SECURITY OF GAS SUPPLY AND ENERGY MARKET REGULATION: OUTLOOK AND IMPLICATIONS FOR THE EUROPEAN UNION

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I. INTRODUCTION

- Defining ‘Energy Security’ – economic (supply vs demand security) or physical (reliability and integrity of networks)
  - access to sufficient energy resources at reasonable prices for the foreseeable future without a serious risk of major disruption
  - ability to ensure energy supply or services at a highly sustainable standard and reasonable cost in a competitive, integrated internal energy market

- Gas supply and regulatory dynamics in the EU internal energy market (IEM) evolving over time-

Monopolistic/oligopolistic gas market
- Gas Producers - importers – transmission networks – power generation – energy supply
- National and centrally planned energy supplies
- Long-term supply contracts for security of supply???

Regional liberalisation and competition
- Gas and electricity market directives
- Open access – legal and ownership unbundling
- Short-term hub trading
- Security of supply regulation
- Regulatory agencies and institutions

Market integration and supply challenges
- Third party access
- Network ownership unbundling
- Diversification of supplies
- Competitiveness vs energy regulation
- Geopolitical conflicts
Major global gas trade movements 2014 (billion cubic metres)

Source: BP Statistical Review of World Energy 2015
### Share of total primary energy supply* in 2012

**European Union - 28**

- Oil: 32.1%
- Natural gas: 23.9%
- Nuclear: 14.0%
- Coal**: 17.9%
- Geothermal/solar/wind: 2.0%
- Biofuels/waste: 8.3%
- Hydro: 1.8%

**1 644 Mtoe**

*Share of TPES excludes electricity trade.*

**In this graph, peat and oil shale are aggregated with coal, when relevant.**

Note: For presentational purposes, shares of under 0.1% are not included and consequently the total may not add up to 100%.
The years of steady gas demand
- Surge in investments in new gas-fired power plants and import infrastructure.

The decline in demand since 2010
- A series of economic and financial crisis
- State-supported growth for renewables in power generation (sustainability policy goals)
- Relative non-competitiveness of gas-fired power plants compared to coal - the ‘fall-outs’ of North American unconventional hydrocarbon revolution

Paper examines regulatory and policy issues for security of gas supply in the EU’s IEM.

A regulatory framework is as effective and efficient as the extent of its instrumentality and functionality in relation to set policy objectives, created institutions, and maintaining equilibrium of stakeholder interests.
II. GAS SUPPLY AND THE EU INTERNAL ENERGY MARKET

EU-LEVEL ENERGY POLICY, LAW AND REGULATION

- Core EU energy policy objectives are competitiveness through liberalisation, security of supply and sustainability.
- The EC Treaty provided that the EU shall adopt the measures dealing with provisions of laws, regulations or administrative actions in Member States which aim at the establishment and functioning of the internal market.
- Article 4(2) of the Treaty on the Functioning of the European Union (‘TFEU’) provides for the shared competence rule between the EU and Member States on energy.
  - EU energy policy shall aim to: (i) ensure the functioning of the energy market; (ii) ensure security of energy supply in the Union; (iii) promote energy efficiency and energy saving and the development of new and renewable energy forms; and (iv) promote the interconnection of energy networks.
  - TFEU provides for EU legislative measures and Member States right’s to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply.
The European Commission’s Energy Sector Inquiry 2005 – 2007: (i) the effectiveness of the regulation and policy drive for competition; (ii) the state of the wholesale gas and electricity markets.

The key IEM Directives and Regulations

- Gas Network Access Regulation 2005
- Gas Network Access Regulation 2009
- Gas Supply Regulation 2010 (Regulation (EU) No 994/2010)
- EU Regulation 1227/2011 on wholesale energy market integrity & transparency (REMIT)
A. THE MONOPOLY - OLIGOPOLISTIC ERA

- State-controlled or owned transmission and supply undertakings e.g. Gasuine (Netherlands), British Gas (UK)
  - State intervention aimed at ensuring the affordability and reliability of supplies.
  - Imports/wholesale gas supply required large, creditworthy buyers to commit to long-term contracts with volume centred take-or-pay clauses, oil indexed pricing formulas, rate or return and cost recovery mechanisms, destination clauses etc.

- A contract-based ‘monopoly’ framework for gas and electricity supply in Germany-
  - Exclusive concession agreements between municipalities and utilities
  - agreements between utilities to refrain from business activities in the service territories of other utilities
  - Underlying rationale- competition in such ‘network-bound’ industries could hinder overall regulatory and public policy objectives of affordability, efficiency and security of energy supply
  - The 2002/2003 merger between E.ON AG and Ruhrgas AG – competition vs security of supply or consolidation of market share ???

- Transit Directive 91/296/EEC
  - Gas transit contracts to be negotiated between the entities responsible for grids and for the quality of service provided and, where appropriate, with the entities responsible in the Member States for importing and exporting natural gas. Shall not endanger security of supply nor quality of service.

- The EU Hydrocarbon Licensing Directive abolished the obligation for producers to exclusively sell all their gas production or give a right of first refusal to designated gas undertakings
B. THE PRO-LIBERALISATION ERA

- To establish an economic area without internal frontiers; free movement of goods, persons, capital and services; competition and open access.
- The First Gas Directive provided the initial steps towards the restructuring
  - specific conditions for access to gas networks by introducing: legal unbundling, a negotiated and regulated TPA regime
- The Second Gas Directive- to enhance the TPA and legal unbundling framework; the creation of independent national regulatory authorities (‘NRA’)
  - need to create a level playing field and to reduce the risks of market dominance and predatory behaviour by incumbents,
  - ensuring non-discriminatory transmission and distribution tariffs
  - protect the rights of small and vulnerable customers
  - non-discriminatory, transparent and fairly priced access to the network of transmission system operators (‘TSOs’) and distribution system operators (‘DSOs’)
- On security of supply:
  - effective monitoring of supply/demand balance in individual Member States
  - the construction and maintenance of the necessary network infrastructure and interconnection capacities
  - the right of Member States to impose public service obligations (‘PSOs’) on gas undertakings in the general economic interest
  - compatibility of EU competition rules with long-term gas supply contracts and energy security
Conflicts between security of supply and energy market liberalisation (competition and open access) - *policies and regulations dealing with long term contracts*

- Long-term contract’s investment + price predictability vs concerns over restrictions to end-user choice and competition

- Art. 18(3) Second Gas Directive- long-term contracts permitted, but must comply with Community competition rules

- Art. 32(1) Second Gas Directive- validity of pre-liberalisation long-term contracts in line with the Gas Transit Directive 91/296/EEC.

- Gas Network Access Regulation 2005
  - further guidelines for the TPA regime
  - principles for capacity allocation mechanisms,
  - congestion management procedures and transparency requirements

- Energy Sector Inquiry Report 2007-
  - failure to achieve a competitive and transparent internal market
  - lack of transport capacities, mainly caused by the incumbents
  - Access issues for new entrants
The Third Gas Directive provides *inter alia* that:

“[…only the removal of the incentive for vertically integrated undertakings to discriminate against competitors* as regards network access and investment can ensure effective unbundling. Ownership unbundling, which implies the appointment of the network owner as the system operator and its independence from any supply and production interests, is clearly an effective and stable way to solve the inherent conflict of interests and to ensure security of supply […]”

- It also recognised the need for the **independence of NRAs** to ensure regulatory effectiveness

The Gas Network Regulation 2009 -

- the mandatory certification of TSOs towards meeting the unbundling requirements.
- it established entry-exit organisation of access to transmission system networks.
- entry capacity must be booked independently from exit capacity
- the practice of setting tariffs on the basis of contract paths was replaced by one based on transport through zones
- required the development of twelve binding pan-European Network Codes on cross-border rules
  - capacity allocation and congestion management; balancing; tariffs; interoperability; network security and reliability; network connection; TPA; data exchange and settlement; (ix) operational procedures for emergencies; trading; transparency; and energy efficiency for gas networks
Network codes and Framework Guideline development

- Setting out the rules for gas market integration and system operation and development
Article 101 of the TFEU

- all agreements or decisions between which *may affect trade between Member States and which aims to or can prevent, restrict or distort competition shall be considered as incompatible with the IEM objectives, especially those that:
  - directly or indirectly fix purchase or selling prices or any other trading conditions
  - limit or control production, markets, technical development, or investment, markets or sources of supply
  - apply dissimilar conditions to equivalent transactions with other trading parties
- Article 101(3) excludes agreements, decisions or concerted practises, that improve the *production or distribution of goods or promote technical or economic progress*, allowing consumers a fair share of benefits

Security of supply objectives as a justification vs free trade and competition

- Energy supply treated as a ‘public security’ issue (Art. 36, 52 TFEU)- *only in cases of ‘genuine and sufficiently serious threat to the fundamental interests of society’*
- Energy supply as comprising ‘services of general economic interest’ (Art. 106 (2), TFEU)
- PSOs imposed in ‘general economic interest’ (Art. 3, Third Gas Directive)
  - PSOs may include security of supply, regularity, quality and price of supplies, environmental protection, energy efficiency, energy from renewable sources and climate protection.
  - PSOs to be defined, transparent, non-discriminatory, verifiable and guarantee equality of access for natural gas undertakings to consumers.
  - *Member States may resort to long-term planning, considering the possibility of third parties seeking access to the system.*
- derogation from EU law on ‘free trade and competition’ to be examined strictly and subject to principles of proportionality.
Gas Supply Regulation 2010 is essential
- Shared responsibility between national and regional actors
- Gas undertakings primarily responsible for securing gas supplies
- High-level cooperation amongst institutions, NRAs and TSOs
- Reliance and priority for market-based mechanisms for as long as possible during supply disruptions.
- Non-market based emergency mechanisms to be used when markets alone is unable to adequately deal with disruption.
- Competent Authority of Member States to-
  - Carry-out risk assessment of security of gas supply
  - Draw up a Preventive Action Plan (PAP) and Emergency Plan
  - Coordinate with others at regional level- consider joint regional plans
  - Monitor and report (by July 31 every year)
    - balance between supply and demand; envisaged additional capacity; network maintenance quality and level; measures to cover peak demand etc.

The GCG facilitates the management of gas security of supply measures
- Representatives of Member States, Competent Authorities, ENTSO-G, ACER, industry, costumer representatives and chaired by the Commission

III. REGULATING SECURITY OF GAS SUPPLY

European Commission
Member States (Competent Authority)
Gas Undertakings TSOs/DSOs
Crisis Management Group
Gas Coordination Group (GCG)
A. SECURING EXTERNAL SOURCES

- Recurring crises between Russia (a major external supplier) and Ukraine (a key transit state for pipeline gas to the EU)
  - Diversification of supply sources
    - new pipelines connected to other sources
    - LNG regasification facilities

- The ‘Energy Union’ strategy highlights:
  - energy security, solidarity and trust
  - risk(s) of import dependency and supply shocks
  - Need for diversification of gas supply sources

- Improving the interconnectivity and interoperability of the networks
B. INFRASTRUCTURE DEVELOPMENT AND INTERCONNECTEDNESS

- Minimum security of supply infrastructure standard for Member States - the N-1 formula
  - The N-1 formula is the technical capacity of the gas infrastructure to satisfy total gas demand in the calculated area in the event of disruption of the single largest gas infrastructure during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years.

  - ‘Gas infrastructure’ includes the gas transmission network including interconnectors as well as production, LNG and storage facilities connected to the calculated area.

- TSOs to have permanent bi-directional capacity for cross-border interconnections

- Supply standards to ensure gas supply to protected customers (e.g. household customers) in Member states
  - Non-discriminatory and no undue burden on undertakings
  - Without prejudice to the functioning of the internal market
  - Inline with market value pricing
The Trans-European Networks (‘TENs’) Framework
- To promote the development of the Trans-European energy networks (Art.170 – 172, TFEU).
- It provides for the functioning and linking of EU markets and regions,
- Connecting Europe with other parts of the world.
- To interconnect national infrastructure networks and ensure their interoperability
- Identification of projects of common interest (‘PCI’) by the EU and Member States.

Deciding on PCIs and gas pipeline projects
- The Nord Stream project which transports Russian gas to Germany
- The South Stream Project (‘SSP’) conceived in 2006 by Gazprom (Russia) and ENI (Italy)
  - cancelled by Russia in December 2014
  - EU was also later reported to have deemed the SSP not to be qualified as a PCI
    - Does not provide access to any new gas sources or increase the competitiveness of the IEM
- The Nabucco Pipeline Project (cancelled) and the Trans Adriatic Pipeline Project (abandoned)
  - Gas from Azerbaijan and the Caspian Sea to Europe (Southern Corridor)

Key highlights-
- Arrangements with external suppliers require a win-win situation
- Diversification of supply sources to be approached on a case-by-case basis,
- In-depth assessment of the geopolitical and external economic interests impacting potential projects
- Commercial feasibilities and choices of core stakeholders crucial
- Trust and effective communications between stakeholders and parties to future projects essential
C. INTERNAL MARKET ARRANGEMENTS

- A gradual shift away from the long-term contractual arrangements usually indexed to oil prices towards more short-term contractual and hub-based arrangements, e.g.
  - the Zeebrugge Hub in Belgium where the UK and Norwegian interconnector meets
  - National Balancing Point based in the UK
  - Gaspool in Germany
  - the Central European Gas Hub in Austria.

- Legal and regulatory measures has been adopted to mitigate the risks and insecurities arising from the contractual and internal market structures
  - The TENs framework
  - Exemptions to TPA requirements
  - Imposing PSOs on gas undertakings in the general economic interest
VI. REGULATORY ASSESSMENTS OF THE INSECURITIES AND RISKS

- Over-regulation i.e. over-stringent or over-prescriptive rules.
  - Reduces innovation and may increase cost of compliance and monitoring.
- Over-formalism and punitive enforcement provisions.
  - May hinder development of cooperative relationships and effective regulatory communications, thus counter-productive implications.
- Wrong choice and timing of regulatory instruments.
- Inefficient of enforcement processes leading to creative compliance and box-ticking by regulated undertakings.
  - Side-stepping of applicable rules or regulations without formally breaking them.

Regulatory issues
Comments on the evolving IEM and gas supply market

- EU gas market has benefited from infrastructure investment, the creation of gas hubs and a more integrated cross-border trade in Western Europe.
- Limited interconnectivity and infrastructural capacity in Central East and South East Europe, the Iberian Peninsula and the Baltic region.
- The EU Energy Security Strategy identified projects such as LNG terminals, pipelines in the southern corridor, a Mediterranean gas hub.
- Gas Supply Regulation requires a Preventive Action Plans (‘PAPs’) and the Emergency Plans from Member States.
- Prevalence of market-based supply-side measures in PAPs e.g bi-directional flow capacity
  - Demand-side measures constitute about 14%.95 e.g. interruptible contracts
  - Most common PAP measures are- storage capacity building, increase of import flexibility either through pipeline interconnectors or LNG terminals.
  - Domestic upgrades to the transmission system and revised contractual arrangements are also frequently employed tools
  - Regulatory measures such as ensuring proper monitoring and accurate forecasting of demand; bilateral agreements to guarantee stand-by capacity/flows
V. CONCLUSION

- The economic and ‘modern-society’ implications of a reliable and secure gas supply value chain in the EU IEM cannot be over-emphasised.
  - diversification of supply sources, infrastructural interconnectivity and interoperability are essential
  - The gas supply regulatory and policy framework has become pivotal in maintaining the efficient balance between energy security and parallel internal market objectives.
  - While there is increasing import dependency for gas, trust building processes between regulators, operators, suppliers and consumers are essential in forestalling any misalignment of objectives and interests.

- Regulatory framework must instrumentally enhance competitiveness, competition, and energy supply or services at a highly sustainable standard, reasonable cost in a competitive, integrated internal energy market
THANK YOU FOR LISTENING

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