How could obligation chain be structured along cross-border gas supply for gas security?

3-tier legal interactions

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Research aims:

- Measure components and linkages of legal obligations undertaken by the actors involving cross-border gas supply chain
- to investigate possibility to establish a legal structure for promoting security of gas supply chain
- to examine consequences of gas supply chain for government and companies
- to analyze legal structures (internationaldomestic-contract law): entitlement vs. state responsibility as requirements for functioning/enforcing obligation chain

Research problems:

- Forecast: natural gas will increase demand at global average of nearly 2%/year by 2035:
 - and its convenience in consumption
 - economical and environmental efficiency
 - natural gas remains a preferred choice in many applications with high consumption
- Gas reserve is highly unevenly distributed:
 - ca ¾ deposited: Middle East & Eurasia
 - 54% of total estimated: Russia, Iran & Qatar
- Large consumers in Asia & Europe are insufficient or lack of domestic gas to meet their demand

Gas Market Situation: Pros & Cons

- + : Cross-border trade plays important role in "supply-demand" relationships of unevenly distributed resources
- + : Long-term contracts remain important for viable investment of a gas value chain
- : Cross-border trade doesn't always guarantee the security of supply (adequate volume when and where it is needed at affordable price)
- : Long-term contracts limit the availability of uncommitted volume for market to balance demand-supply

Demand-Supply Imbalance: Triggers and Consequences

Rigidity of dedicated and network bound infrastructures

Limited swing capacity

The market responsivenes becomes inhibited (less flexible)

Imbalance of demand-supply relationships, e.g.: by tight supply:

- market price are driven upward
 (when affordability aspect of supply security is ignored)
- market price cannot still attract demanded gas volume (because of relative concentration of the producers/suppliers)

Government's Role in Gas Sector for Sustainable Supply Flow

The government's involvement helps to regulate uncertainties and difficulties that go beyond the guarantee of gas market:

- a) Requirement of timely supply-demand balancing (e.g. in short notice):
- distance between production and consumption locations of the infrastructures.
- infrastructure capacity and constraints
- a) Uncertainties related to volume availability
- b) Affordable price

Government's Role in Gas Sector: Domestic Affairs

- formulating & monitoring domestic framework with clarified objectives and responsibilities of the market players
- licensing scheme & legal framework under law rules
- controlling operations of the companies and local market
- facilitating gas inflow
- influencing company's operations through obligations or restrictions
- stimulating companies to promote company's presence and performance of particular business activities

Possible Disadvantages and Negative Consequences of Governmental Participation

- Dependance: Cooperation agreement depend on diplomatic attitude and goodwill of the governments
- Instabilities: Cooperation agreements have no obligatory effect
- Uncertainties: It may contain uncertainties
- Unpredictability: It may be waived or failure in achieving expectations or practical yields

Government's Role in Gas Sector: International Affairs

International:

- aims at general strategies/policies of energy security
- securing supply of overseas gas
- indirect involvement of the governments: 'many large gas contracts have been closed in the context of bilateral meetings between government leaders'
- creating multilateral agreements
- mitigating trade barriers,
- supporting cross-border activities among participating countries (e.g. stipulation of free transit principle in GATT/WTO agreement or in Energy Charter Treaty)

Multilateral Agreements: Advantages & Drawbacks

- Multilateral agreements (M.A.), e.g. Energy Charter Treaty, provide general cooperation frameworks with more favorable conditions for participating members.
- However, M.A. could not enforce the entities or trade activities and may only be considered as 'facilitation of trade'.
- Overseas gas supplies may be constrained to destine timely to the right location at affordable price with adequate volume, especially in case of scarcity or shortage.

Government's Role in Gas Sector: Diplomatic Affairs

- interference in market & cooperation relation
 with other countries within bilateral & multilateral agreements
- strengthening bilateral relationships
- participating in multilateral agreements
- engaging in diplomatic agreements
- in cooperative spirit
- obtaining certainties
- of the supply source
- facilitating operations of the companies

Government's Participation in Gas Sector: Drawbacks

The government's capability of enforcing an independent company to perform any obligations at any time remains questionable:

company's nature of for-profits aim

practice of freedom of contract in pursuing business

need for affordable gas supply for economic development and social welfare at macroeconomic level

Current mechanism of Overseas Gas Supply (O.G.S.)

...consists in an operational frame with combination of:

contractual obligations functioning in the market

government's obligations originated from inter-government agreement

obligations imposed on gas undertakings by domestic regulation

Problem statement

...however, this scheme has serious drawbacks:

- Current mechanism of O.G.S. has limitations in guaranteeing supply security for importing country.
- Gas market is constrained in delivering adequate volume at affordable price to the right place on time
- Impossibility of the importing government in directly controlling overseas gas supply source due to sovereignty of the producing country
- Ineffective managing/sustaining cross-border gas supply flow

Limitations and Challenges

Managing/sustaining cross-border gas supply flow has difficulties for the importing country.

These include:

- lack of enforcing power over independent company's operation
- Impossibility in directly controlling overseas gas supply source, the explanation of which is attached to sovereignty of the producing country
- no direct control of access to infrastructure capacity along gas chain

Long-term Goal

The government is ultimately responsible for gas supply security of the country

Therefore, the main question is:

- satisfying both availability and affordability dimensions in securing overseas gas flow, which is currently not easy for importing government
- creating legal obligation chain along cross-border countries that guarantees availability and affordability of gas supply

The Hypothesis



- The scenarios of excess and shortage of gas supply (volume and infrastructure capacity) are applied for testing rights and obligations of the actors involved.
- Producing/exporting country covers expensive supply and cheap supply (due to geological conditions and technology requirements).
- 2 types of consuming/importing countries:
 'rich consumer with little supply shortage' and
 'poor consumer in high demand for gas'
 (levels of economic development & social welfare)
- Measure: gas volume, infrastructure capacity, distance, timing, price & company's flexibility.

Research methodology

Conceptual analysis to look into the elements and interactions of legal obligations in

three tiers of the relationship:

- (i) government vs government in international law
- (ii) government vs company in domestic law
- (iii) company vs company in contract law

Research techniques

Assuming and performing the obligations implies aspect of actors' expectations.

- Examining consequences for the government and the company.
- Investigating legal structure (internationaldomestic-contract law): entitlement vs. state responsibility as requirements for functioning/enforcing obligation chain
- Exploring documentary database
- Clarifying the concepts

