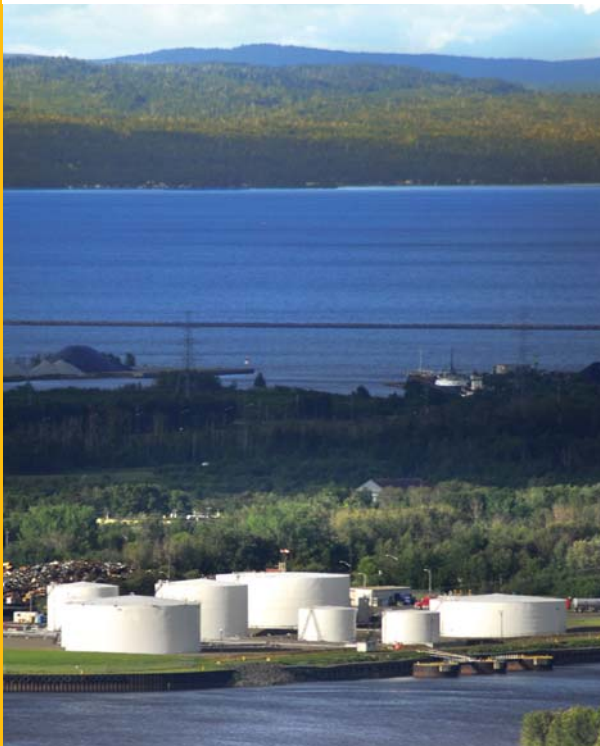


# The Global Energy Challenge: Reviewing the Strategies for Natural Gas

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IGU Proposed Guidelines for  
Gas Market Integration



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Guidelines  
for Gas Market  
Integration



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## Guiding Principles for Gas Market Integration

The dynamics of the world energy scenario have driven the natural gas industry into two correlated trends: growth and globalisation.

As a result, upstream, infrastructure and Liquefied Natural Gas (LNG) investments have been triggered, but several predictions agree that the pace might not be enough to avoid considerable disruptions in the foreseeable future.

From a systemic point of view, this symptom is an indication that somewhere along the line, the comprising parts are not sharing the same standpoint.

Natural gas is the cleanest and most efficient fossil fuel, with a high potential of interacting with renewable fuels, providing a solid bridge to the coming generation of sustainable energy sources. However, without a shared understanding of what is needed to enable the gas industry to develop transnational and regional markets, the full economic and environmental benefits of this amazing fuel are seriously challenged.

There is however, a general consensus that individual economies have a lot to gain from a viable integration of their gas markets to dampen the uncertainties and settle the needs of both security of supply and security of demand, while adequately balancing commitments for the long term and the flexibility desirable for the short and medium terms.

The role of governments is the cornerstone in any energy integration process, as the structural driver of market promotion and the foundation of the right context, laying the grounds for both clear rules and clear roles.

The particular energy needs and situation of a country will set the border conditions at the time to define the possible scenarios of integration.

The market's access possibilities and structure, the number of players and the diversity of the energy structure and price policies, are some of the main considerations to define its level of integration, either for its geographic region or to other more distant markets through LNG.

In line with its Vision and Mission, IGU will actively continue to foster the dialogue between all parties: government, National Oil Companies (NOC) and International Oil Companies (IOC), so that these grounds bear the results and solutions the international community is expecting from us.

In these lines, this [Guiding Principles for Gas Market Integration](#) intends to contribute to finding possible keys to favour the regional energy and gas integration process.

This guide aims to serve as an aid for the identification of the integration level in which each part is involved in the market process, and will help to:

- Find the ways that allow us to identify options in the development of policies during an integration process
- Identify challenges, and finally drivers and benefits that are of a determined process of integration

**Defining the Degree of Integration**



**Finding Policy Options for Regional Gas Market Integration**



**Identifying Challenges**



**Looking for the Drivers & Benefits under an Integration Process**

## Step 1: Defining the Degree of Integration

Closed Market	
Market Access	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• No export despite excess gas resources. All is used internally or gas available is not allowed to be exported</li> </ul> <p><b>Consumer Countries:</b></p> <p>No gas imports despite gas supply shortage</p>
Market Structure	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Monopoly. Fully integrated gas company that produces, processes, transmits and distributes gas supplies</li> <li>• Monopoly. Fully integrated sole aggregator that buys all the gas supply from upstream producers and controls all gas transmission, distribution and exports</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Monopoly. Single gas importer that manage and executes importation of gas into the country</li> </ul> <p><b>Common Features in Supplier and Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• No segregation of ownership and operation of various segments of the gas value chain. Single fully integrated company</li> <li>• No access for infrastructures</li> </ul>
Number of Players	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• One fully integrated company in all segments of the gas supply value chain (ownership and operation)</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• One fully integrated company in all segments of the gas supply value chain (ownership and operation)</li> </ul>
Fuel Diversity	<ul style="list-style-type: none"> <li>• None. Single source of fuel only, or local gas supply only despite gas supply shortage</li> </ul>
Contract Structure	<ul style="list-style-type: none"> <li>• Simple but inflexible contract structure</li> <li>• Normally, non negotiable one-sided contract “Take it or leave it”</li> <li>• Minimum obligation for the supplier of gas to its consumers</li> </ul>
Pricing and Price Signals	<ul style="list-style-type: none"> <li>• Fixed and controlled pricing disregarding costs of production and inter fuel competition</li> <li>• Subsidised gas prices</li> <li>• No price transparency (arbitrary price determination and price review frequency)</li> </ul>

Limited Access Market	
Market Access	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Limited exports despite excess gas resources</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Limited import despite gas supply shortage</li> </ul>
Market Structure	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Oligopoly. A number of fully integrated gas producers/suppliers or aggregators that buy the gas supply from upstream producers and control all gas transmission, distribution and exports</li> <li>• Certain parts of the value chain (e.g. Transmission, Distribution, Retail) are open for other players</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Oligopoly. A number of fully integrated gas buyers/aggregators/suppliers who import/purchase gas supplies into the country</li> <li>• All customers have to go through the aggregators to get the gas supplies</li> </ul>

### Limited Access Market (continued)

	<p><b>Common Features in Supplier and Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Limited segregation of ownership and operation of various segments of the gas value chain. A few fully integrated companies or certain segments of the value chain are owned or operated by different companies</li> </ul>
Number of Players	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• A handful of players within the gas industry. Fully integrated companies or companies that are involved in certain parts of the gas value chain</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• One fully integrated company, which controls all imports</li> </ul>
Fuel Diversity	<ul style="list-style-type: none"> <li>• Single source of gas supply (type and source e.g. pipe gas from a single country)</li> </ul>
Contract Structure	<ul style="list-style-type: none"> <li>• Long term contracts only (normally 20 years)</li> <li>• Relatively simple contract which focuses on the main commercial terms such as Period, Gas Volume, Price, Price Review, Gas Compositions, TOP etc.</li> </ul>
Pricing and Price Signals	<ul style="list-style-type: none"> <li>• Controlled pricing but with some consideration on costs of production and inter fuel competition.</li> <li>• Limited transparency (Some guidelines on price determination and price review frequency)</li> </ul>

### Advanced Integrated Market

Market Access	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Some restriction on the amount of gas exported out of the country</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Some restriction on the amount of gas exported out of the country</li> </ul>
Market Structure	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Monopolistic. Many players in the various segments of the gas value chain i.e. gas producers/ suppliers or aggregators, transporters, storage, trading, exports</li> <li>• Some players have dominant position and significant market power</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Monopolistic. Many players in the various segments of the gas value chain i.e. gas producers/ suppliers or aggregators, transporters, storage, trading, exports</li> <li>• Some players have dominant position and significant market power</li> </ul> <p><b>Common Features in Supplier and Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Full choice for large customers to select the supplier of gas</li> <li>• Some form of segregation of ownership and operation of various segments of the gas value chain</li> <li>• Some level of access for gas infrastructures (pipeline, gas storage, LNG terminal)</li> <li>• Availability of some form of risk management instruments (spot, futures, etc.)</li> <li>• Gas spot and futures markets are operational but not fully established</li> </ul>

Advanced integrated Market (continued)	
Number of Players	<p><b>Supplier Countries:</b> Many players competing in each segment of the gas value chain with some fully integrated while others have a dominant position/significant market power</p> <p><b>Consumer Countries:</b> Many players competing in each segment of the gas value chain with some fully integrated while others have a dominant position/significant market power</p>
Fuel Diversity	<ul style="list-style-type: none"> <li>• Some diversity in the sourcing of gas supply (type and source e.g. pipe gas and LNG from numerous suppliers) but some level of reliance on certain suppliers or type of supply</li> </ul>
Contract Structure	<ul style="list-style-type: none"> <li>• Combination of medium and short term contracts. Most contracts are still medium term contracts</li> <li>• Relatively complex contract which covers in detail many advance contractual obligations such as provision of additional services, flexibility, swapping, trading etc.</li> </ul>
Pricing and Price Signals	<ul style="list-style-type: none"> <li>• Price formula mostly linked to cost of production, fuel competition or gas to gas competition</li> <li>• Price is relatively transparent with price movements periodically reported and publicly available</li> </ul>

Fully Integrated Market	
Market Access	<p><b>Supplier Countries:</b> No restriction for the exportation of gas supply</p> <p><b>Consumer Countries:</b> No restriction on importation despite gas supply</p>
Market Structure	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Monopolistic. Many players in the various segments of the gas value chain i.e. gas producers/suppliers or aggregators, transporters, storage, trading, exports</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Full choice for all consumers (even the resident customers) to choose the supplier of gas</li> </ul> <p><b>Common Features in Supplier and Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Full choice for all customers to select the supplier of gas</li> <li>• No single player has dominant position/significant market power</li> <li>• Clear and distinct segregation of ownership and operation of various segments of the gas value chain</li> <li>• Full access for gas infrastructures (pipeline, gas storage, LNG terminal)</li> <li>• Availability of risk management instruments (spot, futures etc.)</li> <li>• Gas spot and futures markets are established</li> </ul>
Number of Players	<p><b>Supplier Countries:</b></p> <ul style="list-style-type: none"> <li>• Many players competing in each segment of the gas value chain</li> </ul> <p><b>Consumer Countries:</b></p> <ul style="list-style-type: none"> <li>• Many players competing in each segment of the gas value chain</li> </ul>
Fuel Diversity	<ul style="list-style-type: none"> <li>• Diversity in the sourcing of gas supply (type and source e.g. pipe gas and LNG from numerous suppliers) without over reliance on certain suppliers or type of supply</li> </ul>
Contract Structure	<ul style="list-style-type: none"> <li>• Mostly short term contracts</li> <li>• Relatively complex contract which covers in detail many advance contractual obligations such as provision of additional services, flexibility, swapping, trading etc.</li> </ul>
Pricing and Price Signals	<ul style="list-style-type: none"> <li>• Price formula fully linked to cost of production, fuel competition or gas to gas competition</li> <li>• Price is transparent with price movements frequently reported and publicly available</li> </ul>

## Step 2: Finding Policy Options for Regional Gas Market Integration

	From Closed Market	To Limited Access Market
Policy Options	<p><b>Suppliers:</b></p> <ul style="list-style-type: none"> <li>Relaxing related policies to allow gas to be exported, introduce export volume caps and/or local priority</li> <li>Provide incentives for development of infrastructure e.g. Tax Incentives, Planning Permission, etc.</li> <li>Investing in education and skills to support the development and operation of relevant infrastructure</li> <li>Setting up framework/structures for regional cooperation on gas market integration</li> </ul> <p><b>Consumers:</b></p> <ul style="list-style-type: none"> <li>Relaxing related policies to allow gas to be imported, introducing volume caps to limit over reliance on certain supplier or source for new gas suppliers/sources</li> </ul> <p><b>Common Policy Options:</b></p> <ul style="list-style-type: none"> <li>Corporate Government departments involved in gas market activities to enhance efficiency and sense of responsibility</li> <li>Gradual introduction of transparency by instructing incumbent company (monopoly, fully integrated) to segregate different businesses clearly</li> <li>Gradual introduction of competition by instructing incumbent company (monopoly, fully integrated) to open certain part of the gas value chain to new players or allow new integrated players to enter the market</li> <li>Price of gas that is linked to cost of production or price of alternative fuel</li> <li>Gradual removal of subsidies and introduction of gradual price increase to reduce impact on end consumers' ability to pay</li> </ul>	

	From Limited Access Market	To Advanced Integrated Market
Policy Options	<p><b>Suppliers:</b></p> <ul style="list-style-type: none"> <li>Relaxing related policies to allow gas to be exported to many countries, reduce export volume caps and/or local priority</li> <li>Provide incentives for development of infrastructure e.g. Tax incentives, Planning permission, etc.</li> <li>Investing in education and skills</li> </ul> <p><b>Consumers:</b></p> <ul style="list-style-type: none"> <li>Relaxing related policies to allow gas to be imported, introducing volume caps to limit over reliance on certain supplier or source for new gas suppliers/sources</li> </ul> <p><b>Common Policy Options:</b></p> <ul style="list-style-type: none"> <li>Corporate Government departments involved in gas market activities to enhance efficiency and sense of responsibility</li> <li>Gradual introduction of transparency by instructing incumbent company (monopoly, fully integrated) to segregate different businesses clearly</li> <li>Gradual introduction of competition by instructing incumbent company (monopoly, fully integrated) to open certain part of the gas value chain to new players or allow new integrated players to enter the market</li> <li>Price of gas that is linked to cost of production or price of alternative fuel</li> <li>Setting up framework/structures for regional cooperation on gas market integration</li> <li>Adopt consultative approach and allow industry players to participate actively</li> </ul>	

	From Advanced Integrated Market	To Fully Integrated Market
Policy Options	<p><b>Common Policy Options:</b></p> <ul style="list-style-type: none"> <li>Light intervention by the Government</li> <li>Investor-friendly approach</li> <li>Minimum political consideration and allow market to find its own equilibrium</li> <li>Consistent and predictable policies</li> <li>Provide incentives for development of infrastructure e.g. Tax incentives, Planning permission, etc.</li> <li>Adopt consultative approach and allow industry players to participate actively</li> </ul>	

## Step 3: Identifying Challenges

	From Closed Market	To Limited Access Market
Challenges	<p><b>Suppliers:</b></p> <ul style="list-style-type: none"> <li>• Public objections that support the idea of local resources for local use only</li> <li>• Balancing the diverse need to interested parties namely Upstream Suppliers, End Customers, Regulators, Governments, etc.</li> <li>• Commercial viability (infrastructure costs)</li> <li>• Technical feasibility (expertise to develop and operate infrastructure)</li> <li>• Strained political relationships</li> </ul> <p><b>Consumers:</b></p> <ul style="list-style-type: none"> <li>• Public objection on getting supply from unreliable sources or through unstable territories</li> <li>• Ability to pay</li> <li>• Ability to honour long-term commitment</li> </ul>	

	From Limited Access Market	To Advanced Integrated Market
Challenges	<p><b>Common Challenges for both Suppliers and Consumers:</b></p> <ul style="list-style-type: none"> <li>• Clear segregation of roles between Regulator and other regulating bodies</li> <li>• Setting the social safety net and ensuring its implementation</li> <li>• Crafting the transition plan and managing the implementation</li> <li>• Setting the framework for multilateral contracts</li> <li>• Setting of common standard and code of conduct/operation (Transit rule, operation standards, etc.)</li> <li>• Managing potential price volatility/risks</li> </ul>	

	From Advanced Integrated Market	To Fully Integrated Market
Challenges	<p><b>Common Challenges for both Suppliers and Consumers:</b></p> <ul style="list-style-type: none"> <li>• Clear segregation of roles between Regulator and other regulating bodies</li> <li>• Setting the social safety net and ensuring its implementation</li> <li>• Crafting the transition plan and managing the implementation (managing reliability, supplier of last resort)</li> <li>• Price volatility risks</li> </ul>	



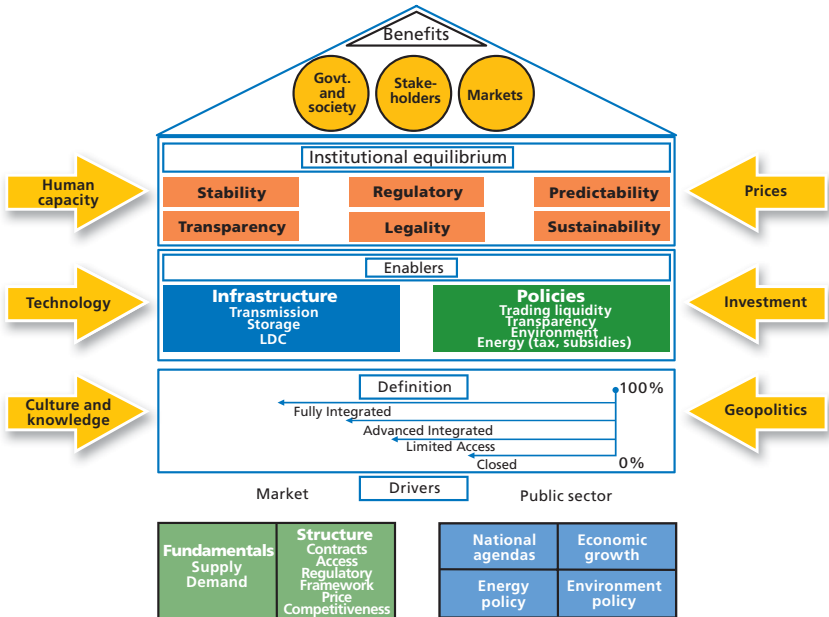
## Step 4: Looking for the Drivers & Benefits under an Integration Process

	From Closed Market	To Limited Access Market
Drivers/ Benefits	<p><b>Suppliers:</b></p> <ul style="list-style-type: none"> <li>• Foreign income, creation of local gas market, supporting local infrastructure development, monetisation of excess local resources</li> </ul> <p><b>Consumers:</b></p> <ul style="list-style-type: none"> <li>• Energy diversification, supply security (cleaner energy source)</li> <li>• Conservation of indigenous resources</li> <li>• Depleting local resources</li> </ul>	

	From Limited Access Market	To Advanced Integrated Market
Drivers/ Benefits	<p><b>Suppliers:</b></p> <ul style="list-style-type: none"> <li>• Some level of diversity of consumers that reduce volume and price risks (enhance competition amongst consumers)</li> <li>• Some ability to deal directly with end consumers (without having to go through a middle man/rent tiers)</li> </ul> <p><b>Consumers:</b></p> <ul style="list-style-type: none"> <li>• Accessibility to various sources of gas that will enhance energy diversification and supply security</li> <li>• Enhance competition that would ultimately reduce costs</li> </ul> <p><b>Common Benefits:</b></p> <ul style="list-style-type: none"> <li>• Some competition that leads to provision of better services and lower prices</li> </ul>	

	From Advanced Integrated Market	To Fully Integrated Market
Drivers/ Benefits	<p><b>Suppliers:</b></p> <ul style="list-style-type: none"> <li>• Diversity of consumers that reduce volume and price risks (enhance competition amongst consumers)</li> <li>• Ability to deal directly with end consumers (without having to go through a middle man/rent tiers)</li> </ul> <p><b>Consumers:</b></p> <ul style="list-style-type: none"> <li>• Accessibility to various sources of gas that will enhance energy diversification and supply security</li> <li>• Enhance competition that would ultimately reduce costs</li> </ul> <p><b>Common Benefits:</b></p> <ul style="list-style-type: none"> <li>• Competition that leads to provision of better services and lower prices</li> <li>• Operational optimisation (physical and contractual)</li> <li>• Market liquidity and flexibility</li> </ul>	

## Model for Engagement in RGMI



- **GMI OBJECTIVE = FACILITATING STEP-CHANGES IN GAS MARKET INTEGRATION**
- **CHANGE PROGRAMME TAKES TIME**
- **NEEDS ENGAGEMENT AND IMPLEMENTATION IN DIFFERENT STAGES OF THE PROCESS**
- **MODEL:**

D = Drivers to shift from actual state (political/market drivers)  
 B = Benefits of future state  
 P = Policy options to action (apply guidelines, devise forward plan)  
 E = Enablers to take action (infrastructures, policies, guidelines)  
 C = Challenges to change; level of engagement

$$D+B+P+E > C$$

  
**Roberto Brandt**  
 IGU Coordination Committee  
 Chairman

  
**Ernesto López Anadón**  
 IGU President



The CD contains the 9 case studies developed by the Task Force Gas Market Integration during the 2006-2009 triennium, which provided most of the foundations of this document.

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