



The Role of the APEC Gas Forum (APGAS) in Expanding Natural Gas Trade in the Asia-Pacific Region

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1. THE RATIONALE FOR EXPANSION OF APEC NATURAL GAS TRADE

Expanding Energy Demand

APEC economies presently account for 58 percent of world energy demand.¹ The APEC region overall is a net energy importer, meaning that its aggregate annual consumption of energy exceeds its aggregate annual domestic production. The balance is imported from outside the region.

APEC energy demand is continuing to expand, driven by economic growth, industrialization and urbanization.

APEC's self sufficiency in oil has declined from 77% in 1992 to 67% in 2002. It is projected by ABARE to fall to 38% in 2030.²

The position is very different with natural gas: in 2002, APEC economies produced almost 10% more gas than they consumed. Proved global reserves of gas were 176 Tcm at the end of 2003, 67 times the volume used that year.³ Compared to oil, exploration for gas is relatively immature. According to the International Gas Union, conventional gas resources may be adequate for as long as 200 years, at current levels of consumption.

Energy Security

Energy security is of fundamental and increasing importance not only to individual economies but also to future relations between economies. For economies that are net energy importers, energy

¹ Australian Bureau of Agricultural and Resource Economics (ABARE) and ResourcesLaw International (ResourcesLaw), "Energy Security in APEC", Report to the APEC Energy Working Group, APEC Secretariat, Singapore, 2005, page 2.

² ABARE and ResourcesLaw, note 1 above, page 8.

³ BP Statistical Review of World Energy, London, UK, 2004, page 20.



security is a customer-specific issue, dependent on commercial arrangements between buyers and sellers, and requiring careful matching of supplier performance with customers' demand requirements. But it is also an issue for governments, which must ensure that appropriate infrastructure is in place; that there is adequate access to transmission and distribution infrastructure; that stable legal and fiscal regimes are in place; and that markets are allowed to function for the benefit of all stakeholders.

Although cross-border energy trade now takes place between a much larger number of sellers and buyers than ever before, the increasing dependence of China and the United States on imported oil highlights the risk for all energy importing economies of a major global oil supply disruption.

A major oil supply disruption is not expected but, if one did occur, it would have severe economic, social and environmental consequences for most energy importing economies – hence the focus on other energy supply options such as natural gas. This is a major reason why APEC at the highest political level supports the increased utilization of natural gas. For many economies, indigenous natural gas will not solve supply/demand imbalances. They will have to rely increasingly on imported gas in the future, just as many rely today on imported oil.

Natural gas supply diversity and the stability of natural gas markets are key elements in ensuring the energy security of APEC economies.

Climate Change

In addition to the issues of expanding energy demand in APEC, supply/demand imbalances and the risk of a major oil supply disruption, there looms the spectre of climate change.

There is little dispute about the science of climate change and the causative effects of greenhouse gas (GHG) build up in the atmosphere. While debate continues over the best way of dealing with the problem, it is now almost universally accepted that GHG emissions from energy production should be minimized in the interests of tempering the effects of climate change. It may be necessary to reduce GHG emissions to 40-60 percent below 1990 levels to achieve long-term climatic stability.

Increased use of natural gas has an important part to play in combating climate change.

Natural Gas and Sustainable Energy Systems

Changing over to gas is a slow process. Much natural gas is “stranded” because it is isolated from established markets, and because long lead times are involved in making large-scale investments in the development of gas infrastructure.

Taking account of the economic, energy security and environmental implications of energy production and utilization, APEC policymakers have expressed a clear preference for natural gas as the fuel to lead their economies in the direction of more sustainable energy systems for at least the next quarter century.



2. THE UNIQUE ASPECTS OF CROSS-BORDER NATURAL GAS TRADE

In 2004, a report carried out for the APEC Energy Working Group by ResourcesLaw International identified three unique aspects of cross-border natural gas trade⁴. Each aspect represents a major potential trade bottleneck:

Natural Gas Trade Requires Huge Investment

First, cross-border trade in natural gas is dependent upon long lead times in exploration and development, on the existence of large-scale transportation systems (pipelines, LNG infrastructure or both) and on complex commercial arrangements. Natural gas trade simply cannot expand without huge investment. Investment is required in both exporting and importing economies and in the transportation systems required to link the two.

Project Complexity

The second unique aspect of cross-border natural gas trade is that natural gas projects typically involve complex, multi-party relationships and entail decade-long exploration, appraisal, development and commercialisation cycles. It is simply not feasible to ramp up gas projects to meet short-term shortfalls in supply or short-term increases in demand.

Immaturity of Markets

The third unique aspect of cross-border natural gas trade is the immaturity of the markets that the resources are intended to serve. Gas markets not only determine whether gas resources are developed but they dictate the pace of development.

Even if adequate supply and transportation infrastructure can be installed to enable exports of natural gas to reach APEC importing economies, many APEC domestic gas markets cannot quickly absorb large additional volumes. Many governments do not have strategic policies in place to define the share that gas should take in their overall energy mix, nor do they have market mechanisms to ensure that national goals and priorities for gas and other fuels are met.

3. FOSTERING NATURAL GAS MARKETS WITHIN APEC

The ResourcesLaw Report to the APEC Energy Working Group came to certain conclusions on fostering natural gas markets:

"Natural gas markets do not automatically happen – they must be created. 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*

⁴ ResourcesLaw International, "Great Expectations: Cross-Border Natural Gas Trade in APEC Economies", Report to the APEC Energy Working Group, APEC Secretariat, Singapore, November 2004 ("ResourcesLaw Report").



- *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 ...

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. In the private sector, 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.

The major challenge for cross-border gas projects is to secure a creditworthy, long-term offtaker or capacity-taker who is able to “underpin” the project. 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. In this regard, long-term “take-or-pay” contracts remain vital for bringing gas to market.”

In June 2004, APEC Energy Ministers met in the Philippines and affirmed that **APEC economies should move towards best practice in the development of LNG trade**. Ministers endorsed the set of 17 best practice principles set out in the table below.

BEST PRACTICE PRINCIPLES ENDORSED BY APEC ENERGY MINISTERS – FACILITATING THE DEVELOPMENT OF LNG TRADE IN THE APEC REGION	
Trade – General	
1.	Economies should promote, or not impose measures that impede, the development of a proper and transparent LNG trading system that allows free and open markets to set the price across the LNG value chain.
2.	Economies should promote, or not impose measures that impede, the development of a flexible LNG trading system that may include short term/spot trade, the capacity to develop a futures/options market for gas and LNG, and the removal of unnecessarily restrictive contractual practices.
3.	Economies should establish predictable and stable legal and fiscal frameworks that protect the sanctity of contracts and do not distort the market through subsidies, inequitable cost allocation, uneconomic tariffs, or retroactive legislation. Legal frameworks should be clear and transparent to promote LNG investment and the fiscal regime should support non-discriminatory policies for LNG trade and investment.



4. Economies should remove **legislative and regulatory impediments** to the economic transportation of LNG without compromising safety and security.
5. Economies should promote, or not impose measures that impede, the development of **flexible access arrangements** that encourage competition, anti-monopolistic behavior and investment.

Financing/Investment

6. When establishing and reforming **energy market structures**, economies should not impose measures that impede the development of economically viable LNG projects.
7. Economies should develop **energy market structures** that promote investments with the capacity to support longer-term LNG contracts to get green-field LNG projects up and running and encourage increased LNG trade in the APEC region.
8. **Multilateral financial institutions** should be encouraged to support the development and expansion of LNG projects.

Emergency Scenarios

9. Economies should develop and coordinate their **security frameworks** to enable LNG to continue to be transported in a secure and safe manner, including sharing information on counter-terrorism measures.
10. Economies should promote, or not impose measures that impede, the development of a **capacity to ameliorate “sudden shocks”** to the LNG system (e.g. increase storage capacity, secure multiple sources of supply and excess capacity, establish time trade arrangements, encourage more trading flexibility among stakeholders).

Technology Transfer and Knowledge Sharing

11. Economies should facilitate **technology and skills transfer** to help build the capacity of related sectors within member economies and reduce costs through the LNG value chain.
12. Economies should facilitate LNG trade through the collection and dissemination of **natural gas data** and the exchange of non-confidential commercial information among member economies (e.g. exports, imports, prices, supply, and demand). This sharing of information should be balanced with commercial and security concerns.

Permitting Processes and Regulatory Issues

13. Economies should develop clear, transparent, non-discriminatory, coordinated and timely **project approval processes** for permitting LNG facilities, including providing justifications for decisions.



14. Where appropriate, economies should consider the potential for making available **government-owned land** for the siting of LNG infrastructure (e.g. receiving terminals).
15. Economies should share **information on LNG-related regulations, standards and quality specifications** and, to increase the flexibility of LNG trade, consider ways to further their harmonization.

Public Education

16. Economies should promote **public education campaigns** to build positive perceptions about LNG by highlighting its demonstrated safety and reliability and emphasizing its economic, environmental and energy security benefits.
17. Economies should clearly articulate their **energy security policies** as they relate to LNG.

In addition, the expansion of cross-border natural gas trade is a key component of the APEC Energy Supply Initiative which has been repeatedly endorsed by APEC Leaders.

4. THE ESTABLISHMENT OF APGAS

In the light of the identified bottlenecks to increased natural gas trade, the need was recognised for the development of best practice frameworks and capacity building amongst APEC economies.

It was agreed that the Asia-Pacific region does not need another intergovernmental organization or additional levels of bureaucracy to facilitate cross-border natural gas trade. There was a need, however, for proactive and collaborative efforts by governments, investors and communities to facilitate natural gas supply chains and to foster environments that are conducive to investment.

The essential framework for cross-border energy trade and investment comprises a range of "soft infrastructure": this includes policies, laws, rules, regulations, codes, principles, precedents, practices, relationships and customs, not to mention the timeless virtues of trust and respect for other people and cultures. Further, all of these matters are inseparable from politics.

APGAS was established in 2005 to develop the essential framework for cross-border natural gas trade in the Asia-Pacific region. The APGAS Forum meets around September each year.

5. PUBLIC EDUCATION AND CAPACITY BUILDING

In today's increasingly open global economy and era of open communications, national boundaries and legal rights and responsibilities become blurred, and are accompanied by different behaviours and behavioural expectations. Despite an abundance of information about the energy industry in general and about the natural gas industry in particular, many communities do not understand the economic, social, security and environmental implications of energy production and use. Communities will never trust what they do not understand.

As well as developing best practice frameworks, there is a need, in the facilitation of cross-border natural gas trade, to develop a proactive process of public education and capacity building.



The first element in capacity building is transparency. It is insufficient for the leading industry players to know what is best (for example, that LNG is a very safe resource, and is therefore a long-term solution to supply/demand imbalances in consumer economies) if communities do not hold the same view.

Capacity building cannot be achieved overnight. It requires government commitment, and it requires all stakeholders to meet frequently and to work together on commonly agreed goals, supported by the organizations that they represent.

APGAS now provides a mechanism by which public education and essential capacity building in natural gas trade is fostered in the Asia-Pacific region.

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For further information, please visit the APGAS website: www.apgas.com.au