees and credit support for state-owned enterprises and
- consent to participate in and be bound by international arbitration and dispute resolution procedures rather than invoking the jurisdiction of its courts.

Project agreements or framework treaties have been used successfully to promote cross-border natural gas trade. Typically, they have recognized the right of the respective states to assert regulatory authority over the portion of the pipeline system that is within their jurisdiction rather than adopt uniform rules.¹³

Special legislation may be necessary when contracts and trade agreements are not sufficiently robust for the project participants and their financial backers.¹⁴ Regulatory exemptions, waivers of law, and tax holidays have also been used to underwrite governmental support for cross-border gas projects.

The critical issues to consider in regulatory harmonization are:

- whether the project will have an exclusive right to serve the market
- non-discriminatory treatment for all projects that either export or import natural gas
- market-based pricing, including the ability to pass through contractual price adjustments and take-or-pay payments¹⁵
- recognition of a tax-efficient project entity that owns, finances and operates the project and ensures that income will flow to the sponsors
- simplification of project construction permitting and licensing in coordination with project milestones
- coordination of environmental base-line studies, permits and public involvement processes
- the extent and time frame for third parties to have access to project facilities

¹³ For example, the Agreement Between The United States of America and Canada On Principles Applicable To A Northern Natural Gas Pipeline (Sept. 20, 1977; June 6, 1978).

¹⁴ For example, special legislation was passed in Canada (Northern Pipeline Act 1978) and the United States (Alaska Natural Gas Transportation Act 1976) to facilitate the Alaska Natural Gas Pipeline Project.

¹⁵ Governments should not act to control prices either at the points of supply or sale; market forces should determine energy product prices.

- regulatory bodies in each jurisdiction to avoid the disruption of contractual relationships to the maximum extent
- a single layer of taxation with a mechanism agreed between the participating states for the distribution of revenue and
- elimination of separate excise (VAT) taxes, withholding taxes, customs duties and transit fees.

(c) **A Tendency to Regional Regulation**

For cross-border gas pipelines, there is an emerging need for, and there is already a tendency to move towards, regional regulation.

The regional initiatives which have been seen to date have been relatively informal cooperative initiatives taken by domestic regulators with the approval of domestic governments and have not required to be supported by international legal regimes.¹⁶

Within the EU, there is an emerging model of a regional regulatory framework and consistent standards between its member countries which has evolved since the EU initiated the annual Madrid Gas Regulation Forum.

Regional trade agreements have also served as platforms for securing access to both supplies and markets. In terms of regulatory harmonization the signatory states agree to limit regulatory measures that discriminate in favor of its nationals, restrictions on imports and exports and export taxes.¹⁷ Specific directives on natural gas transportation have been issued under these trade agreements.¹⁸

6. INTERNATIONAL ENVIRONMENTAL STANDARDS

Agreement on the applicable environmental standards for pipeline construction and operation is of pivotal importance.

In an era when the principle of sustainable development is globally acknowledged, reliance on internationally recognized environmental standards offers a much more reliable basis for investment than domestic standards. A particularly sensitive issue for

¹⁶ Some of these recent regional and other international initiatives include:

- APEC Energy Regulators Forum
- Canadian Association of Members of Public Utility Tribunals (CAMPUT)
- Council of European Energy Regulators (CEER) in Europe
- Energy Regulators Regional Association (ERRA) in countries of Central and Eastern Europe and the newly independent states of Eurasia
- Ibero-American Association of Electricity Regulators (ARIAE) in Latin America, Spain and Portugal
- National Association of Regulatory Utility Commissioners (NARUC) in the US
- Utility Regulators Forum (URF) in Australia
- World Forum on Energy Regulation

¹⁷ North American Free Trade Agreement (NAFTA), Art. 606 – Energy Regulatory Matters.

¹⁸ Directive on the Transit of Natural Gas Through Grids, Council Directive No. 91/296 EEC (31 May 1991)

investors is the risk of any subsequent tightening of environmental regulation in excess of recognized international standards.¹⁹

7. HARMONIZATION OF TAXATION REGIMES

Harmonization of taxation regimes primarily requires a single method for assessing income and capital allowances. It is preferable to grant the project exemptions from excise taxes, withholding taxes on dividends, customs duties and transit fees. Often these issues are dealt with in bilateral investment treaties.

Once the taxation regime is established, there are three variations for apportioning tax revenues from cross-border gas projects where there are facilities located in more than one economy:

- (i) the value of facilities or length of pipeline located in each economy
- (ii) the quantity of natural gas delivered in each economy or
- (iii) a combination of (i) and (ii).

Harmonized taxation regimes provide support for financing as revenue flows and tax obligations are easier to forecast. Financiers will always have more confidence in a project whose fiscal structure is transparent.

Like other commercial sectors, the natural gas industry is subject to the imposition of taxes on company income and shareholder dividends. Corporate tax rates can vary substantially, making business structures important in determining 'tax domicile'. Many countries have adopted income tax provisions specifically for the petroleum industry that provides for accelerated write-off of development expenditures or depletion allowances for both domestic and foreign oil and gas.

Further liberalization and adjustment to the taxing of energy projects is required, in particular when complex joint ventures are established for different parts of an energy project and the ability of proponents to efficiently structure or restructure their projects is hampered by inflexible tax laws.

The facilities and infrastructure required for efficient and reliable production and marketing of natural gas are supported by complex contractual and financing provisions that specify delivery rates and mechanisms for price adjustment for many years into the future. These provisions, such as take-or-pay obligations, can have tax implications as well.²⁰

In a world of higher energy prices, gas exporters can be faced with a potential dilemma of higher netback prices for export gas over those available in the domestic market. Whilst this may not be a problem in economies where the government controls or owns

¹⁹ Wälde, T and Kolo, A, 2001, "Environmental Regulation, Investment Protection and Regulatory Taking in International Law", 50 *International and Comparative Law Quarterly* 811-848.

²⁰ For example, take-or-pay payments made by a gas purchaser are usually treated as a deferred charge that is only included in the purchaser's cost of gas when it is made up. If the gas is never taken and the take-or-pay payment is not refunded, the amount is allowable as a loss in the tax year that it was determined it was not possible to make-up by delivery.

the energy-producing assets, a free market environment will see the resource developer striving to secure the highest returns for its shareholders.

8. INVESTMENT PROTECTION

Prospective investors will always ask a series of questions, such as those set out in the checklist in table 5.

Table 5: A Basic Legislative Checklist for Investors	
Foreign investment law	Can investment approval be obtained and under what conditions?
International Investment Treaties	Has the government enacted legislation to authorize its adherence to any international investment treaties and what safeguards does this provide?
Property law/ Law of credit securities	Can foreigners freely acquire, charge and transfer land and other property? Are any government approvals required? Could the requirement for approvals jeopardize financing? Do the rights acquired have a proprietary character which is suitable for practical lending requirements (mortgages; liens; charges)
Land use development law	Under what conditions can development approval be obtained and conditions varied?
Environmental protection	What standards must be observed? Are they international standards? What penalties apply for failure to comply? Can an operating license be suspended or revoked? Is there a right of appeal?
Incorporation of companies	Can foreigners establish and control companies?
Taxation	What is the host country tax system? How stable is it and how does it interact with that of the investor's residence country?
Import and export law	What approvals are necessary and what duties apply?
Competition law	Is market power regulated? Are mergers allowed?
Consumer protection	What price controls or other consumer safeguards apply?
Intellectual property	How is intellectual property protected?

Dispute resolution	What law can be used to govern investment agreements? Can statutory rights and contractual rights be readily enforced and can disputes be speedily resolved in a neutral forum?
Administrative law	Is there any right of appeal against invalid decisions of government officials?
Regulation of the energy industry	What operating licenses and approvals are required? Can they be transferred freely? Is there an industry regulator which is independent of government? Are adverse regulatory decisions subject to review and appeal? Is the procedure efficient? Could any restrictions jeopardize financing? Are there transparent and practical rules for providing access to public (or private) monopolies in the area of gas transport? Are there clear rules on congestion management for gas transmission? For calculating transport tariffs? For dealing with capacity reservation, previous contract commitments versus new requests for access?
The judiciary	Is the judiciary entirely independent of government?
Regulation of the legal profession	Are lawyers entirely independent of government?

Most intending investors will carry out their investment decision-making process in three stages:

- first, they will evaluate the potential economic return
- 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.

Generally speaking, if a host economy does not provide a secure and stable legal framework for infrastructure investment, most investors are likely to balk. In the absence of an adequate legal framework, it may not matter how attractive the project might be or what taxation or other financial inducements the government might offer.

When gas pipeline tariffs are capped at low levels or are vulnerable to regulatory intervention, investors will be much less likely to accept an inadequate legal framework. There have been some recent and widely noted failures of energy infrastructure investment projects, notably in Indonesia, Pakistan, India and Argentina; these as a rule have followed an economic and financial crisis.

Sometimes, the constitutional and legislative safeguards offered by a particular host jurisdiction will not be sufficient by themselves to satisfy the needs of investors. Apart from seeking improved legislation, other measures to overcome legal inadequacies,

such as investment agreements with the host government and equity participation by the host government, can be considered. “Investment agreement” in this context means either an agreement, a license or a concession, or a combination of any of these, entered into with, or granted by, the host government to underpin an infrastructure investment.

Investment agreements can make appropriate provision for approvals processes, regulation of prices, technical and operational issues and environmental and other matters. Such agreements may overcome some of the other legal problems inherent in the lack of legislation.²¹

If there is no existing regulatory regime, or if it is considered to be inadequate, investment agreements can establish a legally secure regulatory framework under which an investment can be made.

9. PROJECT FINANCING

(a) Are There Sufficient Funds?

A 1997 World Energy Council study 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.²²

At an APEC workshop held in Tokyo in 2004, it was confirmed that there was no shortage of financial capacity to support the levels of expenditure necessary to expand the gas industry within APEC.²³

It was however emphasized that each project needed to be robust in all respects to attract and secure the required funding.

(b) Is Project Finance Always Needed?

The simple answer to this question is, almost always, “yes”. Project financing is almost always needed for energy infrastructure projects because the scale of projects is so large that project proponents cannot shoulder the financing burden alone. Where the government or the project proponent (or project sponsor) is unable or unwilling to utilize additional sources of public finance or corporate finance, as the case may be, project finance must be sought.

If a government is able to finance an infrastructure project out of public funds, or if it can gain access to funds to develop the project based on its own international reputation or creditworthiness, no financing barrier arises. Similarly, if an independent energy enterprise, whether state-owned or privately-owned, has adequate funds available from its internal resources, or can obtain corporate finance to develop an infrastructure project

²¹ Wälde, T and Ndi, G, 1996, “Stabilizing International Investment Commitments”, 31 Texas International Law Journal 215-268.

²² World Energy Council, 1997, “Financing the Global Energy Sector – The Task Ahead”, London, UK.

²³ ResourcesLaw International, “Great Expectations: Cross-Border Natural Gas Trade in APEC Economies”, APEC, 2004 (note 3 above), see Appendix 2.

based on its own assets and creditworthiness, no financing barrier arises. However, the scale of energy infrastructure projects usually makes this impossible.

(c) What Exactly is “Project Finance”?

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”. This is further discussed below.

With some of the less risky projects, it is not uncommon for project finance to be utilized for 80% or more of total project costs, although 70% is a more conventional level. Project finance is only concerned with debt finance. The balance of funds has to be provided by the project proponents as equity capital, typically from their internal resources.

(d) How is “Bankability” Established?

“Bankability” is the term typically used to signify to the capability of a particular project to attract project finance. The bankability of infrastructure projects is always economy-specific and project-specific. In gas projects, it is highly dependant on the quality and creditworthiness of the offtake arrangements.

The risk for major investments relates to the fixed nature of the assets installed, as well as the fixed nature of the upstream reservoir and delivery systems. The risks include expropriation, nationalization, and heavy-handed regulation, as well as the risk of insurrection and terrorism.

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

(e) Questions Banks Will Ask

In the case of cross-border gas projects, banks will usually begin by asking the basic question of whether there is an existing market for the gas or whether a market needs to be created, the same basic questions as the equity investors should have already examined, as listed in table 5 above.

In addition, banks will also expect answers to a range of targeted questions like those set out in table 6:

Table 6: Questions Banks Will Ask
By what deadline will the project be completed?
What will it finally cost?
Who will pay for any overruns?
Will it function efficiently?
Will it have reliable reserves of gas available?
Will the gas be sold on profitable terms to a creditworthy offtaker, free from risk of intervention?
When will the project become cash flow positive?
What taxation rules apply to the borrower?
Are any tax concessions and exemptions available?
Are any loans available from concessional sources?
If different lenders are involved, will they rank equally and, if not, what priority of repayment will apply amongst them?
Is any government approval required for the financing plan?
Could the banks attract any environmental liability?
Is political risk and other key insurance coverage available?
Can security over the project assets be obtained?
Will the project security be freely assignable by the banks in the event of default without the requirement of further government approval?

(f) The First Crucial Financing Issue — Creating a Robust Revenue Stream

Where there is no active market for natural gas (as is often 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 contracted revenue stream could be interrupted, is invariably the most crucial issue in the development and financing of all cross-border projects.

Banks know that, if the project proponents are unable to construct or operate an infrastructure project successfully, the banks themselves will probably experience even more difficulties in doing so. Because of this, the banks, the project proponents, and any third parties against whom the lenders expect to have recourse, all depend for the repayment of moneys advanced on the ability of the project to meet its cash flow projections once in operation.

(g) 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 an infrastructure 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. Although project financiers will require security over all of the project assets, this is usually done as a means of ensuring compliance with restrictions against dealing with or encumbering the assets of the project, rather than with the expectation that realizing on the security will be a realistic means of recouping the monies advanced.

With most new infrastructure projects, completion risk typically represents such a great risk that many conventional lenders are unwilling to accept it. In such cases, project proponents will 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 experienced and highly creditworthy entities.

(h) Remembering the Four Requirements

In summary, there are four requirements in relation to the project financing of energy infrastructure projects such as gas pipelines:

- (i) the main requirement is to create a robust and uninterrupted revenue stream to support the repayment obligations
- (ii) before this can be achieved, a satisfactory solution must be found to reduce completion risk
- (iii) the first two requirements underscore the importance of sound project fundamentals (mainly the existence of a strong market for the output), and
- (iv) they also underscore the importance of involving experienced, reliable and highly creditworthy project proponents and turn-key construction contractors in the project.

10. CONCLUSIONS

The Asian Gas Grid will involve a number of legal and regulatory challenges. These include:

- (i) the necessity for the project to secure a creditworthy, long-term offtaker for the East Natuna gas, on commercial terms acceptable to ExxonMobil, together with a matching transportation contract for the pipeline capacity.
- (ii) the challenge of assembling a pipeline consortium of investors and financiers.
- (iii) the necessity for an intergovernmental agreement amongst Indonesia, Malaysia, Thailand, Viet Nam and China to address the following issues:
 - (a) the need for a harmonized regulatory system to entrench a commercially realistic tariff regime for the transportation of gas through the pipeline;
 - (b) the need for a common approach to environmental standards.
 - (c) the need to specify the taxation principles that will apply to the pipeline income that is generated in the exporting and importing countries, as well as in the three transit countries;
 - (d) the need for a secure investment protection regime in each country to facilitate project financing; and
- (iv) the necessity for the intergovernmental agreement to be given the force of a treaty (this can be done by the participating states adhering to the 1994 Energy Charter Treaty or by their negotiating a special-purpose treaty).

Although these challenges involve considerable complexity, none of them involve any major element of novelty. If the AGG is a robust project, I believe that all of the legal and regulatory challenges can be overcome with goodwill and through constructive negotiations amongst the participating governments and project sponsors.

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

- energy law and policy
- energy projects, project financing and risk management
- energy industry reform and regulation.

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